## BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

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| Joint Application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for approval of their 2027-2046 integrated resource plan, 2027-2029 Action Plan and 2027-2029 Energy Supply Plan. | Docket No. 26-05___ |

**VOLUME 7 OF 41**

**NARRATIVE**
**LOAD FORECAST, MARKET FUNDAMENTALS, FUEL AND PURCHASE POWER PRICE FORECASTS AND TECHNICAL APPENDIX**

# NARRATIVE

# LOAD FORECAST, MARKET FUNDAMENTALS, FUEL AND PURCHASE POWER PRICE FORECASTS

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## SECTION 1 – LOAD FORECAST

### A. LOAD FORECAST

The load forecast for the Companies' Triennial 2026 Joint Integrated Resource Plan ("2026 Joint IRP") was completed in November 2025 and covers calendar years 2027 through 2046 ("2026 Joint IRP Load Forecast"). The 2026 Joint IRP Load Forecast updates several inputs and includes incremental changes relative to the load forecast approved by the Commission in the prior integrated resource plan ("IRP"), the Companies' Triennial 2024 Joint Integrated Resource Plan ("2024 Joint IRP") and its approved load forecast ("2024 Joint IRP Load Forecast"), Docket No. 24-05041, as amended in the Companies' First Amendment to the 2024 Joint IRP ("2024 Joint IRP 1A"), Docket No. 25-10028, and the 2024 Joint IRP 1A's approved load forecast ("2024 Joint IRP 1A Load Forecast"). The results of this forecast update, as well as highlights of changes from the 2024 Joint IRP 1A Load Forecast, are discussed below.

#### 1. Load Forecast Summary

The 2026 Joint IRP Load Forecast was updated with actual data through July 2025 for several inputs, including data updates to the economic and demographic inputs, Net-Energy Metering ("NEM") customer and sales forecasts, electric vehicle ("EV") sales, and, through August of 2025, for updated forecasted load growth to serve those Large C&I customer loads that are either new or expanding, including a subset of those Large C&I customers generally referred to herein as large customer load major projects ("Large Customer Major Projects"). Several methodology changes to certain aspects of the forecast (e.g., refinements to weather normalization adjustments, and movement of Demand Response ("DR") program savings back as a load modifier instead of a resource as proposed in the 2024 Joint IRP) have also been incorporated. Additionally, determination of NRS Chapter 704B eligible load limits for the 2026 Joint IRP's three-year action plan ("Action Plan") covering the period January 2027 through December 2029 ("Action Plan period") were also considered for this filing. These changes, and the resulting effects, are discussed in more detail below as well as in Technical Appendix LF-1.

Key highlights of the 2026 Joint IRP load forecast include:

- The primary driver of growth in the 2026 Joint IRP Load Forecast is the continued unprecedented policy-driven load growth from the number and size of requests from large customer data center projects. The twenty-year, 2027-2046 period, Compound Annual Growth Rate ("CAGR") in the 2026 Joint IRP Load Forecast, based on peak values and reflecting these projects, is 2.6 percent at Nevada Power and 5.6 percent at Sierra. Without these projects, as presented in the alternate Base Minus scenario, the twenty-year, 2027-

2046 period, CAGR, based on peak values, is 1.7 percent at Nevada Power and 1.3 percent at Sierra. [1]

- Data center projects have higher load factors, with relatively consistent energy use across all hours relative to peak demand. This load profile enables more efficient use of grid facilities, as data centers place greater pressure on overall energy requirements than on peak demand and increase utilization of fixed system resources. As a result, annual energy requirements are growing faster than peak demand, improving overall grid efficiency. The magnitude of this growth is significant, however, effectively requiring the Companies to serve loads roughly 2.5 times current levels by 2046.
- Data centers accounted for five percent of total NV Energy sales in 2025 - three percent of total Nevada Power sales and 10 percent of total Sierra sales. By 2046, it is projected that data centers will account for 64 percent of total NV Energy sales - 42 percent at Nevada Power and 82 percent at Sierra.
- Projected electric vehicle adoption increases from 96,171 vehicles in 2025 to 703,577 vehicles by 2046. This equates to an increase from 3 percent of all vehicles in 2025 to 12 percent being electric vehicles by 2046.
- In this 2026 Joint IRP Load Forecast, an average of 1,177 Nevada Power and 170 Sierra residential customers become new solar NEM customers per month—until the forecast reaches 15 percent of total residential customers regionally (at which point, an annual reduction factor is applied to projected adoption rates). This equates to 395,136 total residential solar NEM customers in Nevada by 2046 with 3,000 megawatts ("MW") of installed on-site generation.

In the 2024 Joint IRP 1A Load Forecast, the approved load forecast includes a total of 39 Large Customer Major Projects. Fourteen projects that signed Rule 9 agreements while the remaining 25 were in the earlier study phase. As of August 2025, in this 2026 Joint IRP Load Forecast, the number increases to 50 Major Projects, including 22 signed Rule 9 agreements requesting approximately 5,725 MW of capacity (4,665 MW at Sierra and 1,060 MW at Nevada Power) and 28 study phase projects requesting nearly 11,200 MW of capacity (7,050 MW at Sierra and 4,150 MW at Nevada Power). For context, the 2025 system peak MW at Sierra was 2,073 MW and 6,168 MW at Nevada Power.

The large majority of these projects are data centers and located primarily within the Tahoe-Reno Industrial Center ("TRIC") area in Sierra's service territory and the Apex area in Nevada Power's service territory. These data center customers have requested approximately 4,210 MW of capacity additions, with 3,820 MW in the TRIC area and 390 MW in the Apex area.

[1] See Section 4 (Forecast Scenarios), infra, for a definition of the two scenarios—Base Minus and Base Plus—and other additional scenarios.

Consistent with past practice, these requests are scaled down or mitigated in the retail load forecast, with greater reductions for those projects in the earlier study phase. In total, it is projected that these projects still add 30,500 gigawatt-hours ("GWh") of load growth over the next 10 years, and 42,000 GWh by 2046 at Sierra, with 13,200 GWh of load growth over the next 10 years, and 19,100 GWh by 2046 at Nevada Power for this 2026 Joint IRP Load Forecast. The evaluation and mitigation of risks associated with these customer requests and how they are incorporated into the load forecast are explained in more detail below and in the Technical Appendix LF-1.

In total, for the 2026 Joint IRP's three-year Action Plan period (2027 through 2029), the CAGR of the annual retail energy for the Companies is 11.3 percent (7.4 percent at Nevada Power and 17.6 percent at Sierra). Annual energy consumption during this period increases by approximately 9,500 GWh for the combined NV Energy system, with 3,800 GWh at Nevada Power and 5,700 GWh at Sierra. The CAGR of the Companies' combined system coincident peak is 7.4 percent (with non-coincident peak CAGR values of 4.8 percent at Nevada Power and 11.7 percent at Sierra). System Peak Demand is expected to increase 1,397 MW for the combined system during the three-year Action Plan period, with 664 MW at Nevada Power and 644 MW at Sierra.

For the 2026 Joint IRP's 20-year forecast period (2027 through 2046), the CAGR of the annual retail energy for the Companies is 4.9 percent (3.2 percent at Nevada Power and 6.9 percent at Sierra). Annual energy consumption increases by approximately 59,200 GWh for the combined NV Energy system, with 20,900 GWh at Nevada Power and 38,200 GWh at Sierra. The CAGR of the Companies' combined system coincident peak is 3.7 percent (with non-coincident peak CAGR values of 2.6 percent at Nevada Power and 5.6 percent at Sierra). System Peak Demand is expected to increase approximately 9,000 MW for the combined coincident system during this period, with non-coincident peaks of 4,300 MW at Nevada Power and 4,700 MW at Sierra.

In accordance with NAC § 704.923(2), Table LF-1 is a summary of the forecasted peak and energy use from 2027 through 2046. It is important to note that the Companies' coincident peak demands may be lower than the combined sum of the individual non-coincident system peaks at Sierra and Nevada Power, due to diversity between the two systems (i.e., they do not necessarily peak at the same time). Therefore, combining Nevada Power's and Sierra's load forecasts results in load diversity in which the combined system peak demand is typically lower than the sum of the individual company peak demands.

**TABLE LF-1**
**ANNUAL NATIVE ENERGY (GHW) AND PEAK (MW) FORECAST**

| | Native Energy (GWh) | | | Peak (MW) | | |
|---|---|---|---|---|---|---|
| Year | NVE | NPC | Sierra | NVE | NPC | Sierra |
| 2027 | 39,896 | 25,038 | 14,858 | 9,114 | 6,705 | 2,598 |
| 2028 | 44,329 | 26,620 | 17,709 | 9,629 | 6,865 | 2,951 |
| 2029 | 49,402 | 28,859 | 20,543 | 10,511 | 7,369 | 3,242 |
| 2030 | 54,676 | 31,408 | 23,268 | 11,192 | 7,751 | 3,606 |
| 2031 | 62,196 | 32,542 | 29,654 | 12,183 | 7,993 | 4,375 |
| 2032 | 65,436 | 33,335 | 32,102 | 12,607 | 8,102 | 4,614 |
| 2033 | 68,221 | 34,000 | 34,221 | 12,798 | 8,227 | 4,951 |
| 2034 | 70,878 | 34,717 | 36,160 | 13,466 | 8,509 | 5,130 |
| 2035 | 73,644 | 35,438 | 38,205 | 13,897 | 8,628 | 5,355 |
| 2036 | 76,971 | 36,422 | 40,549 | 14,314 | 8,835 | 5,672 |
| 2037 | 79,268 | 37,440 | 41,828 | 14,790 | 9,052 | 5,829 |
| 2038 | 81,493 | 38,518 | 42,975 | 15,051 | 9,283 | 6,014 |
| 2039 | 83,720 | 39,535 | 44,184 | 15,237 | 9,389 | 6,218 |
| 2040 | 86,188 | 40,657 | 45,531 | 15,941 | 9,800 | 6,317 |
| 2041 | 88,347 | 41,713 | 46,634 | 16,253 | 9,968 | 6,480 |
| 2042 | 90,421 | 42,558 | 47,863 | 16,740 | 10,280 | 6,680 |
| 2043 | 92,497 | 43,356 | 49,141 | 17,049 | 10,344 | 6,786 |
| 2044 | 94,910 | 44,363 | 50,547 | 17,285 | 10,487 | 6,998 |
| 2045 | 96,850 | 45,113 | 51,736 | 17,782 | 10,820 | 7,145 |
| 2046 | 99,053 | 45,952 | 53,101 | 18,148 | 10,964 | 7,275 |
| CAGR | | | | | | |
| 2027-2029 | 11.3% | 7.4% | 17.6% | 7.4% | 4.8% | 11.7% |
| 2027-2036 | 7.6% | 4.3% | 11.8% | 5.1% | 3.1% | 9.1% |
| 2027-2046 | 4.9% | 3.2% | 6.9% | 3.7% | 2.6% | 5.6% |

Table LF-2 highlights changes from the 2024 Joint IRP 1A Load Forecast.

**TABLE LF-2**
**NV ENERGY PEAK (MW) FORECAST COMPARISON**

| | Current | | | 2024 Joint IRP 1A | | | Difference | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | NVE | NPC | Sierra | NVE | NPC | Sierra | NVE | NPC | Sierra |
| 2027 | 9,114 | 6,705 | 2,598 | 8,895 | 6,674 | 2,495 | 219 | 31 | 103 |
| 2028 | 9,629 | 6,865 | 2,951 | 9,145 | 6,799 | 2,657 | 484 | 66 | 294 |
| 2029 | 10,511 | 7,369 | 3,242 | 9,405 | 6,835 | 2,856 | 1,106 | 534 | 386 |
| 2030 | 11,192 | 7,751 | 3,606 | 9,899 | 7,059 | 3,083 | 1,293 | 692 | 523 |
| 2031 | 12,183 | 7,993 | 4,375 | 10,199 | 7,141 | 3,415 | 1,984 | 852 | 960 |
| 2032 | 12,607 | 8,102 | 4,614 | 10,630 | 7,265 | 3,569 | 1,977 | 837 | 1,045 |
| 2033 | 12,798 | 8,227 | 4,951 | 10,671 | 7,348 | 3,663 | 2,127 | 879 | 1,288 |
| 2034 | 13,466 | 8,509 | 5,130 | 11,070 | 7,494 | 3,833 | 2,396 | 1,015 | 1,297 |
| 2035 | 13,897 | 8,628 | 5,355 | 11,181 | 7,603 | 3,898 | 2,716 | 1,025 | 1,457 |
| 2036 | 14,314 | 8,835 | 5,672 | 11,485 | 7,794 | 3,954 | 2,829 | 1,041 | 1,718 |
| 2037 | 14,790 | 9,052 | 5,829 | 11,748 | 7,976 | 4,016 | 3,042 | 1,076 | 1,813 |
| 2038 | 15,051 | 9,283 | 6,014 | 11,910 | 8,093 | 4,104 | 3,141 | 1,190 | 1,910 |
| 2039 | 15,237 | 9,389 | 6,218 | 12,134 | 8,271 | 4,252 | 3,103 | 1,118 | 1,966 |
| 2040 | 15,941 | 9,800 | 6,317 | 12,681 | 8,495 | 4,465 | 3,260 | 1,305 | 1,852 |
| 2041 | 16,253 | 9,968 | 6,480 | 12,931 | 8,675 | 4,527 | 3,322 | 1,293 | 1,953 |
| 2042 | 16,740 | 10,280 | 6,680 | 13,155 | 8,919 | 4,725 | 3,585 | 1,361 | 1,955 |
| 2043 | 17,049 | 10,344 | 6,786 | 13,496 | 9,018 | 4,744 | 3,553 | 1,326 | 2,042 |
| 2044 | 17,285 | 10,487 | 6,998 | 13,750 | 9,151 | 4,868 | 3,535 | 1,336 | 2,130 |
| 2045 | 17,782 | 10,820 | 7,145 | 14,240 | 9,393 | 5,173 | 3,542 | 1,427 | 1,972 |
| 2046 | 18,148 | 10,964 | 7,275 | 14,434 | 9,526 | 5,275 | 3,714 | 1,438 | 2,000 |
| CAGR | | | | | | | | | |
| 2027-2029 | 7.4% | 4.8% | 11.7% | 2.8% | 1.2% | 7.0% | --- | --- | --- |
| 2027-2036 | 5.1% | 3.1% | 9.1% | 2.9% | 1.7% | 5.2% | --- | --- | --- |
| 2027-2046 | 3.7% | 2.6% | 5.6% | 2.6% | 1.9% | 4.0% | --- | --- | --- |

## 2. Load Forecast Process

The 2026 Joint IRP Load Forecast continues to be developed using a bottom-up, data-driven modelling approach and maintains substantial portions of the same methodology, while incorporating refinements from the 2024 Joint IRP 1A Load Forecast. The process begins by estimating customer class sales and customer models with class-level sales forecasts, using hourly class load data that are ultimately translated into system energy requirements. Each component is adjusted accordingly for projected NEM adoption rates, expected decreases from Demand Side Management ("DSM") programs, and incremental EV charging. All components are summed and adjusted for losses, thereby projecting total system energy and peak demand for each region. The combined Companies' system forecast is derived by combining the resulting Sierra and Nevada Power hourly load forecasts.

The main inputs included in these modelling efforts are:

1. Nevada's population, which drives the Residential and the Small and Medium Commercial & Industrial (respectively, "Small C&I" and "Medium C&I") customer count models.

2. For Residential use per customer, the models are primarily driven by weather (cooling and heating degree days), average price per kilowatt-hour ("kWh"), household income, persons per household, and Companies-sponsored energy efficiency ("EE") programs. Model end-use intensity projections are adjusted for EE programs savings.

3. Small C&I and Medium C&I use per customer models rely on population and economic data, weather, price, and the Companies' sponsored EE programs through end-use intensity adjustments.

4. Large C&I customer group forecast is developed by type of customer, relying on economic employment and output indices to develop use per customer models for the forecast. Certain Large C&I customers are individually forecasted and added to this general forecast to achieve the total Large C&I forecast amounts.

5. Additional adjustments: Class sales forecasts are adjusted for the Companies' sponsored EE programs, incremental EV load additions, and large customer adjustments discussed below.

For the Residential, Irrigation, Small C&I, and Medium C&I classes, separate models are estimated for monthly customer counts and average use per customer, which are used to calculate total group sales as the product of customer and average use forecasts. This 2026 Joint IRP Load Forecast continues to separate NEM forecasts from the broader Residential and Small C&I forecasts to identify the estimated impact of rooftop solar on the ultimate sales of these customer groups and to develop final sales forecasts for these customer groups.

Large C&I customer loads are separately forecasted by type of customer (e.g., Manufacturing, Casino, Mine, Data Center, Water, General Industrial, and Market Price Energy tariffs) and then aggregated as a portion of the larger overall Large C&I customer group. Certain Large C&I customer major projects are individually forecasted and added to this general forecast to achieve the total Large C&I forecast amounts. Forecasts for these major projects are based on discussions with the Companies' Major Account, Economic Development, and Major Projects groups, and customer input related to expected business activity and associated sales and demand impacts. Next, a forecast for those customer classes who have on-site generation, and where the Companies stand by for a portion of their load in the event the generation stops working ("Standby"), is guided by recent history and is added as part of the Large C&I customer group forecast. The sum of the general Large C&I customer group sales forecasts may also be adjusted for customer-specific forecasts including the Distribution Only Service ("DOS")-related sales loss. As a note, the loads of DOS customer classes are forecasted in a similar manner to the loads of retail Large C&I customers, but do not affect the Companies' retail load requirements, and are therefore not included in the load forecast generally presented here.

Load forecasts for lighting and irrigation customers' sales are estimated separately. Street Lighting ("SL") and Outdoor Lighting Service models ("OLS") are developed separately in this 2026 Joint IRP Load Forecast. The OLS sales are included in the corresponding Residential and Small C&I sales results for Nevada Power. Forecasts for the Sierra irrigation ("IRR") and Public Street and Highway Lighting ("STL") classes at both Companies are developed based on recent history.

These customer group hourly sales forecasts, including adjustments for DSM and EE program savings and incremental EV loads, are aggregated to determine the total level of hourly system sales over the 2026 Joint IRP's twenty-year (2027-2046) load forecast period. Next, system losses are estimated and added to the hourly system sales, to derive the total system native load energy and peak requirements for both Sierra and Nevada Power. These hourly system values are summed for the combined Companies' system.

Further details on the data and steps to develop the load forecast are provided in Technical Appendix LF-1.

## 3. Load Forecast Inputs

The following items are updated for each new load forecast. Each item and the manner in which it impacts the 2026 Joint IRP Load Forecast are described below and discussed in more detail in Technical Appendix LF-1.

### a. Population Forecast

The 2026 Joint IRP Load Forecast has been updated with an economic outlook issued by S&P Global in July 2025, and population estimates from the Nevada State Demographer and the University of Nevada, Las Vegas, Center for Business and Economic Research ("CBER"). In the 2026 Joint IRP Load Forecast, Nevada Power's models include a Clark County population forecast based on the historical population series from the State Demographer Governor's Certified Series from 2004-2023. The 2026 Joint IRP Load Forecast used an extrapolation of population series using the average of the annual growth rates obtained from S&P Global's IHS Markit forecast (released July 2025), the State Demographer's 20-year population projections (2024-2043), and the CBER long-term forecast (released May 2025), with minor adjustments to smooth forecasted growth.

Sierra's models use northern Nevada's population history and forecast, which is Nevada minus Clark County's population. In the updated forecast, the Sierra historical population was developed from the State Demographer Governor's Certified Series from 2004-2023. Then, the forecast used the growth rate from the State Demographer's 20-year population projections (2024-2043) in concert with the growth rate from S&P Global's IHS Markit forecast (released July 2025) to project growth. Technical Appendix LF-1 provides further details on the development of the economic data and after the model sales adjustments.

Table LF-3 shows the population forecasts for the Companies, Nevada Power and Sierra from 2027 through 2046. For the 10-year period from 2027 through 2036, the CAGR used in the forecast is 0.9 percent for the Companies, 1.1 percent for Nevada Power and 0.4 percent for Sierra. For the 20-year period from 2027-2046, the CAGR used in the forecast is 0.7 percent for NV Energy, 0.9 percent for Nevada Power, and 0.3 percent for Sierra.

**TABLE LF-3**
**POPULATION FORECAST**

| | Population | | |
|---|---|---|---|
| Year | NVE | Nevada Power | Sierra |
| 2027 | 3,439,426 | 2,527,889 | 911,537 |
| 2028 | 3,480,247 | 2,563,650 | 916,598 |
| 2029 | 3,517,868 | 2,596,568 | 921,300 |
| 2030 | 3,553,407 | 2,627,542 | 925,865 |
| 2031 | 3,586,537 | 2,656,401 | 930,136 |
| 2032 | 3,617,697 | 2,683,602 | 934,095 |
| 2033 | 3,647,221 | 2,709,390 | 937,831 |
| 2034 | 3,675,230 | 2,733,942 | 941,288 |
| 2035 | 3,701,956 | 2,757,500 | 944,455 |
| 2036 | 3,727,457 | 2,780,120 | 947,337 |
| 2037 | 3,752,126 | 2,802,128 | 949,998 |
| 2038 | 3,775,881 | 2,823,396 | 952,485 |
| 2039 | 3,798,845 | 2,843,919 | 954,926 |
| 2040 | 3,821,024 | 2,863,778 | 957,246 |
| 2041 | 3,842,530 | 2,883,087 | 959,444 |
| 2042 | 3,863,500 | 2,901,926 | 961,574 |
| 2043 | 3,883,720 | 2,920,113 | 963,607 |
| 2044 | 3,904,208 | 2,938,580 | 965,628 |
| 2045 | 3,924,817 | 2,957,163 | 967,654 |
| 2046 | 3,945,548 | 2,975,864 | 969,684 |
| | | | |
| CAGR | | | |
| 2027-2029 | 1.1% | 1.3% | 0.5% |
| 2027-2036 | 0.9% | 1.1% | 0.4% |
| 2027-2046 | 0.7% | 0.9% | 0.3% |

### b. Customer Data

The computation of the average use per customer for the Residential and the Small C&I customer groups begins with hourly class-load information rather than historical monthly-billed sales. The sales forecasts are developed by multiplying the number of customers by the average use per customer. Once developed, the hourly sales forecasts are weather normalized by distinct monthly coefficients. In this 2026 Joint IRP Load Forecast the normal weather temperature trend designations are determined for individual months, instead of the annual temperature changes as used in the 2024 Joint IRP 1A Load Forecast.

In this update, recent historical trends were again used to forecast growth of NEM customers and sales. Transitions from full requirement customers to partial requirement customers are separately forecast and then accounted for in the Residential and the Small C&I sales forecasts. In this 2026 Joint IRP Load Forecast, an average of 1,177 Nevada Power and 170 Sierra Pacific residential customers become new solar NEM customers per month until the forecast reaches 15 percent of total residential customers (at which point, an annual reduction factor is applied to the growth rates). Projected incremental NEM peak reductions of 12 MW at Nevada Power and 9 MW at Sierra by 2027 are based on the installed capacity of 1,246 MW and 129 MW for each respective company. More discussion of the impact of net metering on the load forecast is contained in Technical Appendix LF-1. It is worth noting that forecasts cited above are based on multi-year linear regressions and that the trend in new residential solar installations have noticeably declined in recent months. In 2023, the average monthly count of new residential solar customers was approximately 1,411 for Nevada Power and 304 for Sierra. These averages dropped to 1,280 and 258 respectively in 2024, and to 690 and 80 respectively in 2025 (including only months January – July). Numerous factors have likely played a role in these reductions, including higher tariffs in 2024 (Section 301 tariffs on China) and in 2025, new federal land rules implemented in 2024, nationwide market contraction, and policy changes. The One Big Beautiful Bill Act ends tax credit for solar power purchases far ahead of schedule, while tariffs weigh on hardware costs, making for a challenging environment for solar companies in the near term.

As the number and size of the Large Customer Major Projects have continued to increase from those considered for the 2024 Joint IRP, these new, or expanding, individual Large C&I customers continue to be a particularly intriguing, yet challenging, aspect in preparation of this forecast update. In total, 50 bundled-service projects have requested approximately 16,930 MW of capacity additions, with 11,710 MW at Sierra and 5,220 MW at Nevada Power, by 2036. Of these projects, 22 have executed agreements and request approximately 5,725 MW of capacity – 4,665 MW at Sierra and 1,060 MW at Nevada Power by 2036. The remaining 28 projects are in the study phase and collectively request approximately 11,200 MW of capacity by 2036, including 7,050 MW at Sierra and 4,150 MW at Nevada Power. Data center projects comprise the majority of the Major Project load. Of the 50 Major Projects, 39 are bundled service, high load factor data center projects, which alone request approximately 16,530 MW by 2036.

Consistent with past practice, all of these requests are scaled down (i.e., risk-mitigated) for the retail load forecast. Historically, approximately 40 percent of study phase projects move forward. The load levels included in this sales forecast were significantly reduced beyond that typically incorporated into the sales forecast for individual Major Projects who have signed Rule 9 agreements. The loads of projects in the study phase saw an average reduction of 83 percent; the loads of projects with signed Rule 9 agreements were reduced by 38 percent. Table LF-4 summarizes the customer requested MW amounts and the ultimate capacity included in this forecast update.

**TABLE LF-4**
**MAJOR PROJECT SUMMARY**

| | Nevada Power | | Sierra | | NV Energy | |
|---|---|---|---|---|---|---|
| Year | Signed Agreement | Study Phase | Signed Agreement | Study Phase | Signed Agreement | Study Phase |
| Requested Peak MW | | | | | | |
| 2027 | 325 | 1,648 | 1,408 | 854 | 1,733 | 2,502 |
| 2028 | 490 | 2,160 | 1,850 | 1,719 | 2,340 | 3,879 |
| 2029 | 875 | 2,820 | 2,245 | 2,714 | 3,120 | 5,534 |
| 2030 | 1,060 | 3,539 | 2,591 | 3,850 | 3,651 | 7,389 |
| 2031 | 1,060 | 3,773 | 2,968 | 5,111 | 4,028 | 8,884 |
| 2032 | 1,060 | 3,874 | 3,320 | 5,620 | 4,380 | 9,494 |
| 2033 | 1,060 | 3,950 | 3,710 | 5,923 | 4,770 | 9,873 |
| 2034 | 1,060 | 4,021 | 3,938 | 6,303 | 4,998 | 10,324 |
| 2035 | 1,060 | 4,097 | 4,317 | 6,681 | 5,377 | 10,778 |
| 2036 | 1,060 | 4,155 | 4,665 | 7,049 | 5,725 | 11,204 |
| Adjusted Incremental Peak MW | | | | | | |
| 2027 | 224 | 244 | 758 | 104 | 982 | 348 |
| 2028 | 318 | 316 | 1,027 | 212 | 1,345 | 528 |
| 2029 | 540 | 404 | 1,208 | 340 | 1,748 | 744 |
| 2030 | 643 | 523 | 1,404 | 484 | 2,047 | 1,007 |
| 2031 | 671 | 577 | 1,884 | 662 | 2,555 | 1,239 |
| 2032 | 700 | 612 | 2,084 | 739 | 2,784 | 1,351 |
| 2033 | 730 | 646 | 2,251 | 822 | 2,981 | 1,468 |
| 2034 | 761 | 679 | 2,384 | 918 | 3,145 | 1,597 |
| 2035 | 794 | 717 | 2,542 | 1,017 | 3,336 | 1,734 |
| 2036 | 829 | 755 | 2,710 | 1,117 | 3,539 | 1,872 |
| Adjustment | 78.3% | 18.2% | 58.1% | 15.8% | 61.8% | 16.7% |
| Reduction | 21.7% | 81.8% | 41.9% | 84.2% | 38.2% | 83.3% |

The 2026 Joint IRP Load Forecast is made at a point in time for preparation of this filing and cannot reflect constant updates to these projects as the load forecast is one of the first primary inputs required for following stages in the preparation of the IRP filing. While there have been several changes to the project list since these inputs to the 2026 Joint IRP Load Forecast were developed in August 2025, the current state of these projects in Nevada continues to support the overall load levels included in the 2026 Joint IRP Load Forecast. Since these inputs were finalized, four projects have signed Rule 9 agreements, zero projects have been cancelled or placed on hold, and 12 additional projects have been put forth for study. The combined impact of these updates is an increase of more than 5,500 MW in total requested capacity: 3,000 MW at Sierra and 2,500 MW at Nevada Power.

If the same mitigation approach of these large load customer major projects was used, as was used in developing the Base Load Forecast, the total impact from these changes would be an increase of approximately 1,450 MW by 2046: consisting of 690 MW at Sierra and 760 MW at Nevada Power.

At Nevada Power, the Water Pumping/Public Authority customers are separately forecast and are driven by the population estimates to derive customer counts. At Sierra, the irrigation customer classes (e.g. IS-1, IS-2 and Elko WP classes) are separately forecasted using northern Nevada population estimates.

Street Lighting lamp counts and sales were maintained at current levels throughout the forecast due to expected efficiencies in the adoption of LED-type lamps that are expected to be offset by customer growth over the forecast period.

### c. Normal Weather Conditions

Pursuant to NAC § 704.9281(1)(b), sales have been weather normalized for the 2026 Joint IRP Load Forecast. In this filing, the Companies adjusted hourly sales using calculated daily normal values for each month. The daily average temperature is used to calculate Cooling Degree Days ("CDD") and Heating Degree Days ("HDD") measurements for use in the modelling process. CDDs and HDDs are simply the number of degrees that the average daily temperature is above (for CDD) or below (for HDD) a set threshold, with the thresholds determined statistically for each customer class. Those days when the average daily temperature is greater than the cooling threshold are considered days when customers will increase cooling usage, while those days under the heating threshold will show increases related to heating usage. Calendar HDDs and CDDs are generated by summing the daily degree-days over the calendar month.

As filed in the 2024 Joint IRP 1A Load Forecast, the normal HDDs and CDDs are based on expected trend increases in average temperatures, which results in increasing CDD and decreasing HDD over the 2027-2046 forecast period. The results of a study on temperature trends, previously conducted by Itron, Inc., are being updated by NVE in the instant filing. Average annual temperatures in Las Vegas have been increasing 0.106 Fahrenheit degrees per year (1.06 degrees per decade). For Reno, average temperatures have been increasing 0.133 Fahrenheit degrees per year (1.33 degrees per decade). These average temperature trends are expected to continue through the forecast period. For this filing, the average temperature trends have been calculated for each calendar month, rather than a single annual trend. Table LF-5 below summarizes the annual trends in average temperature by month, for both Las Vegas and Reno, with units of Fahrenheit degrees per year.

**TABLE LF-5**
**TREND CHANGE IN AVERAGE TEMPERATURE BY MONTH**

| Month | Reno Trend | Vegas Trend |
|---|---|---|
| Jan | 0.1036 | 0.0909 |
| Feb | 0.0449 | 0.0487 |
| Mar | 0.0954 | 0.1181 |
| Apr | 0.1308 | 0.1240 |
| May | 0.1414 | 0.1129 |
| Jun | 0.2040 | 0.1432 |
| Jul | 0.2557 | 0.1439 |
| Aug | 0.2229 | 0.1253 |
| Sep | 0.1732 | 0.1248 |
| Oct | 0.1008 | 0.0956 |
| Nov | 0.0992 | 0.1046 |
| Dec | 0.0749 | 0.0643 |

Technical Appendix LF-1 includes a description of the process for developing trended normal HDD and CDD and the weather normalization adjustments incorporated into the 2026 Joint IRP Load Forecast.

### d. End-Use Saturation and Efficiency Trends

The Companies used a combined end-use saturation and average stock efficiency projections to generate projected energy intensities. Mountain region census-level residential end-use saturations were derived from the 2023 U.S. Energy Information Administration ("EIA") Annual Energy Outlook ("AEO") developed for use by Itron, Inc. Commercial end-use intensities are also based on the 2023 AEO for the Mountain Census Division. Technical Appendix LF-1 provides additional details.

### e. Retail Prices

As in the 2024 Joint IRP 1A Load Forecast, the Retail Price component was specifically excluded from the Statistically-Adjusted End-use ("SAE") modelling efforts for the 2026 Joint IRP Load Forecast, so that the results could be individually presented. This is an effort to respond to the Commission's requests for more detailed rate impact analyses in recent IRP amendments. Therefore, the 2026 Joint IRP Load Forecast models the load impact from changes in price separately from the SAE modeling, using a standard econometric approach, extracting price elasticity using log-log linear regression analysis. Technical Appendix LF-1 provides more details.

#### f. Behind the Meter Energy Storage

Following the methodology from the 2024 Joint IRP Load Forecast, the Companies made no specific adjustments related to energy storage estimates to this 2026 Joint IRP Load Forecast. Customers who have installed energy storage as part of a rooftop solar installation are included in the total population of NEM customers but are not separately considered. As of September 2025, there are approximately 3,400 customers with electric storage capacity between both Nevada Power and Sierra. Expected impacts beyond general NEM characteristics are small and therefore not separately included in either the 2024 Joint IRP 1A Load Forecast or this 2026 Joint IRP Load Forecast. The Companies expect storage impacts in future forecasts once there is sufficient hourly storage operating data available to demonstrate markedly different usage patterns of these customers from the larger NEM population.

#### g. Impacts on Energy Savings from DSM Action Plan

For this 2026 Joint IRP Load Forecast the level of DSM program kWh savings approved in the 2024 Joint IRP proceeding are incorporated into the Base Load Forecast. For this load forecast update, DR program load reductions have been incorporated back as a load modifier, instead of being reflected within the Loads & Resources table. Modifications to proposed DSM programs, detailed within the DSM plan, are included in an additional Preferred DSM load forecast scenario. More details on these DSM energy savings impacts to this forecast scenario are contained in Technical Appendix LF-1.

#### h. Electric Vehicles

The 2026 IRP Load Forecast includes an electric vehicle forecast developed using a recent-trend analysis of the Nevada Department of Motor Vehicle registration data, with the latest year of new EV registrations serving as the basis for residential customer growth, along with the 2025 Energy Information Administration (EIA) forecast for the commercial customers.[2]

During the 2024 Joint IRP, the Companies reviewed prepared direct testimony from Bureau of Consumer Protection ("BCP"), after which the Companies shifted to an approach that applied a flat percentage derived from historical data to shape annual EV adoption in the compliance filing. For

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[2] U.S. Energy Information Administration, AEO2025 National Energy Modeling Table 35. Available at: https://www.eia.gov/outlooks/aeo/tables_ref.php

the 2026 Joint IRP Load Forecast, the Companies continued refining their methodology by applying a recent-trend analysis of the Nevada Department of Motor Vehicle EV registrations to project residential EV counts. Table LF-6 below provides a comparison across each iteration of the EV forecast. In the table, Sierra Pacific Power Company (SPPC), forecasted EV adoption decreases relative to the 2024 Joint IRP due to updated DMV registration data indicating lower realized EV penetration than previously projected. Conversely, Nevada Power Company (NPC) exhibits an increase in forecasted EV adoption due to the updated DMV registrations exceeding the levels assumed in the 2024 IRP in the earlier years.

**TABLE LF-6**
**CUMULATIVE EV CAR COUNTS**

| | NPC | | | SPPC | | |
|---|---|---|---|---|---|---|
| Year | 2026 Joint IRP | 2024 Joint IRP 1A | Difference | 2026 Joint IRP | 2024 Joint IRP 1A | Difference |
| 2027 | 126,187 | 94,050 | 32,138 | 27,832 | 45,133 | (17,301) |
| 2028 | 150,086 | 104,865 | 45,221 | 32,857 | 50,323 | (17,467) |
| 2029 | 173,986 | 116,925 | 57,061 | 37,882 | 56,111 | (18,229) |
| 2030 | 197,885 | 130,371 | 67,513 | 42,907 | 62,563 | (19,657) |
| 2031 | 221,784 | 145,364 | 76,420 | 47,932 | 69,758 | (21,826) |
| 2032 | 245,683 | 162,081 | 83,602 | 52,957 | 77,780 | (24,824) |
| 2033 | 269,582 | 180,720 | 88,862 | 57,982 | 86,725 | (28,743) |
| 2034 | 293,481 | 201,503 | 91,978 | 63,007 | 96,698 | (33,692) |
| 2035 | 317,380 | 224,676 | 92,704 | 68,032 | 107,819 | (39,787) |
| 2036 | 341,279 | 250,514 | 90,766 | 73,057 | 120,218 | (47,161) |
| 2037 | 365,179 | 279,323 | 85,856 | 78,082 | 134,043 | (55,961) |
| 2038 | 389,078 | 311,445 | 77,633 | 83,106 | 149,458 | (66,351) |
| 2039 | 412,977 | 347,261 | 65,716 | 88,131 | 166,646 | (78,514) |
| 2040 | 436,876 | 387,196 | 49,680 | 93,156 | 185,810 | (92,653) |
| 2041 | 460,775 | 431,724 | 29,051 | 98,181 | 207,178 | (108,997) |
| 2042 | 484,674 | 481,372 | 3,302 | 103,206 | 231,003 | (127,797) |
| 2043 | 508,573 | 536,730 | (28,156) | 108,231 | 257,569 | (149,337) |
| 2044 | 532,472 | 598,454 | (65,981) | 113,256 | 287,189 | (173,933) |
| 2045 | 556,372 | 667,276 | (110,904) | 118,281 | 320,216 | (201,935) |
| 2046 | 580,271 | 744,012 | (163,742) | 123,306 | 357,041 | (233,735) |

This 2026 IRP Load Forecast assumes that EV adoption grows to account for 9 percent of total vehicles in Nevada by 2036. By 2046, the percentage of total vehicles increases to 12 percent. This represents a growth rate of 12 percent annually over the next 10 years. Incorporated into the sales growth are assumptions that the average residential EV is driven 12,876 miles annually and that the "rated" efficiency for the average vehicle on the road today is 3.86 miles per kWh while the average commercial EV is driven 37,178 miles annually and the "rated" efficiency for the average commercial EV on the road today is 9.15 miles per kWh. This results in an average annual electric use per EV of 3,389 kWh for residential and 9,147 kWh for commercial.

Further, this forecast update assumes that battery efficiency will increase by 1.5 percent per year and vehicle miles traveled will increase by 1 percent per year. The forecasted incremental loads are added to both the residential and commercial customer group forecasts. The updated statewide electric vehicle energy sales by 2034 are approximately 1,409 GWh annually, or an hourly average of 465 MW (combined for both Companies).

## 4. Forecast Scenarios

There are several additional load forecast scenarios presented in this filing besides the Base Load Forecast or "Base" scenario. Four scenarios – namely, the "Base Minus," "Base Plus," "Low Load" and "High Load" scenarios - incorporate changes to the economic and demographic assumptions to the Base Load Forecast. The Base Minus scenario seeks to specifically identify the impact that the current AI environment has on NV Energy's load forecast in this proceeding. The Base Minus forecast begins with NV Energy's Base Load Forecast then removes the large project load associated with the related AI boom in infrastructure development including 43 Incremental AI customers. While all current Rule 9 High Voltage Distribution ("HVD") agreements identify transmission and distribution investments necessary to connect these projects to the grid, not all identify the incremental generation and energy-related investments necessary to support these projects. Beginning in 2025, Rule 9 HVD agreements require that individual Energy Service Agreements ("ESAs") for large projects consider incremental generation and energy requirements. The Base Minus forecast has been developed to identify these cost requirements to ensure that this load growth does not harm existing customers.

The Base Plus scenario considers the impact of unmitigated requested levels of Large Customer Major Project load for those projects with signed agreements. This provides a higher load forecast representing the potential incremental load that could be placed onto the system if the project loads reflected the levels presented in the customer Rule 9 HVD agreements.

In addition to the corresponding Base Minus and Base Plus scenarios, the July 2025 S&P Global pessimistic and optimistic economic forecasts were respectively used to develop the Low Load and the High Load scenarios. Modeling of the smaller customer groups was adjusted based on optimistic and pessimistic forecasts of economic inputs to the SAE model; additionally, optimistic and pessimistic population forecasts were used to adjust customer count forecasts for these scenarios. Optimistic and pessimistic adoption rates of NEM customer installations were also incorporated into the development of these scenarios. Further, the Low Load scenario reduced the incremental sales growth related to the EV forecast. Table LF-7 is a summary of the Base, Base Minus, Base Plus, High Load and Low Load peak MW forecasts for each company.

**TABLE LF-7**
**BASE, BASE MINUS, BASE PLUS, HIGH, AND LOW PEAK FORECASTS (MW)**

| | Nevada Power | | | | | Sierra | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Low | Base Minus | Base | Base Plus | High | Low | Base Minus | Base | Base Plus | High |
| 2027 | 6,296 | 6,382 | 6,705 | 6,836 | 6,956 | 2,238 | 2,253 | 2,598 | 3,309 | 3,321 |
| 2028 | 6,260 | 6,369 | 6,865 | 7,051 | 7,192 | 2,227 | 2,254 | 2,951 | 3,694 | 3,708 |
| 2029 | 6,487 | 6,619 | 7,369 | 7,761 | 7,916 | 2,261 | 2,288 | 3,242 | 4,043 | 4,062 |
| 2030 | 6,609 | 6,740 | 7,751 | 8,162 | 8,325 | 2,360 | 2,383 | 3,606 | 4,564 | 4,581 |
| 2031 | 6,750 | 6,883 | 7,993 | 8,345 | 8,510 | 2,402 | 2,424 | 4,375 | 5,509 | 5,529 |
| 2032 | 6,796 | 6,923 | 8,102 | 8,432 | 8,625 | 2,392 | 2,407 | 4,614 | 5,882 | 5,905 |
| 2033 | 6,877 | 6,987 | 8,227 | 8,530 | 8,745 | 2,454 | 2,474 | 4,951 | 6,349 | 6,375 |
| 2034 | 7,055 | 7,192 | 8,509 | 8,788 | 9,004 | 2,420 | 2,436 | 5,130 | 6,611 | 6,642 |
| 2035 | 7,101 | 7,240 | 8,628 | 8,877 | 9,111 | 2,457 | 2,471 | 5,355 | 7,031 | 7,069 |
| 2036 | 7,235 | 7,392 | 8,835 | 9,050 | 9,289 | 2,527 | 2,546 | 5,672 | 7,530 | 7,571 |
| 2037 | 7,352 | 7,526 | 9,052 | 9,235 | 9,497 | 2,528 | 2,549 | 5,829 | 7,660 | 7,704 |
| 2038 | 7,528 | 7,693 | 9,283 | 9,431 | 9,685 | 2,553 | 2,579 | 6,014 | 7,828 | 7,882 |
| 2039 | 7,546 | 7,719 | 9,389 | 9,507 | 9,789 | 2,632 | 2,663 | 6,218 | 7,988 | 8,046 |
| 2040 | 7,785 | 8,023 | 9,800 | 9,885 | 10,204 | 2,605 | 2,641 | 6,317 | 8,044 | 8,103 |
| 2041 | 7,894 | 8,120 | 9,968 | 10,008 | 10,337 | 2,694 | 2,735 | 6,480 | 8,151 | 8,221 |
| 2042 | 8,117 | 8,395 | 10,280 | 10,317 | 10,644 | 2,749 | 2,796 | 6,680 | 8,307 | 8,381 |
| 2043 | 8,114 | 8,406 | 10,344 | 10,384 | 10,751 | 2,738 | 2,786 | 6,786 | 8,355 | 8,436 |
| 2044 | 8,208 | 8,511 | 10,487 | 10,533 | 10,901 | 2,766 | 2,823 | 6,998 | 8,510 | 8,600 |
| 2045 | 8,416 | 8,750 | 10,820 | 10,867 | 11,274 | 2,770 | 2,833 | 7,145 | 8,592 | 8,673 |
| 2046 | 8,482 | 8,837 | 10,964 | 11,011 | 11,436 | 2,806 | 2,881 | 7,275 | 8,638 | 8,732 |
| CAGR | | | | | | | | | | |
| 2027-2029 | 1.5% | 1.8% | 4.8% | 6.6% | 6.7% | 0.5% | 0.8% | 11.7% | 10.5% | 10.6% |
| 2027-2036 | 1.6% | 1.6% | 3.1% | 3.2% | 3.3% | 1.4% | 1.4% | 9.1% | 9.6% | 9.6% |
| 2027-2046 | 1.6% | 1.7% | 2.6% | 2.5% | 2.7% | 1.2% | 1.3% | 5.6% | 5.2% | 5.2% |

Lastly, two additional scenarios were developed that are incremental to the Base Minus scenario, providing information regarding the impact of the Companies' Large Load Energy Service Agreement ("LLESA") proposal. The Companies' witnesses Shawn Elicegui and Janet Wells support the implementation of the LLESA proposal in their direct testimonies. The first incremental scenario, the "Test Scenario", which was developed by adding to the Base Minus Load Forecast the load associated with just three of the large load customers who have specified that they intend to sign an LLESA. The second incremental load forecast scenario, the "Second Test Load Addition", adds a specified amount of large load additions from two subsidiaries engaged in developing land under two Master Planned Community agreements within the Tahoe Reno Industrial Center area. This information is used by the Resource Planning group for two additional expansion plans for consideration as discussed in Shawn Elicegui's testimony.

The next scenarios developed for this filing modify the load forecast to incorporate changes in weather. These include 1) a Hot Summer/Cold Winter ("HSCW") scenario and 2) a 1-in-10 weather ("1-in-10") scenario. The HSCW weather adjustment uses the highest average daily summer temperature and coldest average daily winter temperature over the past ten years to develop a more extreme weather scenario. The 1-in-10 scenario uses the highest average daily temperature over the past ten years for each month.

An additional scenario was also performed to present the impacts to the 2026 Joint IRP Load Forecast of the Companies' proposed preferred plan DSM programs. This scenario removes the current DSM savings and replaces them with those savings identified within the preferred Demand Side Management plan.

The final scenario developed is the 704B Modified load forecast excluding the eligible loads for those Large C&I customers who may decide to exit bundled service and choose service from another provider during the 2027-2029 period. Further detail on this scenario is provided in the next section.

## 5. NRS Chapter 704B Annual Limits for 2027-2029 Action Plan Period

Pursuant to subsection 6 of NRS 704.741, the Companies are required to include in each triennial joint IRP filing a proposal for annual limits on the total amount of energy and capacity that eligible NRS Chapter 704B customers may be authorized to purchase from providers of new electric resources during the IRP's three-year action plan period. Pursuant to NRS 704.741(2)(a)(1), a load forecast of future retail electric demand must not include the amount of energy and capacity proposed as annual limits on the total amount of energy and capacity that eligible NRS Chapter 704B customers may be authorized to purchase from their providers of new electric resources. The proposal must be a product of a sensitivity analysis that, at a minimum, addresses load growth, import capacity, system constraints and the effect of eligible customers purchasing less energy and capacity than authorized by the proposed annual limit. Based upon these limits, a customer choosing to exit bundled service during an enrollment period, occurring each January of the three-year action plan period, will file its request in an application with the Commission. This proceeding will determine the final transition period and all fees considered for the customer's exit of bundled service and implementation of its purchase of energy from another provider.

Accordingly, in order to determine the amount of load eligible to purchase energy from other providers for the 2027-2029 Action Plan period, NV Energy created an additional forecast scenario that removes the total MWh sales determined to be eligible (the "704B Modified Load Forecast"). Details on the steps to develop the eligible load limits, and consideration of the sensitivity analyses performed are summarized in Section V of Technical Appendix LF-1.

To determine load growth eligible for the 704B annual limits, the three-year average of historical loads over the 2023-2025 period were considered as the base loads for the calculation of the annual limits. NV Energy anticipates that, over the three-year Action Plan period (January 2025 to December 2027), Large C&I loads will increase by approximately 116,267 MWh (12.3 MW) for Nevada Power and by 1,323,669 MWh (151.1 MW) for Sierra.

Next, reflecting the methodology approved in the 2021 Joint IRP, calculations exclude customers on special pricing tariffs for both Nevada Power and Sierra loads. The resulting loads are subtracted from the historical base load comparison to determine the total eligible load growth. Applying the maximum annual limits prescribed by the proposed regulation, without applying any of the sensitivity analysis factors, yields 58,133 MWh (6.6 MW) total Action Plan period limit for Nevada Power and 661,834 MWh (75.6 MW) for Sierra.

The primary limiting adjustment for the eligible load is that there are currently import capacity constraints at Sierra. The company is currently evaluating potential transmission capacity availability at Sierra following the planned in-service date of the SWIP-North Line in mid-2028 as there continues to be zero available capacity even after the Greenlink transmission line goes into service in 2027. While the study may ultimately identify available NV Energy capacity for Sierra, no such capacity has been confirmed at this time. As a result, an existing bundled customer at Sierra cannot exit bundled service during the current 2027–2029 Action Plan period due to existing transmission capacity requests already in the queue. Thus, due to the current import capacity constraints, analysis of this factor places the annual limits for Sierra, for the Action Plan period at zero MW.

As presented in the Table TP-18 in the Transmission Plan Narrative, Nevada Power's available import capacity is 3,214 MW. In light of this ample open import capacity, NV Energy does not propose to impose any limits on the amount of energy and capacity available to eligible 704B applicants on account of import capacity restrictions for Nevada Power. More information on the import capacity can be found in the Transmission Plan section of the Supply Plan Narrative.

While no further adjustments were made to account for other system constraints in this forecast update, consideration of area-specific limitations may be contemplated in future filings due to the large growth and capacity restraints expected within the local TRIC area in Sierra's service territory and Apex area in Nevada Power's service territory.

After consideration of the sensitivity analysis factors, the limit for the 2026 Joint IRP's three-year Action Plan period for Nevada Power is proposed to be set at 58,133 MWh, which translates into an average hourly load of 6.6 MW. Sierra's limit remains unchanged at 0 MW, due to continued system import capacity constraints on the system.

The total amount of the Action Plan's annual limits can be made available in any number of tranche combinations across the three-year period: front-loaded, back-loaded, or broken down equally among each of the Action Plan's years (E.g., 6.6 MW / 3 years = 2.2 MW per year).

In the case of eligible customers located in Nevada Power's service territory purchasing more energy and capacity than authorized by the proposed annual limits, the unreserved MW loads would have to be served in addition to the native load forecasted in this 2026 Joint IRP. Considering Nevada Power's anticipated peak loads and reserve margin, Nevada Power expects that it will be able to serve the additional load with minimal effect on rates paid by its customers and no effect on the reliability of service.

To develop the modified Nevada Power load forecast, the total load reduction is spread to hours across the year following the load shape of the Large C&I customer group loads and is subtracted from the Base Load Forecast. Due to the relatively small amount of the proposed annual limits, the removal of these loads from the forecast results in the same Preferred Plan as if the loads were included.[3]

## 6. NRS Chapter 704B Transition Rates for 2027-2029 Action Plan Period

Once the 704B Modified Load Forecast is compared to the Base Load Forecast, the resulting difference in system costs are used to develop the rates that these customers will pay during their three-year transition period to DOS status. The rate calculations follow the steps detailed in the Transition Charge/Credit Master Formula document filed with the Commission as Attachment 3 on May 8, 2020, in Docket No. 19-06029. The regulations include the provisions that these customers will continue to pay the fully bundled Base Tariff General Rates ("BTGR") for a three-year period, and a rate for the Base Tariff Energy Rate net of variable costs ("Net Differential Energy Rate") for a three-year period. In addition, the incremental Renewable BTER ("R-BTER") rate and other public policy program rates shall be included on an ongoing basis for these customers' bills. Further, additional costs related to decommissioning and remediation costs, and regulatory asset charges may be imposed by the Commission for customers choosing to exit bundled service for a third-party energy provider.

Calculations for the Net Differential Energy rates were performed as follows:

- Calculate the difference in average monthly Fuel & Purchased Power ("F&PP") system costs over the Action Plan period between the base case expansion plan and the change case plan system costs modelled in PLEXOS.
- Once the difference is calculated, the portion of the BTER impact associated with the current and ongoing legislatively mandated public policy costs affecting the net BTER include, without limitation:
    - The out-of-money costs of long-term renewable contracts.
    - Non-bypassable costs attributed to public policies applicable to eligible customers.

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[3] The Companies seek guidance from the Commission as to whether, in future IRP filings, the proposed preferred plan should be built off the load forecast with or without the proposed annual limits. The Companies' concerns lay with a scenario in which the Commission authorizes annual limits significantly different from those used to model the proposed plans, and the change materially alters the analysis performed for the Companies' preferred or alternate plans.

- Next, the costs associated with the R-BTER renewable costs and other non-bypassable costs to the annual limits are subtracted from the BTER system impact cost to determine the net BTER cost.
- This adjusted amount is then divided by the energy consumption in kilowatt-hours from the annual limits in the production cost model which derives the Net Differential Energy rate.

The Variable O&M Credit is calculated as the overall difference in variable O&M costs between the base case and the change case. It will be applied on a volumetric basis and reflects the reduction in variable O&M costs related to the exit of the eligible loads from bundled service.

Additionally, NAC 704B.310.8(b) requires the Commission to list any current or ongoing legislatively mandated public policy programs for which eligible customers are required to pay costs, fees, charges, or rates resulting from the process. Those costs, fees, charges, or rates which are not listed will be considered on a case-by-case basis. Accordingly, the list of current legislatively mandated public policy programs from which eligible customers are required to pay costs, fees, charges or rates approved by the Commission in Docket No. 21-06001 are as follows:

- Renewable Energy Program Rate (REPR)
- Temporary Renewable Energy Development Program Rate (TRED)
- Universal Energy Charge (UEC)
- Net Energy Metering
- Energy Efficiency and Conservation Programs (EE)
- Expanded Solar Access Program (ESAP)
- Natural Disaster Protection Plan (NDPP)
- Transportation Electrification Plan
- Economic Recovery Transportation Electrification Plan
- Economic Development Rate Rider; and
- R-BTER.

Section V of the Technical Appendix LF-1 provides information on the development of these rates for the three-year transition period.

The results of the calculations demonstrate that Nevada Power customers choosing to exit the system will pay the Net Deferential Energy Rate of $0.03711 per kWh during their applicable three-year transition period which will be partially offset by the $-0.00001 per kWh Variable O&M Credit. In addition, such customers will pay other costs required by law including the Base Tariff Energy Rate for the transmission period, and the then-current R-BTER rate (which currently stands at $0.00463 as filed in Docket No. 26-02013) and will be updated quarterly.

## SECTION 2 – MARKET FUNDAMENTALS

### A. POWER FUNDAMENTALS

***Regional Profile.*** The Companies are members of the Western Electricity Coordinating Council ("WECC"). WECC is the Regional Entity ("RE") responsible for compliance monitoring and enforcement and oversees reliability planning and assessments. In addition, WECC provides an environment for the development of Reliability Standards and the coordination of the operating and planning activities of its members as set forth in the WECC bylaws. There are six REs given authority by the North American Electric Reliability Corporation ("NERC") and the Federal Energy Regulatory Commission ("FERC"). Of those six entities, WECC oversees the largest and most geographically diverse region, known as the Western Interconnection ("WI"). WECC's footprint extends from Canada to Mexico and includes the provinces of Alberta and British Columbia, the northern portion of Baja California, Mexico, and all or portions of the 14 Western states between.[1] Figure MF-1 depicts the various NERC regions and sub-regions, including the WECC. This level of granularity allows NERC to better evaluate resource adequacy and ensure deliverability constraints between and among assessment areas are accounted for.

The WECC assessment area is divided into eight sub-regions: California, Mexico, Northwest, Alberta, British Columbia, Basin, Rocky Mountain and the Southwest. The Southwest area includes Nevada, Arizona and parts of New Mexico. These subregional divisions are used for this assessment as they are structured around reserve sharing groups that have similar annual demand patterns and similar operating practices.

[1] Western Electric Coordinating Council, About WECC, available at https://www.wecc.org/Pages/AboutWECC.aspx.

**FIGURE MF-1**
**NERC REGIONS AND SUB-REGIONS**

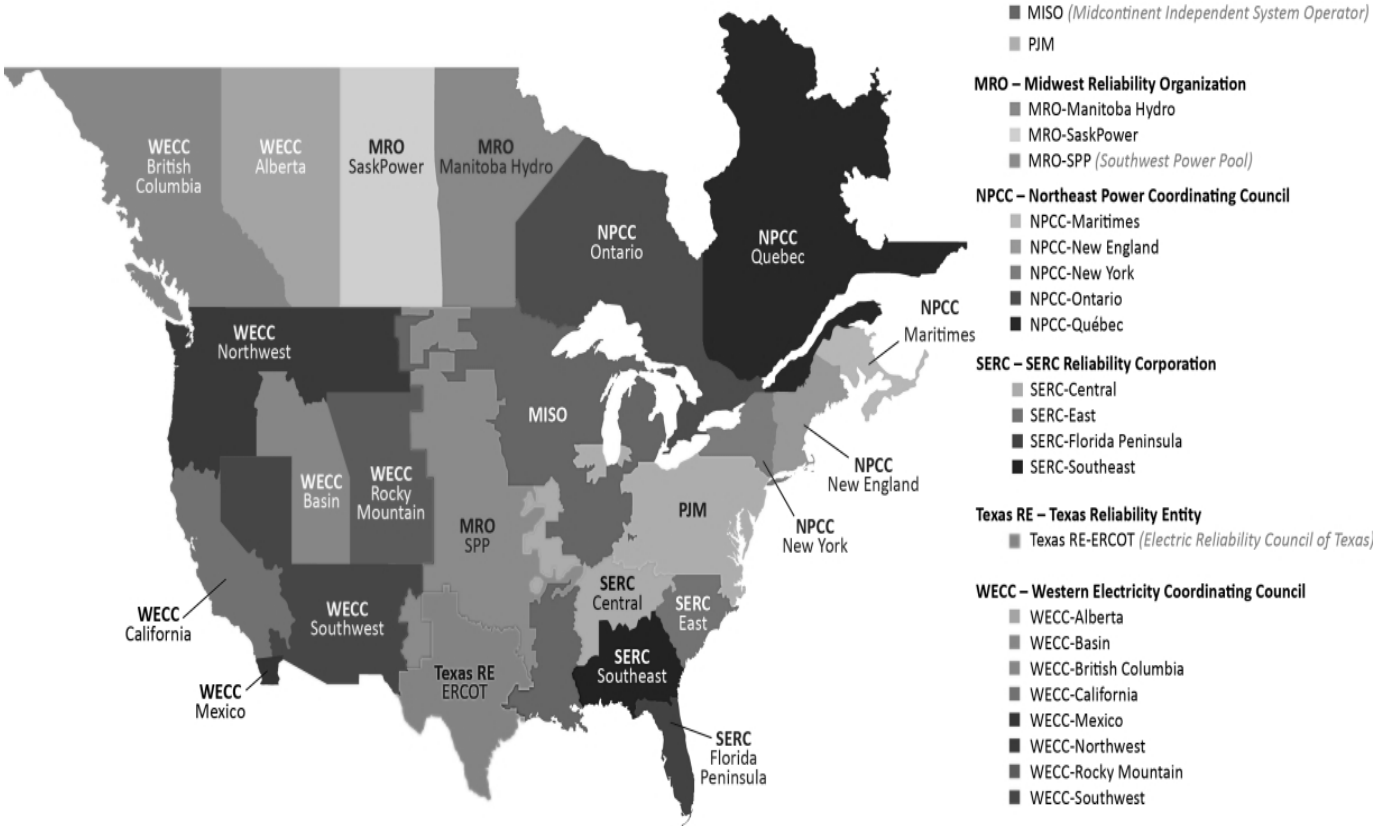


Figure MF-2 shows the capacity composition in the Southwest sub-region and the prevalence of natural gas-fired generation.[2]

**FIGURE MF-2**
**WECC-SOUTHWEST CAPACITY BY FUEL TYPE (MW)**

| WECC-Southwest Projected Generating Capacity by Energy Source in Megawatts (MW) | | | | | |
|---|---|---|---|---|---|
| | 2026 | 2027 | 2028 | 2029 | 2030 |
| Coal | 4,121 | 4,116 | 3,749 | 3,754 | 3,754 |
| Coal* | 3,761 | 4,116 | 3,749 | 3,754 | 2,576 |
| Petroleum | 341 | 340 | 340 | 336 | 336 |
| Natural Gas | 24,978 | 24,887 | 24,817 | 24,837 | 24,750 |
| Biomass | 46 | 46 | 46 | 46 | 46 |
| Solar | 6,867 | 6,349 | 6,503 | 7,474 | 7,804 |
| Wind | 1,059 | 1,055 | 1,055 | 1,059 | 1,050 |
| Geothermal | 1,555 | 1,555 | 1,607 | 1,572 | 1,454 |
| Conventional Hydro | 1,984 | 1,989 | 1,989 | 1,982 | 1,981 |
| Pumped Storage | 113 | 113 | 113 | 113 | 113 |
| Nuclear | 3,641 | 3,640 | 3,640 | 3,641 | 3,641 |
| Battery | 6,824 | 7,325 | 7,657 | 7,671 | 7,671 |
| Total MW | 51,530 | 51,414 | 51,516 | 52,484 | 52,598 |
| Total MW* | 51,170 | 51,414 | 51,516 | 52,484 | 51,421 |

***Capacity with additional generator retirements**. Generators that have announced plans to retire but have yet to be included in system plans are removed from the resource projection where marked.

***Energy Imbalance Market ("EIM").***

The California Independent System Operator's ("CAISO") EIM is a real-time energy market, the first of its kind in the western United States. The EIM's advanced market system automatically finds low-cost energy to serve real-time consumer demand across the West. Since its launch, the EIM has enhanced grid reliability and generated cost savings for its participants. In addition to its economic advantages, the EIM improves the integration of renewable energy, leading to a cleaner, "greener" grid.[3] The EIM began financially binding operation on November 1, 2014, by optimizing resources across the CAISO and PacifiCorp Balancing Authority Areas ("BAAs"). NV Energy began participating in December 2015. The EIM uses a sophisticated system to automatically balance demand every five minutes with the lowest cost energy available across the combined grid.

The first quarter 2026 EIM Benefits Report published by the CAISO estimates that the EIM has yielded more than $8.62 billion in total benefits for all participants since the market was launched in 2014. The measured benefits of participation in the EIM include cost savings, increased integration of renewable energy, and improved operational efficiencies including the reduction of the need for real-time flexible reserves. The estimated gross economic benefits for the Companies exceeded $1 billion as of the first quarter of 2026.[4] Sharing resources across a larger geographic area reduces greenhouse gas emissions by utilizing renewable generation that otherwise would

[2] NERC, Long-Term Reliability Assessment, Jan. 2026, available at https://www.nerc.com/globalassets/our-work/assessments/nerc_ltra_2025.pdf.

[3] CAISO, Western Energy Imbalance Market (WEIM), available at https://www.westerneim.com/Pages/About/default.aspx.

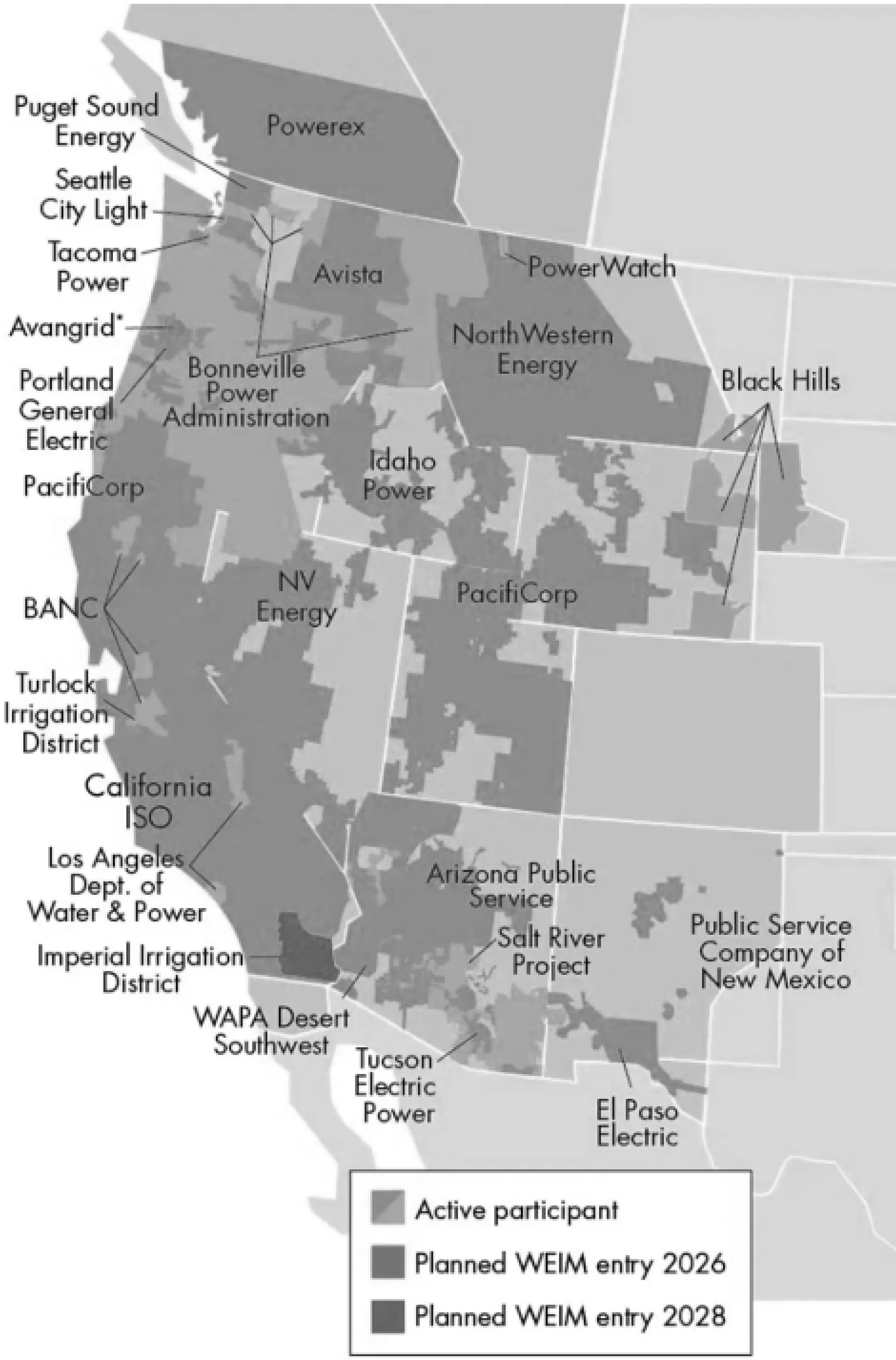
[4] CAISO, WEIM benefits, available at https://www.westernenergymarkets.com/western-energy-imbalance-market-weim/benefits.

have been turned off. A map of the active and pending EIM participants is provided in Figure MF-3.

*Participants:*

- Imperial Irrigation District – planned entry 2028
- Black Hills – planned entry 2026
- PowerWatch (formerly BHE Montana) – planned entry 2026
- Avangrid – entered 2023
- El Paso Electric – entered 2023
- WAPA Desert Southwest Region – entered 2023
- Bonneville Power Administration – entered 2022
- Tucson Electric Power ("TEP") – entered 2022
- Avista – entered 2022
- Tacoma Power – entered 2022
- NorthWestern Energy – entered 2021
- Los Angeles Department of Water & Power – entered 2021
- Public Service Company of New Mexico – entered 2021
- Turlock Irrigation District – entered 2021
- Salt River Project ("SRP") – entered 2020
- Seattle City Light – entered 2020
- Balancing Authority of Northern California – entered 2019
- Idaho Power Company – entered 2018
- Powerex – entered 2018
- Portland General Electric – entered 2017
- Puget Sound – entered 2016
- Arizona Public Service – entered 2016
- NV Energy – entered 2015
- PacifiCorp – entered 2014
- California ISO – entered 2014

**FIGURE MF-3**
**WESTERN EIM ACTIVE PARTICIPANTS**




**Avangrid office; generation only BAA with distribution across multiple states. Map boundaries are approximate and for illustrative purposes only. Copyright © 2025 California ISO*

***Extended Day-Ahead Market ("EDAM")***

Based on the success of the EIM, the CAISO initiated a stakeholder process in November 2021 to expand its market services by extending day-ahead market participation to EIM entities. With the order issued on April 3, 2026, the Commission approved the Companies' participation in EDAM with an anticipated start date in the Fall of 2028. Additional information about EDAM is provided in the Day-Ahead Markets and Regional Transmission Organization Section.

***Resource Adequacy***

To ensure reliability during the transition to greater reliance on renewable resources, emerging resource and energy adequacy issues must be addressed. Planning for long-term resource adequacy is becoming increasingly complex with a resource mix that is more unpredictable and less energy assured. To evaluate the projected resource adequacy (generation resource reserve margins), NERC prepares the Long-Term Reliability Assessment ("LTRA") - an annual assessment of anticipated resource reserve margins.

Anticipated Reserve Margin ("ARM") [5] and Planning Reserve Margin ("PRM") [6] are calculated and reported for each of the WECC sub-regions and provide an indication of the ability of those sub-regions to meet their load requirements with internal generation and imports from other sub-regions or zones under the specified conditions. PRMs (anticipated or prospective) are calculated by finding the difference between the amount of projected on-peak capacity and the forecasted peak demand and then dividing this difference by the forecasted peak demand.

NERC assesses resource adequacy by evaluating each assessment area's PRM relative to its Reference Margin Level[7] ("RML") - a "target" or requirement based on traditional capacity planning criteria. The projected resource capacity used in the evaluations is reduced by known operating limitations (e.g., fuel availability, transmission limitations, environmental limitations) and compared to the RML, which represents the desired level of risk based on a probability-based loss-of-load ("LOL") analysis.

[5] This is the amount of anticipated resources (includes only Tier 1 resources) less net internal demand calculated as a percentage of net internal demand.
[6] This is the amount of prospective resources (includes also Tier 2 resources) less net internal demand calculated as a percentage of net internal demand.
[7] The RML can be determined using both deterministic and probabilistic (based on a 0.1/year loss of load study) approaches. In both cases, this metric is used by system planners to quantify the amount of reserve capacity in the system above the forecasted peak demand that is needed to ensure sufficient supply to meet peak loads. Establishing an RML is necessary to account for long-term factors of uncertainty involved in system planning, such as unexpected generator outages and extreme weather impacts that could lead to increased demand beyond what was projected in the 50/50 load forecasted. In many assessment areas, an RML is established by a state, provincial authority, ISO/ RTO, or other regulatory body. In some cases, the RML is a requirement. RMLs can fluctuate over the duration of the assessment period or may be different for the summer and winter seasons.

The most recent forecast of these reserve margins from the NERC 2025 LTRA published in January of 2026 is shown in Figure MF-4.[8]

**FIGURE MF-4**
**WECC-SOUTHWEST POWER SUPPLY ASSESSMENT**

| Demand, Resources, and Reserve Margins | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Quantity | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
| Total Internal Demand | 37,407 | 38,911 | 40,429 | 41,887 | 43,551 | 44,772 | 45,664 | 46,317 | 47,226 | 47,988 |
| Demand Response | 237 | 258 | 264 | 272 | 282 | 237 | 258 | 264 | 272 | 282 |
| Net Internal Demand | 37,169 | 38,653 | 40,165 | 41,615 | 43,269 | 44,535 | 45,405 | 46,053 | 46,953 | 47,706 |
| Additions: Tier 1 | 6,639 | 7,501 | 8,155 | 8,562 | 8,914 | 8,914 | 8,914 | 8,396 | 8,852 | 8,852 |
| Additions: Tier 2 | 1,771 | 5,410 | 6,994 | 9,369 | 9,872 | 11,263 | 11,286 | 10,468 | 11,286 | 11,252 |
| Additions: Tier 3 | 2,502 | 3,899 | 5,242 | 7,562 | 9,710 | 12,409 | 14,804 | 14,801 | 24,521 | 24,571 |
| Net Capacity Transfers (WECC Model) | 902 | 2,544 | 4,162 | 5,101 | 6,301 | 5,895 | 5,570 | 4,880 | 5,030 | 4,715 |
| Existing-Certain and Net Transfers | 45,794 | 46,457 | 47,523 | 49,023 | 49,986 | 49,308 | 47,432 | 44,294 | 44,948 | 43,944 |
| Anticipated Reserve Margin (%) | 41.1% | 39.6% | 38.6% | 38.4% | 36.1% | 30.7% | 24.1% | 14.4% | 14.6% | 10.7% |
| Prospective Reserve Margin (%) | 45.8% | 53.6% | 56.0% | 60.9% | 58.9% | 56.0% | 49.0% | 37.1% | 38.6% | 34.3% |
| Reference Margin Level (%) | 13.3% | 13.7% | 13.6% | 12.6% | 12.2% | 12.0% | 11.7% | 12.3% | 11.3% | 11.1% |

Southwest sub-region is assessed as adequate by NERC until summer of 2034. The ARM falls below the RML starting in Summer 2034. With the addition of Prospective Resources, the PRM stays above the RML for all years in the LTRA time horizon.

The Companies' BAA is included in the Southwest sub-region within the WECC. The BAA is integrated with the other sub-regions by way of transmission interconnections within the electric grid. The Companies routinely engage in purchase and sales transactions with neighboring utilities belonging to other WECC sub-regions and reserve margins in those sub-regions have the ability to impact operations in Nevada. Consequently, reserve margins in BAAs located in the other sub-regions can affect operations and capacity availability in the system as well.

The traditional methods of assessing resource adequacy at peak load times may not accurately or fully reflect the ability of the new resource mix to supply energy and reserves for all hours. Energy limitations can exist, requiring probabilistic analysis methods to identify risks to reliability that result from shortfalls in the conversion of capacity to energy (energy adequacy). The new resource mix includes natural gas-fired generation, unprecedented proportions of nonsynchronous resources, including renewables and battery storage, demand response, smart and micro-grids and other emerging technologies. Collectively, the new resources are more susceptible to energy sufficiency uncertainty. Therefore, WECC also performs energy-based probabilistic assessments ("ProbA") looking at all hours of the year. The difference between the LTRA and the ProbA results is that the ProbA captures the expected equivalent forced outage rate for baseload resources whereas the LTRA does not. Another difference is that the ProbA looks at all hours of the year, and the LTRA looks at the peak hour only. WECC uses the Multi-Area Variable Resource Integration Convolution model ("MAVRIC"). The model is a convolution-based probabilistic model and is WECC's chosen method for developing probability metrics used for assessing

[8] NERC, Long-Term Reliability Assessment, Jan. 2026, available at https://www.nerc.com/globalassets/our-work/assessments/nerc_ltra_2025.pdf.

demand and variable resource availability in every hour. LOLH and expected unserved energy ("EUE") are not anticipated in 2027 and 2029. Results of the 2027 ProbA shown in the Figure MF-5 table below indicate negligible unserved energy and load-loss risk.

**FIGURE MF-5**
**WECC-NW SUMMARY OF ASSESSMENTS**

| Base-Case Summary of Results | | | |
|---|---|---|---|
| | 2026* | 2027 | 2029 |
| EUE (MWh) | N/A | 0 | 0 |
| NEUE (ppm) | N/A | 0.00 | 0.00 |
| LOLH (hours per Year) | N/A | 0.00 | 0.00 |
| * No prior results as the assessment area is new for the 2025 LTRA. | | | |

**Demand in WECC-Southwest.** The average annual demand growth rate for WECC-Southwest is 3.9 percent. The primary drivers are data centers, industrial electrification, residential electrification, and residential customer growth. Large-load additions in the forecast are 9,422 MW through 2035.

**Generation in WECC-Southwest.** A year-round concern for this subregion is an aging thermal resource fleet. Hundreds of MW of capacity in this region have been operational for over 60 years. During the winter, certain thermal resources are unable to cycle below 40 Fahrenheit due to freezing issues. Older sites also require extensive overhauls such as generator rewinds that can keep resources out of service for extended periods of time and potentially longer than planned as discovery work manifests into additional maintenance. To reduce the risk of age-related forced outages, plant staff adhere to a strict maintenance schedule with frequent inspections, and unit performance is routinely monitored. Solar output variability is a concern year-round for this subregion. It is a primary concern on summer evenings as solar output rapidly declines whereas load increases or remains elevated. Activation of demand response ("DR") programs, peaking/flexible power plants, and maintaining sufficient BESS charge are all potential strategies to mitigate this issue. Large changes in solar output can also cause extreme area control error ("ACE") fluctuations, which are addressed using BESS.

**Renewable Portfolio, Clean Electricity and Emissions Standards in WECC-Southwest.** In the Southwest region, Arizona has an RPS mandate for its electric supply to be 15 percent renewable by 2025. Separately, APS has committed to ending the use of coal-fired generation after 2031, and the company set a 100 percent carbon free by 2050 goal. SRP has goals to reduce CO2 emissions per MWh by 62 percent from 2005 levels by 2035 and 90 percent by 2050; TEP will stop using coal by 2032 and plans to reduce carbon emissions by 80 percent by 2035. New Mexico has set more aggressive mandates, requiring 50 percent renewable by 2030, percent by 2040, and 100 percent by 2045.

## B. NATURAL GAS FUNDAMENTALS

As North American power markets continue to transition to cleaner energy sources (*e.g.*, natural gas and renewables), natural gas will be the driving determinant of market power prices as well. Natural gas is widely considered to be a critical energy source for the future, with fossil fuels remaining the dominant source of energy powering the world economy. In particular, the abundance of natural gas, coupled with its relative environmental attributes and multiple applications across all sectors, means that it will continue to play an important role in meeting demand for energy in the United States.

Market fundamentals indicate the availability and reliability of physical gas supplies to be adequate for satisfying natural gas demand for the foreseeable future. Prices for gas will fluctuate depending upon demand (often weather-related), economics of drilling, and finally federal and state decarbonization efforts. On a short-term basis, demand for natural gas has traditionally been seasonal. As a general matter, demand is highest during the winter, the primary driver being residential and commercial heating. Natural gas in storage typically declines in the winter as it is consumed during peak usage, then is injected back into storage in the spring and summer months in order to rebuild storage levels for the next winter's drawdown. Besides weather, the general state of the economy can have a considerable effect on the demand for natural gas in the short term, particularly for industrial consumers. When the economy is expanding, output from industrial sectors generally increases at a similar rate. When the economy is in recession, output from industrial sectors drops.

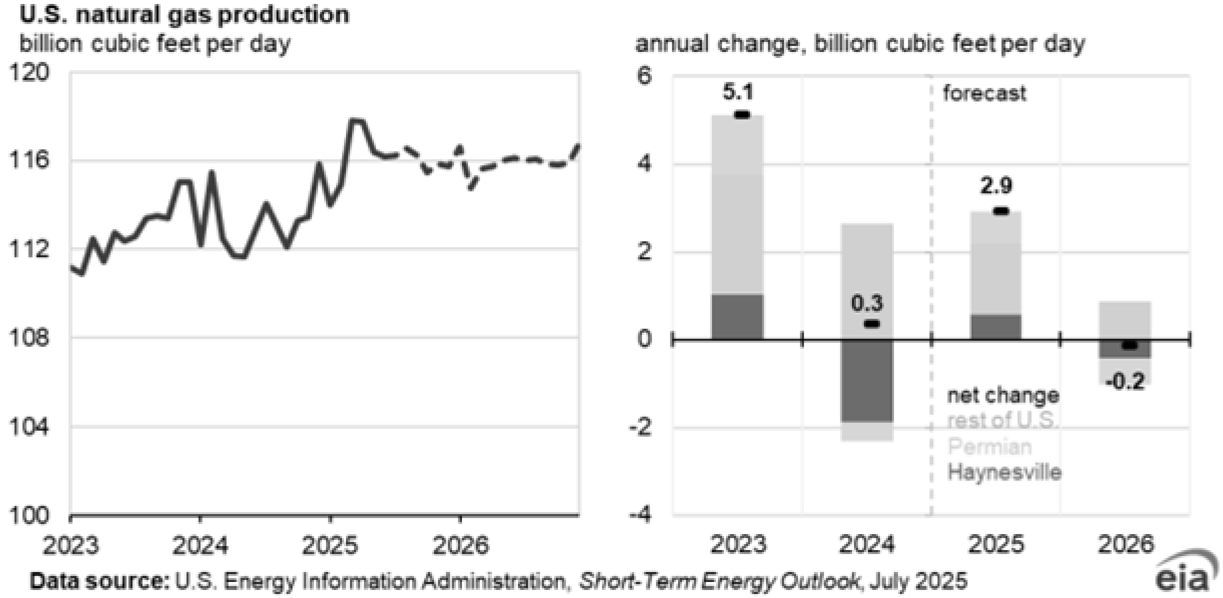
The Companies currently purchase most of the natural gas supply burned in their power plants from the Rockies region, principally the states of Wyoming, Colorado, and Utah. The Companies also access natural gas supplies from the Western Canadian Sedimentary Basin in Alberta and British Columbia, Canada. In 2025, most production growth came from the Permian region in Texas and New Mexico, where most natural gas production is associated with oil extraction, meaning producers' oil-drilling activities in the region determine natural gas production levels. Natural gas production regions are presented in Figure MF-6 below.

# FIGURE MF-6
# U.S. NATURAL GAS PRODUCTION REGIONS


**Natural gas production.** Marketed natural gas production in the Lower 48 states reached a record high in November of 2025 at 118.5 billion cubic feet per day (Bcf/d). The increased production is stemming primarily from increased gas produciton associated with oil extraction (associated gas production) from the Permian and the rest of the U.S. Lower 48 states regions. The U.S. Energy Information Administration ("EIA") expects[9] marketed natural gas production to rise, averaging 118 Bcf/d in 2026 and 121 Bcf/d in 2027, relative to 116 Bcf/d in 2025. The growth is primarily expected in natural gas production to originate from the Haynesville, Permian, and Appalachia regions. Elevated oil prices will drive more oil-directed drilling in the Permian, which will contribute to greater volumes of associated natural gas production.  U.S. Natural Gas production is presented in Figure MF-7 below.

[9] U.S. Energy Information Administration, Short-Term Energy Outlook, March 2026, available at https://www.eia.gov/outlooks/steo/archives/Mar26.pdf.

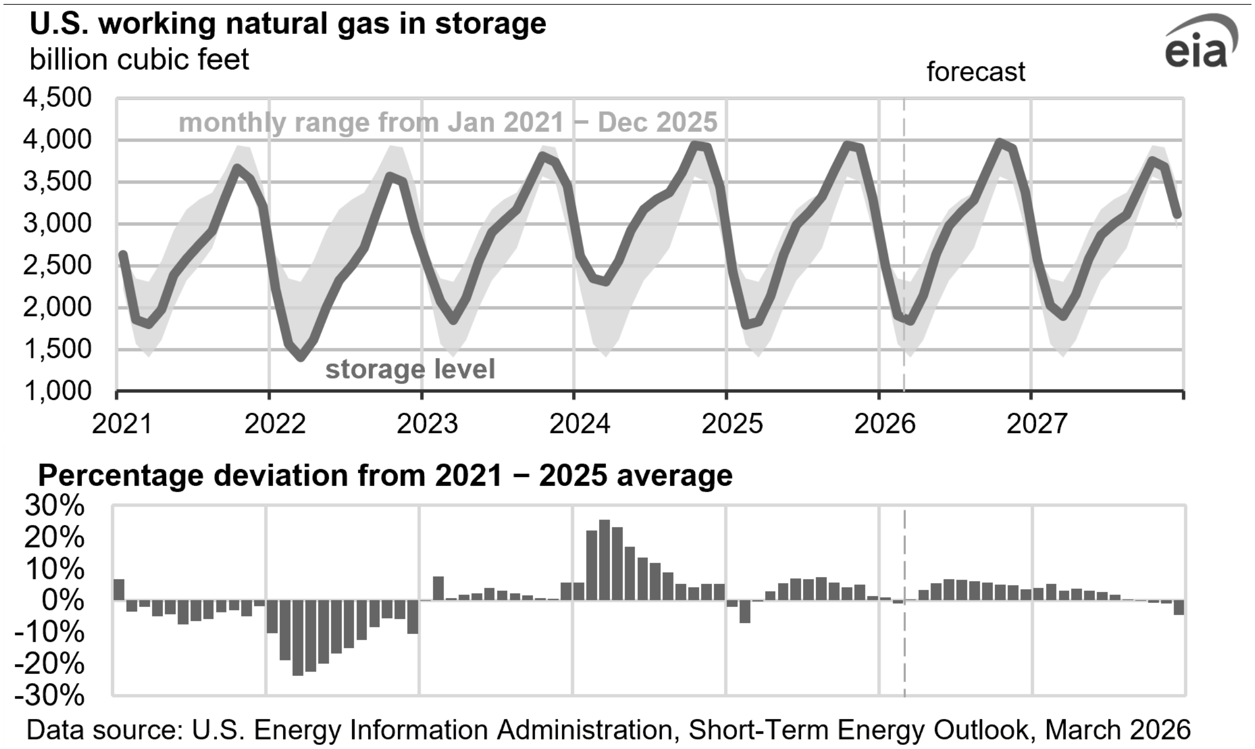
**FIGURE MF-7**
**U.S. NATURAL GAS PRODUCTION**




**Natural gas storage.** Based on data from the National Oceanic and Atmospheric Administration, the 2025–2026 winter season (November–March) had more than 2 percent HDDs than the 10-year average.[10] Although we have had colder weather that has contributed to record high spot prices, production was higher than expected throughout the winter, which helped dampen the effect of January's large storage withdrawals, keeping storage levels close to or above average through the winter. Natural gas inventories are expected to end the withdrawal season in the U.S. near the five-year average. Also regional inventories are expected to be above-average inventories in the Pacific region (48 percent) and the Mountain region (50 percent) as we head into summer of 2026.[11] Working gas storage levels for the United States in 2021-2025, with the forecast for the remainder of 2026 and 2027 are illustrated in Figure MF-8.

[10] *Id*.
[11] *Id*.

**FIGURE MF-8**
**U.S. NATURAL GAS STORAGE**




Movement in natural gas prices can be partly attributable to natural gas storage levels. Relative shortages or excesses of storage capacity during heavy load periods (typically November through March) can either create or hinder the daily volatility of natural gas prices. The consuming West region has the smallest share of gas storage, both in terms of the number of sites, as well as gas capacity/deliverability.

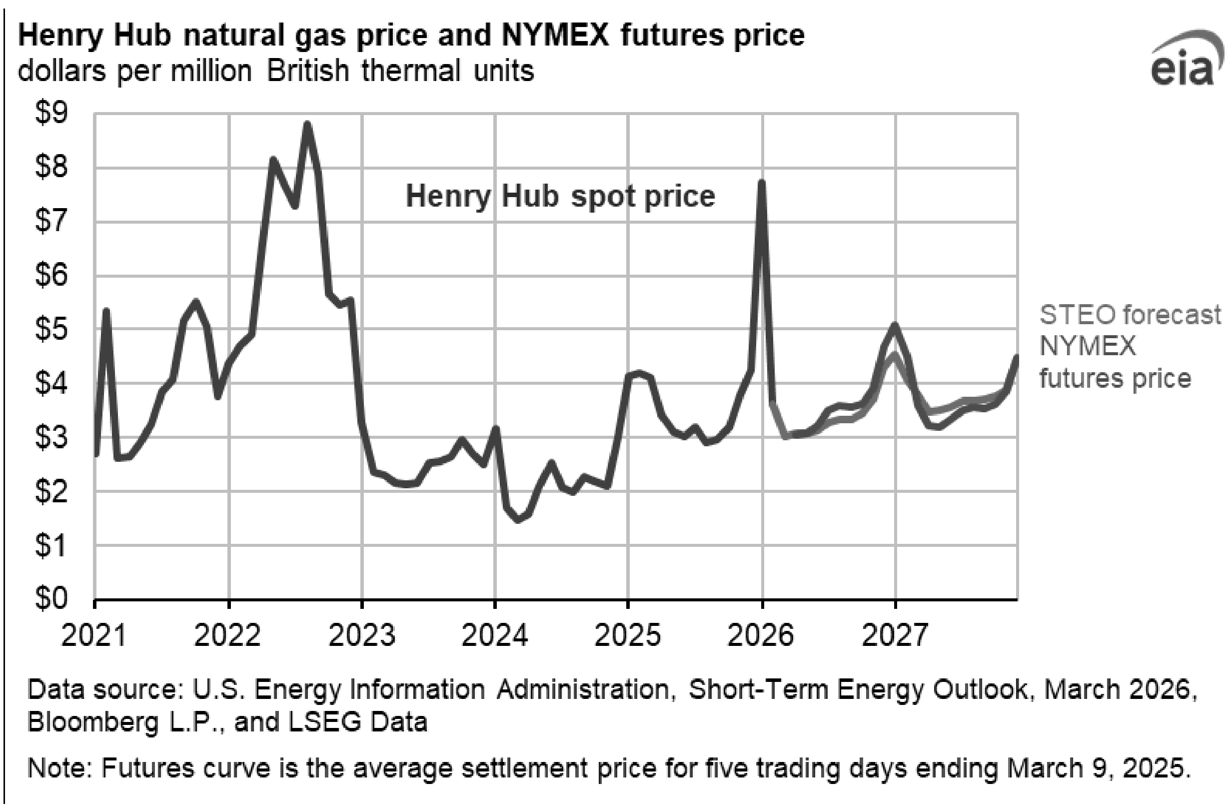
Arizona, Idaho and Nevada do not have any underground storage sites within their borders. Approximately 63 percent of total storage capacity in the West is located in California and Montana. Moreover, the bulk of the region's working gas capacity is located in California's 14 underground natural gas storage sites, seven of which are owned by the two principal gas distributors in the State: Southern California Edison ("SoCal") and Pacific Gas & Electric ("PG&E"). Most of their storage capacity is used for system balancing and as a way of maintaining a steady and high utilization of contracted pipeline capacity from Canada, the Rocky Mountains, and the Southwest.

The seven independent storage facilities in California (not owned by either SoCal or PG&E) are used primarily as depositories for gas produced within the State that is not immediately marketable. In addition, these sites are connected to (and deliver their withdrawals to) the SoCal and/or PG&E

systems. Storage facilities in Washington and Oregon are used primarily to provide seasonal backup to several local distribution companies located in the Northwest and are crucial in maintaining their operational flexibility and system integrity. These storage facilities are also used by some Canadian shippers/customers to support their marketing and operational needs. The import/export facilities of NWPL at Sumas, Washington, are used to move natural gas in either direction to storage, depending on marketing conditions.

**Natural gas prices.** In EIA's March 2026 forecast,[12] the Henry Hub spot price averages almost $3.80/MMBtu in 2026, and about $3.90/MMBtu on average next year in 2027. Historical and forecasted natural gas Henry Hub monthly average spot prices for period 2021-2027 are ilustrated in figure MF-9.

**FIGURE MF-9**
**HENRY HUB MONTHLY SPOT PRICES**




[12] *Id*.

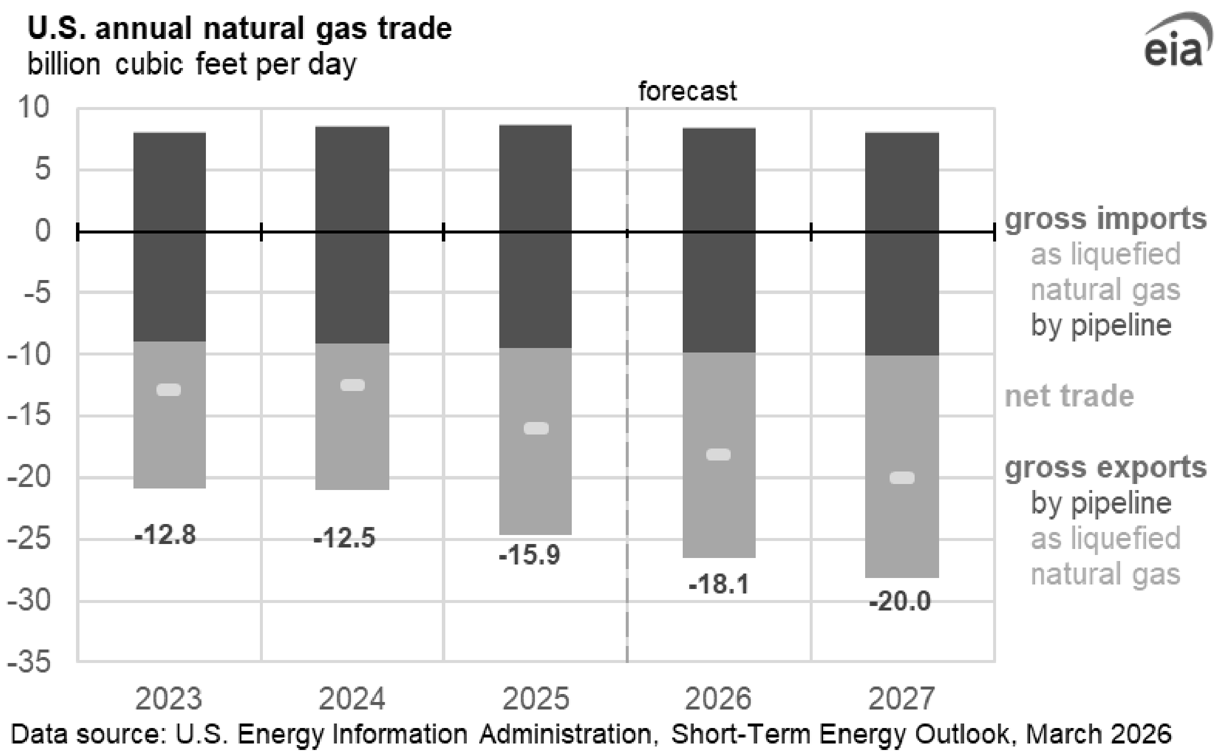
EIA expects natural gas consumption to grow in all sectors in 2026 and 2027 except the industrial sector, where the consumption is expected to decrease slightly. Sectoral changes in natural gas consumption depend mostly on the weather. Natural gas-fired power plants provide about 40 percent of U.S. electricity generation annually, so electricity demand from heating and air-conditioning equipment influences how much natural gas the electric power sector consumes.

In the residential and commercial sectors, colder temperatures in the winter also affect direct natural gas consumption by heating equipment. The mix of energy sources and technologies used to generate electricity also affects natural gas consumption in the electric power sector. As developers add more generating capacity from solar- and wind-powered generators, those generators' incremental generation may reduce the need to dispatch natural gas-fired power plants. Changes in the timing and magnitude of new solar and wind capacity would also affect the forecast for natural gas consumption in the electric power sector.

Reductions in the flow of liquified natural gas ("LNG") through the Strait of Hormuz have caused natural gas prices in Europe and Asia to increase. However, U.S. natural gas prices are expected to be relatively unaffected by this development, as LNG export facilities were already operating at a high level of utilization prior to the Middle East conflict, limiting the ability to export additional volumes in the near term. Most of the flexibility in exports will be in the ramp-up at Corpus Christi State 3 (Train 5), which was completed in February of 2026 and at Golden Pass Train 1, which is set to come online in March of 2026.[13] LNG demand and natural gas production will be two key drivers of price in the coming years. Historical and forecasted U.S. natural gas trade and LNG exports are illustrated in Figure MF-10.

[13] U.S. Energy Information Administration, Short-Term Energy Outlook, April 2026, available at https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf.

FIGURE MF-10
U.S. GAS TRADE AND LNG EXPORTS

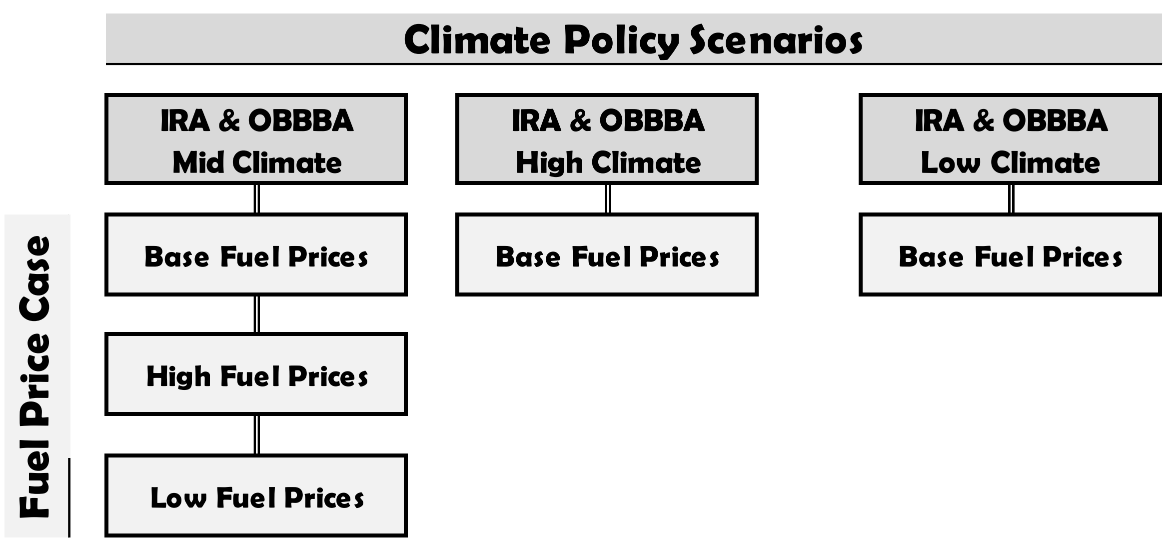


## SECTION 3. FUEL AND PURCHASED POWER PRICE FORECASTS

Forecasts of fuel and purchased power prices are essential inputs to an IRP analysis. Robust production cost analysis conducted using PLEXOS tests the sensitivity of results against different fuel and purchased price assumptions. The Companies have developed sensitivity studies around low, base, and high fuel prices, together with low, base and high purchased power prices, including the impacts of climate policy scenarios. As described in subsection F, the assessment of federal climate policy scenarios, also called climate policy, in this IRP is influenced largely by the 2022 Inflation Reduction Act ("IRA") that was signed by President Biden in August 2022 and modified by the One Big Beautiful Bill Act ("OBBBA") signed by President Trump in June 2025.

A total of five separate price forecast scenarios were developed to determine the impacts of both carbon regulation policy and fuel/purchased power price levels on production costs and resource options. Three price forecast scenarios—base, high and low fuel and purchased power prices were prepared. These forecast scenarios were used in preparing the analysis presented in this Amendment. Also, two alternative cases were prepared assuming base fuel and purchased power prices but imposing various levels of NERA price impacts (adjustors) to the WoodMac natural gas price forecast to create natural gas price forecasts under these two, High Climate Policy scenario and Low Climate Policy scenarios. All five cases are presented in Figure FPP-1.

**FIGURE FPP-1**
**PRICE FORECAST SENSITIVITY SCENARIOS**



The methodology used to prepare the base case forecasts for power and natural gas prices relies upon observable market quotes in the near-term forecast years, which are gradually blended into long-term price forecasts obtained from an external consulting firm specializing in market fundamentals and fundamental price forecasting. The price forecast curves for power, and natural gas, are important to the economic evaluation of alternative electric resource plans. For example, higher natural gas prices, which are a variable expense in operating fossil fuel-fired plants, can increase the attractiveness of renewable energy options, which have no variable operating fuel expense but potentially higher up-front plant investment costs to construct on a dollars per kW basis.

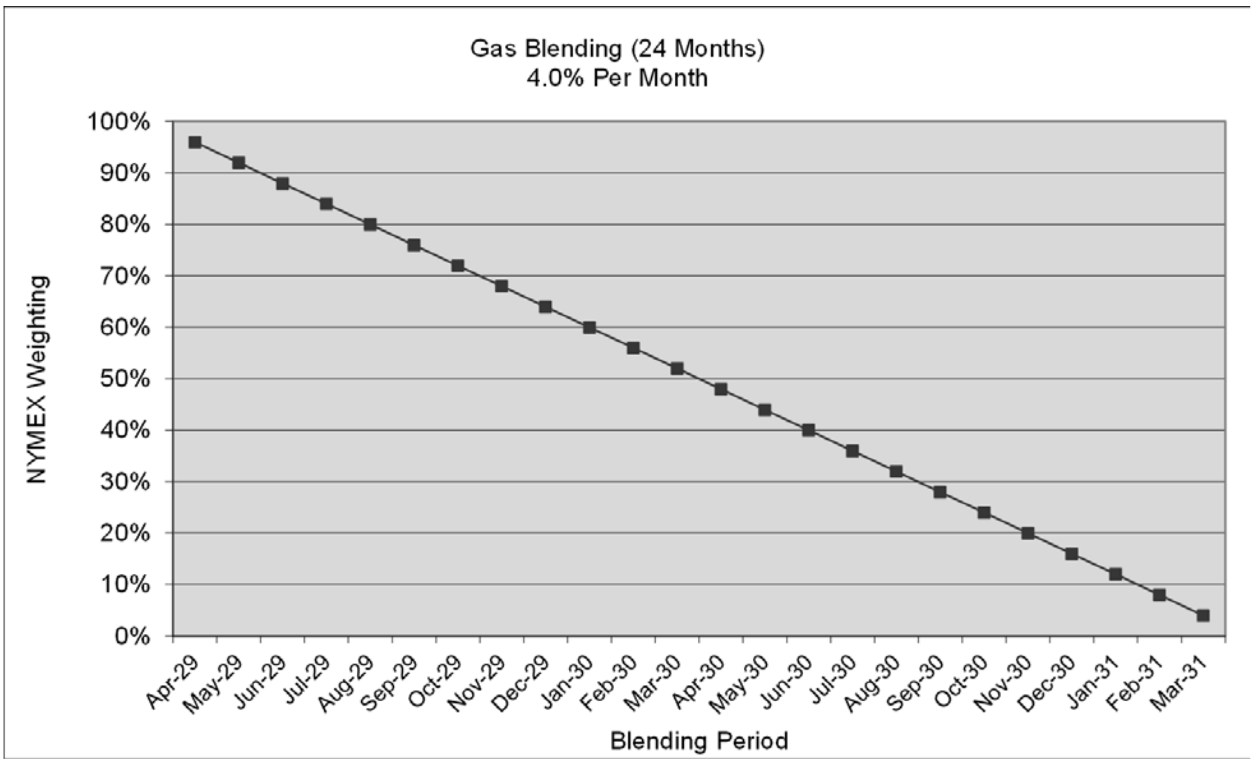
***Market quotes used for short-term forecast.*** Market quotes consist of observed trades in the relevant trading hubs: for natural gas, the Henry Hub, Alberta NOVA Inventory Transfer ("AB-NIT" or "AECO"), Northwest Pipeline Rockies ("Rockies"), Malin, and South California Border ("SoCal"); and for power, the Mead, Palo Verde and Mid-Columbia ("Mid-C") trading hubs. The source of market quotes is Argus Media ("Argus") for natural gas prices and for western regional power prices. The market quotes for the IRP forecast were prepared as an average of settlement prices for a 19-day trading period from November 1, 2025, through November 30, 2025.

***Fundamental (long-term) forecast.*** The fundamental forecasts of power and natural gas prices are provided through a subscription service with Wood Mackenzie, ("WoodMac"), a global energy, metals and mining consultancy service. WoodMac maintains an international reputation for supplying comprehensive data, written analysis and consultancy advice. The Companies perform detailed fundamental modeling of regional electric and natural gas systems, taking into account structural supply-demand price dynamics. For internal consistency, WoodMac's projections of natural gas and power prices are taken from a single integrated forecast, the long-term outlook (2025 H2 Base Case, released in December of 2025.)

## A. Base Gas Price Forecast

The monthly gas price forecast by regional hub begins with the 19-day average of market quotes in the near-term forecast months, January 2027 through March 2029. For the intermediate-term months, April 2029 through March 2031, a blending process is used to gradually transition from the 19-day average quotes to the long-term fundamental natural gas price forecast from WoodMac.[1] The long-term fundamental forecast is used exclusively from April 2031 through December 2050. This blending process as described above is presented in Figure FPP-2.

**FIGURE FPP-2**
**NATURAL GAS PRICE FORECAST BLENDING PROCESS**




[1] Blending of market quotes and the fundamental forecast occurs across four gas seasons, or 24 months (April 2029 through March 2031), with a weighting of the fundamental forecast increasing by 4 percent per month.

The base fuel-Mid Climate Policy annual natural gas price forecast for the Rockies, Malin, AECO and SoCal hubs are shown in Figure FPP-3.

**FIGURE FPP-3 [REDACTED]**
**ANNUAL AVERAGE GAS PRICE FORECAST**
**(BASE FUEL-MID CLIMATE POLICY)**

[redacted]

The associated monthly on and off prices and additional trading hubs are provided in Technical Appendix FPP-1.

## B. Base Power Price Forecast

The economic evaluation of generation alternatives in this IRP is based on a production cost software model that dispatches the Companies' portfolio of generation and contracted resources (subject to unit operating constraints) against an economic opportunity to purchase power in the regional market at wholesale market prices.

Consistent with the approach used in prior IRPs and IRP amendments, the first part of the power price curve, through March 2029, is prepared utilizing pure market quotes from Argus. These market quotes are based on the 19-day average trading period from November of 2025 for Henry Hub plus western regional basis quotes.[2]

The second part of the curve, from April 2029 to March 2031, reflects a blend of power prices on market quotes and fundamental power price forecast. In the blending process, pure quotes receive more weighting in the initial months of the forecast blending period, while the fundamental-based power prices receive more weighting towards the end of the 24-month blending period.

The third part of the curve, from April 2031 through December 2050, is derived entirely from the fundamental-based power price curve from WoodMac.

Figure FPP-4 provides the base case forecast (Base Fuel-Mid Climate Policy) of average power prices for delivered energy to Nevada at the Mead trading hub, the main import hub for the Companies, as well as upcoming accessibility of Midpoint power hub in Idaho once the SWIP-North transmission line becomes operational in January of 2029. Forecasts of monthly on and off prices for Mead and Midpoint and other relevant trading hubs are provided on a monthly basis in Technical Appendix FPP-1.

[2] The prices at western delivery hubs are commonly quoted as a basis to the Henry Hub.

**FIGURE FPP-4 [REDACTED]**
**AVERAGE ANNUAL POWER PRICE FORECAST – MEAD AND MIDPOINT**
**(BASE FUEL-MID CLIMATE POLICY)**

[redacted]

The monthly on-peak and off-peak prices for the various trading hubs and fuels cases are included in Technical Appendix FPP-1.

## C. High and Low Gas Price Forecasts

***High and low gas prices.*** The Companies also prepared high and low sensitivities around the base case market price forecasts. An assumption of plus-and-minus one standard deviation around the base gas price forecast was computed for the high and low cases. Market quotes of implied volatilities from at-the-money call options from November 2025 were used to calculate the volatility of natural gas futures for the period from January 2027 to December 2050. These volatilities were used to calculate the high and low natural gas prices.

The base, high and low-price projections for Rockies natural gas and Alberta natural gas hubs that result from applying the volatility curve are illustrated in Figures FPP-5 and FPP-6.

**FIGURE FPP-5 [REDACTED]**
**BASE, HIGH AND LOW GAS PRICE FORECAST – ROCKIES**

[redacted]

**FIGURE FPP-6 [REDACTED]**
**BASE, HIGH AND LOW GAS PRICE FORECAST – ALBERTA (AECO)**

[redacted]

## D. High and Low Power Prices

Once the high and low gas price trajectories are computed, the Companies adjust the base case power price forecasts for Mead and northern Nevada delivered power. For on-peak and off-peak periods, the high and low power prices are calculated by first multiplying the high and low gas prices with a corresponding market-based heat rates (SoCal for southern and Malin for northern Nevada). This methodology provides a reasonable estimate for market prices where natural gas-fired generation is setting market clearing prices, such as in Nevada.

The average annual base, high and low average power prices at Mead trading hub (the main power import hub for the Companies) are graphed in Figure FPP-7. The on-peak, off-peak and average power prices on a monthly basis for Mead and other relevant hubs are provided in Technical Appendix FPP-1.

**FIGURE FPP-7 [REDACTED]**
**BASE, HIGH, LOW POWER PRICE FORECAST – (MEAD AVERAGE)**

[redacted]

## E. Capacity Price Forecast for Market Purchases

The Companies have included a long-term capacity price forecast to supplement the regional power price forecast from WoodMac. The regional price forecast is used as an input to PLEXOS for determining economic dispatch of market purchases against internal generation, the capacity price forecast (dollars per kW-year) is incorporated in the production cost assessment as a fixed cost to estimate the total costs associated with the Companies' open capacity position.

WoodMac's regional power price forecast represents spot firm energy prices; the energy prices do not include the full cost of new capacity that would be required to ensure resource adequacy over the forecast period. To ensure resource adequacy across the forecast horizon, WoodMac develops estimates of the levelized cost of new entry ("CONE") for combined cycle and combustion turbine generation throughout the WECC. The CONE is an estimate of the annual fixed costs associated with owning and operating a new generating facility (*i.e.*, exclusive of variable costs such as fuel and emissions) and is used to compute the long-term capacity price forecast. WoodMac calculates the annual capacity prices (in dollars per kW-year) based on the net CONE, or the levelized cost of new entry net of the revenues from energy and ancillary services. The WoodMac fundamental forecast includes resource expansion modeling that incorporates the impact of unit retirements and resource additions. In preparation of this IRP, the Companies have incorporated a blend of WoodMac's capacity price forecasts for Northwest Power Pool ("NWPP"), Southwest Reserve Sharing Group ("SRSG") and California to approximate the mix of purchased power origin. The annual capacity prices are shown in Figure FPP-8.

**FIGURE FPP-8**
**PROJECTED ANNUAL CAPACITY PRICES [REDACTED]**

[redacted]

The capacity values serve as a proxy for the potential cost associated with carrying open positions (*i.e.,* until the positions are closed with firm products). The capacity adder is representative of potential additional costs that may be incurred, either in short-term power markets subject to price spikes under deficit market conditions, or as a proxy for the fixed costs of another new or existing power resource.

## F. Price Forecasts and Modeling of Potential Carbon Costs

The Companies have prepared fossil fuel price forecasts to evaluate the production cost impacts of proposed federal climate policy. The Companies' base planning assumption includes the Mid Climate Policy scenario developed by NERA Economic Consulting ("NERA"). Estimates of natural gas prices under the Low Climate Policy scenario and the High Climate Policy scenario were also prepared.

***Federal climate policy scenarios***

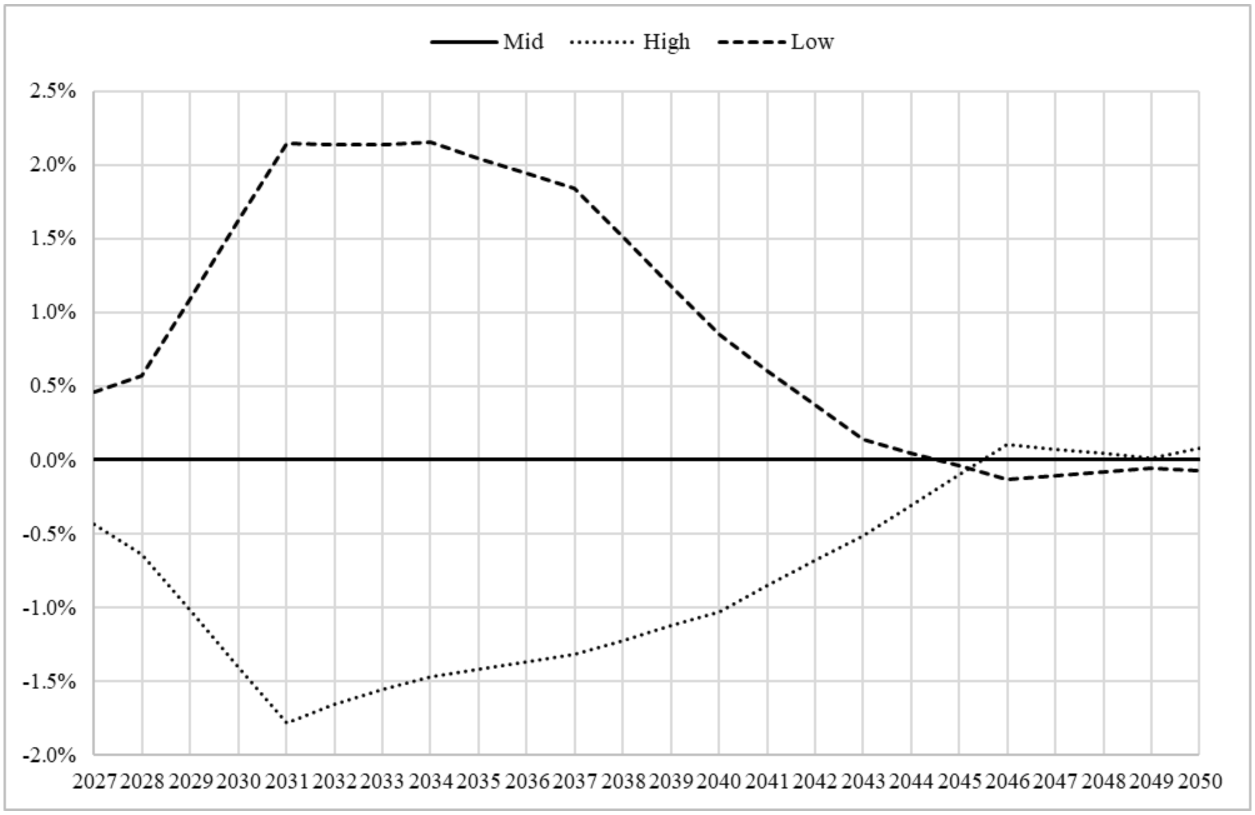
NERA developed three climate policy scenarios to reflect uncertainty regarding how the tax credit subsidies included in the Inflation Reduction Act ("IRA") that was signed by President Biden in August 2022 and modified by the One Big Beautiful Bill Act ("OBBBA") signed by President Trump in June 2025 would be implemented. Such tax credit subsidies do not result in a "price" for carbon emissions as would occur under a cap-and-trade program or a carbon tax. Such subsidies do have the potential to affect natural gas fuel prices. NERA considered the possibility of including other potential federal climate policies in the three scenarios but concluded that other current and likely future federal climate policies were not likely to have significant impacts on natural gas prices relative to the IRA tax credit programs.

***Fuel price impacts from federal climate policy***

As part of its support for the 2026 IRP analyses, NERA has developed estimates of the effects of the tax credit provisions of the IRA on natural gas prices using NewERA, its proprietary electricity and energy model. While there are many provisions of the IRA that might affect natural gas prices, NERA concluded that the most significant effects are likely to be due to the tax credit subsidies provided for renewable and other clean energy sources of electricity and to the tax credits for nuclear generation from merchant units. NERA developed assumptions regarding the potential implementation of the IRA provisions as modified by the OBBBA and used NewERA to model effects on natural gas prices for climate policy scenarios.

In its regional modeling of the WECC power markets, WoodMac in December 2025 published a Long-Term Outlook that assumes implementation of the IRA tax credit subsidies as modified by the OBBBA. To avoid the potential for double counting the effects of the IRA tax credit subsidies as modified by the OBBBA, the natural gas price trajectory for the Mid Climate Policy scenario was set equal the December 2025 WoodMac forecast. Results from NERA's NewERA modeling were used to develop the natural gas price trajectories for the Low Climate Policy scenario and the High Climate Policy scenario. The percentage adjustors to natural gas prices under the Low Climate Policy scenario and the High Climate Policy scenario modeled by NERA are shown in Figure FPP-9. The Companies applied the NERA price impacts (adjustors) to the WoodMac natural gas price forecast to create natural gas price forecasts under these two climate policy scenarios for use in the PLEXOS generation dispatch modeling.

**FIGURE FPP-9**
**NATURAL GAS PRICE ADJUSTMENTS FOR CLIMATE POLICY SCENARIOS**
**(HENRY HUB)**




More detailed discussions of the climate policy scenarios and the NERA modeling are provided in the direct testimony of Dr. David Harrison and the study of environmental costs and economic impacts prepared by NERA, herein referred to as "NERA Report." As noted in the NERA Report, the future impacts on natural gas prices from future climate policies are highly uncertain due to various factors, including those related to IRA implementation and natural gas supply and demand elasticities, among others.

# LF-1

**NEVADA POWER COMPANY d/b/a NV ENERGY**
**SIERRA PACIFIC POWER COMPANY d/b/a NV ENERGY**

# 2026 JOINT INTEGRATED RESOURCE PLAN
# LOAD FORECAST – 2027-2046

# I. FORECAST SUMMARY

Key highlights of the 2026 Joint IRP load forecast include:

- The primary driver of growth in the 2026 Joint IRP load forecast is the continued unprecedented policy-driven load growth from the number and size of requests from large customer data center projects. The twenty-year 2027-2046 period Compound Annual Growth Rate ("CAGR") in the 2026 Joint IRP forecast, reflecting these projects, is 2.6 percent at Nevada Power and 5.6 percent at Sierra. Without these projects, as presented in the alternate Base Minus scenario, the twenty-year 2027-2046 period CAGR is 1.7 percent at Nevada Power and 1.3 percent at Sierra.
- Data center projects have higher load factors, with relatively consistent energy use across all hours relative to peak demand. This load profile enables more efficient use of grid facilities, as data centers place greater pressure on overall energy requirements than on peak demand and increase utilization of fixed system resources. As a result, annual energy requirements are growing faster than peak demand, improving overall grid efficiency. The magnitude of this growth is significant, however, effectively requiring the company to serve loads roughly 2.5 times current levels by 2046.
- Data centers accounted for five percent of total NV Energy sales in 2025 - three percent of total Nevada Power sales and 10 percent of total Sierra sales. By 2046, it is projected that data centers will account for 64 percent of total NV Energy sales - 42 percent at Nevada Power and 82 percent at Sierra.
- Projected electric vehicle adoption increases from 96,171 vehicles in 2025 to 703,577 vehicles by 2046. This equates to an increase from 3 percent of all vehicles in 2025 to 12 percent being electric vehicles by 2046.
- In this 2026 Joint IRP forecast, an average 1,177 Nevada Power and 170 Sierra Pacific residential customers become new solar NEM customers per month - until the forecast reaches 15 percent of total residential customers regionally (at which point, an annual reduction factor is applied to projected adoption rates). This equates to 395,136 total residential solar NEM customers in Nevada by 2046 with 3,000 megawatts ("MW") of installed on-site generation.

Table LF-1 provides a summary of the sales and peak forecasts for NV Energy, Nevada Power Company ("Nevada Power") and Sierra Pacific Power Company ("Sierra" and together with Nevada Power, the "Companies") over the 2015-2046 period.

## TABLE LF-1
## NV ENERGY FORECAST SUMMARY

| | NVE | | | Nevada Power | | | Sierra Pacific | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | GWh | Peak MW | Load Factor | GWh | Peak MW | Load Factor | GWh | Peak MW | Load Factor |
| 2015 | 31,383 | 7,511 | 48% | 22,595 | 5,864 | 44% | 8,789 | 1,647 | 61% |
| 2016 | 31,470 | 7,890 | 45% | 22,566 | 6,124 | 42% | 8,904 | 1,771 | 57% |
| 2017 | 30,643 | 7,613 | 46% | 21,482 | 5,929 | 41% | 9,160 | 1,754 | 60% |
| 2018 | 31,766 | 7,714 | 47% | 21,727 | 5,956 | 42% | 10,039 | 1,860 | 62% |
| 2019 | 30,779 | 7,362 | 48% | 20,531 | 5,611 | 42% | 10,248 | 1,808 | 65% |
| 2020 | 31,437 | 7,780 | 46% | 21,092 | 5,965 | 40% | 10,345 | 1,906 | 62% |
| 2021 | 32,238 | 8,384 | 44% | 21,695 | 6,300 | 39% | 10,544 | 2,106 | 57% |
| 2022 | 31,705 | 7,880 | 46% | 21,862 | 6,033 | 41% | 9,843 | 1,962 | 57% |
| 2023 | 30,816 | 8,135 | 43% | 21,170 | 6,311 | 38% | 9,646 | 1,825 | 60% |
| 2024 | 33,181 | 8,708 | 43% | 23,344 | 6,649 | 40% | 9,837 | 2,127 | 53% |
| 2025 | 32,468 | 8,188 | 45% | 22,836 | 6,168 | 42% | 9,632 | 2,073 | 53% |
| 2026 | 34,985 | 8,564 | 47% | 22,967 | 6,441 | 41% | 12,018 | 2,266 | 61% |
| 2027 | 39,896 | 9,114 | 50% | 25,038 | 6,705 | 43% | 14,858 | 2,598 | 65% |
| 2028 | 44,329 | 9,629 | 52% | 26,620 | 6,865 | 44% | 17,709 | 2,951 | 68% |
| 2029 | 49,402 | 10,511 | 54% | 28,859 | 7,369 | 45% | 20,543 | 3,242 | 72% |
| 2030 | 54,676 | 11,192 | 56% | 31,408 | 7,751 | 46% | 23,268 | 3,606 | 74% |
| 2031 | 62,196 | 12,183 | 58% | 32,542 | 7,993 | 46% | 29,654 | 4,375 | 77% |
| 2032 | 65,436 | 12,607 | 59% | 33,335 | 8,102 | 47% | 32,102 | 4,614 | 79% |
| 2033 | 68,221 | 12,798 | 61% | 34,000 | 8,227 | 47% | 34,221 | 4,951 | 79% |
| 2034 | 70,878 | 13,466 | 60% | 34,717 | 8,509 | 47% | 36,160 | 5,130 | 80% |
| 2035 | 73,644 | 13,897 | 60% | 35,438 | 8,628 | 47% | 38,205 | 5,355 | 81% |
| 2036 | 76,971 | 14,314 | 61% | 36,422 | 8,835 | 47% | 40,549 | 5,672 | 81% |
| 2037 | 79,268 | 14,790 | 61% | 37,440 | 9,052 | 47% | 41,828 | 5,829 | 82% |
| 2038 | 81,493 | 15,051 | 62% | 38,518 | 9,283 | 47% | 42,975 | 6,014 | 82% |
| 2039 | 83,720 | 15,237 | 63% | 39,535 | 9,389 | 48% | 44,184 | 6,218 | 81% |
| 2040 | 86,188 | 15,941 | 62% | 40,657 | 9,800 | 47% | 45,531 | 6,317 | 82% |
| 2041 | 88,347 | 16,253 | 62% | 41,713 | 9,968 | 48% | 46,634 | 6,480 | 82% |
| 2042 | 90,421 | 16,740 | 62% | 42,558 | 10,280 | 47% | 47,863 | 6,680 | 82% |
| 2043 | 92,497 | 17,049 | 62% | 43,356 | 10,344 | 48% | 49,141 | 6,786 | 83% |
| 2044 | 94,910 | 17,285 | 63% | 44,363 | 10,487 | 48% | 50,547 | 6,998 | 82% |
| 2045 | 96,850 | 17,782 | 62% | 45,113 | 10,820 | 48% | 51,736 | 7,145 | 83% |
| 2046 | 99,053 | 18,148 | 62% | 45,952 | 10,964 | 48% | 53,101 | 7,275 | 83% |
| CAGR | | | | | | | | | |
| 2016-2025 | 0.3% | 0.4% | --- | 0.1% | 0.1% | --- | 0.9% | 1.8% | --- |
| 2027-2029 | 11.3% | 7.4% | --- | 7.4% | 4.8% | --- | 17.6% | 11.7% | --- |
| 2027-2036 | 7.6% | 5.1% | --- | 4.3% | 3.1% | --- | 11.8% | 9.1% | --- |
| 2027-2046 | 4.9% | 3.7% | --- | 3.2% | 2.6% | --- | 6.9% | 5.6% | --- |

Table LF-2 provides a summary of the sales forecast by customer group for NV Energy over the 2015-2046 period.

**TABLE LF-2**
**NV ENERGY FORECAST SUMMARY BY CUSTOMER GROUP (GWH)**

| Year | Residential | Small Commercial & Industrial | Medium Commercial & Industrial | Large Commercial & Industrial | Public Authority/ Irrigation | Street Lighting | Total | Percent Growth |
|---|---|---|---|---|---|---|---|---|
| 2015 | 11,636 | 5,247 | 3,893 | 6,599 | 239 | 172 | 27,786 | — |
| 2016 | 11,919 | 5,333 | 4,047 | 6,632 | 227 | 173 | 28,331 | 2.0% |
| 2017 | 11,994 | 5,340 | 4,408 | 6,405 | 193 | 172 | 28,511 | 0.6% |
| 2018 | 12,125 | 5,372 | 4,666 | 6,317 | 223 | 171 | 28,874 | 1.3% |
| 2019 | 12,074 | 5,401 | 4,666 | 6,624 | 181 | 168 | 29,114 | 0.8% |
| 2020 | 12,741 | 5,160 | 4,416 | 5,818 | 244 | 163 | 28,542 | -2.0% |
| 2021 | 12,977 | 5,468 | 4,602 | 6,507 | 259 | 157 | 29,971 | 5.0% |
| 2022 | 12,949 | 5,534 | 4,764 | 5,774 | 270 | 149 | 29,440 | -1.8% |
| 2023 | 12,333 | 5,458 | 4,735 | 5,950 | 197 | 140 | 28,812 | -2.1% |
| 2024 | 12,432 | 5,616 | 4,868 | 6,599 | 231 | 135 | 29,880 | 3.7% |
| 2025 | 13,027 | 5,666 | 4,936 | 6,907 | 247 | 125 | 30,909 | 3.4% |
| 2026 | 12,667 | 5,677 | 4,339 | 9,780 | 233 | 147 | 32,843 | 6.3% |
| 2027 | 12,838 | 5,739 | 4,352 | 14,358 | 238 | 147 | 37,671 | 14.7% |
| 2028 | 12,995 | 5,801 | 4,378 | 19,101 | 243 | 147 | 42,665 | 13.3% |
| 2029 | 13,081 | 5,854 | 4,389 | 23,939 | 247 | 147 | 47,657 | 11.7% |
| 2030 | 13,314 | 5,897 | 4,410 | 28,822 | 251 | 147 | 52,841 | 10.9% |
| 2031 | 13,543 | 5,925 | 4,422 | 35,936 | 255 | 147 | 60,227 | 14.0% |
| 2032 | 13,780 | 5,991 | 4,439 | 38,791 | 258 | 147 | 63,406 | 5.3% |
| 2033 | 13,948 | 6,060 | 4,442 | 41,283 | 261 | 147 | 66,141 | 4.3% |
| 2034 | 14,122 | 6,121 | 4,451 | 43,645 | 264 | 147 | 68,749 | 3.9% |
| 2035 | 14,332 | 6,173 | 4,466 | 46,078 | 267 | 147 | 71,463 | 3.9% |
| 2036 | 14,621 | 6,231 | 4,501 | 48,954 | 271 | 147 | 74,725 | 4.6% |
| 2037 | 14,880 | 6,281 | 4,518 | 50,880 | 272 | 147 | 76,979 | 3.0% |
| 2038 | 15,128 | 6,382 | 4,549 | 52,680 | 274 | 147 | 79,160 | 2.8% |
| 2039 | 15,353 | 6,480 | 4,581 | 54,504 | 277 | 147 | 81,342 | 2.8% |
| 2040 | 15,605 | 6,583 | 4,621 | 56,525 | 280 | 147 | 83,761 | 3.0% |
| 2041 | 15,890 | 6,625 | 4,652 | 58,282 | 281 | 147 | 85,878 | 2.5% |
| 2042 | 16,199 | 6,677 | 4,687 | 59,914 | 284 | 147 | 87,909 | 2.4% |
| 2043 | 16,468 | 6,755 | 4,725 | 61,561 | 286 | 147 | 89,942 | 4.7% |
| 2044 | 16,740 | 6,866 | 4,778 | 63,487 | 288 | 147 | 92,307 | 5.0% |
| 2045 | 16,880 | 6,959 | 4,811 | 65,123 | 289 | 147 | 94,208 | 4.7% |
| 2046 | 17,117 | 7,026 | 4,857 | 66,928 | 292 | 147 | 96,367 | 4.4% |

Note: Historical Sales are weather-normalized.

| CAGR | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2016-2025 | 1.0% | 0.7% | 2.2% | 0.5% | 1.0% | -3.6% | 1.0% | — |
| 2027-2029 | 0.9% | 1.0% | 0.4% | 29.1% | 2.0% | 0.0% | 12.5% | — |
| 2027-2036 | 1.5% | 0.9% | 0.4% | 14.6% | 1.5% | 0.0% | 7.9% | — |
| 2027-2046 | 1.5% | 1.1% | 0.6% | 8.4% | 1.1% | 0.0% | 5.1% | — |

Table LF-3 provides a summary of the sales forecast by customer group for Nevada Power over the 2015-2046 period.

**TABLE LF-3**
**NEVADA POWER FORECAST SUMMARY BY CUSTOMER GROUP (GWH)**

| Year | Residential | Small Commercial & Industrial | Medium Commercial & Industrial | Large Commercial & Industrial | Public Authority | Street Lighting | Total | Percent Growth |
|---|---|---|---|---|---|---|---|---|
| 2015 | 9,297 | 4,608 | 1,803 | 3,736 | 55 | 156 | 19,654 | — |
| 2016 | 9,484 | 4,682 | 1,916 | 3,688 | 58 | 157 | 19,986 | 1.7% |
| 2017 | 9,593 | 4,683 | 2,273 | 3,291 | 55 | 156 | 20,050 | 0.3% |
| 2018 | 9,691 | 4,717 | 2,506 | 2,893 | 58 | 155 | 20,021 | -0.1% |
| 2019 | 9,582 | 4,742 | 2,507 | 2,862 | 42 | 153 | 19,888 | -0.7% |
| 2020 | 10,073 | 4,507 | 2,319 | 2,533 | 46 | 147 | 19,626 | -1.3% |
| 2021 | 10,244 | 4,800 | 2,428 | 2,803 | 56 | 143 | 20,474 | 4.3% |
| 2022 | 10,260 | 4,856 | 2,545 | 3,069 | 56 | 136 | 20,922 | 2.2% |
| 2023 | 9,747 | 4,785 | 2,544 | 3,339 | 53 | 128 | 20,596 | -1.6% |
| 2024 | 9,756 | 4,910 | 2,573 | 3,695 | 58 | 120 | 21,112 | 2.5% |
| 2025 | 10,249 | 4,958 | 2,616 | 3,810 | 60 | 116 | 21,809 | 3.3% |
| 2026 | 9,921 | 4,912 | 2,413 | 4,906 | 39 | 133 | 22,325 | 2.4% |
| 2027 | 10,072 | 4,971 | 2,435 | 6,714 | 39 | 133 | 24,364 | 9.1% |
| 2028 | 10,211 | 5,030 | 2,461 | 8,045 | 41 | 134 | 25,921 | 6.4% |
| 2029 | 10,299 | 5,086 | 2,487 | 10,082 | 41 | 133 | 28,127 | 8.5% |
| 2030 | 10,507 | 5,123 | 2,513 | 12,321 | 41 | 133 | 30,637 | 8.9% |
| 2031 | 10,710 | 5,145 | 2,531 | 13,191 | 42 | 133 | 31,752 | 3.6% |
| 2032 | 10,912 | 5,208 | 2,553 | 13,681 | 42 | 134 | 32,530 | 2.5% |
| 2033 | 11,069 | 5,278 | 2,567 | 14,094 | 42 | 133 | 33,183 | 2.0% |
| 2034 | 11,223 | 5,340 | 2,587 | 14,560 | 42 | 133 | 33,885 | 2.1% |
| 2035 | 11,407 | 5,391 | 2,609 | 15,010 | 42 | 133 | 34,592 | 2.1% |
| 2036 | 11,661 | 5,443 | 2,641 | 15,633 | 44 | 134 | 35,556 | 2.8% |
| 2037 | 11,897 | 5,493 | 2,673 | 16,313 | 44 | 133 | 36,554 | 2.8% |
| 2038 | 12,115 | 5,593 | 2,710 | 17,017 | 44 | 133 | 37,612 | 2.9% |
| 2039 | 12,316 | 5,690 | 2,746 | 17,679 | 45 | 133 | 38,609 | 2.7% |
| 2040 | 12,532 | 5,792 | 2,790 | 18,416 | 45 | 134 | 39,709 | 2.9% |
| 2041 | 12,793 | 5,832 | 2,825 | 19,115 | 45 | 133 | 40,744 | 2.6% |
| 2042 | 13,073 | 5,882 | 2,865 | 19,571 | 46 | 133 | 41,571 | 2.0% |
| 2043 | 13,316 | 5,959 | 2,908 | 19,989 | 47 | 133 | 42,352 | 3.9% |
| 2044 | 13,557 | 6,066 | 2,959 | 20,577 | 47 | 134 | 43,339 | 4.3% |
| 2045 | 13,694 | 6,162 | 3,000 | 21,036 | 47 | 133 | 44,073 | 4.1% |
| 2046 | 13,911 | 6,226 | 3,048 | 21,526 | 48 | 133 | 44,894 | 3.6% |

Note: Historical Sales are weather-normalized.

| CAGR | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2016-2025 | 0.9% | 0.6% | 3.5% | 0.4% | 0.4% | -3.3% | 1.0% | — |
| 2027-2029 | 1.1% | 1.2% | 1.1% | 22.5% | 1.9% | 0.0% | 7.4% | — |
| 2027-2036 | 1.6% | 1.0% | 0.9% | 9.8% | 1.3% | 0.0% | 4.3% | — |
| 2027-2046 | 1.7% | 1.2% | 1.2% | 6.3% | 1.1% | 0.0% | 3.3% | — |

Table LF-4 provides a summary of the sales forecast by customer group for Sierra over the 2015-2046 period.

**TABLE LF-4**
**SIERRA FORECAST SUMMARY BY CUSTOMER GROUP (GWH)**

| Year | Residential | Small Commercial & Industrial | Medium Commercial & Industrial | Large Commercial & Industrial | Irrigation | Street Lighting | Total | Percent Growth |
|---|---|---|---|---|---|---|---|---|
| 2015 | 2,339 | 639 | 2,090 | 2,863 | 184 | 16 | 8,131 | --- |
| 2016 | 2,435 | 651 | 2,131 | 2,943 | 169 | 16 | 8,345 | 2.6% |
| 2017 | 2,401 | 656 | 2,134 | 3,114 | 138 | 16 | 8,460 | 1.4% |
| 2018 | 2,433 | 654 | 2,161 | 3,424 | 164 | 16 | 8,853 | 4.6% |
| 2019 | 2,492 | 659 | 2,159 | 3,761 | 139 | 16 | 9,227 | 4.2% |
| 2020 | 2,668 | 653 | 2,097 | 3,285 | 197 | 15 | 8,916 | -3.4% |
| 2021 | 2,733 | 669 | 2,174 | 3,704 | 202 | 15 | 9,496 | 6.5% |
| 2022 | 2,689 | 678 | 2,219 | 2,705 | 214 | 13 | 8,518 | -10.3% |
| 2023 | 2,586 | 673 | 2,190 | 2,611 | 144 | 11 | 8,216 | -3.6% |
| 2024 | 2,676 | 706 | 2,296 | 2,903 | 172 | 14 | 8,768 | 6.7% |
| 2025 | 2,779 | 708 | 2,320 | 3,097 | 187 | 9 | 9,100 | 3.8% |
| 2026 | 2,746 | 765 | 1,926 | 4,874 | 194 | 14 | 10,518 | 15.6% |
| 2027 | 2,766 | 768 | 1,917 | 7,644 | 198 | 14 | 13,307 | 26.5% |
| 2028 | 2,783 | 771 | 1,916 | 11,057 | 203 | 14 | 16,743 | 25.8% |
| 2029 | 2,783 | 768 | 1,902 | 13,857 | 206 | 14 | 19,530 | 16.6% |
| 2030 | 2,807 | 775 | 1,897 | 16,501 | 210 | 14 | 22,204 | 13.7% |
| 2031 | 2,832 | 779 | 1,891 | 22,745 | 213 | 14 | 28,476 | 28.2% |
| 2032 | 2,867 | 783 | 1,886 | 25,110 | 216 | 14 | 30,876 | 8.4% |
| 2033 | 2,879 | 783 | 1,875 | 27,189 | 219 | 14 | 32,958 | 6.7% |
| 2034 | 2,899 | 781 | 1,864 | 29,085 | 222 | 14 | 34,864 | 5.8% |
| 2035 | 2,925 | 782 | 1,857 | 31,068 | 224 | 14 | 36,871 | 5.8% |
| 2036 | 2,959 | 788 | 1,860 | 33,321 | 227 | 14 | 39,169 | 6.2% |
| 2037 | 2,983 | 788 | 1,845 | 34,567 | 229 | 14 | 40,424 | 3.2% |
| 2038 | 3,014 | 789 | 1,839 | 35,663 | 230 | 14 | 41,548 | 2.8% |
| 2039 | 3,037 | 790 | 1,835 | 36,826 | 232 | 14 | 42,734 | 2.9% |
| 2040 | 3,073 | 791 | 1,831 | 38,109 | 234 | 14 | 44,052 | 3.1% |
| 2041 | 3,097 | 793 | 1,827 | 39,167 | 236 | 14 | 45,134 | 2.5% |
| 2042 | 3,126 | 795 | 1,822 | 40,343 | 238 | 14 | 46,338 | 2.7% |
| 2043 | 3,151 | 796 | 1,817 | 41,573 | 239 | 14 | 47,591 | 5.4% |
| 2044 | 3,184 | 801 | 1,820 | 42,909 | 241 | 14 | 48,968 | 5.7% |
| 2045 | 3,185 | 798 | 1,811 | 44,086 | 242 | 14 | 50,136 | 5.3% |
| 2046 | 3,206 | 799 | 1,809 | 45,401 | 244 | 14 | 51,473 | 5.1% |

Note: Historic Sales are weather-normalized.

| CAGR | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2016-2025 | 1.5% | 0.9% | 0.9% | 0.6% | 1.2% | -6.8% | 1.0% | --- |
| 2027-2029 | 0.3% | 0.0% | -0.4% | 34.6% | 2.0% | 0.1% | 21.1% | --- |
| 2027-2036 | 0.8% | 0.3% | -0.3% | 17.8% | 1.5% | 0.0% | 12.7% | --- |
| 2027-2046 | 0.8% | 0.2% | -0.3% | 9.8% | 1.1% | 0.0% | 7.4% | --- |

A. Comparison to Previous Forecast

Table LF-5 provides a summary of the sales and peak forecasts for the combined NV Energy system over the 2027-2046 period relative to the 2024 Joint IRP 1st Amendment (2024 Joint IRP 1A) Forecast.

**TABLE LF-5**
**NV ENERGY FORECAST COMPARISON**

| | 2026 IRP | | 2024 Joint IRP 1A | | Difference | |
|---|---|---|---|---|---|---|
| Year | GWh | Peak MW | GWh | Peak MW | GWh | Peak MW |
| 2027 | 39,896 | 9,114 | 37,087 | 8,895 | 2,809 | 219 |
| 2028 | 44,329 | 9,629 | 38,371 | 9,145 | 5,958 | 484 |
| 2029 | 49,402 | 10,511 | 39,742 | 9,405 | 9,660 | 1,106 |
| 2030 | 54,676 | 11,192 | 41,981 | 9,899 | 12,695 | 1,293 |
| 2031 | 62,196 | 12,183 | 44,243 | 10,199 | 17,953 | 1,984 |
| 2032 | 65,436 | 12,607 | 46,516 | 10,630 | 18,920 | 1,977 |
| 2033 | 68,221 | 12,798 | 47,391 | 10,671 | 20,830 | 2,127 |
| 2034 | 70,878 | 13,466 | 48,335 | 11,070 | 22,543 | 2,396 |
| 2035 | 73,644 | 13,897 | 49,380 | 11,181 | 24,263 | 2,716 |
| 2036 | 76,971 | 14,314 | 50,615 | 11,485 | 26,356 | 2,829 |
| 2037 | 79,268 | 14,790 | 51,796 | 11,748 | 27,472 | 3,042 |
| 2038 | 81,493 | 15,051 | 53,171 | 11,910 | 28,322 | 3,141 |
| 2039 | 83,720 | 15,237 | 54,642 | 12,134 | 29,078 | 3,103 |
| 2040 | 86,188 | 15,941 | 56,350 | 12,681 | 29,838 | 3,260 |
| 2041 | 88,347 | 16,253 | 57,903 | 12,931 | 30,444 | 3,322 |
| 2042 | 90,421 | 16,740 | 59,634 | 13,155 | 30,787 | 3,585 |
| 2043 | 92,497 | 17,049 | 61,108 | 13,496 | 31,388 | 3,553 |
| 2044 | 94,910 | 17,285 | 63,061 | 13,750 | 31,849 | 3,535 |
| 2045 | 96,850 | 17,782 | 64,702 | 14,240 | 32,148 | 3,542 |
| 2046 | 99,053 | 18,148 | 66,646 | 14,434 | 32,407 | 3,714 |
| CAGR | | | | | | |
| 2027-2029 | 11.3% | 7.4% | 3.5% | 2.8% | --- | --- |
| 2027-2036 | 7.6% | 5.1% | 3.5% | 2.9% | --- | --- |
| 2027-2046 | 4.9% | 3.7% | 3.1% | 2.6% | --- | --- |

Table LF-6 is a summary of the sales and peak forecasts for Nevada Power for the 2027-2046 period relative to the 2024 Joint IRP Forecast.

**TABLE LF-6**
**NEVADA POWER FORECAST COMPARISON**

| | 2026 IRP | | 2024 Joint IRP 1A | | Difference | |
|---|---|---|---|---|---|---|
| Year | GWh | Peak MW | GWh | Peak MW | GWh | Peak MW |
| 2027 | 25,038 | 6,705 | 23,161 | 6,674 | 1,877 | 31 |
| 2028 | 26,620 | 6,865 | 23,527 | 6,799 | 3,092 | 66 |
| 2029 | 28,859 | 7,369 | 23,825 | 6,835 | 5,035 | 534 |
| 2030 | 31,408 | 7,751 | 24,231 | 7,059 | 7,177 | 692 |
| 2031 | 32,542 | 7,993 | 24,615 | 7,141 | 7,927 | 852 |
| 2032 | 33,335 | 8,102 | 25,075 | 7,265 | 8,260 | 837 |
| 2033 | 34,000 | 8,227 | 25,447 | 7,348 | 8,553 | 879 |
| 2034 | 34,717 | 8,509 | 25,887 | 7,494 | 8,831 | 1,015 |
| 2035 | 35,438 | 8,628 | 26,339 | 7,603 | 9,100 | 1,025 |
| 2036 | 36,422 | 8,835 | 26,895 | 7,794 | 9,526 | 1,041 |
| 2037 | 37,440 | 9,052 | 27,474 | 7,976 | 9,966 | 1,076 |
| 2038 | 38,518 | 9,283 | 28,140 | 8,093 | 10,378 | 1,190 |
| 2039 | 39,535 | 9,389 | 28,835 | 8,271 | 10,700 | 1,118 |
| 2040 | 40,657 | 9,800 | 29,712 | 8,495 | 10,946 | 1,305 |
| 2041 | 41,713 | 9,968 | 30,467 | 8,675 | 11,246 | 1,293 |
| 2042 | 42,558 | 10,280 | 31,297 | 8,919 | 11,261 | 1,361 |
| 2043 | 43,356 | 10,344 | 31,830 | 9,018 | 11,526 | 1,326 |
| 2044 | 44,363 | 10,487 | 32,712 | 9,151 | 11,651 | 1,336 |
| 2045 | 45,113 | 10,820 | 33,474 | 9,393 | 11,640 | 1,427 |
| 2046 | 45,952 | 10,964 | 34,329 | 9,526 | 11,623 | 1,438 |
| CAGR | | | | | | |
| 2027-2029 | 7.4% | 4.8% | 1.4% | 1.2% | --- | --- |
| 2027-2036 | 4.3% | 3.1% | 1.7% | 1.7% | --- | --- |
| 2027-2046 | 3.2% | 2.6% | 2.1% | 1.9% | --- | --- |

Table LF-7 is a summary of the sales and peak forecasts for Sierra over the 2027-2046 period relative to the 2024 Joint IRP Forecast.

**TABLE LF-7**
**SIERRA PACIFIC FORECAST COMPARISON**

| | 2026 IRP | | 2024 Joint IRP 1A | | Difference | |
|---|---|---|---|---|---|---|
| Year | GWh | Peak MW | GWh | Peak MW | GWh | Peak MW |
| 2027 | 14,858 | 2,598 | 13,927 | 2,495 | 932 | 103 |
| 2028 | 17,709 | 2,951 | 14,844 | 2,657 | 2,865 | 294 |
| 2029 | 20,543 | 3,242 | 15,918 | 2,856 | 4,625 | 386 |
| 2030 | 23,268 | 3,606 | 17,750 | 3,083 | 5,517 | 523 |
| 2031 | 29,654 | 4,375 | 19,628 | 3,415 | 10,027 | 960 |
| 2032 | 32,102 | 4,614 | 21,441 | 3,569 | 10,660 | 1,045 |
| 2033 | 34,221 | 4,951 | 21,944 | 3,663 | 12,277 | 1,288 |
| 2034 | 36,160 | 5,130 | 22,448 | 3,833 | 13,712 | 1,297 |
| 2035 | 38,205 | 5,355 | 23,041 | 3,898 | 15,164 | 1,457 |
| 2036 | 40,549 | 5,672 | 23,720 | 3,954 | 16,830 | 1,718 |
| 2037 | 41,828 | 5,829 | 24,322 | 4,016 | 17,506 | 1,813 |
| 2038 | 42,975 | 6,014 | 25,031 | 4,104 | 17,944 | 1,910 |
| 2039 | 44,184 | 6,218 | 25,807 | 4,252 | 18,378 | 1,966 |
| 2040 | 45,531 | 6,317 | 26,639 | 4,465 | 18,892 | 1,852 |
| 2041 | 46,634 | 6,480 | 27,437 | 4,527 | 19,197 | 1,953 |
| 2042 | 47,863 | 6,680 | 28,337 | 4,725 | 19,526 | 1,955 |
| 2043 | 49,141 | 6,786 | 29,279 | 4,744 | 19,862 | 2,042 |
| 2044 | 50,547 | 6,998 | 30,349 | 4,868 | 20,198 | 2,130 |
| 2045 | 51,736 | 7,145 | 31,228 | 5,173 | 20,508 | 1,972 |
| 2046 | 53,101 | 7,275 | 32,317 | 5,275 | 20,784 | 2,000 |
| CAGR | | | | | | |
| 2027-2029 | 17.6% | 11.7% | 6.9% | 7.0% | --- | --- |
| 2027-2036 | 11.8% | 9.1% | 6.1% | 5.2% | --- | --- |
| 2027-2046 | 6.9% | 5.6% | 4.5% | 4.0% | --- | --- |

# II. MODEL ASSUMPTIONS AND DATA DEVELOPMENT

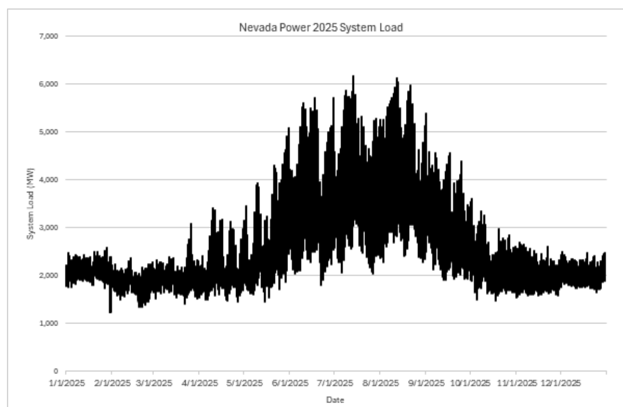
## A. NV Energy System Overview

NV Energy serves a geographically diverse and evolving customer base across northern and southern Nevada, delivering power to over 1.5 million customers. Electricity use in Nevada varies significantly not only by region and customer type, but also by time of day and season.

Load forecasting plays a critical role in NV Energy's long-term planning efforts. It helps estimate how much electricity the company will need to provide in order to reliably serve customers over the next 20 years, including both customer's average energy use as well as their peak demand during the most extreme hours. The load forecast is constructed using a data-driven, bottom-up methodology. Separate forecasts are created for each customer group, including residential (single-family and multi-family homes), small and medium commercial and industrial (C&I) customers, large C&I users (casinos, data centers, manufacturers, etc.), as well as net-metering, street lighting, and irrigation customers. Customer counts are estimated using economic indicators such as population and employment, while usage per customer is modeled based on weather, appliance saturation, and efficiency trends.

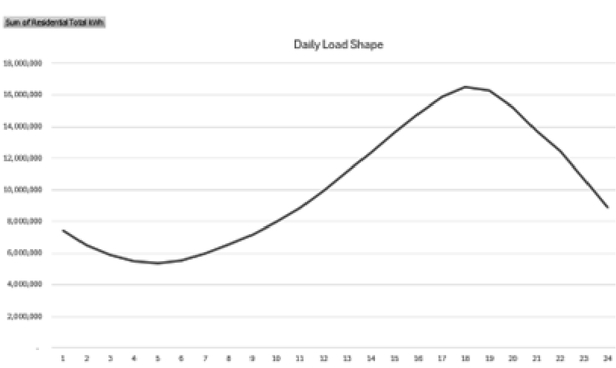
Each sector has distinct electricity usage patterns, and the load forecast is structured to capture these nuances. The aggregation of these usage characteristics across all customers creates the overall electric system requirements to be served by NV Energy. Figure LF-1 shows the 2025 system load for Nevada Power, illustrating how electricity demand in the hotter summer months can be more than three times higher than demand during the cooler winter season as customers use air conditioning to stay cool during the summer season.

**FIGURE LF-1**
**NEVADA POWER 2025 SYSTEM LOAD (MW)**




These fluctuations present challenges for planning the necessary resources in order to efficiently and reliably serve customers. This issue is significant not only across seasonal variations, but also even under daily fluctuations. Figure LF-2 illustrates a typical summer daily load shape for residential customers, highlighting the steady climb in usage throughout the day and the pronounced peak in the early evening. These hourly patterns are foundational to understanding when the system is under the most stress and help inform planning of the system in order to ensure adequate resource availability at all times.

**FIGURE LF-2**
**RESIDENTIAL DAILY LOAD SHAPE EXAMPLE**

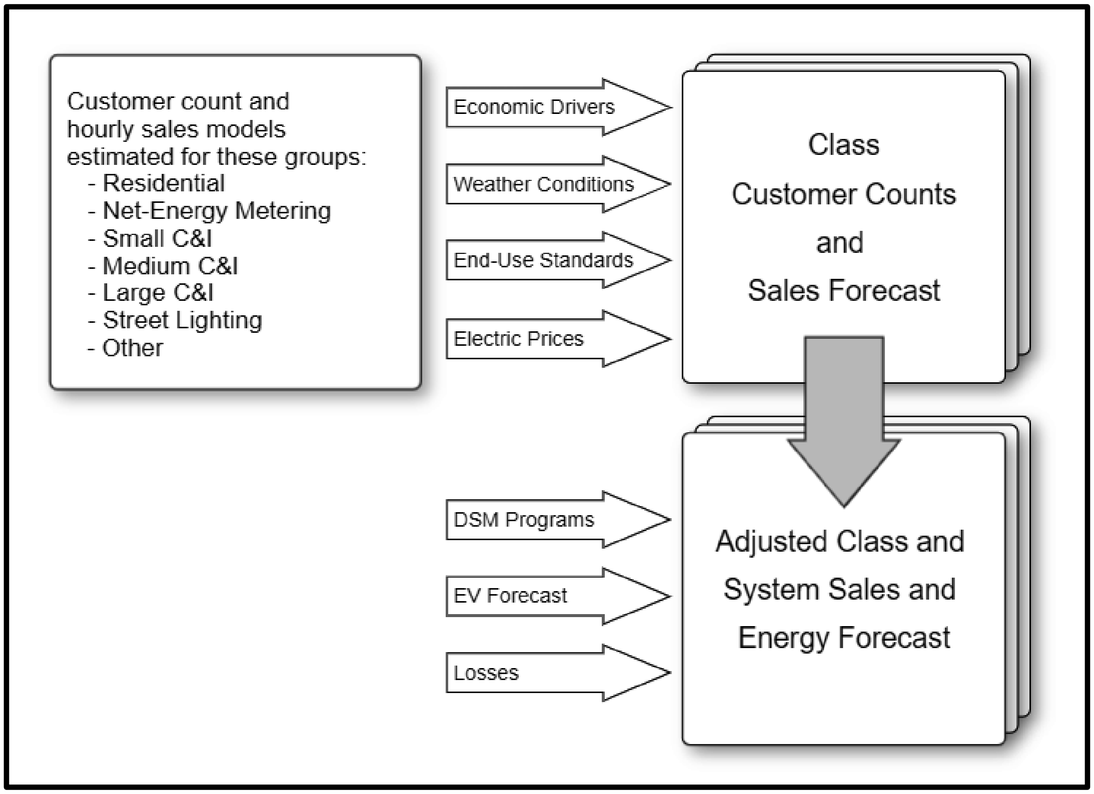


Accurately forecasting daily and seasonal variations in hourly electric load is essential because it directly supports reliable system operations and cost-effective planning, which benefits all customers. Appropriately reflecting the variations in system loads allow for more efficient and accurate scheduling of generation, managing of fuel purchases, and the optimization of grid assets to meet demand without over- or under-committing resources. They also reduce operational risk during extreme weather or peak periods, while enabling better integration of variable renewable resources and demand-side programs. Ultimately, the twenty-year hourly forecast presented in this proceeding helps to support reliability, control costs, and make informed investment and regulatory decisions of the company and Public Utilities Commission of Nevada to the benefit of all customers.

## B. Model Introduction

The following section provides descriptions of all data inputs to the models used in developing the load forecast, per NAC § 704.922.2(b). As in past filings, the forecast is developed using a bottom-up data-driven modelling approach. Separate customer and sales forecasts are developed for each of the primary customer groups. Sales and customer counts are forecasted for each of the primary customer classes for both Nevada Power and Sierra. Forecasts for heating, cooling, and base-use (non-weather sensitive) end-uses are derived from the customer class forecast models and used to drive system peak demand. Each component is adjusted for expected decreases from DSM programs and incremental electric vehicle charging. System energy requirements are derived by adding these separate sales forecasts and adjusting for line losses, projecting total system energy and peak demand for each region. The combined NV Energy system forecast is derived by combining the resulting Sierra and Nevada Power hourly load forecasts. Figure LF-3 shows the general modeling framework.

**FIGURE LF-3**
**General Modeling Framework**




Following the previously approved approach, Residential, Small Commercial and Industrial ("Small C&I"), and Medium Commercial and Industrial ("Medium C&I") customer counts are modelled at the group level. Monthly customer forecasts are estimated using linear regression models that relate the number of customers to applicable economic drivers (e.g. population, employment) and are multiplied by average use per customer to derive hourly sales for each group. Average use projections are based on a statistically adjusted end-use ("SAE") specification that relates average use to estimates of heating, cooling, and base-use requirements. Net-Energy Metering ("NEM") customers, who have installed customer-owned generation, are separately forecast rather than embedded as part of the larger group forecast. The customer counts and sales for these customers are then removed from the corresponding customer groups to identify the impact of the difference in sales on the overall forecast.

Large Commercial and Industrial ("Large C&I") sales and customers are forecasted by business type (e.g. Casino, Mine, Data Center, Water, General Industrial). The Total Large C&I sales and customer forecast is derived by summing individual business type sales and customer forecasts. Customer counts for each group are forecast using applicable economic drivers (e.g. population, employment, hotel room counts) and multiplied by average use per customer to derive hourly sales for each group. The Large C&I sales forecasts may be also adjusted for customer-specific forecasts including Distribution-Only Service ("DOS") related sales loss, when applicable. As a note, DOS customer classes are forecast in a similar manner, but do not affect the companies' retail load requirements, and are therefore not included in the load forecast generally presented here.

Similar to previous forecast updates, certain Large C&I customers are individually forecast and added to the general Large C&I forecast. Forecasts for these customers are based on discussions with the Companies' Major Account, Economic Development, and Major Projects groups, and customer input related to expected business activity and associated sales and demand impacts. Major Projects with signed Rule 9 interconnection agreements are separately considered from those in the Study Phase of the process. Consistent with the historical approach of modelling these Major Projects, considerations reduce the amount of load expected on the system due to time delays and historical amounts relative to customer requested amounts.

Separate sales forecasts are developed for lighting and irrigation customers. Street Lighting ("SL") and Outdoor Lighting Service models ("OLS") are developed separately in this update. The OLS sales are included in the corresponding Residential and Small C&I sales results for Nevada Power. Forecasts for the Sierra irrigation ("IRR") and Public Street and Highway Lighting ("STL") classes at both Companies are developed empirically based on recent history.

In summary, forecast models are estimated for the following revenue classes:

- Residential for the Companies and a separate Residential OLS model for Sierra;
- Small C&I (excluding irrigation) and a separate Small C&I OLS model for Sierra;
- Large C&I model, which includes existing customer forecast, Major Projects, and Standby classes;
- Other/Street Lighting

Additional load adjustments are made for future Demand Side Management ("DSM") savings and Electric Vehicle ("EV") charging loads. The System energy forecast is derived by adjusting Sierra and Nevada Power for line losses and adding the two company forecasts.

## C. Assumptions and Changes

The 2026 Joint IRP Forecast update incorporates several refinements from the 2024 Joint IRP Forecast but maintains substantial portions of the approved methodology. Residential and Small C&I customer counts follow the same method using updated Nevada population estimates to develop counts by customer group. The average use per customer information for these groups begins with hourly class load information. Each sales forecast is developed by multiplying the number of customers by the average use per customer. Once developed, the hourly sales forecasts are weather normalized by distinct monthly coefficients to project sales at normal weather considerations, including consideration of cooling/warming trends over the forecast period. Once weather normalized, these loads are adjusted by the SAE model adjustments, discussed in more detail later, in order to achieve a consistent weather normalized and SAE adjusted result.

A separate NEM customer and sales forecast is used to estimate the rapid growth of these customers over recent years. These customers and sales are removed from their larger corresponding customer groups to identify the impact of the installation of these customer-owned systems on system requirements. Further, the energy produced by these customers that is sent back to the grid is considered in overall sales reductions for the corresponding groups in order to reflect the current net-billing requirements

Next, the load for the Large C&I major projects individually forecast are based on customer provided ramp schedules from the Rule 9 interconnection process and the company's historical experience with similar projects. The ramp schedules are reduced from the customer requested amounts to account for project delays and modifications to customer provided estimates that typically occur. The 2026 Joint IRP forecast separately considers those projects currently in the study phase of the interconnection process, albeit with a significantly reduced level of loads that are forecast to materialize over the forecast period, due to the likelihood of potential changes that may occur over time.

In this forecast update, the Retail Price component was specifically excluded from the SAE modelling efforts so that the results could be individually presented. In an effort to respond to the Commission requirement for more detailed rate impact analyses in recent IRP amendments, the update for the 2026 Joint IRP Forecast calculates the estimated load impact stemming from changes in price separately. The forecasted rates, detailed in the Financial Plan, are used to estimate the potential impacts on the load forecast. The steps for this analysis, and resulting impacts, are further detailed below.

## D. Forecast Model

Sales forecasts are generated for Residential and the Small and Medium C&I customer classes as the product of the customer and average use forecasts. Residential customer counts are driven by population projections. Small/Medium C&I customer count forecasts are based on projected number of residential customers; monthly models are estimated using linear regression.

Class average use models are also estimated with linear regression. Models are based on an SAE specification that captures structural change (end-use saturation and efficiency), economic activity, and weather. The resulting model, which is a linear regression, is used in combination with projected customer counts and forecasted economic and weather variables to predict 30 years of hourly usage. Customer count forecasts are applied to these predictions to form a 30-year forecast of monthly usage sums for each customer group.

Simultaneously, but separately, seven years of historical, weather-normalized hourly usage per customer for each standard customer class are used to derive a typical-year, 8760-hour load shape for each customer group. This load shape is adjusted for climate, then multiplied by forecasted customer counts to form a base forecast for each customer group. This hourly information is then scaled, without changing the overall shape of each day, so that the sums of the hourly forecast add up to the monthly predictions of the SAE model.

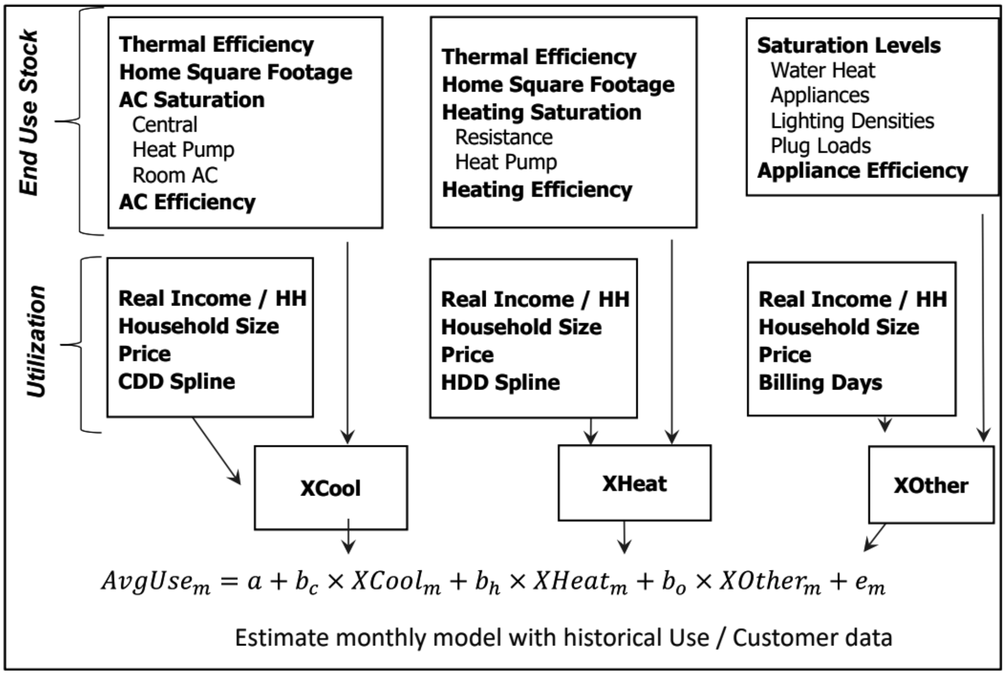
The following SAE process is used to forecast these customer groups: Residential Single-Family, Residential Multi-Family, Large Residential (for Nevada Power only), Small Commercial and Industrial ("C&I"), and Medium C&I customers. Other customer groups are forecast separately.

### SAE Model

Daily residential and commercial customer end-use models are estimated from historical calendar-day load data using an adaptation of the SAE model specification developed by Itron, Inc. The SAE modeling approach entails constructing end-use energy measures (XHeat, XCool, and XOther) and using these variables in estimating monthly average use and sales forecast models.

End-use variables, XCool, XHeat, and XOther, incorporate end-use stock information that includes end-use saturation and average stock efficiency, and drivers that impact stock utilization such as cooling and heating degree-days, household income, household size, and GDP in the C&I models. Model parameters ($b_c$, $b_h$, and $b_o$) are estimated using linear regression. Models are estimated from historical daily sums of actual hourly usage data. Figure LF-4 depicts the SAE model.

**FIGURE LF-4**
**Statistically Adjusted End-Use Model (SAE)**




Residential and commercial sales models are estimated using a SAE model specification developed by Itron, Inc.. The SAE modeling approach entails constructing end-use energy measures (XHeat, XCool, and XOther) and using these variables in estimating monthly average use and sales forecast models.

<u>SAE Model Specifications</u>

The 2026 Joint IRP Forecast update continues to be based on the SAE modeling framework as outlined in Itron's 2023 Residential and Commercial SAE Updates (found in Appendix LF-7). Compared with the most recent IRP Forecast update (the 2024 forecast update), the primary change of methodology employed in this update was a transition to daily data resolution from calendar-monthly data resolution. Another change in the SAE modeling approach was made possible for the first time by the higher resolution dataset provided by the choice to use daily data. This multiplies the sample size considerably and allows for the modeling to incorporate seasonality of responses. In much the same way as we've transitioned to using distinct monthly coefficients for weather normalization, we have also now transitioned to using distinct seasonal coefficients in our SAE modeling as well.

The SAE framework entails constructing generalized end-use variables for cooling (XCool), heating (XHeat), and other uses (XOther) and then using these variables as right-hand variables in monthly average use and sales forecast models. The general model specification is:

$$AvgUse_t = b_0 + b_1 * XCool_t + b_2 * XHeat_t + b_3 * XOther_t + e_t$$

The model coefficients are estimated using ordinary least squares regression. The construction of the end-use variables is presented below.

**Residential Model Variables**

**XCool**

The cooling variable (XCool) is constructed by combining a variable that reflects cooling saturation and efficiency (CoolIndex) with a variable that captures stock utilization (CoolUse):

$$XCool\_(y,m) = CoolIndex\_y \times CoolUse\_(y,m)$$

The cooling equipment index is defined as a weighted average across cooling equipment types where the weight represents the average technology energy intensity (kWh per household) in the base year. The index changes over time with changes in end-use saturation and end-use efficiency ("EFF"). As cooling saturation increases the index increases, as the end-use efficiency increases the index decreases. A structural index variable also is incorporated into the variable calculation. The structural index (StructuralVar) captures change in housing square footage and thermal shell integrity improvement. As the weights are end-use intensities, the resulting CoolIndex is an estimate of annual cooling energy requirements. Formally, the cooling equipment index is defined as:

$$CoolIndex_y = StructuralVar * \sum_{Type} Weight^{Type} \times \frac{\left( CoolShare_y^{Type} \big/ Eff_y^{Type} \right)}{\left( CoolShare_{base}^{Type} \big/ Eff_{base}^{Type} \right)}$$

The CoolUse term is defined by:[1]

$$CoolUse_{y,d} = \left(\frac{CDD_{y,d}}{CDD_{15}}\right) \times \left(\frac{HHSize_y}{HHSize_{15}}\right)^{0.20} \times \left(\frac{Income_y}{Income_{15}}\right)^{0.20} \times \left(\frac{ElecPrice_{y,m}}{ElecPrice_{15}}\right)^{\lambda} \times \left(\frac{GasPrice_{y,m}}{GasPrice_{15}}\right)^{\kappa}$$

Where, *CDD* is the cooling degree day value for each day,
*NormCDD* is the normal value for the corresponding day of the year,
*HHSize* is average household size in a year (y), and
*Income* is average real income per household in a year (y)

[1] The elasticities shown in the superscripts are default values taken from the Electric Power Research Institute ("EPRI") developed Residential End-Use Energy Planning System model ("REEPS"), a detailed end-use model and the predecessor of the Residential SAE model. The default values have been modified to reflect estimates of these elasticities for the Nevada Power and Sierra service territory. The elasticities used in modeling for price are 0 for both territories, to facilitate modeling the effect of price separately.The elasticities used in modeling for income and households are 0.2 for both Nevada Power and Sierra. These elasticities were applied in developing the XCool, XHeat and XOther variables.

By construction, the *CoolUse* variable has an annual sum that is close to one in the base year. The CDD index works to allocate annual cooling index (which is an annual kWh estimate) to months.

The XCool variable is constructed using data specific to Sierra and Nevada Power where data are available. This includes:

1. Modifying the end-use saturation based on the 2008, 2011 and 2016 residential appliance saturation surveys for Sierra and the 2008, 2011 and 2013 single family pricing trial saturations surveys for Nevada Power.
2. Using the 2015 intensities developed from ADM data.
3. Constructing the CoolUse variable with economic drivers including real personal income, population, and number of households.
4. Basing CDDs (actual and normal) from Sierra's and Nevada Power's historical weather data.

## XHeat

The heating variable (XHeat) construction is similar to XCool. XHeat is defined as:

$$XHeat_{y,m} \quad HeatIndex_y \times HeatUse_{y,m}$$

The heat index (HeatIndex) incorporates residential electric heating saturation and efficiency projections. The utilization variable (HeatUse) is defined like CoolUse but where CDDs are replaced with HDDs. XHeat incorporates Sierra's economic and price projections. The heating saturation rates have been modified to reflect the Sierra Residential Appliance Saturation Survey. The outcome is an initial estimation of average monthly household heating requirements.

## XOther

XOther is defined as:

$$XOther_{y,m} = \sum_k ApplianceIndex_{y,m} \times ApplianceUse_{y,m}$$

ApplianceIndex incorporates information about appliance saturation levels and efficiency levels. Seasonal usage patterns are captured by applying monthly usage factors ($MoMult_m$) to the annual end-use energy intensity estimates. Each ApplianceIndex term is defined by:

$$ApplianceIndex_{y,m} = Weight^{Type} \times \frac{\left(\frac{Sat_y^{Type}}{1/UEC_y^{Type}}\right)}{\left(\frac{Sat_{15}^{type}}{1/UEC_{15}^{Type}}\right)} \times MoMult_m^{Type} \times$$
$$(TenYearMovingAverageElectricPrice)^{\lambda} \times$$
$$(TenYearMovingAverageGasPrice)^{\kappa}$$

The ApplianceUse term is defined by

$$ApplianceUse_{y,m} = \left(\frac{BDays_{y,m}}{30.44}\right) \times \left(\frac{HHSize_y}{HHSize_{15}}\right)^{0.46} \times \left(\frac{Income_y}{Income_{15}}\right)^{0.1} \times \left(\frac{ElecPrice_{y,m}}{ElecPrice_{15}}\right)^{\lambda} \times \left(\frac{GasPrice_{y,m}}{GasPrice_{15}}\right)^{\kappa}$$

In all of the above equations, the following term definitions apply:

*UEC* is the unit energy consumption for each appliance type
*MoMult* is the monthly multiplier, constructed by Itron, for each appliance type
*Weight* is a weighting term, reflecting relative intensities for each appliance type
λ and κ are price elasticities of demand to electric and natural gas prices (as price elasticity's impact on the forecast is modeled separately, these values are set to zero in the SAE modeling).
BDays is the number of billing days in each month (this term is omitted in our modelling, since we use a higher-resolution form of this model).

Lighting and miscellaneous use are based on EIA's end-use energy projections. As with heating and cooling, the weights are defined as the base year values of energy use per household for each end use. The end-use elasticities on income and household size are taken from the REEPS default database. The appliance category includes data for cooking, dishwashers, clothes washers, clothes dryers, and televisions.

XOther is constructed using information specific to Sierra where this information is available. Specific service area data included in XOther are:

1. Modifying the end-use saturation based on the 2008, 2011 and 2016 residential appliance saturation surveys.
2. Using the 2015 intensities developed from ADM data and AEG lighting for Sierra. Constructing the OtherUse variable with MSA economic drivers including real personal income, household size, and number of households.

Due to the SAE model's use to model daily usage data in this forecast, there is no need to incorporate information about billing days per month into the "XOther" variable, and so this variable's formulation was modified from Itron's standard modelling approach to omit the billing days entirely.

Pursuant to NAC§ 704.922(2)(g), model documentation and complete output statistics for all models are included with the work papers. As a note, whenever a model omits an intercept term, that means there was such a good fit that the intercept was not found to be statistically significant.

**Commercial Model Variables**

The Commercial SAE Model is similar to that of the residential model. Cooling (XCool), Heating (XHeat), and Other Use (XOther) combine end-use energy intensity projections and factors that drive utilization of the end-use stock (economic activity, weather, and price). These variables are then used to drive commercial average use in the small commercial revenue class and total sales in the large commercial revenue class.

**XCool and XHeat**

The cooling variable (XCool) is defined as a product of an annual equipment index and a monthly usage multiplier:

$$XCool_{y,d} \quad CoolIndex_y \times CoolUse_{y,m}$$

Where, $XCool_{y,m}$ is estimated heating energy use in year (y) and day (d),
$CoolIndex_y$ is the annual heating stock, and
$CoolUse_{y,m}$ is the monthly usage multiplier.

CoolIndex is designed to capture the trend in commercial cooling saturation and efficiency. Similar to the residential cooling index, the commercial index changes over time with changes in cooling equipment saturations (Cool*Share*) and operating efficiencies (*Eff*). CoolIndex can be defined as:

$$CoolIndex_y = CoolSales_{13} \times \frac{CoolShare_y/Eff_y}{CoolShare_{13}/Eff_{13}}$$

In this expression, 2013 is used as a base year for normalizing the index. The ratio on the right is equal to 1.0 in 2013. The EIA does not explicitly provide commercial end-use saturation estimates. As a proxy, the index is calculated using end-use energy intensities (use per square foot) by building-type. End-use intensities are derived from EIA's most recent Energy Outlook. As there is effectively a 100 percent cooling saturation, the index generally declines over time as cooling equipment efficiency continues to improve.

Cooling requirements are driven by weather conditions and economic activity. Regional output is the primary economic driver used in the small commercial average use model. For the small commercial revenue class, the utilization variable is defined as:[2]

$$CoolUse_{y,d} = \left(\frac{CDD_{y,d}}{CDD_{13}}\right) \times \left(\frac{Output_y}{Output_{13}}\right)^{0.20} \times \left(\frac{Price_{y,m}}{Price_{13}}\right)^{\lambda}$$

Where,

*CDD* is the CDD value in year (y) and day (d) using daily average temperatures.
*Output* is a real regional output in year (y) and month (m).
*Price* is the average real price in month (m) and year (y).

The reference year used in this model was 2013. The $CDD_{13}$ value is the total CDDs summed up in 2013, but the $Output_{13}$ value is an average for 2013. XHeat is constructed in a similar manner to the XCool variable. While XHeat is statistically significant in the Small C&I models, the amount of the electric heating is very small. XHeat is not significant in either of the Medium C&I models,

[2] The output elasticity for the small C&I customer class model is 0.2.

or in the Nevada Power Small C&I model. For XCool, XHeat and XOther, the price elasticity was set to 0 to facilitate analysis of price elasticity separately from the SAE model.

XCool and XHeat are constructed to reflect the Nevada Power and Sierra service areas. Specific regional inputs include:

1. Constructing HeatUse and CoolUse using the Real GMP for the Small C&I classes,
2. HDD and CDD are based on Las Vegas and Reno weather data
3. Output elasticities are calibrated to historical output to sales relationship.

**XOther**

The non-weather sensitive variable (XOther) is derived using a similar approach as that used for the cooling and heating variables. XOther is defined as:

$$XOther_{y,m} = OtherIndex_{y,m} \times OtherUse_{y,m}$$

OtherIndex captures the energy intensity and saturation projections for the non-weather sensitive end-uses. This includes energy intensities for indoor lighting, outdoor lighting, ventilation, water heating, refrigeration, cooking, office equipment, and miscellaneous use. OtherIndex is defined by:

$$OtherIndex_{y,m} = \sum_{Type} Weight_{13}^{Type} \times \left( \frac{Share_{y}^{Type} / Eff_{y}^{Type}}{Share_{13}^{Type} / Eff_{13}^{Type}} \right)$$

Where each *Weight* term is assigned to a type of end use based on historical and projected relative intensities, and each *Share* term is a measure of saturation.

$$OtherUse_{y,d} = \left( \frac{BDays_{y,m}}{30.44} \right) \times \left( \frac{Output_{y}}{Output_{13}} \right)^{0.20} \times \left( \frac{Price_{y,m}}{Price_{13}} \right)^{\lambda}$$

OtherUse captures the impact of factors that affect changes in stock utilization. OtherUse is defined as:

This term is simpler in our modeling, since we omit the billing days term. Regional non-manufacturing output is used to capture the impact of business activity on average usage. The output elasticity with respect to small commercial average use is consistent with the income elasticity used in the residential average use model.

As with the constructed XCool and XHeat variables, XOther is constructed using service area specific data where these data are available.

Pursuant to NAC§ 704.922(2)(g), model documentation, estimated model results and a summary of model statistics are provided in workpapers.

Hourly Average-Use Forecast Model

For this forecast update, the forecast uses seven years of hourly per-customer usage data for a particular forecast grouping. These values are normalized to remove the impact of weather fluctuations from year to year. The average usage is then determined for each day of the year and a weekday/weekend categorization.[3] The weather normalization process is based on distinct monthly coefficients and considers trends in cooling/warming temperatures over the forecast period. The process to derive these weather normalization adjustments is detailed below. The result is an average use for each customer group for a typical-year 8,760-hour load shape built for both weekdays and weekends.

Next, adjustments are made to the normalized values to incorporate two assumptions. First, the approved approach of incorporating a warming trend in daily temperatures over the forecast period is integrated into the group usage forecast, referred to as a Climate Adjustment. The assumption is that the current local warming trends in Reno and Las Vegas will continue into the future in a strictly linear fashion. To get the Climate Adjustment, the appropriate cooling and heating coefficients are multiplied by the difference between Trended Daily Normals, trended to the final year of the historical data ("Reference Normals"), and Trended Daily Normals, trended to the year of each day in the 30-year forecast period ("Forecast Normals"). In this forecast update, the trends are developed for individual months and extended through the forecast period. The Climate Adjustment tends to increase usage in hot months and decrease usage in cold months as daily temperatures increase over the forecast period. The process to achieve the trended-normal weather factors is detailed later in this Technical Appendix.

The second adjustment incorporates the assumption that every day in the forecast period will depart from normal weather by an amount similar to fluctuations in real weather. Similar to the 2024 Joint IRP, a daily rank adjustment is used to model these daily weather variations. Each day is assigned a number between 1 and 31, with 1 meaning the day's usage per customer was the highest of that month. The usage of days with the same monthly rank are averaged across the historical usage dataset for each month. By averaging the usage across days of the same rank for a particular month and dividing by the average daily usage for that month, ratios of higher/lower usage relative to average usage are calculated, for each rank. These are applied to calculated normal weather usage to get an adjustment, which provides a daily adjustment factor for each day. This is multiplied by each hourly forecast value in that day, to reflect the usage fluctuations due to temperature across the forecast period. The results of these calculations are then scaled by month so that the hourly forecast's calendar-monthly sums equal the sums of the original forecast's predictions. To achieve this, these rank-adjusted predictions are divided by the hourly forecast's monthly sums from prior to the rank adjustment, to get monthly factors. Then, the rank-adjusted forecast values are all multiplied by these monthly factors, which results in an hourly forecast whose monthly sums are exactly the monthly predictions prior to the rank adjustment. In short, this results in more realistic daily peak predictions without changing the monthly sums predicted by the SAE model.

[3] In a period of five years, every day of the year will appear as a weekend day at least once, and as a weekday at least three times. For every hour of the year, the average usage across those years during which the hour fell during a weekday were averaged to get the weekday typical usage value for that hour during the weekday. Similar computations were performed to get the weekend typical usage for each hour, however since weekend data is more sparse, averages were taken for the two neighboring days for each hour as well. Values for the leap day were constructed by averaging the two neighboring days.

The resulting hourly forecasts by customer group are adjusted for additional considerations such as NEM adoption, incremental EV sales, and DSM program savings as detailed in this Technical Appendix. The sum of the individual groups represent total sales by company, which are then adjusted for losses in order to achieve total energy requirements by company.

E. MODEL INPUTS

Historical Data

Historical hourly usage data for each customer group is used as a starting point of customer data for this forecast update. Pursuant to NAC § 704.9281(1)(a) and (b), Table LF-8 summarizes the recorded annual GWh energy, MW Peak, and annual load factor for NV Energy, Nevada Power, and Sierra. As a note, energy serving Liberty Utilities in California has been excluded from this table, which represents Nevada only energy and peak information.

**TABLE LF-8**
**HISTORICAL DATA SUMMARY**

| | NVE | | | Nevada Power | | | Sierra Pacific | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Annual GWh | Peak MW | Load Factor | Annual GWh | Peak MW | Load Factor | Annual GWh | Peak MW | Load Factor |
| 2015 | 31,383 | 7,511 | 47.7% | 22,595 | 5,864 | 44.0% | 8,789 | 1,647 | 60.9% |
| 2016 | 31,470 | 7,890 | 45.5% | 22,566 | 6,124 | 42.0% | 8,904 | 1,771 | 57.2% |
| 2017 | 30,643 | 7,613 | 45.9% | 21,482 | 5,929 | 41.4% | 9,160 | 1,754 | 59.6% |
| 2018 | 31,766 | 7,714 | 47.0% | 21,727 | 5,956 | 41.6% | 10,039 | 1,860 | 61.6% |
| 2019 | 30,779 | 7,362 | 47.7% | 20,531 | 5,611 | 41.8% | 10,248 | 1,808 | 64.7% |
| 2020 | 31,437 | 7,780 | 46.1% | 21,092 | 5,965 | 40.3% | 10,345 | 1,906 | 61.8% |
| 2021 | 32,238 | 8,384 | 43.9% | 21,695 | 6,300 | 39.3% | 10,544 | 2,106 | 57.2% |
| 2022 | 31,705 | 7,880 | 45.9% | 21,862 | 6,033 | 41.4% | 9,843 | 1,962 | 57.3% |
| 2023 | 30,816 | 8,135 | 43.2% | 21,170 | 6,311 | 38.3% | 9,646 | 1,825 | 60.3% |
| 2024 | 33,181 | 8,708 | 43.5% | 23,344 | 6,649 | 40.1% | 9,837 | 2,127 | 52.8% |
| 2025 | 32,468 | 8,188 | 45.3% | 22,836 | 6,168 | 42.3% | 9,632 | 2,073 | 53.0% |

Pursuant to NAC § 704.9281(1)(a), Tables LF-9 and LF-10 provide a summary of the historical peak demand, both actual and weather normalized, by season. The weather normalized peak of the individual companies is based on the relationship between temperature deviations from normal and actual temperatures.

**TABLE LF-9**
**NEVADA POWER HISTORICAL PEAKS**

| | Nevada Power | | | | | | WINTER | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily Temperature | | | | System Peak (MW) | | | Daily Temperature | | | | System Peak (MW) | |
| Year | Min | Max | Average | Trended Normal | Actual | Weather Normalized | Winter | Min | Max | Average | Trended Normal | Actual | Weather Normalized |
| 2015 | 93 | 112 | 102.0 | 102.5 | 5,864 | 5,959 | | | | | | | |
| 2016 | 91 | 115 | 103.0 | 102.6 | 6,124 | 6,084 | 2015-2016 | 32 | 48 | 29 | 28.7 | 2,690 | 2,688 |
| 2017[1] | 88 | 117 | 103.0 | 102.7 | 5,929 | 5,889 | 2016-2017 | 30 | 53 | 32 | 28.8 | 2,510 | 2,620 |
| 2018 | 89 | 115 | 102.0 | 102.8 | 5,956 | 5,993 | 2017-2018 | 40 | 51 | 32 | 29.0 | 2,475 | 2,608 |
| 2019 | 90 | 112 | 102.0 | 102.9 | 5,611 | 5,706 | 2018-2019 | 33 | 44 | 29 | 29.2 | 2,538 | 2,540 |
| 2020 | 89 | 114 | 102.0 | 103.0 | 5,965 | 6,041 | 2019-2020 | 38 | 52 | 32 | 29.3 | 2,460 | 2,566 |
| 2021 | 93 | 116 | 104.0 | 103.1 | 6,300 | 6,107 | 2020-2021 | 38 | 48 | 34 | 29.5 | 2,400 | 2,574 |
| 2022 | 85 | 111 | 99.0 | 103.2 | 6,033 | 6,378 | 2021-2022 | 36 | 49 | 29 | 29.7 | 2,459 | 2,420 |
| 2023 | 90 | 113 | 102.0 | 103.3 | 6,311 | 6,310 | 2022-2023 | 38 | 48 | 31 | 29.8 | 2,479 | 2,507 |
| 2024 | 94 | 118 | 106.0 | 103.4 | 6,649 | 6,148 | 2023-2024 | 33 | 48 | 31 | 30.0 | 2,555 | 2,606 |
| 2025 | 89 | 112 | 100.5 | 103.5 | 6,168 | 6,359 | 2024-2025 | 36 | 52 | 29 | 30.2 | 2,586 | 2,542 |

Notes:

Normal temperatures for each year are the 20-year period ending in that year.

1) The actual 2017 peak occurred on June 20, 2017 at 4pm. The maximum temperature for that day was 117 degrees, and the minimum temperature was 88 degrees. The actual peak on that day was 5,926 MW and the WN peak was 5,585 MW. On 7/7/2017, the actual peak was 5,913 MW with a maximum temperature of 116 degrees and the minimum temperature was 89 degrees. One large customer transitioned to DOS between the two dates. July 17, 2017 would have been the actual peak day had that customer not gone DOS. However, the maximum temperature difference of 1 degree caused a higher WN peak on 7/17/2017, hence those temperatures and WN peak are in this table.

**TABLE LF-10**
**SIERRA HISTORICAL PEAKS**

| | SUMMER | | | | | | WINTER | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily Temperature | | | | System Peak (MW) | | | Daily Temperature | | | | System Peak (MW) | |
| Year | Min | Max | Average | Untrended Normal | Actual | Weather Normalized | Winter | Min | Max | Min Average | Min Normal | Actual | Weather Normalized |
| 2014 | 68 | 105 | 88 | 86.4 | 1,689 | 1,719 | | | | | | | |
| 2015 | 71 | 101 | 85 | 86.4 | 1,647 | 1,772 | 2014-2015 | 20 | 30 | 8.2 | 7.9 | 1,237 | 1,255 |
| 2016 | 67 | 102 | 86 | 86.4 | 1,771 | 1,861 | 2015-2016 | 22 | 32 | 9.1 | 7.9 | 1,302 | 1,369 |
| 2017[1] | 68 | 103 | 87 | 86.4 | 1,754 | 1,818 | 2016-2017 | 17 | 29 | 9.1 | 7.9 | 1,265 | 1,332 |
| 2018 | 68 | 104 | 86 | 86.4 | 1,860 | 1,866 | 2017-2018 | 19 | 32 | 13.1 | 7.9 | 1,397 | 1,690 |
| 2019 | 66 | 99 | 82 | 86.4 | 1,808 | 1,948 | 2018-2019 | 29 | 39 | 10.2 | 7.9 | 1,470 | 1,605 |
| 2020 | 65 | 98 | 81 | 86.4 | 1,906 | 2,095 | 2019-2020 | 14 | 38 | 14.2 | 7.9 | 1,435 | 1,800 |
| 2021 | 67 | 104 | 87 | 86.4 | 2,106 | 2,070 | 2020-2021 | 28 | 41 | 16.2 | 7.9 | 1,479 | 1,959 |
| 2022 | 73 | 102 | 87 | 86.4 | 1,962 | 1,956 | 2021-2022 | 27 | 33 | 13.1 | 7.9 | 1,406 | 1,708 |
| 2023 | 65 | 104 | 83 | 86.4 | 1,825 | 1,929 | 2022-2023 | 17 | 36 | 4.1 | 7.9 | 1,428 | 1,208 |
| 2024 | 73 | 103 | 88 | 86.4 | 2,127 | 2,079 | 2023-2024 | 15 | 36 | 6.3 | 7.9 | 1,379 | 1,285 |
| 2025 | 71 | 103 | 88 | 86.4 | 2,073 | 2,025 | 2024-2025 | 31 | 52 | 10 | 8 | 1,303 | 1,438 |

Notes:

Normal temperatures for each year are the 20-year period ending in that year.

(2) The actual peak occurred on 12/20/2017. The high temperature for this day was 56 degrees. The WN peak for the day was 1,509 MW, which did not look reasonable. The peak on 12/21/2017 was 1,432 MW with a high temperature of 38 degrees. This produced a more reasonable peak of 1,448 MW.

Pursuant to Nevada Administrative Code ("NAC") § 704.9281(1)(b) and (c), Table LF-11 shows the historical recorded and weather normalized sales, energy used by the Company at its facilities (company use), and estimated historical losses from 2015-2024 for NV Energy, Nevada Power, and Sierra. Weather adjusted values are shown where applicable. The NV Energy columns for retail sales are the Nevada jurisdictional sales, as activities of Liberty Utilities in California are excluded from the retail sales requirements. Following the current contract terms to provide energy to Liberty Utility, these loads are included as overall system energy requirements until the company is able to avail themselves of service from other providers. In the current forecast update, this is expected to occur after May 2027. Afterwards, these loads are considered as part of the DOS load requirements on the larger control area system.

**TABLE LF-11**
**NV ENERGY HISTORICAL SALES, LOSSES AND COMPANY USE**

| | Nevada Power | | | | Sierra | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Billed Sales (GWh) | Weather-Normalized | Losses | Company Use | Billed Sales (GWh) | Weather-Normalized | Liberty | Losses | Company Use |
| 2015 | 19,534 | 19,986 | 490 | 20 | 7,955 | 8,131 | 579 | 461 | 27 |
| 2016 | 19,856 | 20,050 | 709 | 23 | 8,140 | 8,345 | 591 | 397 | 18 |
| 2017 | 19,929 | 20,021 | 647 | 21 | 8,392 | 8,460 | 610 | 576 | 17 |
| 2018 | 20,382 | 19,888 | 945 | 18 | 8,763 | 8,853 | 591 | 316 | 21 |
| 2019 | 19,470 | 19,626 | 426 | 18 | 9,137 | 9,227 | 585 | 707 | 34 |
| 2020 | 20,098 | 20,474 | 117 | 21 | 8,801 | 8,916 | 570 | 1,072 | 35 |
| 2021 | 20,725 | 20,922 | 404 | 15 | 9,538 | 9,496 | 594 | 667 | 43 |
| 2022 | 23,087 | 20,596 | 855 | 11 | 10,544 | 8,518 | 605 | 629 | 18 |
| 2023 | 21,862 | 20,596 | 813 | 15 | 9,843 | 8,216 | 612 | 774 | 18 |
| 2024 | 21,170 | 21,112 | 1,026 | 16 | 9,646 | 8,768 | 602 | 729 | 18 |
| 2025 | 23,344 | 21,809 | 955 | 15 | 9,837 | 9,100 | 553 | 701 | 18 |

* 2025 information for Losses and Company Use was unavailable at the time of the filing. The values presented are calculated as a three-year average percentage of sales

Economic and Demographic Data Inputs

Population is the primary driver in the residential customer forecast model. The forecast residential customers, based on population estimates, determine the Small C&I and Medium C&I customer models. In this forecast update, the Nevada Power models include a Clark County population forecast based on the historical population series from the State Demographer Governor's Certified Series from July 2004 - July 2023.[4] The last certified historical population values from the State Demographer's Certified Series are used as initial values for population forecasting. Percent growth is then determined by averaging percent growth seen in the State Demographer's 20-year projections, the University of Nevada, Las Vegas, Center for Business and Economic Research ("CBER") forecasts, and the S&P Global's IHS Markit's baseline projections. Sierra's models use northern Nevada's population history and forecast, which is Nevada minus Clark County's population.

Historical and forecasted demographic and economic data are based on S&P Global's IHS Markit July 2025 forecasts for the Las Vegas-Paradise Metropolitan Statistical Area ("Clark County") for Nevada Power, and Nevada less Clark County designated as Northern Nevada ("NN") throughout the rest of this document. In this forecast update, forecasted employment indices from S&P Global were used to forecast customer counts of the individual Large C&I customer groups, rather than the general Real GMP index and the forecasted Hotel Room counts, as done in previous forecast updates. As the largest Casino customers in both Southern and Northern Nevada have exited fully-bundled service over the past several years, hotel room counts were not used to inform the retail forecast in this update. [5]

Table LF-12 identifies the economic forecasts used for each individual Large C&I customer group defined for existing customers. As a note, the growth for existing Nevada Power Data Center customers was fixed at 0.5 percent, since the large portion of this load is individually forecasted

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4 *See*, Technical Appendix LF-3 for the State Demographer's certified population history.
5 *See*, Technical Appendix LF-4 for a year-to-date summary of the hotel/motel rooms.

through the Major Projects considerations. Sierra's existing Data Center load is forecasted using the NN Population growth rates for a similar reason.

**TABLE LF-12**
**ECONOMIC INDICATORS FOR LARGE C&I CUSTOMERS**

| Category | Nevada Power | Sierra |
|---|---|---|
| Industrial | Employment (NAICS), Manufacturing (Thous.) | Employment (NAICS), Construction, Natural Resources & Mining (Thous.) |
| Retail | Resident Employment (Thous.) | NN Population |
| Irrigation | Resident Employment (Thous.) | Resident Employment (Thous.) |
| Government | Resident Employment (Thous.) | Resident Employment (Thous.) |
| Data Center | Fixed (0.5%) | Employment (NAICS), Manufacturing (Thous.) |
| Casino | Resident Employment (Thous.) | Resident Employment (Thous.) |
| Mining | --- | Employment (NAICS), Construction, Natural Resources & Mining (Thous.) |

This economic and demographic data is provided on a quarterly basis but is required on a monthly basis. This forecast update converts this lower frequency data to higher frequency data (e.g. converting quarterly or annual to monthly data) by determining the growth between quarters and splitting evenly between the corresponding months.

Table LF-13 is a summary of the historical and forecasted Clark County population, residential customers and hotel rooms and Table LF-14 shows the Northern Nevada Population and Sierra's residential customers.

**TABLE LF-13**
**SUMMARY OF THE HISTORY AND FORECAST OF CLARK COUNTY NEVADA POPULATION AND RESIDENTIAL CUSTOMERS**

| Year | Certified Historical Population[1] | Percent Change | Forecast Population[2] | Percent Change | Population as used in Modelling | Percent Change | Residential Customers | Percent Change |
|---|---|---|---|---|---|---|---|---|
| 2016 | 2,166,181 | 2.3% | | | 2,166,181 | 2.3% | 799,574 | — |
| 2017 | 2,193,818 | 1.3% | | | 2,193,818 | 1.3% | 811,774 | 1.5% |
| 2018 | 2,251,175 | 2.6% | | | 2,251,175 | 2.6% | 828,542 | 2.1% |
| 2019 | 2,293,391 | 1.9% | | | 2,293,391 | 1.9% | 839,520 | 1.3% |
| 2020 | 2,320,107 | 1.2% | | | 2,320,107 | 1.2% | 856,370 | 2.0% |
| 2021 | 2,320,551 | 0.0% | | | 2,320,551 | 0.0% | 871,034 | 1.7% |
| 2022 | 2,338,127 | 0.8% | | | 2,338,127 | 0.8% | 888,686 | 2.0% |
| 2023 | 2,361,285 | 1.0% | | | 2,361,285 | 1.0% | 900,833 | 1.4% |
| 2024 | | | 2,407,369 | 2.0% | 2,407,369 | 2.0% | 917,641 | 1.9% |
| 2025 | | | 2,451,091 | 1.8% | 2,451,091 | 1.8% | 935,556 | 2.0% |
| 2026 | | | 2,490,130 | 1.6% | 2,490,130 | 1.6% | 934,510 | -0.1% |
| 2027 | | | 2,527,889 | 1.5% | 2,527,889 | 1.5% | 949,534 | 1.6% |
| 2028 | | | 2,563,650 | 1.4% | 2,563,650 | 1.4% | 963,762 | 1.5% |
| 2029 | | | 2,596,568 | 1.3% | 2,596,568 | 1.3% | 976,860 | 1.4% |
| 2030 | | | 2,627,542 | 1.2% | 2,627,542 | 1.2% | 989,183 | 1.3% |
| 2031 | | | 2,656,401 | 1.1% | 2,656,401 | 1.1% | 1,000,666 | 1.2% |
| 2032 | | | 2,683,602 | 1.0% | 2,683,602 | 1.0% | 1,011,488 | 1.1% |
| 2033 | | | 2,709,390 | 1.0% | 2,709,390 | 1.0% | 1,021,749 | 1.0% |
| 2034 | | | 2,733,942 | 0.9% | 2,733,942 | 0.9% | 1,031,517 | 1.0% |
| 2035 | | | 2,757,500 | 0.9% | 2,757,500 | 0.9% | 1,040,891 | 0.9% |
| 2036 | | | 2,780,120 | 0.8% | 2,780,120 | 0.8% | 1,049,890 | 0.9% |
| 2037 | | | 2,802,128 | 0.8% | 2,802,128 | 0.8% | 1,058,647 | 0.8% |
| 2038 | | | 2,823,396 | 0.8% | 2,823,396 | 0.8% | 1,067,109 | 0.8% |
| 2039 | | | 2,843,919 | 0.7% | 2,843,919 | 0.7% | 1,075,274 | 0.8% |
| 2040 | | | 2,863,778 | 0.7% | 2,863,778 | 0.7% | 1,083,176 | 0.7% |
| 2041 | | | 2,883,087 | 0.7% | 2,883,087 | 0.7% | 1,090,858 | 0.7% |
| 2042 | | | 2,901,926 | 0.7% | 2,901,926 | 0.7% | 1,098,354 | 0.7% |
| 2043 | | | 2,920,113 | 0.6% | 2,920,113 | 0.6% | 1,105,590 | 0.7% |
| 2044 | | | 2,938,580 | 0.6% | 2,938,580 | 0.6% | 1,112,938 | 0.7% |
| 2045 | | | 2,957,163 | 0.6% | 2,957,163 | 0.6% | 1,120,332 | 0.7% |
| 2046 | | | 2,975,864 | 0.6% | 2,975,864 | 0.6% | 1,127,772 | 0.7% |

1) State Demographer Certified population estimates through 2023.
2) Forecasted population presented for annual June population estimates.

# TABLE LF-14
# SUMMARY OF THE HISTORY AND FORECAST OF NORTHERN NEVADA POPULATION AND RESIDENTIAL CUSTOMERS

| Year | Certified Historical Population[1] | Percent Change | Forecast Population[2] | Percent Change | Population as used in Modelling | Percent Change | Residential Customers | Percent Change |
|---|---|---|---|---|---|---|---|---|
| 2016 | 787,194 | 1.0% | | | 787,194 | 1.0% | 291,680 | --- |
| 2017 | 792,838 | 0.7% | | | 792,838 | 0.7% | 295,376 | 1.3% |
| 2018 | 806,407 | 1.7% | | | 806,407 | 1.7% | 299,951 | 1.5% |
| 2019 | 819,546 | 1.6% | | | 819,546 | 1.6% | 304,169 | 1.4% |
| 2020 | 825,077 | 0.7% | | | 825,077 | 0.7% | 310,012 | 1.9% |
| 2021 | 837,988 | 1.6% | | | 837,988 | 1.6% | 316,556 | 2.1% |
| 2022 | 865,978 | 3.3% | | | 865,978 | 3.3% | 321,479 | 1.6% |
| 2023 | 880,393 | 1.7% | | | 880,393 | 1.7% | 325,084 | 1.1% |
| 2024 | | | 891,164 | | 891,164 | 1.2% | 330,957 | 1.8% |
| 2025 | | | 899,394 | 0.9% | 899,394 | 0.9% | 335,243 | 1.3% |
| 2026 | | | 905,854 | 0.7% | 905,854 | 0.7% | 337,803 | 0.8% |
| 2027 | | | 911,537 | 0.6% | 911,537 | 0.6% | 340,068 | 0.7% |
| 2028 | | | 916,598 | 0.6% | 916,598 | 0.6% | 342,085 | 0.6% |
| 2029 | | | 921,300 | 0.5% | 921,300 | 0.5% | 343,960 | 0.5% |
| 2030 | | | 925,865 | 0.5% | 925,865 | 0.5% | 345,779 | 0.5% |
| 2031 | | | 930,136 | 0.5% | 930,136 | 0.5% | 347,482 | 0.5% |
| 2032 | | | 934,095 | 0.4% | 934,095 | 0.4% | 349,060 | 0.5% |
| 2033 | | | 937,831 | 0.4% | 937,831 | 0.4% | 350,549 | 0.4% |
| 2034 | | | 941,288 | 0.4% | 941,288 | 0.4% | 351,927 | 0.4% |
| 2035 | | | 944,455 | 0.3% | 944,455 | 0.3% | 353,190 | 0.4% |
| 2036 | | | 947,337 | 0.3% | 947,337 | 0.3% | 354,339 | 0.3% |
| 2037 | | | 949,998 | 0.3% | 949,998 | 0.3% | 355,399 | 0.3% |
| 2038 | | | 952,485 | 0.3% | 952,485 | 0.3% | 356,391 | 0.3% |
| 2039 | | | 954,926 | 0.3% | 954,926 | 0.3% | 357,363 | 0.3% |
| 2040 | | | 957,246 | 0.2% | 957,246 | 0.2% | 358,288 | 0.3% |
| 2041 | | | 959,444 | 0.2% | 959,444 | 0.2% | 359,164 | 0.2% |
| 2042 | | | 961,574 | 0.2% | 961,574 | 0.2% | 360,013 | 0.2% |
| 2043 | | | 963,607 | 0.2% | 963,607 | 0.2% | 360,824 | 0.2% |
| 2044 | | | 965,628 | 0.2% | 965,628 | 0.2% | 361,630 | 0.2% |
| 2045 | | | 967,654 | 0.2% | 967,654 | 0.2% | 362,437 | 0.2% |
| 2046 | | | 969,684 | 0.2% | 969,684 | 0.2% | 363,246 | 0.2% |

1) State Demographer Certified population estimates through 2023.
2) The growth rates from 2022 through 2040 are an average of the S&P Global and State Demographer growth rates.

Tables LF-15 and LF-16 are a summary of the Economic Variables used in the updated forecast. Persons per household ("PPH") is calculated by dividing the IHS Markit population history and forecast by the IHS Markit history and forecast of households. PPH is incorporated in the residential average use model. Real Personal Income ("RPI") is from the GI data and Real Personal Income per Household ("RPI per HH") was developed by dividing GI RPI by GI households.

**TABLE LF-15**
**HISTORY AND FORECAST OF CLARK COUNTY ECONOMIC VARIABLES**

| Year | Real Gross Metro Product (Millions) | Real Personal Income (RPI) (Millions) | Households (000s) | Population (000s) | Avg. RPI per Household ($000s) | Persons Per Household | Hotel/Motel Rooms | Resident Employment (Thousands) | Non-Manu. Employment | Employment, Manufacturing (Thousands) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 113,693 | 95,725 | 784 | 2,166 | 122.1 | 2.8 | 148,497 | 980 | 937 | 23 |
| 2017 | 117,667 | 99,391 | 811 | 2,194 | 122.6 | 2.7 | 146,993 | 1,015 | 963 | 24 |
| 2018 | 124,222 | 108,210 | 829 | 2,251 | 130.5 | 2.7 | 147,238 | 1,057 | 993 | 25 |
| 2019 | 130,108 | 111,346 | 849 | 2,293 | 131.2 | 2.7 | 149,422 | 1,096 | 1,021 | 26 |
| 2020 | 119,248 | 116,995 | 860 | 2,320 | 136.1 | 2.7 | 143,117 | 962 | 889 | 24 |
| 2021 | 136,308 | 126,042 | 868 | 2,321 | 145.2 | 2.7 | 150,487 | 1,035 | 1,011 | 27 |
| 2022 | 143,246 | 125,943 | 885 | 2,338 | 142.3 | 2.6 | 150,857 | 1,106 | 1,071 | 30 |
| 2023 | 148,881 | 130,679 | 902 | 2,361 | 144.8 | 2.6 | 154,662 | 1,136 | 1,108 | 30 |
| 2024 | 152,983 | 134,926 | 911 | 2,407 | 148.2 | 2.6 | 150,612 | 1,151 | 1,122 | 30 |
| 2025 | 154,798 | 137,691 | 922 | 2,451 | 149.3 | 2.7 | 150,300 | 1,179 | 1,118 | 30 |
| 2026 | 158,069 | 142,808 | 935 | 2,490 | 152.7 | 2.7 | 151,370 | 1,183 | 1,126 | 30 |
| 2027 | 160,814 | 148,083 | 947 | 2,528 | 156.4 | 2.7 | 152,447 | 1,189 | 1,133 | 30 |
| 2028 | 164,088 | 152,646 | 958 | 2,564 | 159.3 | 2.7 | 153,532 | 1,196 | 1,142 | 30 |
| 2029 | 167,322 | 156,958 | 970 | 2,597 | 161.8 | 2.7 | 154,625 | 1,208 | 1,153 | 29 |
| 2030 | 170,628 | 161,248 | 982 | 2,628 | 164.2 | 2.7 | 155,725 | 1,217 | 1,162 | 29 |
| 2031 | 174,137 | 165,898 | 993 | 2,656 | 167.0 | 2.7 | 156,833 | 1,228 | 1,170 | 29 |
| 2032 | 177,669 | 170,185 | 1,005 | 2,684 | 169.3 | 2.7 | 157,949 | 1,237 | 1,179 | 29 |
| 2033 | 181,737 | 174,852 | 1,016 | 2,709 | 172.0 | 2.7 | 159,074 | 1,246 | 1,188 | 28 |
| 2034 | 185,723 | 179,609 | 1,028 | 2,734 | 174.8 | 2.7 | 160,206 | 1,256 | 1,198 | 27 |
| 2035 | 190,237 | 184,726 | 1,039 | 2,758 | 177.8 | 2.7 | 161,346 | 1,264 | 1,208 | 27 |
| 2036 | 194,026 | 190,004 | 1,049 | 2,780 | 181.1 | 2.6 | 162,494 | 1,276 | 1,220 | 27 |
| 2037 | 198,185 | 195,436 | 1,059 | 2,802 | 184.5 | 2.6 | 163,651 | 1,289 | 1,233 | 27 |
| 2038 | 202,242 | 200,740 | 1,069 | 2,823 | 187.7 | 2.6 | 164,815 | 1,301 | 1,246 | 27 |
| 2039 | 206,436 | 206,177 | 1,079 | 2,844 | 191.0 | 2.6 | 165,988 | 1,313 | 1,258 | 28 |
| 2040 | 210,454 | 211,701 | 1,089 | 2,864 | 194.4 | 2.6 | 167,170 | 1,325 | 1,271 | 28 |
| 2041 | 214,695 | 217,327 | 1,098 | 2,883 | 197.8 | 2.6 | 168,359 | 1,337 | 1,283 | 28 |
| 2042 | 219,129 | 223,212 | 1,108 | 2,902 | 201.5 | 2.6 | 169,558 | 1,348 | 1,295 | 28 |
| 2043 | 223,587 | 229,327 | 1,117 | 2,920 | 205.3 | 2.6 | 170,764 | 1,360 | 1,307 | 28 |
| 2044 | 228,074 | 235,505 | 1,126 | 2,939 | 209.1 | 2.6 | 171,980 | 1,371 | 1,320 | 28 |
| 2045 | 232,715 | 241,764 | 1,135 | 2,957 | 213.0 | 2.6 | 173,204 | 1,382 | 1,333 | 28 |
| 2046 | 237,435 | 248,211 | 1,144 | 2,976 | 216.9 | 2.6 | 174,436 | 1,394 | 1,346 | 29 |

## TABLE LF-16
## HISTORY AND FORECAST OF NORTHERN NEVADA ECONOMIC VARIABLES

| Year | Real Gross Metro Product (Millions) | Real Personal Income (RPI) (Millions) | Households (000s) | Population (000s) | Avg. RPI per Household ($000s) | Persons Per Household | Non-Manu. Employment | Resident Employment (Thousands) | Employment, Manufacturing (Thousands) | Construction, Natural Resources, and Mining (Thousands) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | 44,633 | 39,676 | 311 | 787 | 128 | 2.5 | 333 | 360 | 22 | 36 |
| 2017 | 46,402 | 41,940 | 322 | 793 | 130 | 2.5 | 340 | 377 | 27 | 39 |
| 2018 | 46,417 | 45,582 | 329 | 806 | 138 | 2.4 | 347 | 394 | 33 | 40 |
| 2019 | 48,990 | 45,972 | 334 | 820 | 138 | 2.5 | 354 | 406 | 33 | 41 |
| 2020 | 50,407 | 51,264 | 334 | 825 | 153 | 2.5 | 347 | 389 | 33 | 41 |
| 2021 | 52,906 | 53,627 | 336 | 838 | 159 | 2.5 | 359 | 384 | 36 | 43 |
| 2022 | 53,529 | 53,326 | 339 | 866 | 157 | 2.6 | 373 | 399 | 37 | 44 |
| 2023 | 55,137 | 55,706 | 343 | 880 | 162 | 2.6 | 383 | 406 | 37 | 46 |
| 2024 | 56,628 | 57,136 | 343 | 891 | 167 | 2.6 | 385 | 411 | 37 | 47 |
| 2025 | 57,399 | 58,587 | 344 | 899 | 170 | 2.6 | 388 | 422 | 37 | 46 |
| 2026 | 57,963 | 60,261 | 347 | 906 | 174 | 2.6 | 387 | 419 | 37 | 45 |
| 2027 | 58,638 | 61,602 | 349 | 912 | 177 | 2.6 | 387 | 419 | 37 | 45 |
| 2028 | 59,509 | 62,967 | 351 | 917 | 179 | 2.6 | 389 | 419 | 37 | 45 |
| 2029 | 60,579 | 64,542 | 353 | 921 | 183 | 2.6 | 391 | 421 | 36 | 45 |
| 2030 | 61,358 | 66,012 | 355 | 926 | 186 | 2.6 | 391 | 422 | 36 | 45 |
| 2031 | 62,234 | 67,541 | 358 | 930 | 189 | 2.6 | 392 | 423 | 35 | 46 |
| 2032 | 63,198 | 69,367 | 360 | 934 | 193 | 2.6 | 394 | 424 | 35 | 47 |
| 2033 | 64,219 | 71,352 | 362 | 938 | 197 | 2.6 | 395 | 425 | 34 | 48 |
| 2034 | 65,244 | 73,287 | 364 | 941 | 201 | 2.6 | 397 | 426 | 33 | 49 |
| 2035 | 66,305 | 75,318 | 366 | 944 | 206 | 2.6 | 398 | 427 | 32 | 50 |
| 2036 | 67,146 | 76,933 | 367 | 947 | 209 | 2.6 | 399 | 428 | 32 | 50 |
| 2037 | 68,133 | 78,643 | 369 | 950 | 213 | 2.6 | 400 | 430 | 32 | 50 |
| 2038 | 69,053 | 80,295 | 370 | 952 | 217 | 2.6 | 402 | 432 | 32 | 50 |
| 2039 | 69,990 | 81,941 | 372 | 955 | 221 | 2.6 | 403 | 434 | 33 | 49 |
| 2040 | 70,871 | 83,598 | 373 | 957 | 224 | 2.6 | 404 | 435 | 33 | 49 |
| 2041 | 71,842 | 85,280 | 374 | 959 | 228 | 2.6 | 406 | 436 | 33 | 48 |
| 2042 | 72,722 | 86,989 | 375 | 962 | 232 | 2.6 | 406 | 438 | 33 | 48 |
| 2043 | 73,669 | 88,745 | 376 | 964 | 236 | 2.6 | 407 | 439 | 33 | 47 |
| 2044 | 74,597 | 90,504 | 377 | 966 | 240 | 2.6 | 408 | 440 | 33 | 46 |
| 2045 | 75,550 | 92,326 | 378 | 968 | 244 | 2.6 | 409 | 442 | 33 | 46 |
| 2046 | 76,516 | 94,208 | 379 | 970 | 249 | 2.6 | 410 | 443 | 33 | 45 |

Note: Population, Number of households and RPI per household are Northern Nevada. Reno MSA for RGP, RPI, and Employment (NAICS)-Non Manufacturing price indexes.

<u>Customer Data</u>

**Residential.** Residential customer counts are driven by the population forecast. Nevada Power uses the population estimates derived from the Nevada State Demographer estimates extrapolated by the average growth rates of IHS and CBER population projections for Clark County. Sierra's population follows the same process but uses the population estimates for Northern Nevada (State of Nevada minus Clark County).

In this forecast update, average daily use per residential customer is based upon seven years of daily and hourly load information. NEM customers are excluded from the average use per customer calculations for residential customers, and the separately forecast counts and sales are removed from the final hourly forecast information to reflect the change in hourly sales that occurs as customers choose to install private generation on their premises. The residential sales are derived by multiplying the forecasted counts by average use per customer for monthly information, which is then refined for the weather normalization and SAE model adjustments.

**NEM Customers.** The first step in forecasting residential NEM customers was to review the residential net metering capacity and customer counts installed as of July 2025 for both Nevada Power and Sierra. The Renewables department tracks renewable power installs, and this tracking documentation was used for this step of the analysis. These residential customer counts are cumulative and representative of the first time a customer installed solar for the given timeframe. For Sierra NEM commercial rate class information, population growth was available through March 2025. For Nevada Power commercial rate class information, population growth was available through September 2024. For both commercial groups, 5 years of customer growth were used for the regressions. Capacity by rate class was also available for these end dates, and average capacity for commercial NEM classes for each respective company was used to help forecast commercial capacity growth.

For the 2026 Joint IRP Forecast update, regional forecasted NEM customer counts continue on historical growth rate trends until the counts achieve 15 percent of the total residential customer population. At this point the customer growth rate coefficients are reduced by five percent per year until the growth rates equal to the respective population growth. At Nevada Power, the modelling results estimate approximately 1,177 residential customers install private generation per month until December 2026, when the growth rate begins to decrease. The current forecast shows residential solar adoption reaching 29.8% of customers in Nevada Power in the month of December 2046. Based on July 2025 information, approximately 13.2% of residential customers in Nevada Power are Solar NEM customers.

At Sierra, the forecast shows an additional 170 customers per month installing generation until July of 2044, when the saturation exceeds 15% of residential premises. Starting in this month, a 5% annual growth reduction is similarly applied. By December of 2046, an estimated 16.0% of Sierra residential premises are forecast to have solar installs. Based on July 2025 figures, an estimated 4.4% of Sierra customers were net-metered solar customers. As of July 2025, approximately 136,850 individual residential customers had installed behind the meter on-site solar (136,791) and wind sites (56, with 17 also having solar) across NV Energy's service territories and are considered net-metering systems. Non-solar behind-the-meter accounted for a small fraction of total customer-generated energy, at approximately 0.11% of total Nevada NEM customers as of July 2025. Additionally, growth in non-solar customers has decreased, with no new customers after 2016 based on July 2025 information. Based on this information, unless otherwise stated, NEM information presented below refers to solar customers.

In order to forecast the overall sales growth of solar customers, the average kW capacity of installed systems was used across all residential solar NEM customers. The average is approximately 7.9 kW for Nevada Power and 6.3 kW for Sierra residential customers. The NEM customer sales are derived by multiplying the forecasted counts by average use per customer for monthly information, which is then refined for the weather normalization and SAE model adjustments. Projected incremental peak reductions of 12 MW at Nevada Power and 9 MW at Sierra by 2027 are based on the installed solar capacity of 1,246 MW and 129 MW for NEM rate class customers in each respective company. The difference between total installed capacity and corresponding peak MW reduction is due to the fact that the system peak is during evening hours when solar production is quickly waning.

The installed capacity is used to help model generation values for the customer population. Due to approximately a third of all NEM premises having generation meters, 15-minute generation is analyzed based on generation as a function of capacity (each available customer's generation data divided by the respective customer's capacity), and these end values are averaged, using all available customer data for each 15-minute interval. The resulting 15-minute factor values are then used to estimate the missing generation information based on customer capacity. Hourly generation is then subtracted from a total unadjusted residential forecast to identify the modelled reductions in sales related to customers choosing to install PV generation on their premises. The received energy that is sent back to the grid, when customers' on-site usage is less than their generation, is also calculated. Following the current billing paradigm in Nevada, that allows for monthly netting of a customer's generation on their bill, this received energy is subtracted from the residential and Small C&I sales forecasts.

The Companies made no specific adjustments for energy storage customers in this update. Currently, there are approximately 3,400 customers with storage, nearly 30 percent have installed their systems within less than a year of the end of when data was being collected, September 2025. It is still assumed that there is little material difference in the overall usage patterns of these customers relative to those who have installed only solar generation. The Companies will continue to analyze the data regarding the operating characteristics of behind-the-meter storage, either stand-alone or coupled with solar adjustments (either increases, decreases, and/or shifts in load) to determine whether a potential impact to the load forecast is material. Once there is a material impact demonstrated, then the Companies will include storage customer impacts in future forecasts as a separate group.

**Small & Medium Commercial Customers.** Small and Medium C&I customers follow the same general approach as that used in the 2024 Joint IRP Forecast where forecasted customer counts are driven by the forecast residential customers for both Nevada Power and Sierra. Small and Medium C&I NEM customers follow the same general approach as that of the residential NEM forecast discussed above.

**Large Commercial Customers and Major Projects.** In this forecast update, Large Commercial and Industrial ("Large C&I") customer forecasts continue to be separately forecast by type of customer (e.g. Casino, Mine, Data Center, Water, General Industrial) and included as a portion of the larger overall Large C&I customer group. Customer counts for each group are forecast using applicable economic drivers (e.g. population, employment, room counts) that are then multiplied by average use per customer to derive hourly sales for each group.

For certain Large C&I customers that are individually forecasted, typically those served at transmission voltage, the Company follows the same approach as approved by the Commission in the 2024 Joint IRP. As approved in that proceeding, the company considers those projects currently in the Engineering Study Phase (Study Phase) of the process, where facilities have been defined but a Rule 9 HVD interconnection agreement had not yet been signed at the time the load forecast was developed.[6]

These large customer projects are another component of the general Large C&I forecast that are added to achieve the total Large C&I amounts. Forecasts for these customers are based on discussions with the Companies' Major Accounts, Economic Development, and Major Projects groups, and customer input related to expected business activity and associated sales and demand impacts. These Large C&I sales forecasts may also be adjusted for customer-specific forecasts including DOS-related sales losses. As a note, DOS customer classes are forecast in a similar manner, but do not affect the companies' retail load requirements, and are therefore not included in the load forecast generally presented here.

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[6] This proposal was supported by company witness Timothy Pollard in Docket No. 24-05041 and described on pages 10-11 of Technical Appendix LF-1 in that proceeding. Paragraphs 526-528 in the Order of this Docket describe supporting decision for the company's approach.

Historically, the expected future large customer load, which is forecasted individually, may be discounted as part of the forecast to account for various factors. There are multiple factors considered in the mitigation adjustments to the customer-provided peak MW ramp-up schedules in order to determine load levels that should be included in the load forecast. In the 2026 Joint IRP, the company's methodology includes refinements and modifications to the workpapers providing more detailed and transparent information on this adjustment process. including:

1. For some projects, the customer requested MW may be discounted to reflect operation of less than full capacity ("Expected Load") on the customer provided timeline;
2. Projects with a signed Rule 9 contract were assigned an adjustment factor to gauge the probability of the large customer project becoming operational at expected levels. Percentages were assigned to various factors including current customer status, achieved peak for current customers and observed percentage reached of their projected load, requested capacity, expected delay in service, and risk. Each of the factor percentages are then used to determine an overall adjustment factor. This adjustment factor is then applied to the customer supplied annual load ramp request to establish a mitigated annual load ramp. This mitigated load ramp is then applied to a typical hourly load shape determined by like project type (data center, mine, etc) utilizing a percentage of hourly peak.
3. Those projects still in the engineering study phase will incorporate larger reductions to the expected loads identified at the time the forecast is developed due the higher likelihood that the provided ramp-up schedule will be modified over time and to account for typical delays in project schedule.

The general result of this process in this update shifts overall weights from the 2024 Joint IRP towards the business risk assessments caused by incorporating potential schedule modifications/delays into the overall project weighting, rather than a separate adjustment as done in the 2024 Joint IRP. Further, as risk assessments are not completed until a project has a signed agreement, the score for those projects in the study phase was set to a score of 2 out of 5 points, resulting in an initial adjustment of 14 percent.

Those projects in the Study phase are more significantly reduced from those projects with a signed Rule 9 agreement that defines the facilities to be put into service. Overall, those projects with a signed agreement have been reduced by 38 percent from the customer requested amounts, while those in the Study Phase have been reduced 83 percent. The adjustment for signed agreements is lower than those approved in the 2024 Joint IRP due to one project with a signed energy services framework agreement, where the company and customer agree to a specific peak ramp schedule, and which results in a zero percent adjustment to the schedule. At the levels incorporated into the 2026 Joint IRP forecast, the load included in the base forecast estimate that approximately twenty-two projects with signed Rule 9 agreements will move forward at customer requested levels, but only four in the Study Phase will do so as well. Table LF-17 summarizes the total requested, and adjusted amounts included in the retail sales forecast, by status of project for both Nevada Power and Sierra.

**TABLE LF-17**
**MAJOR PROJECT CAPACITY FORECAST**

| | Nevada Power | | Sierra | | NV Energy | |
|---|---|---|---|---|---|---|
| Year | Signed Agreement | Study Phase | Signed Agreement | Study Phase | Signed Agreement | Study Phase |
| Requested Peak MW | | | | | | |
| 2027 | 325 | 1,648 | 1,408 | 854 | 1,733 | 2,502 |
| 2028 | 490 | 2,160 | 1,850 | 1,719 | 2,340 | 3,879 |
| 2029 | 875 | 2,820 | 2,245 | 2,714 | 3,120 | 5,534 |
| 2030 | 1,060 | 3,539 | 2,591 | 3,850 | 3,651 | 7,389 |
| 2031 | 1,060 | 3,773 | 2,968 | 5,111 | 4,028 | 8,884 |
| 2032 | 1,060 | 3,874 | 3,320 | 5,620 | 4,380 | 9,494 |
| 2033 | 1,060 | 3,950 | 3,710 | 5,923 | 4,770 | 9,873 |
| 2034 | 1,060 | 4,021 | 3,938 | 6,303 | 4,998 | 10,324 |
| 2035 | 1,060 | 4,097 | 4,317 | 6,681 | 5,377 | 10,778 |
| 2036 | 1,060 | 4,155 | 4,665 | 7,049 | 5,725 | 11,204 |
| Adjusted Incremental Peak MW | | | | | | |
| 2027 | 224 | 244 | 758 | 104 | 982 | 348 |
| 2028 | 318 | 316 | 1,027 | 212 | 1,345 | 528 |
| 2029 | 540 | 404 | 1,208 | 340 | 1,748 | 744 |
| 2030 | 643 | 523 | 1,404 | 484 | 2,047 | 1,007 |
| 2031 | 671 | 577 | 1,884 | 662 | 2,555 | 1,239 |
| 2032 | 700 | 612 | 2,084 | 739 | 2,784 | 1,351 |
| 2033 | 730 | 646 | 2,251 | 822 | 2,981 | 1,468 |
| 2034 | 761 | 679 | 2,384 | 918 | 3,145 | 1,597 |
| 2035 | 794 | 717 | 2,542 | 1,017 | 3,336 | 1,734 |
| 2036 | 829 | 755 | 2,710 | 1,117 | 3,539 | 1,872 |
| Adjustment | 78.3% | 18.2% | 58.1% | 15.8% | 61.8% | 16.7% |
| Reduction | 21.7% | 81.8% | 41.9% | 84.2% | 38.2% | 83.3% |

The 2026 Joint IRP Load Forecast reflects an 50 bundled-service Major Projects across multiple customer categories, including data centers as well as mining, manufacturing, and other industrial uses. In total these projects have requested approximately 16,930 MW of capacity additions, with 11,710 MW at Sierra and 5,220 MW at Nevada Power, by 2036.

Of these projects, 22 have executed agreements and request approximately 5,725 MW of capacity – 4,665 MW at Sierra and 1,060 MW at Nevada Power by 2036. The remaining 28 projects are in the study phase and collectively request approximately 11,200 MW of capacity by 2036, including 7,050 MW at Sierra and 4,150 MW at Nevada Power. Data center projects comprise the majority of the Major Project load. Of the 50 Major Projects, 39 are bundled service, high load factor data center projects, which alone request approximately 16,530 MW by 2036.

While data centers represent approximately three quarters of the projects included, these projects account for approximately 95 percent of Major Project load growth included in this 2026 Joint IRP forecast update. Much of this growth is concentrated within the Tahoe-Reno Industrial Center

("TRIC") area, where 3,820 MW of incremental capacity is requested by customers. At Nevada Power, the concentration of growth centers on the Apex industrial area, where 390 MW of incremental capacity is requested. The 39 data center customers represent nearly 16,530 MW of requested capacity by 2036 and expected load growth of 13,200 GWh at Nevada Power and 30,554 GWh at Sierra.

The 2026 Joint IRP Load Forecast is made at a point in time for preparation of this filing and cannot reflect constant updates to these projects as the load forecast is one of the first primary inputs required for following stages in the preparation of the IRP filing. While there have been several changes to the project list since these inputs to the 2026 Joint IRP Load Forecast were developed in August 2025, the current state of these projects in Nevada continues to support the overall load levels included in the 2026 Joint IRP Load Forecast. Since these inputs were finalized, four projects have signed Rule 9 agreements, zero projects have been cancelled or placed on hold, and twelve additional projects have been put forth for study. The combined impact of these updates is an increase of more than 5,500 MW in total requested capacity: 3,000 MW at Sierra and 2,500 MW at Nevada Power.

If the same mitigation approach of these large load customer major projects was used, as was used in developing the base load forecast, the total impact from these changes would be an increase of approximately 1,450 MW by 2046: consisting of 690 MW at Sierra and 760 MW at Nevada Power.

For Large C&I standby customers, since most of these customers are pure generators who only require backup station service when their generation stops producing, the number of customers and loads for this customer group were kept constant in this forecast update. Pursuant to NAC 704.925(7), it is necessary to determine the impacts on peak demand of these Large C&I standby customers. With respect to large customer distributed generation, there are currently two Large C&I customers who have installed large solar arrays. The first is Nellis Air Force Base, whose customer-owned photovoltaic plant can generate up to 14 MW of capacity. Another cogeneration site in Sierra's territory is slightly less at 13.6 MW. Depending on the hour of peak, the contribution of these systems will vary. As with all solar generation, the available production quickly decreases as the daylight hours wane. For example, the impact of these host-generator standby generation systems on the system peak will peak around 1 p.m. at 70 percent of capacity and will drop to approximately 30 percent by 6 p.m. in the evening. The loads of these customers, net of on-site generation, are included in the Large C&I forecast totals.

**Public Authority & Irrigation Customers.** At Nevada Power, the Water Pumping/Public Authority customers are separately forecast and are driven by the population estimates to derive customer counts. At Sierra, the irrigation customer classes (e.g. IS-1, IS-2 and Elko WP classes) are separately forecasted using Northern Nevada population estimates.

**Street Lighting.** Street Lighting lamp counts and sales were maintained at current levels throughout the forecast due to expected efficiencies in the adoption of LED-type lamps that are expected to be offset by customer growth over the forecast period.

**Electric Vehicles.** The 2026 Joint IRP Forecast includes an electric vehicle forecast developed using a recent-trend analysis of Department of Motor Vehicle registration data, with the latest year of new EV registrations serving as the basis for residential customer growth, along with the 2025 Energy Information Administration (EIA) forecast for the commercial customers. [7]

During the Joint 2024 Joint IRP, the Companies reviewed prepared direct testimony from Bureau of Consumer Protection ("BCP"), after which the Companies shifted to an approach that applied a flat percentage derived from historical data to shape annual EV adoption in the compliance filing. For the 2026 Joint IRP, the Companies continued refining their methodology by applying a recent-trend analysis of Department of Motor Vehicle EV registrations to project residential EV counts. Table LF-18 below provides a comparison across each iteration of the EV forecast. In the table, Sierra Pacific Power Company (SPPC), forecasted EV adoption decreases relative to the 2024 Joint IRP due to updated DMV registration data indicating lower realized EV penetration than previously projected. Conversely, Nevada Power Company (NPC) exhibits an increase in forecasted EV adoption due to the updated DMV registrations exceeding the levels assumed in the 2024 IRP in the earlier years.

**TABLE LF-18**
**CUMULATIVE EV CAR COUNTS**

| | NPC | | | SPPC | | |
|---|---|---|---|---|---|---|
| Year | 2026 Joint IRP | 2024 Joint IRP 1A | Difference | 2026 Joint IRP | 2024 Joint IRP 1A | Difference |
| 2027 | 126,187 | 94,050 | 32,138 | 27,832 | 45,133 | (17,301) |
| 2028 | 150,086 | 104,865 | 45,221 | 32,857 | 50,323 | (17,467) |
| 2029 | 173,986 | 116,925 | 57,061 | 37,882 | 56,111 | (18,229) |
| 2030 | 197,885 | 130,371 | 67,513 | 42,907 | 62,563 | (19,657) |
| 2031 | 221,784 | 145,364 | 76,420 | 47,932 | 69,758 | (21,826) |
| 2032 | 245,683 | 162,081 | 83,602 | 52,957 | 77,780 | (24,824) |
| 2033 | 269,582 | 180,720 | 88,862 | 57,982 | 86,725 | (28,743) |
| 2034 | 293,481 | 201,503 | 91,978 | 63,007 | 96,698 | (33,692) |
| 2035 | 317,380 | 224,676 | 92,704 | 68,032 | 107,819 | (39,787) |
| 2036 | 341,279 | 250,514 | 90,766 | 73,057 | 120,218 | (47,161) |
| 2037 | 365,179 | 279,323 | 85,856 | 78,082 | 134,043 | (55,961) |
| 2038 | 389,078 | 311,445 | 77,633 | 83,106 | 149,458 | (66,351) |
| 2039 | 412,977 | 347,261 | 65,716 | 88,131 | 166,646 | (78,514) |
| 2040 | 436,876 | 387,196 | 49,680 | 93,156 | 185,810 | (92,653) |
| 2041 | 460,775 | 431,724 | 29,051 | 98,181 | 207,178 | (108,997) |
| 2042 | 484,674 | 481,372 | 3,302 | 103,206 | 231,003 | (127,797) |
| 2043 | 508,573 | 536,730 | (28,156) | 108,231 | 257,569 | (149,337) |
| 2044 | 532,472 | 598,454 | (65,981) | 113,256 | 287,189 | (173,933) |
| 2045 | 556,372 | 667,276 | (110,904) | 118,281 | 320,216 | (201,935) |
| 2046 | 580,271 | 744,012 | (163,742) | 123,306 | 357,041 | (233,735) |

[7] U.S. Energy Information Administration, AEO2025 National Energy Modeling Table 35. Available at: https://www.eia.gov/outlooks/aeo/tables_ref.php.

This 2026 Joint IRP Forecast assumes that EV adoption grows to account for 9 percent of total vehicles in Nevada by 2036. By 2046, the percentage of total vehicles increases to 12 percent. This represents a growth rate of 12 percent annually over the next 10 years. Incorporated into the sales growth are assumptions that the average residential EV is driven 12,876 miles annually and that the "rated" efficiency for the average vehicle on the road today is 3.86 miles per kWh while the average commercial EV is driven 37,178 miles annually and the "rated" efficiency for the average commercial EV on the road today is 9.15 miles per kWh.

This results in an average annual electric use per EV of 3,389 kWh for residential and 9,147 kWh for commercial. Further, this forecast update assumes that battery efficiency will increase by 1.5 percent per year and vehicle miles traveled will increase by 1 percent per year. The forecasted incremental loads are added to both the residential and commercial customer group forecasts. The updated statewide electric vehicle energy sales by 2034 are approximately 1,409 GWh annually, or an hourly average of 465 MW (combined for both Companies)

**Distribution-Only Service (DOS) Customers.** Forecasted counts and sales for DOS customers were performed for the 2026 Joint IRP Forecast update but are not included in the retail sales forecast since these customers purchase energy from another provider. The forecast process for these customers follow the same steps as those performed for the full-requirements Large C&I customer grouping.

Data for Weather Normalization

Pursuant to NAC § 704.9281(1)(b), sales have been weather normalized for the 2026 Joint IRP Forecast update. Sales to both Nevada Power's and Sierra's residential single-family, residential multi-family and small commercial and industrial classes are particularly sensitive to weather. Therefore, it is necessary to account for weather within the load forecast. Temperature measurements as reported by Reno/Tahoe International Airport and Harry Reid International Airport, as recorded in the National Oceanographic and Atmospheric Administration's Global Historical Climatological Network Daily Database, were used to project trended normal weather into the forecast period. In this forecast update, twenty years of trended historical values were ranked by month, and average temperatures for each within-month rank were used to provide more realistic departures from normal temperatures during the forecast period. The daily average temperature is used to calculate Cooling Degree Days ("CDD") and Heating Degree Days ("HDD") measurements for use in the modelling process. CDDs and HDDs are simply the number of degrees that the average daily temperature is above (for CDD) or below (for HDD) a set threshold, with the threshold determined statistically for each customer class. Those days where the average daily temperature is greater than the threshold are considered days where customers will increase cooling usage, while those days under the threshold will show increases related to heating usage. Calendar HDDs and CDDs are generated by summing the daily degree-days over the calendar month.

**Normal Weather.** Expected weather conditions are a key driver of electric heating and cooling requirements. The industry-standard has been to assume that future weather conditions will most likely look like an average of past weather conditions; HDD and CDD forecasts are derived by averaging historical daily or monthly degree-days. Following the current methodology approved by the Commission, the 2026 Joint IRP Forecast update incorporates a trended normal weather approach, but with a refinement in which the trend is determined for each month of the year and not on an annual basis as previously considered. Forecasted HDD and CDD values used in this forecast update are based on this expected increase in average temperature.

The trended-normal weather approach was approved by the Commission with supporting information from a study by Itron for the Company, which found that average temperatures had been increasing 1.1 degrees per decade in Las Vegas and as high as 1.5 degrees per decade in Reno. In this update, both Las Vegas and Reno continue to see a statistically significant increase in average annual temperature. This temperature increase is consistent with other trend analyses conducted by Itron and others including a study by University of Pennsylvania and Federal Reserve Bank of San Franscisco (*On the Evolution of U.S. Temperature Dynamics*, Francis X. Diebold, Glenn Rudebusch, July 2019, paper number 19-012, Penn Institute for Economic Research).

The trend analysis is based on fifty years of annual average temperatures for McCarran and Reno International Airports. Figures LF-5 and LF-6 show measured temperature trend, calculation, supporting statistics, and upper and lower 95% prediction interval. In calculating trended normal degree-days for use in the 2026 Joint IRP forecast update, NPC temperatures are assumed to continue to increase at the same rate as that over the prior fifty years at 1.06 degrees per decade. Sierra forecast assumes that temperatures increase at the fifty-year trend of 1.33 degrees per decade. Both trend variables are statistically significant as measured by the F and T statistics, and associated P-Values.

**FIGURE LF-5**
**Las Vegas Average Annual Temperature Trend (1976 to 2025)**

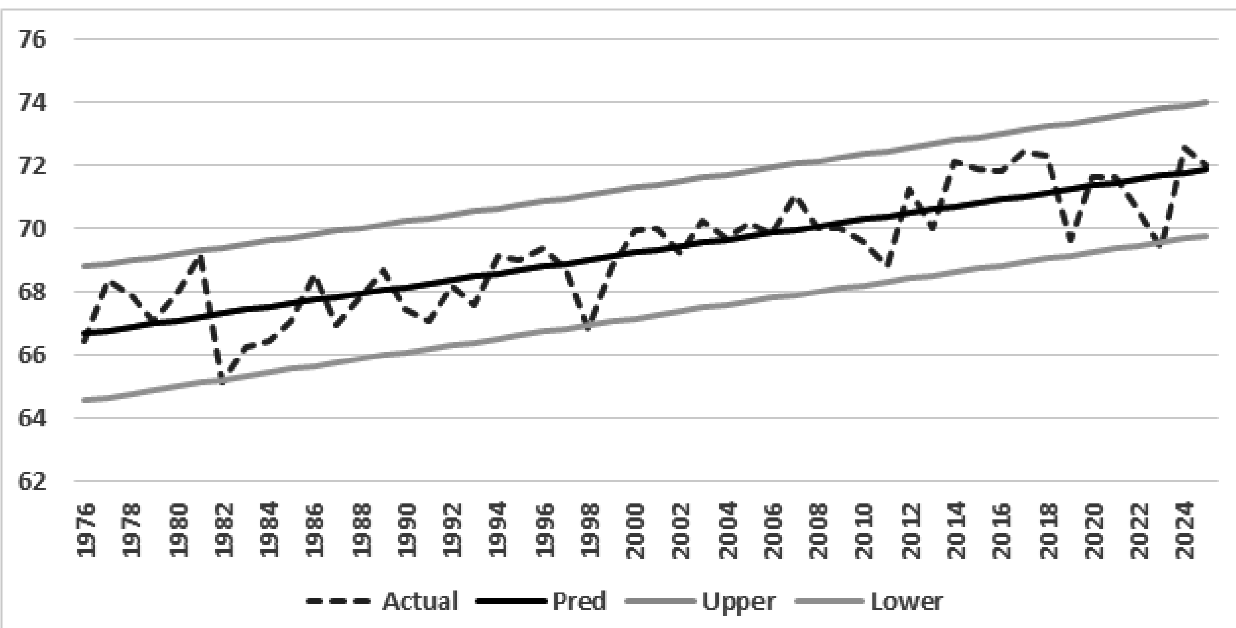
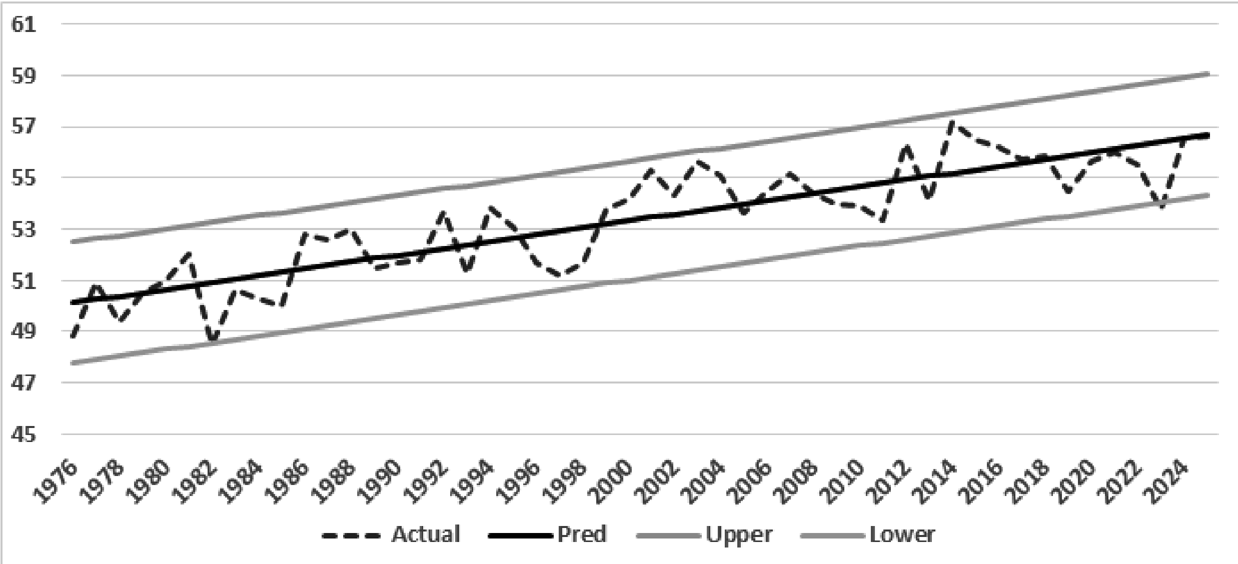


**FIGURE LF-6**
**Reno Average Annual Temperature Trend (1976 to 2025)**




The trended daily normal temperatures are rotated onto a typical daily weather pattern based on the last twenty years of observed temperature data. The pattern is selected to preserve monthly peak temperatures. Averaged monthly order statistics are used in calculated daily degree-days that are then either used directly or summed to the calendar-month or revenue-month, for monthly models.

**Weather Normalized Sales.** In order to obtain weather normalized sales in this forecast update, ordinary least squares regressions between sales and the corresponding CDDs and HDDs were performed for Residential and Small and Medium C&I customer classes. The resulting coefficients of the regressions are applied to the differences between a trended normal CDD/HDD and the actual CDD/HDD totals for each month to provide an additive adjustment to weather normalize the data. As in previous filings, the SAE model is not used as a weather normalization model, since it is an econometric model blending economic impacts with weather impacts. Table LF-19 provides an example of the calculation of weather normalized sales using Nevada Power's residential single family billed sales per customer for July 2023**.** Sierra weather normalization uses the same procedure.

## TABLE LF-19
## EXAMPLE OF WEATHER NORMALIZED RESIDENTIAL SALES

| Line | Description | Number | Calculation |
|---|---|---|---|
| 1 | Monthly Sales (MWh) | 1,216,106 | |
| 2 | Residential Customers | 501,738 | |
| 3 | Sales per customer (kWh) | 2,423.8 | (ln. 1 / ln. 2) * 1000 |
| | | | |
| 4 | Monthly CDD - Base 70 | 847.50 | |
| 5 | Normal CDD - Base 70 | 792.55 | |
| 6 | Normal less Actual | -54.95 | ln. 5 - ln. 4 |
| 7 | CDD Coefficient (kWh per CDD) | 1.62 | |
| 8 | kWh Use Per Customer change | -89.09 | ln. 6 * ln. 7 |
| 9 | Adjusted Use per Customer | 2334.69 | ln. 3 + ln. 8 |
| 10 | WN Billed Sales | 1,171,404 | (ln. 2 * ln. 9) / 1000 |
| | | | |
| 9 | Total MWh Change | (44,702) | ln. 10 - ln. 1 |

In this 2026 Joint IRP forecast update, because of the current ready availability of ample historical hourly usage data for these customer groups, a methodology of weather normalization based on a regression of daily actual usage on daily temperature data was followed to directly weather normalize all hourly data used in the forecasting process. This is accomplished using ordinary least squares regression of daily, per-customer usage on a dataset of HDD and CDD columns interacted with month indicator variables, to retrieve twelve pairs of heating/cooling coefficients, one pair for each month. When applicable, a further distinction is made between weekdays and weekends, for a maximum possible count of 24 heating/cooling coefficient pairs per customer class. But, there are months for which heating or cooling doesn't appear or is otherwise statistically insignificant. For this reason, insignificant coefficients are removed from the regressions. This process is described in more detail below. Table LF-20 summarizes the cooling and heating distinct monthly coefficients for the Nevada Power and Sierra systems.

## TABLE LF-20
## NEVADA POWER AND SIERRA WEATHER COEFFICIENTS

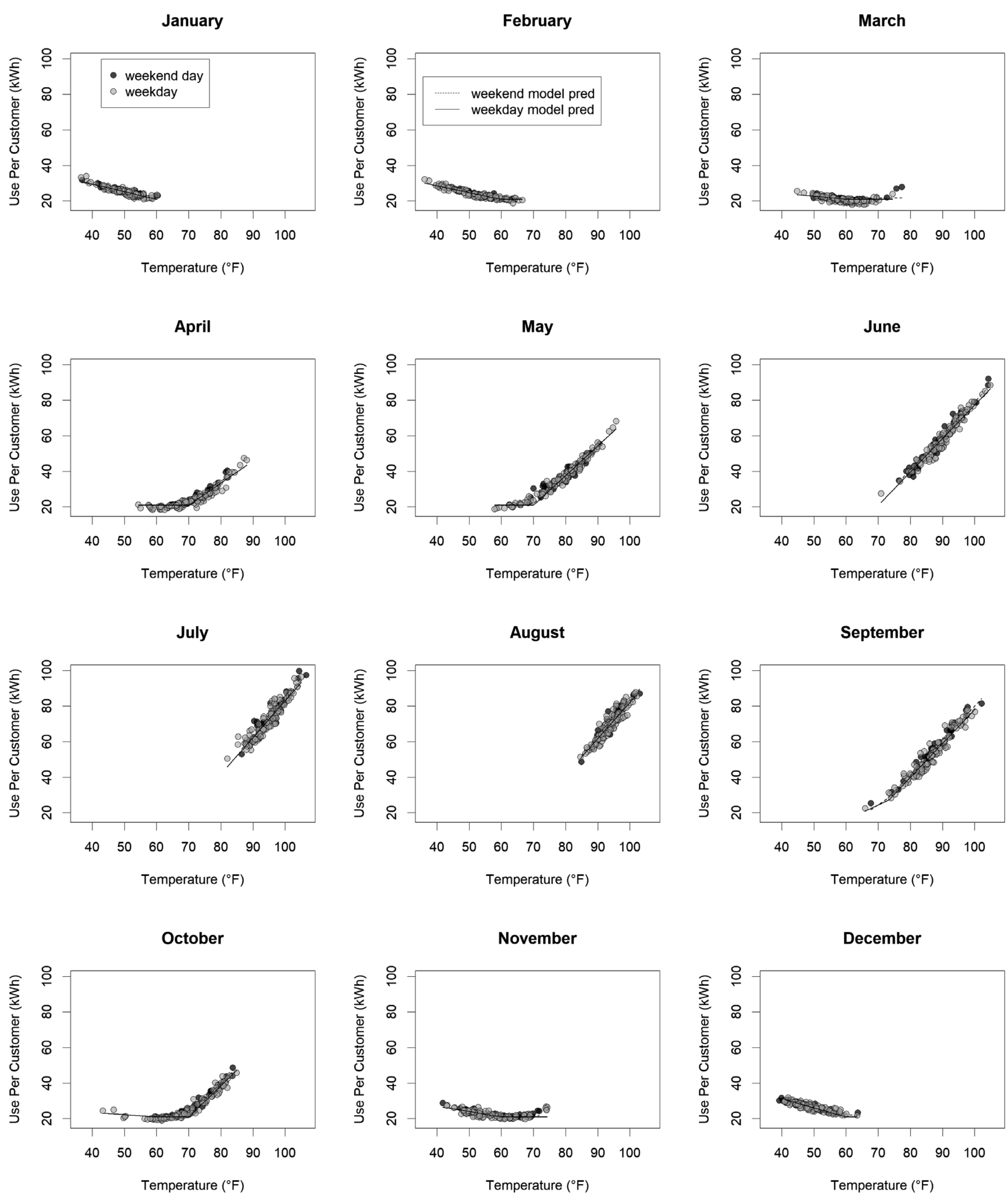
| | Nevada Power Coefficients | | | | Sierra Coefficients | | | |
|---|---|---|---|---|---|---|---|---|
| | Heating Coefficient | | Cooling Coefficient | | Heating Coefficient | | Cooling Coefficient | |
| Month | weekend | weekday | weekend | weekday | weekend | weekday | weekend | weekday |
| Jan | 0.408 | 0.461 | - | - | 0.604 | 0.541 | - | - |
| Feb | 0.293 | 0.367 | - | - | 0.616 | 0.554 | - | - |
| Mar | - | - | - | - | 0.479 | 0.472 | - | - |
| Apr | - | - | 1.409 | 1.334 | 0.269 | 0.269 | 0.685 | 0.685 |
| May | - | - | 1.678 | 1.810 | - | - | 0.579 | 0.808 |
| Jun | - | - | 2.115 | 2.128 | - | - | 1.055 | 1.108 |
| Jul | - | - | 2.336 | 2.360 | - | - | 1.236 | 1.284 |
| Aug | - | - | 2.328 | 2.343 | - | - | 1.210 | 1.211 |
| Sep | - | - | 2.226 | 2.181 | - | - | 0.881 | 0.896 |
| Oct | - | - | 1.982 | 2.020 | 0.239 | 0.239 | - | - |
| Nov | - | - | - | - | 0.422 | 0.362 | - | - |
| Dec | 0.411 | 0.393 | - | - | 0.615 | 0.584 | - | - |

NOTES: Coefficient units are KWh per degree day, per residential customer. Sierra Pacific's system load was normalized using HDD 55 values and CDD 60 values. Nevada Power's system load was normalized using HDD 60 and CDD 70 values.

As an example of this process for an individual class, Figure LF-7 below demonstrates the daily impact of average temperature on customer usage of Nevada Power's single-family residential

("RS") customer class. For these customers, cooling usage begins to increase as the daily temperature rises above approximately 65 degrees, while heating usage begins to increase at approximately 55 degrees. Further, the figures indicate that each month has a separate correlation between usage and daily temperatures.

**FIGURE LF-7**
**AVERAGE DAILY USAGE AND TEMPERATURE, NEVADA POWER SINGLE-FAMILY**



The distinct monthly coefficients approach employed in this forecast update allows analysts to test for the significance of heating and cooling relationships in each month. For example, for Nevada Power's single-family residential usage, in April, which was previously weather normalized for both cooling and heating, there was not a statistically significant relationship related to cooling usage and temperature. Therefore, heating was removed from the regression for that class in April. In general, the overall trend is for the strength of the cooling and heating responses to increase in hotter/colder months and decrease during shoulder months. Compared with shoulder months, a larger proportion of the customers in each class respond to temperature increases with cooling usage during the hottest months. The aggregate result is for temperature-sensitive customer groups to have a stronger cooling response, degree-day for degree-day, in the hottest months. The heating response evolves similarly in the coldest months. This is reflected in the model's larger coefficients for the temperature-extreme months, and smaller coefficients for shoulder months.

For the normalization adjustments, the regression used was an ordinary least squares multiple regression performed on all possible three-way interactions of the following:

- a pair of degree-day columns (CDD and HDD temperature columns)
- 12 indicator variables (one for each month)
- An indicator of whether or not each day fell on a weekend.

The resulting t-statistic and associated p-value for each interaction term within each regression were then examined. If the p-value was any larger than 0.1, or if the interaction term had fewer than 15 non-zero values in the 7-year daily dataset, that interaction term was removed from the regression. Furthermore, if the p-value for any weekend indicator variable was greater than 0.1, it was also deemed not significant, and was removed from the final regression, along with all its interactions. However, no weather-normalized standard customer grouping was found to be weekend insensitive in this way, and the weekend indicator was retained in all regressions for the standard classes. The results, shown in Tables LF-21 and LF-22, are a collection of coefficients for each grouping which represent the kWh impact per customer of a single degree-day in a particular month on either a weekend day or on a weekday.

## TABLE LF-21
## HEATING AND COOLING COEFFICIENTS FOR NEVADA POWER

| Month | Coeff Type | RS - Weekend | RS - Weekday | RM - Weekend | RM - Weekday | CIS - Weekend | CIS - Weekday | CIM - Weekend | CIM - Weekday |
|---|---|---|---|---|---|---|---|---|---|
| January | Heating | 0.3932 | 0.4228 | 0.3261 | 0.3547 | 0.5597 | 0.6255 | 5.5516 | 5.5516 |
| February | Heating | 0.3300 | 0.3697 | 0.2706 | 0.3186 | 0.6489 | 0.6762 | 11.1899 | 11.1899 |
| March | Heating | 0.1952 | 0.1952 | 0.1172 | 0.2071 | - | - | - | - |
| April | Heating | - | - | 0.0861 | 0.0861 | - | - | - | - |
| May | Heating | - | - | - | - | - | - | - | - |
| June | Heating | - | - | - | - | - | - | - | - |
| July | Heating | - | - | - | - | - | - | - | - |
| August | Heating | - | - | - | - | - | - | - | - |
| September | Heating | - | - | - | - | - | - | - | - |
| October | Heating | - | - | 0.0707 | 0.0707 | - | - | - | - |
| November | Heating | 0.2942 | 0.3275 | 0.1857 | 0.2176 | - | - | -17.2790 | -17.2790 |
| December | Heating | 0.4890 | 0.5265 | 0.2839 | 0.3313 | 0.6228 | 0.4728 | -9.6008 | -9.6008 |
| January | Cooling | - | - | - | - | - | - | - | - |
| February | Cooling | - | - | - | - | - | - | - | - |
| March | Cooling | 0.8744 | 0.8744 | - | - | 1.1446 | 1.2186 | 29.6549 | 31.8541 |
| April | Cooling | 1.3206 | 1.2261 | 0.6941 | 0.6696 | 1.0201 | 1.1000 | 27.8296 | 35.5927 |
| May | Cooling | 1.6217 | 1.6401 | 0.7749 | 0.7817 | 1.2220 | 1.4772 | 35.7065 | 42.5478 |
| June | Cooling | 1.8855 | 1.8709 | 0.8366 | 0.8445 | 1.7299 | 1.8941 | 50.7372 | 50.6189 |
| July | Cooling | 2.0461 | 2.0446 | 0.8897 | 0.8976 | 1.9370 | 2.0777 | 57.4278 | 56.4227 |
| August | Cooling | 2.0314 | 2.0100 | 0.8876 | 0.8881 | 1.9618 | 2.1583 | 57.7681 | 59.3874 |
| September | Cooling | 1.9164 | 1.8639 | 0.8444 | 0.8322 | 1.8313 | 1.9632 | 53.2957 | 54.5190 |
| October | Cooling | 1.8038 | 1.7137 | 0.8113 | 0.7978 | 1.5601 | 1.7927 | 45.3477 | 48.4182 |
| November | Cooling | 1.9851 | 1.2095 | - | - | 1.3629 | 1.2329 | 33.1225 | 40.6439 |
| December | Cooling | - | - | - | - | - | - | - | - |

Note: Units are kWh per day per customer per HDD/CDD.

## TABLE LF-22
## HEATING AND COOLING COEFFICIENTS FOR SIERRA

| Month | Coeff Type | D1 - Weekend | D1 - Weekday | DM1 - Weekend | DM1 - Weekday | CIS - Weekend | CIS - Weekday | CIM - Weekend | CIM - Weekday |
|---|---|---|---|---|---|---|---|---|---|
| January | Heating | 0.3578 | 0.3533 | 0.2813 | 0.2785 | 0.3010 | 0.2715 | 3.6852 | 1.9705 |
| February | Heating | 0.3474 | 0.3285 | 0.3015 | 0.2745 | 0.3570 | 0.3465 | 4.2389 | 5.1169 |
| March | Heating | 0.3011 | 0.3052 | 0.2782 | 0.2744 | 0.2572 | 0.2612 | 2.7716 | 2.2912 |
| April | Heating | 0.2335 | 0.2288 | 0.2502 | 0.2121 | 0.2023 | 0.1373 | - | - |
| May | Heating | 0.1249 | 0.1359 | 0.0925 | 0.0925 | -0.0748 | 0.1005 | - | - |
| June | Heating | - | - | - | - | -0.6369 | -0.6369 | - | - |
| July | Heating | - | - | - | - | - | - | - | - |
| August | Heating | - | - | - | - | - | - | - | - |
| September | Heating | - | - | - | - | 0.1947 | 0.7933 | - | - |
| October | Heating | 0.1798 | 0.1880 | 0.1088 | 0.1539 | 0.1803 | 0.3843 | - | - |
| November | Heating | 0.2934 | 0.3028 | 0.2328 | 0.2414 | 0.3029 | 0.2264 | - | - |
| December | Heating | 0.3988 | 0.3971 | 0.2898 | 0.2867 | 0.2543 | 0.2217 | 1.7748 | 1.7748 |
| January | Cooling | - | - | - | - | - | - | - | - |
| February | Cooling | - | - | - | - | - | - | - | - |
| March | Cooling | - | - | - | - | - | - | - | - |
| April | Cooling | - | - | - | - | -0.4035 | 0.4098 | 5.2754 | 5.2754 |
| May | Cooling | 0.5426 | 0.7027 | 0.2472 | 0.3254 | -0.0018 | 0.2993 | 3.0932 | 3.0932 |
| June | Cooling | 0.9400 | 0.9354 | 0.4447 | 0.4429 | 0.3648 | 0.5403 | 3.5476 | 5.1852 |
| July | Cooling | 1.0565 | 1.0729 | 0.5079 | 0.5143 | 0.4230 | 0.5232 | 4.5370 | 3.9257 |
| August | Cooling | 1.0499 | 1.0255 | 0.5146 | 0.4982 | 0.5339 | 0.6581 | 3.3606 | 3.3864 |
| September | Cooling | 0.9310 | 0.9695 | 0.4679 | 0.4781 | 0.6494 | 0.7051 | 3.8031 | 3.4451 |
| October | Cooling | 0.6183 | 0.6731 | 0.2506 | 0.2569 | 0.4034 | 0.5495 | 8.9282 | 9.8440 |
| November | Cooling | - | - | - | - | - | - | - | - |
| December | Cooling | - | - | - | - | - | - | - | - |

Note: Units are kWh per day per customer per HDD/CDD.

After obtaining coefficients from the above-described regression, the following process was followed:

- Find trended normal degree-days for each day of the year (see subsection III.C).
- For each day in the dataset, subtract the difference between the actual and normal degree days. Negative values indicate a downward adjustment is necessary, and positive values indicate a positive adjustment is necessary.
- Multiply the difference obtained above by the appropriate regression coefficient to get the resulting adjustment.
- Add the adjustment from the step above to the actual usage sum for that day.
- Divide this adjusted usage sum by the actual usage sum for the day to obtain the daily weather normalization factor.
- Multiply all hourly values for each day by that day's weather normalization factor to obtain weather-normalized hourly usage.

The resulting weather normalized usage, are then used for the steps described in Section III for development of the load forecast.

SAE Related Inputs

**Residential Energy Intensities.**[8] The energy intensities for the Statistically Adjusted End Use were updated to the 2021 values provided by Itron and then adjusted based on energy intensities ("EI") developed by ADM Associates based on analysis of the customer survey responses from the 2016 Residential Appliance Saturation Survey ("2016 RASS"). Recent historical and projected values were added to these datasets with a 2023 update.

**Commercial Appliance Equipment Indices.** Commercial end-use intensities (use per square feet) are incorporated in the commercial sales forecast variables. End-use intensities projections are based on the U.S. Energy Information Administration ("EIA") 2023 Annual Energy Outlook for the Mountain Census Division. End-use energy intensities are calculated for ten end-uses across eleven building types. End-use intensities for the Mountain Census Region are modified to reflect the Nevada Power and Sierra service area building/business mix based on estimates of sales delivered to specific business categories.

Retail Price

In this forecast, the Retail Price component of the SAE modelling framework was modeled separately using linear regression analysis. The forecasted rates, resulting from the company's rate impact analysis and detailed in the Financial Plan of the 2026 Joint IRP Narrative, are used to estimate the potential impacts on the load forecast. The steps for this analysis are detailed below.

A historical electric price variable is constructed for each revenue class. The average retail rate is calculated by dividing billed revenues by billed sales and adjusting the series for inflation. The standard method for estimation of price elasticity[9] was used – the logarithm of sales was regressed on the logarithm of price, and the coefficient in the regression model (if significant) is the price

[8] The use of the XCool, XHeat and XOther indices for the residential and commercial class sales forecasts satisfies NAC 704.925(4).
[9] For a technical explanation of the use of log-log regression to determine price elasticity of demand, please see *Introductory Econometrics* by Jeffrey Wooldridge, Section 2-4 (*Units of measurement and functional form*) and Section 6-2a (*More on using logarithmic functional forms*).

elasticity of demand. If the coefficient is not statistically significant, then demand is inelastic. To mitigate noise from end-use variability effects such as weather and efficiency, a column providing linear predictions for each quarter from an SAE model with no price elasticity was also present in these regressions.

The analysis uses a standard statistical test to see whether changes in energy prices lead customers to noticeably change how much energy they use. This regression methodology leads to a hypothesis test for the price elasticity term, involving a t-distributed test statistic. In general, regression software produces a p-value associated with a two-tailed test for this t-statistic, and rejection of the null hypothesis accompanies a small p-value. Here, the null hypothesis is that energy is a perfectly inelastic good (equivalent to "elasticity equals zero"). Moreover, the assumption of this modeling approach is that if there is a non-zero price elasticity in the economic sense, then this price elasticity is negative, not positive. Economists call this assumption the "law of demand" – it is assumed by default in any economic model of markets, unless good cause exists to neglect it. For example, in markets for collector's items, demand increases are sometimes caused by price increases. No such cause exists in this case. Therefore, for each customer group, a *one*-tailed p-value is generated for the elasticity's t statistic, to test the null hypothesis against the alternative that the elasticity is *less than* zero (compare to the "not equal to zero" default alternative). If this p-value doesn't suggest statistical significance, the null hypothesis is retained. Note that using a one-tailed alternative hypothesis in general makes it easier for any test to reject the null, so this methodology should be as sensitive to detecting elasticity as possible, if it's present in the data. But even still, the result of applying the law of demand to these hypothesis tests is that the null hypothesis is not rejected for any customer group. In simple terms, the tests show that customers' energy use does not respond measurably to price changes. Even when using methods designed to make it easier to detect a price response, the data still indicate that energy consumption remains essentially unchanged as prices rise or fall. Therefore, based on these results, energy demand appears effectively insensitive to price for all customer groups analyzed.

Tables LF-23 and LF-24 show the relevant statistics for each regression. Further detail is available in this filing's workpapers. None of the customer groups exhibit statistically significant price elasticity of demand. The methodology to determine the potential load impact is application of any significant elasticities to the rates forecast. However, since no forecast group exhibits statistically significant price elasticity, the total estimated impact to the base load forecast is zero, which means that the price elasticity aspect of the model has no impact on the forecast. In accordance with NAC 704.9225 (2), the company will repeat this analysis to determine whether a statistically significant impact of prices on the load forecast should be considered in future IRP filings.

## TABLE LF-23
## NEVADA POWER REGRESSION RESULTS

| | Residential Single-Family | Residential Multi-Family | Small Commercial | Medium Commercial | Large Commercial |
|---|---|---|---|---|---|
| Coefficient of Determination | 0.7968 | 0.8486 | 0.4626 | 0.7819 | 0.5066 |
| F-Statistic | 45.2109 | 66.9076 | 7.0777 | 40.9035 | 8.9745 |
| Significance of Regression | 0.0000 | 0.0000 | 0.0019 | 0.0000 | 0.0004 |
| Intercept | 1.8332 | 1.9807 | 4.2268 | 4.9048 | 9.9775 |
| - t-stat | 2.0287 | 3.2726 | 3.7068 | 6.7604 | 9.4817 |
| - p-value (two-sided) | 0.0476 | 0.0019 | 0.0005 | 0.0000 | 0.0000 |
| log(price) | 0.0718 | -0.0735 | 0.1710 | 0.2705 | 0.1453 |
| - t-stat | 0.2151 | -0.3474 | 0.6763 | 2.1089 | 1.3033 |
| - p-value (one-sided) | 0.5847 | 0.3649 | 0.7491 | 0.9801 | 0.9009 |
| log(Inelastic Prediction) | 0.7894 | 0.7302 | 0.5015 | 0.5892 | 0.3122 |
| - t-stat | 9.5018 | 11.5156 | 3.7315 | 8.8993 | 4.1540 |
| - p-value (two-sided) | 0.0000 | 0.0000 | 0.0005 | 0.0000 | 0.0001 |

Note: All p-values are for two-sided tests, except for the price elasticity term, which is assumed to be negative if significant.

## TABLE LF-24
## SIERRA PACIFIC REGRESSION RESULTS

| | Residential Single-Family | Residential Multi-Family | Small Commercial | Medium Commercial | Large Commercial |
|---|---|---|---|---|---|
| Coefficient of Determination | 0.3143 | 0.3209 | 0.3335 | 0.5295 | 0.5066 |
| F-Statistic | 2.6310 | 2.7559 | 3.0034 | 9.3502 | 8.9745 |
| Significance of Regression | 0.0824 | 0.0736 | 0.0590 | 0.0004 | 0.0004 |
| Intercept | 5.6106 | 5.4454 | 7.6520 | 11.4813 | 9.9775 |
| - t-stat | 5.9950 | 7.1121 | 29.8508 | 117.7951 | 9.4817 |
| - p-value (two-sided) | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| log(price) | -0.0525 | -0.0868 | -0.0252 | 0.0393 | 0.1453 |
| - t-stat | -0.2508 | -0.4659 | -0.5701 | 2.3323 | 1.3033 |
| - p-value (one-sided) | 0.4015 | 0.3217 | 0.2856 | 0.9880 | 0.9007 |
| log(Inelastic Prediction) | 0.2610 | 0.2230 | 0.0737 | 0.0449 | 0.3122 |
| - t-stat | 2.1819 | 2.1730 | 2.3478 | 3.7670 | 4.1540 |
| - p-value (two-sided) | 0.0340 | 0.0347 | 0.0231 | 0.0005 | 0.0001 |

Note: All p-values are for two-sided tests, except for the price elasticity term, which is assumed to be negative if significant.

Adjustments for DSM Program Savings

For this 2026 Joint IRP forecast, the level of DSM program kWh savings approved in the 2024 Joint IRP proceeding are incorporated into the base forecast. For this load forecast update, DR program load reductions have been incorporated back as a load modifier, instead of being reflected within the Loads & Resources table. Modifications to proposed DSM programs, detailed within the DSM plan, are provided in Section V, comparing the effect of these proposed savings relative to the base forecast.

Forecasted DSM reductions are based on the program savings approved by the Commission in the 2024 Joint IRP. See the work papers for the calculations used to develop the DSM reductions. Typical DSM company programs are briefly described below. More detailed descriptions of programs are provided in the Demand Side Plan narrative.

1. Sierra Residential – This program provides customers with smart thermostats. Customers benefit from thermostat hardware and software that optimizes the performance of residential heating and cooling systems for both dispatchable peak demand and year-round energy efficiency. The program leverages the smart meter data provided as a result of the Advanced Service Delivery Initiative (aka NV Energize). The impact of these smart thermostat programs results in energy efficiency savings that are incorporated into the base forecast, and DR peak demand reductions, which are included in the additional load forecast scenario further described in Section V.

2. Sierra Commercial & Industrial - The program provides commercial customers a choice of demand responsive control technologies that provide peak demand reduction to the utility and cost savings to customers. The technology choices are designed to address the needs of diverse customer types from small businesses to large businesses, institutions and municipalities. For example, the program offers commercial smart thermostats, demand limiting controls, and control interfaces to customer equipment or building automation systems to help them manage energy and demand. These peak demand initiatives are detailed in the Demand Side plan narrative.

3. Nevada Power Residential – This program provides newly enrolled customers with smart thermostats and also maintains an existing enrolled customer population and their legacy residential demand response devices. Customers benefit from thermostat hardware and software that optimizes the performance of residential heating and cooling systems for both dispatchable peak demand and year-round energy efficiency. The program leverages the smart meter data provided as a result of the Advanced Service Delivery Initiative (aka NV Energize). The impact of these smart thermostat programs results in energy efficiency savings that are incorporated into the base forecast, and DR peak demand reductions, which are included in the additional load forecast scenario further described in Section V.

4. Nevada Power Commercial & Industrial – The program provides commercial customers a choice of demand responsive control technologies that provide peak demand reduction to the utility and cost savings to customers. The technology choices are designed to address the needs of diverse customer types from small businesses to large businesses, institutions and municipalities. For example, the program offers commercial smart thermostats, demand limiting controls, and control interfaces to customer equipment or building

automation systems to help them manage energy and demand. These peak demand initiatives are detailed in the Demand Side plan narrative.

Tables LF-25 and LF-26 are summaries of the Nevada Power and Sierra historical incremental DSM savings by end-use.

**TABLE LF-25**
**NEVADA POWER HISTORICAL DSM SAVINGS (MWH)**

| | Residential | | | | | | | Commercial | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Lighting | Cooling | Refrigeration | Misc | Water Heating | Heating | Total | Lighting | Cooling | Misc | Total |
| 2016 | 9,422 | 8,383 | 2,630 | 17,286 | 2 | - | 37,723 | 64,510 | 28,071 | 25,631 | 118,212 |
| 2017 | 999 | 11,795 | - | 1,998 | 999 | 999 | 16,788 | 71,139 | 31,034 | 28,329 | 130,502 |
| 2018 | 817 | 12,818 | - | 817 | 817 | 817 | 16,086 | 69,610 | 30,232 | 26,700 | 126,542 |
| 2019 | 10,355 | 13,125 | - | 7,999 | 4,415 | 4,415 | 40,309 | 68,868 | 29,671 | 24,610 | 123,149 |
| 2020 | 27,893 | 10,292 | - | 12,111 | 5,962 | 5,962 | 62,218 | 83,493 | 30,261 | 27,924 | 141,678 |
| 2021 | 21,404 | 6,681 | - | 5,634 | 3,473 | 3,473 | 40,664 | 62,495 | 17,008 | 19,154 | 98,657 |
| 2022 | 2,576 | 26,071 | 520 | 128,509 | 2,282 | 62 | 160,020 | - | 4,665 | 120,949 | 125,614 |
| 2023 | 867 | 33,611 | 445 | 78,612 | - | 5,007 | 118,543 | - | 5,435 | 149,431 | 154,866 |
| 2024 | 614 | 41,799 | 193 | 41,730 | 0 | 9,071 | 93,407 | - | 5,540 | 134,301 | 139,841 |
| 2025 | 319 | 35,347 | 226 | 37,418 | 32 | 2,969 | 76,311 | - | 5,592 | 123,386 | 128,978 |

**TABLE LF-26**
**SIERRA HISTORICAL DSM SAVINGS (MWH)**

| | Residential | | | | | | | Commercial | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Lighting | Cooling | Refrigeration | Misc | Water Heating | Heating | Total | Lighting | Cooling | Misc | Total |
| 2016 | - | 2,222 | - | 663 | 3,820 | 1,481 | 8,186 | 21,011 | 8,919 | 6,856 | 36,786 |
| 2017 | - | 1,138 | - | 340 | 1,957 | 759 | 4,193 | 21,341 | 3,971 | 15,610 | 40,922 |
| 2018 | - | 61 | - | 18 | 105 | 41 | 225 | 16,577 | 3,157 | 12,659 | 32,394 |
| 2019 | 2,880 | 114 | - | 34 | 195 | 76 | 3,299 | 16,627 | 3,142 | 12,517 | 32,287 |
| 2020 | 9,087 | 300 | - | 89 | 515 | 200 | 10,192 | 28,539 | 5,521 | 22,418 | 56,477 |
| 2021 | 6,804 | 300 | - | 89 | 515 | 200 | 7,909 | 28,935 | 5,593 | 22,693 | 57,220 |
| 2022 | 574 | 3,054 | 143 | 36,718 | - | - | 40,489 | - | 532 | 25,625 | 26,156 |
| 2023 | 130 | 3,243 | 238 | 12,141 | 0 | 2,728 | 18,479 | - | 523 | 35,390 | 35,913 |
| 2024 | 123 | 4,089 | 132 | 8,902 | (0) | 1,613 | 14,859 | - | 543 | 31,895 | 32,438 |
| 2025 | 55 | 4,812 | 59 | 12,764 | 29 | 649 | 18,368 | - | 535 | 39,136 | 39,671 |

System Losses

System losses are estimated on an hourly basis and added to the sales forecast to derive the System energy forecast. The Company's methodology is based upon the National Economic Research Associates ("NERA") marginal costing methodology and attempts to model line losses by voltage level across all hours of the year. The losses by voltage are multiplied by corresponding customer group to derive hourly losses across the year, which reflects the varying impact that losses have on peak loads, in addition to overall energy impacts.

The losses calculation begins with calculating the annual difference between historical System loads, metered at generation and transmission interconnection points, and the hourly class loads, which are based on data recorded at the customer meter. Using power flow loss study information from Transmission Planning and Distribution Planning departments, individual loss factors by voltage level (i.e. Transmission, Primary Distribution, and Secondary Distribution voltages) at the time of system peak are determined. Hourly loss estimates are then determined by hour based upon that hour's load relative to the annual peak for each of three-years of historical information. For the 2026 Joint IRP Forecast, these historical estimates are then averaged by month, day of week and hour, and applied to the hourly sales in each forecast year over the 2027-2046 period. The percentages corresponding to the appropriate voltage level for each customer group are then multiplied by the forecasted sales. The result are hourly energy loss estimates for each company. These values are added to the sales forecast to derive the total System energy requirements. Table LF-27 summarizes the annual GWh loss estimates incorporated into the 2026 Joint IRP Forecast over the 2027-2046 period.

**TABLE LF-27**
**NEVADA POWER AND SIERRA LOSS ESTIMATES (GWH)**

| | Nevada Power | | | Sierra | | |
|---|---|---|---|---|---|---|
| Year | Annual Sales | Losses | Percent | Annual Sales | Losses | Percent |
| 2027 | 24,364 | 663 | 2.72% | 13,307 | 890 | 6.69% |
| 2028 | 25,921 | 688 | 2.65% | 16,744 | 953 | 5.69% |
| 2029 | 28,127 | 721 | 2.56% | 19,530 | 1,001 | 5.13% |
| 2030 | 30,637 | 760 | 2.48% | 22,204 | 1,052 | 4.74% |
| 2031 | 31,752 | 780 | 2.46% | 28,476 | 1,167 | 4.10% |
| 2032 | 32,530 | 794 | 2.44% | 30,877 | 1,213 | 3.93% |
| 2033 | 33,183 | 807 | 2.43% | 32,958 | 1,250 | 3.79% |
| 2034 | 33,885 | 822 | 2.43% | 34,864 | 1,284 | 3.68% |
| 2035 | 34,592 | 836 | 2.42% | 36,871 | 1,323 | 3.59% |
| 2036 | 35,556 | 855 | 2.41% | 39,169 | 1,368 | 3.49% |
| 2037 | 36,554 | 875 | 2.39% | 40,424 | 1,392 | 3.44% |
| 2038 | 37,612 | 896 | 2.38% | 41,548 | 1,415 | 3.40% |
| 2039 | 38,609 | 916 | 2.37% | 42,734 | 1,438 | 3.37% |
| 2040 | 39,709 | 938 | 2.36% | 44,052 | 1,466 | 3.33% |
| 2041 | 40,744 | 958 | 2.35% | 45,134 | 1,488 | 3.30% |
| 2042 | 41,571 | 977 | 2.35% | 46,338 | 1,513 | 3.27% |
| 2043 | 42,352 | 993 | 2.35% | 47,591 | 1,538 | 3.23% |
| 2044 | 43,339 | 1,014 | 2.34% | 48,968 | 1,567 | 3.20% |
| 2045 | 44,073 | 1,030 | 2.34% | 50,136 | 1,588 | 3.17% |
| 2046 | 44,894 | 1,048 | 2.33% | 51,473 | 1,616 | 3.14% |

Company Use

In this 2026 Joint IRP Forecast update, Company Use sales come directly from available meter data rather than using a five-year historical average accounting measure for both Nevada Power and Sierra.

# III. BASE FORECAST SUMMARY

## A. Sales Forecast Summary

Table LF-28 presents the summaries of sales by season for Nevada Power and Sierra over the 2027-2046 period. The months of June through September are defined as summer for both companies. Winter is defined as all other months.

**TABLE LF-28**
**NEVADA POWER AND SIERRA SEASONAL SALES (GWH)**

| | Nevada Power | | | Sierra | | |
|---|---|---|---|---|---|---|
| Year | Summer | Winter | Total | Summer | Winter | Total |
| 2027 | 11,256 | 13,107 | 24,364 | 4,778 | 8,529 | 13,307 |
| 2028 | 11,812 | 14,109 | 25,921 | 5,916 | 10,827 | 16,744 |
| 2029 | 12,648 | 15,479 | 28,127 | 6,838 | 12,691 | 19,530 |
| 2030 | 13,549 | 17,088 | 30,637 | 7,734 | 14,470 | 22,204 |
| 2031 | 13,989 | 17,763 | 31,752 | 9,820 | 18,656 | 28,476 |
| 2032 | 14,295 | 18,235 | 32,530 | 10,602 | 20,275 | 30,877 |
| 2033 | 14,632 | 18,550 | 33,183 | 11,323 | 21,636 | 32,958 |
| 2034 | 14,937 | 18,948 | 33,885 | 11,950 | 22,915 | 34,864 |
| 2035 | 15,256 | 19,336 | 34,592 | 12,641 | 24,229 | 36,871 |
| 2036 | 15,655 | 19,901 | 35,556 | 13,382 | 25,787 | 39,169 |
| 2037 | 16,153 | 20,401 | 36,554 | 13,837 | 26,588 | 40,424 |
| 2038 | 16,620 | 20,992 | 37,612 | 14,229 | 27,320 | 41,548 |
| 2039 | 17,058 | 21,551 | 38,609 | 14,639 | 28,094 | 42,734 |
| 2040 | 17,475 | 22,235 | 39,709 | 15,048 | 29,005 | 44,052 |
| 2041 | 17,963 | 22,781 | 40,744 | 15,463 | 29,670 | 45,134 |
| 2042 | 18,359 | 23,212 | 41,571 | 15,880 | 30,458 | 46,338 |
| 2043 | 18,739 | 23,613 | 42,352 | 16,316 | 31,275 | 47,591 |
| 2044 | 19,155 | 24,184 | 43,339 | 16,749 | 32,219 | 48,968 |
| 2045 | 19,528 | 24,544 | 44,073 | 17,205 | 32,930 | 50,136 |
| 2046 | 19,902 | 24,991 | 44,894 | 17,659 | 33,815 | 51,473 |

Per NAC § 704.925(1), Tables LF-29 and LF-30 are summaries of seasonal sales for each Company for 2027-2046.

**TABLE LF-29**
**NEVADA POWER SEASONAL SALES BY CLASS (GWH)**

| | Residential | | | Small C&I | | | Medium C&I | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Summer | Winter | Total | Summer | Winter | Total | Summer | Winter | Total |
| 2027 | 5,616 | 4,456 | 10,072 | 2,149 | 2,822 | 4,971 | 1,017 | 1,417 | 2,435 |
| 2028 | 5,689 | 4,523 | 10,211 | 2,180 | 2,850 | 5,030 | 1,032 | 1,429 | 2,461 |
| 2029 | 5,760 | 4,538 | 10,299 | 2,213 | 2,874 | 5,086 | 1,052 | 1,435 | 2,487 |
| 2030 | 5,903 | 4,604 | 10,507 | 2,234 | 2,889 | 5,123 | 1,069 | 1,444 | 2,513 |
| 2031 | 6,040 | 4,670 | 10,710 | 2,255 | 2,890 | 5,145 | 1,083 | 1,448 | 2,531 |
| 2032 | 6,151 | 4,761 | 10,912 | 2,287 | 2,920 | 5,208 | 1,096 | 1,458 | 2,553 |
| 2033 | 6,268 | 4,801 | 11,069 | 2,347 | 2,931 | 5,278 | 1,112 | 1,455 | 2,567 |
| 2034 | 6,367 | 4,856 | 11,223 | 2,384 | 2,956 | 5,340 | 1,127 | 1,460 | 2,587 |
| 2035 | 6,490 | 4,917 | 11,407 | 2,414 | 2,977 | 5,391 | 1,145 | 1,464 | 2,609 |
| 2036 | 6,650 | 5,011 | 11,661 | 2,438 | 3,005 | 5,443 | 1,163 | 1,479 | 2,641 |
| 2037 | 6,835 | 5,063 | 11,897 | 2,482 | 3,011 | 5,493 | 1,187 | 1,486 | 2,673 |
| 2038 | 6,976 | 5,139 | 12,115 | 2,547 | 3,046 | 5,593 | 1,211 | 1,499 | 2,710 |
| 2039 | 7,101 | 5,215 | 12,316 | 2,609 | 3,081 | 5,690 | 1,235 | 1,511 | 2,746 |
| 2040 | 7,211 | 5,321 | 12,532 | 2,658 | 3,134 | 5,792 | 1,258 | 1,531 | 2,790 |
| 2041 | 7,404 | 5,389 | 12,793 | 2,678 | 3,154 | 5,832 | 1,285 | 1,540 | 2,825 |
| 2042 | 7,591 | 5,483 | 13,073 | 2,712 | 3,171 | 5,882 | 1,311 | 1,554 | 2,865 |
| 2043 | 7,748 | 5,568 | 13,316 | 2,762 | 3,197 | 5,959 | 1,338 | 1,570 | 2,908 |
| 2044 | 7,891 | 5,665 | 13,557 | 2,825 | 3,241 | 6,066 | 1,365 | 1,593 | 2,959 |
| 2045 | 7,993 | 5,701 | 13,694 | 2,888 | 3,273 | 6,162 | 1,395 | 1,605 | 3,000 |
| 2046 | 8,140 | 5,771 | 13,911 | 2,915 | 3,311 | 6,226 | 1,426 | 1,622 | 3,048 |

| | Large C&I | | | Public Authority | | | Street Lighting | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Summer | Winter | Total | Summer | Winter | Total | Summer | Winter | Total |
| 2027 | 2,417 | 4,297 | 6,714 | 18 | 21 | 39 | 39 | 94 | 133 |
| 2028 | 2,853 | 5,191 | 8,045 | 19 | 22 | 41 | 39 | 94 | 134 |
| 2029 | 3,566 | 6,516 | 10,082 | 18 | 22 | 41 | 39 | 94 | 133 |
| 2030 | 4,286 | 8,035 | 12,321 | 18 | 22 | 41 | 39 | 94 | 133 |
| 2031 | 4,553 | 8,638 | 13,191 | 19 | 22 | 42 | 39 | 94 | 133 |
| 2032 | 4,702 | 8,978 | 13,681 | 19 | 23 | 42 | 39 | 94 | 134 |
| 2033 | 4,847 | 9,247 | 14,094 | 19 | 23 | 42 | 39 | 94 | 133 |
| 2034 | 5,000 | 9,560 | 14,560 | 19 | 23 | 42 | 39 | 94 | 133 |
| 2035 | 5,148 | 9,861 | 15,010 | 19 | 23 | 42 | 39 | 94 | 133 |
| 2036 | 5,345 | 10,288 | 15,633 | 20 | 24 | 44 | 39 | 94 | 134 |
| 2037 | 5,589 | 10,724 | 16,313 | 20 | 24 | 44 | 39 | 94 | 133 |
| 2038 | 5,827 | 11,190 | 17,017 | 20 | 24 | 44 | 39 | 94 | 133 |
| 2039 | 6,053 | 11,625 | 17,679 | 21 | 25 | 45 | 39 | 94 | 133 |
| 2040 | 6,287 | 12,129 | 18,416 | 21 | 25 | 45 | 39 | 94 | 134 |
| 2041 | 6,536 | 12,579 | 19,115 | 21 | 25 | 45 | 39 | 94 | 133 |
| 2042 | 6,685 | 12,886 | 19,571 | 21 | 25 | 46 | 39 | 94 | 133 |
| 2043 | 6,831 | 13,158 | 19,989 | 21 | 25 | 47 | 39 | 94 | 133 |
| 2044 | 7,013 | 13,564 | 20,577 | 21 | 26 | 47 | 39 | 94 | 134 |
| 2045 | 7,191 | 13,846 | 21,036 | 21 | 26 | 47 | 39 | 94 | 133 |
| 2046 | 7,360 | 14,166 | 21,526 | 22 | 26 | 48 | 39 | 94 | 133 |

## TABLE LF-30
## SIERRA SEASONAL SALES BY CLASS (GWH)

| | Residential | | | Small C&I | | | Medium C&I | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Summer | Winter | Total | Summer | Winter | Total | Summer | Winter | Total |
| 2027 | 1,073 | 1,693 | 2,766 | 272 | 496 | 768 | 694 | 1,224 | 1,917 |
| 2028 | 1,083 | 1,700 | 2,783 | 273 | 498 | 771 | 688 | 1,228 | 1,916 |
| 2029 | 1,093 | 1,689 | 2,783 | 272 | 496 | 768 | 682 | 1,220 | 1,902 |
| 2030 | 1,117 | 1,690 | 2,807 | 275 | 499 | 775 | 678 | 1,219 | 1,897 |
| 2031 | 1,142 | 1,690 | 2,832 | 278 | 501 | 779 | 674 | 1,217 | 1,891 |
| 2032 | 1,166 | 1,701 | 2,867 | 280 | 504 | 783 | 669 | 1,217 | 1,886 |
| 2033 | 1,186 | 1,694 | 2,879 | 281 | 501 | 783 | 666 | 1,209 | 1,875 |
| 2034 | 1,205 | 1,694 | 2,899 | 281 | 501 | 781 | 661 | 1,203 | 1,864 |
| 2035 | 1,229 | 1,696 | 2,925 | 281 | 501 | 782 | 658 | 1,199 | 1,857 |
| 2036 | 1,253 | 1,706 | 2,959 | 284 | 504 | 788 | 657 | 1,203 | 1,860 |
| 2037 | 1,283 | 1,699 | 2,983 | 286 | 502 | 788 | 653 | 1,192 | 1,845 |
| 2038 | 1,309 | 1,704 | 3,014 | 288 | 501 | 789 | 651 | 1,188 | 1,839 |
| 2039 | 1,331 | 1,706 | 3,037 | 289 | 501 | 790 | 650 | 1,185 | 1,835 |
| 2040 | 1,353 | 1,720 | 3,073 | 289 | 502 | 791 | 646 | 1,185 | 1,831 |
| 2041 | 1,382 | 1,715 | 3,097 | 291 | 501 | 793 | 648 | 1,180 | 1,827 |
| 2042 | 1,408 | 1,718 | 3,126 | 294 | 501 | 795 | 646 | 1,176 | 1,822 |
| 2043 | 1,433 | 1,718 | 3,151 | 295 | 501 | 796 | 645 | 1,172 | 1,817 |
| 2044 | 1,456 | 1,727 | 3,184 | 297 | 503 | 801 | 644 | 1,175 | 1,820 |
| 2045 | 1,474 | 1,711 | 3,185 | 298 | 500 | 798 | 644 | 1,166 | 1,811 |
| 2046 | 1,498 | 1,708 | 3,206 | 299 | 500 | 799 | 645 | 1,164 | 1,809 |

| | Large C&I | | | Irrigation | | | Street Lighting | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Summer | Winter | Total | Summer | Winter | Total | Summer | Winter | Total |
| 2027 | 2,599 | 5,045 | 7,644 | 136 | 62 | 198 | 4 | 10 | 14 |
| 2028 | 3,729 | 7,327 | 11,057 | 139 | 64 | 203 | 4 | 10 | 14 |
| 2029 | 4,646 | 9,211 | 13,857 | 141 | 65 | 206 | 4 | 10 | 14 |
| 2030 | 5,516 | 10,985 | 16,501 | 144 | 66 | 210 | 4 | 10 | 14 |
| 2031 | 7,575 | 15,170 | 22,745 | 146 | 67 | 213 | 4 | 10 | 14 |
| 2032 | 8,335 | 16,775 | 25,110 | 148 | 68 | 216 | 4 | 10 | 14 |
| 2033 | 9,036 | 18,153 | 27,189 | 150 | 69 | 219 | 4 | 10 | 14 |
| 2034 | 9,648 | 19,438 | 29,085 | 152 | 69 | 222 | 4 | 10 | 14 |
| 2035 | 10,315 | 20,753 | 31,068 | 154 | 70 | 224 | 4 | 10 | 14 |
| 2036 | 11,028 | 22,293 | 33,321 | 155 | 71 | 227 | 4 | 10 | 14 |
| 2037 | 11,454 | 23,113 | 34,567 | 157 | 72 | 229 | 4 | 10 | 14 |
| 2038 | 11,819 | 23,844 | 35,663 | 158 | 72 | 230 | 4 | 10 | 14 |
| 2039 | 12,206 | 24,620 | 36,825 | 160 | 73 | 232 | 4 | 10 | 14 |
| 2040 | 12,595 | 25,514 | 38,109 | 161 | 74 | 234 | 4 | 10 | 14 |
| 2041 | 12,977 | 26,191 | 39,167 | 162 | 74 | 236 | 4 | 10 | 14 |
| 2042 | 13,365 | 26,978 | 40,343 | 163 | 75 | 238 | 4 | 10 | 14 |
| 2043 | 13,774 | 27,798 | 41,573 | 164 | 75 | 239 | 4 | 10 | 14 |
| 2044 | 14,181 | 28,728 | 42,910 | 165 | 75 | 241 | 4 | 10 | 14 |
| 2045 | 14,619 | 29,467 | 44,086 | 166 | 76 | 242 | 4 | 10 | 14 |
| 2046 | 15,045 | 30,356 | 45,401 | 168 | 77 | 244 | 4 | 10 | 14 |

Pursuant to §§ NAC 704.925(1), Table LF-31 provides summaries of the seasonal peak demand energy, and calculated load factors for Nevada Power and Sierra from 2027 to 2046.

**TABLE LF-31**
**ANNUAL PEAK DEMAND, ENERGY, AND LOAD FACTOR FORECAST**

| | Nevada Power | | | | Sierra | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Summer Peak MW | Winter Peak MW | Energy GWh | Load Factor | Summer Peak MW | Winter Peak MW | Energy GWh | Load Factor |
| 2026 | 6,705 | 3,060 | 22,967 | 39.1% | 2,598 | 2,622 | 12,018 | 52.8% |
| 2027 | 6,865 | 3,221 | 25,038 | 41.6% | 2,951 | 2,954 | 14,858 | 57.5% |
| 2028 | 7,369 | 3,538 | 26,620 | 41.2% | 3,242 | 3,669 | 17,709 | 62.4% |
| 2029 | 7,751 | 3,745 | 28,859 | 42.5% | 3,606 | 3,951 | 20,543 | 64.8% |
| 2030 | 7,993 | 3,830 | 31,408 | 44.9% | 4,375 | 4,183 | 23,268 | 60.7% |
| 2031 | 8,102 | 3,940 | 32,542 | 45.9% | 4,614 | 4,410 | 29,654 | 73.4% |
| 2032 | 8,227 | 3,986 | 33,335 | 46.3% | 4,951 | 4,643 | 32,102 | 74.0% |
| 2033 | 8,509 | 4,080 | 34,000 | 45.6% | 5,130 | 4,907 | 34,221 | 75.9% |
| 2034 | 8,628 | 4,144 | 34,717 | 45.9% | 5,355 | 5,121 | 36,160 | 77.1% |
| 2035 | 8,835 | 4,209 | 35,438 | 45.8% | 5,672 | 5,264 | 38,205 | 76.9% |
| 2036 | 9,052 | 4,339 | 36,422 | 45.9% | 5,829 | 5,401 | 40,549 | 79.4% |
| 2037 | 9,283 | 4,422 | 37,440 | 46.0% | 6,014 | 5,510 | 41,828 | 79.2% |
| 2038 | 9,389 | 4,499 | 38,518 | 46.8% | 6,218 | 5,676 | 42,975 | 78.9% |
| 2039 | 9,800 | 4,638 | 39,535 | 46.1% | 6,317 | 5,830 | 44,184 | 79.8% |
| 2040 | 9,968 | 4,682 | 40,657 | 46.6% | 6,480 | 5,986 | 45,531 | 80.2% |
| 2041 | 10,280 | 4,835 | 41,713 | 46.3% | 6,680 | 6,143 | 46,634 | 79.5% |
| 2042 | 10,344 | 4,840 | 42,558 | 47.0% | 6,786 | 6,254 | 47,863 | 80.5% |
| 2043 | 10,487 | 4,917 | 43,356 | 47.2% | 6,998 | 6,436 | 49,141 | 80.2% |
| 2044 | 10,820 | 5,049 | 44,363 | 46.8% | 7,145 | 6,604 | 50,547 | 80.8% |
| 2045 | 10,964 | 5,108 | 45,113 | 47.0% | 7,275 | 6,770 | 51,736 | 81.0% |

Pursuant to NAC §704.925(1), Tables LF-32 and LF-33 show the coincident peak MW for both the summer and winter peak for both companies by customer group.

## TABLE LF-32
## NEVADA POWER CLASS PEAK (MW) DEMANDS

| | Residential | | Small C&I | | Medium C&I | | Large C&I | | Public Authority | | Lighting (SL & OLS) | | Total System | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak |
| 2027 | 4,247 | 1,296 | 942 | 588 | 402 | 270 | 859 | 810 | 4 | 2 | 7 | 26 | 6,705 | 3,060 |
| 2028 | 4,138 | 1,310 | 1,006 | 590 | 427 | 270 | 1,026 | 954 | 3 | 2 | 3 | 26 | 6,865 | 3,221 |
| 2029 | 4,341 | 1,319 | 1,043 | 596 | 446 | 271 | 1,266 | 1,252 | 3 | 2 | 3 | 26 | 7,369 | 3,538 |
| 2030 | 4,434 | 1,329 | 1,061 | 592 | 453 | 278 | 1,514 | 1,441 | 4 | 3 | 3 | 26 | 7,751 | 3,745 |
| 2031 | 4,595 | 1,341 | 1,022 | 594 | 449 | 278 | 1,605 | 1,511 | 4 | 3 | 7 | 26 | 7,993 | 3,830 |
| 2032 | 4,588 | 1,413 | 1,099 | 602 | 466 | 263 | 1,659 | 1,551 | 4 | 3 | 3 | 31 | 8,102 | 3,940 |
| 2033 | 4,682 | 1,379 | 1,103 | 608 | 454 | 271 | 1,696 | 1,623 | 4 | 2 | 3 | 26 | 8,227 | 3,986 |
| 2034 | 4,808 | 1,436 | 1,136 | 606 | 481 | 262 | 1,773 | 1,661 | 4 | 3 | 3 | 31 | 8,509 | 4,080 |
| 2035 | 4,860 | 1,441 | 1,156 | 606 | 489 | 261 | 1,821 | 1,721 | 4 | 3 | 3 | 31 | 8,628 | 4,144 |
| 2036 | 4,967 | 1,456 | 1,178 | 610 | 498 | 262 | 1,877 | 1,765 | 4 | 3 | 3 | 31 | 8,835 | 4,209 |
| 2037 | 5,057 | 1,486 | 1,212 | 619 | 508 | 263 | 1,961 | 1,855 | 4 | 3 | 3 | 31 | 9,052 | 4,339 |
| 2038 | 5,286 | 1,431 | 1,153 | 627 | 485 | 272 | 2,033 | 1,978 | 4 | 2 | 7 | 26 | 9,283 | 4,422 |
| 2039 | 5,267 | 1,483 | 1,179 | 604 | 496 | 267 | 2,122 | 2,031 | 4 | 2 | 7 | 26 | 9,389 | 4,499 |
| 2040 | 5,402 | 1,519 | 1,289 | 631 | 540 | 266 | 2,219 | 2,099 | 4 | 3 | 3 | 31 | 9,800 | 4,638 |
| 2041 | 5,468 | 1,462 | 1,313 | 635 | 551 | 282 | 2,287 | 2,186 | 4 | 3 | 3 | 26 | 9,968 | 4,682 |
| 2042 | 5,722 | 1,567 | 1,268 | 642 | 550 | 269 | 2,339 | 2,233 | 4 | 3 | 7 | 31 | 10,280 | 4,835 |
| 2043 | 5,694 | 1,494 | 1,295 | 651 | 563 | 278 | 2,397 | 2,298 | 4 | 2 | 7 | 26 | 10,344 | 4,840 |
| 2044 | 5,917 | 1,539 | 1,239 | 620 | 565 | 273 | 2,417 | 2,364 | 5 | 2 | 7 | 26 | 10,487 | 4,917 |
| 2045 | 5,921 | 1,575 | 1,384 | 649 | 601 | 274 | 2,533 | 2,424 | 4 | 3 | 3 | 31 | 10,820 | 5,049 |
| 2046 | 6,020 | 1,568 | 1,326 | 648 | 600 | 275 | 2,599 | 2,489 | 4 | 3 | 7 | 31 | 10,964 | 5,108 |

## TABLE LF-33
## SIERRA CLASS PEAK (MW) DEMANDS

| | Residential | | Small C&I | | Medium C&I | | Large C&I | | Public Authority | | Lighting (SL & OLS) | | Total System | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak | Summer Peak | Winter Peak |
| 2027 | 842 | 475 | 139 | 110 | 298 | 235 | 901 | 996 | 59 | 2 | 0 | 3 | 2,598 | 2,622 |
| 2028 | 900 | 475 | 128 | 110 | 280 | 235 | 1,294 | 1,368 | 61 | 2 | 0 | 3 | 2,951 | 2,954 |
| 2029 | 904 | 474 | 123 | 111 | 264 | 234 | 1,598 | 1,645 | 60 | 2 | 0 | 3 | 3,242 | 3,669 |
| 2030 | 939 | 474 | 129 | 111 | 273 | 234 | 1,897 | 1,972 | 61 | 2 | 0 | 3 | 3,606 | 3,951 |
| 2031 | 956 | 456 | 129 | 107 | 271 | 236 | 2,628 | 2,691 | 62 | 2 | 0 | 3 | 4,375 | 4,183 |
| 2032 | 931 | 475 | 130 | 107 | 269 | 230 | 2,881 | 2,951 | 64 | 2 | 0 | 3 | 4,614 | 4,410 |
| 2033 | 995 | 462 | 131 | 105 | 268 | 230 | 3,143 | 3,210 | 66 | 2 | 0 | 4 | 4,951 | 4,643 |
| 2034 | 959 | 438 | 128 | 101 | 267 | 220 | 3,364 | 3,473 | 67 | 2 | 0 | 4 | 5,130 | 4,907 |
| 2035 | 1,011 | 458 | 127 | 101 | 254 | 219 | 3,544 | 3,680 | 65 | 2 | 0 | 4 | 5,355 | 5,121 |
| 2036 | 1,050 | 453 | 132 | 106 | 263 | 226 | 3,792 | 3,934 | 66 | 2 | 0 | 3 | 5,672 | 5,264 |
| 2037 | 1,025 | 474 | 132 | 105 | 262 | 224 | 3,963 | 4,124 | 68 | 2 | 0 | 4 | 5,829 | 5,401 |
| 2038 | 1,067 | 486 | 130 | 106 | 252 | 221 | 4,117 | 4,253 | 69 | 2 | 0 | 4 | 6,014 | 5,510 |
| 2039 | 1,109 | 448 | 135 | 110 | 261 | 230 | 4,251 | 4,416 | 70 | 2 | 0 | 3 | 6,218 | 5,676 |
| 2040 | 1,071 | 449 | 133 | 101 | 261 | 215 | 4,395 | 4,547 | 71 | 2 | 0 | 4 | 6,317 | 5,830 |
| 2041 | 1,150 | 462 | 137 | 107 | 258 | 222 | 4,464 | 4,684 | 69 | 2 | 0 | 3 | 6,480 | 5,986 |
| 2042 | 1,169 | 470 | 138 | 105 | 257 | 220 | 4,636 | 4,827 | 69 | 3 | 0 | 4 | 6,680 | 6,143 |
| 2043 | 1,138 | 487 | 139 | 105 | 257 | 219 | 4,763 | 4,964 | 71 | 2 | 0 | 4 | 6,786 | 6,254 |
| 2044 | 1,180 | 498 | 138 | 106 | 253 | 217 | 4,937 | 5,108 | 73 | 2 | 0 | 4 | 6,998 | 6,436 |
| 2045 | 1,158 | 454 | 140 | 102 | 258 | 211 | 5,097 | 5,275 | 73 | 3 | 0 | 4 | 7,145 | 6,604 |
| 2046 | 1,213 | 473 | 139 | 101 | 253 | 211 | 5,170 | 5,433 | 71 | 3 | 0 | 4 | 7,275 | 6,770 |

Figures LF-8, LF-9, and LF-10 show the load duration curves ("LDC") for Nevada Power and Sierra for the years 2026 – 2035. LDCs rank the load within each hour across the year, and present values from the peak load to the lowest load hour.

**FIGURE LF-8**
**NV ENERGY 10 YEAR (2026-2035) LOAD DURATION CURVE**

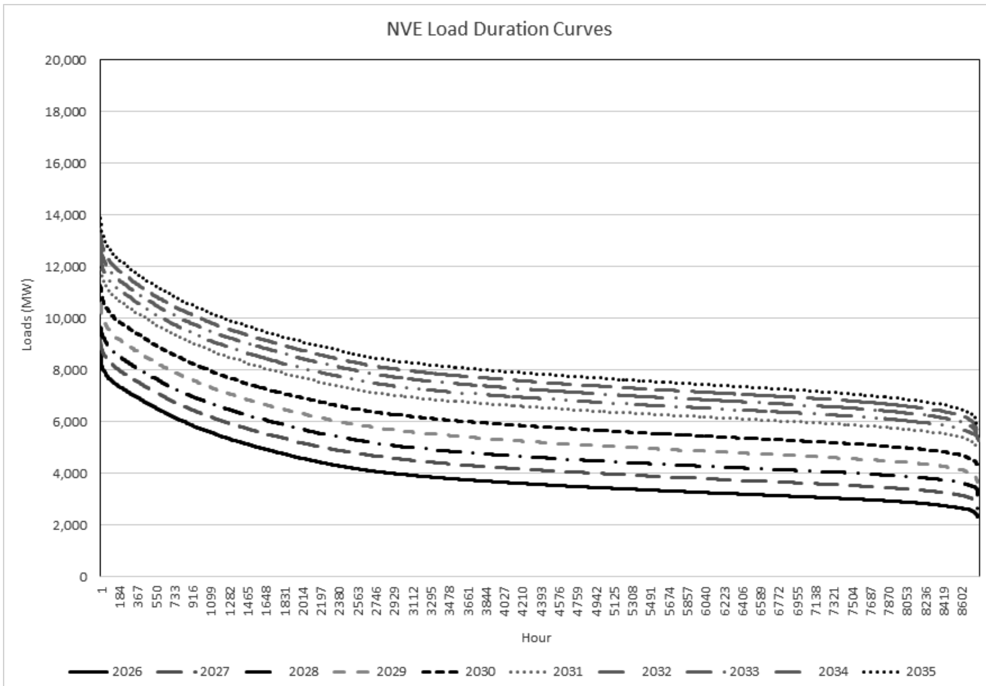



**FIGURE LF-9**
**NEVADA POWER 10 YEAR (2026-2035) LOAD DURATION CURVE**

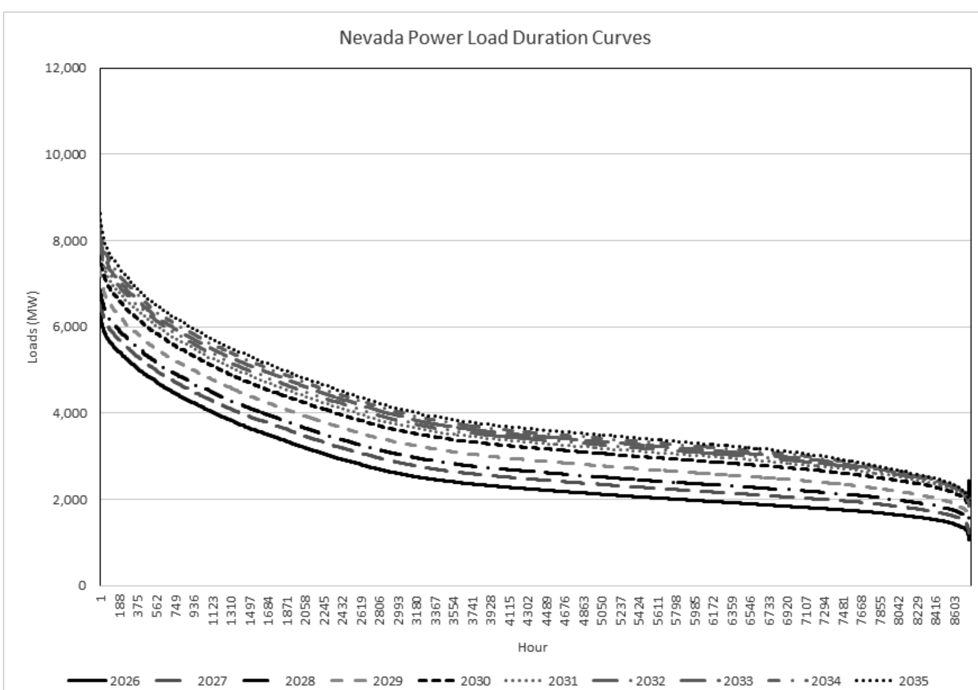
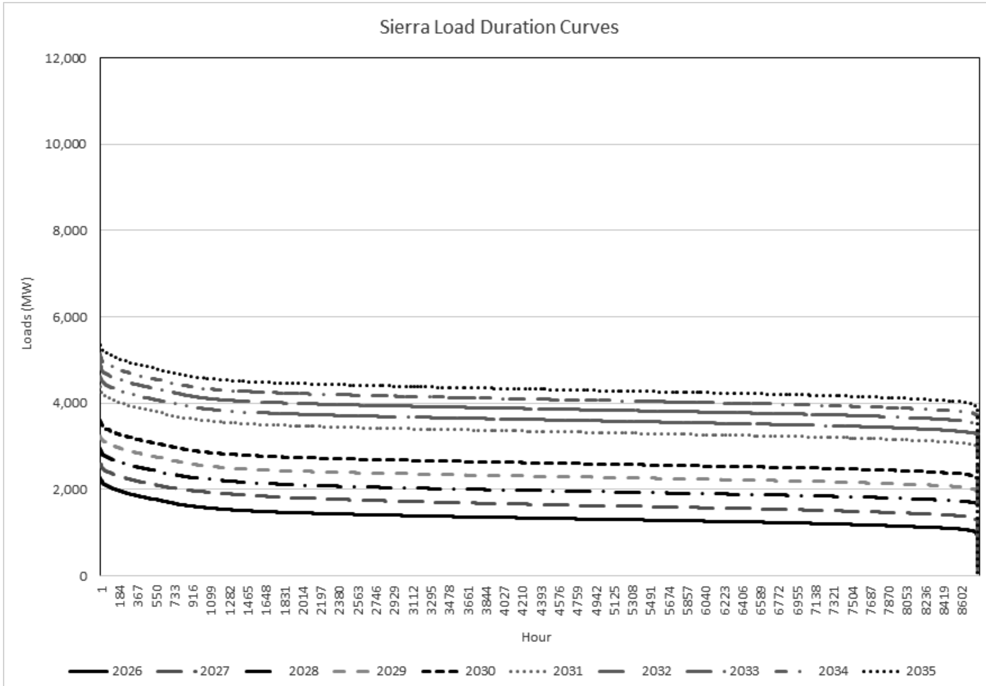


**FIGURE LF-10**
**SIERRA 10 YEAR (2026-2035) LOAD DURATION CURVE**




Figures LF-11, LF-12, and LF-13 show the load duration curves ("LDC") for Nevada Power and Sierra for the years 2027, 2032, 2037, 2042, and 2046 as required by NAC § 704.925(9). LDCs rank the load within each hour across the year, and present values from the peak load to the lowest load hour.

**FIGURE LF-11**
**NV ENERGY (2027-2046) LOAD DURATION CURVE**

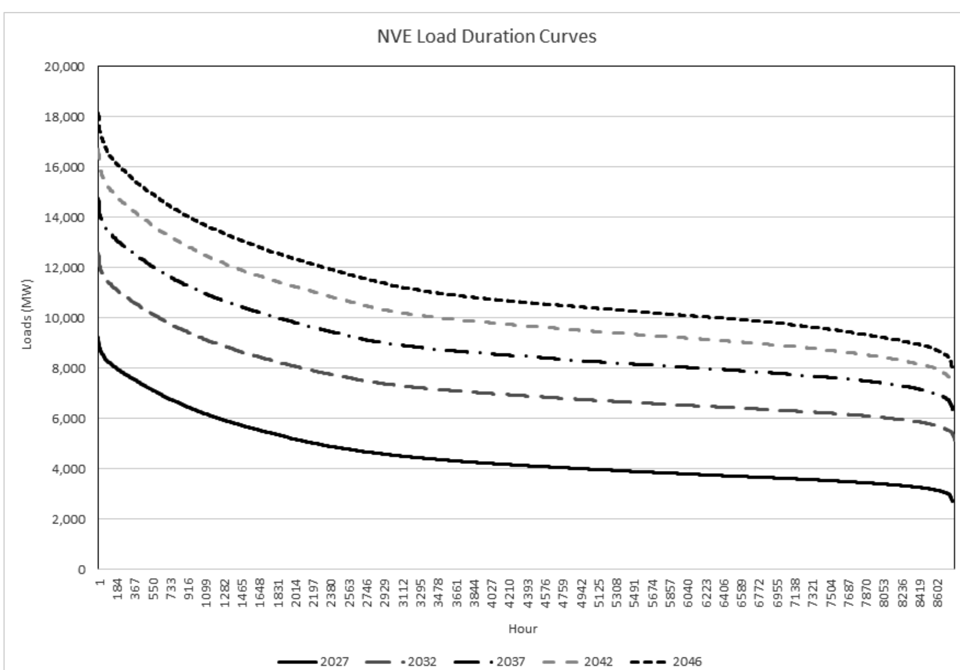


**FIGURE LF-12**
**NEVADA POWER (2027-2046) LOAD DURATION CURVE**

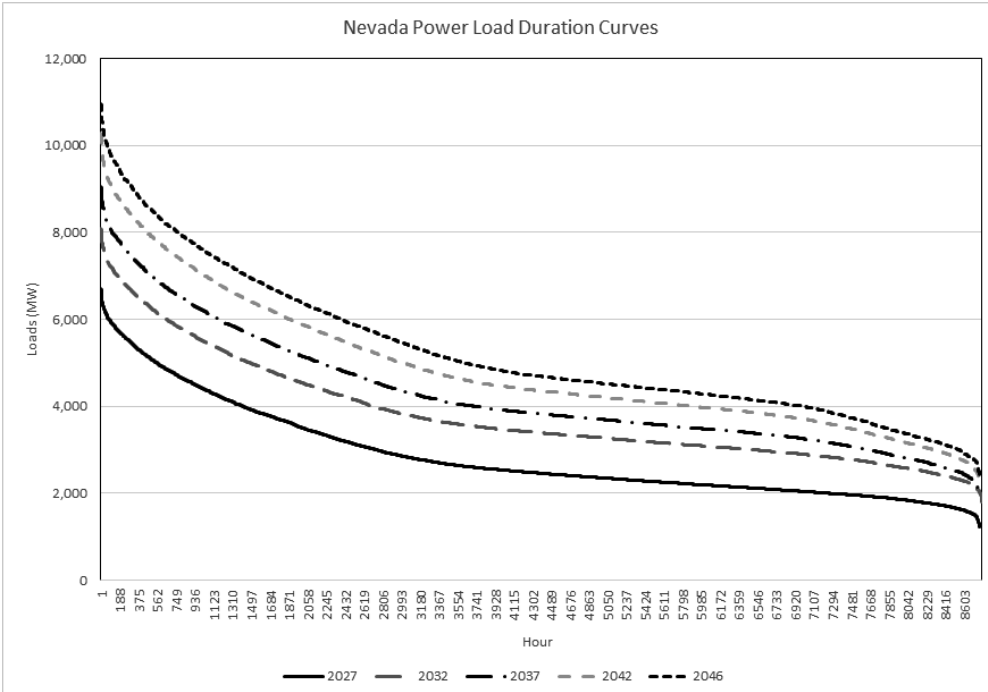
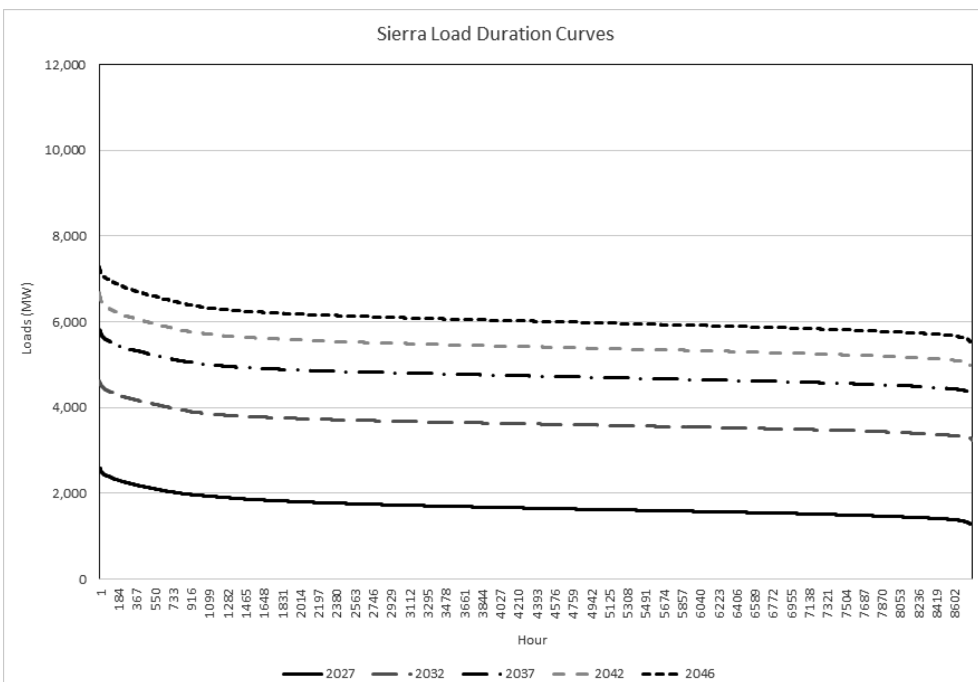



**FIGURE LF-13**
**SIERRA (2027-2046) LOAD DURATION CURVE**



B. Customer Forecast Summary

Table LF-34 is a summary of the residential customers and Small C&I customers by company from 2017-2046. Sierra Small C&I customer counts do not include irrigation customers.

**TABLE LF-34**
**HISTORY AND FORECAST OF RESIDENTIAL AND SMALL C&I CUSTOMERS**

| | RESIDENTIAL | | | SMALL C&I | | |
|---|---|---|---|---|---|---|
| Year | Nevada Power | Sierra | NV Energy | Nevada Power | Sierra | NV Energy |
| 2017 | 811,774 | 295,376 | 1,107,150 | 107,785 | 45,589 | 153,373 |
| 2018 | 828,542 | 299,951 | 1,128,494 | 109,373 | 46,049 | 155,422 |
| 2019 | 839,520 | 304,169 | 1,143,690 | 110,079 | 46,412 | 156,491 |
| 2020 | 856,370 | 310,012 | 1,166,382 | 112,254 | 47,039 | 159,294 |
| 2021 | 871,034 | 316,556 | 1,187,590 | 112,782 | 47,490 | 160,272 |
| 2022 | 888,686 | 321,479 | 1,210,165 | 114,192 | 47,758 | 161,951 |
| 2023 | 900,833 | 325,084 | 1,225,916 | 115,334 | 48,277 | 163,611 |
| 2024 | 917,641 | 330,957 | 1,248,598 | 116,995 | 49,507 | 166,503 |
| 2025 | 935,556 | 335,243 | 1,270,800 | 118,717 | 49,485 | 168,203 |
| 2026 | 934,510 | 337,803 | 1,272,313 | 118,623 | 49,268 | 167,890 |
| 2027 | 949,534 | 340,068 | 1,289,602 | 119,909 | 49,472 | 169,381 |
| 2028 | 963,762 | 342,085 | 1,305,847 | 121,127 | 49,653 | 170,780 |
| 2029 | 976,860 | 343,960 | 1,320,819 | 122,249 | 49,819 | 172,068 |
| 2030 | 989,183 | 345,779 | 1,334,963 | 123,304 | 49,979 | 173,283 |
| 2031 | 1,000,666 | 347,482 | 1,348,147 | 124,287 | 50,128 | 174,415 |
| 2032 | 1,011,488 | 349,060 | 1,360,548 | 125,214 | 50,264 | 175,478 |
| 2033 | 1,021,749 | 350,549 | 1,372,298 | 126,093 | 50,393 | 176,485 |
| 2034 | 1,031,517 | 351,927 | 1,383,444 | 126,929 | 50,511 | 177,440 |
| 2035 | 1,040,891 | 353,190 | 1,394,080 | 127,732 | 50,618 | 178,350 |
| 2036 | 1,049,890 | 354,339 | 1,404,229 | 128,502 | 50,716 | 179,218 |
| 2037 | 1,058,647 | 355,399 | 1,414,046 | 129,252 | 50,805 | 180,057 |
| 2038 | 1,067,109 | 356,391 | 1,423,500 | 129,977 | 50,889 | 180,865 |
| 2039 | 1,075,274 | 357,363 | 1,432,638 | 130,676 | 50,970 | 181,646 |
| 2040 | 1,083,176 | 358,288 | 1,441,464 | 131,352 | 51,048 | 182,400 |
| 2041 | 1,090,858 | 359,164 | 1,450,023 | 132,010 | 51,121 | 183,131 |
| 2042 | 1,098,354 | 360,013 | 1,458,368 | 132,652 | 51,191 | 183,843 |
| 2043 | 1,105,590 | 360,824 | 1,466,414 | 133,272 | 51,259 | 184,530 |
| 2044 | 1,112,938 | 361,630 | 1,474,568 | 133,901 | 51,326 | 185,227 |
| 2045 | 1,120,332 | 362,437 | 1,482,769 | 134,534 | 51,393 | 185,927 |
| 2046 | 1,127,772 | 363,246 | 1,491,019 | 135,171 | 51,460 | 186,631 |

C. NEM Forecast Summary

Tables LF-35 and LF-36 summarize forecasted outlooks related to NEM customer growth, installed capacity, and system output. Non-solar behind-the-meter generation accounted for a negligible fraction of total customer-generated energy, at approximately 0.11% of total Nevada NEM customers as of July 2025. Additionally, growth in non-solar customers has decreased, with no new customer after 2016 based on June 2025 information. Based on this information, unless otherwise stated, NEM information presented below refers to solar customers.

**TABLE LF-35**
**NEVADA POWER NEM CUSTOMERS, CAPACITY, AND SYSTEM OUTPUT**

| | | | System Output | |
|---|---|---|---|---|
| Year | Customers | Capacity (MW) | Generation (GWh) | Received (GWh) |
| 2027 | 156,419 | 1,245.6 | 1,868 | 946 |
| 2028 | 169,796 | 1,352.4 | 2,040 | 1,035 |
| 2029 | 182,694 | 1,455.4 | 2,197 | 1,114 |
| 2030 | 195,117 | 1,554.7 | 2,354 | 1,194 |
| 2031 | 207,071 | 1,650.3 | 2,506 | 1,273 |
| 2032 | 218,566 | 1,742.3 | 2,655 | 1,349 |
| 2033 | 229,611 | 1,830.8 | 2,787 | 1,416 |
| 2034 | 240,219 | 1,915.8 | 2,921 | 1,484 |
| 2035 | 250,401 | 1,997.4 | 3,050 | 1,549 |
| 2036 | 260,170 | 2,075.8 | 3,183 | 1,619 |
| 2037 | 269,541 | 2,151.1 | 3,293 | 1,674 |
| 2038 | 278,527 | 2,223.3 | 3,406 | 1,731 |
| 2039 | 287,141 | 2,292.6 | 3,514 | 1,786 |
| 2040 | 295,395 | 2,359.1 | 3,628 | 1,845 |
| 2041 | 303,303 | 2,422.9 | 3,721 | 1,891 |
| 2042 | 310,878 | 2,484.0 | 3,819 | 1,942 |
| 2043 | 318,132 | 2,542.6 | 3,909 | 1,988 |
| 2044 | 325,078 | 2,598.8 | 4,005 | 2,037 |
| 2045 | 331,731 | 2,652.6 | 4,081 | 2,075 |
| 2046 | 338,101 | 2,704.3 | 4,162 | 2,115 |

**TABLE LF-36**
**SIERRA NEM CUSTOMERS, CAPACITY, AND SYSTEM OUTPUT**

| | | | System Output | |
|---|---|---|---|---|
| Year | Customers | Capacity (MW) | Generation (GWh) | Received (GWh) |
| 2027 | 20,055 | 129.2 | 178 | 101 |
| 2028 | 22,106 | 142.3 | 197 | 112 |
| 2029 | 24,158 | 155.4 | 215 | 123 |
| 2030 | 26,209 | 168.5 | 234 | 133 |
| 2031 | 28,261 | 181.7 | 252 | 144 |
| 2032 | 30,312 | 194.8 | 272 | 156 |
| 2033 | 32,364 | 207.9 | 290 | 166 |
| 2034 | 34,415 | 221.0 | 309 | 177 |
| 2035 | 36,467 | 234.1 | 327 | 187 |
| 2036 | 38,518 | 247.2 | 346 | 199 |
| 2037 | 40,570 | 260.3 | 365 | 209 |
| 2038 | 42,621 | 273.4 | 383 | 220 |
| 2039 | 44,672 | 286.5 | 402 | 230 |
| 2040 | 46,724 | 299.6 | 421 | 242 |
| 2041 | 48,775 | 312.7 | 439 | 252 |
| 2042 | 50,827 | 325.8 | 458 | 263 |
| 2043 | 52,878 | 338.9 | 477 | 274 |
| 2044 | 54,916 | 352.0 | 496 | 285 |
| 2045 | 56,868 | 364.4 | 514 | 295 |
| 2046 | 58,730 | 376.4 | 530 | 305 |

Figure LF-14 shows NV Energy's solar capacity forecasts for NEM rate classes for the 2024 Joint IRP compared to the 2026 Joint IRP for years 2026 – 2046. Pursuant to NAC § 704.925(5), Table LF-37 summarizes the total generation and received energy coincident with the system peaks for Nevada Power and Sierra.

**FIGURE LF-14**
**NV ENERGY SOLAR NEM CAPACITY FORECASTS (MW)**

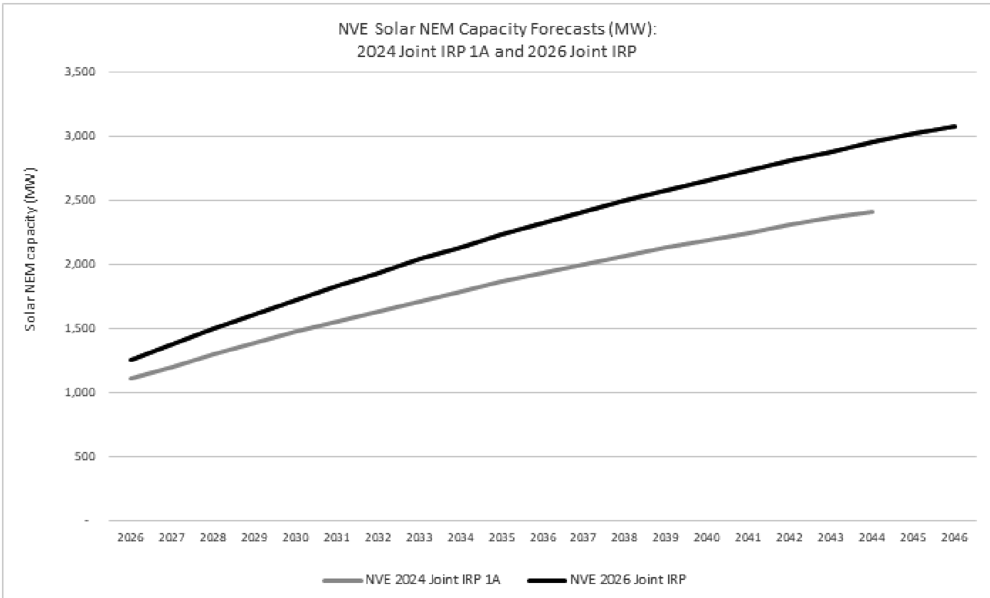



**TABLE LF-37**
**NEVADA POWER AND SIERRA NEM CUSTOMER COINCIDENT PEAK GENERATION**

| | Nevada Power Coincident Peak | | | Sierra Coincident Peak | | |
|---|---|---|---|---|---|---|
| Year | Peak MW | Generation MW | Received MW | Peak MW | Generation MW | Received MW |
| 2027 | 6,705 | 131 | 12 | 2,598 | 35 | 9 |
| 2028 | 6,865 | 294 | 38 | 2,951 | 18 | 3 |
| 2029 | 7,369 | 350 | 40 | 3,242 | 20 | 3 |
| 2030 | 7,751 | 349 | 41 | 3,606 | 22 | 4 |
| 2031 | 7,993 | 175 | 16 | 4,375 | 26 | 4 |
| 2032 | 8,102 | 404 | 47 | 4,614 | 29 | 5 |
| 2033 | 8,227 | 425 | 49 | 4,951 | 27 | 5 |
| 2034 | 8,509 | 421 | 54 | 5,130 | 28 | 5 |
| 2035 | 8,628 | 485 | 55 | 5,355 | 31 | 5 |
| 2036 | 8,835 | 469 | 56 | 5,672 | 33 | 6 |
| 2037 | 9,052 | 502 | 58 | 5,829 | 39 | 7 |
| 2038 | 9,283 | 238 | 21 | 6,014 | 35 | 6 |
| 2039 | 9,389 | 242 | 21 | 6,218 | 37 | 7 |
| 2040 | 9,800 | 521 | 67 | 6,317 | 39 | 7 |
| 2041 | 9,968 | 550 | 65 | 6,480 | 42 | 7 |
| 2042 | 10,280 | 267 | 24 | 6,680 | 46 | 8 |
| 2043 | 10,344 | 269 | 23 | 6,786 | 51 | 9 |
| 2044 | 10,301 | 279 | 25 | 6,998 | 45 | 8 |
| 2045 | 10,820 | 587 | 75 | 7,145 | 47 | 8 |
| 2046 | 10,964 | 296 | 25 | 7,275 | 50 | 9 |

D. DSM sales reductions

Pursuant to NAC § 704.925(2), Tables LF-38 and LF-39 are summaries of the sales reductions included in the base forecast prior to DSM measures, but after NEM installation reductions are included.

**TABLE LF-38**
**NEVADA POWER SALES BY CLASS BEFORE DSM REDUCTIONS BUT AFTER NEM INSTALLATION REDUCTIONS (GWH)**

| Year | Residential | Small Commercial & Industrial | Medium Commercial & Industrial | Large Commercial & Industrial | Public Authority | Street Lighting | Total |
|---|---|---|---|---|---|---|---|
| 2027 | 10,242 | 5,148 | 2,522 | 6,793 | 39 | 133 | 24,877 |
| 2028 | 10,413 | 5,239 | 2,565 | 8,219 | 41 | 134 | 26,611 |
| 2029 | 10,521 | 5,305 | 2,596 | 10,356 | 41 | 133 | 28,951 |
| 2030 | 10,744 | 5,348 | 2,625 | 12,708 | 41 | 133 | 31,598 |
| 2031 | 10,959 | 5,391 | 2,654 | 13,669 | 42 | 133 | 32,849 |
| 2032 | 11,170 | 5,480 | 2,690 | 14,245 | 42 | 134 | 33,761 |
| 2033 | 11,335 | 5,575 | 2,715 | 14,742 | 42 | 133 | 34,543 |
| 2034 | 11,498 | 5,661 | 2,747 | 15,296 | 42 | 133 | 35,378 |
| 2035 | 11,691 | 5,736 | 2,781 | 15,834 | 42 | 133 | 36,217 |
| 2036 | 11,955 | 5,800 | 2,821 | 16,529 | 44 | 134 | 37,282 |
| 2037 | 12,199 | 5,840 | 2,849 | 17,218 | 44 | 133 | 38,283 |
| 2038 | 12,426 | 5,933 | 2,882 | 17,930 | 44 | 133 | 39,348 |
| 2039 | 12,632 | 6,025 | 2,915 | 18,600 | 45 | 133 | 40,350 |
| 2040 | 12,850 | 6,122 | 2,956 | 19,349 | 45 | 134 | 41,456 |
| 2041 | 13,112 | 6,153 | 2,988 | 20,056 | 45 | 133 | 42,489 |
| 2042 | 13,394 | 6,200 | 3,027 | 20,517 | 46 | 133 | 43,317 |
| 2043 | 13,638 | 6,274 | 3,070 | 20,938 | 47 | 133 | 44,099 |
| 2044 | 13,880 | 6,379 | 3,119 | 21,533 | 47 | 134 | 45,092 |
| 2045 | 14,018 | 6,472 | 3,159 | 21,993 | 47 | 133 | 45,823 |
| 2046 | 14,236 | 6,534 | 3,207 | 22,487 | 48 | 133 | 46,646 |

## TABLE LF-39
## SIERRA SALES BY CLASS BEFORE DSM REDUCTIONS BUT AFTER NEM INSTALLATION REDUCTIONS (GWH)

| Year | Residential | Small Commercial & Industrial | Medium Commercial & Industrial | Large Commercial & Industrial | Public Authority | Street Lighting | Total |
|---|---|---|---|---|---|---|---|
| 2027 | 2,807 | 778 | 1,943 | 7,708 | 198 | 14 | 13,449 |
| 2028 | 2,833 | 781 | 1,942 | 11,163 | 203 | 14 | 16,935 |
| 2029 | 2,841 | 778 | 1,927 | 14,001 | 206 | 14 | 19,767 |
| 2030 | 2,873 | 785 | 1,923 | 16,682 | 210 | 14 | 22,486 |
| 2031 | 2,906 | 788 | 1,913 | 22,968 | 213 | 14 | 28,803 |
| 2032 | 2,948 | 793 | 1,908 | 25,370 | 216 | 14 | 31,248 |
| 2033 | 2,965 | 792 | 1,898 | 27,484 | 219 | 14 | 33,372 |
| 2034 | 2,988 | 791 | 1,888 | 29,417 | 222 | 14 | 35,319 |
| 2035 | 3,015 | 792 | 1,881 | 31,437 | 224 | 14 | 37,364 |
| 2036 | 3,050 | 799 | 1,885 | 33,727 | 227 | 14 | 39,701 |
| 2037 | 3,074 | 799 | 1,870 | 35,009 | 229 | 14 | 40,994 |
| 2038 | 3,105 | 800 | 1,865 | 36,130 | 230 | 14 | 42,144 |
| 2039 | 3,129 | 801 | 1,860 | 37,293 | 232 | 14 | 43,330 |
| 2040 | 3,165 | 802 | 1,856 | 38,579 | 234 | 14 | 44,650 |
| 2041 | 3,189 | 803 | 1,851 | 39,637 | 236 | 14 | 45,730 |
| 2042 | 3,219 | 805 | 1,845 | 40,814 | 238 | 14 | 46,935 |
| 2043 | 3,244 | 806 | 1,840 | 42,045 | 239 | 14 | 48,188 |
| 2044 | 3,277 | 810 | 1,842 | 43,384 | 241 | 14 | 49,567 |
| 2045 | 3,279 | 807 | 1,832 | 44,560 | 242 | 14 | 50,734 |
| 2046 | 3,300 | 808 | 1,830 | 45,876 | 244 | 14 | 52,071 |

Pursuant to NAC § 704.925(2), Tables LF-40 and LF-41 are summaries of the energy efficiency measures for the DR and EE programs included in the base forecast. As previously mentioned, the DR event savings are included in this 2026 Joint IRP filing as a system resource and are therefore reflected in the L&R tables of the Companies.

**TABLE LF-40**
**NEVADA POWER DSM AND EE SAVINGS BY CUSTOMER GROUP (GWH)**

| | Residential | | | Commercial | | |
|---|---|---|---|---|---|---|
| Year | DR/EE | EE | Total | DR/EE | EE | Total |
| 2027 | 39 | 131 | 170 | 7 | 498 | 505 |
| 2028 | 40 | 161 | 202 | 8 | 642 | 650 |
| 2029 | 42 | 181 | 222 | 8 | 755 | 763 |
| 2030 | 43 | 193 | 236 | 8 | 878 | 886 |
| 2031 | 45 | 205 | 249 | 8 | 1,001 | 1,009 |
| 2032 | 46 | 212 | 258 | 9 | 1,126 | 1,135 |
| 2033 | 47 | 219 | 266 | 9 | 1,247 | 1,256 |
| 2034 | 49 | 227 | 275 | 9 | 1,370 | 1,379 |
| 2035 | 50 | 234 | 284 | 9 | 1,493 | 1,502 |
| 2036 | 51 | 242 | 293 | 10 | 1,584 | 1,594 |
| 2037 | 53 | 249 | 302 | 10 | 1,578 | 1,588 |
| 2038 | 54 | 257 | 311 | 10 | 1,576 | 1,586 |
| 2039 | 55 | 261 | 316 | 10 | 1,576 | 1,586 |
| 2040 | 57 | 261 | 318 | 11 | 1,580 | 1,590 |
| 2041 | 58 | 261 | 319 | 11 | 1,576 | 1,587 |
| 2042 | 59 | 261 | 320 | 11 | 1,576 | 1,587 |
| 2043 | 61 | 261 | 322 | 11 | 1,576 | 1,587 |
| 2044 | 62 | 261 | 323 | 12 | 1,580 | 1,591 |
| 2045 | 63 | 261 | 324 | 12 | 1,576 | 1,588 |
| 2046 | 65 | 261 | 325 | 12 | 1,576 | 1,588 |

**TABLE LF-41**
**SIERRA DSM AND EE SAVINGS BY CUSTOMER GROUP (GWH)**

| | Residential | | | Commercial | | |
|---|---|---|---|---|---|---|
| Year | DR/EE | EE | Total | DR/EE | EE | Total |
| 2027 | 5 | 36 | 41 | 2 | 137 | 139 |
| 2028 | 6 | 44 | 50 | 2 | 178 | 180 |
| 2029 | 6 | 52 | 58 | 2 | 215 | 217 |
| 2030 | 6 | 60 | 66 | 2 | 252 | 254 |
| 2031 | 7 | 67 | 74 | 2 | 289 | 291 |
| 2032 | 7 | 73 | 81 | 2 | 328 | 330 |
| 2033 | 7 | 78 | 86 | 2 | 364 | 367 |
| 2034 | 8 | 82 | 89 | 2 | 402 | 404 |
| 2035 | 8 | 82 | 90 | 2 | 439 | 442 |
| 2036 | 8 | 83 | 91 | 2 | 478 | 481 |
| 2037 | 8 | 83 | 91 | 2 | 514 | 517 |
| 2038 | 9 | 83 | 91 | 2 | 540 | 543 |
| 2039 | 9 | 83 | 92 | 2 | 540 | 542 |
| 2040 | 9 | 83 | 93 | 2 | 542 | 544 |
| 2041 | 9 | 83 | 93 | 3 | 540 | 543 |
| 2042 | 10 | 83 | 93 | 3 | 540 | 543 |
| 2043 | 10 | 83 | 93 | 3 | 540 | 543 |
| 2044 | 10 | 83 | 94 | 3 | 542 | 544 |
| 2045 | 10 | 83 | 94 | 3 | 540 | 543 |
| 2046 | 11 | 83 | 94 | 3 | 540 | 543 |

Tables LF-42 and LF-43 are a comparison of the updated plan and those presented in the 2024 Joint IRP Forecast.

## TABLE LF-42
## NEVADA POWER DSM SAVINGS COMPARISON (GWH)

| Year | Residential | | | Commercial | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2026 IRP | 2024 Joint IRP 1A | Diff | 2026 IRP | 2024 Joint IRP 1A | Diff | 2026 IRP | 2024 Joint IRP 1A | Diff |
| 2027 | 170 | 167 | 3 | 505 | 505 | 0 | 675 | 672 | 3 |
| 2028 | 202 | 198 | 3 | 650 | 648 | 2 | 851 | 846 | 5 |
| 2029 | 222 | 219 | 3 | 763 | 763 | 0 | 985 | 982 | 3 |
| 2030 | 236 | 233 | 3 | 886 | 886 | 0 | 1,122 | 1,119 | 4 |
| 2031 | 249 | 246 | 4 | 1,009 | 1,009 | 0 | 1,258 | 1,255 | 4 |
| 2032 | 258 | 254 | 4 | 1,135 | 1,132 | 3 | 1,393 | 1,386 | 7 |
| 2033 | 266 | 262 | 4 | 1,256 | 1,256 | 0 | 1,522 | 1,518 | 4 |
| 2034 | 275 | 271 | 4 | 1,379 | 1,379 | 0 | 1,654 | 1,650 | 4 |
| 2035 | 284 | 280 | 4 | 1,502 | 1,502 | 0 | 1,786 | 1,782 | 4 |
| 2036 | 293 | 289 | 5 | 1,594 | 1,590 | 4 | 1,887 | 1,879 | 8 |
| 2037 | 302 | 298 | 4 | 1,588 | 1,588 | 0 | 1,890 | 1,886 | 4 |
| 2038 | 311 | 307 | 4 | 1,586 | 1,586 | 0 | 1,897 | 1,893 | 4 |
| 2039 | 316 | 312 | 4 | 1,586 | 1,586 | 0 | 1,903 | 1,898 | 5 |
| 2040 | 318 | 313 | 5 | 1,590 | 1,586 | 4 | 1,908 | 1,900 | 9 |
| 2041 | 319 | 314 | 5 | 1,587 | 1,587 | 0 | 1,906 | 1,901 | 5 |
| 2042 | 320 | 316 | 5 | 1,587 | 1,587 | 0 | 1,908 | 1,903 | 5 |
| 2043 | 322 | 317 | 5 | 1,587 | 1,587 | 0 | 1,909 | 1,904 | 5 |
| 2044 | 323 | 318 | 5 | 1,591 | 1,587 | 4 | 1,915 | 1,906 | 9 |
| 2045 | 324 | 319 | 5 | 1,588 | 1,588 | 0 | 1,912 | 1,907 | 5 |
| 2046 | 325 | 321 | 5 | 1,588 | 1,588 | 0 | 1,914 | 1,909 | 5 |

## TABLE LF-43
## SIERRA DSM SAVINGS COMPARISON (GWH)

| Year | Residential | | | Commercial | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2026 IRP | 2024 Joint IRP 1A | Diff | 2026 IRP | 2024 Joint IRP 1A | Diff | 2026 IRP | 2024 Joint IRP 1A | Diff |
| 2027 | 41 | 41 | 1 | 139 | 139 | 0 | 181 | 180 | 1 |
| 2028 | 50 | 49 | 1 | 180 | 180 | 1 | 230 | 229 | 1 |
| 2029 | 58 | 57 | 1 | 217 | 217 | 0 | 275 | 275 | 1 |
| 2030 | 66 | 65 | 1 | 254 | 254 | 0 | 321 | 320 | 1 |
| 2031 | 74 | 73 | 1 | 291 | 291 | 0 | 366 | 365 | 1 |
| 2032 | 81 | 79 | 1 | 330 | 329 | 1 | 410 | 408 | 2 |
| 2033 | 86 | 85 | 1 | 367 | 366 | 0 | 452 | 451 | 1 |
| 2034 | 89 | 88 | 1 | 404 | 404 | 0 | 493 | 492 | 1 |
| 2035 | 90 | 89 | 1 | 442 | 442 | 0 | 531 | 530 | 1 |
| 2036 | 91 | 89 | 1 | 481 | 479 | 1 | 571 | 568 | 3 |
| 2037 | 91 | 90 | 1 | 517 | 517 | 0 | 608 | 606 | 1 |
| 2038 | 91 | 90 | 1 | 543 | 543 | 0 | 634 | 633 | 1 |
| 2039 | 92 | 91 | 1 | 542 | 542 | 0 | 634 | 633 | 1 |
| 2040 | 93 | 91 | 2 | 544 | 542 | 2 | 637 | 633 | 3 |
| 2041 | 93 | 91 | 1 | 543 | 542 | 0 | 635 | 634 | 1 |
| 2042 | 93 | 92 | 1 | 543 | 542 | 0 | 635 | 634 | 1 |
| 2043 | 93 | 92 | 1 | 543 | 542 | 0 | 636 | 634 | 1 |
| 2044 | 94 | 92 | 2 | 544 | 543 | 2 | 638 | 635 | 3 |
| 2045 | 94 | 92 | 1 | 543 | 543 | 0 | 636 | 635 | 1 |
| 2046 | 94 | 93 | 1 | 543 | 543 | 0 | 636 | 635 | 1 |

## E. Major Projects Sales Forecast Summary

Table LF-44 summarizes the sales and peak MW growth of the Major Project loads included in the 2026 Joint IRP Forecast.

**TABLE LF-44**
**MAJOR PROJECTS SUMMARY**

| | Nevada Power | | Sierra Pacific | | NVE | |
|---|---|---|---|---|---|---|
| Year | Annual GWh | Peak MW | Annual GWh | Peak MW | Annual GWh | Peak MW |
| 2027 | 3,453 | 468 | 5,940 | 862 | 9,392 | 1,329 |
| 2028 | 4,826 | 634 | 9,393 | 1,238 | 14,219 | 1,872 |
| 2029 | 6,955 | 944 | 12,246 | 1,547 | 19,201 | 2,491 |
| 2030 | 9,297 | 1,166 | 14,937 | 1,890 | 24,234 | 3,056 |
| 2031 | 10,237 | 1,248 | 21,229 | 2,656 | 31,466 | 3,904 |
| 2032 | 10,814 | 1,312 | 23,627 | 2,929 | 34,441 | 4,241 |
| 2033 | 11,336 | 1,375 | 25,746 | 3,181 | 37,082 | 4,556 |
| 2034 | 11,904 | 1,440 | 27,714 | 3,413 | 39,618 | 4,853 |
| 2035 | 12,520 | 1,511 | 29,742 | 3,670 | 42,262 | 5,181 |
| 2036 | 13,197 | 1,584 | 32,035 | 3,937 | 45,232 | 5,522 |
| 2037 | 13,891 | 1,671 | 33,315 | 4,091 | 47,206 | 5,761 |
| 2038 | 14,612 | 1,753 | 34,431 | 4,227 | 49,044 | 5,980 |
| 2039 | 15,285 | 1,831 | 35,587 | 4,369 | 50,873 | 6,200 |
| 2040 | 16,027 | 1,909 | 36,857 | 4,512 | 52,885 | 6,421 |
| 2041 | 16,796 | 2,008 | 37,930 | 4,655 | 54,726 | 6,663 |
| 2042 | 17,277 | 2,065 | 39,106 | 4,799 | 56,383 | 6,864 |
| 2043 | 17,718 | 2,113 | 40,335 | 4,949 | 58,053 | 7,063 |
| 2044 | 18,231 | 2,168 | 41,667 | 5,098 | 59,899 | 7,266 |
| 2045 | 18,668 | 2,225 | 42,806 | 5,253 | 61,474 | 7,478 |
| 2046 | 19,178 | 2,285 | 44,106 | 5,411 | 63,284 | 7,697 |

Table LF-45 summarizes the Major Projects sales growth by type of customer for both Nevada Power and Sierra.

**TABLE LF-45**
**MAJOR PROJECTS BY TYPE (GWH)**

| | Nevada Power | | | | | Sierra | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Data Center | Industrial | Mine | Gov't | Irrigation | Data Center | Industrial | Mine | Gov't | Irrigation |
| 2027 | 3,438 | 15 | - | - | - | 4,682 | 857 | 400 | - | - |
| 2028 | 4,812 | 15 | - | - | - | 8,067 | 905 | 421 | - | - |
| 2029 | 6,941 | 15 | - | - | - | 10,908 | 920 | 418 | - | - |
| 2030 | 9,282 | 15 | - | - | - | 13,583 | 937 | 417 | - | - |
| 2031 | 10,222 | 15 | - | - | - | 19,868 | 961 | 401 | - | - |
| 2032 | 10,800 | 15 | - | - | - | 22,243 | 982 | 402 | - | - |
| 2033 | 11,321 | 15 | - | - | - | 24,354 | 990 | 401 | - | - |
| 2034 | 11,888 | 16 | - | - | - | 26,292 | 1,021 | 401 | - | - |
| 2035 | 12,503 | 17 | - | - | - | 28,294 | 1,046 | 401 | - | - |
| 2036 | 13,180 | 18 | - | - | - | 30,554 | 1,078 | 402 | - | - |
| 2037 | 13,830 | 19 | - | 43 | - | 31,842 | 1,098 | 376 | - | - |
| 2038 | 14,550 | 19 | - | 43 | - | 32,960 | 1,121 | 351 | - | - |
| 2039 | 15,219 | 20 | - | 45 | - | 34,105 | 1,150 | 333 | - | - |
| 2040 | 15,958 | 22 | - | 48 | - | 35,355 | 1,175 | 327 | - | - |
| 2041 | 16,723 | 23 | - | 50 | - | 36,400 | 1,204 | 326 | - | - |
| 2042 | 17,201 | 24 | - | 53 | - | 37,551 | 1,229 | 326 | - | - |
| 2043 | 17,638 | 25 | - | 55 | - | 38,747 | 1,262 | 326 | - | - |
| 2044 | 18,147 | 26 | - | 58 | - | 40,048 | 1,292 | 327 | - | - |
| 2045 | 18,579 | 27 | - | 61 | - | 41,160 | 1,320 | 326 | - | - |
| 2046 | 19,085 | 29 | - | 64 | - | 42,446 | 1,334 | 326 | - | - |

F. Electric Vehicle Sales Forecast Summary

Tables LF-46 summarizes the annual EVs by region and overall residential and commercial EV GWh sales. Table LF-47 compares to the EV estimates in the 2024 Joint IRP Forecast.

**TABLE LF-46**
**EV FORECAST SUMMARY**

| | NPC EV Forecast | | | SPPC EV Forecast | | |
|---|---|---|---|---|---|---|
| Year | Vehicles | Residential GWH Sales | Commercial GWH Sales | Vehicles | Residential GWH Sales | Commercial GWH Sales |
| 2027 | 126,187 | 425 | 47 | 27,832 | 96 | 14 |
| 2028 | 150,086 | 509 | 59 | 32,857 | 113 | 18 |
| 2029 | 173,986 | 588 | 74 | 37,882 | 130 | 22 |
| 2030 | 197,885 | 668 | 90 | 42,907 | 147 | 27 |
| 2031 | 221,784 | 747 | 109 | 47,932 | 163 | 33 |
| 2032 | 245,683 | 827 | 131 | 52,957 | 180 | 39 |
| 2033 | 269,582 | 898 | 154 | 57,982 | 195 | 46 |
| 2034 | 293,481 | 969 | 178 | 63,007 | 210 | 52 |
| 2035 | 317,380 | 1,039 | 199 | 68,032 | 225 | 58 |
| 2036 | 341,279 | 1,114 | 220 | 73,057 | 240 | 64 |
| 2037 | 365,179 | 1,180 | 239 | 78,082 | 254 | 70 |
| 2038 | 389,078 | 1,246 | 261 | 83,106 | 268 | 76 |
| 2039 | 412,977 | 1,310 | 282 | 88,131 | 281 | 82 |
| 2040 | 436,876 | 1,373 | 302 | 93,156 | 294 | 87 |
| 2041 | 460,775 | 1,431 | 319 | 98,181 | 307 | 92 |
| 2042 | 484,674 | 1,492 | 335 | 103,206 | 319 | 96 |
| 2043 | 508,573 | 1,553 | 350 | 108,231 | 332 | 100 |
| 2044 | 532,472 | 1,614 | 366 | 113,256 | 344 | 104 |
| 2045 | 556,372 | 1,661 | 380 | 118,281 | 355 | 108 |
| 2046 | 580,271 | 1,713 | 393 | 123,306 | 366 | 111 |

# TABLE LF-47
# EV FORECAST COMPARISON (GWH)

| | 2026 IRP | | | 2024 Joint IRP 1A | | | Change | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Nevada Power | Sierra | Total | Nevada Power | Sierra | Total | Nevada Power | Sierra | Total |
| 2027 | 471 | 110 | 581 | 408 | 196 | 603 | 64 | (86) | (22) |
| 2028 | 568 | 131 | 699 | 451 | 217 | 668 | 117 | (85) | 31 |
| 2029 | 662 | 152 | 814 | 497 | 238 | 735 | 165 | (86) | 78 |
| 2030 | 758 | 174 | 932 | 549 | 263 | 812 | 210 | (89) | 120 |
| 2031 | 856 | 196 | 1,052 | 609 | 292 | 901 | 247 | (96) | 151 |
| 2032 | 958 | 219 | 1,177 | 678 | 325 | 1,003 | 280 | (107) | 173 |
| 2033 | 1,053 | 241 | 1,293 | 750 | 360 | 1,110 | 302 | (119) | 183 |
| 2034 | 1,147 | 262 | 1,409 | 833 | 400 | 1,232 | 315 | (137) | 177 |
| 2035 | 1,238 | 283 | 1,521 | 924 | 444 | 1,368 | 313 | (160) | 153 |
| 2036 | 1,334 | 304 | 1,638 | 1,029 | 494 | 1,523 | 305 | (189) | 115 |
| 2037 | 1,419 | 323 | 1,742 | 1,139 | 547 | 1,686 | 280 | (223) | 57 |
| 2038 | 1,507 | 343 | 1,850 | 1,264 | 607 | 1,871 | 243 | (263) | (20) |
| 2039 | 1,591 | 363 | 1,954 | 1,403 | 673 | 2,076 | 189 | (310) | (122) |
| 2040 | 1,675 | 382 | 2,057 | 1,561 | 749 | 2,310 | 114 | (368) | (254) |
| 2041 | 1,749 | 398 | 2,148 | 1,729 | 830 | 2,558 | 21 | (431) | (411) |
| 2042 | 1,827 | 416 | 2,243 | 1,919 | 921 | 2,840 | (91) | (505) | (597) |
| 2043 | 1,903 | 432 | 2,334 | 2,130 | 1,022 | 3,152 | (227) | (590) | (818) |
| 2044 | 1,980 | 449 | 2,429 | 2,370 | 1,137 | 3,507 | (390) | (689) | (1,078) |
| 2045 | 2,041 | 463 | 2,504 | 2,623 | 1,259 | 3,882 | (583) | (796) | (1,378) |
| 2046 | 2,106 | 477 | 2,584 | 2,912 | 1,398 | 4,310 | (806) | (920) | (1,726) |

(1) Values provided as cumulative GWh

# IV. LOAD FORECAST SCENARIOS

There are several additional load forecast scenarios presented in this proceeding. Details on each forecast are provided below.

## A. Base Minus and Base Plus Scenarios

The Base Minus scenario seeks to identify the impact that the current AI environment has on NV Energy's load forecast in this proceeding. Currently, there are a significant new number of very large data center projects now included in the load forecast, which have created a higher expected load forecast than in the 2024 Joint IRP filing. The forecast begins with NV Energy's base load forecast but then removes the large project load associated with the related AI boom in infrastructure development – this includes 43 Incremental AI customers.

The Base Plus scenario considers the impact of unmitigated requested levels of large customer major project load for those with signed agreements. This provides a higher load forecast representing the potential incremental load that could be placed onto the system.

## B. Low and High Load Scenarios

Pursuant to NAC § 704.9225(1), additional Low and High load scenario forecasts are required. In the 2026 Joint IRP Forecast update, the Low Load forecast scenario includes the following modifications:

1. The use of the pessimistic population and economic forecasts for Nevada.
2. Incorporated an average 14% growth rate for incremental EV sales from the Base forecast, until 2046 when the sales are set equal to the base forecast. This results in lower forecasted EV sales in earlier years from those in the base forecast.
3. Removal of all loads from those major projects excluded from the Base Minus scenario.
4. Forecasting NEM customer installations using optimistic population forecasts to adjust when 15% saturation occurs.

The High Load forecast scenario includes the following modifications:

1. The use of the optimistic population and economic forecasts for Nevada.
2. Requested level of loads for major projects with signed agreements and no change from the loads for study phase projects included in the base forecast.
3. Forecasting NEM customer installations using pessimistic population forecasts to adjust when 15% saturation occurs.

Tables LF-48 and LF-49 summarize the energy, summer peak demand, economics, class sales and customers for the Nevada Power and Sierra load forecast scenarios.

**TABLE LF-48**
**NEVADA POWER LOW, BASE MINUS, BASE, BASE PLUS, AND HIGH SCENARIOS**
**LOAD FORECAST PEAK DEMAND (MW) AND SYSTEM ENERGY (GWH)**

| | Peak (MW) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Pct. Difference to Base | | | |
| Year | Low | Base Minus | Base | Base Plus | High | Low | Base Minus | Base Plus | High |
| 2027 | 6,296 | 6,382 | 6,705 | 6,836 | 6,956 | -6.1% | -1.3% | 2.0% | 3.7% |
| 2028 | 6,260 | 6,369 | 6,865 | 7,051 | 7,192 | -8.8% | -1.7% | 2.7% | 4.8% |
| 2029 | 6,487 | 6,619 | 7,369 | 7,761 | 7,916 | -12.0% | -2.0% | 5.3% | 7.4% |
| 2030 | 6,609 | 6,740 | 7,751 | 8,162 | 8,325 | -14.7% | -1.9% | 5.3% | 7.4% |
| 2031 | 6,750 | 6,883 | 7,993 | 8,345 | 8,510 | -15.6% | -1.9% | 4.4% | 6.5% |
| 2032 | 6,796 | 6,923 | 8,102 | 8,432 | 8,625 | -16.1% | -1.8% | 4.1% | 6.5% |
| 2033 | 6,877 | 6,987 | 8,227 | 8,530 | 8,745 | -16.4% | -1.6% | 3.7% | 6.3% |
| 2034 | 7,055 | 7,192 | 8,509 | 8,788 | 9,004 | -17.1% | -1.9% | 3.3% | 5.8% |
| 2035 | 7,101 | 7,240 | 8,628 | 8,877 | 9,111 | -17.7% | -1.9% | 2.9% | 5.6% |
| 2036 | 7,235 | 7,392 | 8,835 | 9,050 | 9,289 | -18.1% | -2.1% | 2.4% | 5.1% |
| 2037 | 7,352 | 7,526 | 9,052 | 9,235 | 9,497 | -18.8% | -2.3% | 2.0% | 4.9% |
| 2038 | 7,528 | 7,693 | 9,283 | 9,431 | 9,685 | -18.9% | -2.1% | 1.6% | 4.3% |
| 2039 | 7,546 | 7,719 | 9,389 | 9,507 | 9,789 | -19.6% | -2.2% | 1.3% | 4.3% |
| 2040 | 7,785 | 8,023 | 9,800 | 9,885 | 10,204 | -20.6% | -3.0% | 0.9% | 4.1% |
| 2041 | 7,894 | 8,120 | 9,968 | 10,008 | 10,337 | -20.8% | -2.8% | 0.4% | 3.7% |
| 2042 | 8,117 | 8,395 | 10,280 | 10,317 | 10,644 | -21.0% | -3.3% | 0.4% | 3.5% |
| 2043 | 8,114 | 8,406 | 10,344 | 10,384 | 10,751 | -21.6% | -3.5% | 0.4% | 3.9% |
| 2044 | 8,208 | 8,511 | 10,487 | 10,533 | 10,901 | -21.7% | -3.6% | 0.4% | 3.9% |
| 2045 | 8,416 | 8,750 | 10,820 | 10,867 | 11,274 | -22.2% | -3.8% | 0.4% | 4.2% |
| 2046 | 8,482 | 8,837 | 10,964 | 11,011 | 11,436 | -22.6% | -4.0% | 0.4% | 4.3% |

| | Energy (GWh) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Pct. Difference to Base | | | |
| Year | Low | Base Minus | Base | Base Plus | High | Low | Base Minus | Base Plus | High |
| 2027 | 22,103 | 22,271 | 25,038 | 26,202 | 26,569 | -11.7% | -11.0% | 4.7% | 6.1% |
| 2028 | 22,223 | 22,442 | 26,620 | 28,230 | 28,702 | -16.5% | -15.7% | 6.0% | 7.8% |
| 2029 | 22,363 | 22,595 | 28,859 | 32,254 | 32,791 | -22.5% | -21.7% | 11.8% | 13.6% |
| 2030 | 22,617 | 22,796 | 31,408 | 34,969 | 35,544 | -28.0% | -27.4% | 11.3% | 13.2% |
| 2031 | 22,831 | 22,985 | 32,542 | 35,585 | 36,227 | -29.8% | -29.4% | 9.4% | 11.3% |
| 2032 | 23,116 | 23,228 | 33,335 | 36,179 | 36,906 | -30.7% | -30.3% | 8.5% | 10.7% |
| 2033 | 23,288 | 23,396 | 34,000 | 36,609 | 37,373 | -31.5% | -31.2% | 7.7% | 9.9% |
| 2034 | 23,446 | 23,573 | 34,717 | 37,087 | 37,873 | -32.5% | -32.1% | 6.8% | 9.1% |
| 2035 | 23,625 | 23,709 | 35,438 | 37,557 | 38,444 | -33.3% | -33.1% | 6.0% | 8.5% |
| 2036 | 23,904 | 24,049 | 36,422 | 38,279 | 39,185 | -34.4% | -34.0% | 5.1% | 7.6% |
| 2037 | 24,195 | 24,403 | 37,440 | 39,011 | 39,970 | -35.4% | -34.8% | 4.2% | 6.8% |
| 2038 | 24,540 | 24,795 | 38,518 | 39,812 | 40,862 | -36.3% | -35.6% | 3.4% | 6.1% |
| 2039 | 24,882 | 25,176 | 39,535 | 40,560 | 41,704 | -37.1% | -36.3% | 2.6% | 5.5% |
| 2040 | 25,224 | 25,597 | 40,657 | 41,396 | 42,634 | -38.0% | -37.0% | 1.8% | 4.9% |
| 2041 | 25,498 | 25,920 | 41,713 | 42,061 | 43,423 | -38.9% | -37.9% | 0.8% | 4.1% |
| 2042 | 25,822 | 26,330 | 42,558 | 42,876 | 44,326 | -39.3% | -38.1% | 0.7% | 4.2% |
| 2043 | 26,155 | 26,734 | 43,356 | 43,705 | 45,281 | -39.7% | -38.3% | 0.8% | 4.4% |
| 2044 | 26,534 | 27,249 | 44,363 | 44,757 | 46,375 | -40.2% | -38.6% | 0.9% | 4.5% |
| 2045 | 26,745 | 27,576 | 45,113 | 45,507 | 47,186 | -40.7% | -38.9% | 0.9% | 4.6% |
| 2046 | 27,022 | 27,922 | 45,952 | 46,348 | 48,178 | -41.2% | -39.2% | 0.9% | 4.8% |

# TABLE LF-49
# SIERRA LOW, BASE MINUS, BASE, BASE PLUS, AND HIGH SCENARIOS LOAD FORECAST PEAK DEMAND (MW) AND SYSTEM ENERGY (GWH)

| | Peak (MW) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Pct. Difference to Base | | | |
| Year | Low | Base Minus | Base | Base Plus | High | Low | Base Minus | Base Plus | High |
| 2027 | 2,238 | 2,253 | 2,598 | 3,309 | 3,321 | -13.9% | -13.3% | 27.4% | 27.8% |
| 2028 | 2,227 | 2,254 | 2,951 | 3,694 | 3,708 | -24.5% | -23.6% | 25.2% | 25.7% |
| 2029 | 2,261 | 2,288 | 3,242 | 4,043 | 4,062 | -30.3% | -29.4% | 24.7% | 25.3% |
| 2030 | 2,360 | 2,383 | 3,606 | 4,564 | 4,581 | -34.6% | -33.9% | 26.6% | 27.0% |
| 2031 | 2,402 | 2,424 | 4,375 | 5,509 | 5,529 | -45.1% | -44.6% | 25.9% | 26.4% |
| 2032 | 2,392 | 2,407 | 4,614 | 5,882 | 5,905 | -48.2% | -47.8% | 27.5% | 28.0% |
| 2033 | 2,454 | 2,474 | 4,951 | 6,349 | 6,375 | -50.4% | -50.0% | 28.2% | 28.8% |
| 2034 | 2,420 | 2,436 | 5,130 | 6,611 | 6,642 | -52.8% | -52.5% | 28.9% | 29.5% |
| 2035 | 2,457 | 2,471 | 5,355 | 7,031 | 7,069 | -54.1% | -53.9% | 31.3% | 32.0% |
| 2036 | 2,527 | 2,546 | 5,672 | 7,530 | 7,571 | -55.4% | -55.1% | 32.8% | 33.5% |
| 2037 | 2,528 | 2,549 | 5,829 | 7,660 | 7,704 | -56.6% | -56.3% | 31.4% | 32.2% |
| 2038 | 2,553 | 2,579 | 6,014 | 7,828 | 7,882 | -57.5% | -57.1% | 30.2% | 31.1% |
| 2039 | 2,632 | 2,663 | 6,218 | 7,988 | 8,046 | -57.7% | -57.2% | 28.5% | 29.4% |
| 2040 | 2,605 | 2,641 | 6,317 | 8,044 | 8,103 | -58.8% | -58.2% | 27.3% | 28.3% |
| 2041 | 2,694 | 2,735 | 6,480 | 8,151 | 8,221 | -58.4% | -57.8% | 25.8% | 26.9% |
| 2042 | 2,749 | 2,796 | 6,680 | 8,307 | 8,381 | -58.8% | -58.1% | 24.4% | 25.5% |
| 2043 | 2,738 | 2,786 | 6,786 | 8,355 | 8,436 | -59.7% | -58.9% | 23.1% | 24.3% |
| 2044 | 2,766 | 2,823 | 6,998 | 8,510 | 8,600 | -60.5% | -59.7% | 21.6% | 22.9% |
| 2045 | 2,770 | 2,833 | 7,145 | 8,592 | 8,673 | -61.2% | -60.3% | 20.3% | 21.4% |
| 2046 | 2,806 | 2,881 | 7,275 | 8,638 | 8,732 | -61.4% | -60.4% | 18.7% | 20.0% |

| | Energy (GWh) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Pct. Difference to Base | | | |
| Year | Low | Base Minus | Base | Base Plus | High | Low | Base Minus | Base Plus | High |
| 2027 | 11,803 | 11,868 | 14,858 | 21,050 | 21,111 | -20.6% | -20.1% | 41.7% | 42.1% |
| 2028 | 11,668 | 11,795 | 17,709 | 24,240 | 24,297 | -34.1% | -33.4% | 36.9% | 37.2% |
| 2029 | 12,132 | 12,254 | 20,543 | 27,675 | 27,728 | -40.9% | -40.3% | 34.7% | 35.0% |
| 2030 | 12,531 | 12,599 | 23,268 | 31,787 | 31,832 | -46.1% | -45.9% | 36.6% | 36.8% |
| 2031 | 12,651 | 12,683 | 29,654 | 39,552 | 39,616 | -57.3% | -57.2% | 33.4% | 33.6% |
| 2032 | 12,786 | 12,798 | 32,102 | 43,224 | 43,300 | -60.2% | -60.1% | 34.6% | 34.9% |
| 2033 | 12,817 | 12,823 | 34,221 | 46,397 | 46,484 | -62.5% | -62.5% | 35.6% | 35.8% |
| 2034 | 12,889 | 12,860 | 36,160 | 49,031 | 49,159 | -64.4% | -64.4% | 35.6% | 35.9% |
| 2035 | 12,972 | 12,941 | 38,205 | 53,003 | 53,142 | -66.0% | -66.1% | 38.7% | 39.1% |
| 2036 | 13,116 | 13,081 | 40,549 | 56,881 | 57,030 | -67.7% | -67.7% | 40.3% | 40.6% |
| 2037 | 13,162 | 13,138 | 41,828 | 57,790 | 57,958 | -68.5% | -68.6% | 38.2% | 38.6% |
| 2038 | 13,284 | 13,268 | 42,975 | 58,734 | 58,930 | -69.1% | -69.1% | 36.7% | 37.1% |
| 2039 | 13,440 | 13,436 | 44,184 | 59,557 | 59,764 | -69.6% | -69.6% | 34.8% | 35.3% |
| 2040 | 13,629 | 13,642 | 45,531 | 60,566 | 60,786 | -70.1% | -70.0% | 33.0% | 33.5% |
| 2041 | 13,777 | 13,786 | 46,634 | 61,239 | 61,494 | -70.5% | -70.4% | 31.3% | 31.9% |
| 2042 | 13,952 | 13,971 | 47,863 | 62,024 | 62,298 | -70.9% | -70.8% | 29.6% | 30.2% |
| 2043 | 14,126 | 14,161 | 49,141 | 62,832 | 63,123 | -71.3% | -71.2% | 27.9% | 28.5% |
| 2044 | 14,283 | 14,332 | 50,547 | 63,721 | 64,032 | -71.7% | -71.6% | 26.1% | 26.7% |
| 2045 | 14,335 | 14,438 | 51,736 | 64,307 | 64,596 | -72.3% | -72.1% | 24.3% | 24.9% |
| 2046 | 14,428 | 14,560 | 53,101 | 65,109 | 65,401 | -72.8% | -72.6% | 22.6% | 23.2% |

Tables LF-50 and LF-51 are summaries of the economic data used for the Base, High and Low load forecast scenarios.

**TABLE LF-50**
**NEVADA POWER SCENARIO ECONOMIC DATA**

| | Population (000s) | | | Real GMP (Millions) | | | Households (000s) | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Low | Base | High | Low | Base | High | Low | Base | High |
| 2027 | 2,521 | 2,528 | 2,537 | 150,803 | 160,814 | 160,418 | 955 | 947 | 980 |
| 2028 | 2,553 | 2,564 | 2,575 | 153,120 | 164,088 | 164,229 | 964 | 958 | 995 |
| 2029 | 2,584 | 2,597 | 2,611 | 155,851 | 167,322 | 167,623 | 972 | 970 | 1,010 |
| 2030 | 2,612 | 2,628 | 2,645 | 158,678 | 170,628 | 170,721 | 981 | 982 | 1,026 |
| 2031 | 2,638 | 2,656 | 2,676 | 161,573 | 174,137 | 173,692 | 989 | 993 | 1,041 |
| 2032 | 2,662 | 2,684 | 2,706 | 164,453 | 177,669 | 176,709 | 998 | 1,005 | 1,056 |
| 2033 | 2,685 | 2,709 | 2,735 | 167,709 | 181,737 | 180,237 | 1,006 | 1,016 | 1,072 |
| 2034 | 2,707 | 2,734 | 2,762 | 171,150 | 185,723 | 183,779 | 1,015 | 1,028 | 1,087 |
| 2035 | 2,728 | 2,758 | 2,789 | 175,118 | 190,237 | 187,912 | 1,023 | 1,039 | 1,102 |
| 2036 | 2,747 | 2,780 | 2,814 | 178,509 | 194,026 | 192,182 | 1,031 | 1,049 | 1,117 |
| 2037 | 2,766 | 2,802 | 2,839 | 182,129 | 198,185 | 197,474 | 1,038 | 1,059 | 1,132 |
| 2038 | 2,785 | 2,823 | 2,863 | 185,341 | 202,242 | 202,837 | 1,045 | 1,069 | 1,147 |
| 2039 | 2,802 | 2,844 | 2,886 | 188,092 | 206,436 | 208,383 | 1,051 | 1,079 | 1,162 |
| 2040 | 2,819 | 2,864 | 2,909 | 190,550 | 210,454 | 213,701 | 1,057 | 1,089 | 1,177 |
| 2041 | 2,835 | 2,883 | 2,931 | 193,162 | 214,695 | 219,263 | 1,063 | 1,098 | 1,192 |
| 2042 | 2,851 | 2,902 | 2,953 | 195,929 | 219,129 | 225,057 | 1,068 | 1,108 | 1,207 |
| 2043 | 2,866 | 2,920 | 2,974 | 198,670 | 223,587 | 230,826 | 1,072 | 1,117 | 1,222 |
| 2044 | 2,881 | 2,939 | 2,995 | 201,352 | 228,074 | 236,619 | 1,077 | 1,126 | 1,237 |
| 2045 | 2,896 | 2,957 | 3,016 | 204,188 | 232,715 | 242,705 | 1,081 | 1,135 | 1,252 |
| 2046 | 2,911 | 2,976 | 3,038 | 207,174 | 237,435 | 248,939 | 1,085 | 1,144 | 1,267 |

| | RPI (Millions) | | | Persons Per Household | | | RPI per HH (000s) | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Low | Base | High | Low | Base | High | Low | Base | High |
| 2027 | 141,939 | 148,083 | 149,939 | 2.6 | 2.7 | 2.6 | 148.6 | 156.4 | 153.1 |
| 2028 | 145,727 | 152,646 | 155,151 | 2.6 | 2.7 | 2.6 | 151.2 | 159.3 | 165.1 |
| 2029 | 149,898 | 156,958 | 159,965 | 2.7 | 2.7 | 2.6 | 154.2 | 161.8 | 165.9 |
| 2030 | 154,182 | 161,248 | 164,460 | 2.7 | 2.7 | 2.6 | 157.2 | 164.2 | 166.4 |
| 2031 | 158,538 | 165,898 | 168,907 | 2.7 | 2.7 | 2.6 | 160.3 | 167.0 | 166.8 |
| 2032 | 162,850 | 170,185 | 173,428 | 2.7 | 2.7 | 2.6 | 163.2 | 169.3 | 167.3 |
| 2033 | 167,340 | 174,852 | 178,351 | 2.7 | 2.7 | 2.6 | 166.3 | 172.0 | 168.2 |
| 2034 | 172,041 | 179,609 | 183,463 | 2.7 | 2.7 | 2.5 | 169.5 | 174.8 | 169.0 |
| 2035 | 177,055 | 184,726 | 188,965 | 2.7 | 2.7 | 2.5 | 173.1 | 177.8 | 170.5 |
| 2036 | 181,203 | 190,004 | 194,959 | 2.7 | 2.6 | 2.5 | 175.8 | 181.1 | 172.0 |
| 2037 | 184,492 | 195,436 | 201,202 | 2.7 | 2.6 | 2.5 | 177.7 | 184.5 | 174.4 |
| 2038 | 187,976 | 200,740 | 207,648 | 2.7 | 2.6 | 2.5 | 179.9 | 187.7 | 176.9 |
| 2039 | 191,663 | 206,177 | 214,331 | 2.7 | 2.6 | 2.5 | 182.3 | 191.0 | 179.4 |
| 2040 | 195,457 | 211,701 | 221,165 | 2.7 | 2.6 | 2.5 | 184.9 | 194.4 | 181.6 |
| 2041 | 199,240 | 217,327 | 228,079 | 2.7 | 2.6 | 2.5 | 187.5 | 197.8 | 184.0 |
| 2042 | 203,225 | 223,212 | 235,119 | 2.7 | 2.6 | 2.4 | 190.4 | 201.5 | 186.5 |
| 2043 | 207,320 | 229,327 | 242,399 | 2.7 | 2.6 | 2.4 | 193.4 | 205.3 | 188.9 |
| 2044 | 211,417 | 235,505 | 249,762 | 2.7 | 2.6 | 2.4 | 196.4 | 209.1 | 191.3 |
| 2045 | 215,576 | 241,764 | 257,277 | 2.7 | 2.6 | 2.4 | 199.4 | 213.0 | 193.8 |
| 2046 | 219,944 | 248,211 | 265,126 | 2.7 | 2.6 | 2.4 | 202.6 | 216.9 | 196.4 |

# TABLE LF-51
# SIERRA SCENARIO ECONOMIC DATA

| | Population (000s) | | | Real GMP (Millions) | | | Households (000s) | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Low | Base | High | Low | Base | High | Low | Base | High |
| 2027 | 907.6 | 911.5 | 916.4 | 54,454 | 58,638 | 57,915 | 351.9 | 348.8 | 360.8 |
| 2028 | 911.0 | 916.6 | 923.0 | 54,820 | 59,509 | 58,775 | 352.9 | 351.0 | 364.4 |
| 2029 | 914.4 | 921.3 | 929.1 | 55,479 | 60,579 | 59,629 | 353.8 | 353.2 | 367.8 |
| 2030 | 917.6 | 925.9 | 935.1 | 56,168 | 61,358 | 60,373 | 354.9 | 355.4 | 371.3 |
| 2031 | 920.5 | 930.1 | 940.7 | 56,904 | 62,234 | 61,096 | 356.0 | 357.6 | 374.7 |
| 2032 | 923.1 | 934.1 | 946.0 | 57,686 | 63,198 | 61,887 | 357.2 | 359.7 | 378.1 |
| 2033 | 925.4 | 937.8 | 951.1 | 58,494 | 64,219 | 62,748 | 358.2 | 361.8 | 381.6 |
| 2034 | 927.5 | 941.3 | 956.0 | 59,376 | 65,244 | 63,632 | 359.3 | 363.9 | 385.0 |
| 2035 | 929.2 | 944.5 | 960.5 | 60,327 | 66,305 | 64,597 | 360.1 | 365.7 | 388.1 |
| 2036 | 930.7 | 947.3 | 964.8 | 61,066 | 67,146 | 65,596 | 360.8 | 367.3 | 391.2 |
| 2037 | 931.9 | 950.0 | 968.8 | 61,919 | 68,133 | 66,980 | 361.4 | 368.8 | 394.1 |
| 2038 | 933.0 | 952.5 | 972.6 | 62,596 | 69,053 | 68,343 | 361.7 | 370.2 | 397.0 |
| 2039 | 934.0 | 954.9 | 976.4 | 63,088 | 69,990 | 69,722 | 362.0 | 371.5 | 400.0 |
| 2040 | 934.9 | 957.2 | 980.1 | 63,488 | 70,871 | 71,023 | 362.0 | 372.8 | 402.9 |
| 2041 | 935.7 | 959.4 | 983.6 | 63,964 | 71,842 | 72,414 | 361.8 | 374.0 | 405.8 |
| 2042 | 936.4 | 961.6 | 987.1 | 64,355 | 72,722 | 73,722 | 361.5 | 375.1 | 408.7 |
| 2043 | 937.1 | 963.6 | 990.5 | 64,806 | 73,669 | 75,083 | 361.0 | 376.1 | 411.5 |
| 2044 | 937.7 | 965.6 | 993.8 | 65,225 | 74,597 | 76,421 | 360.6 | 377.2 | 414.3 |
| 2045 | 938.3 | 967.7 | 997.2 | 65,682 | 75,550 | 77,824 | 360.1 | 378.1 | 417.0 |
| 2046 | 938.9 | 969.7 | 1,000.6 | 66,170 | 76,516 | 79,242 | 359.5 | 379.0 | 419.7 |

| | RPI (Millions) | | | Persons Per Household | | | RPI per HH (000s) | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Low | Base | High | Low | Base | High | Low | Base | High |
| 2027 | 59,111 | 61,602 | 62,467 | 2.6 | 2.6 | 2.5 | 168.0 | 176.6 | 173.1 |
| 2028 | 60,450 | 62,967 | 64,354 | 2.6 | 2.6 | 2.5 | 171.3 | 179.4 | 176.6 |
| 2029 | 61,856 | 64,542 | 65,990 | 2.6 | 2.6 | 2.5 | 174.8 | 182.8 | 179.4 |
| 2030 | 63,304 | 66,012 | 67,481 | 2.6 | 2.6 | 2.5 | 178.4 | 185.8 | 181.7 |
| 2031 | 64,805 | 67,541 | 68,969 | 2.6 | 2.6 | 2.5 | 182.0 | 188.9 | 184.1 |
| 2032 | 66,296 | 69,367 | 70,482 | 2.6 | 2.6 | 2.5 | 185.6 | 192.8 | 186.4 |
| 2033 | 67,816 | 71,352 | 72,103 | 2.6 | 2.6 | 2.5 | 189.3 | 197.2 | 189.0 |
| 2034 | 69,392 | 73,287 | 73,766 | 2.6 | 2.6 | 2.5 | 193.1 | 201.4 | 191.6 |
| 2035 | 71,039 | 75,318 | 75,516 | 2.6 | 2.6 | 2.5 | 197.3 | 206.0 | 194.6 |
| 2036 | 72,288 | 76,933 | 77,423 | 2.6 | 2.6 | 2.5 | 200.3 | 209.4 | 197.9 |
| 2037 | 73,209 | 78,643 | 79,443 | 2.6 | 2.6 | 2.5 | 202.6 | 213.2 | 201.6 |
| 2038 | 74,212 | 80,295 | 81,542 | 2.6 | 2.6 | 2.4 | 205.2 | 216.9 | 205.4 |
| 2039 | 75,239 | 81,941 | 83,680 | 2.6 | 2.6 | 2.4 | 207.9 | 220.5 | 209.2 |
| 2040 | 76,271 | 83,598 | 85,840 | 2.6 | 2.6 | 2.4 | 210.7 | 224.2 | 213.1 |
| 2041 | 77,322 | 85,280 | 88,042 | 2.6 | 2.6 | 2.4 | 213.7 | 228.0 | 217.0 |
| 2042 | 78,390 | 86,989 | 90,221 | 2.6 | 2.6 | 2.4 | 216.8 | 231.9 | 220.8 |
| 2043 | 79,490 | 88,745 | 92,467 | 2.6 | 2.6 | 2.4 | 220.2 | 235.9 | 224.7 |
| 2044 | 80,582 | 90,504 | 94,709 | 2.6 | 2.6 | 2.4 | 223.5 | 240.0 | 228.6 |
| 2045 | 81,704 | 92,326 | 96,999 | 2.6 | 2.6 | 2.4 | 226.9 | 244.2 | 232.6 |
| 2046 | 82,890 | 94,208 | 99,379 | 2.6 | 2.6 | 2.4 | 230.6 | 248.6 | 236.8 |

Tables LF-52 and LF-53 summarize the employment indices used for each scenario for Nevada Power and Sierra.

## TABLE LF-52
## NEVADA POWER EMPLOYMENT INDICES SCENARIOS

| | Employment, Non-Manufacturing (000x) | | | Employment, Manufacturing (000s) | | | Resident Employment (000s) | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Low | Base | High | Low | Base | High | Low | Base | High |
| 2027 | 1,113 | 1,133 | 1,171 | 28.1 | 30.4 | 29.2 | 1,139 | 1,189 | 1,203 |
| 2028 | 1,116 | 1,142 | 1,184 | 28.0 | 29.8 | 28.7 | 1,139 | 1,196 | 1,215 |
| 2029 | 1,125 | 1,153 | 1,197 | 28.4 | 29.3 | 28.4 | 1,148 | 1,208 | 1,229 |
| 2030 | 1,134 | 1,162 | 1,207 | 29.1 | 29.1 | 28.3 | 1,160 | 1,217 | 1,242 |
| 2031 | 1,142 | 1,170 | 1,216 | 30.0 | 28.8 | 28.5 | 1,173 | 1,228 | 1,255 |
| 2032 | 1,150 | 1,179 | 1,225 | 30.5 | 28.5 | 28.5 | 1,186 | 1,237 | 1,267 |
| 2033 | 1,157 | 1,188 | 1,235 | 30.6 | 28.0 | 28.3 | 1,196 | 1,246 | 1,280 |
| 2034 | 1,164 | 1,198 | 1,245 | 30.3 | 27.4 | 27.9 | 1,206 | 1,256 | 1,292 |
| 2035 | 1,172 | 1,208 | 1,257 | 30.2 | 26.9 | 27.7 | 1,215 | 1,264 | 1,304 |
| 2036 | 1,181 | 1,220 | 1,271 | 30.3 | 26.8 | 27.8 | 1,221 | 1,276 | 1,323 |
| 2037 | 1,190 | 1,233 | 1,285 | 30.6 | 27.1 | 28.0 | 1,227 | 1,289 | 1,343 |
| 2038 | 1,200 | 1,246 | 1,299 | 31.0 | 27.3 | 28.2 | 1,234 | 1,301 | 1,364 |
| 2039 | 1,210 | 1,258 | 1,313 | 31.3 | 27.6 | 28.3 | 1,242 | 1,313 | 1,383 |
| 2040 | 1,219 | 1,271 | 1,327 | 31.5 | 27.8 | 28.4 | 1,250 | 1,325 | 1,401 |
| 2041 | 1,227 | 1,283 | 1,341 | 31.5 | 27.9 | 28.4 | 1,258 | 1,337 | 1,418 |
| 2042 | 1,236 | 1,295 | 1,354 | 31.5 | 28.0 | 28.4 | 1,266 | 1,348 | 1,436 |
| 2043 | 1,244 | 1,307 | 1,366 | 31.5 | 28.0 | 28.3 | 1,274 | 1,360 | 1,452 |
| 2044 | 1,252 | 1,320 | 1,379 | 31.5 | 28.1 | 28.3 | 1,281 | 1,371 | 1,469 |
| 2045 | 1,260 | 1,333 | 1,392 | 31.6 | 28.4 | 28.4 | 1,289 | 1,382 | 1,485 |
| 2046 | 1,269 | 1,346 | 1,405 | 31.7 | 28.6 | 28.5 | 1,297 | 1,394 | 1,501 |

## TABLE LF-53
## SIERRA EMPLOYMENT INDICES SCENARIOS

| | Employment, Non-Manufacturing (000s) | | | Employment, Manufacturing (000s) | | | Resident Employment (000s) | | | Employment, Construction, Natural, Mining (000s) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Low | Base | High | Low | Base | High | Low | Base | High | Low | Base | High |
| 2027 | 375.0 | 387.4 | 395.2 | 34.9 | 37.3 | 36.2 | 400.7 | 418.9 | 423.2 | 40.9 | 45.0 | 31.3 |
| 2028 | 371.8 | 388.7 | 395.4 | 34.5 | 36.5 | 35.3 | 398.8 | 419.5 | 425.4 | 40.1 | 44.7 | 32.3 |
| 2029 | 371.5 | 390.6 | 396.5 | 34.8 | 35.9 | 34.7 | 399.9 | 421.2 | 428.1 | 39.5 | 44.7 | 33.0 |
| 2030 | 372.2 | 391.4 | 398.0 | 35.6 | 35.5 | 34.6 | 401.8 | 422.2 | 430.2 | 39.0 | 45.2 | 33.4 |
| 2031 | 372.9 | 392.5 | 399.1 | 36.4 | 35.0 | 34.6 | 404.2 | 423.4 | 432.2 | 39.1 | 45.8 | 33.6 |
| 2032 | 374.1 | 393.7 | 400.5 | 37.0 | 34.5 | 34.5 | 406.3 | 424.3 | 434.2 | 40.0 | 46.8 | 33.9 |
| 2033 | 375.0 | 395.1 | 402.0 | 37.0 | 33.8 | 34.2 | 407.7 | 425.2 | 436.2 | 41.0 | 47.6 | 33.9 |
| 2034 | 376.2 | 396.6 | 403.7 | 36.4 | 33.0 | 33.6 | 408.8 | 426.1 | 438.1 | 42.7 | 48.9 | 34.2 |
| 2035 | 377.2 | 397.5 | 405.0 | 36.1 | 32.2 | 33.2 | 409.7 | 426.6 | 439.9 | 44.2 | 49.6 | 34.4 |
| 2036 | 377.9 | 398.6 | 406.5 | 36.1 | 32.0 | 33.2 | 409.4 | 428.4 | 443.8 | 45.1 | 50.0 | 34.4 |
| 2037 | 378.7 | 400.2 | 408.4 | 36.4 | 32.2 | 33.3 | 409.3 | 430.2 | 448.0 | 45.7 | 50.1 | 34.7 |
| 2038 | 379.7 | 401.5 | 410.4 | 36.7 | 32.4 | 33.4 | 409.3 | 432.0 | 452.3 | 45.6 | 49.8 | 34.5 |
| 2039 | 380.0 | 402.6 | 412.2 | 36.9 | 32.5 | 33.5 | 409.6 | 433.5 | 456.0 | 45.2 | 49.4 | 34.3 |
| 2040 | 380.5 | 403.9 | 414.1 | 37.1 | 32.7 | 33.4 | 410.0 | 435.0 | 459.4 | 44.4 | 48.8 | 34.0 |
| 2041 | 381.0 | 405.6 | 416.4 | 37.1 | 32.8 | 33.4 | 410.3 | 436.4 | 462.6 | 43.6 | 48.2 | 33.6 |
| 2042 | 380.7 | 406.4 | 417.4 | 37.0 | 32.8 | 33.3 | 410.7 | 437.9 | 465.8 | 42.9 | 47.7 | 33.1 |
| 2043 | 380.4 | 407.1 | 418.3 | 36.8 | 32.8 | 33.1 | 411.0 | 439.2 | 468.6 | 42.1 | 46.9 | 32.5 |
| 2044 | 380.0 | 408.0 | 419.2 | 36.7 | 32.8 | 33.0 | 411.2 | 440.4 | 471.3 | 41.4 | 46.2 | 31.9 |
| 2045 | 379.9 | 409.0 | 420.3 | 36.8 | 33.0 | 33.1 | 411.4 | 441.6 | 473.9 | 41.0 | 45.6 | 31.5 |
| 2046 | 380.0 | 409.8 | 421.4 | 36.8 | 33.3 | 33.2 | 411.6 | 442.7 | 476.5 | 41.1 | 45.2 | 31.3 |

Table LF-54 summarizes the Residential and Small C&I customer count forecasts for each scenario for both Nevada Power and Sierra. Note the Base Plus scenario would have the same counts as the Base scenario and the Base Minus scenario would have the same as the Base scenario less 28 Major Project customers.

**TABLE LF-54**
**LOW AND HIGH SCENARIO CUSTOMER COUNTS**

| | NEVADA POWER | | | | | |
|---|---|---|---|---|---|---|
| | RESIDENTIAL | | | SMALL C&I | | |
| Year | Low | Base | High | Low | Base | High |
| 2027 | 946,617 | 949,534 | 953,089 | 125,182 | 119,909 | 126,029 |
| 2028 | 959,642 | 963,762 | 968,469 | 126,906 | 121,127 | 128,061 |
| 2029 | 971,726 | 976,860 | 982,703 | 128,504 | 122,249 | 129,941 |
| 2030 | 982,977 | 989,183 | 996,086 | 129,993 | 123,304 | 131,709 |
| 2031 | 993,367 | 1,000,666 | 1,008,641 | 131,368 | 124,287 | 133,367 |
| 2032 | 1,003,082 | 1,011,488 | 1,020,550 | 132,654 | 125,214 | 134,940 |
| 2033 | 1,012,212 | 1,021,749 | 1,031,913 | 133,862 | 126,093 | 136,440 |
| 2034 | 1,020,835 | 1,031,517 | 1,042,795 | 135,004 | 126,929 | 137,877 |
| 2035 | 1,029,051 | 1,040,891 | 1,053,288 | 136,091 | 127,732 | 139,263 |
| 2036 | 1,036,884 | 1,049,890 | 1,063,412 | 137,128 | 128,502 | 140,600 |
| 2037 | 1,044,462 | 1,058,647 | 1,073,299 | 138,132 | 129,252 | 141,905 |
| 2038 | 1,051,735 | 1,067,109 | 1,082,895 | 139,095 | 129,977 | 143,172 |
| 2039 | 1,058,703 | 1,075,274 | 1,092,197 | 140,017 | 130,676 | 144,400 |
| 2040 | 1,065,400 | 1,083,176 | 1,101,239 | 140,904 | 131,352 | 145,594 |
| 2041 | 1,071,869 | 1,090,858 | 1,110,064 | 141,761 | 132,010 | 146,759 |
| 2042 | 1,078,145 | 1,098,354 | 1,118,706 | 142,592 | 132,652 | 147,900 |
| 2043 | 1,084,154 | 1,105,590 | 1,127,091 | 143,388 | 133,272 | 149,007 |
| 2044 | 1,090,107 | 1,112,938 | 1,135,441 | 144,177 | 133,901 | 150,109 |
| 2045 | 1,096,090 | 1,120,332 | 1,143,850 | 144,970 | 134,534 | 151,219 |
| 2046 | 1,102,105 | 1,127,772 | 1,152,318 | 145,767 | 135,171 | 152,337 |

| | SIERRA | | | | | |
|---|---|---|---|---|---|---|
| | RESIDENTIAL | | | SMALL C&I (NO IRR) | | |
| Year | Low | Base | High | Low | Base | High |
| 2027 | 339,575 | 340,068 | 343,165 | 49,430 | 49,472 | 49,737 |
| 2028 | 340,993 | 342,085 | 345,847 | 49,559 | 49,653 | 49,973 |
| 2029 | 342,376 | 343,960 | 348,367 | 49,684 | 49,819 | 50,194 |
| 2030 | 343,677 | 345,779 | 350,782 | 49,800 | 49,979 | 50,404 |
| 2031 | 344,854 | 347,482 | 353,080 | 49,904 | 50,128 | 50,602 |
| 2032 | 345,901 | 349,060 | 355,253 | 49,996 | 50,264 | 50,788 |
| 2033 | 346,851 | 350,549 | 357,339 | 50,079 | 50,393 | 50,966 |
| 2034 | 347,683 | 351,927 | 359,312 | 50,151 | 50,511 | 51,134 |
| 2035 | 348,398 | 353,190 | 361,165 | 50,213 | 50,618 | 51,290 |
| 2036 | 348,997 | 354,339 | 362,900 | 50,264 | 50,716 | 51,437 |
| 2037 | 349,506 | 355,399 | 364,541 | 50,308 | 50,805 | 51,574 |
| 2038 | 349,944 | 356,391 | 366,110 | 50,345 | 50,889 | 51,706 |
| 2039 | 350,363 | 357,363 | 367,658 | 50,380 | 50,970 | 51,835 |
| 2040 | 350,732 | 358,288 | 369,154 | 50,411 | 51,048 | 51,960 |
| 2041 | 351,053 | 359,164 | 370,599 | 50,438 | 51,121 | 52,080 |
| 2042 | 351,347 | 360,013 | 372,014 | 50,463 | 51,191 | 52,198 |
| 2043 | 351,601 | 360,824 | 373,387 | 50,484 | 51,259 | 52,312 |
| 2044 | 351,849 | 361,630 | 374,758 | 50,504 | 51,326 | 52,426 |
| 2045 | 352,096 | 362,437 | 376,134 | 50,525 | 51,393 | 52,540 |
| 2046 | 352,344 | 363,246 | 377,514 | 50,545 | 51,460 | 52,655 |

C. Large Load Energy Services Agreement (LLESA) Scenarios

Two additional scenarios were developed as incremental steps to the Base Minus scenario providing information regarding the impact of the Company's Large Load Energy Service Agreement ("LLESA") proposal. Company witnesses Shawn Elicegui and Janet Wells support the implementation of the LLESA proposal in their direct testimonies. The first incremental scenario, the "Test Scenario", which was developed by adding to the Base Minus Load Forecast the load associated with just three of the large load customers who have specified that they intend to sign an LLESA. The second incremental load forecast scenario, the "Second Test Load Addition", adds a specified amount of large load additions from two subsidiaries engaged in developing land under two Master Planned Community agreements within the Tahoe Reno Industrial Center area. This information is used by the Resource Planning group for two additional expansion plans for consideration as discussed in Shawn Elicegui's testimony.

D. Hot Summer/Cold Winter (HSCW) Scenarios

An additional scenario modifying the load forecast incorporates a Hot Summer/Cold Winter weather scenario. The weather adjustment uses the highest average daily summer temperature and coldest average daily winter temperature over the past ten years to develop a more extreme weather scenario. In this 2026 Joint IRP Forecast update, the HSCW adjustments for all months across the year have been included as each month has a distinct coefficient with normalized weather. Table LF-55 compares the change in annual MW peak for Nevada Power and Sierra between the base load forecast and the HSCW modified forecast.

**TABLE LF-55**
**HOT SUMMER/COLD WINTER FORECAST**
**ANNUAL PEAK MW COMPARISON**

| | Nevada Power | | | Sierra | | |
|---|---|---|---|---|---|---|
| Year | Base | HSCW | Difference | Base | HSCW | Difference |
| 2027 | 6,698 | 7,591 | 893 | 2,598 | 2,759 | 161 |
| 2028 | 6,849 | 7,669 | 819 | 2,951 | 3,109 | 159 |
| 2029 | 7,352 | 8,148 | 796 | 3,242 | 3,402 | 161 |
| 2030 | 7,733 | 8,587 | 854 | 3,606 | 3,760 | 154 |
| 2031 | 7,975 | 8,754 | 779 | 4,375 | 4,526 | 151 |
| 2032 | 8,086 | 8,856 | 770 | 4,614 | 4,763 | 149 |
| 2033 | 8,214 | 9,053 | 839 | 4,951 | 5,098 | 147 |
| 2034 | 8,500 | 9,252 | 752 | 5,130 | 5,283 | 153 |
| 2035 | 8,622 | 9,365 | 743 | 5,355 | 5,501 | 146 |
| 2036 | 8,832 | 9,566 | 734 | 5,672 | 5,811 | 139 |
| 2037 | 9,054 | 9,799 | 745 | 5,829 | 5,966 | 137 |
| 2038 | 9,288 | 10,082 | 794 | 6,014 | 6,152 | 139 |
| 2039 | 9,398 | 10,183 | 785 | 6,218 | 6,350 | 132 |
| 2040 | 9,813 | 10,511 | 698 | 6,317 | 6,456 | 138 |
| 2041 | 9,985 | 10,746 | 761 | 6,480 | 6,607 | 127 |
| 2042 | 10,302 | 10,982 | 680 | 6,680 | 6,804 | 125 |
| 2043 | 10,371 | 11,042 | 671 | 6,786 | 6,908 | 122 |
| 2044 | 10,516 | 11,075 | 559 | 6,998 | 7,122 | 124 |
| 2045 | 10,851 | 11,504 | 653 | 7,145 | 7,271 | 126 |
| 2046 | 10,996 | 11,640 | 644 | 7,275 | 7,395 | 120 |

Table LF-56 compares the change in annual sales for Nevada Power and Sierra between the base load forecast and the HSCW modified forecast.

**TABLE LF-56**
**HOT SUMMER/COLD WINTER FORECAST**
**ANNUAL GWH ENERGY COMPARISON**

| | Nevada Power | | | Sierra | | |
|---|---|---|---|---|---|---|
| Year | Base | HSCW | Difference | Base | HSCW | Difference |
| 2027 | 24,984 | 27,987 | 3,003 | 14,858 | 16,058 | 1,200 |
| 2028 | 26,483 | 29,465 | 2,982 | 17,709 | 18,907 | 1,198 |
| 2029 | 28,717 | 31,656 | 2,939 | 20,543 | 21,734 | 1,191 |
| 2030 | 31,258 | 34,164 | 2,906 | 23,268 | 24,455 | 1,187 |
| 2031 | 32,384 | 35,258 | 2,874 | 29,654 | 30,837 | 1,183 |
| 2032 | 33,201 | 36,054 | 2,853 | 32,102 | 33,283 | 1,181 |
| 2033 | 33,893 | 36,700 | 2,807 | 34,221 | 35,396 | 1,175 |
| 2034 | 34,638 | 37,412 | 2,774 | 36,160 | 37,331 | 1,171 |
| 2035 | 35,387 | 38,131 | 2,744 | 38,205 | 39,371 | 1,165 |
| 2036 | 36,402 | 39,128 | 2,726 | 40,549 | 41,712 | 1,163 |
| 2037 | 37,451 | 40,129 | 2,678 | 41,828 | 42,985 | 1,157 |
| 2038 | 38,562 | 41,206 | 2,644 | 42,975 | 44,127 | 1,152 |
| 2039 | 39,615 | 42,225 | 2,611 | 44,184 | 45,333 | 1,148 |
| 2040 | 40,774 | 43,367 | 2,593 | 45,531 | 46,676 | 1,145 |
| 2041 | 41,868 | 44,414 | 2,546 | 46,634 | 47,772 | 1,138 |
| 2042 | 42,754 | 45,268 | 2,514 | 47,863 | 48,997 | 1,133 |
| 2043 | 43,594 | 46,075 | 2,481 | 49,141 | 50,270 | 1,129 |
| 2044 | 44,613 | 47,074 | 2,460 | 50,547 | 51,674 | 1,127 |
| 2045 | 45,376 | 47,789 | 2,413 | 51,736 | 52,857 | 1,120 |
| 2046 | 46,227 | 48,609 | 2,381 | 53,101 | 54,216 | 1,114 |

E. One-in-Ten Transmission Forecast Scenario

Another additional load forecast scenario is based upon a 1 in 10 weather scenario, which incorporates the highest average daily temperature over the past ten years for each month, to develop a more extreme weather scenario. Table LF-57 is a summary of the peak demand forecasts compared to the base peak forecasts.

**TABLE LF-57**
**1 IN 10 YEAR PEAK TEMPERATURE PEAK DEMANDS (MW)**

| | Nevada Power | | Sierra | | NV Energy | | |
|---|---|---|---|---|---|---|---|
| | | 8.34% | | 2.60% | | 6.07% | |
| Year | Base | 1 in 10 | Base | 1 in 10 | Base | 1 in 10 | % Diff |
| 2027 | 6,698 | 7,591 | 2,598 | 2,759 | 9,114 | 10,109 | 10.9% |
| 2028 | 6,849 | 7,669 | 2,951 | 3,109 | 9,629 | 10,629 | 10.4% |
| 2029 | 7,352 | 8,148 | 3,242 | 3,402 | 10,511 | 11,511 | 9.5% |
| 2030 | 7,733 | 8,587 | 3,606 | 3,760 | 11,192 | 12,175 | 8.8% |
| 2031 | 7,975 | 8,754 | 4,375 | 4,526 | 12,183 | 13,051 | 7.1% |
| 2032 | 8,086 | 8,856 | 4,614 | 4,763 | 12,607 | 13,471 | 6.9% |
| 2033 | 8,214 | 9,053 | 4,951 | 5,098 | 12,798 | 13,712 | 7.1% |
| 2034 | 8,500 | 9,252 | 5,130 | 5,283 | 13,466 | 14,317 | 6.3% |
| 2035 | 8,622 | 9,365 | 5,355 | 5,501 | 13,897 | 14,735 | 6.0% |
| 2036 | 8,832 | 9,566 | 5,672 | 5,811 | 14,314 | 15,156 | 5.9% |
| 2037 | 9,054 | 9,799 | 5,829 | 5,966 | 14,790 | 15,613 | 5.6% |
| 2038 | 9,288 | 10,082 | 6,014 | 6,152 | 15,051 | 15,918 | 5.8% |
| 2039 | 9,398 | 10,183 | 6,218 | 6,350 | 15,237 | 16,069 | 5.5% |
| 2040 | 9,813 | 10,511 | 6,317 | 6,456 | 15,941 | 16,747 | 5.1% |
| 2041 | 9,985 | 10,746 | 6,480 | 6,607 | 16,253 | 17,064 | 5.0% |
| 2042 | 10,302 | 10,982 | 6,680 | 6,804 | 16,740 | 17,544 | 4.8% |
| 2043 | 10,371 | 11,042 | 6,786 | 6,908 | 17,049 | 17,836 | 4.6% |
| 2044 | 10,516 | 11,075 | 6,998 | 7,122 | 17,285 | 18,118 | 4.8% |
| 2045 | 10,851 | 11,504 | 7,145 | 7,271 | 17,782 | 18,553 | 4.3% |
| 2046 | 10,996 | 11,640 | 7,275 | 7,395 | 18,148 | 18,909 | 4.2% |

F. Preferred Plan DSM Scenarios

Another incremental load forecast scenario was created to include the proposed DSM savings as identified in the DSM Plan. Further detail on the program adoption rates and savings level are detailed in the DSM Plan. Table LF-58 summarizes the cumulative sales reductions of these DSM scenario forecasts for Nevada Power and Sierra.

**TABLE LF-58**
**PREFERRED DSM SALES SAVINGS (GWH)**

| | NPC Preferred DSM | | | | SPPC Preferred DSM | | | |
|---|---|---|---|---|---|---|---|---|
| | Residential | | Commercial | | Residential | | Commercial | |
| Year | DR/EE | EE | DR/EE | EE | DR/EE | EE | DR/EE | EE |
| 2027 | 24 | 6 | 42 | 145 | 5 | 15 | 2 | 41 |
| 2028 | 25 | 7 | 56 | 246 | 5 | 19 | 3 | 68 |
| 2029 | 27 | 7 | 69 | 348 | 6 | 24 | 4 | 94 |
| 2030 | 29 | 7 | 79 | 436 | 6 | 27 | 4 | 121 |
| 2031 | 32 | 8 | 84 | 524 | 7 | 31 | 4 | 147 |
| 2032 | 34 | 8 | 85 | 611 | 7 | 35 | 4 | 173 |
| 2033 | 37 | 8 | 85 | 699 | 8 | 38 | 4 | 199 |
| 2034 | 39 | 8 | 85 | 786 | 9 | 42 | 4 | 226 |
| 2035 | 42 | 8 | 86 | 874 | 9 | 46 | 4 | 252 |
| 2036 | 44 | 8 | 86 | 961 | 10 | 48 | 4 | 278 |
| 2037 | 46 | 8 | 87 | 1,049 | 10 | 48 | 4 | 304 |
| 2038 | 49 | 9 | 87 | 1,107 | 11 | 48 | 5 | 331 |
| 2039 | 51 | 9 | 87 | 1,107 | 12 | 48 | 5 | 346 |
| 2040 | 54 | 9 | 87 | 1,107 | 12 | 48 | 5 | 346 |
| 2041 | 56 | 9 | 87 | 1,107 | 13 | 48 | 5 | 346 |
| 2042 | 59 | 9 | 87 | 1,107 | 13 | 48 | 5 | 346 |
| 2043 | 61 | 9 | 87 | 1,107 | 14 | 48 | 5 | 346 |
| 2044 | 63 | 9 | 87 | 1,107 | 15 | 48 | 5 | 346 |
| 2045 | 66 | 10 | 87 | 1,107 | 15 | 48 | 5 | 346 |
| 2046 | 68 | 10 | 87 | 1,107 | 16 | 48 | 5 | 346 |

Table LF-59 summarizes the peak reductions of these Preferred DSM scenario forecasts for Nevada Power and Sierra.

**TABLE LF-59**
**PREFERRED DSM PEAK MW REDUCTIONS**

| | NPC Preferred DSM | | | | SPPC Preferred DSM | | | |
|---|---|---|---|---|---|---|---|---|
| | Residential | | Commercial | | Residential | | Commercial | |
| Year | DR/EE | EE | DR/EE | EE | DR/EE | EE | DR/EE | EE |
| 2027 | 7 | 7 | 2 | 25 | 11.4 | 2.5 | 3.8 | 7.1 |
| 2028 | 8 | 9 | 2 | 39 | 9.6 | 3.2 | 6.1 | 11.3 |
| 2029 | 9 | 10 | 2 | 53 | 9.2 | 3.8 | 6.7 | 15.1 |
| 2030 | 10 | 12 | 2 | 64 | 10.6 | 4.2 | 7.1 | 18.6 |
| 2031 | 10 | 12 | 2 | 72 | 1.4 | 4.5 | 0.9 | 21.2 |
| 2032 | 10 | 12 | 2 | 87 | 11.4 | 5.1 | 6.5 | 25.5 |
| 2033 | 13 | 11 | 3 | 94 | 11.2 | 5.4 | 6.0 | 27.9 |
| 2034 | 13 | 11 | 3 | 105 | 12.2 | 6.0 | 6.1 | 32.5 |
| 2035 | 124 | 11 | 24 | 110 | -8.7 | 6.3 | -4.1 | 34.6 |
| 2036 | 13 | 11 | 2 | 127 | 12.8 | 6.8 | 5.8 | 39.4 |
| 2037 | 133 | 11 | 24 | 129 | -10.0 | 6.5 | -4.3 | 41.3 |
| 2038 | 136 | 11 | 24 | 136 | -9.9 | 6.5 | -4.1 | 44.5 |
| 2039 | 15 | 11 | 3 | 136 | 2.7 | 6.5 | 1.1 | 46.5 |
| 2040 | 144 | 11 | 24 | 136 | -9.8 | 6.5 | -3.7 | 46.5 |
| 2041 | 151 | 11 | 24 | 135 | -9.9 | 6.5 | -3.6 | 46.5 |
| 2042 | 19 | 11 | 3 | 135 | 3.0 | 6.5 | 1.1 | 46.5 |
| 2043 | 160 | 11 | 24 | 135 | -11.3 | 6.5 | -3.9 | 46.5 |
| 2044 | 161 | 11 | 24 | 137 | 52.1 | 6.4 | 17.2 | 46.1 |
| 2045 | 168 | 11 | 24 | 135 | -11.2 | 6.5 | -3.6 | 46.5 |
| 2046 | 173 | 11 | 24 | 135 | -11.2 | 6.5 | -3.5 | 46.5 |

G. Forecast excluding Eligible 704B Loads

The next scenario is a forecast excluding the eligible loads for those Large C&I customers who decide to exit bundled service and choose service from another provider during the 2027-2029 period. Pursuant to subsection 6 of NRS 704.741, the Companies are required to include in each triennial Joint IRP filing a proposal for annual limits on the total amount of energy and capacity that eligible NRS Chapter 704B Large C&I customers may be authorized to purchase from providers of new electric resources during the three-year action plan period. The proposal begins with fifty percent of Large C&I load growth over the three-year action plan period and must be a product of a sensitivity analysis that, at a minimum, addresses load growth, import capacity, system constraints and the effect of eligible customers purchasing less energy and capacity than authorized by the proposed annual limit.

The total population of customers, premises and annual sales that could potentially be eligible for this 704B process is summarized in Table LF-60 for both Nevada Power and Sierra.

**TABLE LF-60**
**NEVADA POWER AND SIERRA 704B ELIGIBLE LOAD**

| | Nevada Power | | | | | |
|---|---|---|---|---|---|---|
| | Government | | | Non-Government | | |
| Size | Customers | Premises | Total Annual Load (MWH) | Customers | Premises | Total Annual Load (MWH) |
| 1-3 MW | 7 | 461 | 119,449 | 14 | 16 | 202,848 |
| 3-5 MW | 1 | 3 | 29,451 | 9 | 20 | 296,000 |
| 5-10 MW | 2 | 116 | 142,084 | 5 | 17 | 307,454 |
| 10+ MW | 4 | 5,348 | 911,598 | 3 | 18 | 446,187 |
| Total | 14 | 5,928 | 1,202,582 | 31 | 71 | 1,252,489 |

| | Sierra | | | | | |
|---|---|---|---|---|---|---|
| | Government | | | Non-Government | | |
| Size | Customers | Premises | Total Annual Load (MWH) | Customers | Premises | Total Annual Load (MWH) |
| 1-3 MW | 7 | 1,299 | 102,011 | 8 | 11 | 122,506 |
| 3-5 MW | 4 | 881 | 156,619 | 2 | 3 | 62,122 |
| 5-10 MW | 3 | 482 | 197,139 | 4 | 12 | 217,922 |
| 10+ MW | 0 | 0 | 0 | 4 | 34 | 924,782 |
| Total | 14 | 2,662 | 455,770 | 18 | 60 | 1,327,332 |

Notes:

1) Annual MWH from 1/2025-12/2025

2) Aggregation of governmental accounts based largely on name

3) Non-Government accounts does not include contiguous properties that when summed could meet load requirements.

Accordingly, in order to determine the amount of load eligible to purchase energy from other providers for the 2027-2029 action plan period, NV Energy created an additional forecast scenario that removes the total MWh sales determined to be eligible. Based on the analysis, the limit for the three-year action plan period for Nevada Power is proposed to be set at 58,133 MWh annually. Sierra's limit remains unchanged at zero MW, due to continued system import capacity constraints on the system.

The first step, following the methodology approved in the 2021 Joint IRP (Docket No. 21-06001), a three-year average of year-end loads from 2023-2025 are considered as the base loads in order to determine the total load growth eligible for the 704B process. The resulting loads are used to determine the total eligible load growth. NV Energy anticipates that, over the three-year action plan period (January 2027 to December 2029), Large C&I loads are anticipated to increase by 116,267 MWh (12.3 MW) for Nevada Power and by 1,323,669 MWh (151.1 MW) for Sierra. Next, the calculations exclude customers on special pricing tariffs for both Nevada Power and Sierra loads. The resulting loads are subtracted from the historical base load comparison to determine the total eligible load growth. Applying the maximum annual limits prescribed by the proposed regulation, without applying any of the sensitivity analysis factors, yields 58,133 MWh (6.6 MW) total action plan period limit for Nevada Power and 661,834 MWh (75.6 MW) for Sierra.

During the 2027-2029 action plan period, severe import capacity constraints are anticipated to continue at Sierra. Currently, Sierra has 681 MW of import transmission service requests placed in a reservation queue for third-party network customers. Sierra is not projected to satisfy this outstanding import capacity need during the action plan period. Greenlink West increases Sierra's import capacity by 725 MW into Northern Nevada, of which 44 MW will be allocated to Sierra's existing 623 MW native load capacity requirements after the 681 MW of network customer reservations are met. In 2029, Greenlink North increases Sierra's import capacity by an additional 800 MW and will provide the remaining 579 MW for native load capacity. The remaining 221 MW will be allocated to native load requirements in 2032. Thus, due to the current import capacity constraints, analysis of this factor places the annual limits for Sierra for the action plan period at zero MW. As shown in the Transmission Plan Narrative in Table TP-18, Nevada Power's available import capacity is 3,214 MW. In light of this ample open import capacity, NV Energy does not propose to impose any limits on the amount of energy and capacity available to eligible 704B applicants on account of import capacity restrictions.

Table LF-61 summarizes the calculation of the amount of load eligible, with the additional considerations that modify the annual limits related to load growth, for Nevada Power. Table LF-62 provides the same information for Sierra.

**TABLE LF-61**
**NEVADA POWER 704B ELIGIBLE LOAD LIMIT**

| | Nevada Power | | |
|---|---|---|---|
| Year | Large C&I | Excluded Sales | Total |
| 2023 | 5,826,823 | 439,809 | 5,387,014 |
| 2024 | 6,356,395 | 623,160 | 5,733,235 |
| 2025 | 6,383,129 | 692,749 | 5,690,381 |
| | | | |
| 2026 | 7,319,105 | 1,569,893 | 5,749,212 |
| 2027 | 9,148,708 | 3,430,054 | 5,718,654 |
| 2028 | 10,505,965 | 4,808,664 | 5,697,301 |
| 2029 | 12,568,915 | 6,849,105 | 5,719,810 |
| | | | |
| 3-year avg. (2021-2023) | 6,188,783 | 585,239 | 5,603,543 |
| End of period Load (12/31/2027) | 12,568,915 | 6,849,105 | 5,719,810 |
| Load Growth | | | 116,267 |
| | | | |
| Eligible load @ 50% of Large C&I sales growth | | | 58,133 |
| Average hourly MWh | | | 6.6 |
| | | | |
| Sensitivity Analysis | | | |
| Import Capacity | | | - |
| System Constraints | | | - |
| Lower 704B Purchases | | | - |
| Additional Factors | | | - |
| | | | |
| Proposed eligible load | | | 58,133 |
| Average hourly MWh | | | 6.6 |

**TABLE LF-62**
**SIERRA PACIFIC 704B ELIGIBLE LOAD LIMIT**

| | Sierra | | |
|---|---|---|---|
| | | Excluded | |
| Year | Large C&I | Sales | Total |
| 2023 | 2,683,771 | 98,521 | 2,585,250 |
| 2024 | 2,810,678 | 272,001 | 2,538,677 |
| 2025 | 3,002,022 | 447,281 | 2,554,740 |
| 2026 | 6,799,506 | 2,982,396 | 3,817,110 |
| 2027 | 9,560,860 | 5,727,484 | 3,833,376 |
| 2028 | 12,973,225 | 9,083,507 | 3,889,718 |
| 2029 | 15,758,753 | 11,875,528 | 3,883,225 |
| | | | |
| 3-year avg. (2021-2023) | 2,832,157 | 272,601 | 2,559,556 |
| End of period Load (12/31/2027) | 15,758,753 | 11,875,528 | 3,883,225 |
| Load Growth | | | 1,323,669 |
| | | | |
| Eligible load @ 50% of Large C&I sales growth | | | 661,834 |
| Average hourly MWh | | | 75.6 |
| | | | |
| Sensitivity Analysis | | | |
| Import Capacity | | | (661,834) |
| System Constraints | | | - |
| Lower 704B Purchases | | | - |
| Additional Factors | | | - |
| | | | |
| Proposed eligible load | | | - |
| Average hourly MWh | | | - |

Table LF-63 summarizes the impact of the exit of the proposed annual limits on the base forecast sales and peak MW during the 2027-2029 period for both Nevada Power and Sierra. As previously noted, Sierra's load forecast is not modified due to import capacity constraints.

**TABLE LF-63**
**MODIFIED FORECAST EXCLUDING 704B ANNUAL LIMITS**

| | 2027 | 2028 | 2029 |
|---|---|---|---|
| Nevada Power | | | |
| Total Annual MWh Sales | 24,363,758 | 25,921,380 | 28,127,362 |
| Eligible Annual Limit MWh Loads | 19,378 | 19,378 | 19,378 |
| Modified Sales | 24,344,380 | 25,902,002 | 28,107,984 |
| Annual MW Peak | 6,705 | 6,865 | 7,369 |
| Coincident MW Peak of Eligible Loads | 6.6 | 6.6 | 6.6 |
| Modified MW Peak | 6,698 | 6,858 | 7,362 |
| Sierra | | | |
| Total Annual MWh Sales | 13,307,068 | 16,743,505 | 19,529,589 |
| Eligible Annual Limit MWh Loads | - | - | - |
| Modified Sales | 13,307,068 | 16,743,505 | 19,529,589 |
| Annual MW Peak | 2,598 | 2,951 | 3,242 |
| Coincident MW Peak of Eligible Loads | - | - | - |
| Modified MW Peak | 2,598 | 2,951 | 3,242 |

NV Energy proposes that the annual limits for Nevada Power for the 2027-2029 action plan period be set at the maximum allowable level of 58,133 MWh (approx. 6.6 MW). This total action plan annual limits amount can be made available in any number of tranche combinations: broken down equally among each of the three years (2.2 MW per year), front loaded, or back loaded. To allow the entire limit to leave at the beginning of the period, and to make the calculation of the impact on remaining customers simpler, Nevada Power proposes that the entire annual limits amount (6.6 MW) be available in the first year of the action plan. Considering the above calculations and NV Energy's proposed limit for Nevada Power, the effect of eligible customers purchasing less energy and capacity than authorized by the proposed annual limits would be negligible.[10]

In the case of eligible customers located in Nevada Power's service territory purchasing less energy and capacity than authorized by the proposed annual limits, the maximum MW loads would have to be served in addition to the native load forecasted in this 2026 Joint IRP. Considering Nevada Power's anticipated peak loads and reserve margin, Nevada Power expects that it will be able to serve the additional load with minimal effect on rates paid by its customers and no effect on the

[10] As provided for in the proposed regulations, if the proposed annual limit is not fully used in the first year of the action plan, the unused amount will be carried forward to the second and/or third years of the action plan.

reliability of service. Due to the relatively small amount of the proposed annual limits, the removal of these loads from the forecast results in the same preferred plan as if the loads were included.[11]

In order to determine the impact of this eligible load reduction, a modified forecast spreads the eligible sales to hours across the year following the Large C&I customer group loads at Nevada Power. These loads are then subtracted from the base forecast, and run through Resource Planning models, in order to determine the cost impact. These differences are then used to determine the rates that must be paid by these customers during their transition period.

## V. NRS Chapter 704B Transition Rates for 2027-2029 Action Plan Period

Once the 704B modified load forecast is compared to the base forecast, the resulting difference in system costs are used to develop the rates that these customers will pay during their three-year transition period to DOS status. The rate calculations follow the steps detailed in the Transition Charge/Credit Master Formula document filed with the Commission as Attachment 3 on May 8, 2020 in Docket No. 19-06029. The regulations include the provisions that these customers will continue to pay the fully bundled Base Tariff General Rates ("BTGR") for a three-year period, and a rate for the Base Tariff Energy Rate excluding specific renewables contracts ("Net Differential Energy Rate") for a three-year period. In addition, they will receive a variable O&M credit/charge depending on the estimated change in these variable costs. Next, the incremental Renewable BTER ("R-BTER") rate and other public policy program rates shall be included on an ongoing basis for these customer's bills. Further, additional costs related to Decommissioning and Remediation costs and Regulatory Asset charges may be imposed by the Commission for customers choosing to exit bundled service for a third-party energy provider.

Calculations for the Net Differential Energy Rate were performed as follows:

- Calculate the difference in average monthly Fuel & Purchased Power ("F&PP") system costs over the action plan period between the base case expansion plan and the change case plan system costs modelled in PLEXOS.
- Once the difference is calculated, the portion of the base tariff energy rate impact associated with the current and ongoing legislatively mandated public policy costs affecting the net BTER include, without limitation:
    - The out-of-money costs of long-term renewable contracts.
    - Non-bypassable costs attributed to public policies applicable to eligible customers.
- Next, the costs associated with the R-BTER renewable costs and other non-bypassable costs to the annual limits are subtracted from the base tariff energy rate system impact cost to determine the net base tariff energy rate cost.
- This adjusted amount is then divided by the energy consumption in kilowatt-hours from the annual limits in the production cost model which derives the net base tariff energy rate.

[11] The Companies seek guidance from the Commission as to whether, in future filings, the preferred plan should be built off the load forecast with or without the proposed annual limits. The Companies' concerns lay with a scenario in which the Commission authorizes annual limits significantly different from the proposed and the change materially alters the analysis performed for Companies' preferred or alternate plans.

The Variable O&M credit is calculated as the overall difference in variable O&M costs between the base case and the change case. It will be applied on a volumetric basis and reflects the reduction in variable O&M costs related to the exit of the eligible loads from bundled service.

Additionally, Section 12 of the proposed regulation submitted to the Legislative Counsel Bureau ("LCB") in Docket No. 19-06029 requires the Commission to list any current or ongoing legislatively mandated public policy programs for which eligible customers are required to pay costs, fees, charges, or rates pursuant to subsection 8 of NRS 704B.310. Those costs, fees, charges or rates which are not listed will be considered on a case-by-case basis. Accordingly, the list of current legislatively mandated public policy programs from which eligible customers are required to pay costs, fees, charges or rates approved by the Commission in Docket No. 21-06001 are as follows:

- Renewable Energy Program Rate (REPR)
- Temporary Renewable Energy Development Program Rate (TRED)
- Universal Energy Charge (UEC)
- Net Energy Metering
- Energy Efficiency and Conservation Programs (EE)
- Expanded Solar Access Program (ESAP)
- Natural Disaster Protection Plan (NDPP)
- Transportation Electrification Plan
- Economic Recovery Transportation Electrification Plan
- Economic Development Rate Rider; and
- R-BTER.

In conclusion, the results of the calculations in this proceeding demonstrate that Nevada Power customers choosing to exit the system will pay the Net Deferential Energy Rate of $0.03711 per kWh during their applicable three-year transition period which will be partially offset by the $-0.00001 per kWh variable O&M costs credit. In addition, such customers will pay other costs required by law including the Base Tariff Energy Rate for the transmission period and the then-current R-BTER rate (which currently stands at $0.00463 as filed in Docket No. 26-02013) and will be updated quarterly.

LF-2

# Nevada County Population Projections 2024 to 2043

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**October 1, 2024**

**Introduction to the 2024 Population Projections**

The following is the 2024 edition of the 20-year population projections for Nevada based on the state and county population estimates for July 1, 2023, as certified by the Governor on March 1, 2024. The 20-year population projections are published each October by the Nevada State Demographer in accordance with NRS 360.289 pertaining to the annual reports of projected population of counties. The Regional Economic Models, Inc. (REMI) model v3.2.0 was used to project how the population might change given demographic and economic factors.

The REMI model provides information for all 17 Nevada counties by 23 major economic sectors. It looks at the interaction between the economic and demographic characteristics within a county, as well as the dynamic economic and demographic relationships between the 17 counties and the United States as a whole. The 20-year projections will change each year as data becomes available or is revised.

The REMI model provides a standard national and regional control forecast that can be considered an “out of the box” model (the model as shipped with no additional changes from the user). The v3.2.0 model relies on sector employment data for the 17 Nevada counties sourced from the Bureau of Economic Analysis (BEA) CAEMP25N data series published through 2022 (updated November 16, 2023). To further refine the model with actual sector employment change rates through 2023, sector employment data from the Nevada Department of Employment, Training & Rehabilitation (DETR) and the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) was compared between the 2$^{nd}$ Quarter of 2022 to the 2$^{nd}$ Quarter of 2023 for the nation and for each county. These change rates were then applied in the REMI model to provide a realistic adjustment to the 2023 sector employment forecasts. Employment forecasts for current and upcoming economic development projects across the state were also received from the Governor’s Office of Economic Development (GOED). These forecasts were used to further adjust the model inputs. Lastly, a series of change rates incorporating the above adjustments were applied to the baseline population from the 2023 Governor’s certified estimates to project state and county population totals through 2043.

These projections will be used as the control populations for the age, sex, race and Hispanic origin projections. A summary table is provided on the next page, followed by full projections by county at the end of this document.

Risks to these projections for consideration:

- Housing availability in some counties may be a limiting factor which is not represented in this model and could inhibit the long-term growth rates presented.
- The REMI model may not entirely predict employee commuting patterns, especially in rural areas, which could impact the population distribution among adjacent counties.
- Changes in international migration policy and fluctuating domestic migration patterns should be considered when evaluating long-term population outcomes.
- Lingering pandemic effects, global conflict, resource limitations, and recent economic volatility may have impacts to long-term population modeling that are yet to be understood.

**20-Year Population Projections Summary**

| | 2023† | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
|---|---|---|---|---|---|---|---|
| **Carson City** | 58,923 | 59,562 | 60,132 | 60,586 | 60,932 | 61,241 | 61,515 |
| **Churchill** | 26,940 | 27,188 | 27,429 | 27,604 | 27,742 | 27,850 | 27,943 |
| **Clark** | 2,361,285 | 2,409,762 | 2,462,122 | 2,515,042 | 2,561,749 | 2,603,360 | 2,640,999 |
| **Douglas** | 54,343 | 54,600 | 54,930 | 55,260 | 55,534 | 55,742 | 55,899 |
| **Elko** | 57,538 | 57,827 | 58,055 | 58,266 | 58,427 | 58,558 | 58,657 |
| **Esmeralda** | 1,067 | 1,091 | 1,111 | 1,129 | 1,144 | 1,158 | 1,174 |
| **Eureka** | 1,776 | 1,799 | 1,829 | 1,863 | 1,901 | 1,941 | 1,981 |
| **Humboldt** | 17,696 | 17,763 | 17,834 | 17,892 | 17,928 | 17,953 | 17,972 |
| **Lander** | 6,121 | 6,073 | 6,048 | 6,041 | 6,049 | 6,056 | 6,068 |
| **Lincoln** | 4,808 | 4,869 | 4,926 | 4,977 | 5,028 | 5,069 | 5,111 |
| **Lyon** | 63,179 | 64,287 | 65,365 | 66,382 | 67,299 | 68,125 | 68,858 |
| **Mineral** | 4,842 | 4,826 | 4,821 | 4,826 | 4,838 | 4,849 | 4,865 |
| **Nye** | 52,478 | 53,154 | 53,880 | 54,628 | 55,375 | 56,084 | 56,765 |
| **Pershing** | 7,464 | 7,477 | 7,495 | 7,510 | 7,525 | 7,534 | 7,546 |
| **Storey** | 4,454 | 4,460 | 4,474 | 4,502 | 4,530 | 4,562 | 4,595 |
| **Washoe** | 508,759 | 518,057 | 526,437 | 533,544 | 539,098 | 544,037 | 548,448 |
| **White Pine** | 10,005 | 10,187 | 10,342 | 10,483 | 10,606 | 10,721 | 10,830 |
| **State Total*** | *3,241,678* | *3,302,982* | *3,367,231* | *3,430,535* | *3,485,705* | *3,534,840* | *3,579,225* |

| | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 |
|---|---|---|---|---|---|---|---|
| **Carson City** | 61,764 | 61,980 | 62,174 | 62,342 | 62,489 | 62,603 | 62,687 |
| **Churchill** | 28,017 | 28,077 | 28,097 | 28,134 | 28,156 | 28,178 | 28,186 |
| **Clark** | 2,675,412 | 2,706,836 | 2,735,604 | 2,762,385 | 2,787,432 | 2,810,990 | 2,833,244 |
| **Douglas** | 56,010 | 56,089 | 56,112 | 56,103 | 56,056 | 55,974 | 55,873 |
| **Elko** | 58,738 | 58,810 | 58,877 | 58,934 | 58,993 | 59,057 | 59,121 |
| **Esmeralda** | 1,188 | 1,203 | 1,216 | 1,228 | 1,241 | 1,255 | 1,269 |
| **Eureka** | 2,022 | 2,062 | 2,104 | 2,144 | 2,183 | 2,222 | 2,263 |
| **Humboldt** | 17,981 | 17,989 | 17,994 | 18,000 | 18,008 | 18,020 | 18,032 |
| **Lander** | 6,077 | 6,085 | 6,097 | 6,107 | 6,118 | 6,133 | 6,153 |
| **Lincoln** | 5,151 | 5,186 | 5,219 | 5,248 | 5,277 | 5,299 | 5,322 |
| **Lyon** | 69,518 | 70,096 | 70,604 | 71,065 | 71,458 | 71,786 | 72,070 |
| **Mineral** | 4,883 | 4,907 | 4,932 | 4,959 | 4,990 | 5,022 | 5,056 |
| **Nye** | 57,396 | 58,006 | 58,576 | 59,111 | 59,602 | 60,050 | 60,453 |
| **Pershing** | 7,559 | 7,574 | 7,592 | 7,611 | 7,626 | 7,647 | 7,666 |
| **Storey** | 4,631 | 4,667 | 4,698 | 4,724 | 4,752 | 4,781 | 4,806 |
| **Washoe** | 552,483 | 556,102 | 559,303 | 562,143 | 564,628 | 566,825 | 568,741 |
| **White Pine** | 10,934 | 11,037 | 11,137 | 11,237 | 11,332 | 11,431 | 11,530 |
| **State Total*** | *3,619,763* | *3,656,706* | *3,690,335* | *3,721,475* | *3,750,341* | *3,777,272* | *3,802,471* |

*Totals may not sum precisely due to rounding
†2023 Governor's Certified Series Population Estimates

**20-Year Population Projections Summary (cont'd)**

| | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 |
|---|---|---|---|---|---|---|---|
| **Carson City** | 62,742 | 62,784 | 62,818 | 62,846 | 62,865 | 62,886 | 62,887 |
| **Churchill** | 28,187 | 28,183 | 28,181 | 28,181 | 28,174 | 28,162 | 28,151 |
| **Clark** | 2,854,301 | 2,874,275 | 2,893,196 | 2,911,288 | 2,928,399 | 2,944,779 | 2,960,319 |
| **Douglas** | 55,741 | 55,587 | 55,411 | 55,226 | 55,022 | 54,806 | 54,567 |
| **Elko** | 59,199 | 59,295 | 59,415 | 59,546 | 59,702 | 59,884 | 60,087 |
| **Esmeralda** | 1,283 | 1,297 | 1,310 | 1,324 | 1,336 | 1,349 | 1,361 |
| **Eureka** | 2,304 | 2,346 | 2,386 | 2,427 | 2,466 | 2,505 | 2,540 |
| **Humboldt** | 18,041 | 18,059 | 18,082 | 18,112 | 18,145 | 18,181 | 18,227 |
| **Lander** | 6,179 | 6,212 | 6,249 | 6,297 | 6,344 | 6,394 | 6,444 |
| **Lincoln** | 5,339 | 5,353 | 5,361 | 5,366 | 5,367 | 5,367 | 5,363 |
| **Lyon** | 72,311 | 72,524 | 72,710 | 72,875 | 73,020 | 73,155 | 73,280 |
| **Mineral** | 5,095 | 5,141 | 5,197 | 5,259 | 5,327 | 5,402 | 5,482 |
| **Nye** | 60,821 | 61,152 | 61,453 | 61,720 | 61,951 | 62,169 | 62,376 |
| **Pershing** | 7,690 | 7,712 | 7,738 | 7,767 | 7,798 | 7,830 | 7,861 |
| **Storey** | 4,823 | 4,846 | 4,864 | 4,880 | 4,891 | 4,899 | 4,908 |
| **Washoe** | 570,404 | 571,853 | 573,217 | 574,496 | 575,715 | 576,925 | 578,070 |
| **White Pine** | 11,634 | 11,743 | 11,854 | 11,965 | 12,078 | 12,187 | 12,301 |
| **State Total*** | *3,826,093* | *3,848,361* | *3,869,443* | *3,889,575* | *3,908,601* | *3,926,880* | *3,944,225* |

*Totals may not sum precisely due to rounding
†2023 Governor's Certified Series Population Estimates

**20-Year Population Projections: Carson City**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| *2023†* | *58,923* | | |
| **2024** | 59,562 | 639 | 1.1% |
| **2025** | 60,132 | 570 | 1.0% |
| **2026** | 60,586 | 454 | 0.8% |
| **2027** | 60,932 | 346 | 0.6% |
| **2028** | 61,241 | 309 | 0.5% |
| **2029** | 61,515 | 274 | 0.4% |
| **2030** | 61,764 | 249 | 0.4% |
| **2031** | 61,980 | 216 | 0.3% |
| **2032** | 62,174 | 194 | 0.3% |
| **2033** | 62,342 | 168 | 0.3% |
| **2034** | 62,489 | 147 | 0.2% |
| **2035** | 62,603 | 114 | 0.2% |
| **2036** | 62,687 | 84 | 0.1% |
| **2037** | 62,742 | 55 | 0.1% |
| **2038** | 62,784 | 42 | 0.1% |
| **2039** | 62,818 | 34 | 0.1% |
| **2040** | 62,846 | 28 | 0.0% |
| **2041** | 62,865 | 19 | 0.0% |
| **2042** | 62,886 | 21 | 0.0% |
| **2043** | 62,887 | 1 | 0.0% |

**20-Year Population Projections: Churchill County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| *2023†* | *26,940* | | |
| **2024** | 27,188 | 248 | 0.9% |
| **2025** | 27,429 | 241 | 0.9% |
| **2026** | 27,604 | 175 | 0.6% |
| **2027** | 27,742 | 138 | 0.5% |
| **2028** | 27,850 | 108 | 0.4% |
| **2029** | 27,943 | 93 | 0.3% |
| **2030** | 28,017 | 74 | 0.3% |
| **2031** | 28,077 | 60 | 0.2% |
| **2032** | 28,097 | 20 | 0.1% |
| **2033** | 28,134 | 37 | 0.1% |
| **2034** | 28,156 | 22 | 0.1% |
| **2035** | 28,178 | 22 | 0.1% |
| **2036** | 28,186 | 8 | 0.0% |
| **2037** | 28,187 | 1 | 0.0% |
| **2038** | 28,183 | -4 | 0.0% |
| **2039** | 28,181 | -2 | 0.0% |
| **2040** | 28,181 | 0 | 0.0% |
| **2041** | 28,174 | -7 | 0.0% |
| **2042** | 28,162 | -12 | 0.0% |
| **2043** | 28,151 | -11 | 0.0% |

**20-Year Population Projections: Clark County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| *2023†* | *2,361,285* | | |
| **2024** | 2,409,762 | 48,477 | 2.1% |
| **2025** | 2,462,122 | 52,360 | 2.2% |
| **2026** | 2,515,042 | 52,920 | 2.1% |
| **2027** | 2,561,749 | 46,707 | 1.9% |
| **2028** | 2,603,360 | 41,611 | 1.6% |
| **2029** | 2,640,999 | 37,639 | 1.4% |
| **2030** | 2,675,412 | 34,413 | 1.3% |
| **2031** | 2,706,836 | 31,424 | 1.2% |
| **2032** | 2,735,604 | 28,768 | 1.1% |
| **2033** | 2,762,385 | 26,781 | 1.0% |
| **2034** | 2,787,432 | 25,047 | 0.9% |
| **2035** | 2,810,990 | 23,558 | 0.8% |
| **2036** | 2,833,244 | 22,254 | 0.8% |
| **2037** | 2,854,301 | 21,057 | 0.7% |
| **2038** | 2,874,275 | 19,974 | 0.7% |
| **2039** | 2,893,196 | 18,921 | 0.7% |
| **2040** | 2,911,288 | 18,092 | 0.6% |
| **2041** | 2,928,399 | 17,111 | 0.6% |
| **2042** | 2,944,779 | 16,380 | 0.6% |
| **2043** | 2,960,319 | 15,540 | 0.5% |

**20-Year Population Projections: Douglas County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| *2023†* | *54,343* | | |
| **2024** | 54,600 | 257 | 0.5% |
| **2025** | 54,930 | 330 | 0.6% |
| **2026** | 55,260 | 330 | 0.6% |
| **2027** | 55,534 | 274 | 0.5% |
| **2028** | 55,742 | 208 | 0.4% |
| **2029** | 55,899 | 157 | 0.3% |
| **2030** | 56,010 | 111 | 0.2% |
| **2031** | 56,089 | 79 | 0.1% |
| **2032** | 56,112 | 23 | 0.0% |
| **2033** | 56,103 | -9 | 0.0% |
| **2034** | 56,056 | -47 | -0.1% |
| **2035** | 55,974 | -82 | -0.1% |
| **2036** | 55,873 | -101 | -0.2% |
| **2037** | 55,741 | -132 | -0.2% |
| **2038** | 55,587 | -154 | -0.3% |
| **2039** | 55,411 | -176 | -0.3% |
| **2040** | 55,226 | -185 | -0.3% |
| **2041** | 55,022 | -204 | -0.4% |
| **2042** | 54,806 | -216 | -0.4% |
| **2043** | 54,567 | -239 | -0.4% |

†2023 Governor's Certified Series Population Estimates

**20-Year Population Projections: Elko County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| *2023†* | *57,538* | | |
| **2024** | 57,827 | 289 | 0.5% |
| **2025** | 58,055 | 228 | 0.4% |
| **2026** | 58,266 | 211 | 0.4% |
| **2027** | 58,427 | 161 | 0.3% |
| **2028** | 58,558 | 131 | 0.2% |
| **2029** | 58,657 | 99 | 0.2% |
| **2030** | 58,738 | 81 | 0.1% |
| **2031** | 58,810 | 72 | 0.1% |
| **2032** | 58,877 | 67 | 0.1% |
| **2033** | 58,934 | 57 | 0.1% |
| **2034** | 58,993 | 59 | 0.1% |
| **2035** | 59,057 | 64 | 0.1% |
| **2036** | 59,121 | 64 | 0.1% |
| **2037** | 59,199 | 78 | 0.1% |
| **2038** | 59,295 | 96 | 0.2% |
| **2039** | 59,415 | 120 | 0.2% |
| **2040** | 59,546 | 131 | 0.2% |
| **2041** | 59,702 | 156 | 0.3% |
| **2042** | 59,884 | 182 | 0.3% |
| **2043** | 60,087 | 203 | 0.3% |

**20-Year Population Projections: Esmeralda County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| *2023†* | *1,067* | | |
| **2024** | 1,091 | 24 | 2.2% |
| **2025** | 1,111 | 20 | 1.8% |
| **2026** | 1,129 | 18 | 1.6% |
| **2027** | 1,144 | 15 | 1.3% |
| **2028** | 1,158 | 14 | 1.2% |
| **2029** | 1,174 | 16 | 1.4% |
| **2030** | 1,188 | 14 | 1.2% |
| **2031** | 1,203 | 15 | 1.3% |
| **2032** | 1,216 | 13 | 1.1% |
| **2033** | 1,228 | 12 | 1.0% |
| **2034** | 1,241 | 13 | 1.1% |
| **2035** | 1,255 | 14 | 1.1% |
| **2036** | 1,269 | 14 | 1.1% |
| **2037** | 1,283 | 14 | 1.1% |
| **2038** | 1,297 | 14 | 1.1% |
| **2039** | 1,310 | 13 | 1.0% |
| **2040** | 1,324 | 14 | 1.1% |
| **2041** | 1,336 | 12 | 0.9% |
| **2042** | 1,349 | 13 | 1.0% |
| **2043** | 1,361 | 12 | 0.9% |

**20-Year Population Projections: Eureka County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| *2023†* | *1,776* | | |
| **2024** | 1,799 | 23 | 1.3% |
| **2025** | 1,829 | 30 | 1.7% |
| **2026** | 1,863 | 34 | 1.9% |
| **2027** | 1,901 | 38 | 2.0% |
| **2028** | 1,941 | 40 | 2.1% |
| **2029** | 1,981 | 40 | 2.1% |
| **2030** | 2,022 | 41 | 2.1% |
| **2031** | 2,062 | 40 | 2.0% |
| **2032** | 2,104 | 42 | 2.0% |
| **2033** | 2,144 | 40 | 1.9% |
| **2034** | 2,183 | 39 | 1.8% |
| **2035** | 2,222 | 39 | 1.8% |
| **2036** | 2,263 | 41 | 1.8% |
| **2037** | 2,304 | 41 | 1.8% |
| **2038** | 2,346 | 42 | 1.8% |
| **2039** | 2,386 | 40 | 1.7% |
| **2040** | 2,427 | 41 | 1.7% |
| **2041** | 2,466 | 39 | 1.6% |
| **2042** | 2,505 | 39 | 1.6% |
| **2043** | 2,540 | 35 | 1.4% |

**20-Year Population Projections: Humboldt County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| *2023†* | *17,696* | | |
| **2024** | 17,763 | 67 | 0.4% |
| **2025** | 17,834 | 71 | 0.4% |
| **2026** | 17,892 | 58 | 0.3% |
| **2027** | 17,928 | 36 | 0.2% |
| **2028** | 17,953 | 25 | 0.1% |
| **2029** | 17,972 | 19 | 0.1% |
| **2030** | 17,981 | 9 | 0.1% |
| **2031** | 17,989 | 8 | 0.0% |
| **2032** | 17,994 | 5 | 0.0% |
| **2033** | 18,000 | 6 | 0.0% |
| **2034** | 18,008 | 8 | 0.0% |
| **2035** | 18,020 | 12 | 0.1% |
| **2036** | 18,032 | 12 | 0.1% |
| **2037** | 18,041 | 9 | 0.0% |
| **2038** | 18,059 | 18 | 0.1% |
| **2039** | 18,082 | 23 | 0.1% |
| **2040** | 18,112 | 30 | 0.2% |
| **2041** | 18,145 | 33 | 0.2% |
| **2042** | 18,181 | 36 | 0.2% |
| **2043** | 18,227 | 46 | 0.3% |

†2023 Governor's Certified Series Population Estimates

**20-Year Population Projections: Lander County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *6,121* | | |
| **2024** | 6,073 | -48 | -0.8% |
| **2025** | 6,048 | -25 | -0.4% |
| **2026** | 6,041 | -7 | -0.1% |
| **2027** | 6,049 | 8 | 0.1% |
| **2028** | 6,056 | 7 | 0.1% |
| **2029** | 6,068 | 12 | 0.2% |
| **2030** | 6,077 | 9 | 0.1% |
| **2031** | 6,085 | 8 | 0.1% |
| **2032** | 6,097 | 12 | 0.2% |
| **2033** | 6,107 | 10 | 0.2% |
| **2034** | 6,118 | 11 | 0.2% |
| **2035** | 6,133 | 15 | 0.2% |
| **2036** | 6,153 | 20 | 0.3% |
| **2037** | 6,179 | 26 | 0.4% |
| **2038** | 6,212 | 33 | 0.5% |
| **2039** | 6,249 | 37 | 0.6% |
| **2040** | 6,297 | 48 | 0.8% |
| **2041** | 6,344 | 47 | 0.7% |
| **2042** | 6,394 | 50 | 0.8% |
| **2043** | 6,444 | 50 | 0.8% |

**20-Year Population Projections: Lincoln County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *4,808* | | |
| **2024** | 4,869 | 61 | 1.3% |
| **2025** | 4,926 | 57 | 1.2% |
| **2026** | 4,977 | 51 | 1.0% |
| **2027** | 5,028 | 51 | 1.0% |
| **2028** | 5,069 | 41 | 0.8% |
| **2029** | 5,111 | 42 | 0.8% |
| **2030** | 5,151 | 40 | 0.8% |
| **2031** | 5,186 | 35 | 0.7% |
| **2032** | 5,219 | 33 | 0.6% |
| **2033** | 5,248 | 29 | 0.6% |
| **2034** | 5,277 | 29 | 0.6% |
| **2035** | 5,299 | 22 | 0.4% |
| **2036** | 5,322 | 23 | 0.4% |
| **2037** | 5,339 | 17 | 0.3% |
| **2038** | 5,353 | 14 | 0.3% |
| **2039** | 5,361 | 8 | 0.1% |
| **2040** | 5,366 | 5 | 0.1% |
| **2041** | 5,367 | 1 | 0.0% |
| **2042** | 5,367 | 0 | 0.0% |
| **2043** | 5,363 | -4 | -0.1% |

**20-Year Population Projections: Lyon County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *63,179* | | |
| **2024** | 64,287 | 1,108 | 1.8% |
| **2025** | 65,365 | 1,078 | 1.7% |
| **2026** | 66,382 | 1,017 | 1.6% |
| **2027** | 67,299 | 917 | 1.4% |
| **2028** | 68,125 | 826 | 1.2% |
| **2029** | 68,858 | 733 | 1.1% |
| **2030** | 69,518 | 660 | 1.0% |
| **2031** | 70,096 | 578 | 0.8% |
| **2032** | 70,604 | 508 | 0.7% |
| **2033** | 71,065 | 461 | 0.7% |
| **2034** | 71,458 | 393 | 0.6% |
| **2035** | 71,786 | 328 | 0.5% |
| **2036** | 72,070 | 284 | 0.4% |
| **2037** | 72,311 | 241 | 0.3% |
| **2038** | 72,524 | 213 | 0.3% |
| **2039** | 72,710 | 186 | 0.3% |
| **2040** | 72,875 | 165 | 0.2% |
| **2041** | 73,020 | 145 | 0.2% |
| **2042** | 73,155 | 135 | 0.2% |
| **2043** | 73,280 | 125 | 0.2% |

**20-Year Population Projections: Mineral County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *4,842* | | |
| **2024** | 4,826 | -16 | -0.3% |
| **2025** | 4,821 | -5 | -0.1% |
| **2026** | 4,826 | 5 | 0.1% |
| **2027** | 4,838 | 12 | 0.2% |
| **2028** | 4,849 | 11 | 0.2% |
| **2029** | 4,865 | 16 | 0.3% |
| **2030** | 4,883 | 18 | 0.4% |
| **2031** | 4,907 | 24 | 0.5% |
| **2032** | 4,932 | 25 | 0.5% |
| **2033** | 4,959 | 27 | 0.5% |
| **2034** | 4,990 | 31 | 0.6% |
| **2035** | 5,022 | 32 | 0.6% |
| **2036** | 5,056 | 34 | 0.7% |
| **2037** | 5,095 | 39 | 0.8% |
| **2038** | 5,141 | 46 | 0.9% |
| **2039** | 5,197 | 56 | 1.1% |
| **2040** | 5,259 | 62 | 1.2% |
| **2041** | 5,327 | 68 | 1.3% |
| **2042** | 5,402 | 75 | 1.4% |
| **2043** | 5,482 | 80 | 1.5% |

†2023 Governor's Certified Series Population Estimates

**20-Year Population Projections: Nye County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *52,478* | | |
| **2024** | 53,154 | 676 | 1.3% |
| **2025** | 53,880 | 726 | 1.4% |
| **2026** | 54,628 | 748 | 1.4% |
| **2027** | 55,375 | 747 | 1.4% |
| **2028** | 56,084 | 709 | 1.3% |
| **2029** | 56,765 | 681 | 1.2% |
| **2030** | 57,396 | 631 | 1.1% |
| **2031** | 58,006 | 610 | 1.1% |
| **2032** | 58,576 | 570 | 1.0% |
| **2033** | 59,111 | 535 | 0.9% |
| **2034** | 59,602 | 491 | 0.8% |
| **2035** | 60,050 | 448 | 0.8% |
| **2036** | 60,453 | 403 | 0.7% |
| **2037** | 60,821 | 368 | 0.6% |
| **2038** | 61,152 | 331 | 0.5% |
| **2039** | 61,453 | 301 | 0.5% |
| **2040** | 61,720 | 267 | 0.4% |
| **2041** | 61,951 | 231 | 0.4% |
| **2042** | 62,169 | 218 | 0.4% |
| **2043** | 62,376 | 207 | 0.3% |

**20-Year Population Projections: Pershing County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *7,464* | | |
| **2024** | 7,477 | 13 | 0.2% |
| **2025** | 7,495 | 18 | 0.2% |
| **2026** | 7,510 | 15 | 0.2% |
| **2027** | 7,525 | 15 | 0.2% |
| **2028** | 7,534 | 9 | 0.1% |
| **2029** | 7,546 | 12 | 0.2% |
| **2030** | 7,559 | 13 | 0.2% |
| **2031** | 7,574 | 15 | 0.2% |
| **2032** | 7,592 | 18 | 0.2% |
| **2033** | 7,611 | 19 | 0.3% |
| **2034** | 7,626 | 15 | 0.2% |
| **2035** | 7,647 | 21 | 0.3% |
| **2036** | 7,666 | 19 | 0.2% |
| **2037** | 7,690 | 24 | 0.3% |
| **2038** | 7,712 | 22 | 0.3% |
| **2039** | 7,738 | 26 | 0.3% |
| **2040** | 7,767 | 29 | 0.4% |
| **2041** | 7,798 | 31 | 0.4% |
| **2042** | 7,830 | 32 | 0.4% |
| **2043** | 7,861 | 31 | 0.4% |

**20-Year Population Projections: Storey County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *4,454* | | |
| **2024** | 4,460 | 6 | 0.1% |
| **2025** | 4,474 | 14 | 0.3% |
| **2026** | 4,502 | 28 | 0.6% |
| **2027** | 4,530 | 28 | 0.6% |
| **2028** | 4,562 | 32 | 0.7% |
| **2029** | 4,595 | 33 | 0.7% |
| **2030** | 4,631 | 36 | 0.8% |
| **2031** | 4,667 | 36 | 0.8% |
| **2032** | 4,698 | 31 | 0.7% |
| **2033** | 4,724 | 26 | 0.6% |
| **2034** | 4,752 | 28 | 0.6% |
| **2035** | 4,781 | 29 | 0.6% |
| **2036** | 4,806 | 25 | 0.5% |
| **2037** | 4,823 | 17 | 0.4% |
| **2038** | 4,846 | 23 | 0.5% |
| **2039** | 4,864 | 18 | 0.4% |
| **2040** | 4,880 | 16 | 0.3% |
| **2041** | 4,891 | 11 | 0.2% |
| **2042** | 4,899 | 8 | 0.2% |
| **2043** | 4,908 | 9 | 0.2% |

**20-Year Population Projections: Washoe County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *508,759* | | |
| **2024** | 518,057 | 9,298 | 1.8% |
| **2025** | 526,437 | 8,380 | 1.6% |
| **2026** | 533,544 | 7,107 | 1.4% |
| **2027** | 539,098 | 5,554 | 1.0% |
| **2028** | 544,037 | 4,939 | 0.9% |
| **2029** | 548,448 | 4,411 | 0.8% |
| **2030** | 552,483 | 4,035 | 0.7% |
| **2031** | 556,102 | 3,619 | 0.7% |
| **2032** | 559,303 | 3,201 | 0.6% |
| **2033** | 562,143 | 2,840 | 0.5% |
| **2034** | 564,628 | 2,485 | 0.4% |
| **2035** | 566,825 | 2,197 | 0.4% |
| **2036** | 568,741 | 1,916 | 0.3% |
| **2037** | 570,404 | 1,663 | 0.3% |
| **2038** | 571,853 | 1,449 | 0.3% |
| **2039** | 573,217 | 1,364 | 0.2% |
| **2040** | 574,496 | 1,279 | 0.2% |
| **2041** | 575,715 | 1,219 | 0.2% |
| **2042** | 576,925 | 1,210 | 0.2% |
| **2043** | 578,070 | 1,145 | 0.2% |

†2023 Governor's Certified Series Population Estimates

**20-Year Population Projections: White Pine County**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *10,005* | | |
| **2024** | 10,187 | 182 | 1.8% |
| **2025** | 10,342 | 155 | 1.5% |
| **2026** | 10,483 | 141 | 1.4% |
| **2027** | 10,606 | 123 | 1.2% |
| **2028** | 10,721 | 115 | 1.1% |
| **2029** | 10,830 | 109 | 1.0% |
| **2030** | 10,934 | 104 | 1.0% |
| **2031** | 11,037 | 103 | 0.9% |
| **2032** | 11,137 | 100 | 0.9% |
| **2033** | 11,237 | 100 | 0.9% |
| **2034** | 11,332 | 95 | 0.8% |
| **2035** | 11,431 | 99 | 0.9% |
| **2036** | 11,530 | 99 | 0.9% |
| **2037** | 11,634 | 104 | 0.9% |
| **2038** | 11,743 | 109 | 0.9% |
| **2039** | 11,854 | 111 | 0.9% |
| **2040** | 11,965 | 111 | 0.9% |
| **2041** | 12,078 | 113 | 0.9% |
| **2042** | 12,187 | 109 | 0.9% |
| **2043** | 12,301 | 114 | 0.9% |

†2023 Governor's Certified Series Population Estimates

**20-Year Population Projections: State Total**

| Year | Population | Change Amt | Change % |
|---|---|---|---|
| ***2023†*** | *3,241,678* | | |
| **2024** | 3,302,982 | 61,304 | 1.9% |
| **2025** | 3,367,231 | 64,249 | 1.9% |
| **2026** | 3,430,535 | 63,304 | 1.9% |
| **2027** | 3,485,705 | 55,170 | 1.6% |
| **2028** | 3,534,840 | 49,135 | 1.4% |
| **2029** | 3,579,225 | 44,385 | 1.3% |
| **2030** | 3,619,763 | 40,538 | 1.1% |
| **2031** | 3,656,706 | 36,943 | 1.0% |
| **2032** | 3,690,335 | 33,629 | 0.9% |
| **2033** | 3,721,475 | 31,140 | 0.8% |
| **2034** | 3,750,341 | 28,866 | 0.8% |
| **2035** | 3,777,272 | 26,931 | 0.7% |
| **2036** | 3,802,471 | 25,199 | 0.7% |
| **2037** | 3,826,093 | 23,622 | 0.6% |
| **2038** | 3,848,361 | 22,268 | 0.6% |
| **2039** | 3,869,443 | 21,082 | 0.5% |
| **2040** | 3,889,575 | 20,132 | 0.5% |
| **2041** | 3,908,601 | 19,026 | 0.5% |
| **2042** | 3,926,880 | 18,279 | 0.5% |
| **2043** | 3,944,225 | 17,345 | 0.4% |

**LF-3**

## Annual Report on the Estimated Population of Towns, Cities and Counties in the State of Nevada as of July 1, 2024*
## Including the Governor's Certified Estimates from July 1, 2004 to July 1, 2023

| | JULY 1 2004 | Percent Change 7/04 - 7/05 | JULY 1 2005 | Percent Change 7/05 - 7/06 | JULY 1 2006 | Percent Change 7/06 - 7/07 | JULY 1 2007 | Percent Change 7/07 - 7/08 | JULY 1 2008 | Percent Change 7/08 - 7/09 | JULY 1 2009 | Percent Change 7/09 - 7/10 | CENSUS April 1 2010† | JULY 1 2010 | Percent Change 4/10 - 7/11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **State of Nevada** | 2,410,768 | 4.5% | 2,518,869 | 4.1% | 2,623,050 | 3.6% | 2,718,337 | 0.8% | 2,738,733 | -1.0% | 2,711,206 | 0.5% | 2,700,551 | 2,724,634 | 0.8% |
| **Counties** | | | | | | | | | | | | | | | |
| **Incorp. Cities** | | | | | | | | | | | | | | | |
| **Unincorp. Towns** | | | | | | | | | | | | | | | |
| **Carson City** | 56,146 | 1.7% | 57,104 | 1.0% | 57,701 | 0.0% | 57,723 | -0.2% | 57,600 | -1.9% | 56,506 | -1.2% | 55,274 | 55,850 | 1.4% |
| **Churchill County** | 26,106 | 1.8% | 26,585 | 3.0% | 27,371 | -0.7% | 27,190 | -0.8% | 26,981 | -0.5% | 26,859 | -1.9% | 24,877 | 26,360 | 1.0% |
| **Fallon** | 8,398 | -0.7% | 8,339 | -0.5% | 8,299 | 1.8% | 8,452 | 9.5% | 9,258 | -1.6% | 9,113 | -2.3% | 8,606 | 8,903 | 0.0% |
| **Clark County** | 1,715,337 | 4.7% | 1,796,380 | 4.4% | 1,874,837 | 4.2% | 1,954,319 | 0.7% | 1,967,716 | -0.8% | 1,952,040 | 0.9% | 1,951,269 | 1,968,831 | 0.8% |
| **Boulder City** | 15,058 | 1.0% | 15,203 | 1.8% | 15,478 | 2.5% | 15,863 | 5.2% | 16,684 | -3.7% | 16,064 | -4.4% | 15,023 | 15,359 | 2.1% |
| **Henderson** | 229,984 | 4.8% | 241,134 | 4.2% | 251,321 | 3.5% | 260,161 | 3.6% | 269,538 | -0.7% | 267,687 | -0.2% | 257,729 | 267,270 | 2.8% |
| **Las Vegas** | 549,571 | 3.7% | 569,838 | 1.8% | 579,840 | 1.8% | 590,321 | 0.5% | 593,528 | -0.4% | 591,422 | -0.8% | 583,756 | 586,536 | 0.8% |
| **Mesquite** | 15,881 | 3.4% | 16,423 | 7.5% | 17,656 | 6.4% | 18,787 | 5.1% | 19,754 | 4.7% | 20,677 | -1.1% | 15,276 | 20,440 | 11.5% |
| **North Las Vegas** | 164,971 | 9.2% | 180,219 | 10.2% | 198,516 | 6.0% | 210,472 | 2.0% | 214,661 | 0.2% | 215,022 | 1.1% | 216,961 | 217,482 | 3.2% |
| **Bunkerville** | 1,185 | 1.1% | 1,198 | -1.6% | 1,179 | 6.5% | 1,255 | -7.6% | 1,160 | 5.3% | 1,222 | 2.7% | 1,256 | 1,255 | -4.5% |
| **Enterprise** | 79,299 | 20.3% | 95,377 | 24.9% | 119,100 | 20.8% | 143,917 | 4.0% | 149,713 | 0.5% | 150,473 | 9.8% | 165,435 | 165,285 | -2.9% |
| **Indian Springs** | 1,661 | 1.1% | 1,679 | 13.6% | 1,907 | -13.0% | 1,659 | -10.3% | 1,488 | -2.8% | 1,447 | -6.3% | 1,357 | 1,356 | -13.9% |
| **Laughlin** | 8,105 | 1.5% | 8,226 | 2.8% | 8,458 | 4.1% | 8,807 | -0.5% | 8,761 | -9.7% | 7,914 | -0.6% | 7,874 | 7,867 | -9.0% |
| **Moapa** | 1,200 | 5.1% | 1,261 | -20.5% | 1,003 | 19.7% | 1,201 | -16.9% | 998 | 5.4% | 1,052 | 0.8% | 1,061 | 1,060 | 31.0% |
| **Moapa Valley** | 6,549 | 2.7% | 6,726 | 1.8% | 6,845 | 18.1% | 8,085 | -11.8% | 7,134 | 1.9% | 7,269 | 3.1% | 7,503 | 7,496 | 1.9% |
| **Mt. Charleston** | 894 | -1.7% | 879 | -8.3% | 806 | 46.4% | 1,179 | -5.2% | 1,118 | -5.0% | 1,061 | 0.6% | 1,069 | 1,068 | -38.7% |
| **Paradise** | 188,768 | 1.5% | 191,650 | -2.8% | 186,370 | -0.2% | 185,935 | -2.0% | 182,264 | -1.8% | 178,974 | 3.5% | 185,472 | 185,304 | -2.1% |
| **Searchlight** | 1,106 | -1.6% | 1,088 | -29.8% | 764 | 4.4% | 798 | -6.1% | 750 | -4.2% | 718 | 3.4% | 744 | 743 | -23.2% |
| **Spring Valley** | 161,286 | 2.5% | 165,335 | 4.1% | 172,110 | 2.7% | 176,815 | 0.1% | 176,910 | -1.4% | 174,458 | 1.3% | 176,872 | 176,712 | -2.5% |
| **Summerlin** | 17,841 | 13.5% | 20,256 | 7.1% | 21,692 | 21.8% | 26,415 | 6.0% | 27,992 | 1.2% | 28,342 | 4.7% | 29,694 | 29,667 | -15.3% |
| **Sunrise Manor** | 184,801 | 0.9% | 186,511 | 2.9% | 191,858 | 0.1% | 191,966 | -3.2% | 185,745 | -3.2% | 179,808 | -2.6% | 175,365 | 175,206 | 8.9% |
| **Whitney** | 21,738 | 24.9% | 27,155 | 22.1% | 33,144 | 9.2% | 36,182 | 0.0% | 36,164 | 4.2% | 37,690 | -0.2% | 37,637 | 37,603 | 3.9% |
| **Winchester** | 33,917 | 3.8% | 35,208 | -0.9% | 34,874 | 7.7% | 37,561 | -1.1% | 37,141 | -5.1% | 35,235 | -0.3% | 35,174 | 35,142 | -5.2% |
| **Douglas County** | 47,803 | 4.8% | 50,108 | 3.3% | 51,770 | 1.2% | 52,386 | -0.5% | 52,131 | -1.4% | 51,390 | -4.2% | 46,997 | 49,242 | 1.4% |
| **Gardnerville** | 5,067 | 1.9% | 5,165 | 7.4% | 5,550 | -2.8% | 5,394 | 0.3% | 5,412 | -3.0% | 5,250 | -5.1% | 4,756 | 4,983 | 15.0% |
| **Genoa** | 244 | 1.4% | 248 | 1.6% | 252 | 0.2% | 252 | 1.3% | 255 | 0.2% | 256 | -4.7% | 233 | 244 | -7.2% |
| **Minden** | 2,945 | 1.3% | 2,983 | 8.4% | 3,234 | 0.2% | 3,239 | 0.7% | 3,261 | -1.0% | 3,229 | -0.5% | 3,067 | 3,213 | -2.7% |
| **Elko County** | 46,499 | 2.3% | 47,586 | 1.6% | 48,339 | 4.3% | 50,434 | 0.3% | 50,561 | 1.5% | 51,325 | 1.5% | 48,818 | 52,097 | 2.1% |
| **Carlin** | 2,240 | 1.0% | 2,261 | 0.9% | 2,281 | 0.6% | 2,295 | 1.2% | 2,322 | 1.0% | 2,345 | 1.1% | 2,368 | 2,370 | 0.3% |
| **Elko** | 17,140 | 4.1% | 17,850 | 1.9% | 18,183 | 1.3% | 18,427 | 0.0% | 18,424 | 0.0% | 18,428 | 2.2% | 18,297 | 18,842 | 5.0% |
| **Wells** | 1,406 | 1.2% | 1,423 | 1.9% | 1,449 | 4.0% | 1,508 | 1.1% | 1,524 | -0.6% | 1,515 | 1.1% | 1,292 | 1,531 | -9.1% |
| **West Wendover** | 4,830 | 0.4% | 4,848 | 0.5% | 4,871 | 1.8% | 4,958 | 0.6% | 4,990 | -0.9% | 4,945 | 1.1% | 4,410 | 4,999 | 1.4% |
| **Jackpot** | 1,281 | -0.6% | 1,273 | 1.6% | 1,293 | -5.9% | 1,217 | 0.4% | 1,222 | -3.1% | 1,184 | 1.1% | 1,103 | 1,197 | -12.7% |
| **Montello** | 179 | 1.2% | 181 | -3.7% | 175 | -5.7% | 165 | 0.4% | 165 | 1.3% | 167 | 1.0% | 156 | 169 | -49.3% |
| **Mountain City** | 123 | -1.8% | 121 | 3.1% | 125 | 3.5% | 129 | 0.9% | 130 | -7.0% | 121 | 0.9% | 112 | 122 | -9.3% |
| **Esmeralda County** | 1,176 | 8.5% | 1,276 | -1.1% | 1,262 | -2.1% | 1,236 | 0.3% | 1,240 | -4.3% | 1,187 | -3.5% | 783 | 1,145 | 5.4% |
| **Goldfield** | 453 | -3.3% | 438 | -1.7% | 430 | 4.2% | 448 | -7.5% | 415 | 6.4% | 441 | -9.4% | 274 | 400 | 5.3% |
| **Silver Peak** | 127 | -0.9% | 126 | -7.1% | 117 | 6.9% | 125 | 45.9% | 182 | -22.7% | 141 | -8.3% | 88 | 129 | 32.6% |
| **Eureka County** | 1,484 | 0.1% | 1,485 | -1.7% | 1,460 | -0.1% | 1,458 | 6.5% | 1,553 | 0.6% | 1,562 | 3.0% | 1,987 | 1,609 | 0.4% |
| **Crescent Valley** | 304 | 2.2% | 311 | -5.9% | 292 | -1.2% | 289 | -2.2% | 282.76446 | 0.2% | 283 | 4.5% | 366 | 296 | 8.3% |
| **Eureka (town)** | 454 | -2.9% | 440 | -1.7% | 433 | -0.4% | 431 | 9.6% | 473 | 2.1% | 483 | 3.3% | 616 | 499 | -0.8% |
| **Humboldt County** | 16,692 | 3.6% | 17,293 | 2.6% | 17,751 | 1.7% | 18,052 | -0.2% | 18,014 | -1.8% | 17,690 | 3.8% | 16,528 | 18,364 | 3.7% |
| **Winnemucca** | 7,249 | 2.1% | 7,401 | 3.3% | 7,643 | 0.0% | 7,646 | 0.2% | 7,659 | -0.9% | 7,593 | 4.8% | 7,396 | 7,961 | 6.0% |
| **Lander County** | 5,357 | 2.8% | 5,509 | 2.7% | 5,655 | 1.6% | 5,747 | 2.5% | 5,891 | 1.9% | 6,003 | -0.2% | 5,775 | 5,992 | 3.7% |
| **Austin** | 293 | -1.6% | 288 | -0.3% | 287 | -4.4% | 275 | 12.4% | 309 | -1.7% | 304 | 2.8% | 301 | 312 | -43.1% |
| **Battle Mountain** | 2,645 | 1.8% | 2,692 | 1.8% | 2,740 | 3.8% | 2,845 | 2.7% | 2,922 | 1.5% | 2,967 | -1.5% | 2,816 | 2,922 | 18.1% |
| **Kingston** | 239 | 20.5% | 288 | 6.3% | 306 | 1.0% | 309 | 3.5% | 320 | 3.3% | 331 | -0.8% | 316 | 328 | -60.5% |
| **Lincoln County** | 3,822 | 1.7% | 3,886 | 2.6% | 3,987 | 5.0% | 4,184 | 4.0% | 4,352 | -0.8% | 4,317 | 7.3% | 5,345 | 4,631 | -1.1% |
| **Caliente** | 1,014 | 0.2% | 1,015 | -1.4% | 1,002 | 8.7% | 1,089 | -1.1% | 1,077 | 2.7% | 1,106 | 3.5% | 1,130 | 1,144 | -7.3% |
| **Alamo** | 441 | -2.9% | 428 | 0.7% | 432 | -1.0% | 427 | 8.5% | 464 | -1.9% | 455 | 10.6% | 608 | 503 | 3.1% |
| **Panaca** | 552 | 1.8% | 562 | -0.7% | 558 | 6.7% | 595 | 8.4% | 645 | 2.1% | 659 | -5.0% | 757 | 626 | 3.2% |
| **Pioche** | 669 | 4.3% | 698 | 0.7% | 703 | 12.6% | 791 | -0.7% | 785 | 6.6% | 837 | 0.3% | 1,014 | 839 | -8.0% |
| **Lyon County** | 44,646 | 9.4% | 48,860 | 10.6% | 54,031 | 3.5% | 55,903 | -0.1% | 55,820 | -3.6% | 53,825 | -2.8% | 51,980 | 52,334 | 0.9% |
| **Fernley** | 13,775 | 18.7% | 16,357 | 15.2% | 18,850 | 3.9% | 19,585 | 0.1% | 19,609 | -3.5% | 18,929 | -2.6% | 19,368 | 18,434 | -2.4% |
| **Yerington** | 2,912 | 2.3% | 2,980 | 9.3% | 3,257 | 1.9% | 3,319 | 0.2% | 3,324 | -5.6% | 3,138 | -3.3% | 3,048 | 3,034 | 3.8% |
| **Mineral County** | 4,673 | -0.9% | 4,629 | -5.0% | 4,399 | -0.5% | 4,377 | 0.6% | 4,401 | 1.7% | 4,474 | -0.1% | 4,772 | 4,471 | -3.6% |
| **Hawthorne** | 2,968 | -0.4% | 2,956 | -0.9% | 2,931 | 1.0% | 2,960 | 0.3% | 2,970 | 1.9% | 3,028 | 5.5% | 3,409 | 3,194 | -11.8% |
| **Luning** | 97 | -9.5% | 87 | -7.0% | 81 | -2.4% | 79 | 0.6% | 80 | -1.4% | 79 | -0.8% | 83 | 78 | 5.7% |
| **Mina** | 297 | -7.0% | 276 | -21.2% | 218 | -5.9% | 205 | 1.4% | 207 | -0.2% | 207 | -14.1% | 190 | 178 | -32.1% |
| **Walker Lake** | 318 | -2.5% | 310 | 2.9% | 319 | -6.2% | 299 | 1.8% | 305 | 3.8% | 316 | 0.6% | 339 | 318 | -9.5% |
| **Nye County** | 38,181 | 8.2% | 41,302 | 8.5% | 44,795 | 3.4% | 46,308 | 2.3% | 47,370 | -2.1% | 46,360 | -1.9% | 43,946 | 45,459 | 1.3% |
| **Amargosa** | 1,211 | 14.3% | 1,383 | 3.7% | 1,435 | 4.7% | 1,503 | 1.2% | 1,521 | -8.5% | 1,392 | 7.2% | 1,442 | 1,492 | -7.7% |
| **Beatty** | 981 | 5.2% | 1,032 | -0.7% | 1,025 | 3.3% | 1,059 | -3.3% | 1,024 | -14.0% | 880 | 5.0% | 893 | 924 | 9.6% |
| **Gabbs** | 316 | -1.4% | 312 | 0.4% | 313 | 3.0% | 322 | 3.1% | 332 | -4.9% | 316 | -3.8% | 294 | 304 | -4.0% |
| **Manhattan** | 128 | -3.2% | 124 | -1.9% | 122 | 14.5% | 140 | -1.3% | 138 | -1.8% | 135 | -1.7% | 129 | 133 | -5.9% |
| **Pahrump** | 30,465 | 9.1% | 33,241 | 10.2% | 36,645 | 3.5% | 37,928 | 2.5% | 38,882 | -1.6% | 38,247 | -1.2% | 36,538 | 37,796 | 1.3% |
| **Round Mountain** | 767 | -3.1% | 744 | 5.9% | 787 | 5.5% | 831 | 2.3% | 850 | -1.5% | 837 | -3.7% | 779 | 806 | -1.0% |
| **Tonopah** | 2,341 | 11.3% | 2,607 | -0.3% | 2,600 | 0.4% | 2,610 | 0.7% | 2,628 | -1.8% | 2,580 | -3.6% | 2,405 | 2,488 | -2.5% |
| **Pershing County** | 6,631 | 1.6% | 6,736 | 3.2% | 6,955 | 1.7% | 7,075 | 1.6% | 7,192 | -0.6% | 7,149 | -0.2% | 6,753 | 7,133 | 1.4% |
| **Lovelock** | 2,381 | -0.8% | 2,363 | 2.7% | 2,427 | 1.6% | 2,465 | -0.3% | 2,458 | -1.9% | 2,411 | -5.7% | 1,894 | 2,274 | 14.6% |
| **Imlay** | 225 | -1.0% | 223 | 2.5% | 228 | 1.9% | 233 | 4.4% | 243 | -4.1% | 233 | -0.1% | 233 | 233 | -31.3% |
| **Storey County** | 3,797 | 5.7% | 4,012 | 2.4% | 4,110 | 4.4% | 4,293 | 2.1% | 4,384 | -1.5% | 4,317 | -1.9% | 4,010 | 4,234 | 2.8% |
| **Gold Hill** | 189 | 0.7% | 191 | 6.3% | 203 | 3.0% | 209 | 1.6% | 212 | -2.4% | 207 | -2.4% | 191 | 202 | 24.4% |
| **Virginia City** | 887 | 5.7% | 938 | 1.7% | 954 | 5.9% | 1,011 | 1.5% | 1,027 | -1.5% | 1,011 | -1.3% | 945 | 998 | -9.1% |
| **Washoe County** | 383,453 | 3.5% | 396,844 | 3.1% | 409,085 | 2.2% | 418,061 | 1.4% | 423,833 | -1.7% | 416,632 | 0.2% | 421,407 | 417,379 | 0.0% |
| **Reno** | 199,249 | 3.8% | 206,735 | 3.7% | 214,371 | 2.9% | 220,613 | 1.1% | 223,012 | -2.2% | 218,143 | -0.4% | 225,221 | 217,282 | -1.1% |
| **Sparks** | 81,673 | 4.8% | 85,618 | 2.6% | 87,846 | 1.8% | 89,449 | 2.5% | 91,684 | -0.5% | 91,237 | 1.2% | 90,264 | 92,331 | 2.3% |
| **White Pine County** | 8,966 | 3.4% | 9,275 | 2.9% | 9,542 | 0.5% | 9,590 | 2.5% | 9,694 | -1.3% | 9,570 | -0.7% | 10,030 | 9,503 | -0.3% |
| **Ely** | 3,962 | 5.1% | 4,166 | 3.8% | 4,325 | -0.7% | 4,294 | 1.3% | 4,352 | -1.4% | 4,291 | -1.3% | 4,255 | 4,235 | -3.9% |
| **Lund** | 147 | 6.1% | 156 | 3.7% | 162 | 1.5% | 164 | -4.2% | 157 | 0.3% | 158 | 2.7% | 178 | 162 | 16.6% |
| **McGill** | 1,079 | 2.8% | 1,109 | 3.2% | 1,145 | -1.8% | 1,125 | 0.3% | 1,128 | -1.7% | 1,109 | -0.1% | 1,215 | 1,108 | -3.8% |
| **Ruth** | 379 | 3.9% | 394 | 2.9% | 405 | -1.3% | 400 | 1.8% | 407 | -1.3% | 402 | -0.7% | 437 | 399 | -4.0% |

*Issued by the Nevada Department of Taxation per NRS 360.283 for Certification by the Governor on or before March 1, 2025
†Census counts are for reference only and are not part of the annual estimates certified by the Governor

**Annual Report on the Estimated Population of Towns, Cities and Counties in the State of Nevada as of July 1, 2024***
**Including the Governor's Certified Estimates from July 1, 2004 to July 1, 2023**

| | Percent Change 7/10 - 7/11 | JULY 1 2011 | Percent Change 7/11 - 7/12 | JULY 1 2012 | Percent Change 7/12 - 7/13 | JULY 1 2013 | Percent Change 7/13 - 7/14 | JULY 1 2014 | Percent Change 7/14 - 7/15 | JULY 1 2015 | Percent Change 7/15 - 7/16 | JULY 1 2016 | Percent Change 7/16 - 7/17 | JULY 1 2017 | Percent Change 7/17 - 7/18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **State of Nevada** | -0.1% | 2,721,794 | 1.0% | 2,750,217 | 1.8% | 2,800,967 | 1.5% | 2,843,301 | 1.9% | 2,897,584 | 1.9% | 2,953,375 | 1.1% | 2,986,656 | 2.4% |
| **Counties** | | | | | | | | | | | | | | | |
| **Incorp. Cities** | | | | | | | | | | | | | | | |
| **Unincorp. Towns** | | | | | | | | | | | | | | | |
| **Carson City** | 0.4% | 56,066 | -1.1% | 55,441 | -1.4% | 54,668 | -1.3% | 53,969 | 0.6% | 54,273 | 1.7% | 55,182 | 0.5% | 55,438 | 1.1% |
| **Churchill County** | -4.6% | 25,136 | 0.4% | 25,238 | 0.3% | 25,322 | -0.9% | 25,103 | 0.1% | 25,126 | 0.6% | 25,266 | 0.5% | 25,387 | 1.0% |
| **Fallon** | -3.3% | 8,609 | 1.1% | 8,706 | 0.0% | 8,706 | -0.7% | 8,645 | 1.4% | 8,770 | 1.2% | 8,874 | 1.8% | 9,030 | 1.1% |
| **Clark County** | -0.1% | 1,967,722 | 1.0% | 1,988,195 | 2.2% | 2,031,723 | 1.9% | 2,069,450 | 2.4% | 2,118,353 | 2.3% | 2,166,181 | 1.3% | 2,193,818 | 2.6% |
| **Boulder City** | -0.2% | 15,335 | 2.8% | 15,759 | -0.8% | 15,635 | 0.0% | 15,627 | 1.2% | 15,813 | 3.1% | 16,298 | -1.1% | 16,121 | -1.4% |
| **Henderson** | -0.9% | 264,839 | 0.8% | 266,846 | 2.8% | 274,270 | 2.4% | 280,928 | 2.5% | 287,828 | 2.3% | 294,359 | 2.2% | 300,709 | 3.2% |
| **Las Vegas** | 0.3% | 588,274 | 0.1% | 589,156 | 1.6% | 598,520 | 2.0% | 610,637 | 1.7% | 620,935 | 1.4% | 629,649 | 0.5% | 633,028 | 1.8% |
| **Mesquite** | -16.6% | 17,038 | -1.5% | 16,778 | 4.2% | 17,477 | 4.5% | 18,262 | 4.4% | 19,061 | 4.9% | 19,991 | 4.2% | 20,838 | 8.2% |
| **North Las Vegas** | 2.9% | 223,873 | -0.8% | 222,009 | 1.9% | 226,199 | 1.9% | 230,491 | 2.1% | 235,395 | 2.3% | 240,708 | 1.1% | 243,339 | 2.2% |
| **Bunkerville** | -4.5% | 1,199 | -9.6% | 1,084 | -1.5% | 1,067 | -2.7% | 1,039 | 5.7% | 1,097 | -0.1% | 1,096 | -5.0% | 1,042 | 0.7% |
| **Enterprise** | -2.8% | 160,632 | 1.4% | 162,872 | 4.8% | 170,699 | 2.0% | 174,064 | 5.6% | 183,755 | 2.6% | 188,503 | 2.7% | 193,572 | 6.6% |
| **Indian Springs** | -13.8% | 1,169 | 2.0% | 1,192 | 0.9% | 1,203 | 1.4% | 1,220 | 1.2% | 1,235 | 1.9% | 1,259 | 0.4% | 1,264 | -10.0% |
| **Laughlin** | -8.9% | 7,166 | 17.4% | 8,414 | 5.0% | 8,835 | 1.4% | 8,963 | 2.5% | 9,186 | 2.1% | 9,380 | 3.1% | 9,672 | 3.6% |
| **Moapa** | 31.1% | 1,390 | -21.8% | 1,086 | 0.7% | 1,094 | 23.6% | 1,352 | 0.8% | 1,363 | 0.6% | 1,370 | -25.1% | 1,026 | 39.6% |
| **Moapa Valley** | 2.0% | 7,647 | -10.2% | 6,868 | 0.0% | 6,871 | -0.3% | 6,851 | 0.3% | 6,875 | 1.3% | 6,967 | 2.1% | 7,115 | 1.6% |
| **Mt. Charleston** | -38.7% | 655 | -1.3% | 647 | 0.7% | 651 | -2.5% | 635 | 2.9% | 653 | 1.8% | 665 | 0.2% | 666 | 2.4% |
| **Paradise** | -2.0% | 181,635 | 1.7% | 184,745 | 1.7% | 187,949 | 1.6% | 191,047 | 0.9% | 192,810 | -0.6% | 191,705 | 1.0% | 193,712 | 1.5% |
| **Searchlight** | -23.1% | 571 | -30.7% | 395 | 0.3% | 397 | -13.2% | 344 | 0.8% | 347 | 2.6% | 356 | 2.0% | 364 | 1.0% |
| **Spring Valley** | -2.4% | 172,483 | 7.2% | 184,910 | 2.1% | 188,818 | 1.3% | 191,342 | 3.5% | 197,958 | 6.7% | 211,232 | 2.4% | 216,228 | 3.7% |
| **Summerlin** | -15.3% | 25,141 | 0.5% | 25,260 | 6.3% | 26,855 | 1.4% | 27,244 | 3.9% | 28,300 | 6.1% | 30,013 | 1.6% | 30,492 | 4.6% |
| **Sunrise Manor** | 9.0% | 191,007 | 2.9% | 196,570 | 1.6% | 199,754 | 1.5% | 202,710 | 2.0% | 206,720 | 1.6% | 209,932 | 0.1% | 210,216 | 1.5% |
| **Whitney** | 4.0% | 39,122 | -0.5% | 38,910 | 2.4% | 39,857 | 1.8% | 40,567 | 2.7% | 41,662 | 5.9% | 44,110 | 0.8% | 44,449 | 2.2% |
| **Winchester** | -5.2% | 33,329 | -5.1% | 31,634 | 1.0% | 31,960 | 1.4% | 32,413 | 1.1% | 32,770 | 0.6% | 32,972 | 0.3% | 33,065 | 1.0% |
| **Douglas County** | -3.2% | 47,661 | 0.7% | 48,015 | 1.0% | 48,478 | 0.2% | 48,553 | -0.7% | 48,223 | 0.0% | 48,235 | 0.1% | 48,300 | 1.6% |
| **Gardnerville** | 9.8% | 5,469 | 0.5% | 5,495 | 0.8% | 5,541 | 4.0% | 5,760 | -0.2% | 5,751 | 0.5% | 5,780 | -1.5% | 5,693 | 3.2% |
| **Genoa** | -11.5% | 216 | 1.3% | 219 | 0.6% | 220 | -1.5% | 217 | -1.1% | 215 | -0.5% | 213 | 0.0% | 213 | 2.5% |
| **Minden** | -7.1% | 2,984 | 0.9% | 3,010 | -0.6% | 2,993 | 2.7% | 3,072 | 0.0% | 3,072 | 1.2% | 3,110 | 2.6% | 3,191 | 2.5% |
| **Elko County** | -4.3% | 49,861 | 3.8% | 51,771 | 3.1% | 53,384 | 0.0% | 53,358 | 0.4% | 53,551 | 0.8% | 53,997 | -1.3% | 53,287 | 1.9% |
| **Carlin** | 0.3% | 2,376 | 0.0% | 2,376 | 20.0% | 2,851 | -4.2% | 2,731 | -0.1% | 2,727 | -1.6% | 2,684 | -2.5% | 2,617 | -0.2% |
| **Elko** | 1.9% | 19,209 | 6.2% | 20,406 | 2.7% | 20,958 | -0.4% | 20,865 | -0.7% | 20,714 | 0.0% | 20,704 | 0.4% | 20,789 | 1.8% |
| **Wells** | -23.3% | 1,174 | 9.0% | 1,280 | 2.1% | 1,307 | 8.0% | 1,411 | -2.8% | 1,371 | 1.3% | 1,388 | -5.5% | 1,312 | 4.0% |
| **West Wendover** | -10.6% | 4,470 | -2.3% | 4,367 | 2.0% | 4,453 | -0.7% | 4,420 | 1.3% | 4,478 | -0.1% | 4,474 | -6.1% | 4,201 | 4.9% |
| **Jackpot** | -19.5% | 963 | -5.1% | 914 | 1.0% | 923 | -1.8% | 907 | -1.0% | 898 | 0.0% | 897 | -4.2% | 860 | 0.6% |
| **Montello** | -53.3% | 79 | -23.5% | 60 | -0.3% | 60 | -6.3% | 56 | -0.9% | 56 | 11.6% | 62 | 0.6% | 63 | 0.2% |
| **Mountain City** | -16.4% | 102 | 7.4% | 110 | -0.7% | 109 | -1.6% | 107 | -7.0% | 100 | -4.1% | 95 | -8.4% | 87 | -15.4% |
| **Esmeralda County** | -27.9% | 825 | 4.3% | 860 | -0.2% | 858 | 7.9% | 926 | -0.4% | 923 | 4.5% | 964 | 0.6% | 970 | -0.1% |
| **Goldfield** | -28.0% | 288 | -9.9% | 259 | 12.8% | 293 | -7.2% | 272 | -3.7% | 262 | -0.6% | 260 | 1.2% | 263 | 4.4% |
| **Silver Peak** | -9.3% | 117 | 9.4% | 128 | 3.4% | 132 | -3.2% | 128 | 4.0% | 133 | -7.6% | 123 | -1.1% | 122 | -17.2% |
| **Eureka County** | 23.9% | 1,994 | 0.8% | 2,011 | 0.7% | 2,024 | -6.0% | 1,903 | -2.2% | 1,862 | 5.2% | 1,959 | -1.4% | 1,932 | 1.0% |
| **Crescent Valley** | 33.8% | 396 | -6.5% | 370 | 0.2% | 371 | 0.8% | 374 | 0.0% | 374 | -0.5% | 372 | 2.0% | 380 | -3.2% |
| **Eureka (town)** | 22.4% | 611 | 17.3% | 717 | 0.4% | 720 | -3.9% | 691 | 0.8% | 697 | 5.1% | 732 | -4.3% | 701 | 4.8% |
| **Humboldt County** | -6.7% | 17,135 | 1.5% | 17,384 | 0.4% | 17,457 | -0.4% | 17,388 | -1.9% | 17,057 | -1.2% | 16,853 | 0.7% | 16,978 | 0.1% |
| **Winnemucca** | -1.5% | 7,839 | 2.0% | 7,997 | 2.4% | 8,185 | -1.8% | 8,042 | -3.0% | 7,802 | -0.4% | 7,772 | 2.3% | 7,947 | -1.1% |
| **Lander County** | -0.1% | 5,988 | 3.9% | 6,221 | 2.0% | 6,343 | 3.4% | 6,560 | -4.8% | 6,247 | 0.2% | 6,257 | -0.9% | 6,200 | -2.2% |
| **Austin** | -45.2% | 171 | 1.0% | 173 | -2.2% | 169 | 0.7% | 170 | -2.6% | 166 | 0.3% | 166 | 0.0% | 166 | 0.2% |
| **Battle Mountain** | 13.8% | 3,326 | 2.9% | 3,421 | 6.9% | 3,657 | 4.0% | 3,804 | -6.1% | 3,573 | -0.4% | 3,559 | -2.4% | 3,473 | -2.5% |
| **Kingston** | -61.9% | 125 | -0.9% | 124 | 0.1% | 124 | 2.9% | 128 | -5.9% | 120 | 13.3% | 136 | -9.5% | 123 | -0.5% |
| **Lincoln County** | 14.1% | 5,284 | -3.5% | 5,100 | -1.6% | 5,020 | -0.3% | 5,004 | 1.7% | 5,088 | -0.6% | 5,057 | 2.2% | 5,170 | 1.6% |
| **Caliente** | -8.5% | 1,047 | 4.0% | 1,089 | -1.9% | 1,068 | -1.1% | 1,056 | -0.7% | 1,049 | -1.7% | 1,031 | 3.4% | 1,066 | 1.6% |
| **Alamo** | 24.7% | 627 | -7.0% | 583 | 0.0% | 583 | -0.9% | 578 | 0.3% | 580 | 13.8% | 660 | 2.0% | 673 | 1.6% |
| **Panaca** | 24.8% | 781 | 6.5% | 832 | -2.5% | 811 | -1.7% | 797 | -1.8% | 783 | 1.9% | 798 | -0.2% | 797 | 1.6% |
| **Pioche** | 11.2% | 933 | -13.2% | 810 | -2.5% | 790 | -0.7% | 784 | -5.1% | 744 | 3.9% | 773 | 1.4% | 784 | 1.6% |
| **Lyon County** | 0.2% | 52,443 | -0.4% | 52,245 | 1.4% | 52,960 | 0.7% | 53,344 | -0.1% | 53,277 | 0.7% | 53,644 | 1.9% | 54,657 | 1.6% |
| **Fernley** | 2.5% | 18,896 | -0.3% | 18,831 | 0.8% | 18,987 | 0.5% | 19,077 | -0.7% | 18,936 | 0.6% | 19,042 | 1.4% | 19,300 | 2.5% |
| **Yerington** | 4.3% | 3,165 | -2.3% | 3,094 | 0.4% | 3,106 | -0.4% | 3,095 | 3.1% | 3,191 | -0.9% | 3,162 | 1.3% | 3,202 | 6.9% |
| **Mineral County** | 2.9% | 4,601 | 1.7% | 4,679 | -0.4% | 4,662 | -1.7% | 4,584 | -1.0% | 4,539 | 0.9% | 4,578 | 2.1% | 4,674 | 0.3% |
| **Hawthorne** | -5.8% | 3,008 | 2.6% | 3,086 | -0.3% | 3,076 | -1.7% | 3,023 | 0.4% | 3,035 | -5.5% | 2,868 | 6.9% | 3,066 | 0.0% |
| **Luning** | 12.8% | 88 | 12.3% | 99 | 1.0% | 100 | -1.8% | 98 | 3.1% | 101 | 22.1% | 123 | -15.2% | 105 | 1.6% |
| **Mina** | -27.5% | 129 | 25.3% | 162 | 0.9% | 163 | -1.6% | 160 | -4.9% | 153 | 13.6% | 173 | -0.2% | 173 | 0.7% |
| **Walker Lake** | -3.5% | 307 | 13.7% | 349 | -0.7% | 346 | -5.0% | 329 | 14.7% | 378 | 6.8% | 403 | -20.1% | 322 | 1.6% |
| **Nye County** | -2.1% | 44,513 | -0.5% | 44,292 | 1.0% | 44,749 | 1.6% | 45,456 | 1.3% | 46,050 | -0.7% | 45,737 | 1.4% | 46,390 | 3.2% |
| **Amargosa** | -10.8% | 1,331 | 1.7% | 1,353 | -0.8% | 1,342 | 6.2% | 1,426 | -2.1% | 1,396 | -0.4% | 1,390 | -3.3% | 1,344 | -1.2% |
| **Beatty** | 6.0% | 979 | 3.2% | 1,011 | -4.5% | 966 | 1.0% | 975 | -0.2% | 973 | -2.3% | 950 | 1.2% | 961 | 1.4% |
| **Gabbs** | -7.2% | 282 | -3.9% | 271 | -4.4% | 259 | -5.6% | 245 | -5.6% | 231 | -2.1% | 226 | -3.4% | 218 | 0.6% |
| **Manhattan** | -9.0% | 121 | 3.4% | 125 | -0.7% | 124 | 6.9% | 133 | 0.9% | 134 | -2.7% | 130 | -3.3% | 126 | 1.7% |
| **Pahrump** | -2.1% | 36,995 | -1.1% | 36,593 | 1.2% | 37,030 | 1.6% | 37,626 | 2.3% | 38,482 | -0.6% | 38,238 | 2.1% | 39,023 | 3.7% |
| **Round Mountain** | -4.3% | 771 | 4.9% | 809 | 1.6% | 822 | 2.9% | 846 | -1.0% | 837 | -4.6% | 799 | -3.3% | 772 | -0.5% |
| **Tonopah** | -5.7% | 2,346 | 8.8% | 2,552 | 1.6% | 2,593 | -0.6% | 2,578 | -9.0% | 2,345 | -2.3% | 2,291 | 0.9% | 2,311 | -2.2% |
| **Pershing County** | -4.0% | 6,847 | 2.4% | 7,013 | -1.9% | 6,882 | -2.4% | 6,714 | 0.5% | 6,750 | -0.8% | 6,693 | 0.7% | 6,743 | 1.7% |
| **Lovelock** | -4.5% | 2,171 | -10.8% | 1,936 | 2.6% | 1,987 | -1.8% | 1,952 | -3.1% | 1,893 | 1.2% | 1,915 | 0.9% | 1,933 | 1.7% |
| **Imlay** | -31.3% | 160 | 16.1% | 186 | 31.5% | 244 | 5.4% | 257 | -23.9% | 196 | 6.0% | 208 | -0.3% | 207 | -2.0% |
| **Storey County** | -2.6% | 4,123 | -0.5% | 4,103 | -2.1% | 4,017 | -1.1% | 3,974 | 0.3% | 3,984 | 1.5% | 4,043 | 1.0% | 4,084 | 3.5% |
| **Gold Hill** | 17.8% | 238 | -14.1% | 204 | -2.1% | 200 | 0.6% | 201 | 0.0% | 201 | 1.2% | 204 | -0.8% | 202 | 2.7% |
| **Virginia City** | -13.9% | 859 | -3.4% | 830 | 1.3% | 841 | -1.1% | 832 | 0.0% | 831 | 1.6% | 845 | 0.6% | 850 | 4.4% |
| **Washoe County** | 1.0% | 421,593 | 1.4% | 427,704 | 1.1% | 432,324 | 1.0% | 436,797 | 1.2% | 441,946 | 1.4% | 448,316 | 0.8% | 451,923 | 1.8% |
| **Reno** | 2.5% | 222,801 | 3.2% | 229,859 | 1.0% | 232,243 | 1.3% | 235,371 | 1.4% | 238,615 | 1.5% | 242,158 | 1.0% | 244,612 | 1.7% |
| **Sparks** | 0.0% | 92,302 | -2.3% | 90,214 | 1.5% | 91,551 | 0.9% | 92,396 | 1.3% | 93,581 | 2.3% | 95,726 | 1.3% | 96,928 | 3.3% |
| **White Pine County** | 5.3% | 10,002 | -0.6% | 9,945 | 1.5% | 10,095 | 1.2% | 10,218 | 1.2% | 10,336 | 0.8% | 10,413 | 2.8% | 10,705 | -0.2% |
| **Ely** | -3.4% | 4,089 | -0.6% | 4,066 | 0.8% | 4,100 | 1.6% | 4,165 | -2.6% | 4,056 | 0.2% | 4,065 | 4.9% | 4,267 | -2.8% |
| **Lund** | 27.8% | 207 | -0.4% | 206 | 0.2% | 206 | 0.8% | 208 | -5.5% | 197 | 2.9% | 202 | 1.2% | 205 | 0.7% |
| **McGill** | 5.4% | 1,168 | 0.6% | 1,175 | 0.2% | 1,177 | 2.0% | 1,200 | -3.2% | 1,161 | 0.4% | 1,166 | 2.2% | 1,191 | -0.4% |
| **Ruth** | 5.3% | 420 | -0.5% | 418 | 1.5% | 424 | 1.2% | 429 | 1.2% | 434 | 0.8% | 437 | 2.8% | 450 | -0.2% |

*Issued by the Nevada Department of Taxation per NRS 360.283 for Certification by the Governor on or before March 1, 2025
†Census counts are for reference only and are not part of the annual estimates certified by the Governor

# Annual Report on the Estimated Population of Towns, Cities and Counties in the State of Nevada as of July 1, 2024*
## Including the Governor's Certified Estimates from July 1, 2004 to July 1, 2023

| | JULY 1 2018 | Percent Change 7/18 - 7/19 | JULY 1 2019 | Percent Change 7/19 - 7/20 | CENSUS April 1 2020† | JULY 1 2020 | Percent Change 4/20 - 7/21 | Percent Change 7/20 - 7/21 | JULY 1 2021 | Percent Change 7/21 - 7/22 | JULY 1 2022 | Percent Change 7/22 - 7/23 | *JULY 1 2023* | Percent Change 7/23 - 7/24 | *JULY 1 2024* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **State of Nevada** | 3,057,582 | 1.8% | 3,112,937 | 1.0% | 3,104,614 | 3,145,184 | 1.7% | 0.4% | 3,158,539 | 1.4% | 3,204,105 | 1.2% | 3,241,678 | 1.3% | *3,282,911* |
| **Counties** | | | | | | | | | | | | | | | |
| **Incorp. Cities** | | | | | | | | | | | | | | | |
| **Unincorp. Towns** | | | | | | | | | | | | | | | |
| **Carson City** | 56,057 | 0.2% | 56,151 | 0.5% | 58,639 | 56,434 | -2.7% | 1.1% | 57,073 | 2.2% | 58,314 | 1.0% | 58,923 | 2.3% | *60,266* |
| **Churchill County** | 25,628 | 0.8% | 25,832 | 1.4% | 25,516 | 26,202 | 3.1% | 0.4% | 26,310 | 1.0% | 26,564 | 1.4% | 26,940 | 1.2% | *27,253* |
| **Fallon** | 9,125 | 0.6% | 9,184 | -1.2% | 9,327 | 9,077 | -2.2% | 0.5% | 9,123 | 2.0% | 9,308 | 2.6% | 9,551 | 0.6% | *9,610* |
| **Clark County** | 2,251,175 | 1.9% | 2,293,391 | 1.2% | 2,265,461 | 2,320,107 | 2.4% | 0.0% | 2,320,551 | 0.8% | 2,338,127 | 1.0% | 2,361,285 | 1.3% | *2,392,490* |
| **Boulder City** | 15,887 | 1.9% | 16,188 | -0.4% | 14,885 | 16,127 | 2.0% | -5.8% | 15,189 | -1.2% | 15,012 | -0.4% | 14,958 | -0.9% | *14,830* |
| **Henderson** | 310,244 | 2.4% | 317,660 | 1.6% | 317,610 | 322,800 | 4.1% | 2.4% | 330,561 | 1.2% | 334,640 | 2.2% | 341,980 | 2.6% | *350,706* |
| **Las Vegas** | 644,113 | 1.4% | 653,350 | 0.3% | 641,903 | 655,489 | 3.6% | 1.4% | 664,960 | -0.6% | 660,987 | 0.9% | 666,780 | 1.0% | *673,334* |
| **Mesquite** | 22,557 | 5.6% | 23,827 | 4.8% | 20,471 | 24,971 | 12.3% | -8.0% | 22,981 | -3.4% | 22,205 | 2.3% | 22,711 | 3.8% | *23,576* |
| **North Las Vegas** | 248,701 | 2.7% | 255,327 | 1.3% | 262,527 | 258,761 | 5.0% | 6.6% | 275,733 | 1.1% | 278,671 | 1.4% | 282,496 | 1.5% | *286,666* |
| **Bunkerville** | 1,049 | 1.0% | 1,060 | -1.5% | 1,010 | 1,044 | -2.3% | -5.5% | 987 | -4.6% | 942 | -1.8% | 925 | 0.9% | *934* |
| **Enterprise** | 206,266 | 2.7% | 211,761 | 4.0% | 213,073 | 220,237 | 4.4% | 1.0% | 222,522 | 5.4% | 234,517 | 4.0% | 243,834 | 2.4% | *249,741* |
| **Indian Springs** | 1,138 | 12.8% | 1,283 | 3.0% | 1,279 | 1,322 | -13.3% | -16.2% | 1,108 | 27.3% | 1,411 | 9.7% | 1,547 | -0.8% | *1,534* |
| **Laughlin** | 10,017 | -0.2% | 10,001 | 3.0% | 9,971 | 10,306 | -6.6% | -9.6% | 9,313 | -3.5% | 8,990 | -1.1% | 8,888 | -0.3% | *8,858* |
| **Moapa** | 1,433 | -0.1% | 1,430 | -0.7% | 1,374 | 1,420 | -7.3% | -10.3% | 1,274 | 2.9% | 1,311 | -2.5% | 1,278 | -0.2% | *1,276* |
| **Moapa Valley** | 7,231 | 1.9% | 7,368 | 1.2% | 7,215 | 7,458 | -14.6% | -17.4% | 6,163 | 2.8% | 6,335 | -0.7% | 6,292 | -0.8% | *6,242* |
| **Mt. Charleston** | 682 | 2.6% | 700 | -2.4% | 661 | 683 | 11.2% | 7.6% | 735 | -0.4% | 732 | 2.0% | 747 | -1.2% | *738* |
| **Paradise** | 196,586 | 2.1% | 200,698 | 0.6% | 195,245 | 201,810 | -1.4% | -4.6% | 192,552 | -1.3% | 190,003 | -0.4% | 189,229 | -0.4% | *188,387* |
| **Searchlight** | 367 | 4.0% | 382 | 2.1% | 377 | 390 | 17.2% | 13.4% | 442 | -0.6% | 439 | -6.0% | 413 | 0.7% | *416* |
| **Spring Valley** | 224,158 | 1.1% | 226,723 | 1.4% | 222,388 | 229,865 | -3.4% | -6.5% | 214,862 | 1.7% | 218,452 | 0.5% | 219,492 | 2.1% | *224,164* |
| **Summerlin** | 31,894 | 1.0% | 32,199 | 2.6% | 31,977 | 33,052 | 3.1% | -0.3% | 32,957 | 0.2% | 33,015 | 3.8% | 34,256 | 0.8% | *34,532* |
| **Sunrise Manor** | 213,341 | 1.3% | 216,021 | 0.2% | 209,310 | 216,348 | 0.4% | -2.8% | 210,189 | 0.2% | 210,610 | -0.5% | 209,587 | -0.3% | *208,974* |
| **Whitney** | 45,419 | 2.0% | 46,328 | 0.4% | 45,014 | 46,528 | 5.4% | 1.9% | 47,426 | -2.5% | 46,256 | -0.8% | 45,901 | 1.5% | *46,606* |
| **Winchester** | 33,402 | 2.1% | 34,095 | 0.5% | 33,153 | 34,268 | 4.8% | 1.4% | 34,749 | -2.0% | 34,064 | -1.9% | 33,402 | -0.1% | *33,366* |
| **Douglas County** | 49,070 | 1.0% | 49,537 | -0.9% | 49,488 | 49,082 | 0.3% | 1.2% | 49,661 | 6.1% | 52,674 | 3.2% | 54,343 | 2.7% | *55,797* |
| **Gardnerville** | 5,874 | 2.8% | 6,036 | -1.7% | 5,982 | 5,933 | 3.4% | 4.3% | 6,188 | -10.3% | 5,553 | 2.1% | 5,667 | 1.5% | *5,750* |
| **Genoa** | 219 | 0.8% | 220 | -1.0% | 220 | 218 | -3.3% | -2.5% | 213 | 1.1% | 215 | 0.5% | 217 | 2.5% | *222* |
| **Minden** | 3,270 | 0.7% | 3,293 | 0.0% | 3,321 | 3,294 | 4.2% | 5.1% | 3,460 | -4.0% | 3,323 | 7.1% | 3,559 | 8.4% | *3,856* |
| **Elko County** | 54,326 | 1.5% | 55,116 | 0.6% | 53,702 | 55,435 | 1.6% | -1.6% | 54,546 | 3.4% | 56,396 | 2.0% | 57,538 | 0.8% | *57,989* |
| **Carlin** | 2,613 | 1.9% | 2,663 | 0.4% | 2,050 | 2,674 | 27.6% | -2.2% | 2,615 | -3.2% | 2,531 | 1.9% | 2,578 | -1.2% | *2,546* |
| **Elko** | 21,158 | 0.2% | 21,199 | 1.4% | 20,564 | 21,492 | 2.0% | -2.4% | 20,976 | 1.6% | 21,303 | 1.9% | 21,707 | 1.8% | *22,090* |
| **Wells** | 1,365 | 0.1% | 1,366 | -5.1% | 1,237 | 1,296 | 2.9% | -1.8% | 1,272 | -0.1% | 1,272 | 1.4% | 1,290 | 3.4% | *1,334* |
| **West Wendover** | 4,406 | 1.4% | 4,469 | 1.5% | 4,512 | 4,535 | -1.3% | -1.8% | 4,452 | 0.3% | 4,464 | 1.7% | 4,540 | -0.4% | *4,524* |
| **Jackpot** | 865 | 13.0% | 978 | -1.7% | 958 | 961 | -1.4% | -1.8% | 944 | 21.6% | 1,148 | 1.8% | 1,169 | -0.2% | *1,167* |
| **Montello** | 63 | 1.0% | 64 | -3.5% | 61 | 61 | -1.6% | -1.9% | 60 | 4.0% | 63 | 3.8% | 65 | -7.7% | *60* |
| **Mountain City** | 74 | 9.0% | 81 | -6.8% | 75 | 75 | -1.6% | -1.9% | 74 | 41.3% | 104 | -1.0% | 103 | -7.8% | *95* |
| **Esmeralda County** | 969 | 1.4% | 982 | 1.7% | 729 | 999 | 37.2% | 0.1% | 1,000 | 6.8% | 1,068 | -0.1% | 1,067 | 1.8% | *1,086* |
| **Goldfield** | 274 | 2.8% | 282 | 2.1% | 210 | 288 | 39.0% | 1.4% | 292 | 10.8% | 324 | 6.8% | 345 | 5.4% | *364* |
| **Silver Peak** | 101 | -0.5% | 100 | 0.6% | 74 | 101 | 23.5% | -9.8% | 91 | -3.4% | 88 | -21.0% | 69 | 3.8% | *72* |
| **Eureka County** | 1,951 | 0.2% | 1,955 | -1.0% | 1,855 | 1,936 | 2.3% | -2.0% | 1,898 | -2.7% | 1,847 | -3.8% | 1,776 | 4.3% | *1,852* |
| **Crescent Valley** | 367 | 3.7% | 381 | -2.7% | 355 | 370 | 5.9% | 1.5% | 376 | -17.9% | 309 | -3.8% | 297 | 4.0% | *309* |
| **Eureka (town)** | 734 | -2.4% | 717 | -2.2% | 671 | 701 | 1.9% | -2.4% | 684 | -4.0% | 657 | -3.2% | 635 | 3.4% | *657* |
| **Humboldt County** | 16,989 | 0.5% | 17,079 | -0.1% | 17,285 | 17,064 | -0.5% | 0.8% | 17,202 | 4.2% | 17,921 | -1.3% | 17,696 | 0.6% | *17,801* |
| **Winnemucca** | 7,856 | 0.6% | 7,903 | 0.4% | 8,431 | 7,937 | -1.5% | 4.6% | 8,306 | 3.0% | 8,554 | -0.4% | 8,518 | 0.7% | *8,577* |
| **Lander County** | 6,065 | 0.7% | 6,109 | 3.5% | 5,734 | 6,324 | 8.0% | -2.0% | 6,195 | -0.6% | 6,158 | -0.6% | 6,121 | 2.2% | *6,255* |
| **Austin** | 167 | -6.2% | 156 | 0.9% | 143 | 158 | 7.0% | -3.0% | 153 | 6.4% | 163 | -6.3% | 153 | 11.4% | *170* |
| **Battle Mountain** | 3,387 | 0.1% | 3,391 | 2.7% | 3,157 | 3,482 | 8.5% | -1.7% | 3,424 | -7.8% | 3,158 | 0.0% | 3,159 | 3.2% | *3,261* |
| **Kingston** | 123 | -0.5% | 122 | 5.7% | 117 | 129 | 7.8% | -2.3% | 126 | -0.9% | 125 | 0.7% | 126 | 7.4% | *135* |
| **Lincoln County** | 5,255 | 0.2% | 5,264 | 0.5% | 4,499 | 5,293 | 15.3% | -2.0% | 5,188 | -4.2% | 4,971 | -3.3% | 4,808 | -1.6% | *4,730* |
| **Caliente** | 1,084 | 0.2% | 1,086 | 4.4% | 990 | 1,133 | 11.1% | -2.9% | 1,100 | 6.1% | 1,167 | -4.5% | 1,114 | -7.2% | *1,034* |
| **Alamo** | 684 | 0.2% | 686 | 3.1% | 596 | 707 | -0.8% | -16.4% | 591 | 22.1% | 721 | -10.2% | 648 | 1.3% | *656* |
| **Panaca** | 810 | 0.2% | 811 | 1.6% | 695 | 824 | 21.0% | 2.1% | 841 | 2.4% | 861 | 1.3% | 872 | -2.9% | *847* |
| **Pioche** | 797 | 0.2% | 798 | 1.4% | 683 | 809 | 18.6% | 0.1% | 810 | 26.0% | 1,020 | 4.1% | 1,062 | -1.2% | *1,049* |
| **Lyon County** | 55,551 | 1.7% | 56,497 | 2.0% | 59,235 | 57,629 | -2.0% | 0.7% | 58,051 | 4.1% | 60,454 | 4.5% | 63,179 | 3.1% | *65,116* |
| **Fernley** | 19,790 | 3.1% | 20,396 | 2.5% | 22,895 | 20,901 | -7.8% | 1.0% | 21,105 | 10.0% | 23,210 | 5.1% | 24,394 | 3.8% | *25,311* |
| **Yerington** | 3,424 | -0.2% | 3,418 | 2.1% | 3,121 | 3,488 | 13.4% | 1.4% | 3,538 | -3.2% | 3,423 | 3.4% | 3,541 | 1.3% | *3,586* |
| **Mineral County** | 4,690 | 0.9% | 4,730 | 3.5% | 4,554 | 4,896 | 6.0% | -1.4% | 4,826 | 0.9% | 4,870 | -0.6% | 4,842 | -1.5% | *4,770* |
| **Hawthorne** | 3,065 | 1.2% | 3,100 | 3.0% | 2,969 | 3,192 | 6.2% | -1.3% | 3,152 | 2.7% | 3,236 | -0.7% | 3,214 | -1.6% | *3,164* |
| **Luning** | 106 | 0.9% | 107 | -8.7% | 91 | 98 | 1.0% | -6.0% | 92 | 11.0% | 102 | 0.7% | 103 | -16.4% | *86* |
| **Mina** | 174 | 0.1% | 174 | 2.4% | 166 | 179 | -7.4% | -13.8% | 154 | -6.8% | 144 | -8.1% | 132 | -11.3% | *117* |
| **Walker Lake** | 327 | 0.9% | 330 | 2.0% | 313 | 337 | 1.2% | -5.9% | 317 | -16.9% | 263 | -0.8% | 261 | -0.2% | *261* |
| **Nye County** | 47,856 | 1.3% | 48,472 | -0.1% | 51,591 | 48,414 | -4.5% | 1.8% | 49,289 | 4.1% | 51,334 | 2.2% | 52,478 | -1.3% | *51,802* |
| **Amargosa** | 1,327 | 0.0% | 1,327 | 7.9% | 1,527 | 1,433 | -8.2% | -2.2% | 1,401 | 27.3% | 1,783 | 3.0% | 1,836 | -9.5% | *1,662* |
| **Beatty** | 974 | 2.5% | 998 | -6.4% | 996 | 935 | -3.7% | 2.6% | 959 | 10.4% | 1,059 | 3.8% | 1,099 | -4.5% | *1,049* |
| **Gabbs** | 220 | 0.7% | 221 | -39.9% | 142 | 133 | 47.5% | 57.2% | 209 | 6.8% | 223 | -2.4% | 218 | -8.7% | *199* |
| **Manhattan** | 128 | 7.3% | 138 | -3.4% | 142 | 133 | -8.3% | -2.2% | 130 | 9.1% | 142 | 3.1% | 146 | -54.9% | *66* |
| **Pahrump** | 40,473 | 1.5% | 41,069 | 1.0% | 44,204 | 41,482 | -5.1% | 1.1% | 41,940 | 2.1% | 42,828 | 2.7% | 43,984 | -1.0% | *43,563* |
| **Round Mountain** | 768 | -0.7% | 763 | -2.5% | 793 | 744 | -7.5% | -1.4% | 734 | 4.3% | 765 | 4.9% | 803 | -12.1% | *706* |
| **Tonopah** | 2,259 | -4.3% | 2,163 | -15.7% | 1,942 | 1,823 | 11.7% | 19.1% | 2,170 | 14.9% | 2,493 | 9.2% | 2,722 | 4.7% | *2,851* |
| **Pershing County** | 6,858 | 1.1% | 6,935 | 0.7% | 6,650 | 6,983 | 5.0% | 0.0% | 6,984 | 5.2% | 7,344 | 1.6% | 7,464 | -3.8% | *7,184* |
| **Lovelock** | 1,965 | 1.0% | 1,985 | 3.1% | 1,805 | 2,046 | 12.4% | -0.8% | 2,029 | 2.7% | 2,084 | -0.3% | 2,079 | -12.4% | *1,821* |
| **Imlay** | 203 | 2.5% | 208 | 6.1% | 217 | 221 | -2.2% | -4.0% | 212 | 2.0% | 216 | 2.5% | 222 | 1.6% | *225* |
| **Storey County** | 4,227 | 0.7% | 4,258 | 1.1% | 4,104 | 4,304 | 6.2% | 1.3% | 4,359 | 1.6% | 4,427 | 0.6% | 4,454 | 0.1% | *4,457* |
| **Gold Hill** | 207 | -0.6% | 206 | 7.6% | 212 | 222 | 0.1% | -4.5% | 212 | 7.5% | 228 | 0.5% | 229 | -1.8% | *225* |
| **Virginia City** | 887 | 1.9% | 904 | -12.0% | 759 | 796 | 22.8% | 17.1% | 932 | -1.5% | 918 | -2.0% | 900 | -0.4% | *896* |
| **Washoe County** | 460,237 | 2.1% | 469,801 | 0.8% | 486,492 | 473,606 | -0.3% | 2.4% | 485,113 | 3.4% | 501,635 | 1.4% | 508,759 | 1.0% | *513,854* |
| **Reno** | 248,806 | 2.6% | 255,170 | 1.2% | 264,165 | 258,230 | 0.1% | 2.4% | 264,318 | 3.7% | 274,129 | 1.2% | 277,517 | 1.3% | *281,015* |
| **Sparks** | 100,140 | 2.4% | 102,543 | 0.7% | 108,445 | 103,230 | -0.9% | 4.1% | 107,489 | 4.0% | 111,735 | 1.9% | 113,816 | 1.3% | *115,240* |
| **White Pine County** | 10,678 | 1.4% | 10,826 | -3.2% | 9,080 | 10,477 | 13.4% | -1.8% | 10,293 | -2.8% | 10,001 | 0.0% | 10,005 | 2.0% | *10,209* |
| **Ely** | 4,149 | 1.6% | 4,217 | 1.4% | 3,924 | 4,275 | 5.5% | -3.2% | 4,138 | -3.0% | 4,015 | -1.5% | 3,954 | 2.0% | *4,032* |
| **Lund** | 206 | -0.6% | 205 | -0.3% | 170 | 205 | 22.3% | 1.7% | 208 | -0.3% | 207 | -0.9% | 205 | 4.1% | *214* |
| **McGill** | 1,186 | 0.1% | 1,187 | 2.0% | 1,007 | 1,211 | 19.2% | -0.9% | 1,201 | -1.4% | 1,184 | -3.1% | 1,148 | 1.7% | *1,167* |
| **Ruth** | 448 | 1.4% | 455 | -3.2% | 366 | 440 | 18.1% | -1.8% | 432 | -0.6% | 430 | -3.2% | 416 | 1.7% | *423* |

*Issued by the Nevada Department of Taxation per NRS 360.283 for Certification by the Governor on or before March 1, 2025
†Census counts are for reference only and are not part of the annual estimates certified by the Governor

# LF-4

**Indicator Report**
Run Date March 18, 2026

# LVCVA Tourism Tracker

Indicator: Hotel Room Inventory
Source: Las Vegas Convention and Visitors Authority
Units: Rooms
Geography: Las Vegas Area (NV)

| Monthly | | Year-Over-Year Change | |
|---|---|---|---|
| Month | Value | Value | Percent |
| Jan-2024 | 156,100 | | |
| Feb-2024 | 156,190 | | |
| Mar-2024 | 156,173 | | |
| Apr-2024 | 154,745 | | |
| May-2024 | 154,035 | | |
| Jun-2024 | 153,719 | | |
| Jul-2024 | 152,257 | | |
| Aug-2024 | 150,679 | | |
| Sep-2024 | 150,679 | | |
| Oct-2024 | 150,646 | | |
| Nov-2024 | 150,859 | | |
| Dec-2024 | 150,612 | | |
| Jan-2025 | 150,325 | -5,775 | -3.7% |
| Feb-2025 | 150,509 | -5,681 | -3.6% |
| Mar-2025 | 150,757 | -5,416 | -3.5% |
| Apr-2025 | 150,818 | -3,927 | -2.5% |
| May-2025 | 150,909 | -3,126 | -2.0% |
| Jun-2025 | 150,220 | -3,499 | -2.3% |
| Jul-2025 | 149,410 | -2,847 | -1.9% |
| Aug-2025 | 149,653 | -1,026 | -0.7% |
| Sep-2025 | 150,059 | -620 | -0.4% |
| Oct-2025 | 150,126 | -520 | -0.3% |
| Nov-2025 | 149,971 | -888 | -0.6% |
| Dec-2025 | 150,300 | -312 | -0.2% |

# LF-5

# 2025-2060 Population Forecasts

LONG-TERM PROJECTIONS FOR CLARK COUNTY, NEVADA

May 2025

Prepared by
Center for Business and Economic Research

Prepared for
Regional Transportation Commission of Southern Nevada,
Southern Nevada Water Authority,
and members of the Forecasting Group

UNLV | LEE BUSINESS SCHOOL
CENTER FOR BUSINESS AND ECONOMIC RESEARCH

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## Executive Summary

Since 1996, each year, the Regional Transportation Commission of Southern Nevada (RTC), the Southern Nevada Water Authority (SNWA), a group of community demographers and analysts, and the Center for Business and Economic Research (CBER) at the University of Nevada, Las Vegas work together to develop a long-term forecast of Clark County's population and its growth that is consistent with the structural economic characteristics of the county. Toward this end, CBER employs a general-equilibrium demographic and economic model developed by Regional Economic Models, Inc. (REMI), specifically for Clark County.

We recalibrate the REMI model to incorporate the most recent available information regarding local employment and its growth and known local public and private investment in large-scale projects. The resulting long-term forecast through 2060 predicts positive population growth throughout the range of the forecast. The Southern Nevada Regional Planning Coalition (SNRPC) estimates that Clark County's population was 2.42 million in 2024, a strong increase of 2.1 percent from 2023. We expect that Clark County's population will reach approximately 2.92 million by 2040, cross the 3 million mark in 2045, and attain nearly 3.23 million by 2060.

Table 1 summarizes the Clark County population forecast, which CBER predicts will grow robustly in the short term at rates of 1.7 and 1.7 percent in 2025 and 2026, respectively. The population growth rate will hit 2.0 percent in 2027 and decline over time with decreases in natural growth. The rate of growth, which decidedly exceeded the national average over the past 50 years, is expected to remain above the national growth rate, but the gap in growth rates between Clark County and the United States is predicted to narrow as Clark County is expected to age faster than the U.S. population due to lower birth rates and increasing ratio of retired migration to net migration over time. That is, its growth rate tapers off as Clark County's population ages over time. As the Clark County economy continues to mature, the population growth stabilizes around 0.4 percent after 2058.

Overall, the population forecast is lower than last year's forecast over the forecast horizon except between 2025 and 2032. The lower forecasts after 2032 mainly reflect differences between the out-of-box benchmark population growth forecasts in this year's and last year's REMI models. The out-of-the-box benchmark forecasts refer to the baseline predictions provided by the REMI model. In this year's model, the out-of-the-box population growth rate forecast is lower after 2027, mainly due to the lower net economic migration forecasts after 2028 and the lower birth rate predictions over the entire forecast period. In addition, the new data incorporated into the model and major adjustments with current employment and population data also contributed to the difference between this year and last year's forecasts.

As with any forecast, potential risks exist that could lead to either an over- or under-forecast of population and its growth rate. The data incorporated in the model is based on our current understanding of economic conditions and projected local investments. Any discrepancies in new information may lead to short-term variations in forecasts. Our long-term forecasts, however, exclude business-cycle, seasonal, resource constraints (e.g. land and water), and irregular events, such as fluctuations in national policy, which respond to short-run risks. In summary, our forecast primarily provides a long-term planning tool that addresses the trend movements in population, excluding the short-run business-cycle, seasonal, resource constraints (e.g. land and water), and irregular effects.

**Table 1. Clark County Final Population Forecast: 2015-2060**

| *Year* | *Population Forecast* | *Change in Population Forecast* | *Growth in Population Forecast* |
|---|---|---|---|
| 2015 | 2,147,641* | 45,403 | 2.2% |
| 2016 | 2,205,207* | 57,566 | 2.7% |
| 2017 | 2,248,390* | 43,183 | 2.0% |
| 2018 | 2,284,616* | 36,226 | 1.6% |
| 2019 | 2,325,798* | 41,182 | 1.8% |
| 2020 | 2,376,683* | 50,885 | 2.2% |
| 2021 | 2,333,092* | -43,591 | -1.8% |
| 2022 | 2,331,934* | -1,158 | -0.05% |
| 2023 | 2,371,586* | 39,652 | 1.7% |
| 2024 | 2,421,685* | 50,099 | 2.1% |
| 2025 | 2,463,000** | 41,315 | 1.7% |
| 2026 | 2,505,000** | 42,000 | 1.7% |
| 2027 | 2,554,000 | 49,000 | 2.0% |
| 2028 | 2,597,000 | 43,000 | 1.7% |
| 2029 | 2,636,000 | 39,000 | 1.5% |
| 2030 | 2,671,000 | 35,000 | 1.3% |
| 2031 | 2,703,000 | 32,000 | 1.2% |
| 2032 | 2,733,000 | 30,000 | 1.1% |
| 2033 | 2,760,000 | 27,000 | 1.0% |
| 2034 | 2,786,000 | 26,000 | 0.9% |
| 2035 | 2,810,000 | 24,000 | 0.9% |
| 2036 | 2,833,000 | 23,000 | 0.8% |
| 2037 | 2,856,000 | 23,000 | 0.8% |
| 2038 | 2,877,000 | 21,000 | 0.7% |
| 2039 | 2,897,000 | 20,000 | 0.7% |
| 2040 | 2,916,000 | 19,000 | 0.7% |
| 2041 | 2,935,000 | 19,000 | 0.7% |
| 2042 | 2,953,000 | 18,000 | 0.6% |
| 2043 | 2,970,000 | 17,000 | 0.6% |
| 2044 | 2,987,000 | 17,000 | 0.6% |
| 2045 | 3,003,000 | 16,000 | 0.5% |
| | | | |
| 2050 | 3,079,000 | 15,000 | 0.5% |
| | | | |
| 2055 | 3,153,000 | 15,000 | 0.5% |
| | | | |
| 2060 | 3,225,000 | 14,000 | 0.4% |

* SNRPC consensus population estimate.
**CBER Short-term forecast, April 2025.
Note: The changes and growth rates in population forecasts after 2045 are not cumulative. The forecast changes and growth rates represent the annual values. See Table C2 for the complete set of forecasts.

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## Acknowledgements

CBER thanks the members of the Population Forecasting Group for comments on earlier drafts of this report.

## I. Introduction

Since 1996, each year, the Regional Transportation Commission of Southern Nevada (RTC), the Southern Nevada Water Authority (SNWA), a group of community demographers and analysts, and the Center for Business and Economic Research (CBER) at the University of Nevada, Las Vegas work together to provide a long-term forecast of economic and demographic variables influencing Clark County. The primary goal is to develop a long-term forecast of the Clark County population and its growth that is consistent with the structural economic characteristics of the county. Toward this end, CBER employs a general-equilibrium demographic and economic model developed by Regional Economic Models, Inc. (REMI), specifically for Clark County.

The REMI model is a state-of-the-art econometric forecasting model that accounts for dynamic feedback between economic and demographic variables. Special features allow the user to update the model to include the most current economic information. CBER recalibrates the model using information on recent local employment levels, the most recent national Gross Domestic Product (GDP) forecast, and spending on locally known large-scale capital projects.

The model employed divides Nevada into five regions: Clark County; Nye County; Lincoln County; Washoe County; and the remaining counties, which are combined to form a fifth region. These regions are modeled using the U.S. economy as a backdrop. The model contains over 100 economic and demographic relationships that are carefully constructed to represent accurately and concisely the Clark County economy. The model includes equations to account for migration and trade between Nevada counties and other states and counties in the country.

The demographic and economic data used to construct the model begin in 2001 and end in 2022. The most important variables include the aggregate totals of employment, the labor force, and population. The economic data for the most recent version of the model (REMI PI+ v3.2) are consistent with the North American Industry Classification System (NAICS). The REMI PI+ v3.2 model was released in 2024. Hence, the model's most recent data come from 2022, since the Bureau of Economic Analysis (BEA) personal-income data only become available with a two-year lag. The availability of the most recent income data sets the last year of history with each release of an updated model.

The REMI model is the best model available for describing how economies interact geographically.[1] These interactions may take place within a single economy (such as the interaction between house-price growth and employment growth in Clark County) or between two economies (such as the interaction between Southern Nevada and Southern California through migration flows). These and over 100 other interactions contained within the model are too complex to consider modeling on our own. Rather, we turn to the REMI model because it has a solid foundation in economic theory and the principles of general-equilibrium-based growth and distribution theory, yet it still offers the flexibility required to model a regional economy like Clark County.

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[1] Schwer, R. K. and D. Rickman. 1995. A comparison of the multipliers of IMPLAN, REMI and RIMS II: Benchmarking ready-made models for comparison. *The Annals of Regional Science*, 29(4), 363-374.

To guarantee that the model incorporates the most recent, available data, we make a series of adjustments to the model. These adjustments ensure that the forecast model includes the most up-to-date national and local information when generating the final forecast. First, we update the model's national GDP forecast, using the latest available national economic data from the BEA and the latest forecast from the University of Michigan's Research Seminar in Quantitative Economics (RSQE). Second, we rebase the population forecast to the most recent population estimate for Clark County available from the Southern Nevada Regional Planning Coalition (SNRPC). Third, we update the model with current Clark County employment data from the Nevada Department of Employment, Training and Rehabilitation (DETR). Fourth, we adjust future hotel employment based on the expected number of hotel room additions provided by the Las Vegas Convention and Visitors Authority (LVCVA). Fifth, we incorporate planned public infrastructure investments into the model using information from the RTC. Lastly, we rebase the population forecasts that were generated by all the adjustments mentioned above with the most recent short-term Clark County population forecasts from CBER's quarterly economic forecasts and Economic Forecasting Committee.

This report proceeds as follows. Section II examines the changes in the REMI model (out-of-the-box benchmark forecast) from the prior years' models. Section III presents sequentially the changes made to update the model and tailor it to more recent Clark County information. Section IV reports the population forecast and gives a brief discussion of the economic environment surrounding the forecast. Section V compares the population growth rate forecast with the previous years' forecasts. Section VI discusses the risks to the forecast. Finally, section VII concludes.

## II. Comparison of REMI Models: Current and Previous Year

Based on past practice, we begin by comparing the most recent REMI out-of-the-box benchmark forecast prior to any model adjustments with the corresponding out-of-the-box benchmark forecasts from the REMI models used in prior reports. This allows us to examine how the new model differs from previous versions and to explore the basis of these differences.

The most recent data used to develop this year's REMI model ends with observations from 2022. Thus, we refer to the current model by its last historical year 2022 (LHY2022) and the previous model by its last historical year 2021 (LHY2021).

Each year, the REMI staff and users discuss how the model works and propose adjustments and changes to improve the model's performance. The newest REMI model, PI+ v3.2, offers two major improvements. First, it incorporated the 2023 Census national population projection assumptions. Second, it incorporates the BEA's comprehensive updates and revised methodology for estimating county output by industry.

In November 2023, the U.S. Census Bureau released an updated set of population projections and assumptions. While the previous update was made in 2017, the projections REMI had used were from 2014, as they were the most recent set that included birth rates and survival rates by sex, race, age, and Hispanic origin. The new projections offer data for several racial combinations, but they distinguish between native-born and foreign-born populations. REMI incorporated these updated projections and worked to align the birth rates and survival rates for racial groups in the model accordingly. Although the new Census projections include estimates for international migration, REMI used the Congressional Budget Office (CBO)'s projections, as CBO updates its estimates annually, whereas the Census does not.

This update resulted in reduced birth rate projections throughout the forecast period, particularly for Clark County. The average birth rate between 2025 and 2060 decreased from 0.043 to 0.041, which led to negative natural growth starting in 2037 with the LHY2022 projections, compared to 2040 with the LHY2021 projections. Additionally, the CBO's net international migration projections show a significant surge from 2024 to 2026. As a result, net international migration is projected to be around 9,000-10,000 annually, except for 2024 to 2026, where projections are 28,000 in 2024, 22,000 in 2025, and 15,000 in 2026 for Clark County. This increase in migration partly leads to an average of 1,000 more net international migrants annually from 2025 to 2060 in the LHY2022 projections compared to the LHY2021 projections.

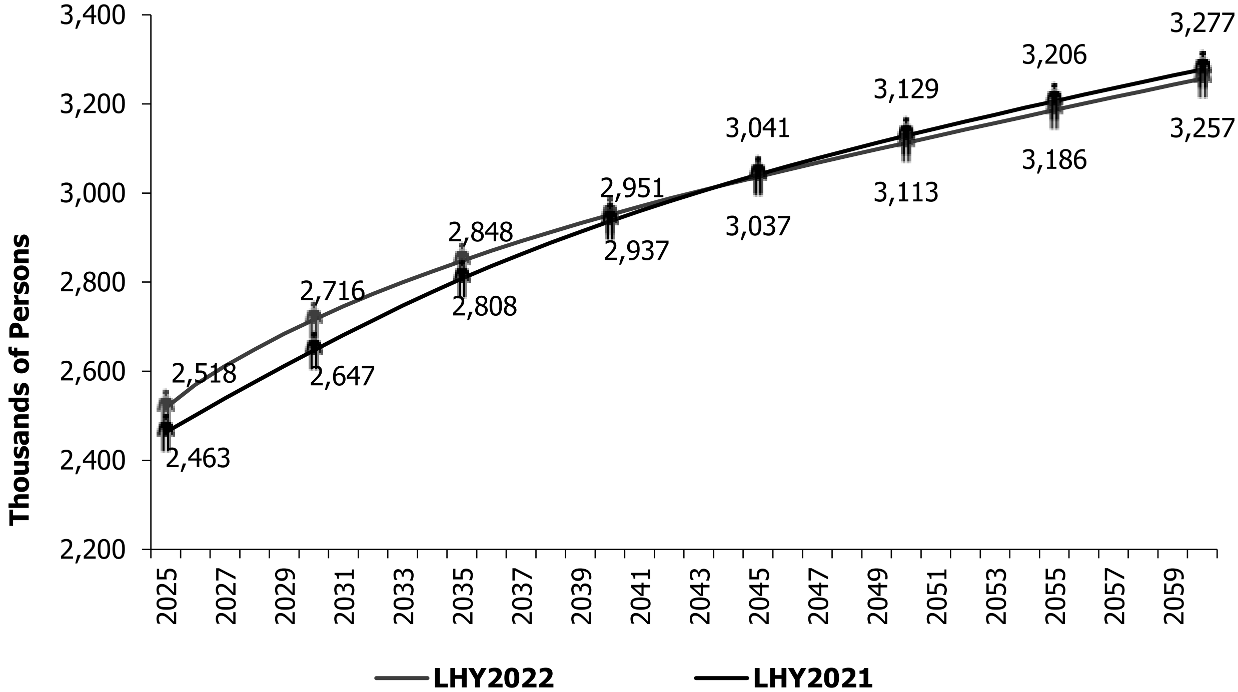
The LHY2022 model incorporates the BEA's comprehensive updates and revised methodology for estimating county output. This includes the most recent data for 2022 and revisions to historical data dating back to 2001. These updates are crucial because the additional year of data, along with revisions to historical employment and population estimates, influence calculations such as Relative Employment Opportunity (REO) and Relative Wage Rate (RWR), which, in turn, impact future economic migration patterns. The updates led to lower RWR forecasts for LHY2022 compared to LHY2021 after 2026, but higher REO projections for LHY2022 relative to LHY2021 throughout the forecast period. The combined effect of these changes resulted in higher net economic migration between 2025 and 2028, but lower migration from 2029 to 2059 for LHY2022 compared to LHY2021.

These updates lead to differences in the out-of-the-box population forecasts between the LHY2022 and LHY2021 models.

Figures 1 and 2 compare the LHY2022 and LHY2021 population forecasts from the out-of-the-box models (i.e., before any updating for employment, infrastructure projects, the national GDP forecast, etc.).[2] The population forecast derived from the LHY2022 model indicates higher population levels until 2043. The disparity between the LHY2022 and LHY2021 forecasts begins at 54,800 and expands to 73,000 by 2028. This gap starts to narrow, however, and by 2044, the LHY2021 forecast exceeds that of LHY2022. By 2060, the LHY2022 forecasted population is expected to reach 3.26 million, which is 21,000 lower than LHY2021's projection of 3.28 million. The narrowing gap from 2029 onward reflects lower population growth projections in LHY2022 compared to LHY2021 from 2028, as shown in Figure 2, while the widening gap in earlier years results from higher growth projections in LHY2022 relative to LHY2021.

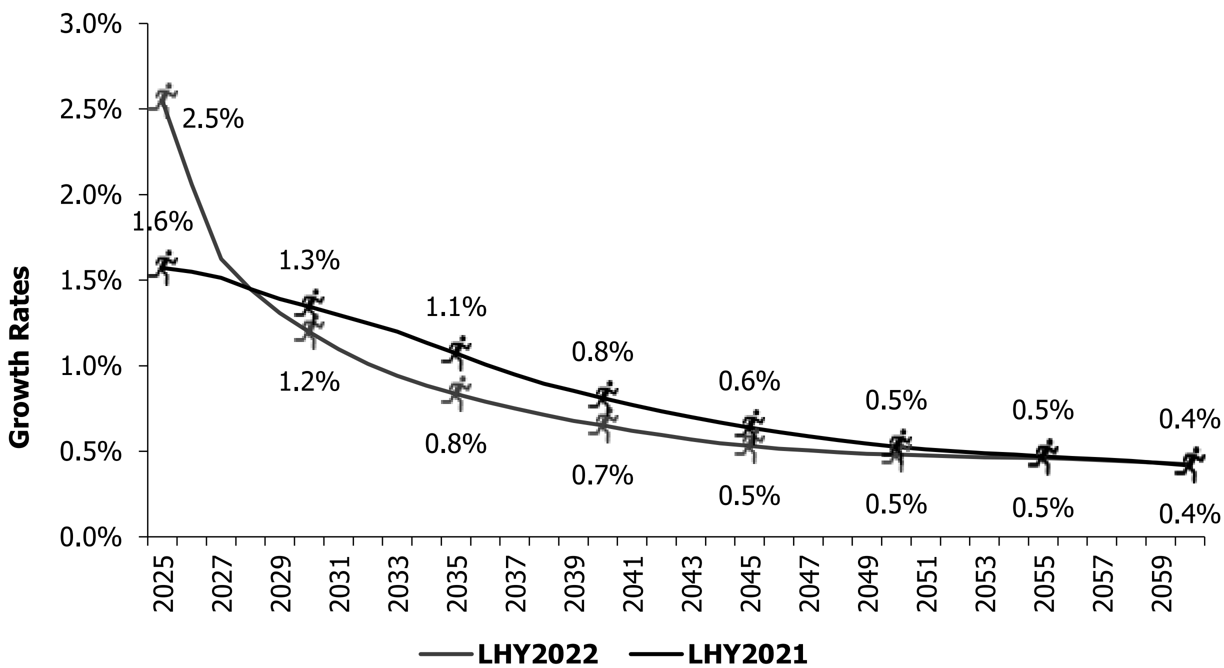
[2] The detailed out-of-the-box results through 2060 appear in Table C1 of Appendix C.

**Figure 1. Clark County Population Forecasts: REMI Out-of-the-Box LHY2022 and LHY2021: 2025-2060**




Note: Out-of-the-box refers to the model prior to recalibration. These numbers are not the final forecast.

**Figure 2. Clark County Population Growth Rate Forecasts: REMI Out-of-the Box LHY2022 and LHY2021: 2025-2060**

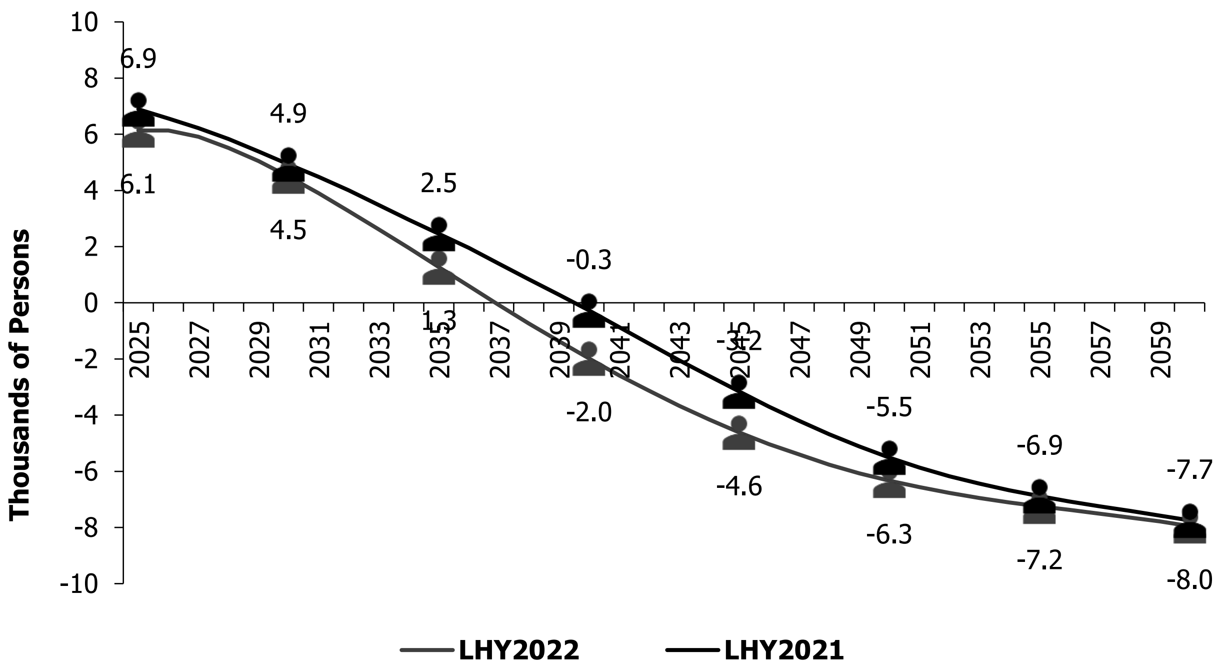



Note: Out-of-the-box refers to the model prior to recalibration. These numbers are not the final forecast.

Both the LHY2022 and LHY2021 models forecast a decreasing trend in the growth rate over the forecast period, primarily due to declining natural change projections, as illustrated in Figure 3. Natural change, the difference between births and deaths, is positive when births outnumber deaths and negative when the opposite occurs. The LHY2022 model predicts lower natural changes throughout the entire period compared to the LHY2021 model due to the lower birth rate predictions mentioned earlier.

Despite experiencing negative natural changes for LHY2022 and LHY2021 after 2036 and 2039, respectively, the population growth rate is expected to remain positive due to positive net migration, as depicted in Figure 4. Without any incoming migrants, Clark County's population would decline during periods of negative natural changes. Positive net migration forecasts, however, contribute to population gains throughout the forecast period.

**Figure 3. Clark County Natural Change Forecasts: REMI Out-of-the-Box LHY2022 and LHY2021: 2025-2060**

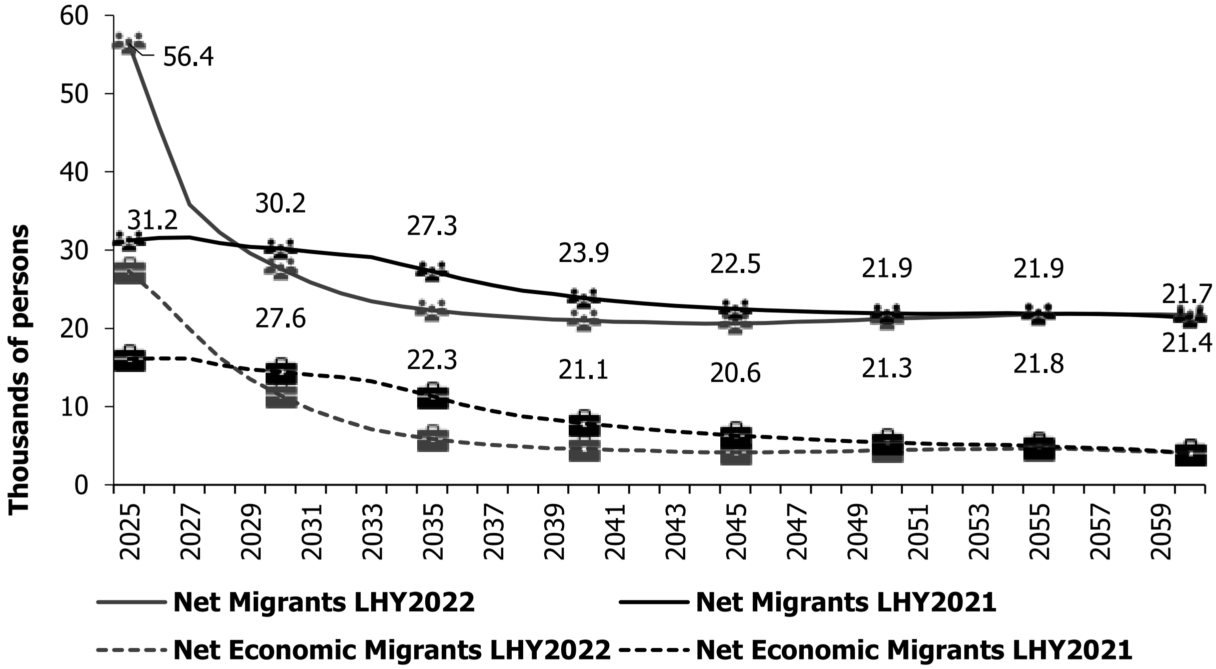



Note: Out-of-the-box refers to the model prior to recalibration. These numbers are not the final forecast.

The net migration forecast patterns mirror those of net economic migration projections for both LHY2022 and LHY2021, as illustrated in Figure 4. The gaps between net migration and net economic migration projections for LHY2022 range from 15,900 to 17,600 starting in 2026, while for LHY2021, the gaps range from 15,000 to 17,300 between 2025 and 2060. LHY2022 shows much larger gaps for 2025 and 2026, due to a spike in net international migration projections during those years, as shown in Figure 5.[3]

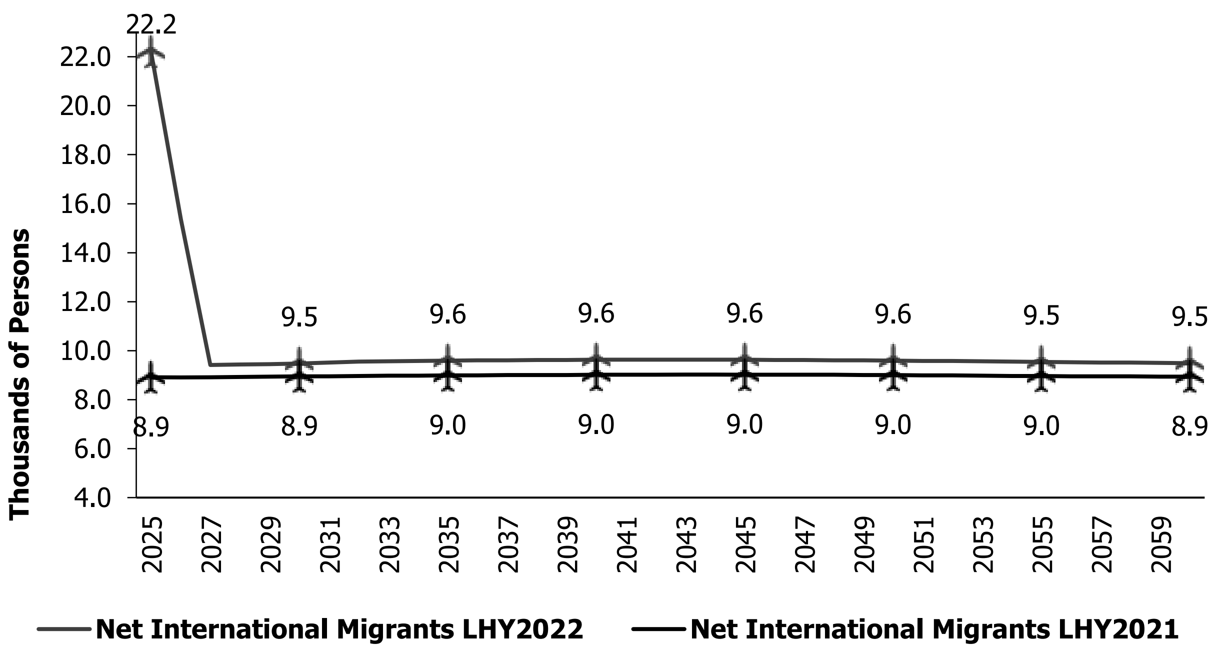
[3] Due to evolving immigration policies with the new administration, projections for net international migration remain uncertain. Watson and Zars (2025) mention that the new administration has shifted nearly every aspect of immigration policy in the anti-immigration direction, seemingly aimed at reducing the number of immigrants.

**Figure 4. Clark County Net Migrant and Net Economic Migrant Forecasts: REMI Out-of-the-Box LHY2022 and LHY2021: 2025-2060**




Note: Out-of-the-box refers to the model prior to recalibration. These numbers are not the final forecast.

**Figure 5. Clark County Net International Migrant Forecasts: REMI Out-of-the-Box LHY2022 and LHY2021: 2025-2060**




Note: Out-of-the-box refers to the model prior to recalibration. These numbers are not the final forecast.

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Watson, T. and J. Zars. *100 days of immigration under the second Trump administration*. Brookings. Accessed May 2025. April 29, 2025. https://www.brookings.edu/articles/100-days-of-immigration-under-the-second-trump-administration/.

In conclusion, the lower predicted population levels for LHY2022 are primarily attributable to lower birth rate projections and reduced economic migration forecasts after 2028, both of which contribute to the lower population growth rate predictions for LHY2022 after 2027.

Table 2 presents a comparison of the REMI out-of-the-box economic and demographic forecasts for the LHY2022 and LHY2021 models, covering the period from 2025 to 2060. The LHY2022 model forecasts a stronger Clark County economy in 2025, with Clark County's real GDP and employment representing 0.63% and 0.73%, respectively, of the U.S. totals. By 2060, the LHY2021 model projects a stronger economy, however, with total employment as a percentage of the nation at 0.78% and GDP as a percentage of the nation at 0.68%. The higher population forecast for 2060 in LHY2021, compared to LHY2022, is primarily due to the cumulative effect of higher projections for net economic migration and natural changes. This results in notably lower projections for the younger population segments (24 years old or younger) in 2060 for LHY2022 relative to LHY2021.

**Table 2. Clark County REMI Out-of-the-Box Forecast Comparison: LHY2022 and LHY2021**

| | *2025* | | | *2060* | | |
|---|---|---|---|---|---|---|
| | *LHY2022* | *LHY2021* | *Change to forecast* | *LHY2022* | *LHY2021* | *Change to forecast* |
| Population (Thousands) | 2,517.72 | 2,462.90 | 2.2% | 3,256.74 | 3,277.40 | -0.6% |
| Total Employment (Thousands) | 1,594.61 | 1,465.58 | 8.8% | 1,915.92 | 1,863.67 | 2.8% |
| Total Employment as % of Nation | 0.73 | 0.69 | 3.9% | 0.78 | 0.78 | 0.1% |
| Gross Domestic Product (Billions of Fixed 2017 Dollars) | 148.43 | 136.35 | 8.9% | 283.91 | 278.42 | 2.0% |
| Gross Regional Product as % of Nation | 0.63 | 0.60 | 2.9% | 0.67 | 0.68 | -1.3% |
| Migrants (Thousands) | | | | | | |
| Economic Migrants | 27.32 | 16.09 | 69.8% | 4.08 | 4.04 | 1.0% |
| Retired Migrants | 6.19 | 6.24 | -0.8% | 8.24 | 8.47 | -2.6% |
| International Migrants | 22.20 | 8.91 | 149.2% | 9.49 | 8.94 | 6.2% |
| Population by Age (Thousands) | | | | | | |
| Ages 0-14 | 448.76 | 438.10 | 2.4% | 486.99 | 498.16 | -2.2% |
| Ages 15-24 | 322.62 | 316.03 | 2.1% | 346.98 | 367.34 | -5.5% |
| Ages 25-64 | 1,329.52 | 1,286.41 | 3.4% | 1,631.06 | 1,603.95 | 1.7% |
| Ages 65+ | 416.83 | 422.35 | -1.3% | 791.71 | 807.96 | -2.0% |

Note: The numbers for both LHY2022 and LHY2021 models refer to the models prior to adjustments.

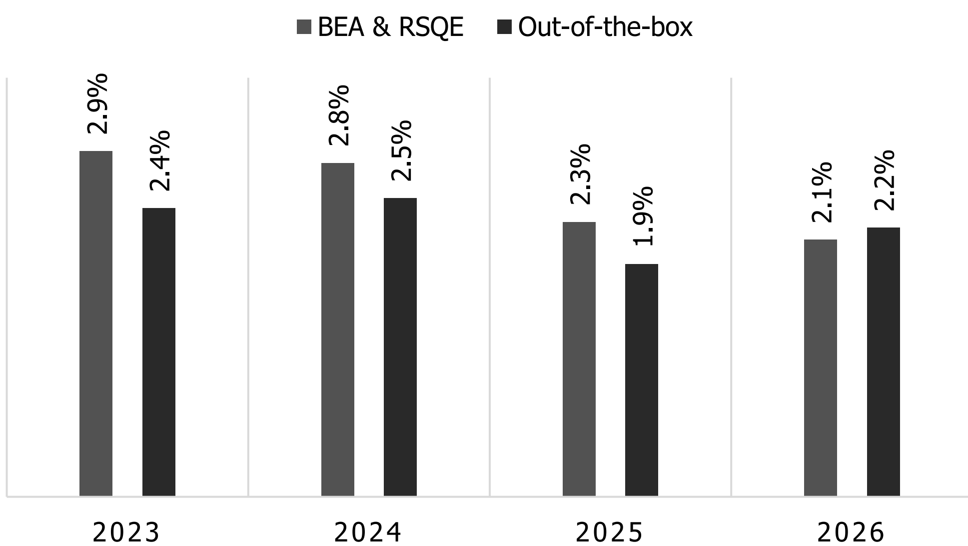
## III. Recalibrating the Model

As noted previously, county-level personal income data only become available with a two-year lag. As a result, the REMI model also imposes a two-year lag on all its data history that ends with 2022 data for the current model, PI+ v3.2, released in 2024. To update the model, we incorporate available, pertinent model information, including the most recent national GDP forecast, the most recent population estimates from SNRPC and population forecasts from CBER, the most recent employment figures from reputable national and local sources, and the spending on public and private capital projects to reflect Clark County information in the forecast. We describe each update in sequence. Unlike last year, we did not use BEA sector-level employment data to update the employment figures, as the BEA has discontinued the SAEMP25 and CAEMP25 tables (Total Full-Time and Part-Time Employment by Industry) and they are no longer available.

### ***a.*** *Adjustment of the national economic forecast*

The REMI model relies on a baseline national GDP forecast from the University of Michigan's RSQE. The PI+v3.2 model includes the RSQE's February 2024 release, and its latest historical year is 2022. We adjust the model's national GDP forecast using BEA's most recent data and the February 2025 national GDP forecast from RSQE. Figure 6 compares RSQE and REMI out-of-the-box forecasts[4] for 2025 and 2026, as well as BEA estimates and REMI out-of-the-forecasts for 2023 and 2024. BEA estimates that the national real GDP experienced growth of 2.9 and 2.8 percent, respectively, in 2023 and 2024, while the REMI model forecasted 2.4 and 2.5 percent real GDP growth. Stronger-than-expected growth largely reflected robust consumer spending. The REMI model predicts 1.9 and 2.2 percent increases for the real GDP in 2025 and 2026, respectively, while the most recent RSQE's forecasts expect, respectively, 2.3 and 2.1 percent growth. The upward revision for the 2025 forecast is largely driven by stronger growth in consumer spending, while the slightly lower 2026 forecast mainly reflects slower growth in government spending.

**Figure 6. U.S. Real GDP Forecasts: RSQE vs. REMI Out-of-the-Box from 2023 to 2026**




Note: REMI out-of-the-box growth rates from 2023 to 2025 reflect the RSQE's February 2024 forecasts. For BEA and RSQE, the growth rates for 2023 and 2024 are based on the BEA estimate, but the growth rates for 2025 and 2026 show the February 2025 projections by RSQE.

[4] All out-of-the-box forecasts use the original REMI PI+v3.2 model before any REMI updates.

### *b. Rebasing the population forecast I*

We rebase the population forecast using the population update feature in the REMI model. We update the 2023 and 2024 population figures using the latest SNRPC estimates, which are 2.37 million and 2.42 million, respectively. The 2024 estimate from SNRPC is 33,500 lower than REMI's out-of-the-box forecast of 2.46 million.

### *c. Employment adjustment*

The county-level employment data in REMI come from the BEA's local area personal income data. In previous years, the REMI model was updated using BEA sector-level employment data for the earliest year after the historical year (for example, 2023 for this update) due to the two-year lag in BEA data, and wage and salary employment data from Nevada's Department of Employment, Training, and Rehabilitation (DETR) for the following year (for example, 2024). We use DETR's wage and salary employment data for both 2023 and 2024, as the BEA discontinued the release of sector-level employment estimates at the state and county levels. This is the same method that was used prior to 2017 for model updates, before the BEA adjustment process was introduced.

The latest growth rates for the REMI model forecasts as well as recent DETR estimates appear in Table 3. The actual growth rates reported by DETR differ from the REMI forecasts, indicating the need for adjustments. While the total employment growth rates between REMI and DETR are only slightly different, notable discrepancies exist at the sector level. For example, DETR reports that construction employment declined by 3.0 percent in 2024, whereas REMI predicts a 1.9 percent increase in 2024. According to DETR, the construction, wholesale trade, retail trade, and finance sectors experienced weaker growth than projected by REMI in 2024. Overall, after reflecting these updated growth rates, the total employment climbed by 2.9 percent in 2023 and 1.2 percent in 2024, compared to REMI's predictions of 3.0 and 1.3 percent, respectively. The employment update proceeds as follows. We compute the annual percentage change using DETR data and apply it to produce new estimates for 2023 and 2024. Because the BEA employment data incorporated into the REMI model include self-employed workers, this procedure implicitly assumes that the proportion of self-employed in each industry classification grows at the same rate as does the ratio between full- and part-time workers.

**Table 3. Employment Growth Rates for Clark County Before DETR Adjustment for 2023 and 2024**

| | REMI Forecasts* | | DETR Estimates | |
|---|---|---|---|---|
| **Industrial Classification** | **2023** | **2024** | **2023** | **2024** |
| Construction | 4.39% | 1.94% | 5.33% | -2.96% |
| Wholesale Trade | 2.09% | 0.95% | 2.69% | -0.75% |
| Retail Trade | 2.42% | 0.62% | -0.45% | -1.08% |
| Transit, Ground Passenger Transportation | 1.22% | 1.40% | 3.70% | 0.00% |
| Monetary Authorities, Et Al. | 2.39% | 0.92% | -3.91% | -4.65% |

| | | | | |
|---|---|---|---|---|
| Ins Carriers, Related Activities | 2.18% | 0.61% | 3.13% | -0.83% |
| Real Estate | 3.76% | 2.13% | 2.45% | 0.80% |
| Professional, Technical Services | 4.48% | 1.47% | 2.20% | 2.35% |
| Management of Companies | 2.64% | 1.00% | 4.96% | 3.15% |
| Administrative, Support Services | 2.64% | 1.12% | -0.24% | -0.60% |
| Ambulatory Health Care Services | 4.88% | 2.21% | 5.13% | 2.53% |
| Hospitals | 3.20% | 2.19% | 3.86% | 1.24% |
| Amusement, Gambling, And Recreation | 3.15% | 1.44% | 7.10% | 2.04% |
| Accommodation | 2.36% | 0.65% | 2.28% | 7.04% |
| Food Services, Drinking Places | 1.86% | 0.97% | 3.54% | 1.00% |
| State & Local Government | 3.83% | 2.33% | 8.83% | 4.25% |
| **Total** | **2.97%** | **1.29%** | **2.86%** | **1.23%** |

*The REMI forecasts are updated with the GDP updates.
Note: The total growth rates for DETR estimates are calculated after adjusting the employment forecasts with the DETR data for available sectors. Therefore, they do not represent actual DETR's growth rate estimates.

Table 4 reports the updated employment data by category for the model. Clark County experienced robust employment growth, increasing by 2.9 percent in 2023. While leisure and hospitality employment continued to recover during the year, it remained below the pre-pandemic level according to DETR's annual data. In 2024, Clark County's employment growth rate slowed to 1.2 percent, while the leisure and hospitality sector finally fully recovered—approximately two years later than total employment. Although some sectors experienced employment declines in 2024, gains in others offset these losses, contributing to a continued expansion in Clark County's total employment. Strong performance was observed in key sectors such as healthcare, leisure and hospitality, and state and local government. As a result, Southern Nevada's economy added roughly 44,000 jobs in 2023 and 19,000 in 2024.

**Table 4. Model Job Adjustments (in thousands) for 2023 and 2024 with DETR Estimates**

| | **Baseline** | **DETR Growth Rate** | | **Adjusted Job Levels** | |
|---|---|---|---|---|---|
| **Industrial Classification** | **History 2022** | **2023** | **2024** | **2023** | **2024** |
| Forestry et al. | 0.39 | 1.3% | -1.8% | 0.39 | 0.39 |
| Support act for agriculture and forestry | 0.10 | 3.8% | 0.9% | 0.11 | 0.11 |
| Oil, gas extraction | 0.04 | 0.0% | 0.0% | 0.04 | 0.04 |
| Mining (except oil, gas) | 1.65 | 4.8% | 1.1% | 1.73 | 1.75 |
| Support activities for mining | 0.04 | 13.5% | 2.4% | 0.04 | 0.04 |
| Utilities | 2.90 | 2.0% | 0.6% | 2.96 | 2.98 |
| Construction | 93.56 | 5.3% | -3.0% | 98.55 | 95.63 |
| Wood product manufacturing | 0.80 | 4.5% | -0.1% | 0.83 | 0.83 |
| Nonmetallic mineral prod manufacturing | 2.73 | 2.2% | -0.2% | 2.79 | 2.78 |
| Primary metal manufacturing | 0.15 | 0.7% | -3.3% | 0.15 | 0.15 |
| Fabricated metal prod manufacturing | 3.53 | 2.6% | -0.5% | 3.62 | 3.60 |
| Machinery manufacturing | 0.78 | 3.4% | -2.2% | 0.80 | 0.78 |

| | | | | | |
|---|---|---|---|---|---|
| Computer, electronic prod manufacturing | 0.74 | 1.5% | -6.4% | 0.75 | 0.70 |
| Electrical equip, appliance manufacturing | 1.27 | 2.2% | -3.5% | 1.30 | 1.25 |
| Motor vehicle manufacturing | 0.21 | 2.4% | -4.2% | 0.21 | 0.20 |
| Other Trans equip manufacturing | 0.40 | 3.5% | 0.5% | 0.41 | 0.41 |
| Furniture, related prod manufacturing | 1.44 | 5.7% | -3.4% | 1.53 | 1.47 |
| Miscellaneous manufacturing | 6.25 | 2.5% | -2.9% | 6.40 | 6.22 |
| Food manufacturing | 4.54 | 3.4% | 1.7% | 4.69 | 4.77 |
| Beverage, tobacco prod manufacturing | 1.26 | 1.3% | 0.0% | 1.28 | 1.28 |
| Textile mills; textile prod mills | 0.40 | -1.8% | -5.9% | 0.39 | 0.37 |
| Apparel manufacturing | 0.58 | -19.1% | -21.0% | 0.47 | 0.37 |
| Paper manufacturing | 0.62 | 1.0% | -0.8% | 0.63 | 0.62 |
| Printing, related supp act | 3.39 | 1.6% | -1.5% | 3.44 | 3.39 |
| Petroleum, coal prod manufacturing | 0.05 | 2.0% | 2.0% | 0.05 | 0.05 |
| Chemical manufacturing | 1.54 | 2.7% | -0.5% | 1.58 | 1.58 |
| Plastics, rubber prod manufacturing | 2.27 | 1.9% | -1.1% | 2.31 | 2.28 |
| Wholesale trade | 32.95 | 2.7% | -0.7% | 33.84 | 33.58 |
| Retail trade | 141.83 | -0.4% | -1.1% | 141.20 | 139.67 |
| Air transportation | 9.32 | 0.7% | 0.1% | 9.38 | 9.39 |
| Rail transportation | 0.22 | 2.8% | -0.4% | 0.22 | 0.22 |
| Water transportation | 0.07 | 1.4% | 0.0% | 0.07 | 0.07 |
| Truck transportation | 9.62 | 2.8% | 1.2% | 9.89 | 10.01 |
| Couriers and messengers | 21.05 | 3.7% | 2.4% | 21.82 | 22.35 |
| Transit, ground pass transportation | 29.29 | 3.7% | 0.0% | 30.38 | 30.38 |
| Pipeline transportation | 0.01 | 0.0% | 0.0% | 0.01 | 0.01 |
| Scenic, sightseeing transportation; supp | 8.81 | 3.4% | 1.3% | 9.11 | 9.23 |
| Warehousing, storage | 37.27 | 3.2% | 1.7% | 38.46 | 39.11 |
| Publishing, except internet | 3.83 | 1.8% | 0.9% | 3.90 | 3.94 |
| Motion picture, sound rec | 4.43 | 5.0% | 0.7% | 4.65 | 4.68 |
| Data processing, hosting, and rel services | 4.56 | 4.1% | 1.9% | 4.75 | 4.84 |
| Broadcasting, except int; | 1.58 | 3.0% | 0.6% | 1.63 | 1.64 |
| Telecommunications | 5.20 | -9.4% | -3.4% | 4.71 | 4.55 |
| Monetary authorities, et al. | 20.88 | -3.9% | -4.7% | 20.06 | 19.13 |
| Sec, comm contracts, inv | 53.79 | 3.1% | -0.8% | 55.47 | 55.01 |
| Ins carriers, rel act | 20.74 | 3.1% | -0.8% | 21.39 | 21.21 |
| Real estate | 86.72 | 2.4% | 0.8% | 88.84 | 89.55 |
| Rental, leasing services | 8.51 | 3.1% | 1.3% | 8.78 | 8.89 |
| Prof, tech services | 88.27 | 2.2% | 2.3% | 90.21 | 92.33 |
| Mgmt of companies, enterprises | 31.13 | 5.0% | 3.1% | 32.67 | 33.70 |
| Administrative, support services | 112.81 | -0.2% | -0.6% | 112.54 | 111.87 |
| Waste mgmt, remediation services | 3.48 | 3.4% | 1.9% | 3.59 | 3.66 |
| Educational services | 18.13 | 4.1% | 1.6% | 18.88 | 19.19 |

| | | | | | |
|---|---|---|---|---|---|
| Ambulatory health care services | 66.52 | 5.1% | 2.5% | 69.93 | 71.70 |
| Hospitals | 24.87 | 3.9% | 1.2% | 25.83 | 26.15 |
| Nursing, residential care facilities | 11.29 | 3.3% | 2.2% | 11.66 | 11.91 |
| Social assistance | 24.97 | 2.8% | 2.4% | 25.67 | 26.29 |
| Performing arts, spectator sports | 27.39 | 2.6% | 0.8% | 28.09 | 28.32 |
| Museums et al. | 0.78 | 2.9% | 1.6% | 0.80 | 0.82 |
| Amusement, gambling, recreation | 18.70 | 7.1% | 2.0% | 20.03 | 20.44 |
| Accommodation | 141.91 | 2.3% | 7.0% | 145.14 | 155.35 |
| Food services, drinking places | 121.26 | 3.5% | 1.0% | 125.55 | 126.81 |
| Repair, maintenance | 16.84 | 2.0% | 1.5% | 17.18 | 17.44 |
| Personal, laundry services | 41.05 | 3.1% | 1.3% | 42.32 | 42.87 |
| Membership assoc, organ | 10.35 | 0.0% | 0.9% | 10.35 | 10.44 |
| Private households | 7.23 | 1.4% | 0.4% | 7.33 | 7.36 |
| State & local government | 91.22 | 8.8% | 4.3% | 99.27 | 103.49 |
| Federal civilian | 14.96 | 1.0% | 0.6% | 15.12 | 15.20 |
| Federal military | 17.34 | 4.6% | 3.5% | 18.13 | 18.77 |
| Farm | 0.44 | 0.9% | 0.0% | 0.44 | 0.44 |
| **Total** | 1,523.20 | 2.9% | 1.2% | 1566.73 | 1,586.04 |

### *d. Hotel room adjustment*

We adjust future hotel employment based on the expected number of hotel rooms added in each of the next few years. The additional rooms and related employment represent either properties that are under construction with fixed opening dates, or properties that have development plans and a high probability of project completion during the specified year. In this way, we ensure that the model includes a good short-term forecast of new hotel investment and employment.

As of December 31, 2025, the LVCVA projects an addition of 892 rooms in the local room inventory by the end of 2025 (Table 5). This includes the opening of AC Hotel by Marriott, Element Las Vegas, Otonomus Hotel, and Spark by Hilton Las Vegas. In 2026, the LVCVA projects that hotel/motel construction will add 1,111 hotel/motel rooms to the room inventory. This includes the opening of Delta Hotels by Marriott, Courtyard by Marriott, and TownePlace Suites Southwest, and room additions by M Resort Spa & Casino. In 2027, the LVCVA anticipates an additional 3,640 rooms at Hard Rock Las Vegas as a result of the rebranding and redevelopment of the Mirage. Overall, Las Vegas is expected to see an additional 5,643 hotel/motel rooms added to inventory by the end of 2027, which is a 3.8 percent increase compared to the current available room inventory.[5]

[5] As of December 31, 2024, Las Vegas had 150,211 available rooms in inventory according to the LVCVA.

**Table 5. Expected Additional Employment due to New Rooms: Projections for 2025-2027**

| *Year* | *LVCVA Room Addition Projections* | *New Jobs due to New Rooms** | *REMI Jobs Increase*** | *Cumulative Additional Jobs After Hotel Room Adjustment* |
|---|---|---|---|---|
| 2025 | 892 | 642 | 1,694 | -1,052 |
| 2026 | 1,111 | 1,080 | 1,337 | -1,309 |
| 2027 | 3,640 | 5,278 | 313 | 3,656 |

*To understand how new jobs resulting from new rooms are calculated, please see Appendices A and B.
** Projected accommodation job increases after calibrated national economic estimates and projections, Clark County population, and employment estimates in the REMI model.
Note: We calibrated cumulative additional jobs after hotel room adjustment in the REMI model.
Source: LVCVA; CBER

Table 5 presents the expected additional new jobs due to new rooms between 2025 and 2027. To calculate these new jobs, we utilize the job-to-room ratios of 1.45 and 0.72,[6] respectively, for casino and non-casino accommodation. For example, the opening of 3,640 rooms at Hard Rock Las Vegas is expected to create approximately 5,278 jobs (based on a multiplier of 1.45), while the addition of 150 rooms at Spark by Hilton is projected to generate around 108 jobs (using a multiplier of 0.72). For details on the expected numbers of room construction and employment by casinos and non-casinos, please refer to Appendix B.

As the REMI model forecasts job increases from 2024 to 2028 for the accommodation sector, we incorporate adjustments for new jobs resulting from new rooms, assuming that the accommodation sector and related industries maintain consistent job-to-room ratios. According to LVCVA's projections for room additions, we anticipate that 642, 1,080, and 5,278 jobs will be added in 2025, 2026, and 2027. Therefore, we adjust the REMI model's projections to reflect these new jobs due to new room calculations, as outlined in Table 5.

#### *e. Transportation and infrastructure improvements*

Clark County and Nevada continue to invest in transportation infrastructure such as roads, highways, and mass transit. The REMI model assumes that public-infrastructure investment will follow a path consistent with the model history. Thus, some local spending on public infrastructure, such as road building and additional services, is built into the model. One-time monies, however, tend to come from outside the region (e.g., federal transportation funding). We adjust the model to incorporate these large transportation projects in the forecast.

The estimated federal funding in transportation-infrastructure investment is about $11.1 billion between 2025 and 2050 (Figure 7). This estimate is based on RTC of Southern Nevada's long-term plan, "Let's Go 2050"[7]. Specifically, the plan projects approximately $1.1 billion in

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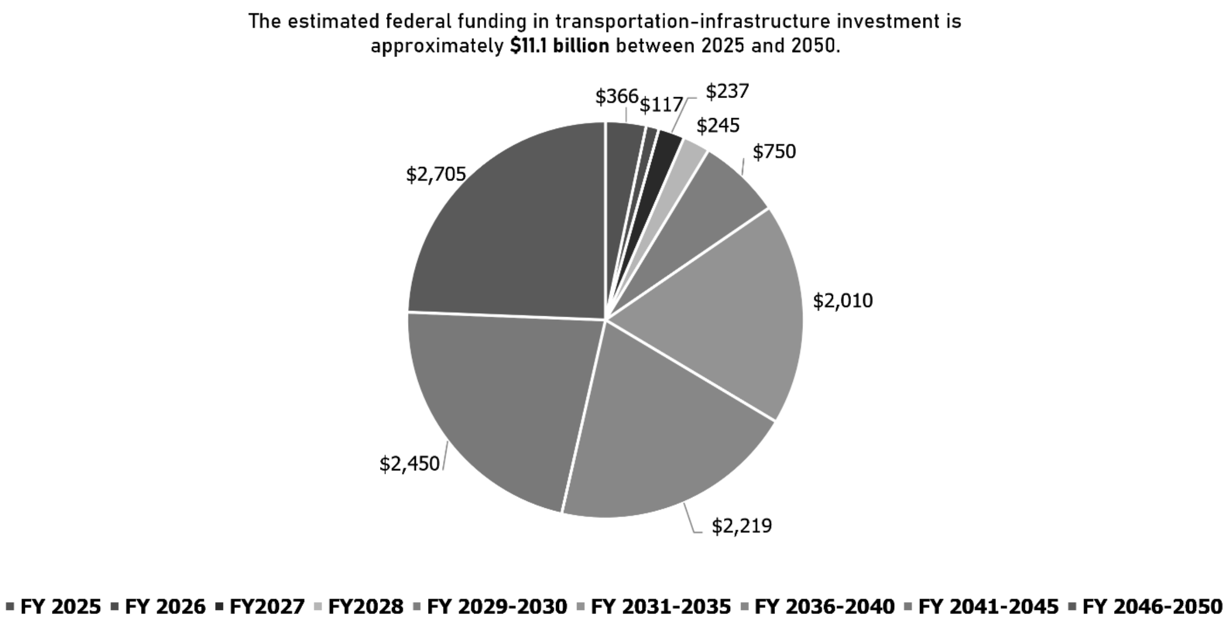
[6] Jobs-to-room ratios for casino and non-casino hotel rooms were calculated as follows. First, we expect new hotel rooms to create new jobs in hotel services. Using historical information from 2014-2023, we take the historical average ratio of annual accommodation employment from the BLS divided by the total number of hotel rooms for both the Casino and non-Casino sectors. This produces job-to-room ratios of 1.45 and 0.72 for casino accommodation and non-casino accommodation, respectively. The detailed computation of the jobs-to-room ratio appears in Appendix A.

[7] RTC of Southern Nevada. January 2050. *LET'S GO 2050 Regional Transportation Plan for Southern Nevada 2025-2050*. Accessed April 26, 2025.

federal funding between 2025 and 2060, assuming an average annual increase of 2 percent in program funding. CBER received the Transportation Improvement Program (TIP) table from RTC, which details anticipated investment amounts from 2025 to 2028. We subtract this amount from the $1.1 billion and allocate the remaining balance across 2029 to 2050, assuming a 2 percent annual growth rate. These projected investments are incorporated into the REMI model as new construction projects. In addition, we assume that federal funding in transportation-infrastructure investment after 2050 will continue with a reasonable expectation that the federal funding will not fall to zero. Rather, we apply the flat amount of federal funding after 2050, where the REMI model adjusts this amount for inflation.

**Figure 7. The Estimated Federal Funding Allocation for the Regional Transportation Plan for Southern Nevada 2025-2050**




Note: The amount shown above only includes federal funding and is displayed in millions.
Source: The Regional Transportation Commission (RTC) of Southern Nevada

### *f. Rebasing the population forecast II*

We rebase the population forecasts produced by calibrating all the adjustments mentioned above, using the most recent CBER short-term population growth rate forecasts produced in April 2025. The REMI model expects 2.9 and 2.3 percent growth in population in 2025 and 2026, respectively, after the adjustments with national economic estimates and forecasts, Clark County population and employment estimates, and projected local investments (Figure 8). CBER short-term forecasts, however, indicate that Clark County will grow by 1.7 and 1.7 percent, respectively, in 2025 and 2026. As the REMI model is more suitable for long-term equilibrium forecasts, we rebased the REMI forecasts using CBER short-term forecasts for 2025 and 2026.

The REMI model offers long-term forecasts that filter out noise, such as business-cycle, seasonal, and irregular events. We attribute the model's significantly higher short-term growth rate to its inclusion of strong recent employment growth, specifically 8.8 percent for 2022. In addition, the new REMI model incorporates the revised 2021 employment growth rate of 9.1 percent, up from the 6.6 percent contained in the previous model. These employment surges were much larger than the estimated population growth of 0.9 and 1.2 percent in 2021 and 2022, respectively, based on the Census data incorporated into the model. As a result, the employment (jobs)-to-population ratio surged to 0.66 in 2022 from 0.61 in 2021, substantially higher than the historical average of 0.59. This increase is particularly unusual, as the US average rose only slightly to 0.63 in 2022 from 0.61 in 2021. Prior to 2022, the highest recorded employment (jobs)-to-population ratio in the model was 0.64 in 2006, just before the Great Recession. Consequently, the model anticipates that Clark County will draw in-migrants to restore the presumed normal employment (jobs)-to-population levels producing 2.9 and 2.3 percent population growth in 2025 and 2026, much higher than Clark County historical average population growth rate of 1.4 percent for the last 10 years.

Clark County's surge in the employment (jobs)-to-population ratio in 2022 was likely due to a rise in individuals holding multiple jobs, as many residents depend heavily on the tourism sector, which was hit hard by the COVID-19 recession. While the leisure and hospitality sector was still recovering in 2022, overall nonfarm employment in Las Vegas had already fully recovered by February 2022. A CommercialSearch report indicates that Las Vegas witnessed the highest increase in non-employer establishments in the Western U.S. region.[8] This suggests a thriving local economy with numerous gig economy job opportunities, which might help some residents seeking supplementary income through companies such as Airbnb or Uber.

Therefore, CBER rebases the population forecasts after the adjustments with national economic estimates and forecasts, Clark County population and employment estimates, and projected local investments. That is, CBER rebased the level population forecasts for 2025 and 2026 by using the CBER's short-term population growth rate forecasts and updated the population level forecasts from 2027 to 2060 by using the growth rate forecasts produced by the adjustments mentioned above.

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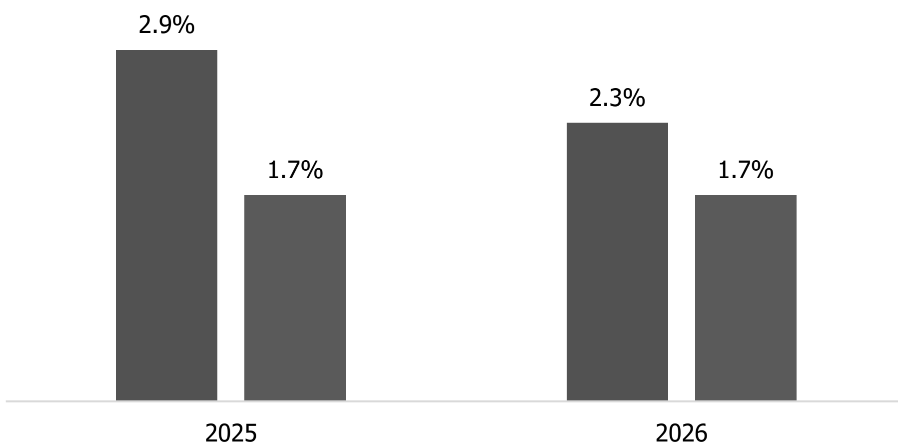
[8] Ginsac, Ioana. June 14, 2023. *Best US Metros to be Your Own Boss (Gig Work Ranking)*. Accessed April 2025. "https://www.commercialsearch.com/blog/best-us-metros-gig-economy/.

**Figure 8. Clark County Population Growth Rate Forecasts Before and After Rebasing II: 2025-2026**




Note: The population growth rate forecasts before rebasing II are the REMI model forecasts after calibrating national economic estimates and forecasts, Clark County population and employment estimates, and projected local investments. The growth rate forecasts after rebasing II are CBER's short-term population forecasts and we updated the population level forecasts by using these forecasts.

## IV. Analysis of the Economic and Demographic Forecast

The forecast predicts modest rates of population growth for Southern Nevada in the near term with 1.7 and 1.7, respectively, in 2025 and 2026. The growth rate forecast, however, will rise to 2.0 percent in 2027 and then decline over the forecast period extending out to 2060. The rate of growth, which decidedly exceeded the national average over the past 50 years, is expected to remain above the national growth rate, but the gap in growth rates between Clark County and the United States is predicted to narrow as Clark County is expected to age faster than the average U.S. population due to lower birth rates and increasing ratio of retired migration to net migration over time. The economic forecast calls for the continuation of the economic expansion over the forecast horizon. Tables 6, 7, and 8, respectively, report the final population, employment, and real GDP predictions for Clark County from the recalibrated model.

### a. *Population*

In the short term, the current forecast predicts moderate rates of population growth in Southern Nevada. CBER projects that Clark County's population will grow by 1.7 percent in both 2025 and 2026 (Table 6). The population growth rate will hit 2.0 percent in 2027 and decline over time with decreases in natural growth (births minus deaths). We forecast the population growth rate for Clark County to be 0.7 percent in 2040 and 0.4 percent in 2060.

CBER forecasts that Clark County will see an addition of approximately 41,000 and 42,000 new residents, respectively, in 2025 and 2026. In 2027, Clark County is projected to experience an increase of 49,000 new residents. Population gains, then, are expected to slow to 19,000 in

2040 and further to 14,000 in 2060 with an aging population. The population forecast predicts that Clark County's population will reach roughly 3.23 million by 2060.

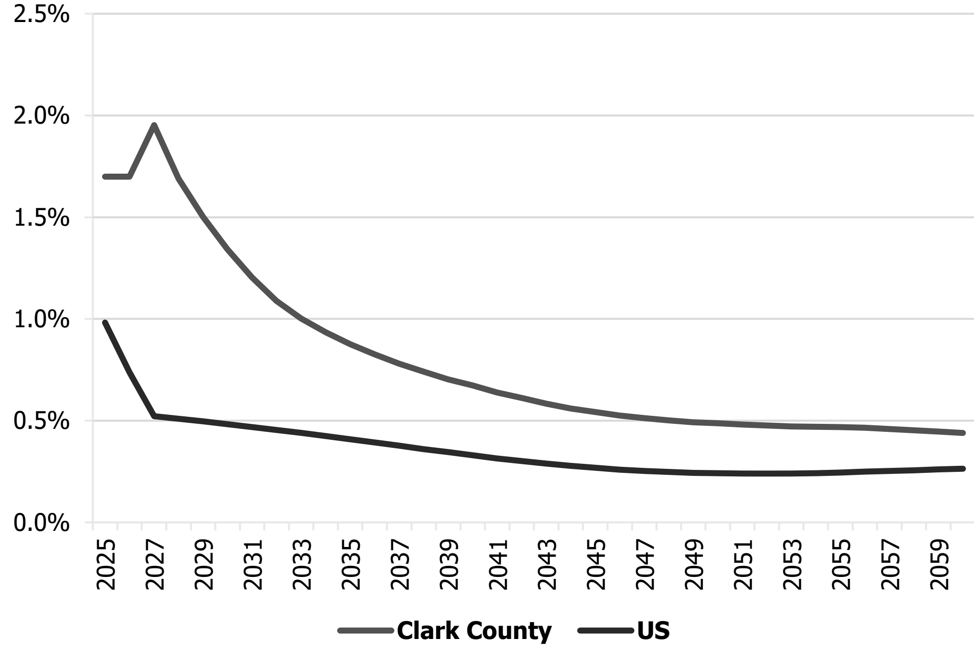
**Table 6. Population History, REMI Forecasts, and Final Rebased Forecasts**

| *Year* | *REMI Forecast** | *Rebased Forecast* | *Change in Population Rebased Forecast* | *Growth in Population Rebased Forecast* |
|---|---|---|---|---|
| 2024 | 2,455,000 | 2,421,685** | 50,099 | 2.1% |
| 2025 | 2,518,000 | 2,463,000 | 41,315 | 1.7% |
| 2026 | 2,570,000 | 2,505,000 | 42,000 | 1.7% |
| 2027 | 2,611,000 | 2,554,000 | 49,000 | 2.0% |
| 2028 | 2,649,000 | 2,597,000 | 43,000 | 1.7% |
| 2029 | 2,684,000 | 2,636,000 | 39,000 | 1.5% |
| 2030 | 2,716,000 | 2,671,000 | 35,000 | 1.3% |
| 2031 | 2,746,000 | 2,703,000 | 32,000 | 1.2% |
| 2032 | 2,773,000 | 2,733,000 | 30,000 | 1.1% |
| 2033 | 2,799,000 | 2,760,000 | 27,000 | 1.0% |
| 2034 | 2,824,000 | 2,786,000 | 26,000 | 0.9% |
| 2035 | 2,848,000 | 2,810,000 | 24,000 | 0.9% |
| 2036 | 2,870,000 | 2,833,000 | 23,000 | 0.8% |
| 2037 | 2,892,000 | 2,856,000 | 23,000 | 0.8% |
| 2038 | 2,912,000 | 2,877,000 | 21,000 | 0.7% |
| 2039 | 2,932,000 | 2,897,000 | 20,000 | 0.7% |
| 2040 | 2,951,000 | 2,916,000 | 19,000 | 0.7% |
| 2041 | 2,970,000 | 2,935,000 | 19,000 | 0.7% |
| 2042 | 2,987,000 | 2,953,000 | 18,000 | 0.6% |
| 2043 | 3,004,000 | 2,970,000 | 17,000 | 0.6% |
| 2044 | 3,021,000 | 2,987,000 | 17,000 | 0.6% |
| 2045 | 3,037,000 | 3,003,000 | 16,000 | 0.5% |
| | | | | |
| 2050 | 3,113,000 | 3,079,000 | 15,000 | 0.5% |
| | | | | |
| 2055 | 3,186,000 | 3,153,000 | 15,000 | 0.5% |
| | | | | |
| 2060 | 3,257,000 | 3,225,000 | 14,000 | 0.4% |

* This forecast refers to the model prior to recalibration.
** Southern Nevada consensus population estimate.
Note: A table detailing the rebased population forecast appears in Appendix C–Table C2.

Figure 9 illustrates population growth rate forecasts for Clark County and the United States. The gap in growth rates between Clark County and the United States is predicted to narrow over time, as Clark County is projected to age at a faster rate than the overall U.S. population due to lower birth rates and an increasing ratio of retired migration to net migration over time. That is, the share of the population ages 65 and above is forecasted to rise from 16.5 percent in 2025 to 24.3 percent in 2060. The model, however, predicts a less steep growth in this demographic group's share, from 18.4 percent in 2025 to 24.0 percent in 2060 for the United States.

**Figure 9. Population Growth Rate Forecasts: Clark County vs. United States**




Note: Forecasts refer to the model after recalibration.

### ***b.*** *Employment*

The forecast predicts a continued economic expansion for Southern Nevada, with an increase of 29,000 jobs, or 1.8 percent of total employment, in 2025. See Table 7.[9] Slower growth is expected in 2026 and 2027, with employment rising by 1.4 and 1.5 percent, respectively. The employment growth rate is then expected to remain between 0.6 and 0.4 percent through 2054, and stabilize around 0.4 percent from 2055 to 2060.

**Table 7. Employment Forecasts**

| *Year* | *Employment (Jobs) Forecast* | *Change in Employment (Jobs) Forecast* | *Growth in Employment (Jobs) Forecast* | *Employment (Jobs)-to- Population Forecast* |
|---|---|---|---|---|
| 2024 | 1,586,000 | 19,000 | 1.2% | 0.65 |
| 2025 | 1,615,000 | 29,000 | 1.8% | 0.66 |
| 2026 | 1,637,000 | 22,000 | 1.4% | 0.65 |
| 2027 | 1,662,000 | 25,000 | 1.5% | 0.65 |
| 2028 | 1,671,000 | 9,000 | 0.5% | 0.64 |
| 2029 | 1,680,000 | 9,000 | 0.5% | 0.64 |
| 2030 | 1,689,000 | 9,000 | 0.5% | 0.63 |
| 2031 | 1,697,000 | 8,000 | 0.5% | 0.63 |
| 2032 | 1,707,000 | 10,000 | 0.6% | 0.62 |
| 2033 | 1,716,000 | 9,000 | 0.5% | 0.62 |
| 2034 | 1,726,000 | 10,000 | 0.6% | 0.62 |

[9] Unadjusted employment forecasts are shown in Appendix C.

| | | | | |
|---|---|---|---|---|
| 2035 | 1,736,000 | 10,000 | 0.6% | 0.62 |
| 2036 | 1,746,000 | 10,000 | 0.6% | 0.62 |
| 2037 | 1,756,000 | 10,000 | 0.6% | 0.61 |
| 2038 | 1,766,000 | 10,000 | 0.6% | 0.61 |
| 2039 | 1,775,000 | 9,000 | 0.5% | 0.61 |
| 2040 | 1,784,000 | 9,000 | 0.5% | 0.61 |
| 2041 | 1,793,000 | 9,000 | 0.5% | 0.61 |
| 2042 | 1,802,000 | 9,000 | 0.5% | 0.61 |
| 2043 | 1,811,000 | 9,000 | 0.5% | 0.61 |
| 2044 | 1,819,000 | 8,000 | 0.4% | 0.61 |
| 2045 | 1,828,000 | 9,000 | 0.5% | 0.61 |
| | | | | |
| 2050 | 1,873,000 | 9,000 | 0.5% | 0.61 |
| | | | | |
| 2055 | 1,915,000 | 8,000 | 0.4% | 0.61 |
| | | | | |
| 2060 | 1,951,000 | 7,000 | 0.4% | 0.61 |

### *c. Gross domestic product*

Real gross domestic product (GDP) is defined as the (constant) dollar value of all final goods and services sold in a regional economy over a given time period. As such, it reflects the output of a local economy and avoids double-counting raw materials and intermediate goods in the final output. The forecast for growth in Clark County's real GDP, shown in Table 8, basically mirrors the growth pattern of local employment, although the real GDP growth rate forecasts show stronger projections due to increasing labor productivity as well as an aging population. The real GDP growth rate forecast anticipates robust gains of 3.2 percent in 2025, 2.7 percent in 2026, and 3.2 percent in 2027. Thereafter, the real GDP growth is projected to gradually decline over the forecast period and stabilize at a growth rate of 1.6 percent between 2053 and 2060.

**Table 8. Gross Domestic Product Forecasts (Billions of Fixed 2025 Dollar)**

| *Year* | *GDP forecast* | *Change in GDP Forecast* | *Growth in GDP Forecast* | *GDP per Capita Forecast ($)* |
|---|---|---|---|---|
| 2024 | 184.35 | 5.37 | 3.0% | 76,123 |
| 2025 | 190.29 | 5.94 | 3.2% | 77,262 |
| 2026 | 195.34 | 5.05 | 2.7% | 77,989 |
| 2027 | 201.58 | 6.24 | 3.2% | 78,939 |
| 2028 | 206.20 | 4.62 | 2.3% | 79,406 |
| 2029 | 210.90 | 4.70 | 2.3% | 80,013 |
| 2030 | 215.43 | 4.54 | 2.2% | 80,653 |
| 2031 | 219.88 | 4.44 | 2.1% | 81,338 |
| 2032 | 224.11 | 4.24 | 1.9% | 82,013 |
| 2033 | 228.67 | 4.56 | 2.0% | 82,850 |
| 2034 | 233.05 | 4.38 | 1.9% | 83,656 |
| 2035 | 237.42 | 4.37 | 1.9% | 84,485 |

| | | | | |
|---|---|---|---|---|
| 2036 | 241.91 | 4.49 | 1.9% | 85,377 |
| 2037 | 246.46 | 4.56 | 1.9% | 86,311 |
| 2038 | 251.00 | 4.54 | 1.8% | 87,255 |
| 2039 | 255.63 | 4.63 | 1.8% | 88,243 |
| 2040 | 260.29 | 4.66 | 1.8% | 89,252 |
| 2041 | 264.92 | 4.63 | 1.8% | 90,265 |
| 2042 | 269.62 | 4.70 | 1.8% | 91,308 |
| 2043 | 274.32 | 4.69 | 1.7% | 92,358 |
| 2044 | 278.98 | 4.67 | 1.7% | 93,405 |
| 2045 | 283.73 | 4.75 | 1.7% | 94,483 |
| | | | | |
| 2050 | 308.57 | 5.08 | 1.7% | 100,205 |
| | | | | |
| 2055 | 334.88 | 5.38 | 1.6% | 106,208 |
| | | | | |
| 2060 | 362.51 | 5.63 | 1.6% | 112,407 |

Note: The forecasts refer to the model after recalibration

## V. Comparing the Current Forecast with Forecasts of Previous Years

This section compares this year's final population growth-rate forecast with the final population growth-rate forecasts from previous years. This exercise assesses the consistency of the forecast methodology and examines the variability in the population growth-rate forecasts over the last six years.

**Figure 10. Clark County Historical Population Growth-Rate Forecasts: 2025-2035**

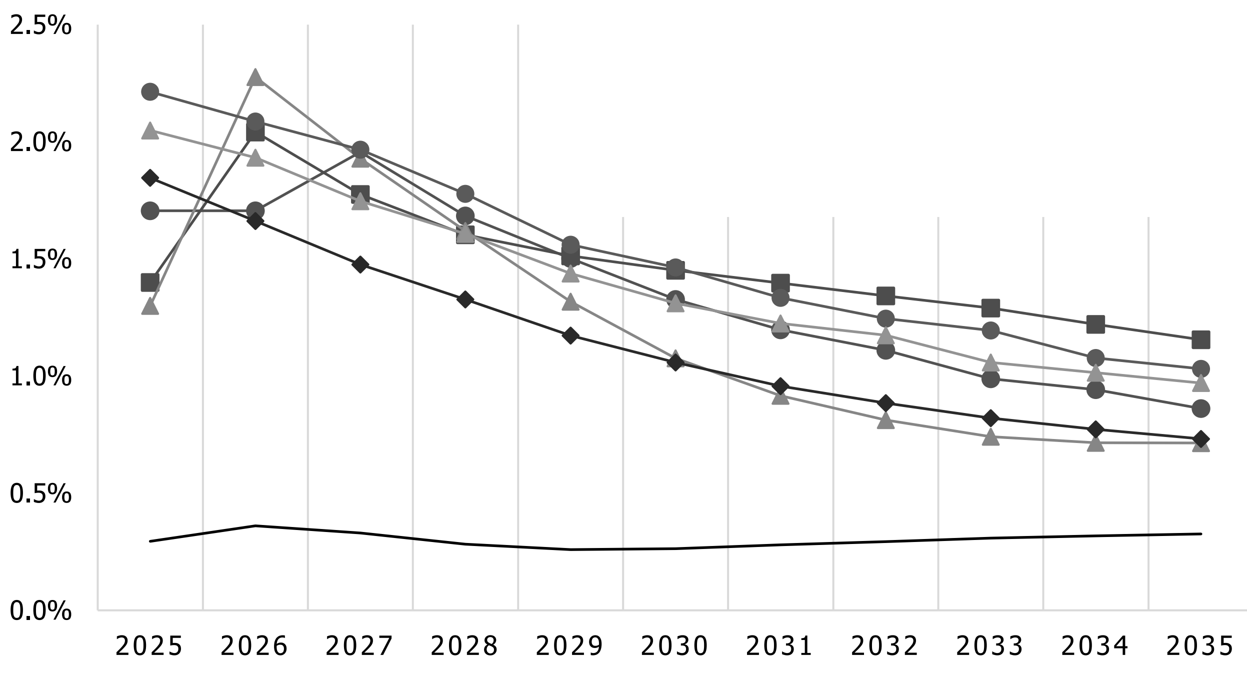


Figure 10 shows the population growth-rate forecasts generated from the 2020 to 2025 population forecast analyses as well as the standard deviation of the population-growth-rate forecasts in the last 25 years of forecasts (2001-2025).[10,11] The 2025 forecast falls between the highest and lowest growth projections made in previous forecasts between 2025 and 2035. Specifically, the 2025 forecasted growth rates lie within the range of the last six forecast cycles for this period. Overall, each forecast shows a consistent downward trend in growth rates, maintaining a similar ranking in magnitude except for the forecasts made in 2023, 2024, and 2025. This exception is due to the incorporation of CBER's short-term forecasts for 2025 into the 2023 and 2024 forecasts, and both 2025 and 2026 into the 2025 forecast. Without this adjustment, there would be no noticeable spikes in the projected growth rates for 2026 or 2027. The forecasts range from 1.4 to 2.2 percent in 2025 but narrows to 0.7 to 1.2 percent in 2035 across the last six years of forecasts. The population growth rate forecasts exhibit a similar level of variability from 2024 to 2035. Overall, the standard deviation of the population growth-rate forecast remains around 0.3 percent from 2025 to 2035. By 2030, the average of the forecasted growth rates converges to about 1.2 percent. Our forecasts tell a consistent story across different forecast years. This consistency improves as one moves to longer-term forecast values. Since the objective of this exercise is to provide primarily long-run planning guidance, the long-term growth predictions obtained during the last 25 years seem to meet that objective. Further analysis and findings appear in Appendix C from the previous report, the *2022-2060 CBER Population Forecasts.*[12]

## VI. Risks to the Forecast

Our Southern Nevada population forecast rests on economic and demographic models embedded in the structural model for Clark County as produced by REMI. This structure provides long-term forecasts that exclude the noise that one finds in time-series data–that is, business-cycle, seasonal, and irregular events. In addition, the uncertainty of the forecasts rises further into the future that the forecasts extend. For example, forecasts of population growth for the next two years see a much smaller range over which the forecast may actually vary than the range for our forecasts 35 years into the future.[13]

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[10] Figure 10 shows the forecasts of the population growth rate from 2025 through 2035 for six different forecast years, 2020 to 2025. The standard deviation calculation uses forecasts from 25 forecast years, 2001 to 2025. For instance, the standard deviation in 2025 measures the variability across the 25 different forecasts for the population growth rate in 2025.

[11] The standard deviation measures the variability among data points. For data that follow a normal distribution, around 95 percent of data points will fall within approximately two standard deviations of the mean.

[12] CBER. *2022-2060 CBER Population Forecast*. https://cber.unlv.edu/wp-content/uploads/2022/07/2022-CBER-Population-Forecasts.pdf.

[13] The discussions in this and the immediate prior paragraphs may seem inconsistent. The discussion, however, focuses on two different issues. In the current paragraph, the uncertainty focuses on the range around an existing forecast within which we can expect the actual value to lie with some probability. For example, a typical range covers 95 percent of actual outcomes. In a statistical sense, the discussion involves confidence bands. The further into the future that the researcher tries to forecast, the larger the range of the confidence bands needs to be to capture 95 percent of potential outcomes. In the prior paragraph, the standard deviation came from a series of different vintage REMI forecasts. The economic and demographic structure of the REMI model leads to convergence over time. That is, the economic migrants respond to economic incentives. Then, the movement of economic migrants will tend to reduce and eliminate the economic incentive for more migrants to move in the longer run. That is, excessive growth relative to national growth disappears as the incentives for economic migration diminish.

The main risks to the population forecasts arise from short-term fluctuations in both U.S. and Southern Nevada economic conditions. Ongoing policy uncertainties are dampening consumer and business confidence, with growing concerns over the potential return of high inflation and an economic slowdown. The evolving policies on tariffs and immigrations, in particular, pose risks that could impact both the U.S. and global economies. These headwinds could significantly impact Clark County, particularly through reduced visitation and available employees, as economic uncertainty typically leads consumers to cut back on discretionary spending such as travel and some the biggest groups driving population growth have come from international migrants. Local economic stability hinges significantly on the performance of the U.S. economy, with the majority of Clark County visitors coming from the United States and North America.

The increasing risk of wildfires in Southern California might present an upside risk for future population growth. This, however, needs to be monitored to assess whether recent wildfires in the Los Angeles area have affected population growth and the housing market in Southern Nevada. As more data becomes available over the next year or two, measurable evidence can be incorporated into the model if it exists.

This forecast contains uncertainties related to assumptions incorporated in the modeling as well as policy uncertainties not reflected in the forecast. For example, the growing water scarcity across the Western United States due to persistent drought conditions since the early 2000s has caused water managers to plan for how water will be used in the future. Policies used to optimize water use may indirectly affect local conditions that directly affect the population forecast. Additional uncertainty reflects what some call potential shortages of "developable" land parcels. The full extent and impact of such shortages is unknown but may cause limitations on economic development for new industries, market restrictions on living space and higher prices for the existing population and potential in-migrants, which could be a headwind for future population growth.

The future diversification of the local economy may provide a positive upside risk in terms of long-term population growth. While Clark County's economy has diversified to some extent, it remains heavily reliant on the leisure and hospitality industry, which still accounts for one in every five jobs. In a Brookings Institution report,[14] Las Vegas ranked 41st out of 54 very large metro areas based on improvement in prosperity (changes in productivity, average wealth and income, and standard of living). The report emphasizes that high-tech-, research-, and capital-intensive-based economies grow faster than regions that rely heavily on the hospitality and retail sectors for their economic growth. There is uncertainty about where exactly decreases in leisure and hospitality jobs due to artificial intelligence will occur, but it is likely to slow rates of growth in this sector and others in the coming years. Washoe County, however, partly succeeded in diversifying its economy after the Great Recession and posted fewer vulnerabilities due to the COVID-19 recession compared to Clark County. The Las Vegas-Henderson-Paradise metro area experienced 0.2, 3.9, and 21.6 percent growth in productivity, average annual wage, and standard of living

[14] The Brookings Institution. 2025. *Metro Monitor*. https://www.brookings.edu/articles/metro-monitor-2025/.

from 2013 to 2023, while Reno gained by 11.2, 12.8, and 28.1 percent, respectively, during the same period.

In summary, although the CBER population forecast is sound, risks exist that could lead to either over- or under-forecasted population growth. The data incorporated in the model is based on our current understanding of local economic conditions and projected local investments. Any discrepancies in new information may lead to short-term variations in forecasts, which sometimes CBER uses the 3-year average to help smooth out any discrepancies year-over-year. We, nevertheless, reiterate that our long-term forecasts exclude business-cycle, seasonal, resource constraints, and irregular events, which respond more to these short-run risks. Our long-term forecasts are designed to aid in the process of long-term policy and infrastructure planning.

## VII. Conclusion

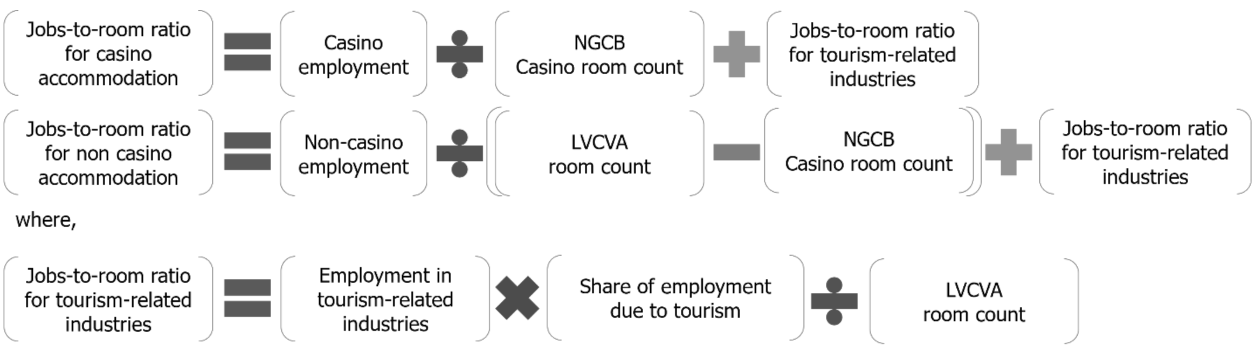
The latest REMI model projects long-term population growth patterns that are consistent with last year's population forecasts. Overall, the population forecast is lower than last year's forecast over the forecast horizon except in the near term between 2025 and 2032. The lower forecasts after 2032 primarily reflect differences between the out-of-the-box benchmark population growth forecasts in this year's and last year's REMI models. As mentioned in Section II, the out-of-the-box population growth rate forecast for this year's model is lower after 2027, mainly due to the lower net economic migration forecasts after 2028 and the lower birth rate predictions over the entire forecast period. Additionally, the new data incorporated into the model and major adjustments with current employment and population data also contributed to the differences between this year's and last year's forecasts. We note that despite short-term economic uncertainties and model difficulties, the long-term population forecast, which is our primary focus in this forecasting exercise, remains consistent with past forecasts. By 2045, we predict that Clark County's population will surpass 3.0 million. In 2060, Clark County is expected to hit slightly below 3.23 million residents.

# Appendices:

## Appendix A: Computation of the Jobs-to-Room Ratios

The adjustment for new hotel construction uses a ratio of jobs to rooms. Two issues arise in the computation of the jobs-to-room ratio. First, we expect new hotel rooms to create new jobs in hotel services. The hotel service jobs, however, will be calculated for casinos and non-casinos separately as they have different jobs-to-room ratios. Second, new hotel rooms themselves will also generate economic activity and, hence, additional jobs in other sectors. Increased tourism activity from new hotel rooms will increase the demand for food services and other tourism-related industries. Therefore, we need an approach that accounts for these two issues. We apply jobs-to-room ratios for casinos and non-casinos, which are derived from the formulas shown in Figure A1, directly to planned new hotel rooms. The calculating steps for the jobs-to-room ratios for casino and non-casino accommodations are outlined in Table A1.

**Figure A1. Formulas for Jobs-to-room Ratios in Casino and Non-casino Accommodations**




Note: NGCB stands for the Nevada Gaming Control Board.

**Table A1. Computation of Jobs-to-Room Ratios by Sequence (1) – (6)**

*(1) Employment (thousands)*

| ***Industrial Classification*** | ***2014*** | ***2015*** | ***2016*** | ***2017*** | ***2018*** | ***2019*** | ***2020*** | ***2021*** | ***2022*** | ***2023*** |
|---|---|---|---|---|---|---|---|---|---|---|
| *Casino accommodation* | 157.6 | 156.0 | 153.2 | 151.9 | 151.2 | 149.1 | 97.2 | 107.5 | 122.4 | 125.0 |
| *Non-casino accommodation* | 13.0 | 12.9 | 13.2 | 13.6 | 13.8 | 14.3 | 9.0 | 9.5 | 11.5 | 12.3 |
| *Clothing and clothing accessories* | 19.0 | 19.2 | 18.5 | 19.3 | 19.0 | 18.5 | 13.2 | 15.0 | 17.5 | 17.5 |
| *Transit, ground pass transportation* | 14.0 | 14.2 | 13.4 | 12.4 | 11.0 | 9.9 | 6.0 | 6.6 | 8.0 | 8.3 |
| *Arts, entertainment, and recreation* | 18.7 | 19.3 | 20.5 | 21.3 | 22.6 | 23.5 | 17.2 | 21.2 | 26.2 | 29.5 |
| *Food service and drinking places* | 89.3 | 94.1 | 98.8 | 101.9 | 103.5 | 106.6 | 83.2 | 99.8 | 114.2 | 119.0 |

Note: Non-casino accommodation is equal to accommodation minus casino accommodation
Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics

*(2) Location Quotient**

| ***Industrial Classification*** | ***2014*** | ***2015*** | ***2016*** | ***2017*** | ***2018*** | ***2019*** | ***2020*** | ***2021*** | ***2022*** | ***2023*** |
|---|---|---|---|---|---|---|---|---|---|---|
| *Casino accommodation* | 87.22 | 85.42 | 82.91 | 78.97 | 75.34 | 71.99 | 76.98 | 73.92 | 72.08 | 69.90 |
| *Non-casino accommodation* | 1.19 | 1.14 | 1.13 | 1.12 | 1.11 | 1.11 | 1.10 | 1.05 | 1.01 | 1.00 |
| *Clothing and clothing accessories* | 2.06 | 2.07 | 1.98 | 1.98 | 1.94 | 1.95 | 2.02 | 2.06 | 2.08 | 2.02 |
| *Transit, ground pass transportation* | 4.52 | 4.43 | 4.05 | 3.69 | 3.19 | 2.79 | 2.51 | 2.51 | 2.65 | 2.53 |
| *Arts, entertainment, and recreation* | 1.32 | 1.30 | 1.32 | 1.31 | 1.33 | 1.33 | 1.47 | 1.52 | 1.53 | 1.58 |
| *Food service and drinking places* | 1.24 | 1.24 | 1.25 | 1.24 | 1.22 | 1.22 | 1.27 | 1.33 | 1.32 | 1.31 |

* The Location Quotient (LQ) compares Clark County's employment in a given industry sector to that of the nation. An LQ greater than 1 indicates that the area has proportionately more workers than the nation employed in that specific industry sector. This implies that the area is producing more than is consumed by its residents.

*(3) Proportion of employment due to tourism* = ((2)-1) / (2)*

| ***Industrial Classification*** | ***2014*** | ***2015*** | ***2016*** | ***2017*** | ***2018*** | ***2019*** | ***2020*** | ***2021*** | ***2022*** | ***2023*** |
|---|---|---|---|---|---|---|---|---|---|---|
| *Accommodation* | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| *Non-casino accommodation* | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| *Clothing and clothing accessories* | 0.51 | 0.52 | 0.49 | 0.49 | 0.49 | 0.49 | 0.50 | 0.51 | 0.52 | 0.51 |
| *Transit, ground pass transportation* | 0.78 | 0.77 | 0.75 | 0.73 | 0.69 | 0.64 | 0.60 | 0.60 | 0.62 | 0.60 |
| *Arts, entertainment, and recreation* | 0.24 | 0.23 | 0.24 | 0.24 | 0.25 | 0.25 | 0.32 | 0.34 | 0.35 | 0.37 |
| *Food service and drinking places* | 0.19 | 0.20 | 0.20 | 0.19 | 0.18 | 0.18 | 0.22 | 0.25 | 0.24 | 0.24 |

* Maximum value = 1. Minimum value = 0.
Note: We subtract 1/LQ from LQ, which represents the share of the employment, regardless of tourism, for the selected industries. For the accommodation sector, the proportion is 1 as we estimate the employment due to a hotel room.

*(4) Employment due to tourism (thousands) = (1)* x (3)

| ***Industrial Classification*** | ***2014*** | ***2015*** | ***2016*** | ***2017*** | ***2018*** | ***2019*** | ***2020*** | ***2021*** | ***2022*** | ***2023*** |
|---|---|---|---|---|---|---|---|---|---|---|
| *Accommodation* | 157.6 | 156.0 | 153.2 | 151.9 | 151.2 | 149.1 | 97.2 | 107.5 | 122.4 | 125.0 |
| *Non-casino accommodation* | 13.0 | 12.9 | 13.2 | 13.6 | 13.8 | 14.3 | 9.0 | 9.5 | 11.5 | 12.3 |
| *Total for tourism-related industries** | 42.6 | 43.8 | 43.7 | 43.5 | 41.0 | 40.4 | 33.7 | 43.6 | 51.1 | 52.8 |
| *Clothing and clothing accessories* | 9.7 | 9.9 | 9.1 | 9.5 | 9.2 | 9.0 | 6.7 | 7.7 | 9.1 | 8.9 |
| *Transit, ground pass transportation* | 10.9 | 11.0 | 10.1 | 9.0 | 7.6 | 6.4 | 3.6 | 3.9 | 5.0 | 5.0 |
| *Arts, entertainment, and recreation* | 4.5 | 4.5 | 5.0 | 5.1 | 5.6 | 5.8 | 5.5 | 7.3 | 9.1 | 10.8 |
| *Food service and drinking places* | 17.4 | 18.4 | 19.5 | 19.8 | 18.5 | 19.2 | 17.9 | 24.7 | 27.9 | 28.1 |

* The sum of employment due to tourism for clothing and clothing accessories, transit, ground pass transportation, arts, entertainment, and recreation, and food service and drinking places employment due to tourism. The numbers may not sum to the total because of rounding.

*(5) Hotel room count (thousands)*

| | ***2014*** | ***2015*** | ***2016*** | ***2017*** | ***2018*** | ***2019*** | ***2020*** | ***2021*** | ***2022*** | ***2023*** |
|---|---|---|---|---|---|---|---|---|---|---|
| *LVCVA room inventory* | 150.1 | 149.6 | 148.7 | 147.3 | 147.4 | 148.9 | 137.4 | 148.3 | 151.0 | 152.1 |
| *NGCB casino room inventory* | 123.3 | 123.5 | 122.4 | 121.8 | 121.4 | 119.7 | 94.5 | 115.8 | 120.6 | 121.0 |
| *Non-casino room inventory* | 26.8 | 26.2 | 26.3 | 25.5 | 26.0 | 29.1 | 43.0 | 32.6 | 30.4 | 31.1 |

Note: Room inventory is the average from January to December. Non-casino room inventory is equal to LVCVA room inventory minus NGCB casino room inventory.
Source: LVCVA; NGCB; CBER

*(6) Employment due to a hotel room = (4)/(5) + Jobs-to-room ratio for tourism-related industries*

| | ***2014*** | ***2015*** | ***2016*** | ***2017*** | ***2018*** | ***2019*** | ***2020*** | ***2021*** | ***2022*** | ***2023*** | ***Average**** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Jobs-to-room ratio for Casino* | 1.56 | 1.56 | 1.55 | 1.54 | 1.52 | 1.52 | 1.27 | 1.22 | 1.35 | 1.38 | **1.45** |
| *Jobs-to-room ratio for non-casino* | 0.77 | 0.79 | 0.79 | 0.83 | 0.81 | 0.76 | 0.45 | 0.59 | 0.72 | 0.74 | **0.72** |

*Averaged jobs-to-room ratio from 2014 to 2023.
Note: The jobs-to-room ratio for tourism-related industries is calculated by dividing total employment for tourism-related industries by the LVCVA room inventory. Check Figure A1 for more detailed information.

## Appendix B: Hotel/Motel Room Construction

### Table B1. Expected Hotel/Motel Room Construction from 2025 to 2027

| *Complete Year* | *Hotel Name* | *Zip Code* | *Hotel Rooms* | *Casino Y or N* |
|---|---|---|---|---|
| 2025 | Spark by Hilton Las Vegas Airport | 89119 | 150 | N |
| 2025 | Element Las Vegas Airport | 89119 | 119 | N |
| 2025 | Otonomus Hotel | 89118 | 182 | N |
| 2025 | AC Hotel by Marriott Symphony Park | 89106 | 322 | N |
| 2025 | Element by Westin Symphony Park | 89106 | 119 | N |
| 2026 | Delta Hotels by Marriott | 89103 | 284 | N |
| 2026 | Courtyard by Marriott South | 89123 | 149 | N |
| 2026 | M Resort Spa&Casino | 89044 | 384 | Y |
| 2026 | TownPlace Suite Southwest | 89118 | 119 | N |
| 2026 | Hylo Park | 89130 | 175 | N |
| 2027 | Hard Rock Las Vegas | 89109 | 3,640 | Y |

Note: The total number of additional rooms from 2025 to 2027 equals 5,643.
Source: Las Vegas Convention and Visitor Authority; CBER

### Table B2. Expected Casino or Non-casino Room Construction from 2025 to 2027

| *Complete Year* | *Casino* | *Non-casino* | *Total* |
|---|---|---|---|
| *2025* | 0 | 892 | 892 |
| *2026* | 384 | 727 | 1,111 |
| *2027* | 3640 | 0 | 3,640 |
| *Total* | *4,024* | *1,619* | *5,643* |

Source: Las Vegas Convention and Visitor Authority; CBER

### Table B3. Expected Job Additions due to New Hotel/Motel Construction from 2025 to 2027

| *Year* | *Casino* | *Non-casino* | *Total* |
|---|---|---|---|
| *2025* | 0 | 642 | 642 |
| *2026* | 557 | 523 | 1,080 |
| *2027* | 5278 | 0 | 5,278 |
| *Total* | *5,835* | *1,166* | *7,000* |

Note: The expected job additions are calculated by multiplying the expected new room (Table B2) by the jobs-to-room ratios for each category: casino (1.45) and non-casino (0.72), as outlined in Table A1. For instance, 642 equals 892 multiplied by 0.72.
Source: Las Vegas Convention and Visitor Authority; CBER

## Appendix C: Detailed Report Tables

**Table C1. Out-of-the-Box Clark County Population and Population Growth Forecasts from REMI Models LHY2021 and LHY2022**

| Year | LHY2021 Population (Thousands) | LHY2022 Population (Thousands) | LHY2021 Population Growth | LHY2022 Population Growth |
|---|---|---|---|---|
| 2025 | 2,463 | 2,518 | 1.6% | 2.6% |
| 2026 | 2,501 | 2,570 | 1.5% | 2.1% |
| 2027 | 2,539 | 2,611 | 1.5% | 1.6% |
| 2028 | 2,576 | 2,649 | 1.5% | 1.5% |
| 2029 | 2,611 | 2,684 | 1.4% | 1.3% |
| 2030 | 2,647 | 2,716 | 1.4% | 1.2% |
| 2031 | 2,681 | 2,746 | 1.3% | 1.1% |
| 2032 | 2,714 | 2,773 | 1.2% | 1.0% |
| 2033 | 2,747 | 2,799 | 1.2% | 0.9% |
| 2034 | 2,778 | 2,824 | 1.1% | 0.9% |
| 2035 | 2,808 | 2,848 | 1.1% | 0.8% |
| 2036 | 2,836 | 2,870 | 1.0% | 0.8% |
| 2037 | 2,863 | 2,892 | 1.0% | 0.8% |
| 2038 | 2,889 | 2,912 | 0.9% | 0.7% |
| 2039 | 2,913 | 2,932 | 0.8% | 0.7% |
| 2040 | 2,937 | 2,951 | 0.8% | 0.6% |
| 2041 | 2,959 | 2,970 | 0.7% | 0.6% |
| 2042 | 2,981 | 2,987 | 0.7% | 0.6% |
| 2043 | 3,002 | 3,004 | 0.7% | 0.6% |
| 2044 | 3,022 | 3,021 | 0.7% | 0.6% |
| 2045 | 3,041 | 3,037 | 0.6% | 0.5% |
| | | | | |
| 2050 | 3,129 | 3,113 | 0.5% | 0.5% |
| | | | | |
| 2055 | 3,206 | 3,186 | 0.5% | 0.5% |
| | | | | |
| 2060 | 3,277 | 3,257 | 0.4% | 0.4% |

Note: Out-of-the-box refers to the model prior to recalibration. These numbers are not the final forecast.

## Table C2. Detailed Final Clark County Population Forecast: 2015 – 2060

| Year | Population Forecast | Change in Population Forecast | Growth in Population (Percent) |
|---|---|---|---|
| 2015 | 2,147,641* | 45,403 | 2.2% |
| 2016 | 2,205,207* | 57,566 | 2.7% |
| 2017 | 2,248,390* | 43,183 | 2.0% |
| 2018 | 2,284,616* | 36,226 | 1.6% |
| 2019 | 2,325,798* | 41,182 | 1.8% |
| 2020 | 2,376,683* | 50,885 | 2.2% |
| 2021 | 2,333,092* | -43,591 | -1.8% |
| 2022 | 2,331,934* | -1,158 | -0.05% |
| 2023 | 2,371,586* | 39,652 | 1.7% |
| 2024 | 2,421,685* | 50,099 | 2.1% |
| 2025 | 2,463,000** | 41,315 | 1.7% |
| 2026 | 2,505,000** | 42,000 | 1.7% |
| 2027 | 2,554,000 | 49,000 | 2.0% |
| 2028 | 2,597,000 | 43,000 | 1.7% |
| 2029 | 2,636,000 | 39,000 | 1.5% |
| 2030 | 2,671,000 | 35,000 | 1.3% |
| 2031 | 2,703,000 | 32,000 | 1.2% |
| 2032 | 2,733,000 | 30,000 | 1.1% |
| 2033 | 2,760,000 | 27,000 | 1.0% |
| 2034 | 2,786,000 | 26,000 | 0.9% |
| 2035 | 2,810,000 | 24,000 | 0.9% |
| 2036 | 2,833,000 | 23,000 | 0.8% |
| 2037 | 2,856,000 | 23,000 | 0.8% |
| 2038 | 2,877,000 | 21,000 | 0.7% |
| 2039 | 2,897,000 | 20,000 | 0.7% |
| 2040 | 2,916,000 | 19,000 | 0.7% |
| 2041 | 2,935,000 | 19,000 | 0.7% |
| 2042 | 2,953,000 | 18,000 | 0.6% |
| 2043 | 2,970,000 | 17,000 | 0.6% |
| 2044 | 2,987,000 | 17,000 | 0.6% |
| 2045 | 3,003,000 | 16,000 | 0.5% |
| 2046 | 3,019,000 | 16,000 | 0.5% |
| 2047 | 3,034,000 | 15,000 | 0.5% |
| 2048 | 3,049,000 | 15,000 | 0.5% |
| 2049 | 3,064,000 | 15,000 | 0.5% |
| 2050 | 3,079,000 | 15,000 | 0.5% |
| 2051 | 3,094,000 | 15,000 | 0.5% |
| 2052 | 3,109,000 | 15,000 | 0.5% |
| 2053 | 3,124,000 | 15,000 | 0.5% |
| 2054 | 3,138,000 | 14,000 | 0.4% |
| 2055 | 3,153,000 | 15,000 | 0.5% |
| 2056 | 3,168,000 | 15,000 | 0.5% |
| 2057 | 3,182,000 | 14,000 | 0.4% |
| 2058 | 3,197,000 | 15,000 | 0.5% |
| 2059 | 3,211,000 | 14,000 | 0.4% |
| 2060 | 3,225,000 | 14,000 | 0.4% |

* SNRPC consensus population estimate.

**CBER Short-term forecast, April 2025.

Note: The average annual forecasted growth rate is 0.8 percent.

## Table C3. Economic Forecast

| Variable | Unit | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|
| Total Employment | Thousands (Jobs) | 1614.88 | 1636.90 | 1662.36 | 1671.20 | 1680.37 | 1688.63 | 1697.20 | 1706.53 |
| Private Non-Farm Employment | Thousands (Jobs) | 1474.20 | 1494.15 | 1518.15 | 1526.16 | 1534.69 | 1542.42 | 1550.51 | 1559.54 |
| Residence-Adjusted Employment | Thousands | 1573.08 | 1594.78 | 1620.02 | 1628.96 | 1638.29 | 1646.70 | 1655.42 | 1664.96 |
| Population | Thousands | 2462.86 | 2504.72 | 2553.63 | 2596.78 | 2635.76 | 2671.11 | 2703.24 | 2732.66 |
| Labor Force | Thousands | 1210.19 | 1230.36 | 1253.39 | 1271.46 | 1286.89 | 1300.10 | 1311.90 | 1322.64 |
| Gross Domestic Product | Billions of Fixed (2025) $ | 190.29 | 195.34 | 201.58 | 206.20 | 210.90 | 215.43 | 219.88 | 224.11 |
| Output | Billions of Fixed (2025) $ | 317.45 | 324.77 | 334.19 | 341.04 | 348.12 | 355.10 | 362.12 | 369.40 |
| Value Added | Billions of Fixed (2025) $ | 190.29 | 195.34 | 201.58 | 206.20 | 210.90 | 215.43 | 219.88 | 224.11 |
| Personal Income | Billions of Fixed (2025) $ | 164.81 | 170.12 | 175.86 | 180.86 | 185.91 | 191.08 | 196.21 | 201.43 |
| Disposable Personal Income | Billions of Fixed (2025) $ | 145.99 | 150.03 | 154.59 | 159.23 | 163.76 | 168.42 | 173.05 | 177.82 |
| PCE-Price Index | 2017=100 (Nation) | 125.66 | 128.50 | 131.21 | 133.95 | 136.61 | 139.29 | 142.01 | 144.80 |

| Variable | Unit | 2033 | 2034 | 2035 | 2040 | 2045 | 2050 | 2055 | 2060 |
|---|---|---|---|---|---|---|---|---|---|
| Total Employment | Thousands (Jobs) | 1716.17 | 1726.44 | 1736.27 | 1784.44 | 1827.76 | 1872.61 | 1914.68 | 1951.13 |
| Private Non-Farm Employment | Thousands (Jobs) | 1568.70 | 1578.52 | 1587.93 | 1633.88 | 1675.45 | 1718.59 | 1759.30 | 1794.99 |
| Residence-Adjusted Employment | Thousands | 1674.68 | 1685.01 | 1694.90 | 1743.13 | 1786.49 | 1831.28 | 1873.36 | 1909.98 |
| Population | Thousands | 2760.06 | 2785.83 | 2810.22 | 2916.35 | 3002.98 | 3079.38 | 3153.01 | 3224.97 |
| Labor Force | Thousands | 1333.00 | 1343.00 | 1352.55 | 1398.58 | 1442.02 | 1483.10 | 1520.01 | 1552.17 |
| Gross Domestic Product | Billions of Fixed (2025) $ | 228.67 | 233.05 | 237.42 | 260.29 | 283.73 | 308.57 | 334.88 | 362.51 |
| Output | Billions of Fixed (2025) $ | 376.94 | 384.78 | 392.76 | 434.90 | 481.32 | 532.77 | 589.89 | 652.73 |
| Value Added | Billions of Fixed (2025) $ | 228.67 | 233.05 | 237.42 | 260.29 | 283.73 | 308.57 | 334.88 | 362.51 |
| Personal Income | Billions of Fixed (2025) $ | 206.66 | 211.84 | 216.89 | 242.91 | 269.48 | 297.72 | 327.65 | 359.17 |
| Disposable Personal Income | Billions of Fixed (2025) $ | 182.48 | 187.02 | 191.53 | 214.73 | 238.42 | 263.57 | 290.20 | 318.26 |
| PCE-Price Index | 2017=100 (Nation) | 147.56 | 150.40 | 153.29 | 168.51 | 185.25 | 203.69 | 224.01 | 246.37 |

## Table C4. Employment (in thousands)

| Variable | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|
| Private Non-Farm | 1614.88 | 1636.90 | 1662.36 | 1671.20 | 1680.37 | 1688.63 | 1697.20 | 1706.53 |
| Forestry, Fishing, Other | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 |
| Mining | 1.86 | 1.87 | 1.91 | 1.92 | 1.92 | 1.92 | 1.92 | 1.92 |
| Utilities | 3.01 | 3.03 | 3.05 | 3.04 | 3.03 | 3.02 | 3.01 | 3.01 |
| Construction | 98.50 | 99.73 | 102.41 | 103.15 | 103.67 | 103.58 | 103.40 | 103.21 |
| Manufacturing | 33.07 | 33.41 | 33.51 | 33.41 | 33.32 | 33.22 | 33.12 | 33.09 |
| Wholesale Trade | 34.07 | 34.16 | 34.38 | 34.33 | 34.29 | 34.24 | 34.20 | 34.23 |
| Retail Trade | 142.13 | 143.92 | 145.04 | 144.87 | 144.68 | 144.41 | 144.16 | 143.86 |
| Transportation and Warehousing | 123.36 | 125.39 | 127.32 | 128.61 | 129.92 | 131.23 | 132.61 | 134.10 |
| Information | 19.90 | 20.06 | 20.29 | 20.40 | 20.52 | 20.64 | 20.77 | 20.91 |
| Finance and Insurance | 96.55 | 97.24 | 97.84 | 97.85 | 97.92 | 97.98 | 98.06 | 98.41 |
| Real Estate and Rental and Leasing | 101.02 | 103.10 | 104.93 | 105.91 | 106.92 | 107.87 | 108.80 | 109.76 |
| Professional and Technical Services | 93.94 | 95.11 | 96.72 | 97.64 | 98.54 | 99.41 | 100.34 | 101.31 |
| Management of Companies and Enterprises | 34.22 | 34.66 | 35.07 | 35.38 | 35.68 | 35.98 | 36.30 | 36.64 |
| Admin and Waste Services | 117.42 | 118.86 | 120.40 | 120.99 | 121.62 | 122.24 | 122.90 | 123.66 |
| Educational Services | 19.60 | 19.94 | 20.22 | 20.38 | 20.54 | 20.69 | 20.85 | 21.00 |
| Health Care and Social Assistance | 140.21 | 143.58 | 146.37 | 148.22 | 150.31 | 152.31 | 154.21 | 156.12 |
| Arts, Entertainment, and Recreation | 50.41 | 51.10 | 51.63 | 51.91 | 52.23 | 52.57 | 52.94 | 53.38 |
| Accommodation and Food Services | 284.69 | 287.45 | 294.39 | 294.99 | 295.77 | 296.66 | 297.76 | 298.98 |
| Other Services (except public administration) | 79.73 | 81.04 | 82.18 | 82.65 | 83.28 | 83.94 | 84.66 | 85.46 |
| Government | 140.24 | 142.30 | 143.76 | 144.60 | 145.25 | 145.77 | 146.25 | 146.55 |
| State and local | 105.66 | 107.60 | 109.01 | 109.88 | 110.57 | 111.13 | 111.66 | 112.12 |
| Federal civilian | 15.26 | 15.22 | 15.22 | 15.19 | 15.16 | 15.13 | 15.11 | 15.09 |
| Federal military | 19.31 | 19.48 | 19.53 | 19.52 | 19.51 | 19.51 | 19.48 | 19.35 |
| Farm | 0.44 | 0.45 | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |

## Table C4. Employment (in thousands) (continued)

| Variable | 2033 | 2034 | 2035 | 2040 | 2045 | 2050 | 2055 | 2060 |
|---|---|---|---|---|---|---|---|---|
| Private Non-Farm | 1716.17 | 1726.44 | 1736.27 | 1784.44 | 1827.76 | 1872.61 | 1914.68 | 1951.13 |
| Forestry, Fishing, Other | 0.51 | 0.52 | 0.52 | 0.53 | 0.55 | 0.56 | 0.57 | 0.57 |
| Mining | 1.92 | 1.93 | 1.94 | 1.98 | 2.01 | 2.05 | 2.07 | 2.09 |
| Utilities | 3.00 | 3.00 | 2.99 | 2.97 | 2.92 | 2.87 | 2.82 | 2.75 |
| Construction | 103.15 | 103.24 | 103.41 | 104.85 | 105.87 | 106.86 | 107.62 | 107.90 |
| Manufacturing | 33.10 | 33.17 | 33.25 | 33.89 | 34.53 | 35.21 | 35.80 | 36.29 |
| Wholesale Trade | 34.20 | 34.23 | 34.26 | 34.35 | 34.24 | 34.09 | 33.83 | 33.42 |
| Retail Trade | 143.62 | 143.34 | 142.96 | 139.98 | 136.15 | 132.39 | 128.45 | 124.17 |
| Transportation and Warehousing | 135.57 | 137.14 | 138.69 | 146.54 | 154.23 | 162.27 | 170.29 | 178.08 |
| Information | 21.02 | 21.12 | 21.19 | 21.31 | 21.35 | 21.40 | 21.41 | 21.35 |
| Finance and Insurance | 98.57 | 98.94 | 99.34 | 102.05 | 104.78 | 107.42 | 109.60 | 111.19 |
| Real Estate and Rental and Leasing | 110.67 | 111.61 | 112.51 | 116.86 | 120.67 | 124.56 | 128.22 | 131.44 |
| Professional and Technical Services | 102.24 | 103.17 | 104.02 | 107.86 | 111.34 | 114.90 | 118.27 | 121.29 |
| Management of Companies and Enterprises | 36.99 | 37.35 | 37.69 | 39.36 | 40.94 | 42.58 | 44.16 | 45.67 |
| Admin and Waste Services | 124.40 | 125.22 | 126.01 | 129.98 | 133.64 | 137.45 | 141.07 | 144.34 |
| Educational Services | 21.17 | 21.34 | 21.50 | 22.31 | 22.99 | 23.61 | 24.23 | 24.78 |
| Health Care and Social Assistance | 158.18 | 160.12 | 161.91 | 169.87 | 176.97 | 184.08 | 190.78 | 196.63 |
| Arts, Entertainment, and Recreation | 53.74 | 54.14 | 54.52 | 56.36 | 58.13 | 60.01 | 61.83 | 63.55 |
| Accommodation and Food Services | 300.39 | 301.91 | 303.44 | 311.85 | 320.10 | 329.00 | 337.75 | 345.95 |
| Other Services (except public administration) | 86.25 | 87.05 | 87.77 | 90.99 | 94.04 | 97.30 | 100.52 | 103.53 |
| Government | 147.03 | 147.48 | 147.91 | 150.13 | 151.88 | 153.60 | 154.96 | 155.74 |
| State and local | 112.61 | 113.09 | 113.57 | 115.95 | 117.90 | 119.80 | 121.41 | 122.53 |
| Federal civilian | 15.07 | 15.06 | 15.05 | 15.10 | 15.22 | 15.33 | 15.41 | 15.44 |
| Federal military | 19.35 | 19.32 | 19.29 | 19.07 | 18.77 | 18.48 | 18.14 | 17.76 |
| Farm | 0.44 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.41 |

## Table C5. Gross Domestic Product (billions of fixed 2025$)*

| Variable | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|
| Personal Consumption Expenditures | 137.68 | 141.25 | 145.29 | 148.78 | 152.75 | 156.72 | 160.66 | 164.76 |
| Motor vehicles and parts | 5.64 | 5.67 | 5.77 | 5.88 | 6.02 | 6.21 | 6.42 | 6.67 |
| Furnishings and durable household equipment | 4.29 | 4.51 | 4.74 | 4.95 | 5.18 | 5.42 | 5.65 | 5.89 |
| Recreational goods and other durable goods | 8.45 | 8.75 | 9.11 | 9.42 | 9.77 | 10.14 | 10.51 | 10.90 |
| Food and beverages | 11.72 | 12.08 | 12.41 | 12.71 | 13.03 | 13.33 | 13.60 | 13.86 |
| Clothing and footwear | 3.78 | 3.82 | 3.89 | 3.96 | 4.05 | 4.15 | 4.24 | 4.36 |
| Motor vehicle fuels, lubricants, and fluids | 3.45 | 3.48 | 3.52 | 3.55 | 3.59 | 3.59 | 3.62 | 3.64 |
| Fuel oil and other fuels | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| Other nondurable goods | 11.86 | 12.10 | 12.44 | 12.77 | 13.17 | 13.61 | 14.07 | 14.58 |
| Housing | 21.95 | 22.48 | 23.01 | 23.48 | 24.02 | 24.55 | 25.05 | 25.56 |
| Household utilities | 2.94 | 2.98 | 3.02 | 3.07 | 3.11 | 3.16 | 3.20 | 3.24 |
| Transportation services | 4.30 | 4.38 | 4.46 | 4.53 | 4.62 | 4.70 | 4.79 | 4.88 |
| Health care | 19.11 | 19.83 | 20.57 | 21.23 | 21.96 | 22.67 | 23.35 | 24.03 |
| Recreation and other services | 40.08 | 41.03 | 42.21 | 43.08 | 44.09 | 45.08 | 46.03 | 47.02 |
| Gross Private Domestic Fixed Investment | 40.72 | 42.70 | 45.19 | 46.75 | 48.00 | 49.13 | 50.25 | 51.21 |
| Residential | 7.06 | 8.01 | 8.87 | 9.19 | 9.36 | 9.43 | 9.44 | 9.41 |
| Nonresidential structures | 5.62 | 5.84 | 6.24 | 6.46 | 6.63 | 6.76 | 6.90 | 7.01 |
| Nonresidential equipment | 13.96 | 14.39 | 15.04 | 15.57 | 16.02 | 16.50 | 16.97 | 17.39 |
| Nonresidential intellectual property products | 14.09 | 14.46 | 15.04 | 15.53 | 15.99 | 16.45 | 16.94 | 17.39 |
| Change in Private Inventories | 0.18 | 0.15 | 0.18 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| Government Consumption Expenditures | 32.41 | 32.87 | 33.32 | 33.64 | 33.93 | 34.15 | 34.34 | 34.44 |
| Federal military | 10.63 | 10.71 | 10.77 | 10.82 | 10.87 | 10.92 | 10.96 | 10.95 |
| Federal civilian | 4.16 | 4.19 | 4.22 | 4.23 | 4.25 | 4.28 | 4.29 | 4.29 |
| State and local government | 17.62 | 17.96 | 18.34 | 18.59 | 18.81 | 18.95 | 19.09 | 19.21 |
| Total Exports | 96.91 | 98.45 | 100.27 | 102.12 | 104.04 | 106.03 | 108.08 | 110.20 |
| Total Imports | 117.60 | 120.08 | 122.68 | 125.30 | 128.03 | 130.81 | 133.66 | 136.70 |

*Note: The sum of the components may not add up to the total GDP due to rounding.

## Table C5. Gross Domestic Product (billions of fixed 2025$) (continued)*

| Variable | 2033 | 2034 | 2035 | 2040 | 2045 | 2050 | 2055 | 2060 |
|---|---|---|---|---|---|---|---|---|
| Personal Consumption Expenditures | 168.90 | 172.99 | 176.99 | 197.44 | 218.11 | 240.07 | 263.44 | 288.04 |
| Motor vehicles and parts | 6.94 | 7.21 | 7.49 | 8.98 | 10.60 | 12.39 | 14.40 | 16.58 |
| Furnishings and durable household equipment | 6.14 | 6.40 | 6.66 | 8.07 | 9.66 | 11.48 | 13.56 | 15.91 |
| Recreational goods and other durable goods | 11.30 | 11.71 | 12.14 | 14.43 | 16.97 | 19.87 | 23.16 | 26.82 |
| Food and beverages | 14.12 | 14.36 | 14.59 | 15.68 | 16.69 | 17.69 | 18.72 | 19.76 |
| Clothing and footwear | 4.47 | 4.58 | 4.68 | 5.16 | 5.63 | 6.13 | 6.65 | 7.21 |
| Motor vehicle fuels, lubricants, and fluids | 3.66 | 3.68 | 3.69 | 3.74 | 3.73 | 3.75 | 3.74 | 3.74 |
| Fuel oil and other fuels | 0.14 | 0.13 | 0.13 | 0.13 | 0.12 | 0.12 | 0.12 | 0.11 |
| Other nondurable goods | 15.10 | 15.63 | 16.16 | 18.95 | 21.96 | 25.30 | 28.98 | 32.97 |
| Housing | 26.05 | 26.52 | 26.97 | 29.07 | 30.98 | 32.86 | 34.69 | 36.47 |
| Household utilities | 3.28 | 3.32 | 3.35 | 3.49 | 3.61 | 3.71 | 3.81 | 3.91 |
| Transportation services | 4.98 | 5.09 | 5.19 | 5.72 | 6.24 | 6.79 | 7.36 | 7.96 |
| Health care | 24.72 | 25.39 | 26.05 | 29.41 | 32.71 | 36.06 | 39.45 | 42.77 |
| Recreation and other services | 48.00 | 48.97 | 49.90 | 54.62 | 59.21 | 63.90 | 68.80 | 73.84 |
| Gross Private Domestic Fixed Investment | 52.21 | 53.21 | 54.28 | 60.03 | 66.40 | 73.40 | 81.18 | 89.62 |
| Residential | 9.40 | 9.41 | 9.45 | 9.72 | 9.95 | 10.21 | 10.50 | 10.75 |
| Nonresidential structures | 7.13 | 7.30 | 7.43 | 8.25 | 9.21 | 10.25 | 11.42 | 12.67 |
| Nonresidential equipment | 17.84 | 18.24 | 18.69 | 21.01 | 23.59 | 26.43 | 29.58 | 33.03 |
| Nonresidential intellectual property products | 17.84 | 18.27 | 18.71 | 21.05 | 23.64 | 26.52 | 29.69 | 33.17 |
| Change in Private Inventories | 0.20 | 0.21 | 0.21 | 0.21 | 0.22 | 0.23 | 0.23 | 0.24 |
| Government Consumption Expenditures | 34.66 | 34.83 | 35.04 | 35.97 | 36.84 | 37.71 | 38.59 | 39.44 |
| Federal military | 11.01 | 11.05 | 11.10 | 11.32 | 11.52 | 11.72 | 11.93 | 12.15 |
| Federal civilian | 4.31 | 4.33 | 4.35 | 4.43 | 4.51 | 4.59 | 4.67 | 4.76 |
| State and local government | 19.34 | 19.46 | 19.59 | 20.22 | 20.82 | 21.40 | 21.99 | 22.54 |
| Total Exports | 112.39 | 114.63 | 116.92 | 129.18 | 142.94 | 158.27 | 175.32 | 194.27 |
| Total Imports | 139.69 | 142.82 | 146.01 | 162.54 | 180.78 | 201.12 | 223.89 | 249.11 |

*Note: The sum of the components may not add up to the total GDP due to rounding.

## Table C6. Income (billions of fixed 2025$)

| Variable | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|
| Total earnings by place of work | 114.46 | 117.88 | 121.60 | 124.18 | 126.89 | 129.52 | 132.10 | 134.68 |
| Total wage and salary disbursements | 84.71 | 87.23 | 89.95 | 91.82 | 93.81 | 95.76 | 97.66 | 99.52 |
| Supplements to wages and salaries | 17.49 | 18.07 | 18.78 | 19.37 | 19.97 | 20.53 | 21.09 | 21.65 |
| Employer contributions for employee pension and insurance funds | 11.22 | 11.60 | 12.05 | 12.43 | 12.81 | 13.18 | 13.53 | 13.89 |
| Employer contributions for government social insurance | 6.27 | 6.48 | 6.73 | 6.94 | 7.16 | 7.36 | 7.56 | 7.76 |
| Proprietors' income with inventory valuation and capital consumption adjustments | 12.26 | 12.57 | 12.87 | 12.99 | 13.11 | 13.23 | 13.36 | 13.51 |
| Less: Contributions for government social insurance | 13.30 | 13.72 | 14.16 | 14.48 | 14.81 | 15.14 | 15.46 | 15.77 |
| Employee and self-employed contributions for government social insurance | 7.03 | 7.24 | 7.43 | 7.53 | 7.66 | 7.78 | 7.90 | 8.01 |
| Employer contributions for government social insurance | 6.27 | 6.48 | 6.73 | 6.94 | 7.16 | 7.36 | 7.56 | 7.76 |
| Plus: Adjustment for residence | -1.29 | -1.32 | -1.36 | -1.37 | -1.38 | -1.38 | -1.39 | -1.39 |
| Gross in | 1.85 | 1.90 | 1.94 | 1.99 | 2.03 | 2.08 | 2.12 | 2.17 |
| Gross out | 3.14 | 3.22 | 3.30 | 3.35 | 3.41 | 3.46 | 3.51 | 3.56 |
| Equals: Net earnings by place of residence | 99.88 | 102.85 | 106.09 | 108.33 | 110.70 | 113.00 | 115.26 | 117.53 |
| Plus: Rental, personal interest, and personal dividend income | 37.22 | 38.65 | 39.99 | 41.38 | 42.68 | 44.11 | 45.54 | 46.95 |
| Plus: Personal current transfer receipts | 27.71 | 28.62 | 29.78 | 31.15 | 32.53 | 33.97 | 35.41 | 36.95 |
| Equals: Personal income | 164.81 | 170.12 | 175.86 | 180.86 | 185.91 | 191.08 | 196.21 | 201.43 |
| Less: Personal current taxes | 18.82 | 20.09 | 21.27 | 21.63 | 22.16 | 22.66 | 23.16 | 23.60 |
| Equals: Disposable personal income | 145.99 | 150.03 | 154.59 | 159.23 | 163.76 | 168.42 | 173.05 | 177.82 |

## Table C6. Income (billions of fixed 2025$) (continued)

| Variable | 2033 | 2034 | 2035 | 2040 | 2045 | 2050 | 2055 | 2060 |
|---|---|---|---|---|---|---|---|---|
| Total earnings by place of work | 137.32 | 140.00 | 142.72 | 157.08 | 172.13 | 188.50 | 206.20 | 224.73 |
| Total wage and salary disbursements | 101.37 | 103.24 | 105.17 | 115.32 | 125.75 | 137.24 | 149.71 | 162.76 |
| Supplements to wages and salaries | 22.24 | 22.84 | 23.43 | 26.44 | 29.76 | 33.20 | 36.86 | 40.72 |
| Employer contributions for employee pension and insurance funds | 14.27 | 14.66 | 15.03 | 16.96 | 19.10 | 21.30 | 23.65 | 26.13 |
| Employer contributions for government social insurance | 7.97 | 8.19 | 8.40 | 9.47 | 10.67 | 11.90 | 13.21 | 14.60 |
| Proprietors' income with inventory valuation and capital consumption adjustments | 13.71 | 13.92 | 14.13 | 15.33 | 16.62 | 18.07 | 19.63 | 21.25 |
| Less: Contributions for government social insurance | 16.08 | 16.39 | 16.70 | 18.37 | 20.10 | 21.98 | 24.03 | 26.17 |
| Employee and self-employed contributions for government social insurance | 8.10 | 8.20 | 8.31 | 8.90 | 9.43 | 10.08 | 10.82 | 11.57 |
| Employer contributions for government social insurance | 7.97 | 8.19 | 8.40 | 9.47 | 10.67 | 11.90 | 13.21 | 14.60 |
| Plus: Adjustment for residence | -1.40 | -1.41 | -1.43 | -1.54 | -1.67 | -1.82 | -1.98 | -2.13 |
| Gross in | 2.21 | 2.26 | 2.30 | 2.51 | 2.74 | 2.98 | 3.24 | 3.51 |
| Gross out | 3.61 | 3.67 | 3.73 | 4.05 | 4.41 | 4.80 | 5.21 | 5.65 |
| Equals: Net earnings by place of residence | 119.85 | 122.21 | 124.59 | 137.17 | 150.37 | 164.70 | 180.19 | 196.43 |
| Plus: Rental, personal interest, and personal dividend income | 48.23 | 49.43 | 50.63 | 56.73 | 63.00 | 69.56 | 76.45 | 83.66 |
| Plus: Personal current transfer receipts | 38.58 | 40.21 | 41.67 | 49.01 | 56.12 | 63.47 | 71.01 | 79.08 |
| Equals: Personal income | 206.66 | 211.84 | 216.89 | 242.91 | 269.48 | 297.72 | 327.65 | 359.17 |
| Less: Personal current taxes | 24.18 | 24.82 | 25.36 | 28.18 | 31.06 | 34.15 | 37.45 | 40.91 |
| Equals: Disposable personal income | 182.48 | 187.02 | 191.53 | 214.73 | 238.42 | 263.57 | 290.20 | 318.26 |

## Table C7. Population and Labor Force (in thousands)

| Variable | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|
| Total population | 2462.86 | 2504.72 | 2553.63 | 2596.78 | 2635.76 | 2671.11 | 2703.24 | 2732.66 |
| By race and ethnicity | | | | | | | | |
| White | 920.08 | 924.35 | 932.10 | 937.31 | 940.64 | 942.33 | 942.58 | 941.55 |
| Black | 306.38 | 311.57 | 318.03 | 323.80 | 329.08 | 333.94 | 338.41 | 342.55 |
| Other | 405.07 | 414.74 | 424.89 | 434.14 | 442.74 | 450.78 | 458.30 | 465.38 |
| Hispanic | 831.32 | 854.06 | 878.61 | 901.53 | 923.30 | 944.06 | 963.96 | 983.18 |
| By age | | | | | | | | |
| Ages 0-14 | 439.23 | 443.94 | 449.84 | 454.50 | 458.00 | 460.42 | 462.35 | 464.48 |
| Ages 15-24 | 315.87 | 321.14 | 327.52 | 334.49 | 337.95 | 339.05 | 339.01 | 337.27 |
| Ages 25-64 | 1300.58 | 1318.12 | 1337.49 | 1352.30 | 1368.04 | 1384.84 | 1401.56 | 1417.89 |
| Ages 65 & older | 407.17 | 421.53 | 438.77 | 455.49 | 471.77 | 486.80 | 500.31 | 513.02 |
| Labor force | 1210.19 | 1230.36 | 1253.39 | 1271.46 | 1286.89 | 1300.10 | 1311.90 | 1322.64 |
| Labor force participation rate | 0.61 | 0.61 | 0.61 | 0.61 | 0.61 | 0.60 | 0.60 | 0.60 |
| Participation rates by gender | | | | | | | | |
| Male (16 & older) | 0.68 | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 | 0.66 | 0.66 |
| Female (16 & older) | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.54 | 0.54 | 0.54 |

| Variable | 2033 | 2034 | 2035 | 2040 | 2045 | 2050 | 2055 | 2060 |
|---|---|---|---|---|---|---|---|---|
| Total population | 2760.06 | 2785.83 | 2810.22 | 2916.35 | 3002.98 | 3079.38 | 3153.01 | 3224.97 |
| By race and ethnicity | | | | | | | | |
| White | 939.63 | 936.93 | 933.58 | 909.21 | 875.83 | 838.40 | 800.66 | 764.04 |
| Black | 346.48 | 350.23 | 353.83 | 370.30 | 385.29 | 399.92 | 414.87 | 430.35 |
| Other | 472.15 | 478.66 | 484.97 | 514.41 | 541.91 | 568.96 | 596.53 | 624.33 |
| Hispanic | 1001.81 | 1020.01 | 1037.85 | 1122.44 | 1199.94 | 1272.09 | 1340.95 | 1406.25 |
| By age | | | | | | | | |
| Ages 0-14 | 466.75 | 468.83 | 471.00 | 475.10 | 474.39 | 474.56 | 477.42 | 482.54 |
| Ages 15-24 | 334.76 | 333.61 | 332.76 | 334.08 | 340.58 | 344.32 | 344.03 | 343.54 |
| Ages 25-64 | 1433.36 | 1445.74 | 1455.80 | 1510.24 | 1555.03 | 1585.63 | 1606.85 | 1615.28 |
| Ages 65 & older | 525.19 | 537.65 | 550.66 | 596.93 | 632.97 | 674.87 | 724.71 | 783.61 |
| Labor force | 1333.00 | 1343.00 | 1352.55 | 1398.58 | 1442.02 | 1483.10 | 1520.01 | 1552.17 |
| Labor force participation rate | 0.60 | 0.59 | 0.59 | 0.59 | 0.58 | 0.58 | 0.58 | 0.58 |
| Participation rates by gender | | | | | | | | |
| Male (16 & older) | 0.66 | 0.66 | 0.66 | 0.65 | 0.65 | 0.65 | 0.65 | 0.64 |
| Female (16 & older) | 0.53 | 0.53 | 0.53 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 |

## Table C8. Demographics (in thousands)

| Variable | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|
| Starting population | 2421.69 | 2462.86 | 2504.72 | 2553.63 | 2596.78 | 2635.76 | 2671.11 | 2703.24 |
| Births | 27.48 | 28.00 | 28.45 | 28.83 | 29.12 | 29.32 | 29.47 | 29.56 |
| Deaths | 21.42 | 21.95 | 22.61 | 23.35 | 24.10 | 24.82 | 25.56 | 26.28 |
| Natural growth | 6.07 | 6.05 | 5.84 | 5.48 | 5.03 | 4.50 | 3.91 | 3.28 |
| Population before migrants | 2427.75 | 2468.90 | 2510.56 | 2559.10 | 2601.81 | 2640.26 | 2675.02 | 2706.52 |
| Total migrants | 35.10 | 35.82 | 43.07 | 37.68 | 33.96 | 30.86 | 28.22 | 26.14 |
| Economic migrants | 5.89 | 13.87 | 27.13 | 21.69 | 17.86 | 14.66 | 11.97 | 9.98 |
| International migrants | 22.20 | 15.37 | 9.41 | 9.43 | 9.45 | 9.47 | 9.51 | 9.56 |
| Retired migrants | 6.19 | 6.33 | 6.45 | 6.56 | 6.66 | 6.74 | 6.78 | 6.80 |
| Special pops migrants | 0.83 | 0.25 | 0.08 | -0.01 | -0.02 | -0.01 | -0.04 | -0.20 |
| Total population | 2462.86 | 2504.72 | 2553.63 | 2596.78 | 2635.76 | 2671.11 | 2703.24 | 2732.66 |

| Variable | 2033 | 2034 | 2035 | 2040 | 2045 | 2050 | 2055 | 2060 |
|---|---|---|---|---|---|---|---|---|
| Starting population | 2732.66 | 2760.06 | 2785.83 | 2896.88 | 2986.80 | 3064.43 | 3138.30 | 3210.87 |
| Births | 29.62 | 29.65 | 29.67 | 29.68 | 29.72 | 29.96 | 30.41 | 30.85 |
| Deaths | 27.00 | 27.69 | 28.40 | 31.65 | 34.30 | 36.22 | 37.57 | 38.68 |
| Natural growth | 2.62 | 1.96 | 1.28 | -1.97 | -4.58 | -6.27 | -7.15 | -7.83 |
| Population before migrants | 2735.28 | 2762.01 | 2787.10 | 2894.91 | 2982.21 | 3058.16 | 3131.15 | 3203.04 |
| Total migrants | 24.78 | 23.81 | 23.12 | 21.44 | 20.76 | 21.22 | 21.86 | 21.94 |
| Economic migrants | 8.39 | 7.43 | 6.70 | 5.02 | 4.27 | 4.44 | 4.70 | 4.32 |
| International migrants | 9.57 | 9.58 | 9.59 | 9.63 | 9.63 | 9.59 | 9.54 | 9.49 |
| Retired migrants | 6.82 | 6.84 | 6.88 | 6.87 | 6.96 | 7.28 | 7.74 | 8.25 |
| Special pops migrants | 0.00 | -0.04 | -0.05 | -0.08 | -0.09 | -0.09 | -0.11 | -0.12 |
| Total population | 2760.06 | 2785.83 | 2810.22 | 2916.35 | 3002.98 | 3079.38 | 3153.01 | 3224.97 |

**LF-6**

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# LF-7

# Commercial Statistically Adjusted End-Use (SAE) Spreadsheets – 2023 AEO Update

The 2023 Commercial Statistically Adjusted End-Use (SAE) spreadsheets and models have been updated to reflect the Energy Information Administration's (EIA) 2023 Annual Energy Outlook (AEO). All comparisons within this document compare the 2023 forecast with the 2022 forecast unless stated otherwise. Elements that have been updated include:

- End-use energy intensity projections
- End-use efficiency projections
- Floor stock projections
- Census Division commercial SAE project files (MetrixND)
- Revised historical saturations and efficiencies

The 2023 Commercial Statistically Adjusted End-Use (SAE) spreadsheets and the Energy Information Administration's (EIA) 2023 Annual Energy Outlook (AEO) include impacts of the Inflation Reduction Act (IRA).

Each year, EIA develops a long-term electric and gas forecast for the commercial sector using an end-use modeling framework that is part of the National Energy Modeling System (NEMS). EIA develops forecasts for 11 commercial building types, 9 electric end-uses and 5 natural gas end-uses. The largest electric end-uses include lighting, cooling, ventilation, refrigeration, and miscellaneous use. The largest gas end-use is heating, followed by water heating and cooking.

End-use intensity projections are key inputs in the commercial SAE forecast model. Commercial electrical end-use intensities are measured on a kWh per square foot basis and natural gas end-uses on a therms per square foot basis. Other than miscellaneous use, end-use intensities have been declining over the last 10 years and are expected to continue to decline over the next 20 years. The decline in energy intensities are largely driven by end-use efficiency improvements. Factors driving efficiency improvements include new building and end-use standards, the availability of more efficient technology options, declining costs for high-efficient technologies and federal, state utility efficiency programs, including efficiency investments through the Inflation Reduction Act.

## Commercial Buildings Energy Consumption Survey (CBECS)

The Commercial Buildings Energy Consumption Survey (CBECS) is the foundation for the EIA commercial forecast model. End-use detail derived from the survey is used in defining the forecast base year. The 2023 AEO is based on the 2012 Commercial Buildings Energy Consumption Survey (CBECS) with a forecast base year of 2013. Prior to 2017 the AEO base year was 2004 with base year data derived from the 2003 CBECS. The most recent CBECS was completed in 2018. Data from the 2018 CBECS is being released in 2023 and will be incorporated in subsequent AEO and SAE releases.

## Electric Forecast Updates

The EIA forecast model generates end-use consumption projections starting in the base year through 2050. Annual energy projections incorporate technology efficiency projections, equipment stock and factors that drive changes in equipment stock including available technologies and associated costs, energy prices and economic conditions. Commercial electric intensities are calculated for:

- Heating
- Cooling
- Ventilation
- Water Heating
- Cooking
- Refrigeration
- Lighting
- Office Equipment (PCs)
- Miscellaneous

End-use consumption and floor space by building type are downloaded from the EIA NEMS forecast output. Data is used to generate end-use intensities for 11 building types and 9 Census Divisions. The energy intensity (EI) is derived by dividing end-use energy consumption by square footage projections:

$$EI_{bet} = {Energy_{bet}}/{sqft_{bt}}$$

Where:

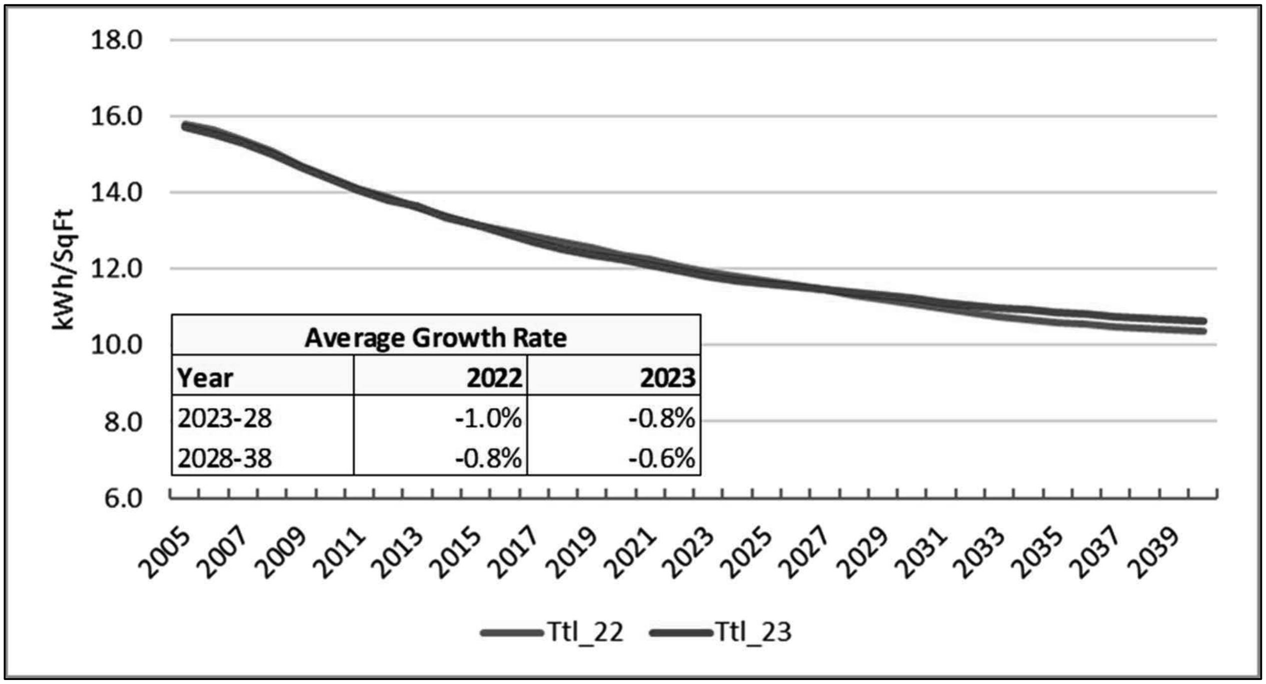
- $Energy_{bet}$ = Energy consumption for end-use e, building type *b*, year *t*
- $Sqft_{bt}$ = Square footage for building type *b* in year *t*

Total end-use energy intensities (across building types) are calculated as a weighted average of the building type intensities where the weights are based on building type square footage:

$$EI_{et} = \sum_b EI_{bet} \times \left( {sqft_{bt}}/{\sum_b sqft_{bt}} \right)$$

At the U.S. level, EIA projects a 0.8% annual decline in energy intensity between 2023 and 2028, this is a small decrease from the 1.0% decline projected in the AEO 2022 forecast. Over the longer term, the current forecast declines slightly slower than the prior forecast at 0.6% annual rate vs 0.8% annual rate. **Figure 1** compares total commercial electric intensity projections.

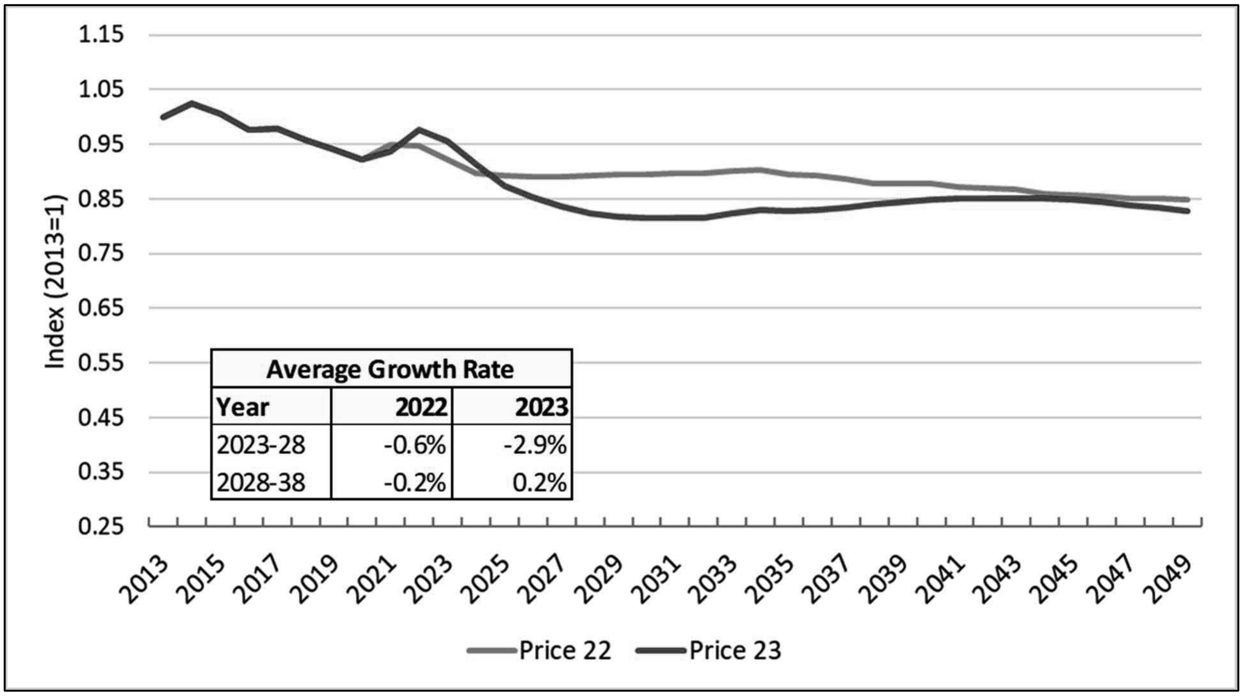
Figure 1: Total Commercial Building Electricity Intensity (kWh/SqFt)




| Average Growth Rate | | |
|---|---|---|
| Year | 2022 | 2023 |
| 2023-28 | -1.0% | -0.8% |
| 2028-38 | -0.8% | -0.6% |

In addition to technology options and equipment costs, energy prices are also a key factor in driving equipment efficiency choices and utilization. There have been revisions to the near-term price projections, with 2022 and 2023 prices being significantly higher than what was forecasted in the 2022 AEO. Start at a higher level, the 2023 AEO price forecast declines faster from 2023-2028, compared to the 2022 AEO price forecast. **Figure 2** compares AEO 2022 and 2023 commercial price projections.

Figure 2: Commercial Electric Prices (Index)

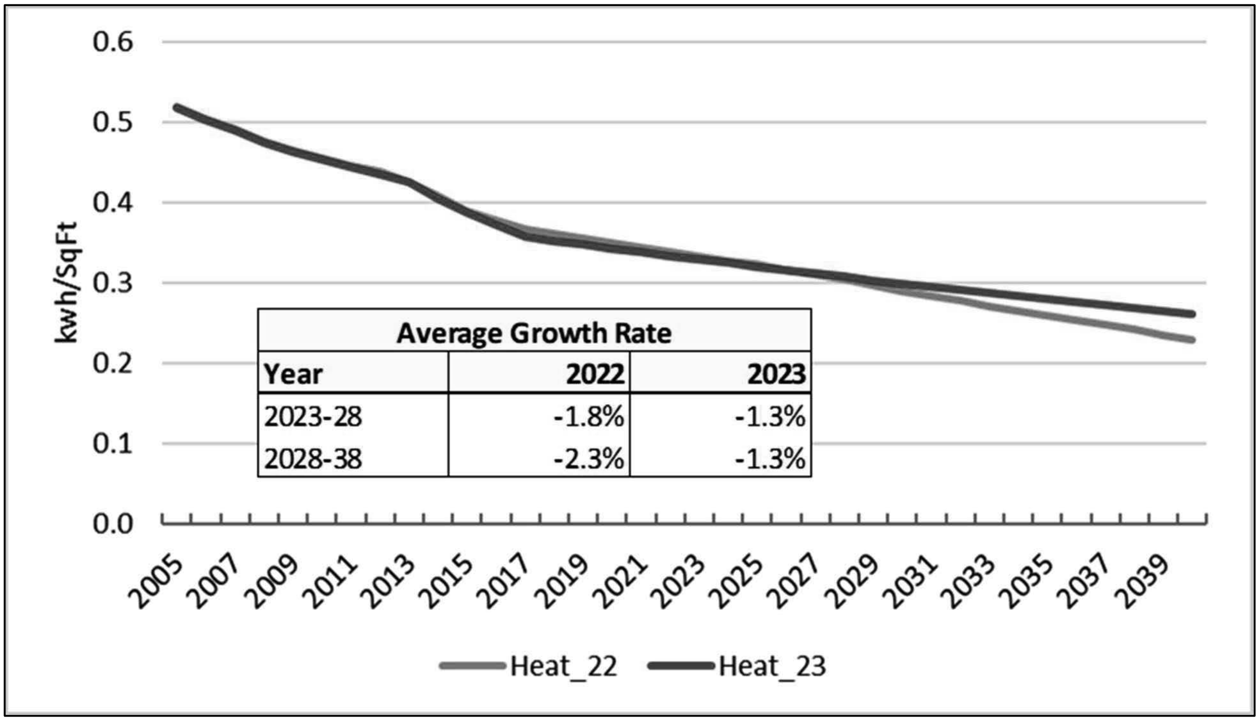



| Average Growth Rate | | |
|---|---|---|
| Year | 2022 | 2023 |
| 2023-28 | -0.6% | -2.9% |
| 2028-38 | -0.2% | 0.2% |

## Electric Heating

Although electric heating is a relatively small end use, heating intensity projections contribute to the overall decline in commercial building usage. Electric heating intensity declines 1.3% over the forecast period. The change from the 2022 AEO is based on revised efficiency assumptions. **Figure 3** compares the 2022 and 2023 heating intensity forecasts.

Figure 3: U.S. Electric Heating Intensity (kWh/SqFt)

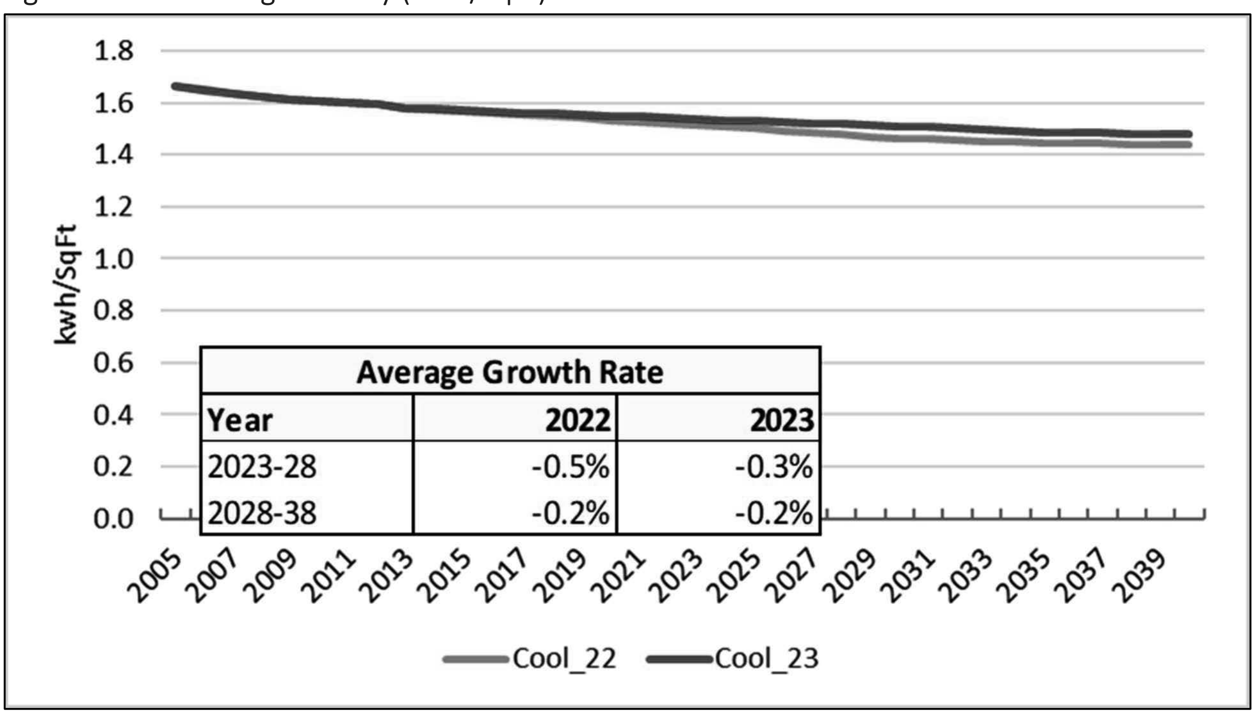



| Average Growth Rate | | |
|---|---|---|
| Year | 2022 | 2023 |
| 2023-28 | -1.8% | -1.3% |
| 2028-38 | -2.3% | -1.3% |

## Cooling

Cooling intensities are largely unchanged from the prior forecast. **Figure 4** compares AEO 2022 and AEO 2023 cooling intensity projections.

Figure 4: U.S. Cooling Intensity (kWh/SqFt)

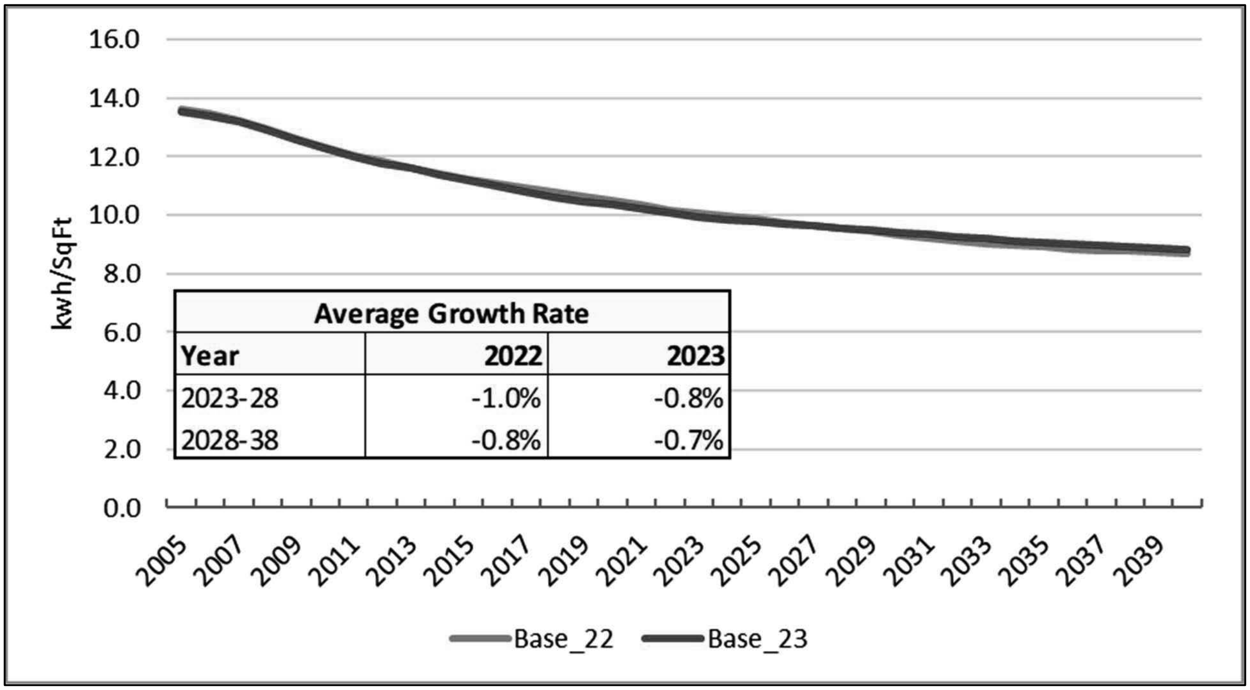



| Average Growth Rate | | |
|---|---|---|
| Year | 2022 | 2023 |
| 2023-28 | -0.5% | -0.3% |
| 2028-38 | -0.2% | -0.2% |

## Electric Other Use

Other large electric end uses include ventilation, refrigeration, lighting, office equipment and miscellaneous use. The 2023 base-use intensity declines slower than the prior forecast, largely due to revisions to lighting efficiency. The aggregation of these end-use intensities is shown in **Figure 5**.

Figure 5: U.S. Base Intensity (kWh/SqFt)

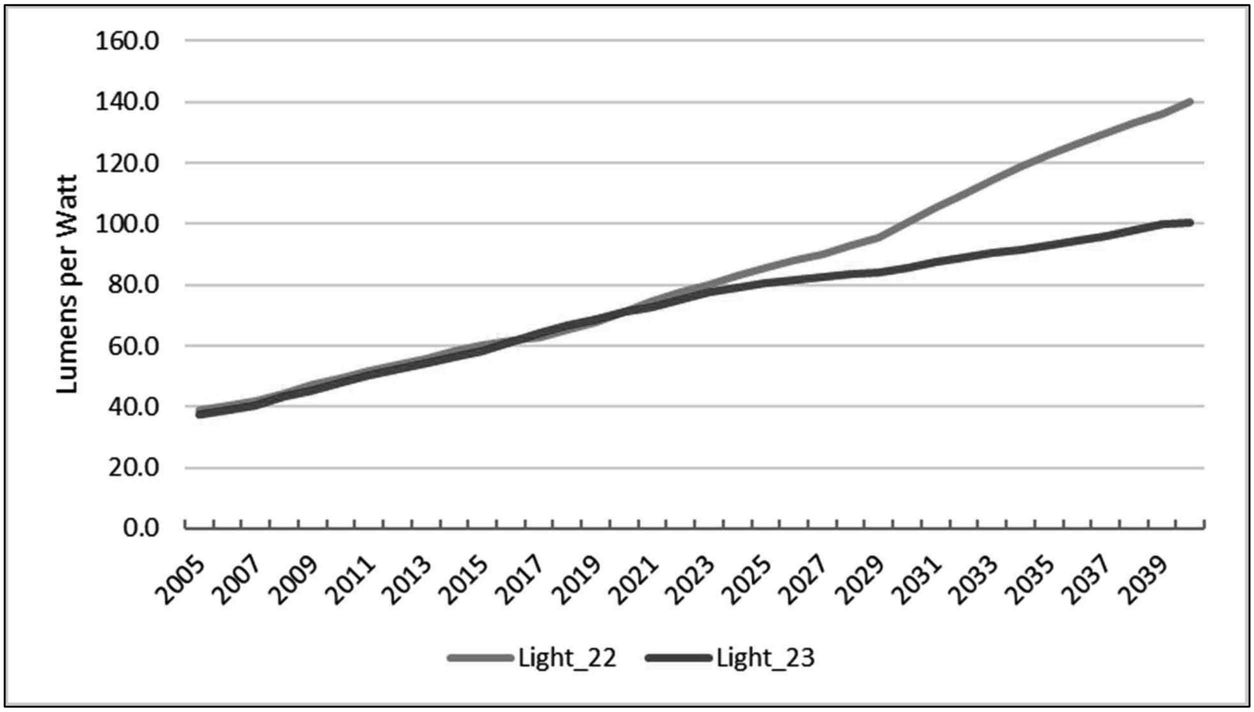



| Average Growth Rate | | |
|---|---|---|
| Year | 2022 | 2023 |
| 2023-28 | -1.0% | -0.8% |
| 2028-38 | -0.8% | -0.7% |

## Lighting

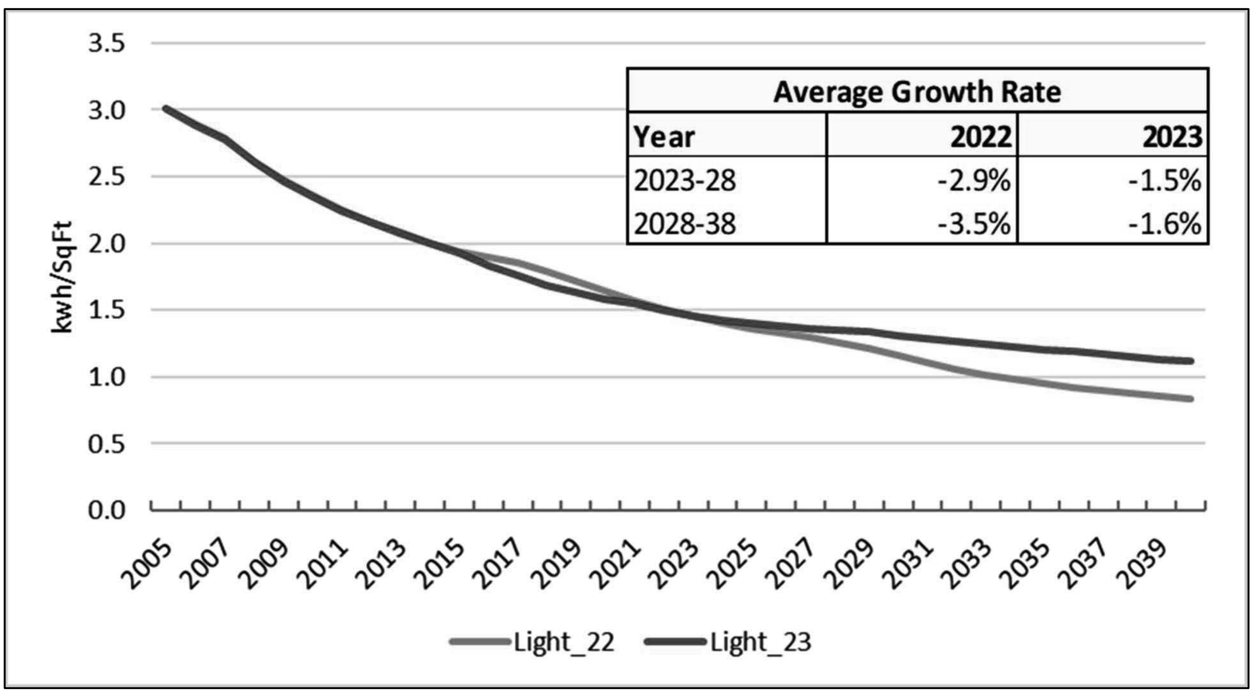
Lighting is the other large contributor to declining commercial energy intensity. In 2004, lighting accounted for 30% of commercial energy consumption. Today lighting accounts for roughly 12% of commercial building usage. Declines in lighting intensity have been driven by strong efficiency improvements with improvements expected to continue through the forecast period. The 2023 AEO incorporated new lighting cost and performance characteristics, this resulted in an upward revision to the lighting efficiency projections. **Figure 6** compares the 2023 and 2022 lighting efficiency projections, measured in lumens per watt.

Figure 6: Lighting Efficiency (Lumens per Watt)




As a result of the efficiency changes, lighting intensity projections are higher, **Figure 7** compares the 2023 and 2022 lighting intensity projections.

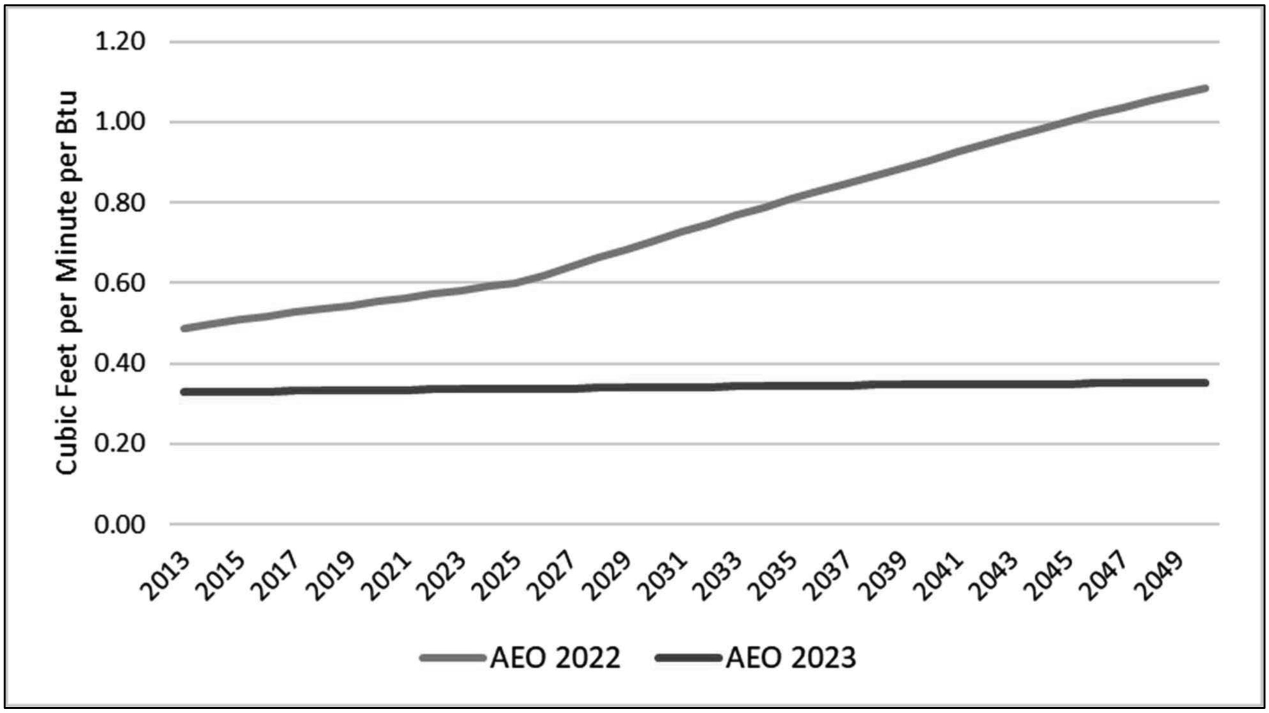
Figure 7: Lighting Intensity (kWh/SqFt)



## Ventilation

Ventilation is one of the primary end-uses contributing to overall decline in commercial building use. Ventilation accounts for 13% of commercial building use. It is the fourth largest commercial end use. As commercial ventilation saturation is nearly 100 percent, changes in ventilation intensity are driven by changes in efficiency. Starting with the 2017 AEO, the EIA projected ventilation efficiency to improve 2.0% to 3.0% per year, resulting in a significant decline in intensity. The 2023 AEO incorporated new ventilation cost and performance characteristics, resulting in very different efficiency projections, as seen in **Figure 8**. Ventilation consumption projections have been revised down, which is inconsistent with the efficiency projections.  This implies either lower utilization or square footage. In an effort to ensure the resulting ventilation intensity is consistent with the consumption projections, the 2023 SAE spreadsheets will utilize the 2022 ventilation projections. Further investigation and discussion with EIA will be pursued to ensure the most accurate assumptions are used going forward.

Figure 8: Ventilation Efficiency (Cubic Feet per Minute per Btu)




## Solar Adjustment

Prior to the 2021 forecast, EIA subtracted solar generation from the end-use intensities. Itron would add back solar generation to reflect customer use rather than customer delivered energy. This adjustment is no longer needed as EIA is again forecasting customer use and not delivered energy.

## PV Worksheet

The PV worksheet has been populated with regional solar data from the 2023 AEO. The PV worksheet, (**Figure 9**) calculates from left to right with EIA inputs in red and calculations in blue.

Figure 9: PV Worksheet

| Year | Floorspace | PVInstalls | PVStock | AvgPVSize | PVInstalledKW | PVDecayRate | PVStockKW | CapacityFactor | Generation MWh | OwnUse Share | OwnUse MWh | Excess MWh | OwnUse Intensity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | 62,543 | 2,087 | 2,087 | 41.4 | 86,414 | 0.01 | 86,414 | 15.2% | 114,835 | 100% | 114,805 | 31 | (0.0018) |
| 1996 | 64,821 | 546 | 2,633 | 41.4 | 22,593 | 0.01 | 108,143 | 15.2% | 143,711 | 100% | 143,672 | 39 | (0.0022) |
| 1997 | 67,100 | 688 | 3,321 | 41.4 | 28,500 | 0.01 | 135,562 | 15.2% | 180,147 | 100% | 180,099 | 48 | (0.0027) |
| 1998 | 69,379 | 868 | 4,190 | 41.4 | 35,951 | 0.01 | 170,158 | 15.2% | 226,121 | 100% | 226,060 | 61 | (0.0033) |
| 1999 | 71,658 | 1,095 | 5,285 | 41.4 | 45,351 | 0.01 | 213,807 | 15.2% | 284,126 | 100% | 284,050 | 76 | (0.0040) |
| 2000 | 72,807 | 1,382 | 6,667 | 41.4 | 57,208 | 0.01 | 268,876 | 15.2% | 357,308 | 100% | 357,212 | 96 | (0.0049) |
| 2001 | 73,956 | 1,743 | 8,410 | 41.4 | 72,165 | 0.01 | 338,352 | 15.2% | 449,634 | 100% | 449,513 | 121 | (0.0061) |
| 2002 | 75,106 | 2,199 | 10,609 | 41.4 | 91,032 | 0.01 | 426,001 | 15.2% | 566,109 | 100% | 565,957 | 152 | (0.0075) |
| 2003 | 76,255 | 2,774 | 13,383 | 41.4 | 114,832 | 0.01 | 536,573 | 15.2% | 713,048 | 100% | 712,856 | 192 | (0.0093) |
| 2004 | 77,678 | 3,499 | 16,882 | 41.4 | 144,855 | 0.01 | 676,063 | 15.2% | 898,415 | 100% | 898,173 | 241 | (0.0116) |
| 2005 | 79,021 | 4,414 | 21,295 | 41.4 | 182,728 | 0.01 | 852,030 | 15.2% | 1,132,256 | 100% | 1,131,951 | 304 | (0.0143) |
| 2006 | 80,510 | 5,568 | 26,863 | 41.4 | 230,502 | 0.01 | 1,074,011 | 15.2% | 1,427,245 | 100% | 1,426,862 | 384 | (0.0177) |
| 2007 | 82,039 | 7,023 | 33,886 | 41.4 | 290,766 | 0.01 | 1,354,038 | 15.2% | 1,799,370 | 100% | 1,798,886 | 484 | (0.0219) |
| 2008 | 83,619 | 8,860 | 42,746 | 41.4 | 366,787 | 0.01 | 1,707,285 | 15.2% | 2,268,797 | 100% | 2,268,187 | 610 | (0.0271) |
| 2009 | 85,063 | 11,176 | 53,922 | 41.4 | 462,684 | 0.01 | 2,152,896 | 15.2% | 2,860,966 | 100% | 2,860,197 | 769 | (0.0336) |
| 2010 | 86,009 | 14,098 | 68,020 | 41.4 | 583,652 | 0.01 | 2,715,019 | 15.2% | 3,607,967 | 100% | 3,606,997 | 970 | (0.0419) |
| 2011 | 86,599 | 17,784 | 85,804 | 41.4 | 736,248 | 0.01 | 3,424,117 | 15.2% | 4,550,281 | 100% | 4,549,059 | 1,223 | (0.0525) |
| 2012 | 87,071 | 22,433 | 108,237 | 41.4 | 928,740 | 0.01 | 4,318,616 | 15.2% | 5,738,974 | 100% | 5,737,432 | 1,542 | (0.0659) |
| 2013 | 87,591 | 28,299 | 136,535 | 41.4 | 1,171,559 | 0.01 | 5,446,988 | 15.2% | 7,238,459 | 100% | 7,236,514 | 1,945 | (0.0826) |
| 2014 | 88,142 | 35,989 | 172,525 | 38.8 | 1,395,106 | 0.01 | 6,787,624 | 15.2% | 9,020,020 | 100% | 9,017,828 | 2,192 | (0.1023) |
| 2015 | 88,781 | 35,246 | 207,770 | 37.3 | 1,313,332 | 0.01 | 8,033,080 | 15.2% | 10,675,096 | 100% | 10,672,489 | 2,607 | (0.1202) |
| 2016 | 89,572 | 57,173 | 264,943 | 35.7 | 2,039,432 | 0.01 | 9,992,182 | 15.2% | 13,278,530 | 100% | 13,275,484 | 3,046 | (0.1482) |
| 2017 | 90,471 | 78,567 | 343,510 | 34.4 | 2,700,986 | 0.01 | 12,593,246 | 15.2% | 16,735,064 | 100% | 16,731,217 | 3,846 | (0.1849) |
| 2018 | 91,434 | 66,651 | 410,161 | 34.0 | 2,268,946 | 0.01 | 14,736,259 | 15.2% | 19,582,897 | 100% | 19,577,652 | 5,245 | (0.2141) |
| 2019 | 92,454 | 62,688 | 472,849 | 34.1 | 2,139,719 | 0.01 | 16,728,616 | 15.2% | 22,230,524 | 100% | 22,224,954 | 5,569 | (0.2404) |

The annual number of installed PV systems (Column C) are accumulated to total PV stock (Column D). This is translated to annual kW of installed capacity (Column F) by multiplying cumulative installed units by average system size (Column E). Capacity projection can be adjusted for solar degradation by setting a decay rate (Column G); Adjusted kW capacity (Column H) is calculated by applying the decay rate to prior year PV capacity estimate. Solar generation (Column J) is calculated as the product of adjusted solar capacity, capacity factor (Column I) and the number of hours in a year. Solar generation is either used onsite (own-use) or sold back to the grid (excess). Solar own-use is the product of total generation and own-use share (Column K); own-use share may vary significantly depending on local net metering laws. Solar own-use intensity (Column N) is derived by dividing own-use solar generation by square footage.

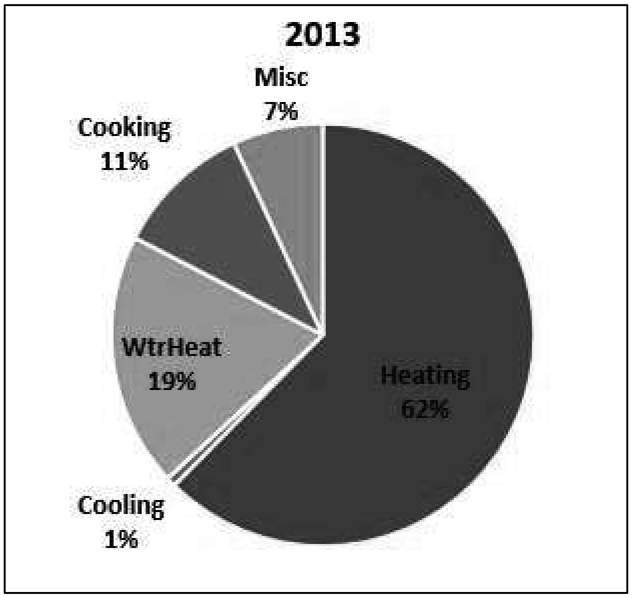
## Gas Forecast Updates

Commercial gas intensities are calculated for the primary end uses, including:

- Space Heating
- Space Cooling
- Water Heating
- Cooking
- Miscellaneous

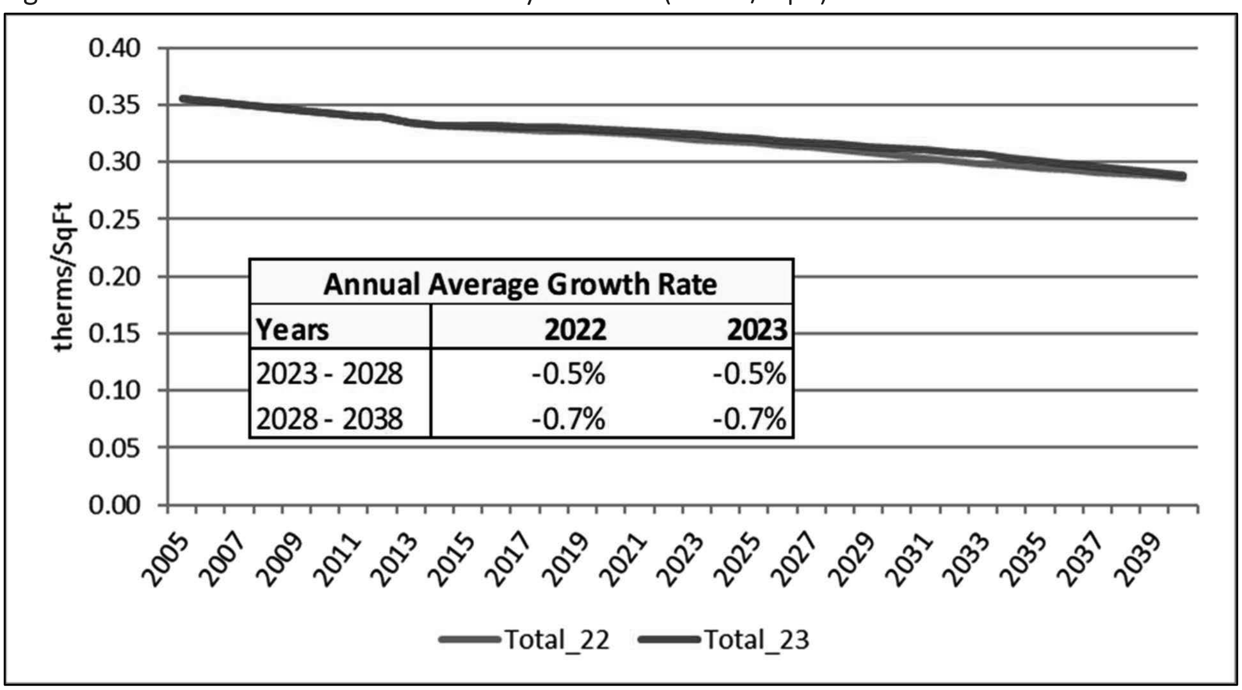
**Figure 10** shows the base-year end-use shares.

Figure 10: Gas End-use Distribution




Total gas intensity (therms per SqFt) is largely unchanged from last year with intensity expected to decline 0.5% per year through 2028 and 0.7% in the subsequent 10 years. **Figure 11** compares the 2022 and 2023 total commercial building gas intensity.

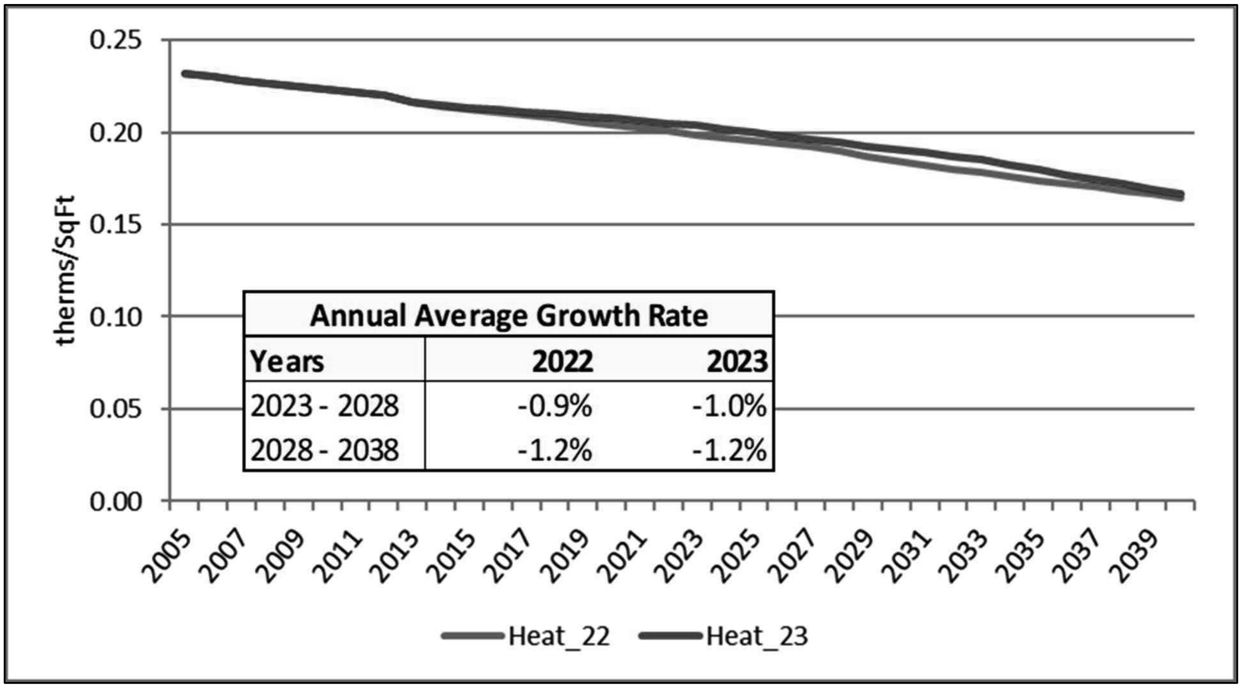
Figure 11: Total Commercial Gas Intensity Forecast (therm/SqFt)



## Gas Heating

Natural gas is the predominant energy source for commercial heating. Heating intensity is expected to decline at 1.0% per year through 2027, increasing to 1.2% through 2037. Figure 12 compares gas heating intensity projections.

Figure 12: Gas Heating Intensity (therm/SqFt)

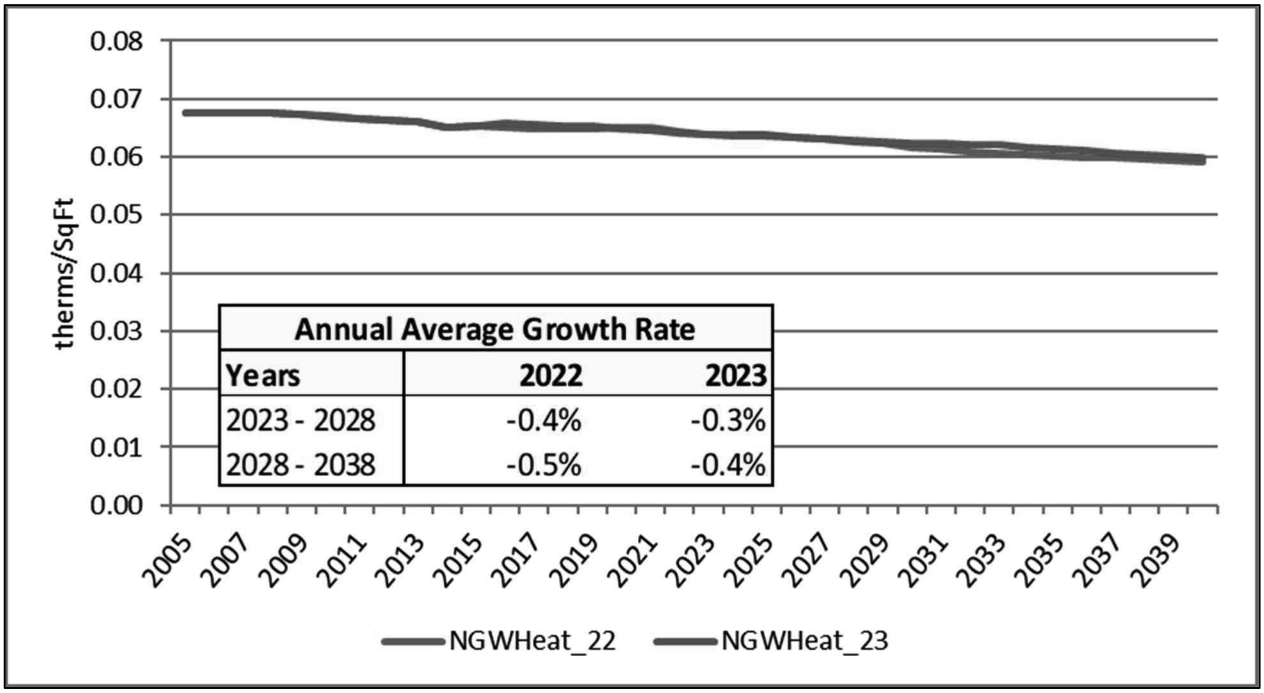



| Annual Average Growth Rate | | |
|---|---|---|
| Years | 2022 | 2023 |
| 2023 - 2028 | -0.9% | -1.0% |
| 2028 - 2038 | -1.2% | -1.2% |

## Gas Other End Uses

Water heating is the second largest end use accounting for approximately 20% of commercial gas use. As with heating, there are no significant changes. **Figure 13** compares the 2022 and 2023 gas water heating intensity projections.

Figure 13: Gas Water Heating Intensity Projections (therm/SqFt)




## SAE Forecast Model Updates

MetrixND SAE models are constructed for each Census Division. The set of project files include simple floor stock models designed to mimic the EIA commercial sales forecast. In the floor stock models, monthly commercial sales are defined as a function of square footage (SqFt), end-use energy intensities (*CoolEI*, *HeatEI* and *OtherEI*) and monthly heating and cooling degree-day indices (*HDDIndex*, *CDDIndex*):

$$Sales_t = b_0 + b_1 \times (CoolEI_t \times SqFt_t \times CDDIndex_t) + b_2 \times (HeatEI_t \times SqFt_t \times HDDIndex_t) + b_3 \times (OtherEI_t \times SqFt_t) + e_t$$

The regional models incorporate EIA's 2023 end-use intensity and square footage projections. The models can be calibrated to an individual utility service area by replacing EIA historical and forecasted square footage with utility-specific square footage estimates. A standard approach for developing a square footage forecast is to estimate a square footage model as a function of commercial employment:

$$SqFt_{t=}a_0 + a_1 \times ComEmploy_t + e_t$$

For most utilities, historical floor stock data is difficult to construct. Further, the simple floor stock model may not adequately capture the impact of short-term variations in economic activity and rate changes. The new project files also include the SAE model specifications from earlier years. In the SAE specification, estimates of long-term monthly end-use energy are imported from the SAE spreadsheet, and interacted with GDP, price and weather conditions. An elasticity that is consistent with forecasts derived from the simple stock model is imposed on GDP. A description of the SAE model specification is outlined in Appendix A

# Appendix A:
# Commercial Statistically Adjusted End-Use Model

The traditional approach to forecasting monthly sales for a customer class is to develop an econometric model that relates monthly sales to weather, seasonal variables, and economic conditions. From a forecasting perspective, econometric models are well suited to identifying historical trends and to projecting these trends into the future. In contrast, end-use models can incorporate the end-use factors driving energy use. By including end-use structure in an econometric model, the statistically adjusted end-use (SAE) modeling framework exploits the strengths of both approaches.

There are several advantages to the SAE approach.

- The equipment efficiency trends and saturation changes embodied in the long-run end-use forecasts are introduced explicitly into the short-term monthly sales forecast, thereby providing a strong bridge between the two forecasts.
- By explicitly introducing trends in equipment saturations and efficiency levels, SAE models can explain changes in usage levels and weather-sensitivity over time.
- Data for short-term models are often not sufficiently robust to support estimation of a full set of price, economic and demographic effects. By bundling these factors with equipment-oriented drivers, a rich set of elasticities can be built into the final model.

This section describes this approach, the associated supporting Commercial SAE spreadsheets, and MetrixND project files that are used in the implementation. The source for the commercial SAE spreadsheets is the 2020 Annual Energy Outlook (AEO) database provided by the Energy Information Administration (EIA).

## Statistically Adjusted End-Use Model Framework

The statistically adjusted end-use modeling framework begins by defining energy use ($USE_{y,m}$) in year ($y$) and month ($m$) as the sum of energy used by heating equipment ($Heat_{y,m}$), cooling equipment ($Cool_{y,m}$), and other equipment ($Other_{y,m}$). Formally,

$$USE_{y,m} = Heat_{y,m} + Cool_{y,m} + \text{Other}_{y,m} \quad (1)$$

Although monthly sales are measured for individual customers, the end-use components are not. Substituting estimates for the end-use elements gives the following econometric equation.

$$USE_m = a + b_1 \times XHeat_m + b_2 \times XCool_m + b_3 \times XOther_m + \varepsilon_m \quad (2)$$

$XHeat_m$, $XCool_m$, and $XOther_m$ are explanatory variables constructed from end-use information, dwelling data, weather data, and market data. As will be shown below, the equations used to construct these X-variables are simplified end-use models, and the X-variables are the estimated usage levels for each of the major end uses based on these models. The estimated model can then be thought of as a statistically adjusted end-use model, where the estimated slopes are the adjustment factors.

Itron

## Constructing XHeat

As represented in the Commercial SAE spreadsheets, energy use by space heating systems depends on the following types of variables.

- Heating degree days,
- Heating intensity,
- Commercial output and energy price.

The heating variable is represented as the product of an annual equipment index and a monthly usage multiplier. That is,

$$XHeat_{y,m} = HeatIndex_{y,m} \times HeatUse_{y,m} \qquad (3)$$

Where:

- $XHeat_{y,m}$ is estimated heating energy use in year (*y*) and month (*m*)
- $HeatIndex_{y,m}$ is the annual index of heating equipment
- $HeatUse_{y,m}$ is the monthly usage multiplier

The heating equipment index is composed of electric space heating intensity. The index will change over time with changes in heating intensity. Formally, the equipment index is defined as:

$$HeatIndex_y = HeatSales_{13} \times \frac{(HeatIntensity_y)}{(HeatIntensity_{13})} \qquad (4)$$

In this expression, 2013 is used as a base year for normalizing the index. The ratio on the right is equal to 1.0 in 2013. In other years, it will be greater than 1.0 if intensity levels are above their 2013 level.

$$HeatSales_{13} = \left(\frac{kWh}{Sqft}\right)_{Heating} \times \left(\frac{CommercialSales_{13}}{\sum_e {}^{kWh}/_{Sqft_e}}\right) \qquad (5)$$

Here, base-year sales for space heating is the product of the average space heating intensity value and the ratio of total commercial sales in the base year over the sum of the end-use intensity values. In the Commercial SAE Spreadsheets, the space heating sales value is defined on the *BaseYrInput* tab. The resulting $HeatIndex_y$ value in 2013 will be equal to the estimated annual heating sales in that year. Variations from this value in other years will be proportional to saturation and efficiency variations around their base values.

Heating system usage levels are impacted on a monthly basis by several factors, including weather, commercial level economic activity, and prices. Using the COMMEND default elasticity parameters, the estimates for space heating equipment usage levels are computed as follows:

$$HeatUse_{y,m} = \left(\frac{WgtHDD_{y,m}}{HDD_{13}}\right) \times \left(\frac{Output_y}{Outp\quad_{13}}\right) \quad \times \left(\frac{Pr\,ice_{y,m}}{Pr\,ice_{13}}\right)^{-0.18} \tag{6}$$

Where

- *WgtHDD* is the weighted number of heating degree days in year *y* and month *m*. This is constructed as the weighted sum of the current month's HDD and the prior month's HDD. The weights are 75% on the current month and 25% on the prior month
- *HDD* is the annual heating degree days for 2013,
- *Output* is a real commercial output driver in year *y*,
- *Price* is the average real price of electricity in month *m* and year *y*,

By construction, the $HeatUse_{y,m}$ variable has an annual sum that is close to 1.0 in the base year (2013). The first terms, which involve heating degree days, serves to allocate annual values to months of the year. The remaining terms average to 1.0 in the base year. In other years, the values will reflect changes in commercial output and prices, as transformed through the end-use elasticity parameters. For example, if the real price of electricity goes up 10% relative to the base year value, the price term will contribute a multiplier of about .98 (computed as 1.10 to the -0.18 power).

### Constructing XCool

The explanatory variable for cooling loads is constructed in a similar manner. The amount of energy used by cooling systems depends on the following types of variables.

- Cooling degree days,
- Cooling intensity,
- Commercial output and energy price.

The cooling variable is represented as the product of an equipment-based index and monthly usage multiplier. That is,

$$XCool_{y,m} = CoolIndex_y \times CoolUse_{y,m} \tag{7}$$

Where:

- $XCool_{y,m}$ is estimated cooling energy use in year y and month m,
- $CoolIndex_y$ is an index of cooling equipment, and
- $CoolUse_{y,m}$ is the monthly usage multiplier.

As with heating, the cooling equipment index depends on equipment saturation levels (*CoolShare*) normalized by operating efficiency levels (Eff). Formally, the cooling equipment index is defined as:

$$CoolIndex_y = CoolSales_{13} \times \frac{\left({CoolShare_y}/{Eff_y}\right)}{\left({CoolShare_{13}}/{Eff_{13}}\right)} \tag{8}$$

Data values in 2013 are used as a base year for normalizing the index, and the ratio on the right is equal to 1.0 in 2013. In other years, it will be greater than 1.0 if equipment saturation levels are above their 2013 level. This will be counteracted by higher efficiency levels, which will drive the index downward. Estimates of base year cooling sales are defined as follows.

$$CoolSales_{13} = \left(\frac{kWh}{Sqft}\right)_{Cooling} \times \left(\frac{CommercialSales_{13}}{\sum_e {kWh}/{Sqft_e}}\right) \quad (9)$$

Here, base-year sales for space cooling is the product of the average space cooling intensity value and the ratio of total commercial sales in the base year over the sum of the end-use intensity values. In the Commercial SAE Spreadsheets, the space cooling sales value is defined on the *BaseYrInput* tab. The resulting *CoolIndex* value in 2013 will be equal to the estimated annual cooling sales in that year. Variations from this value in other years will be proportional to saturation and efficiency variations around their base values.

Cooling system usage levels are impacted on a monthly basis by several factors, including weather, economic activity levels and prices. Using the COMMEND default parameters, the estimates of cooling equipment usage levels are computed as follows:

$$CoolUse_{y,m} = \left(\frac{WgtCDD_{y,m}}{CDD_{13}}\right) \times \left(\frac{Output_y}{Output_{13}}\right) \times \left(\frac{Price_{y,m}}{Price_{13}}\right)^{-0.18} \quad (10)$$

Where:

- *WgtCDD* is the weighted number of cooling degree days in year (*y*) and month (*m*). This is constructed as the weighted sum of the current month's CDD and the prior month's CDD. The weights are 75% on the current month and 25% on the prior month.
- *CDD* is the annual cooling degree days for 2013.

By construction, the *CoolUse* variable has an annual sum that is close to 1.0 in the base year (2013). The first two terms, which involve billing days and cooling degree days, serve to allocate annual values to months of the year. The remaining terms average to 1.0 in the base year. In other years, the values will change to reflect changes in commercial output and prices.

## Constructing XOther

Monthly estimates of non-weather sensitive sales can be derived in a similar fashion to space heating and cooling. Based on end-use concepts, other sales are driven by:

- Equipment intensities,
- Average number of days in the billing cycle for each month, and
- Real commercial output and real prices.

The explanatory variable for other uses is defined as follows:

$$XOther_{y,m} = OtherIndex_{y,m} \times OtherUse_{y,m} \quad (11)$$

The second term on the right-hand side of this expression embodies information about equipment saturation levels and efficiency levels. The equipment index for other uses is defined as follows:

$$OtherIndex_{y,m} = \sum_{Type} Weight_{13}^{Type} \times \left( \frac{Share_{y}^{Type} \Big/ Eff_{y}^{Type}}{Share_{13}^{Type} \Big/ Eff_{13}^{Type}} \right) \qquad (12)$$

Where:

- Weight is the weight for each equipment type,
- Share represents the fraction of floor stock with an equipment type, and
- Eff is the average operating efficiency.

This index combines information about trends in saturation levels and efficiency levels for the main equipment categories. The weights are defined as follows.

$$Weight_{13}^{Type} = \left(\frac{kWh}{Sqft}\right)_{Type} \times \left( \frac{CommercialSa \quad {}_{13}}{\sum_{e} {}^{kW} / {}_{Sqft_e}} \right) \qquad (13)$$

Further monthly variation is introduced by multiplying by usage factors that cut across all end-uses, constructed as follows:

$$OtherUse_{y,m} = \left(\frac{BDays_{y,m}}{30.44}\right) \times \left(\frac{Output_{y}}{Output_{13}}\right) \times \left(\frac{Price_{y.m}}{Price_{13}}\right)^{-0.18} \qquad (14)$$

In this expression, the elasticities on output and real price are computed from the COMMEND default values.

## Supporting Spreadsheets and MetrixND Project Files

The SAE approach described above has been implemented for each of the nine census divisions. A mapping of states to census divisions is presented in Figure 1. This section describes the contents of each file and a procedure for customizing the files for specific utility data. A total of 18 files are provided. These files are listed in Table 1.

Figure 1: Mapping of States to Census Divisions

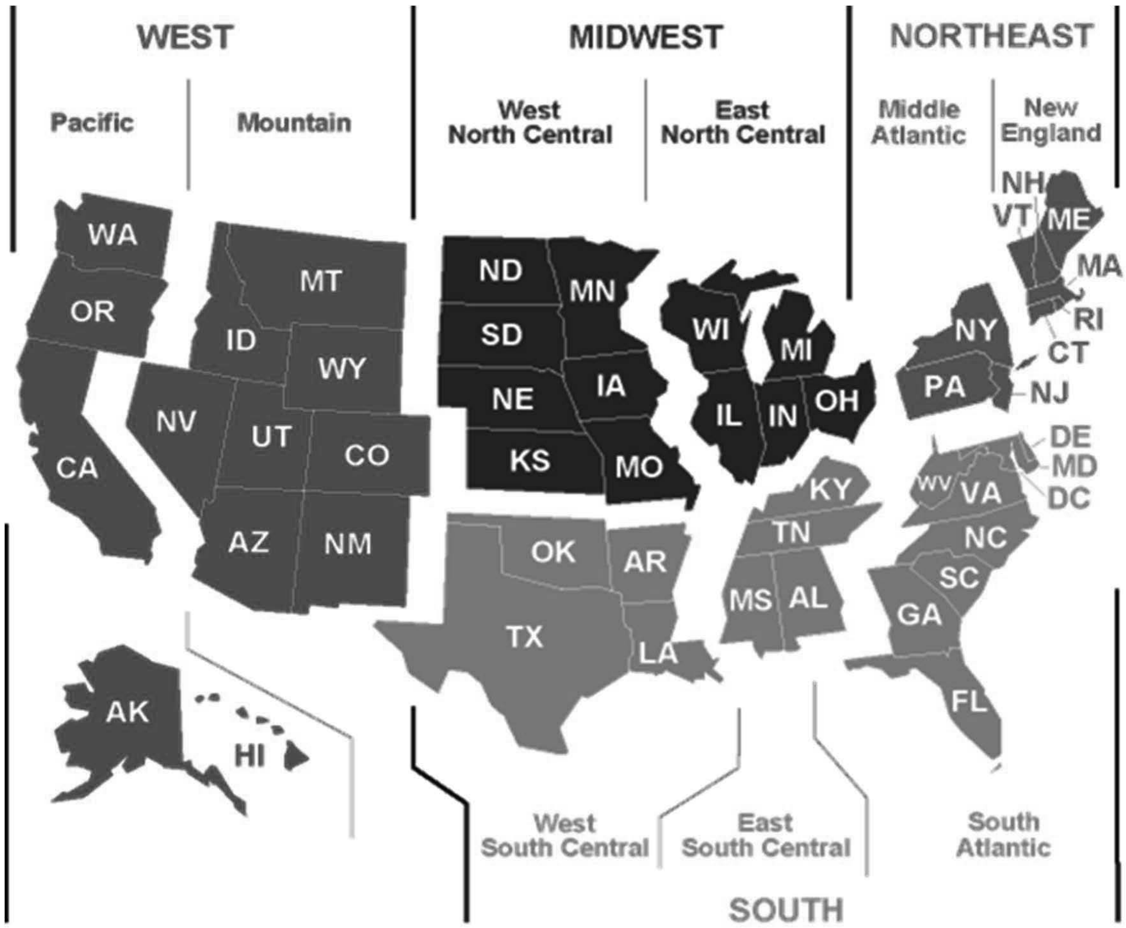



Table 1: List of SAE Electric Files

| **Spreadsheets** | ***MetrixND* Project Files** |
|---|---|
| NewEnglandCom23.xlsx | NewEnglandCom23.ndm |
| MiddleAtlanticCom23.xlsx | MiddleAtlanticCom23.ndm |
| EastNorthCentralCom23.xlsx | EastNorthCentralCom23.ndm |
| WestNorthCentralCom23.xlsx | WestNorthCentralCom23.ndm |
| SouthAtlanticCom23.xlsx | SouthAltanticCom23.ndm |
| EastSouthCentralCom23.xlsx | EastSouthCentralCom23.ndm |
| WestSouthCentralCom23.xlsx | WestSouthCentralCom23.ndm |
| MountainCom23.xlsx | MountainCom23.ndm |
| PacificCom23.xlsx | PacificCom23.ndm |

As defaults, the SAE spreadsheets include regional data, but utility data can be entered to generate the *Heat*, *Cool* and *Other* equipment indices used in the SAE approach. The data from these spreadsheets are linked to the MetrixND project files. In these project files, the end-use *Usage* variables (Equations 6, 10 and 14 above) are constructed and the SAE model is estimated.

The nine spreadsheets contain the following tabs.

- **EIAData** contains the raw forecasted data provided by the EIA.
- **BaseYrInput** contains base year Census Division intensities by end-use and building type as well as default building type weights. It also contains functionality for changing the weights to reflect utility service territory.
- **Efficiency** contains historical and forecasted end-use equipment efficiency trends. The forecasted values are based on projections provided by the EIA.
- **Shares** contains historical and forecasted end-use saturations.
- **Intensity** contains the annual intensity (kWh/sqft) projections by end use.
- **AnnualIndices** contains the annual *Heat*, *Cool* and *Other* equipment indices.
- **FloorSpace** contains the annual floor space (sqft) projections by end use.
- **PV** incorporates the impact of photovoltaic batteries into the forecast.
- **Graphs** contains graphs of Efficiency and Intensities, which can be updating by selecting from the list in cell B2.

The MetrixND project files contain the following objects.

### Parameter Tables

- **Parameters.** This parameter table includes the values of the annual HDD and CDD in 2013 used to calculate the Usage variables for each end-use.
- **Elas.** This parameter table includes the values of the elasticities used to calculate the Usage variables for each end-use.

### Data Tables

- **AnnualIndices.** This data table is linked to the *AnnualIndices* tab in the Commercial SAE spreadsheet and contains sales-adjusted commercial SAE indices.
- **Intensity.** This data table is linked to the *Intensity* tab in the Commercial SAE spreadsheet.
- **FloorSpace.** This data table links to *FloorSpace* tab in the Commercial SAE spreadsheet.
- **UtilityData.** This linkless data table contains Census Division level data. It can be populated with utility-specific data.

### Transformation Tables

- **EconTrans.** This transformation table is used to compute the output and price indices used in the usage equations.
- **WeatherTrans.** This transformation table is used to compute the HDD and CDD indices used in the usage equations.
- **CommercialVars.** This transformation table is used to compute the *Heat*, *Cool* and *Other* Usage variables, as well as the *XHeat*, *XCool* and *XOther* variables that are used in the regression model. Structural variables based on the intensity/floor space combination are also calculated here.
- **BinaryVars.** This transformation table is used to compute the calendar binary variables that could be required in the regression model.

- **AnnualFcst.** This transformation table is used to compute the annual historical and forecast sales and annual change in sales.
- **EndUseFcst.** This transformation table breaks the forecast down into its heating, cooling, and other components.

Models

- **ComSAE.** The commercial SAE model (energy forecast driven by end-use indices, price, and output projections).
- **ComStruct.** Simple stock model (energy forecast driven by end-use energy intensities, and square footage).

# Residential Statistically Adjusted End-Use (SAE) Spreadsheets – 2023 AEO Update

The Residential SAE spreadsheets and models have been updated reflect the Energy Information Administration's (EIA*) 2023 Annual Energy Outlook (AEO)*. The 2023 projections start in 2015 based on the the 2015 Residential Energy Consumption Survey (RECS). Between 2015 and through 2023 model parameters and inputs are adjusted to reflect actual end-use shipments data, weather conditions, number of households, prices, economic conditions, and state and federal energy efficiency policies. Going forward the end-use forecasts are driven by forecasted prices, end-use costs, efficiency standards, and expected impact of current state and federal efficiency progams including the recently passed Inflation Reduction Act (IRA). The SAE spreadsheets are based on the EIA Reference Case forecast. The Reference case reflects the impact of current efficiency programs, laws, and end-use standards.

The forecast incorporates the impact of the federal efficiency investment tax incentives associated with the IRA. As a result, overall residential intensities (kWh per household) are slightly lower than last year's forecast most Censu Divisions. In some Census Divisions there is very little change in intensity projectiosn from last year as other factors including slightly stronger heat pump sales associated with electrification activity counter stronger efficiency gains.

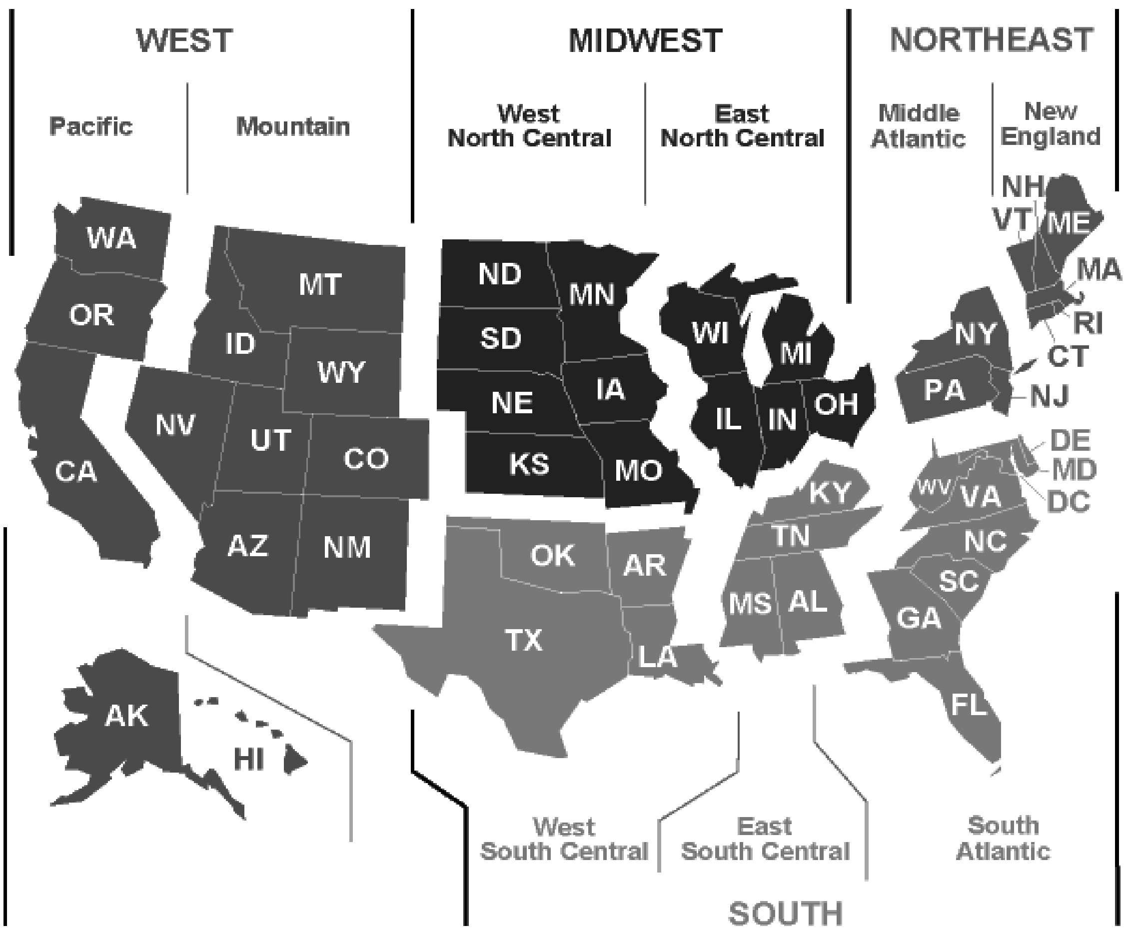
End-use intensity projections are constructed from end-use consumption data (12 end-use categories and three housing types), number of existing units (e.g., number of air conditioners), average end-use stock efficiency, average square footage, and heating and cooling thermal shell integrity trends. The data is used in developing end-use saturations, efficiencies projections, and end-use intensities that are inputs into SAE residential forecast models. The intensity projections reflect current and expected market conditions through the on-going data collection that includes appliance shipment data, appliance characteristic data, appliance standards, thermal shell information, regional energy efficiency (EE) program expenditures and rebates, electricity and gas prices, stock utilization, weather conditions, and EIA's calibration to actual residential customers and sales. .

The 2023 residential SAE spreadsheets and *MetrixND* project files include:

- Updated equipment efficiency trends.
- Updated equipment and appliance saturation trends.
- Updated structural indices.
- Updated annual heating, cooling, water heating, and non-HVAC indices.
- Updated regional sales forecasts.

EIA provides end-use detail for nine census divisions, depicted in Figure 1.

**Figure 1: Forecast Census Divisions**




Forecasts are generated from the National Energy Modeling System (NEMS). The NEMS model tracks appliance stock, stock efficiency, and usage change over time as appliances are replaced, new appliances are purchased, and utilization changes with changing economic, price, and weather conditions. Appliance choice decisions are driven by appliance costs, efficiency options and standards, natural gas availability, and fuel prices for electricity and natural gas. Forecasts are developed for three housing types – single family, multi-family, and mobile homes, for twenty end-uses, including:

- Resistance heating/furnaces
- Air-source heat pumps (heating)
- Ground-source heat pumps (heating)
- Secondary heating
- Central air conditioning
- Air-source heat pumps (cooling)
- Ground-source heat pumps (cooling)
- Room air conditioning
- Water heating
- Cooking
- 1st refrigerators
- 2nd refrigerators
- Freezers
- Dishwashers
- Clothes washers
- Clothes dryers
- TVs and related equipment
- Furnace fans
- Lighting
- Miscellaneous

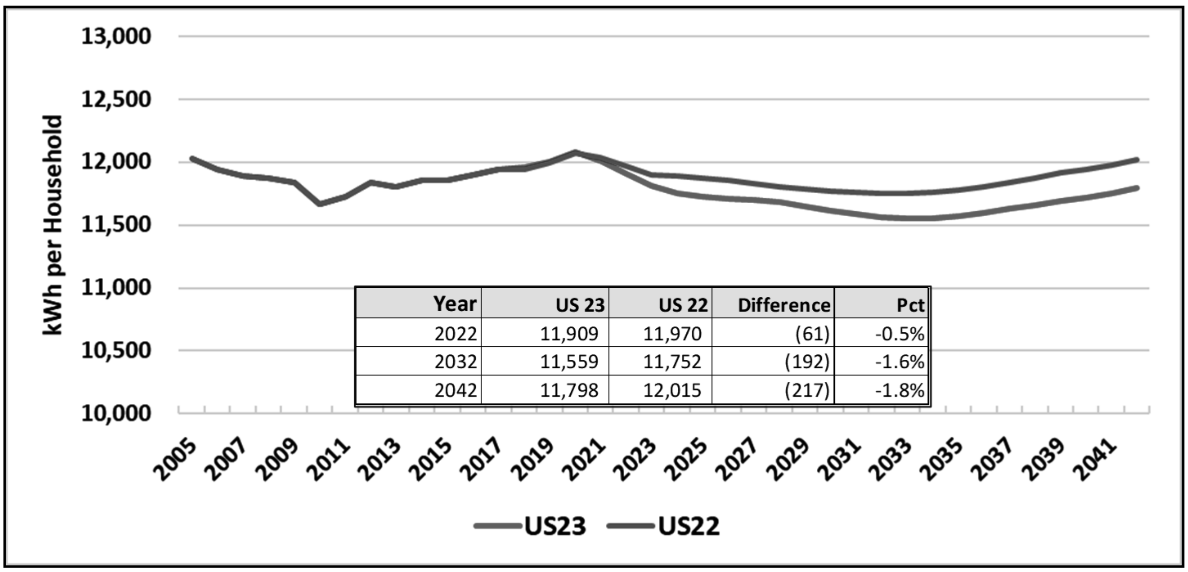
In the Statistically Adjusted End-Use (SAE) model, end-use intensities are combined with price, weather, and economic drivers to develop monthly estimates of heating (Xheat), cooling (XCool), and other use (XOther) energy requirements. The model variable are then used in estimating monthly average use models and projecting future monthly energy requirements. Through these constructed model variables, forecasts capture improvements in end-use efficiency driven by new standards, declining cost of high efficiency technology options, availability of new end-use technologies, price, economic activity, and weather conditions.

To support econometric modeling, Itron maintains and updates historical end-use data trends that are consistent with the 2015 RECS and prior RECS (i.e., the 2005 and 2009 RECS). Doing so sometimes requires adjusting historical end-use saturation and efficiency trends to reflect what EIA believes is the current state of appliance ownership, stock efficiency, and housing characteristics. The 2023 SAE spreadsheets reflect Itron's best estimates of historical end-use saturations, efficiency, and usage given EIA's 2015 base-year starting point and past estimates of end-use stock characteristics. The SAE spreadsheets includes end-use intensity projections out through 2050. Separate spreadsheets are developed for electric and gas consumption.

## Electricity

On the national level, total household intensity is lower than 2022 largely as result of expected improvements in end-use efficiency resulting from the IRA. Figure 2 compares the 2023 and 2022 U.S. household energy intensity projections.

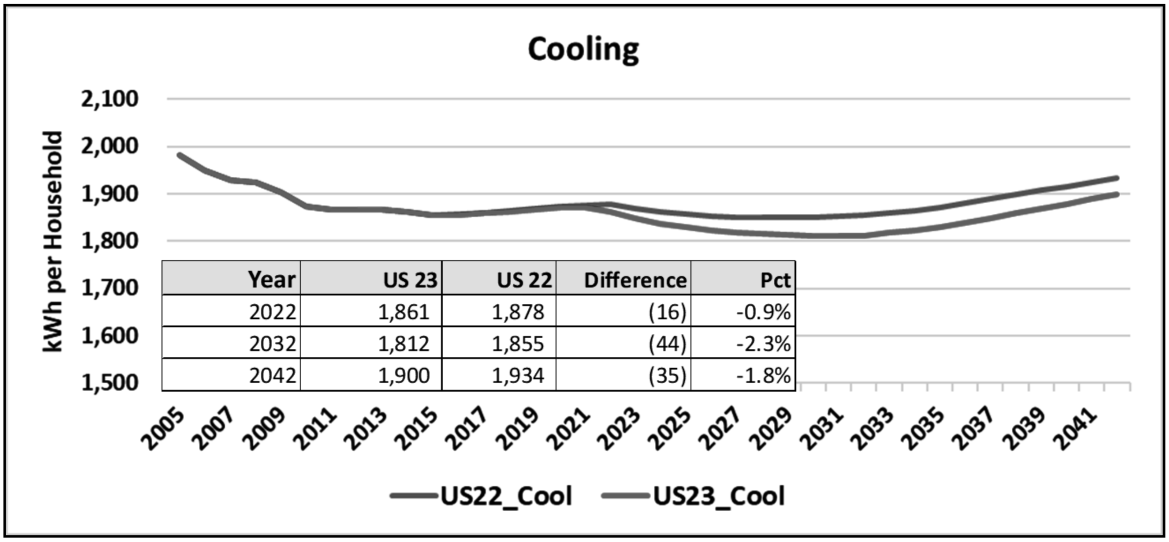
### Figure 2: U.S. Residential Total Intensity Trend




Over the next ten years, average residential intensity is projected to decline 0.3% annually; this compares with -0.2% decline in the 2022 forecast.

Figure 3 shows the 2023 and 2022 cooling intensities. The cooling intensity is also lower in the 2023 forecast declining 0.3% per year over the nex ten years compared with 0.1% annually in the 2022 forecast. The stronger intensity decline is largely due to higher heat pump and central air conditioning efficiency projections. IRA-related rebates reduce the costs of the more efficient technology options resulting in a higher mix of the more efficient technology options.

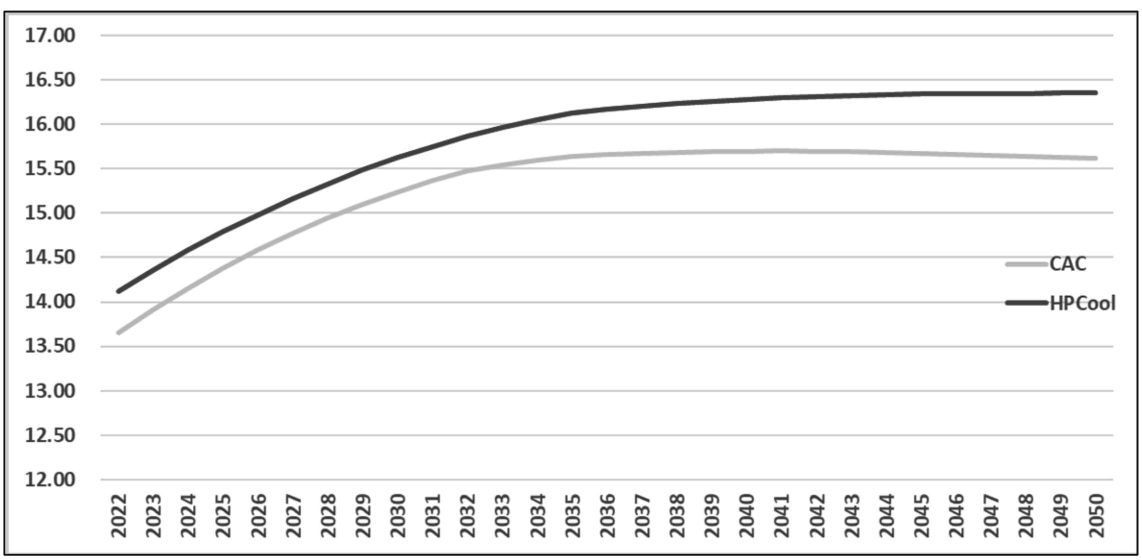
**Figure 3: U.S. Residential Cooling Energy Intensities**




| Year | US 23 | US 22 | Difference | Pct |
|---|---|---|---|---|
| 2022 | 1,861 | 1,878 | (16) | -0.9% |
| 2032 | 1,812 | 1,855 | (44) | -2.3% |
| 2042 | 1,900 | 1,934 | (35) | -1.8% |

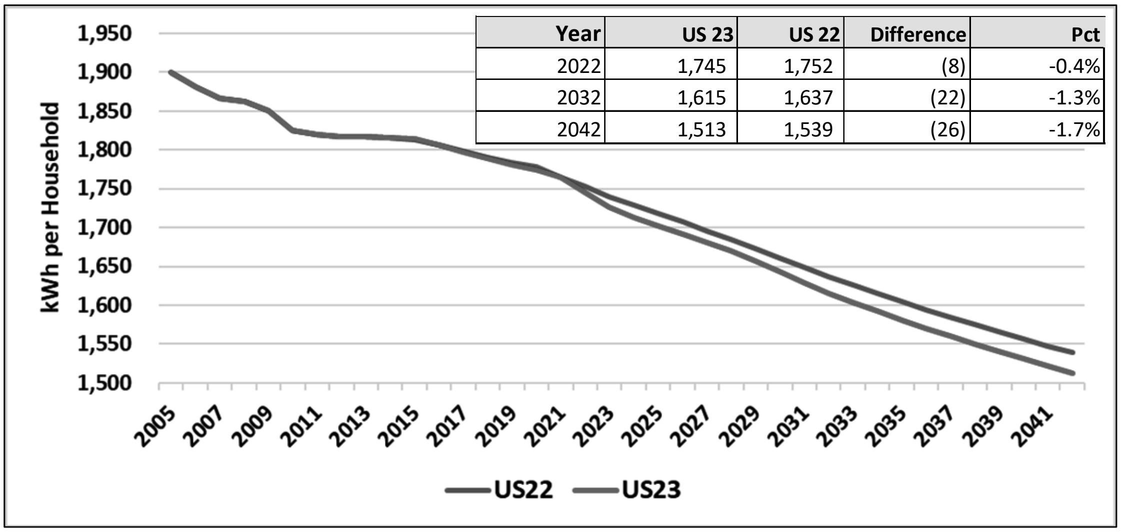
Cooling intensities turn positive after 2033 as cooling efficiency levels out and saturation of central cooling continue to increase (replacing room air conditioning). Figure 4 shows the expected central cooling system efficiency trend,

**Figure 4: Central Cooling System Efficiency (SEER)**



Heating intensity continues it's long-term decline as resistant heat saturation drops, and furnace fan and heat pump heating efficiency improves. Overall US heating saturation increases slowly from 35% in 2020 to 37% by 2050. at the US level is relatively flat at roughly 35%. Figure 5 shows US heating intensity projection.

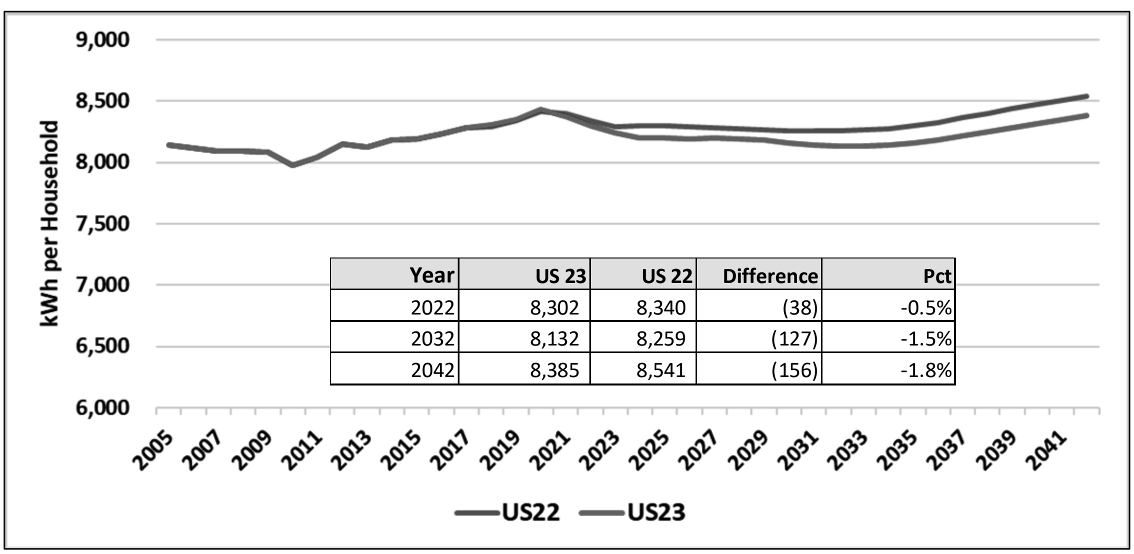
### Figure 5: U.S. Heating Intensity




| Year | US 23 | US 22 | Difference | Pct |
|---|---|---|---|---|
| 2022 | 1,745 | 1,752 | (8) | -0.4% |
| 2032 | 1,615 | 1,637 | (22) | -1.3% |
| 2042 | 1,513 | 1,539 | (26) | -1.7% |

Figure 6 shows total intensity for the non-weather sensitive end-uses (*Other-Use*).

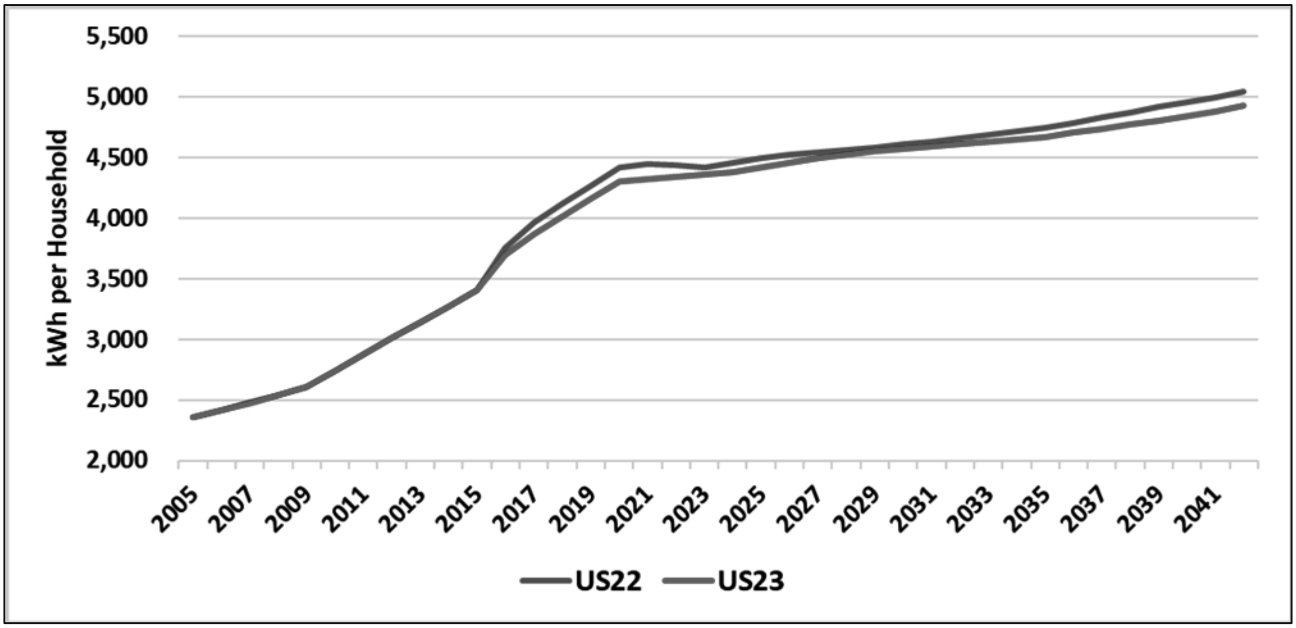
### Figure 6: US Other-Use Intensity Trend




| Year | US 23 | US 22 | Difference | Pct |
|---|---|---|---|---|
| 2022 | 8,302 | 8,340 | (38) | -0.5% |
| 2032 | 8,132 | 8,259 | (127) | -1.5% |
| 2042 | 8,385 | 8,541 | (156) | -1.8% |

The 2023 OtherUse forecast is slightly lower than the 2022 forecast. OtherUse declines -0.2% annually through 2032. OtherUse turns positive after 2032 as appliance stock efficiency levels-off and small gains in end-use saturation coupled with relatively strong miscellaneous sales growth drives OtherUse and total house intensity positive. Figure 7 show the miscellaneous intensity trend.

**Figure 7: U.S. Miscellaneous Intensity Trend**




Since 2005, miscellaneous sales have increased from 20% of sales to over 35% of sales. By 2042 miscellaneous sales account for 40% of sales.

## EV and PV Input Spreadsheets

As in last year's forecast, the 2023 spreadsheets include EV and PV forecast tabs. Forecast data is derived from EIA 2023 EV and PV forecasts. Figure 8 shows the electric vehicle (EV) worksheet.

## Figure 8: EV Worksheet (update)

| Year | Households | Vehicles Per HH | Vehicles | Elec Stock Share | Elec Vehicles | AnnualMiles | MilesPerkWh | UEC | Sales | Intensity |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 18,475,139 | 2.08 | 38,476,517 | 0.6% | 223,071 | 12,000 | 3.08 | 3,895 | 868,907 | 47.0 |
| 2021 | 18,595,831 | 2.06 | 38,302,557 | 0.7% | 253,055 | 12,000 | 3.00 | 3,995 | 1,011,047 | 54.4 |
| 2022 | 18,716,069 | 2.04 | 38,265,592 | 0.7% | 285,221 | 12,000 | 2.95 | 4,061 | 1,158,385 | 61.9 |
| 2023 | 18,832,472 | 2.03 | 38,266,490 | 0.8% | 317,951 | 12,000 | 2.93 | 4,097 | 1,302,487 | 69.2 |
| 2024 | 18,948,043 | 2.02 | 38,324,073 | 0.9% | 352,472 | 12,000 | 2.92 | 4,112 | 1,449,536 | 76.5 |
| 2025 | 19,067,257 | 2.02 | 38,432,108 | 1.0% | 391,500 | 12,000 | 2.91 | 4,123 | 1,614,334 | 84.7 |
| 2026 | 19,185,904 | 2.01 | 38,535,465 | 1.2% | 443,427 | 12,000 | 2.92 | 4,114 | 1,824,201 | 95.1 |
| 2027 | 19,300,338 | 2.00 | 38,598,483 | 1.3% | 499,937 | 12,000 | 2.93 | 4,098 | 2,048,513 | 106.1 |
| 2028 | 19,411,864 | 1.99 | 38,645,462 | 1.5% | 560,897 | 12,000 | 2.94 | 4,083 | 2,290,403 | 118.0 |
| 2029 | 19,521,151 | 1.98 | 38,671,258 | 1.6% | 625,184 | 12,000 | 2.95 | 4,072 | 2,545,819 | 130.4 |
| 2030 | 19,629,134 | 1.97 | 38,681,680 | 1.8% | 694,663 | 12,000 | 2.95 | 4,063 | 2,822,301 | 143.8 |
| 2031 | 19,735,350 | 1.96 | 38,691,919 | 2.0% | 769,648 | 12,000 | 2.96 | 4,055 | 3,121,195 | 158.2 |
| 2032 | 19,840,592 | 1.95 | 38,688,564 | 2.2% | 850,650 | 12,000 | 2.96 | 4,050 | 3,444,768 | 173.6 |
| 2033 | 19,942,910 | 1.94 | 38,691,245 | 2.4% | 938,116 | 12,000 | 2.97 | 4,045 | 3,794,622 | 190.3 |
| 2034 | 20,042,312 | 1.93 | 38,704,711 | 2.7% | 1,032,268 | 12,000 | 2.97 | 4,041 | 4,171,581 | 208.1 |
| 2035 | 20,141,631 | 1.92 | 38,717,511 | 2.9% | 1,132,777 | 12,000 | 2.97 | 4,038 | 4,574,628 | 227.1 |
| 2036 | 20,238,442 | 1.91 | 38,722,361 | 3.2% | 1,239,285 | 12,000 | 2.97 | 4,036 | 5,002,164 | 247.2 |
| 2037 | 20,333,673 | 1.90 | 38,731,368 | 3.5% | 1,352,300 | 12,000 | 2.97 | 4,035 | 5,455,879 | 268.3 |
| 2038 | 20,428,323 | 1.90 | 38,745,562 | 3.8% | 1,471,953 | 12,000 | 2.98 | 4,033 | 5,936,726 | 290.6 |
| 2039 | 20,522,184 | 1.89 | 38,754,018 | 4.1% | 1,596,275 | 12,000 | 2.98 | 4,033 | 6,437,380 | 313.7 |
| 2040 | 20,616,078 | 1.88 | 38,756,935 | 4.5% | 1,725,293 | 12,000 | 2.98 | 4,033 | 6,958,312 | 337.5 |

The red data are inputs from the EIA's transportation forecast. The values shown in blue are calculatons. The calculations are from right to left. The first two columns are census-level of number of households and average number of vehicles per household. The product gives total number of vehicles (column D). Column E is EIA's EV saturation forecast. Total EVs are the product of total vehicles and expected EV saturation (Column F). The other key inputs are expected annual miles driven (Column G)) and projected kWh per mile (Column H). While EV efficiency is expected to improve the average kWh per mile increase as a result total electric or battery electric vehcles (BEV) gaining market share over plug-in hybrid electric vehicles (PHEV). The annual use per car (UEC, column I) is calculated as the annual miles divided by average vehicle efficiency (kWh per mile). Total EV sales (Column J) are calculated as the product of EV vehicle stock and vehicle UEC. The EV chagrining intensity is derived by dividing total EV sales by total number of Households (Column K). You can add EV to XOther model variable or translate to a monthly EV charging sales and add to your residential average use forecast.

The PV worksheet is shown in Figure 9.

## Figure 9: PV Worksheet (update)

| Year | PVInstalls | PV Stock | AvgPVSize | PVStockKW | PVDecayRate | AdjPV_KW | CapacityFactor | Generation MWh | OwnUse Share | OwnUse MWh | Excess MWh | OwnUse Intensity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 161,737 | 1,480,572 | 5.69 | 8,427,376 | 0.01 | 8,353,615 | 16.3% | 11,950,441 | 80% | 9,560,353 | 2,390,088 | (517.5) |
| 2021 | 168,564 | 1,649,136 | 5.78 | 9,539,898 | 0.01 | 9,455,624 | 16.3% | 13,473,487 | 80% | 10,778,789 | 2,694,697 | (579.6) |
| 2022 | 136,616 | 1,785,751 | 5.85 | 10,455,222 | 0.01 | 10,359,823 | 16.2% | 14,666,519 | 80% | 11,733,215 | 2,933,304 | (626.9) |
| 2023 | 130,108 | 1,915,859 | 5.92 | 11,339,953 | 0.01 | 11,235,401 | 16.1% | 15,812,419 | 80% | 12,649,935 | 3,162,484 | (671.7) |
| 2024 | 126,292 | 2,042,151 | 5.97 | 12,198,741 | 0.01 | 12,085,341 | 16.0% | 16,916,846 | 80% | 13,533,477 | 3,383,369 | (714.2) |
| 2025 | 126,655 | 2,168,806 | 6.03 | 13,072,661 | 0.01 | 12,950,674 | 15.9% | 18,046,720 | 80% | 14,437,376 | 3,609,344 | (757.2) |
| 2026 | 130,489 | 2,299,295 | 6.08 | 13,986,083 | 0.01 | 13,855,356 | 15.9% | 19,240,777 | 80% | 15,392,621 | 3,848,155 | (802.3) |
| 2027 | 130,945 | 2,430,240 | 6.13 | 14,902,700 | 0.01 | 14,762,839 | 15.8% | 20,439,922 | 80% | 16,351,938 | 4,087,984 | (847.2) |
| 2028 | 130,855 | 2,561,095 | 6.18 | 15,831,768 | 0.01 | 15,682,741 | 15.8% | 21,660,012 | 80% | 17,328,009 | 4,332,002 | (892.7) |
| 2029 | 131,441 | 2,692,536 | 6.23 | 16,764,996 | 0.01 | 16,606,678 | 15.7% | 22,887,264 | 80% | 18,309,811 | 4,577,453 | (937.9) |
| 2030 | 133,668 | 2,826,203 | 6.27 | 17,727,400 | 0.01 | 17,559,750 | 15.7% | 24,162,616 | 80% | 19,330,093 | 4,832,523 | (984.8) |
| 2031 | 138,523 | 2,964,726 | 6.32 | 18,724,768 | 0.01 | 18,547,494 | 15.7% | 25,495,225 | 80% | 20,396,180 | 5,099,045 | (1,033.5) |
| 2032 | 140,343 | 3,105,069 | 6.36 | 19,749,272 | 0.01 | 19,562,024 | 15.7% | 26,872,751 | 80% | 21,498,200 | 5,374,550 | (1,083.5) |
| 2033 | 142,981 | 3,248,050 | 6.40 | 20,793,032 | 0.01 | 20,595,539 | 15.7% | 28,282,121 | 80% | 22,625,696 | 5,656,424 | (1,134.5) |
| 2034 | 144,976 | 3,393,026 | 6.44 | 21,865,852 | 0.01 | 21,657,922 | 15.7% | 29,740,184 | 80% | 23,792,147 | 5,948,037 | (1,187.1) |
| 2035 | 147,081 | 3,540,107 | 6.48 | 22,954,248 | 0.01 | 22,735,590 | 15.7% | 31,223,908 | 80% | 24,979,127 | 6,244,782 | (1,240.2) |
| 2036 | 148,160 | 3,688,266 | 6.52 | 24,065,444 | 0.01 | 23,835,902 | 15.7% | 32,745,884 | 80% | 26,196,707 | 6,549,177 | (1,294.4) |
| 2037 | 149,685 | 3,837,951 | 6.56 | 25,188,080 | 0.01 | 24,947,426 | 15.7% | 34,287,059 | 80% | 27,429,647 | 6,857,412 | (1,349.0) |
| 2038 | 150,079 | 3,988,030 | 6.60 | 26,328,676 | 0.01 | 26,076,795 | 15.7% | 35,858,452 | 80% | 28,686,761 | 7,171,690 | (1,404.3) |
| 2039 | 151,399 | 4,139,429 | 6.64 | 27,479,312 | 0.01 | 27,216,025 | 15.7% | 37,447,143 | 80% | 29,957,714 | 7,489,429 | (1,459.8) |
| 2040 | 152,841 | 4,292,270 | 6.68 | 28,656,188 | 0.01 | 28,381,395 | 15.7% | 39,079,937 | 80% | 31,263,949 | 7,815,987 | (1,516.5) |

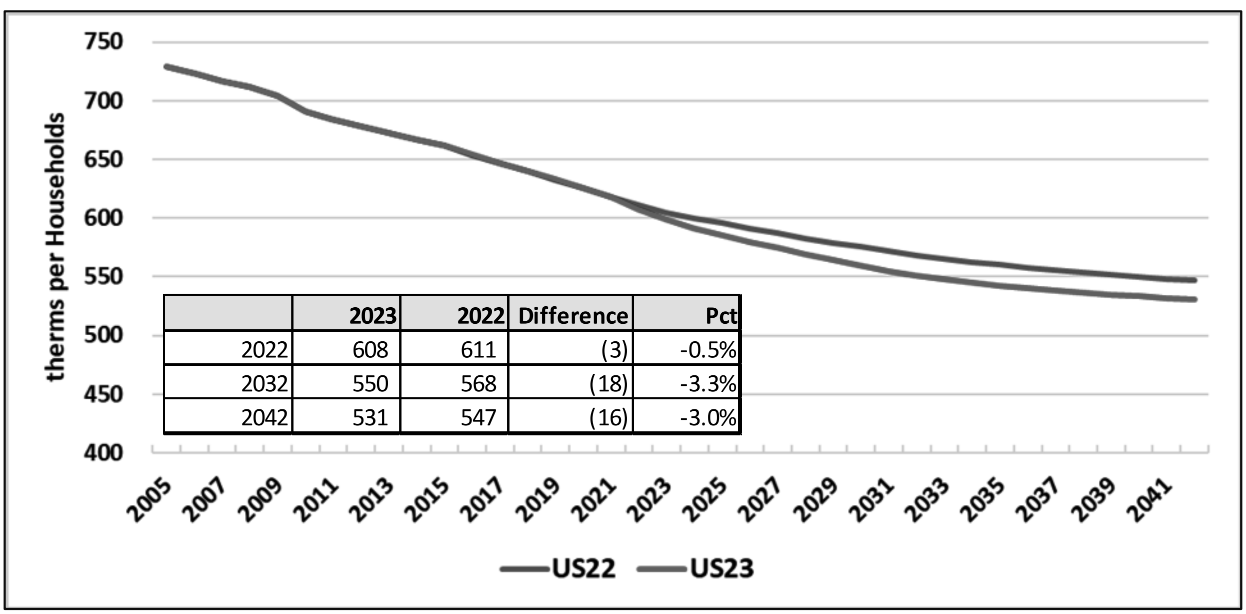
The calculations are right from left starting with the number households and number of installed systems. EIA inputs are in red, green shows user-defined inputs, and calculations are blue. Total stock (Column D) is calculated as the cumulation of number of installed systems (Column C). Installed kW capacity (Column F) is the product of PV Stock and average PV size (Column E). Capacity projection can be adjusted for solar degradation by setting a decay rate (Column G); Adjusted kW capacity (Column H) is calculated by applying the decay rate to prior year PV capacity estimate. Solar Generation (Column J) is derived by applying the capacity factor (Column I) to adjusted installed capacity. Total solar generation is split into own-use (that consumed by the customer) and excess (that sold back to the grid). Own-use intensity (Column N) is calculated by dividing own-use generation by the number of households. The PV own-use intensity can be imported into your residential forecast file and used to adjust your residential average use forecast.

## Natural Gas

Space heating and water heating account for over 95% of residential natural gas usage, with cooking and clothes dryers accounting for the remainder. At the U.S. level, roughly 50% of households have gas space and water heating. The share of homes with gas space heat has been relatively constant and is expected to increase just slightly over the next 20 years.

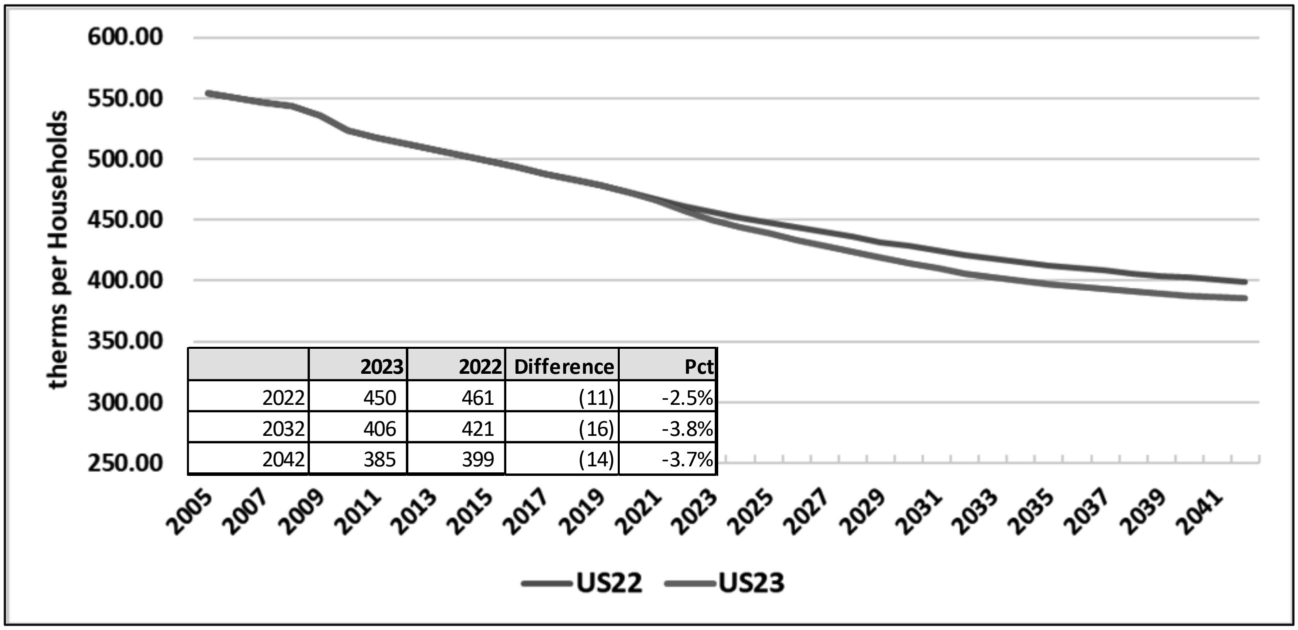
Over the last 10 years, there have been significant improvements in heating system efficiency and housing thermal insulation; these gains are expected to continue over the next thirty years. Given a relatively small increase in gas heat saturation, efficiency improvements drive gas intensity lower. In comparison with the 2022 forecast, the 2023 heating intensity (which represents 75% of gas use) and as a result total household intensities are lower. The 2023 intensities are lower reflecting higher real gas pricess, The IRA that encourages adoption of more efficient gas heating systems and improvements in thermal shell efficiency, and slower saturation growth as EIA projects stronger electric heat pump saturation in several regions of the country. Figure 10 and Figure 11compares the 2022 and 2023 total and gas heating intensity projections.

### Figure 10: U.S. Total Gas Intensity




| | 2023 | 2022 | Difference | Pct |
|---|---|---|---|---|
| 2022 | 608 | 611 | (3) | -0.5% |
| 2032 | 550 | 568 | (18) | -3.3% |
| 2042 | 531 | 547 | (16) | -3.0% |

**Figure 11: U.S. Gas Heating Intensity**

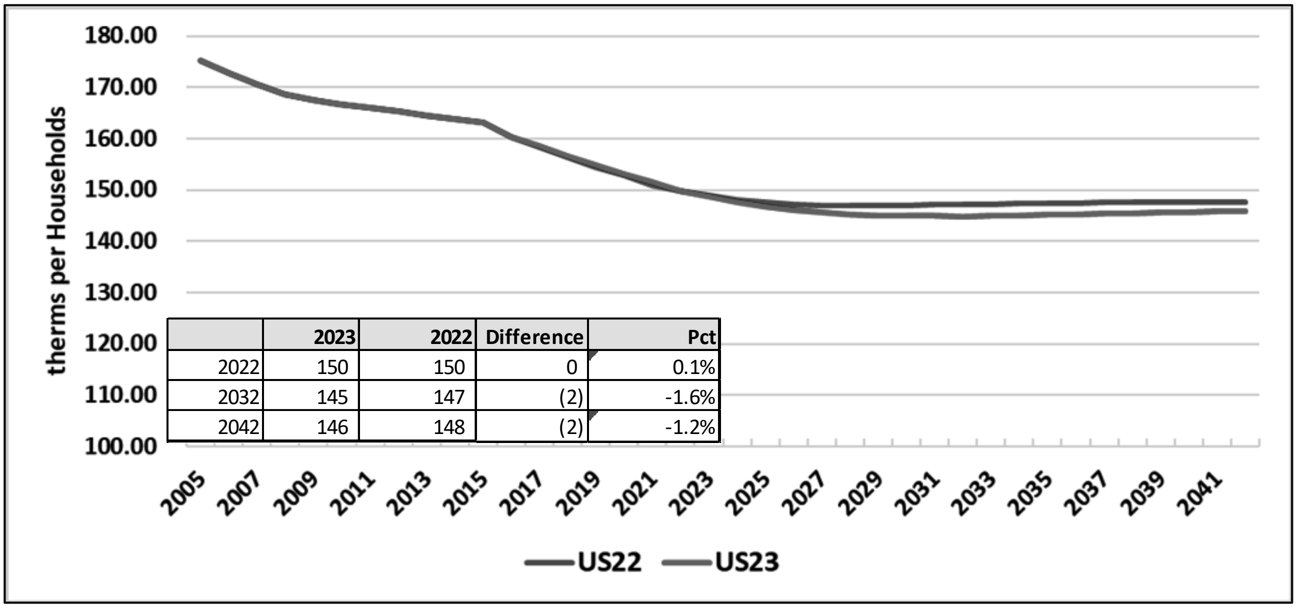



| | 2023 | 2022 | Difference | Pct |
|---|---|---|---|---|
| 2022 | 450 | 461 | (11) | -2.5% |
| 2032 | 406 | 421 | (16) | -3.8% |
| 2042 | 385 | 399 | (14) | -3.7% |

Gas heating intensity declines 1.2% annually over the next ten years compared with 0.9% per year in the 2022 forecast.

Water heating, dryers, and cooking account for the remaining 25% of gas use. While efficiency continues to improve across all three technologies, the impact is more muted with 2023 average intensity declining 0.3% per year. This compares with 0.2% per year in the 2022 forecast. Figure 12 compares the 2023 and 2022 intensity projections for the other non-weather sensitive end-uses (water heat, cooking, and dryers).

**Figure 12: U.S. Other Gas Use Intensity**




| | 2023 | 2022 | Difference | Pct |
|---|---|---|---|---|
| 2022 | 150 | 150 | 0 | 0.1% |
| 2032 | 145 | 147 | (2) | -1.6% |
| 2042 | 146 | 148 | (2) | -1.2% |

### *Summary*

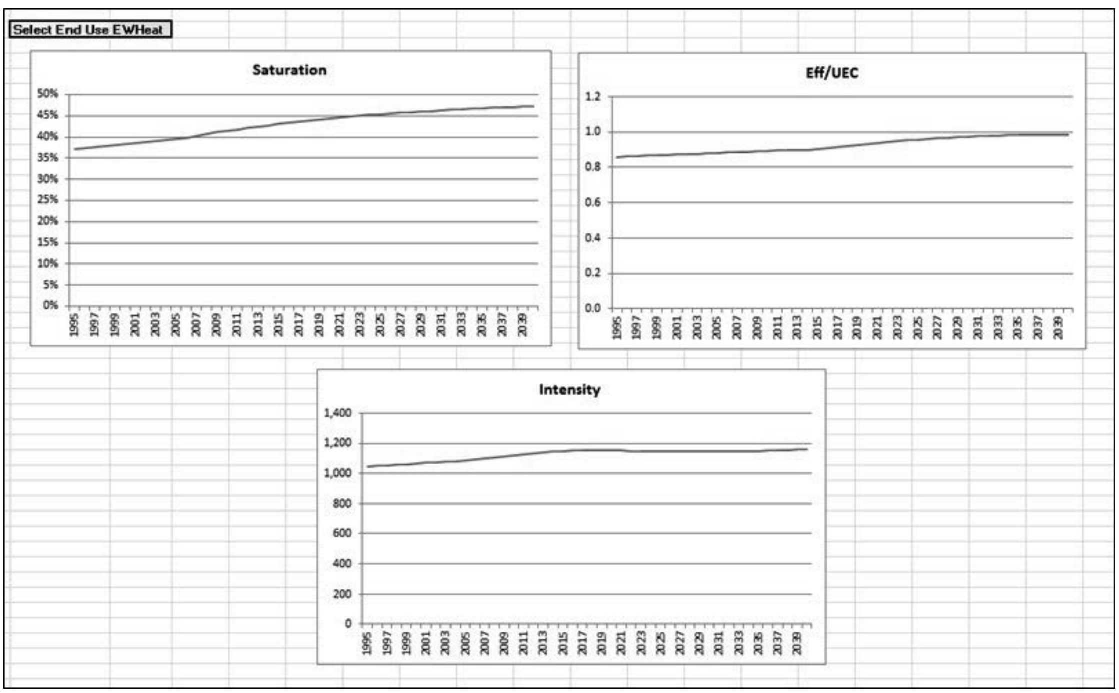
The 2023 electric and gas intensity projections are in general lower than 2022. The primary factor is the recent passage of the IRA that provides significant funding in terms of tax credits at the federal level and incentives/technology rebates at the state level. Higher real energy prices also contribute to adoption of more efficient technology options, and in some regions electrification results in higher electric heat saturation and conversely lower gas heat saturation.

# Appendix A: Using the SAE Spreadsheets

## Updates to the SAE Spreadsheets

Itron continually works to simplify and improve the SAE spreadsheets to allow analysts to view end-use intensity trends, to understand how the indices are calculated, and to customize the SAE inputs (such as end-use saturations and starting UEC) to their own service area. Last year, Itron added a new "graph" tab that allows the analyst to select an end-use and graph the end-use saturation, efficiency/UEC, and calculated intensity. Figure 13 shows this feature for electric water heaters.

**Figure 13: SAE Spreadsheet End-Use Graph - Electric Water Heat**




### *SAE Spreadsheet Organization*

The SAE spreadsheets are organized to allow the analyst to calibrate end-use intensities to a specific utility service area organization where service area specific saturation and UEC estimates are available. The spreadsheet tabs include:

- **Definitions** provides descriptive information about end-uses, units and brief descriptions of the other worksheets.
- **EIAData** contains EIA efficiency, consumption, equipment stock, household, floor space and price projections.
- **Calibration** provides base year usage information. It can also be used to customize the spreadsheet to the user's service territory. Figure 14 shows the layout of the Calibration worksheet.

### Figure 14: Calibration Worksheet

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Base Year (2009) | EFurn | HPHeat | GHPHeat | SecHt | CAC | HPCool | GHPCool | RAC | EWHeat | ECook |
| 2 | Consumption (mmBtu) | 295,156,965 | 49,006,093 | 3,298,852 | 60,466,462 | 469,614,726 | 92,426,664 | 4,189,994 | 68,043,412 | 428,267,637 | 104,815,834 |
| 3 | Equipment Stock (units) | 29,626,185 | 9,099,838 | 699,168 | 28,312,038 | 61,707,187 | 9,099,838 | 699,168 | 49,101,682 | 46,763,693 | 68,137,629 |
| 4 | UEC (kWh/unit) | 2,920 | 1,578 | 1,383 | 626 | 2,230 | 2,977 | 1,756 | 406 | 2,684 | 451 |
| 5 | Share (%) | 26.0% | 8.0% | 0.6% | 23.4% | 54.2% | 8.0% | 0.6% | 43.1% | 41.1% | 59.9% |
| 6 | Raw Intensity (kWh/year) | 760 | 126 | 8 | 147 | 1,209 | 238 | 11 | 175 | 1,103 | 270 |
| 7 | Model-Scaled Intensity (kWh/year) | 760 | 126 | 8 | 147 | 1,209 | 238 | 11 | 175 | 1,103 | 270 |
| 8 | | | | | | | | | | | |
| 9 | Observed Use Per Customer (kWh/year) | 11,909 | | | | | | | | | |
| 10 | Adjustment Factor | 1.010 | | | | | | | | | |
| 11 | Adjusted Intensity (kWh/year) | 768 | 127 | 9 | 148 | 1,222 | 240 | 11 | 177 | 1,114 | 273 |
| 12 | | | | | | | | | | | |
| 13 | XHeat | 1.000 | | | | | | | | | |
| 14 | XCool | 1.000 | | | | | | | | | |
| 15 | XOther | 1.000 | | | | | | | | | |
| 16 | | | | | | | | | | | |

Base-year use-per-customer (kWh) for the utility service area is depicted in Row 9 and can be used to calibrate the spreadsheet to the user's service territory. To do this, substitute your weather-normalized average use for the Census Division average-use in Cell B9.

In additional to basic calibration to observed usage, in 2017 we have also added another layer of calibration to better tailor the regional data to utility-specific conditions. To get better starting estimates of electric usage by end-use, we have utilized MetrixND models to "true up" EIA estimates to the regions. You can do this on the utlity level by substituting the adjustment factors in cells B13-15 with estimated coefficients on SAE variables in your residential model. Figure 15 below provides an example.

### Figure 15: Model-Based Calibration

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Base Year (2009) | EFurn | HPHeat | GHPHeat | SecHt | CAC | HPCool | GHPCool | RAC | EWHeat | ECook |
| 2 | Consumption (mmBtu) | 295,156,965 | 49,006,093 | 3,298,852 | 60,466,462 | 469,614,726 | 92,426,664 | 4,189,994 | 68,043,412 | 428,267,637 | 104,815,834 |
| 3 | Equipment Stock (units) | 29,626,185 | 9,099,838 | 699,168 | 28,312,038 | 61,707,187 | 9,099,838 | 699,168 | 49,101,682 | 46,763,693 | 68,137,629 |
| 4 | UEC (kWh/unit) | 2,920 | 1,578 | 1,383 | 626 | 2,230 | 2,977 | 1,756 | 406 | 2,684 | 451 |
| 5 | Share (%) | 26.0% | 8.0% | 0.6% | 23.4% | 54.2% | 8.0% | 0.6% | 43.1% | 41.1% | 59.9% |
| 6 | Raw Intensity (kWh/year) | 760 | 126 | 8 | 147 | 1,209 | 238 | 11 | 175 | 1,103 | 270 |
| 7 | Model-Scaled Intensity (kWh/year) | 1,853 | 308 | 21 | 358 | 2,389 | 470 | 21 | 346 | 677 | 166 |
| 8 | | | | | | | | | | | |
| 9 | Observed Use Per Customer (kWh/year) | 11,909 | | | | | | | | | |
| 10 | Adjustment Factor | 0.999 | | | | | | | | | |
| 11 | Adjusted Intensity (kWh/year) | 1,852 | 307 | 21 | 357 | 2,387 | 470 | 21 | 346 | 677 | 166 |
| 12 | | | | | | | | | | | |
| 13 | XHeat | 2.438 | | | | | | | | | |
| 14 | XCool | 1.975 | | | | | | | | | |
| 15 | XOther | 0.614 | | | | | | | | | |
| 16 | | | | | | | | | | | |

In this case, model-based calibration adjusts heating and cooling starting year usage up based on model coefficients estimated from observed use per customer data. Other usage is adjusted downward.

Resulting end-use intensities are written to the Intensities tab. MetrixND project files can link to the Intensities tab as the source-data for the constructing of SAE model variables.

### *StructuralVars*

This worksheet contains data about the size of homes and their building shell efficiencies. The results of the calculations on this tab are used in the development of energy intensities for heating and cooling end-uses.

Analysts can substitute local household and floor space estimates for the regional estimates to reflect local conditions in the final energy intensities. Total floor space can be modified in Column E and number of households in Column I.

### *Shares*

The Shares tab contains historical saturation estimates and forecasts developed by the EIA. Data from appliance saturation surveys can be used to modify the default saturations. Depending on data availability, these changes can either shift the projections up or down (one survey) or modify the growth rate in the trends (two or more surveys).

### Efficiencies

The Efficiencies tab provides historical and forecasted end-use efficiency. UEC estimates are used as a proxy for efficiency where specific technology efficiency data (as central air conditioner SEER) are not available. Efficiency trends can also be modified to reflect the utility service area. As a practical matter however, average efficiency for most equipment varies little between regions.

### Intensities

Intensities are per-household end-use energy estimate derived from combining end-use saturation, efficiency, and starting UEC. If the user changes saturation and/or efficiency, the changes are reflected in the end-use intensity calculations.

### MonthlyMults

This tab provides seasonal multipliers for non-HVAC end-uses. This allows us to accurately gauge seasonal usage for such non-weather sensitive end-uses as water heating, refrigeration, and lighting.

### Graphs

The Graphs tab provides an interface to select an end-use and view historical and projected end-use saturation, efficiency (or UEC where an efficiency measure is not available) and resulting end-use intensity.

### EV

Electric vehicle load is added to the base (other) end-use in the SAE model. Input data rows are highlighted in red and include:

- **Households** - Historical and forecasted number of households (column B)
- **EVSold** - Number of EV vehicles sold in any given year (column C)
- **EVDecay** - Number of EV vehicles removed (column D)
- **AnnualMiles** - Annual average miles driven (column G)
- **MilePerKwh** - Average vehicle efficiency (column H)

Additional columns include:

- **EVStock** - Calculated as the sum of all new purchases minus vehicle decay (column E).
- **Share** - The share of households with EVs (column F), calculated as *EVStock* / *Households*.

- **UEC -** The Unit Energy Consumption (kWh) for those households that own an EV. Calculated as the number of miles driven divided by the average vehicle miles per kWh (column I).
- **EV_EI** - Use per household (column K), calculated by multiplying total EV Sales by number of households. The resulting annual EV energy intensity is on a kWh per household basis and can be added to the base or *other use index* in the SAE model.

### *PV*

The SAE spreadsheets also include a worksheet for calculating PV (photovoltaic) energy impacts. Input data rows are highlighted in red and include:

- **Households** - Historical and forecasted Households or customers (column B)
- **PVInstalls** - Number of new PV installations (column C)
- **AvgPVSize** - Average PV kW capacity (column E)
- **PVDecayKW** - PV capacity decay in kW (column G)
- **CapacityFactor** - Capacity Factor (column I)

Additional columns include:

- **PVStockKW** - Estimated PV kW capacity (column H), calculated by summing current and all past PV installed capacity and subtracting the decay, calculated as:

$$(PVInstalls \times AvgPVSize) - PVDecayKW$$

- **PVEnergy** - PV MWh (column J) is derived by applying the capacity factor to the PV Capacity Stock, calculated as:

$$(PVStockKW \times 8760 \times CapacityFactor)/1000$$

- **PV_OwnEI**- Final PV energy intensity (column K) is derived by dividing *OwnUse MWh* by total number of households. The estimate is negative, as it represents a load reduction.

# Appendix B: Residential SAE Modeling Framework

The traditional approach to forecasting monthly sales for a customer class is to develop an econometric model that relates monthly sales to weather, seasonal variables, and economic conditions. Econometric models are well suited to identifying historical trends and to projecting these trends into the future. In contrast, end-use models can identify and isolate the end-use factors that are driving energy use. By incorporating end-use structure into an econometric model, the statistically adjusted end-use (SAE) modeling framework exploits the strengths of both approaches.

There are several advantages to this approach.

- The equipment efficiency and saturation trends, dwelling square footage, and thermal integrity changes embodied in the long-run end-use forecasts are introduced explicitly into the short-term monthly sales forecast. This provides a strong bridge between the two forecasts.
- By explicitly incorporating trends in equipment saturations, equipment efficiency, dwelling square footage, and thermal integrity levels, it is easier to explain changes in usage levels and changes in weather-sensitivity over time.
- Data for short-term models are often not sufficiently robust to support estimation of a full set of price, economic, and demographic effects. By bundling these factors with equipment-oriented drivers, a rich set of elasticities can be incorporated into the final model.

This section describes this approach, the associated supporting SAE spreadsheets, and the *MetrixND* project files that are used in the implementation. The main source of the SAE spreadsheets is the 2022 Annual Energy Outlook (AEO) database provided by the Energy Information Administration (EIA).

## Statistically Adjusted End-Use Modeling Framework

The statistically adjusted end-use modeling framework begins by defining energy use ($USE_{y,m}$) in year (y) and month (m) as the sum of energy used by heating equipment ($Heat_{y,m}$), cooling equipment ($Cool_{y,m}$), and other equipment ($Other_{y,m}$). Formally,

$$\mathrm{USE}_{y,m} = \mathrm{Heat}_{y,m} + \mathrm{Cool}_{y,m} + \mathrm{Other}_{y,m} \quad (1)$$

Although monthly sales are measured for individual customers, the end-use components are not. Substituting estimates for the end-use elements gives the following econometric equation.

$$\mathrm{USE}_{m} = a + b_1 \times \mathrm{XHeat}_{m} + b_2 \times \mathrm{XCool}_{m} + b_3 \times \mathrm{XOther}_{m} + \varepsilon_{m} \quad (2)$$

$XHeat_m$, $XCool_m$, and $XOther_m$ are explanatory variables constructed from end-use information, dwelling data, weather data, and market data. As will be shown below, the equations used to construct these X-variables are simplified end-use models, and the X-variables are the estimated usage levels for each of the major end uses based on these models. The estimated model can then be thought of as a statistically adjusted end-use model, where the estimated slopes are the adjustment factors.

### *Constructing XHeat*

As represented in the SAE spreadsheets, energy use by space heating systems depends on the following types of variables.

- Heating degree days
- Heating equipment saturation levels
- Heating equipment operating efficiencies
- Average number of days in the billing cycle for each month
- Thermal integrity and footage of homes
- Average household size, household income, and energy prices

The heating variable is represented as the product of an annual equipment index and a monthly usage multiplier:

$$XHeat_{y,m} = HeatIndex_{y,m} \times HeatUse_{y,m} \quad (3)$$

Where:

- $XHeat_{y,m}$ is estimated heating energy use in year ($y$) and month ($m$)
- $HeatIndex_{y,m}$ is the monthly index of heating equipment
- $HeatUse_{y,m}$ is the monthly usage multiplier

The heating equipment index is defined as a weighted average across equipment types of equipment saturation levels normalized by operating efficiency levels. Given a set of fixed weights, the index will change over time with changes in equipment saturations (*Sat*), operating efficiencies (*Eff*), building structural index (*StructuralIndex*), and energy prices. Formally, the equipment index is defined as:

$$HeatIndex_y = StructuralIndex_y \times \sum_{Type} Weight^{Type} \times \frac{\left( Sat_y^{Type} \big/ Eff_y^{Type} \right)}{\left( Sat_{15}^{Type} \big/ Eff_{15}^{Type} \right)} \tag{4}$$

The *StructuralIndex* is constructed by combining the EIA's building shell efficiency index trends with surface area estimates, and then it is indexed to the 2015 value:

$$StructuralIndex_y = \frac{BuildingShellEfficiencyIndex_y \times SurfaceArea_y}{BuildingShellEfficiencyIndex_{15} \times SurfaceArea_{15}} \tag{5}$$

The *StructuralIndex* is defined on the *StructuralVars* tab of the SAE spreadsheets. Surface area is derived to account for roof and wall area of a standard dwelling based on the regional average square footage data obtained from EIA. The relationship between the square footage and surface area is constructed assuming an aspect ratio of 0.75 and an average of 25% two-story and 75% single-story. Given these assumptions, the approximate linear relationship for surface area is:

$$SurfaceArea_y = 892 + 1.44 \times Footage_y \tag{6}$$

In Equation 4, 2015 is used as a base year for normalizing the index. As a result, the ratio on the right is equal to 1.0 in 2015. In other years, it will be greater than 1.0 if equipment saturation levels are above their 2015 level. This will be counteracted by higher efficiency levels, which will drive the index downward. The weights are defined as follows.

$$Weight^{Type} = \frac{Energy_{15}^{Type}}{HH_{15}} \times HeatShare_{15}^{Type} \tag{7}$$

In the SAE spreadsheets, these weights are referred to as *Intensities* and are defined on the *EIAData* tab. With these weights, the *HeatIndex* value in 2015 will be equal to estimated annual heating intensity per household in that year. Variations from this value in other years will be proportional to saturation and efficiency variations around their base values.

For electric heating equipment, the SAE spreadsheets contain two equipment types: electric resistance furnaces/room units and electric space heating heat pumps. Examples of weights for these two equipment types for the U.S. are given in Table 1.

### Table 1: Electric Space Heating Equipment Weights

| Equipment Type | Weight (kWh) |
|---|---|
| Electric Resistance Furnace/Room units | 916 |
| Electric Space Heating Heat Pump | 377 |

Data for the equipment saturation and efficiency trends are presented on the *Shares* and *Efficiencies* tabs of the SAE spreadsheets. The efficiency for electric space heating heat pumps are given in terms of Heating Seasonal Performance Factor [BTU/Wh], and the efficiencies for electric furnaces and room units are estimated as 100%, which is equivalent to 3.41 BTU/Wh.

**Price Impacts**. In the 2007 version of the SAE models and thereafter, the Heat Index has been extended to account for the long-run impact of electric and natural gas prices. Since the Heat Index represents changes in the stock of space heating equipment, the price impacts are modeled to play themselves out over a 10-year horizon. To introduce price effects, the Heat Index as defined by

Equation 4 above is multiplied by a 10-year moving-average of electric and gas prices. The level of the price impact is guided by the long-term price elasticities:

$$HeatIndex_y = StructuralIndex_y \times \sum_{Type} Weight^{Type} \times \frac{\left( Sat_y^{Type} \big/ Eff_y^{Type} \right)}{\left( Sat_{15}^{Type} \big/ Eff_{15}^{Type} \right)} \times \left(TenYearMovingAverageElectricPrice_{y,m}\right)^{\phi} \times \left(TenYearMovingAverageGasPrice_{y,m}\right)^{\gamma} \quad (8)$$

Since the trends in the Structural index (the equipment saturations and efficiency levels) are provided exogenously by the EIA, the price impacts are introduced in a multiplicative form. As a result, the long-run change in the Heat Index represents a combination of adjustments to the structural integrity of new homes, saturations in equipment and efficiency levels relative to what was contained in the base EIA long-term forecast.

Heating system usage levels are impacted on a monthly basis by several factors, including weather, household size, income levels, prices, and billing days. The estimates for space heating equipment usage levels are computed as follows:

$$HeatUse_{y,m} = \left(\frac{WgtHDD_{y,m}}{HDD_{15}}\right) \times \left(\frac{HHSize_y}{HHSize_{15}}\right)^{0.25} \times \left(\frac{Income_y}{Income_{15}}\right)^{0.20} \times \left(\frac{ElecPrice_{y,m}}{ElecPrice_{15,7}}\right)^{\lambda} \times \left(\frac{GasPrice_{y,m}}{GasPrice_{15,7}}\right)^{\kappa} \quad (9)$$

Where:

- *WgtHDD* is the weighted number of heating degree days in year (*y*) and month (*m*). This is constructed as the weighted sum of the current month's HDD and the prior month's HDD. The weights are 75% on the current month and 25% on the prior month.
- *HDD* is the annual heating degree days for 2015
- *HHSize* is average household size in a year (*y*)
- *Income* is average real income per household in year (*y*)
- *ElecPrice* is the average real price of electricity in month (*m*) and year (*y*)
- *GasPrice* is the average real price of natural gas in month (*m*) and year (*y*)

By construction, the $HeatUse_{y,m}$ variable has an annual sum that is close to 1.0 in the base year (2015). The first two terms, which involve billing days and heating degree days, serve to allocate annual values to months of the year. The remaining terms average to 1.0 in the base year. In other years, the values will reflect changes in the economic drivers, as transformed through the end-use elasticity parameters. The price impacts captured by the Usage equation represent short-term price response.

### *Constructing XCool*

The explanatory variable for cooling loads is constructed in a similar manner. The amount of energy used by cooling systems depends on the following types of variables.

- Cooling degree days
- Cooling equipment saturation levels
- Cooling equipment operating efficiencies
- Average number of days in the billing cycle for each month
- Thermal integrity and footage of homes
- Average household size, household income, and energy prices

The cooling variable is represented as the product of an equipment-based index and monthly usage multiplier. That is,

$$XCool_{y,m} = CoolIndex_{y} \times CoolUse_{y,m} \quad (10)$$

Where

- $XCool_{y,m}$ is estimated cooling energy use in year ($y$) and month ($m$)
- $CoolIndex_{y}$ is an index of cooling equipment
- $CoolUse_{y,m}$ is the monthly usage multiplier

As with heating, the cooling equipment index is defined as a weighted average across equipment types of equipment saturation levels normalized by operating efficiency levels. Formally, the cooling equipment index is defined as:

$$CoolIndex_y = StructuralIndex_y \times \sum_{Type} Weight^{Type} \times \frac{\left( Sat_y^{Type} / Eff_y^{Type} \right)}{\left( Sat_{15}^{Type} / Eff_{15}^{Type} \right)} \tag{11}$$

Data values in 2015 are used as a base year for normalizing the index, and the ratio on the right is equal to 1.0 in 2015. In other years, it will be greater than 1.0 if equipment saturation levels are above their 2015 level. This will be counteracted by higher efficiency levels, which will drive the index downward. The weights are defined as follows.

$$Weight^{Type} = \frac{Energy_{15}^{Type}}{HH_{15}} \times CoolShare_{15}^{Type} \tag{12}$$

In the SAE spreadsheets, these weights are referred to as *Intensities* and are defined on the *EIAData* tab. With these weights, the *CoolIndex* value in 2015 will be equal to estimated annual cooling intensity per household in that year. Variations from this value in other years will be proportional to saturation and efficiency variations around their base values.

For cooling equipment, the SAE spreadsheets contain three equipment types: central air conditioning, space cooling heat pump, and room air conditioning. Examples of weights for these three equipment types for the U.S. are given in Table 2.

**Table 2: Space Cooling Equipment Weights**

| Equipment Type | Weight (kWh) |
|---|---|
| Central Air Conditioning | 1,036 |
| Space Cooling Heat Pump | 522 |
| Room Air Conditioning | 277 |

The equipment saturation and efficiency trends data are presented on the *Shares* and *Efficiencies* tabs of the SAE spreadsheets. The efficiency for space cooling heat pumps and central air conditioning (A/C) units are given in terms of Seasonal Energy Efficiency Ratio [BTU/Wh], and room A/C units efficiencies are given in terms of Energy Efficiency Ratio [BTU/Wh].

**Price Impacts.** In the 2007 SAE models and thereafter, the Cool Index has been extended to account for changes in electric and natural gas prices. Since the Cool Index represents changes in the stock of space heating equipment, it is anticipated that the impact of prices will be long-term in nature. The Cool Index as defined Equation 11 above is then multiplied by a 10-year moving average of electric and gas prices. The level of the price impact is guided by the long-term price elasticities.

$$CoolIndex_y = StructuralIndex_y \times \sum_{Type} Weight^{Type} \times \frac{\left( Sat_y^{Type} \big/ Eff_y^{Type} \right)}{\left( Sat_{15}^{Type} \big/ Eff_{15}^{Type} \right)} \times \left( TenYearMovingAverageElectric\Pr ice_{y,m} \right)^{\phi} \times \left( TenYearMovingAverageGas\Pr ice_{y,m} \right)^{\gamma} \quad (13)$$

Since the trends in the Structural index, equipment saturations and efficiency levels are provided exogenously by the EIA, price impacts are introduced in a multiplicative form. The long-run change in the Cool Index represents a combination of adjustments to the structural integrity of new homes, saturations in equipment and efficiency levels. Without a detailed end-use model, it is not possible to isolate the price impact on any one of these concepts.

Cooling system usage levels are impacted monthly by several factors, including weather, household size, income levels, and prices. The estimates of cooling equipment usage levels are computed as follows:

$$CoolUse_{y,m} = \left( \frac{WgtCDD_{y,m}}{CDD_{15}} \right) \times \left( \frac{HHSize_y}{HHSize_{15}} \right)^{0.25} \times \left( \frac{Income_y}{Income_{15}} \right)^{0.20} \times \left( \frac{Elec\Pr ice_{y,m}}{Elec\Pr ice_{15}} \right)^{\lambda} \times \left( \frac{Gas\Pr ice_{y,m}}{Gas\Pr ice_{15}} \right)^{\kappa} \quad (14)$$

Where:

- *WgtCDD* is the weighted number of cooling degree days in year (*y*) and month (*m*). This is constructed as the weighted sum of the current month's CDD and the prior month's CDD. The weights are 75% on the current month and 25% on the prior month.
- *CDD* is the annual cooling degree days for 2015.

By construction, the *CoolUse* variable has an annual sum that is close to 1.0 in the base year (2015). The first two terms, which involve billing days and cooling degree days, serve to allocate annual values to months of the year. The remaining terms average to 1.0 in the base year. In other years, the values will change to reflect changes in the economic driver changes.

### Constructing XOther

Monthly estimates of non-weather sensitive sales can be derived in a similar fashion to space heating and cooling. Based on end-use concepts, other sales are driven by:

- Appliance and equipment saturation levels
- Appliance efficiency levels
- Average number of days in the billing cycle for each month
- Average household size, real income, and real prices

The explanatory variable for other uses is defined as follows:

$$XOther_{y,m} = OtherEqpIndex_{y,m} \times OtherUse_{y,m} \quad (15)$$

The first term on the right-hand side of this expression ($OtherEqpIndex_y$) embodies information about appliance saturation and efficiency levels and monthly usage multipliers. The second term (*OtherUse*) captures the impact of changes in prices, income, household size, and number of billing-days on appliance utilization.

End-use indices are constructed in the SAE models. A separate end-use index is constructed for each end-use equipment type using the following function form.

$$ApplianceIndex_{y,m} = Weight^{Type} \times \frac{\left( Sat_y^{Type} \Big/ \frac{1}{UEC_y^{Type}} \right)}{\left( Sat_{15}^{Type} \Big/ \frac{1}{UEC_{15}^{Type}} \right)} \times MoMult_m^{Type} \times \left(TenYearMovingAverageElectric\Pr ice\right)^{\lambda} \times \left(TenYearMovingAverageGas\Pr ice\right)^{\kappa} \quad (16)$$

Where:

- *Weight* is the weight for each appliance type
- *Sat* represents the fraction of households, who own an appliance type
- $MoMult_m$ is a monthly multiplier for the appliance type in month (*m*)
- *Eff* is the average operating efficiency the appliance
- *UEC* is the unit energy consumption for appliances

This index combines information about trends in saturation levels and efficiency levels for the main appliance categories with monthly multipliers for lighting, water heating, and refrigeration.

The appliance saturation and efficiency trends data are presented on the *Shares* and *Efficiencies* tabs of the SAE spreadsheets.

Further monthly variation is introduced by multiplying by usage factors that cut across all end uses, constructed as follows:

$$ApplianceUse_{y,m} = \left(\frac{BDays_{y,m}}{30.44}\right) \times \left(\frac{HHSize_y}{HHSize_{15}}\right)^{0.46} \times \left(\frac{Income_y}{Income_{15}}\right)^{0.10} \times \left(\frac{ElecPrice_{y,m}}{ElecPrice_{15}}\right)^{\phi} \times \left(\frac{GasPrice_{y,m}}{GasPrice_{15}}\right)^{\lambda} \quad (17)$$

The index for other uses is derived then by summing across the appliances:

$$OtherEqpIndex_{y,m} = \sum_k ApplianceIndex_{y,m} \times ApplianceUse_{y,m} \quad (18)$$

## Supporting Spreadsheets and MetrixND Project Files

The SAE approach described above has been implemented for each of the nine Census Divisions. A mapping of states to Census Divisions is presented in Figure 16. This section describes the contents of each file and a procedure for customizing the files for specific utility data. A total of 18 files are provided. These files are listed in Table 3.

**Figure 16: Mapping of States to Census Divisions**

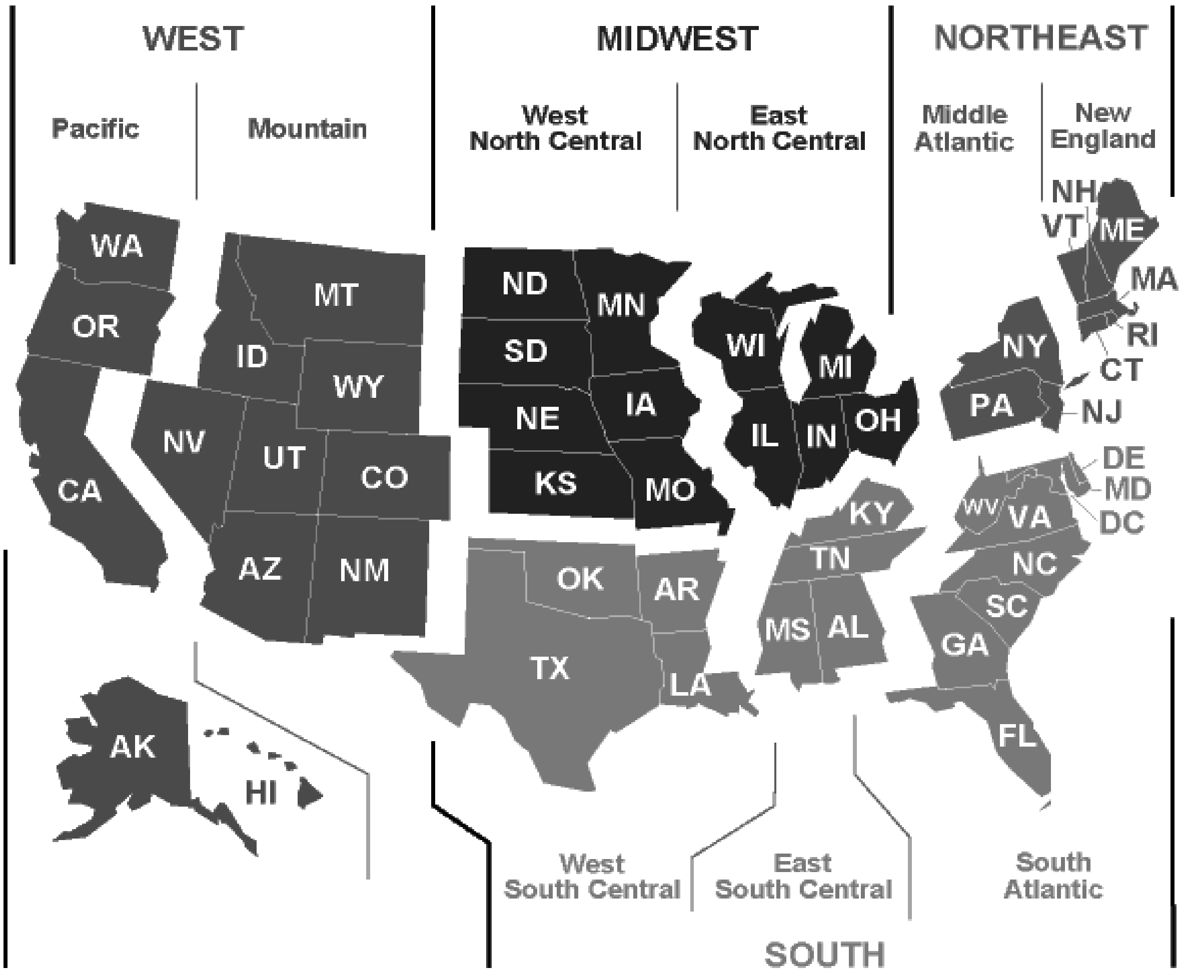



**Table 3: List of SAE Files**

| Spreadsheet | *MetrixND* Project File |
|---|---|
| NewEngland.xls | SAE_NewEngland.ndm |
| MiddleAtlantic.xls | SAE_MiddleAtlantic.ndm |
| EastNorthCentral.xls | SAE_EastNorthCentral.ndm |
| WestNorthCentral.xls | SAE_WestNorthCentral.ndm |
| SouthAtlantic.xls | SAE_SouthAltantic.ndm |
| EastSouthCentral.xls | SAE_EastSouthCentral.ndm |
| WestSouthCentral.xls | SAE_WestSouthCentral.ndm |
| Mountain.xls | SAE_Mountain.ndm |
| Pacific.xls | SAE_Pacific.ndm |

As defaults, the SAE spreadsheets include regional data, but utility data can be entered to generate the *Heat*, *Cool*, and *Other* equipment indices used in the SAE approach. The *MetrixND* project files link to the data in these spreadsheets. These project files calcualte the end-use *Usage* variables are constructed and the estimated SAE models.

Each of the nine SAE spreadsheets contains the following tabs:

- **Definitions -** Contains equipment, end use, worksheet, and Census Division definitions.
- **Intensities -** Calculates the annual equipment indices.
- **Shares -** Contains historical and forecasted equipment shares. The default forecasted values are provided by the EIA. The raw EIA projections are provided on the *EIAData* tab.
- **Efficiencies -** Contains historical and forecasted equipment efficiency trends. The forecasted values are based on projections provided by the EIA. The raw EIA projections are provided on the *EIAData* tab.
- **StructuralVars -** Contains historical and forecasted square footage, number of households, building shell efficiency index, and calculation of structural variable. The forecasted values are based on projections provided by the EIA.
- **Calibration -** This tab contains calculations of the base year *Intensity* values used to weight the equipment indices.
- **EIAData -** Contains the raw forecasted data provided by the EIA.
- **MonthlyMults -** Contains monthly multipliers that are used to spread the annual equipment indices across the months.
- **EV -** Worksheet for incorporating electric vehicle (EV) impacts.
- **PV -** Worksheet for incorporating photovoltaic battery (PV) impacts.

The *MetrixND* Project files are linked to the *AnnualIndices*, *ShareUEC*, and *MonthlyMults* tabs in the spreadsheets. Sales, economic, price and weather information for the Census Division is provided in the linkless data table *UtilityData*. In this way, utility specific data and the equipment indices are brought into the project file. The *MetrixND* project files contain the objects described below.

### Parameter Tables

- **Elas.** This parameter table includes the values of the elasticities used to calculate the *Usage* variables for each end-use. There are five types of elasticities included on this table.

  - Economic variable elasticities
  - Short-term own price elasticities
  - Short-term cross price elasticities
  - Long-term own price elasticities

- Long-term cross price elasticities

The short-term price elasticities drive the end-use usage equations. The long-term price elasticities drive the Heat, Cool and other appliance indices. The combined price impact is an aggregation of the short and long-term price elasticities. As such, the long-term price elasticities are input as incremental price impact. That is, the long-term price elasticity is the difference between the overall price impact and the short-term price elasticity.

### *Data Tables*

- **AnnualEquipmentIndices** links to the *AnnualIndices* tab for heating and cooling indices, and *ShareUEC* tab for water heating, lighting, and appliances in the SAE spreadsheet.
- **UtilityData** is a linkless data table that contains sales, price, economic and weather data specific to a given Census Division.
- **MonthlyMults** links to the corresponding tab in the SAE spreadsheet.

### *Transformation Tables*

- **EconTrans** computes the average usage, and household size, household income, and price indices used in the usage equations.
- **WeatherTrans** computes the HDD and CDD indices used in the usage equations.
- **ResidentialVars** computes the *Heat*, *Cool* and *Other Usage* variables, as well as the *XHeat*, *XCool* and *XOther* variables that are used in the regression model.
- **BinaryVars** computes the calendar binary variables that could be required in the regression model.
- **AnnualFcst** computes the annual historical and forecast sales and annual change in sales.
- **EndUseFcst** computes the monthly sales forecasts by end uses.

### *Models*

- **ResModel** is the Statistically Adjusted End-Use Model.

### *Steps to Customize the Files for Your Service Territory*

The files that are distributed along with this document contain regional data. If you have more accurate data for your service territory, you are encouraged to tailor the spreadsheets with that information. This section describes the steps needed to customize the files.

*Minimum Customization*

- Save the *MetrixND* project file and the spreadsheet into the same folder
- Select the spreadsheet and *MetrixND* project file from the appropriate Census Division

- Open the spreadsheet and navigate to the *Calibration* tab
- In cell "B9", replace base year Census Division use-per-customer with observed use-per-customer for your service territory
- Save the spreadsheet and open the *MetrixND* project file
- Click on the *Update All Links* button on the *Menu* bar
- Review the model results

*Further Customization of Starting Usage Levels*

In addition to the minimum steps listed above, you can also utilize model-based calibration process described above on pages 15-16 to further fine-tune starting year usage estimates to your service territory.

*Customizing the End-use Share Paths*

You can also install your own share history and forecasts. To do this, navigate to the *Share* tab in the spreadsheet and paste in the values for your region. Make sure that base year shares on the *Calibration* tab reflect changes on the *Shares* tab.

*Customizing the End-use Efficiency Paths*

Finally, you can override the end-use efficiency paths that are contained on the *Efficiencies* tab of the spreadsheet.

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