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BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

Application of NEVADA POWER COMPANY d/b/a NV Energy and SIERRA PACIFIC POWER COMPANY d/b/a NV Energy, seeking approval to add 1,001 MW of renewable power purchase agreements and 100 MW of energy storage capacity, among other items, as part of their joint 2019-2038 integrated resource plan, for the three year Action Plan period 2019-2021, and the Energy Supply Plan period 2019-2021

Docket No. 18-06_____

VOLUME 11 OF 18

**NARRATIVE
SUPPLY SIDE PLAN, TRANSMISSION PLAN, ECONOMIC ANALYSIS,
DISTRIBUTION PLANNING, AND FINANCIAL PLAN**

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NARRATIVE
SUPPLY SIDE PLAN

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

**JOINT SUPPLY SIDE PLAN, TRANSMISSION PLAN,
ECONOMIC ANALYSIS, DISTRIBUTION PLANNING,
AND FINANCIAL PLAN**

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SECTION 1. INTRODUCTION

Nevada Power Company (“Nevada Power”) and Sierra Pacific Power Company (“Sierra” and together with Nevada Power the “Companies” or “NV Energy”) are filing this first joint integrated resource plan (“2018 Joint IRP”). Senate Bill 146 from the 2017 Legislature required the Companies to file a joint plan for both utilities on or before June 1, 2018. The Joint 2018 IRP is guided by the Companies’ six core principles: customer service, employee commitment, environmental respect, regulatory integrity, operational excellence, and financial strength. In addition, the 2018 Joint IRP furthers the Companies’ strategic plan to double their use of renewable energy while maintaining, and not increasing, their bundled retail rates. In determining their Preferred Plan and preparing its Action Plan, the Companies developed four long-term primary expansion cases for meeting customers’ demands,¹ and tested them to determine how each performed across the range of potential load, purchased power price, fuel price and carbon cost scenarios. Assuming that Question 3 is not successful in the November 2018 election, the Companies have selected as their Preferred Plan the Low Carbon Case, the centerpiece of which is:

- 1) The expansion of the Companies’ demand side management (“DSM”) programs to deliver statewide energy savings of at least 1.1 percent of the weather normalized retail sales over the Action Plan period. This building block of the Preferred Plan is addressed in the DSM Plan volumes appearing earlier in this filing.
- 2) The addition of 1,001 megawatts (“MW”) of renewable energy sourced from six new solar photovoltaic (“PV”) purchased power agreements (“PPAs”) and three new co-located battery storage projects.
- 3) The early retirement of the North Valmy Unit 1, by December 31, 2021, provided that certain specified conditions are met; and

Residential, commercial and industrial customers have been clear that they want Nevada Power and Sierra to serve them with more renewable energy without impacting the costs they pay. Nevada Power and Sierra have listened, as is demonstrated by their strategic plan to double their renewable energy resources by 2023, without increasing bundled rates. This 2018 Joint IRP demonstrates just how the Companies intend to meet the pace of economic growth in both northern and southern Nevada, rely more on renewable energy, and keep rates low. The overarching goal of this 2018 Joint IRP is to meet growth and shrink customers’ exposure to natural gas prices by delivering more low-cost renewable energy to customers.

¹ A fifth case was constructed for the purposes of short-term planning. This case was only evaluated over five years and is the Companies’ preferred plan in the event voters approve Question 3 in November 2018.

Once the energy savings targets in the DSM Plan were finalized, the Companies looked wide-range of supply side investments and alternatives to increase shortfalls of electricity. The Companies analyzed and considered four alternative cases to pursue in a long-term planning scenario:

- **All Market Case:** This case adds two new solar projects, the 200 MW Dodge Flats project and the Cypress Creek - Battle Mountain Solar, 101 solar PV facility located in northern Nevada. These projects are added for the purpose of facilitating Sierra's compliance with Nevada's RPS. Outside of these supply additions, the All Market Case relies on short-term power purchases during the Action Plan Period to meet demand.
- **Renewable Case:** This case adds four new solar PV projects in addition to the 200 MW Dodge Flats and 100 MW Fish Springs Solar project for a total of six new solar projects. Those projects are: Cypress Creek Renewables' Battle Mountain Solar SP, LLC for 101 MW near Crescent Valley, Nevada; 8minutenergy's 300 MW project at the Eagle Shadow Mountain Solar Farm, Sempra's 250 MW Copper Mountain Solar 5, and the 50 MW Techren V project. The case also adds battery storage systems directly tied to the Dodge Flats, Fish Springs and Crescent Valley solar projects, consisting of a 50 MW/200 MWh battery, a 25 MW/100 MWh battery, and a 25 MW/100 MWh batter, respectively.
- **Low Carbon Case:** This case contains the same six solar projects as the Renewable Case. The Low Carbon Case proposes the retirement of North Valmy Unit 1 in December 2021, subject to specific criterion that are designed to ensure the economic and reliable operations following that retirement.
- **Development Case:** This case contains the same six solar projects as the Renewable Case as well as the retirement of North Valmy Unit 1 in 2021. It adds two additional 150 MW solar projects owned and operated by NV Energy.

NV Energy selected the Low Carbon Case as its Preferred Plan and the similar Renewable Case as the alternative plan. The Renewable Case has less impact on customers and the lowest present worth of revenue requirement. With respect to the impact on the State's economy, both cases involve an estimated \$2.175 billion progressive investment in Nevada, provide an estimated 1,785 construction jobs and approximately 76 long-term jobs. Turning to the impact on the environment, the Low Carbon Case minimizes the impact of NV Energy's operations on the State, national and global environment. NV Energy selected the Low Carbon Case based the fact that the case is more closely aligned with Nevada's energy policy and delivers the services our customers value.

The 2018 Joint IRP builds on the Companies' long renewable energy record. If approved, the Low Carbon Case will add more than 1,001 MW of new solar PV to the Companies' resource portfolios, more than doubling renewable energy production by 2023 and nearly doubling renewable capacity. The estimated \$2.175 billion investment will bring jobs, both construction and permanent, to

Nevada. Our development partners have signed work site agreements, ensuring that skilled Nevadans have the opportunity to perform their tradecraft. The Low Carbon Case results in only 0.5% of the energy we produce coming from coal units, while 32% will come from renewable energy.

NV Energy has an equally strong record of keeping customer costs low. The Low Carbon Case reduces the overall cost of electricity in contrast to the All Market and Development Cases. The Alternative Plan, the Renewable Case, is the lowest cost case analyzed by NV Energy. In the 10-year planning horizon, the Low Carbon Cases reduces cost by \$35 million (present value) compared to the All Market Case and \$52 million compared to the Development case. Over the 20-year horizon, the present value of the savings grows to \$113 million and \$53 million respectively. In the 30-year horizon, the present value of the savings compared to the All Market Case grow to \$155 million, while the present value of the savings compared to Development Case decline to \$29 million.

New generation requires new investments in transmission in order to deliver clean energy to customers. The 2018 Joint IRP proposes approximately \$20 million of investment to bring the output of new solar facilities to customers. In addition, the plan proposes to expand grid improvement efforts by upgrading 230 kilovolt (“kV”) transmission facilities at a cost of \$720 thousand. In addition, previously approved grid improvement expenditures of approximately \$40 million and \$15 million of grid resilience investment will continue. These projects are all designed to improve reliability and security for customers, ensuring that the grid delivers the services customers expect when customers need those services.

By the end of 2019, the Companies will have retired or eliminated their ownership interest in all of the coal-fired generation serving southern Nevada. This IRP continues this legacy, providing a blueprint for the orderly and structured early retirement of North Valmy Unit 1, four years ahead of schedule in 2021. The plan is a responsible one, recognizing the critical services that generation located outside Winnemucca, Nevada provides to the northern Nevada bulk electric system and the role the North Valmy unit plays in serving the Carlin Trend and the economies of Humboldt, Pershing, Churchill, Lander, Eureka and Elko County. The 2018 Joint IRP bolsters generation in this part of the State with a 101 MW solar facility, coupled with a 25 MW battery storage system located in Humboldt County.

In summary, the ultimate result of this 2018 IRP, which is laid out in detail in the following volume, is the selection of the Low Carbon Case as the Companies’ Preferred Plan. This selection reduces exposure to natural gas prices and reduces electricity cost compared to two of the alternatives we analyzed. In light of the environmental benefits and carbon reductions, and the nexus between the Low Carbon Case and Nevada’s energy policy, NV Energy concluded that the Low Carbon Case presents the best value for customers.

SECTION 2. SUPPLY SIDE PLAN

A. GENERATION

1. EXISTING GENERATION

Together Nevada Power and Sierra currently hold ownership interests in approximately 6,011 MW (total peak summer capacity) of generation from the following electric generating facilities (figures reflect summer capacities):

- Chuck Lenzie Generating Station – Nevada Power: 1,102 MW of total peak summer capacity including duct burners and inlet chillers. The plant is located approximately 24 miles northeast of Las Vegas, Nevada, and is composed of two 2x1 natural gas-fired combined cycle units (551 MW each).
- Clark Generating Station – Nevada Power: 1,102 MW of total peak summer capacity, located in Las Vegas, Nevada. Clark Station is composed of two 2x1 natural gas-fired combined cycle units (430 MW), one natural gas-fired combustion turbine unit (54 MW), and 12 natural gas-fired simple cycle combustion turbines (618 MW).
- Clark Mountain Station - Sierra: Two dual-fuel (gas/diesel) combustion turbines with a peak summer capacity of 132 MW. The Clark Mountain units are co-located with the Tracy Station east of Reno.
- Ft. Churchill Station - Sierra: Two natural gas-fired condensing steam turbine units located 10 miles north of Yerington, Nevada. Total peak summer capacity of these units is 226 MW.
- Goodsprings Heat Recovery – Nevada Power: Five MW of total peak summer capacity located adjacent to the Kern River Goodsprings compressor station. The waste heat recovery unit captures waste heat from Kern River Gas's natural gas-fueled compressors, and uses a separate generator to produce electricity.
- Harry Allen Generating Station – Nevada Power: 628 MW of total peak summer capacity located 24 miles northeast of Las Vegas, Nevada. The Harry Allen Generating Station is comprised of the 484 MW natural gas-fired Harry Allen Combined Cycle facility, as well as 144 MW of natural gas-fired combustion turbine peak summer capacity generated by two gas-fired turbine units (72 MW each).
- Las Vegas Generating Station – Nevada Power: 272 MW Summer capacity located in North Las Vegas, Nevada. Formerly Las Vegas Cogen, the Las Vegas Generating Station is

comprised of one (1x1) natural gas-fired aero derivative combined cycle rated at 48 MW, and two (2x1) natural gas-fired aero-derivative combined cycle units rated at 112 MW each.

- Navajo Generating Station – Nevada Power: Nevada Power has undivided ownership rights to 255 MW of net capacity, which reflects an 11.3 percent ownership share of the Navajo Generating Station, a 2,250 MW total net capacity facility located near Page, Arizona. The facility is composed of three similar coal-fired steam turbine units (750 MW each). The Navajo Project includes the generating station, transmission lines and interconnections, water, and rail facilities, and is co-owned by five parties as tenants-in-common (“Co-Tenants”), who together with the United States are “Participants” in the Navajo Project. The Participants’ relative interests in the non-transmission facilities is as follows:
 - Salt River Project (“SRP”) (42.9%);
 - U.S. Bureau of Reclamation (24.3%), whose share is owned by the SRP;
 - Arizona Public Service (14%);
 - Nevada Power (11.3%); and
 - Tucson Electric Power (7.5%)

SRP serves as the operator. Los Angeles Department of Water and Power (“LADWP”) has an ownership share in the transmission facilities and has decommissioning responsibilities associated with its former interest in the generating facility.

- Nellis Solar PV II - Nevada Power: 15 MW AC capacity, located on the Nellis Air Force Base in North Las Vegas, Nevada. The Nellis PV plant is a single axis tracker, consisting of 10 1.5 MW blocks. The plant went into service in November of 2015.
- North Valmy Station - Sierra: Sierra owns 50 percent of two coal-fired condensing steam units with a peak summer capacity of 522 MW. Sierra's share of capacity from the two units at Valmy is 261 MW. North Valmy Station is located 19 miles west of Battle Mountain, Nevada.
- Silverhawk Generating Station – Nevada Power: 520 MW of total peak summer capacity, including duct burners, located approximately 26 miles northeast of Las Vegas, Nevada. The plant is comprised of one 2x1 natural gas-fired combined cycle unit.
- Sun Peak Generating Station – Nevada Power: 210 MW of net summer peak capacity located in Las Vegas, Nevada. Sun Peak Generating Station is comprised of three dual fuel (natural gas and No. 2 fuel oil) simple-cycle combustion turbine units (each capable of producing 70 MW).
- Tracy Station - Sierra: 753 MW of total peak summer capacity, located approximately 15 miles east of Reno, Nevada. The Tracy Station is comprised of one natural gas-fired

steam unit with a total peak summer capacity of 108 MW, and two natural gas-fired combined cycle blocks with a peak summer capacity of 645 MW.

- Walter Higgins Generating Station - Nevada Power: 530 MW of total peak summer capacity including duct burners, located approximately 35 miles southwest of Las Vegas, composed of one 2x1 natural gas-fired combined cycle unit.

Figure GEN-1 summarizes in tabular form Nevada Power's and Sierra's generating units and their respective operating characteristics including: name plate ratings, and winter, summer and peak capacities, commercial operation dates, depreciation-based retirement dates and fuel types.

**FIGURE GEN-1
GENERATING UNITS SUMMARY**

Unit	Commercial Operation Date	Depreciation Based Retirement Date	Prime Mover ²	Designation	Name Plate (MW)	Winter Capacity (MW)	Summer Capacity (MW)	Fuel Type	Primary Fuel Storage Capacity ³	Secondary Fuel Storage Capacity
Sierra⁴										
Clark Mt. 3	1994	2024	CT	Peaker	73	72	66	Nat Gas /Diesel	0	3.5 days
Clark Mt. 4	1994	2024	CT	Peaker	73	72	66	Nat Gas /Diesel	0	3.5 days
Ft. Churchill 1	1968	2025	Steam	Intermediate	105	113	113	Nat Gas	0	0
Ft. Churchill 2	1971	2028	Steam	Intermediate	105	113	113	Nat Gas	0	0
Tracy 3	1974	2028	Steam	Intermediate	110	108	108	Nat Gas	0	0
Tracy 4&5 (Pinon)	1996	2031	CC /Steam	Intermediate	113	108	104	Nat Gas	0	0
Tracy 8, 9, 10	2008	2043	CC /Steam	Base	623	578	553	Nat Gas	0	0
Valmy 1	1981	2025	Steam	Intermediate	127	127	127	Coal	200 days	200 days
Valmy 2 ⁵	1985	2025	Steam	Intermediate	134	134	134	Coal	200 days	200 days
Nevada Power										
Clark 4	1973	2020	CT	Peaker	60	63	55	Nat Gas	0	0
Clark 5, 6, 7	1979, 1979, 1994	2034	CC /Steam	Intermediate	236	84	73	Nat Gas	0	0
Clark 7, 8, 9	1980, 1982, 1994	2033	CC /Steam	Intermediate	236	84	73	Nat Gas	0	0
Clark 11 - 22	2008	2038	CT	Peaker	726	57	52	Nat Gas	0	0
Goodsprings	2010	2040		Base	7.5			Waste Heat	0	0
Harry Allen 3	1995	2025	GT	Peaker	72	84	74	Nat Gas	0	0
Harry Allen 4	2006	2036	GT	Peaker	72	84	74	Nat Gas	0	0
Harry Allen CC	2011	2046	CC /Steam	Base	558	524	510	Nat Gas	0	0
Chuck Lenzie 1	2006	2041	CC /Steam	Intermediate	610	601	585	Nat Gas	0	0
Chuck Lenzie 2	2006	2041	CC /Steam	Intermediate	610	601	585	Nat Gas	0	0
Silverhawk CC	2004	2039	CC /Steam	Intermediate	599	599	560	Nat Gas	0	0
Walt Higgins CC	2004	2039	CC /Steam	Intermediate	688	600	550	Nat Gas	0	0
Navajo 1, 2, 3 ⁶	1974	2019	Steam	Base	255	255	255	Coal	180 Days	180 Days
LV Gen 1	1994	2029	CC /Steam	Intermediate	61.3	51	48	Nat Gas	0	0
LV Gen 2	2004	2039	CC /Steam	Intermediate	148.8	115	112	Nat Gas	0	0
LV Gen 3	2004	2039	CC /Steam	Intermediate	148.8	115	112	Nat Gas	0	0
Sun Peak 3	1991	2026	CT	Peaker	98.1	74	72	Nat Gas /Diesel	0	0
Sun Peak 4	1991	2026	CT	Peaker	98.1	74	72	Nat Gas /Diesel	0	0
Sun Peak 5	1991	2026	CT	Peaker	98.1	74	72	Nat Gas /Diesel	0	180 hours ⁷

² "CT" indicates combustion turbine, "CC" indicates combined cycle.

³ Fuel Storage Capacity Assumes Full Load Operation.

⁴ Brunswick is not listed because it is a Black Start Only unit and is not available for capacity.

⁵ The two Valmy units are 50% owned by Idaho Power Company. Figure GEN-1 shows only Sierra's 50% share of the capacity of the two Valmy units.

⁶ Navajo Generating Station is a 2,250 MW Station. Nevada Power owns 11.5 percent interest in Navajo. Table GEN-1 only shows Nevada Power's 11.5 percent share of the capacity of Navajo.

⁷ No Diesel fuel is currently stored on site

2. OTHER GENERATION ASSETS

Nevada Power and Sierra hold ownership interests in three other generation assets:

- Brunswick Diesel Plant - Sierra: The Brunswick Diesel Plant is a six MW Emergency “Black Start Only” plant, comprised of three reciprocating diesel fired engines located on approximately 10 acres in Carson City, Nevada. This Plant is operational; however, since it is black start only, it cannot be used to serve customer load and so does not provide system capacity.
- Mohave Generating Station – Nevada Power: The Mohave site is located in Laughlin, Nevada and is the previous site of a 1,500 MW coal-fired generating plant. The site is co-owned by Southern California Edison (“SCE”) (56%), SRP (20%), Nevada Power (14%) and LADWP (10%). SCE is the controlling partner of the facility. Mohave ceased operations January 1, 2006 and has been decommissioned.⁸ In 2015, the co-owners agreed to proceed with selling the majority of the property through a public sale process. The property was listed by a nationwide commercial real estate firm in October 2016. No sales transactions have been executed at this time.
- Reid Gardner Generating Station – Nevada Power: The last unit at the Reid Gardner Generating Station ceased operations in March 2017 and the plant is in a state of Post-Operational Reserve.⁹ The units are currently being dismantled. Dismantling and demolishing will be completed over the next 18 months and site remediation will follow. Nevada Power is continuing with the decommissioning and demolition plan approved by the Commission in Docket 15-05004. A final disposition plan for the site will be developed as the site remediation scope becomes better known.

3. RETIREMENT DATES

In Docket No. 08-08002, Nevada Power proposed and the Commission approved the Life Span Analysis Process (“LSAP”) to determine and reevaluate the economic useful lives of the Companies’ generating units. Since that proceeding, both the Companies and the Commission have come to rely on this process, rather than general rate case reviews through which rates of depreciation are set, for determining the appropriate depreciation planning retirement dates to be used for generating units.

⁸ As defined in NRS § 704.7332.

⁹ As defined in NRS § 704.7335.

The LSAP provides an initial life span estimate based on a unit's design and intended mode of operation. For generating facility that have joined the Companies' fleet since the adoption of the LSAP, a unit's initial life span is established when the unit is first put in service. In the case of older units with in service dates preceding the Commission's approval of the LSAP, the Reassessment Protocol set forth in the LSAP was used to set an initial life.

After a unit is commissioned and has been in operation, its life span may be reassessed to ensure that the Initial Life Span Assessment is still valid, or to determine a new plan that is more appropriate for the unit. The reassessment of unit life span can be undertaken for any of the following Reassessment Criteria:

- Annual Business Plan Review
- Last Decade of Unit Life Span
- Change in Environmental Compliance Requirements
- Change in Infrastructure
- Significant Event
- Commission-Ordered Reassessment.

When a reassessment is undertaken, it can range from cursory to detailed, depending on the nature of the revisit. For example, during the initial years of operation, the reassessment due to an Annual Business Plan Review may result in a business decision to maintain the Initial Life Span Assessment. At the other end of the spectrum, a unit entering its planned last decade of operations may implicate operations, maintenance, environmental and infrastructure issues, could dictate a detailed review to assess the unit's remaining life span. No matter the nature of the review, the key steps of the Reassessment Protocol are as follows:

- Unit Assessment
- Environmental Assessment
- Infrastructure Assessment
- Development of Options
- Options Input to Resource Planning and Financial Analysis
- Final Decision on Life Span Assessment and Implementation Plan

a. 2018 LSAPS AND RETIREMENT DATE CHANGES

During 2018, fourteen units will trigger the Reassessment Criterion of entering into the Last Decade of Life Span. New LSAPs have not been prepared for Sierra's North Valmy Units 1 and 2 or for Nevada Power's Navajo Units 1, 2 and 3. These facilities are subject to unique requirements, which are described below. LSAPs have been prepared for remaining units subject to the Last Decade of Life Span, which are listed below, and discussed further in this section.

- Nevada Power's Clark Unit 4 – which is scheduled to retire in 2020.
- Sierra's Clark Mountain 3 & 4 – which are scheduled to retire in 2024.

- Sierra’s Fort Churchill 1 – which is scheduled to retire in 2025.
- Nevada Power’s Harry Allen Unit 3 – which has a 2025 retirement date.
- Nevada Power’s Sun Peak Units 3, 4, 5 – which are scheduled to retire in 2026.
- Sierra’s Tracy Unit 3 – which has a 2028 scheduled retirement date.

Updated LSAP reports for the remaining units are included in the Technical Appendix GEN-4. The recommendations for the remaining generating units subject to LSAP review in this proceeding are summarized in Figure Gen-2 below:

**FIGURE GEN-2
LSAP RESULTS FOR ALL OTHER GENERATING UNITS**

Unit	Currently Approved Depreciation Retirement Date	LSAP Recommended Date	Additional Years of Continued Operation	Unit Age at Retirement
Clark Unit 4	2020	2030	10	57
Clark Mountain Unit 3	2024	2034	10	40
Clark Mountain Unit 4	2024	2034	10	40
Fort Churchill Unit 1	2025	2028	3	60
Harry Allen Unit 3	2025	2035	10	40
Sun Peak Unit 3	2026	2031	5	35
Sun Peak Unit 4	2026	2031	5	35
Sun Peak Unit 5	2026	2031	5	35

The current Action Plan is impacted by the change in the retirement date of Clark Unit 4. As noted in the LSAP report for this facility, Clark Unit 4 is in an operational condition that will allow it to continue to meet its operational in support of customers and the electric system. However, due to its age, if Clark Unit 4 was to experience a major failure or become subject to any new emissions standard, the Companies would immediately assess if retirement was appropriate.

The continued operation of all of these units were analyzed through the Commission-approved LSAP. With no known environmental regulations that would require significant capital upgrades and no other triggering events impacting the retirement decision for these units, the Companies are recommending continuing operation of these units through and beyond their original retirement dates. The units will continue to require other operational capital and maintenance expenses to maintain reliable capacity factors. Moreover, these units will continue to be reassessed or, in the case of another triggering event, reviewed immediately to determine the appropriateness of the

existing retirement dates. These reviews will be included in a future IRP or IRP amendment in the form of new or revised LSAPs.

b. NAVAJO UNITS 1-3

The planned retirement of the Navajo Generating Station in 2019 was approved by the Commission in Nevada Power's 3rd Amendment to the Emissions Reduction and Capacity Replacement ("ERCR") Plan, Docket No. 17-11005, which was filed on November 6, 2017. The Companies are not proposing to make any changes to the December 31, 2019 retirement date for Navajo Units 1-3.

c. NORTH VALMY UNIT 2

Sierra completed an LSAP for North Valmy Units 1 and 2 earlier in 2018, which was filed with the Commission on February 16, 2018 in a compliance filing associated with Docket No. 16-07001. The February 16, 2018 LSAP recommended maintaining the current Commission-approved retirement dates of 2025 for both Units 1 and 2. No action has been taken on the Valmy LSAP as of the date of the filing of this Joint IRP. The Companies are proposing to make no changes in the recommendations regarding North Valmy Unit 2 that were included in the February 16, 2018 LSAP. A discussion of the potential early retirement of North Valmy Unit 1 follows.

d. NORTH VALMY UNIT 1

The February 16, 2018 LSAP recommended maintaining the current Commission-approved retirement dates of 2025 for both Units 1 and 2. In this Joint IRP filing, which benefits from the context of the gigawatt of renewable resources that Companies are proposing to add to their portfolios, the Companies are proposing the retirement of North Valmy Unit 1 on December 31, 2021. The reasoning supporting this proposal, as well as the conditions under which the Companies are proposing to advance the retirement of North Valmy Unit 1 are set forth below.

First and foremost, the early retirement of North Valmy Unit 1 is conditioned on the rejection of Ballot Question 3. If Ballot Question 3 fails to pass in November, 2018, the Companies will continue to perform long-term planning for customers, and will be in a position to add resources to displace the energy and capacity currently provided by North Valmy Unit 1 (*i.e.*, the gigawatt of renewable energy and 100 MW of battery storage contained in the Low Carbon Case and the Renewable Case). The early retirement of North Valmy Unit 1 is conceivable only if the Companies are charged with and capable of managing and planning for energy resources beyond 2023.

As is discussed in more detail below, from the four long-term planning cases designed and analyzed for this filing, the Companies selected the Low Carbon Case as the Preferred Plan and the Renewable Case as the Alternative Plan. The Renewable Case and the Low Carbon Case are

similar in most respects: both cases include the largest investment in renewable energy of any integrated resource plan filed by NV Energy. Both cases include the addition of three clean energy projects located in northern Nevada: a 100 megawatt (MW)¹⁰ solar facility in Washoe County, with a 25 MW/100 MWh battery energy storage system, a 200 MW solar facility in Washoe County with a 50 MW/200 MWh battery energy storage system, and a 101 MW solar facility in Humboldt County with a 25 MW/100 MWh battery energy storage system. Both cases include the addition of three clean energy projects in southern Nevada: a 300 MW solar facility, a 250 MW solar facility, and a 50 MW solar facility, all located in Clark County. As discussed in more detail in the Economic Impacts portion of the Economic Analysis, these six projects, with 1,001 MW of solar generation and 100 MW of battery energy storage will directly pump more than \$2.175 billion of capital investment into Nevada’s clean energy economy, allow Nevada Power and Sierra to meet the pace of economic growth in both northern and southern Nevada, and keep rates low. Simply put, both cases advance Nevada’s energy policy objective of maximizing Nevada’s abundant resource – the sun – to meet the State’s electricity needs.

The primary difference between the Alternative and Preferred Plans is that the Low Carbon Case retires North Valmy Unit 1 at the end of 2021, ahead of the current schedule of 2025. The decision to retire North Valmy Unit 1 early is plainly a policy decision, not one based exclusively on economics. The present worth of revenue requirement (“PWRR”) of the Low Carbon Case, which features the early retirement of North Valmy Unit 1, is less than two-tenths of a percent higher than the PWRR of the Renewable Case. In the five-year analysis, the Renewable Case is \$11 million more cost effective than the Low Carbon Case, on a base of approximately \$5.68 billion. As shown in Figure GEN-3 below both cases have lower fuel and purchased power costs in the 20-year and 30-year outlook, than the All Market Case in which only 300 MW of solar generation is added.

**FIGURE GEN-3
BASE LOAD, BASE FUEL, MID-CARBON ECONOMIC ANALYSIS**

	5 Year PWRR Increase vs Least Cost (million \$)	10 Year PWRR Increase vs Least Cost (million \$)	20 Year PWRR Increase vs Least Cost (million \$)	30 Year PWRR Increase vs Least Cost (million \$)
All Market	\$ 1	\$ 57	\$ 135	\$ 177
Renewable	\$ -	\$ -	\$ -	\$ -
Low Carbon	\$ 11	\$ 22	\$ 22	\$ 22
Development	\$ 32	\$ 74	\$ 75	\$ 51

¹⁰ All MW values are nameplate ratings measured as alternating current (“ac”).

