August 16, 2021

SENT VIA PUCN WEB PORTAL AND EMAIL

Trisha Osborne
Assistant Commission Secretary
Public Utilities Commission of Nevada
1150 East Williams Street
Carson City, NV 89701

Re: Docket Nos. 21-06001 and 21-06002

Dear Ms. Osborne,

Please accept for filing the Direct Testimony of Devi Glick on Behalf of Sierra Club and NRDC in the above-referenced dockets.

Please let me know if you have any questions. Thank you.

Sincerely,

/s/ Miriam Raffel-Smith
Miriam Raffel-Smith
Legal Assistant
Sierra Club Environmental Law Program
(415) 977-5745

Enclosures
cc: Service List (via Email)

BEFORE THE PUBLIC UTILITES COMMISSION OF NEVADA

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 2022-2041 Triennial Integrated Resource Plan and 2022-2024 Energy Supply Plan.	)	Docket No. 21-06001
Application of Sierra Pacific Power Company d/b/a NV Energy for approval of its Natural Gas Conservation and Energy Efficiency Plan for the period 2022-2024.	)	Docket No. 21-06002

DIRECT TESTIMONY OF DEVI GLICK

ON BEHALF OF SIERRA CLUB AND NATURAL RESOURCES DEFENSE COUNCIL

AUGUST 16, 2021

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

1. Q. Please state your name and occupation.

A. My name is Devi Glick. I am a Principal Associate at Synapse Energy Economics, Inc. ("Synapse"). My business address is 485 Massachusetts Avenue, Suite 3, Cambridge, Massachusetts 02139.

2. Q. Please describe Synapse Energy Economics.

A. Synapse is a research and consulting firm specializing in energy and environmental issues, including electric generation, transmission and distribution system reliability, ratemaking and rate design, electric industry restructuring and market power, electricity market prices, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power.

Synapse's clients include state consumer advocates, public utilities commission staff, attorneys general, environmental organizations, federal government agencies, and utilities.

3. Q. Please summarize your work experience and educational background.

A. At Synapse, I conduct economic analysis and write testimony and publications that focus on a variety of issues related to electric utilities. These issues include power plant economics, utility resource planning practices, valuation of distributed energy resources, and utility handling of coal combustion residuals waste. I have submitted expert testimony on unit-commitment practices, plant economics, utility resource needs, and solar valuation before state utility regulators in Arizona, Connecticut, Florida, Indiana, Michigan, New Mexico, North Carolina, South Carolina, Texas,

Wisconsin, and Virginia. In the course of my work, I develop in-house electricity system models and perform analysis using industry-standard electricity system models.

Before joining Synapse, I worked at Rocky Mountain Institute, focusing on a wide range of energy and electricity issues. I have a master's degree in public policy and a master's degree in environmental science from the University of Michigan, as well as a bachelor's degree in environmental studies from Middlebury College. I have more than eight years of professional experience as a consultant, researcher, and analyst. A copy of my current resume is provided as Attachment DG-1.

4. Q. On whose behalf are you testifying in this case?

A. I am testifying on behalf of the Sierra Club and Natural Resources Defense Council.

5. Q. Have you testified previously before the Public Utilities Commission of Nevada ("Commission")?

A. No.

6. Q. What is the purpose of your testimony in this proceeding?

A. My testimony addresses Nevada Energy's ("NV Energy" or "Company") request for expedited approval to modify the combustion turbines at three of its combined cycle plants. In particular, I review the Company's justification for seeking expedited approval for the proposed modifications, the purported system needs the resources will meet, and the analysis the Company has conducted to justify the resource decision. I evaluate whether the Company adequately considered alternative resources relative to

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the proposed modifications and outline steps the Company should have taken to fill its purported resource needs. Finally, I evaluate the impact that the proposed modifications will have on the Company's total emissions and its obligation to be net zero by 2050.

7. Q. Does your testimony address any other Integrated Resource Plan ("IRP") issues?

A. No. The Commission broke the IRP docket into three phases. Phase 1 covers the Company's expedited approval for the modifications at three of its combined cycle plants. All other issues will be address in Phases 2 and 3.

8. Q. How is the remainder of your testimony structured?

A. In Section II, I summarize my findings and recommendations for the Commission.

In Section 3, I summarize the Company's request and provide background on the plants that NV Energy proposes to modify.

In Section 4, I review the Company's justification for the proposed modifications. I evaluate NV Energy's purported near-term system needs, the economic analysis the Company performed to justify the proposed modifications, and the alternative resources considered. I discuss the stranded asset risk that results from the Company's continued expenditures at fossil plants and outline the alternative resources that the Company should have considered and explain how those alternative resources could meet the Company's actual near-term need.

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In Section 5, I evaluate the impact of the proposed modifications on the Company's total emissions as well as its marginal emissions rate. I then discuss how the modifications are not aligned with Nevada's net zero by 2050 goal.

II. FINDINGS AND RECOMMENDATIONS

9. Q. Please summarize your findings.

A. My primary findings are:

1. The Company did not establish that the purported system needs all must be met and filled by May 2022.
2. The Company did not perform adequate resource replacement analysis to establish that the proposed modifications are the least-cost option to meet the Company's near-term system needs.
3. There is no evidence that the Company acted expediently to issue an all-source request for proposals ("RFP") and evaluate alternative resource options as soon as it identified a near-term system need. Doing so would have allowed the Company to test the market to identify other resource and load-management options to meet system need.
4. The proposed modifications will increase the Company's stranded asset risk.
5. The proposed modifications will increase NV Energy's total emissions, displace renewables, and make it more difficult and costly for the Company to be net zero by 2050.
6. With the proposed projects, and the modifications NV Energy recently made to two other combined cycle plants, the Company is either locking ratepayers into over 3,700 MW of fossil resources for another two decades or else basing its

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economic analysis on faulty assumptions around project lifetimes that make the projects look less costly than they will actually be.

10. Q. Please summarize your recommendations.

A. Based on my findings, I recommend that the Commission reject the Company's request for expedited approval and instead:

1. Require NV Energy to immediately issue an all-source RFP, using a transparent process and an independent evaluator, for resources that can meet its near-term system needs.
2. Require NV Energy to analyze the cost of filling its system needs with a combination of battery storage, load management, and DSM options.
3. Require NV Energy to demonstrate that the proposed modifications will not increase the Company's total emissions, and that they are aligned with Nevada's 2050 net zero goal.

III. PROJECT BACKGROUND

11. Q. Please summarize this section.

A. I analyze the Company's request for expedited approval of modifications to the combustion turbines at three of its combined cycle plants: Chuck Lenzie Block 2, Silverhawk, and Tracy Combined Cycle. I summarize the context and history of each unit and describe the modifications that the Company is proposing. I discuss the Company's recent historical operation of the unit and the Company's projection of how it will operate each unit in the future.

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12. Q. Please provide a brief background on each unit at issue in this proceeding.

A. In this docket, the Company is proposing to modify the combustion turbines at three combined cycle plants. Chuck Lenzie Block 2 is a 610 MW combined cycle plant located 24 miles northeast of Las Vegas, Nevada. The plant was built in 2006 and is scheduled to retire in 2041. Silverhawk is a 599 MW combined cycle plant located 26 miles northeast of Las Vegas, Nevada. The unit was built in 2004 and is scheduled to retire in 2039. Tracy combined cycle plant is a 623 MW plant located 15 miles east of Reno, Nevada. The plant was built in 2008 and is scheduled to retire in 2043.[1]

13. Q. Explain what the Company is proposing for each of the three combined cycle plants.

A. NV Energy is proposing to add 146 MW of summer peak capacity across the three combined cycle plants through the following modifications:[2]

1. $52.7 million for a 40 MW combustion turbine upgrade at Chuck Lenzie Block 2, procured, installed, and commissioned by General Electric, with an in-service date of May 31, 2022.
2. $53 million for a 36 MW combustion turbine upgrade at Tracy Combined Cycle, procured, installed, and commissioned by General Electric, with an in-service date of May 31, 2022.
3. $30.4 million for a 40 MW combustion turbine upgrade at Silverhawk, completed by Power Systems Manufacturing, with an in-service date of May 31, 2022.

[1] Joint Application to Approve Triennial Integrated Resource Plan, Three Year Action Plan and Energy Supply Plan, Vol. 14, Supply Side Narrative at 6 (pdf 135), Fig. Figure GEN-1, No. 21-06001 (Pub. Utils. Comm'n of Nev. June 1, 2021) [hereinafter "NVE IRP Application"].
[2] *Id*. at 6-7 (pdf 146-147).

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4. $10 million for a 30 MW wet compression system upgrade at Silverhawk, completed by Power Systems Manufacturing, with an in-service date of May 31, 2022.

The Company seeks expedited approval for the modifications "to allow the materials to be ordered to meet spring outage schedules and make the additional capacity available for the summer of 2022."[3]

14. Q. In recent years, how has NV Energy operated the three combined cycle units that it is proposing to modify?

A. Over the past five years (2016–2020) NV Energy has operated Silverhawk at an average capacity factor of just below 40 percent, Tracy at around a 60 percent capacity factor, and Chuck Lenzie at a 50 percent capacity factor.[4]

15. Q. How does NV Energy project it will utilize each of the three units in the next decade?

A. Over the next five years (2022–2026) NV Energy projects the average capacity factor of Silverhawk will drop to an average of 19 percent, while Tracy will remain around 60 percent, and Chuck Lenzie will drop just slightly to around 46 percent.[5]

[3] NVE IRP Application, Vol. 2, Application at 26.
[4] *Form EIA-923 detailed data with previous form data (EIA-906/920)*, U.S. Energy Info. Admin. https://www.eia.gov/electricity/data/eia923/ (July 30, 2021); *Form EIA-860 detailed data with previous form data (EIA-860A/860B)*, U.S. Energy Info. Admin., https://www.eia.gov/electricity/data/eia860/ (June 3, 2021).
[5] NVE IRP Application, Vol. 16 at 19, Fig. 2021 IRP Preferred Plan - Net Zero Case BLBFMC.

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IV. NV ENERGY DID NOT ESTABLISH ITS NEAR-TERM SYSTEM NEED AND DID NOT CONDUCT A ROBUST RESOURCE REPLACEMENT ANALYSIS

16. Q. Please summarize this section.

A. First, I summarize NV Energy's purported near-term system needs and I evaluate the robustness of the Company's analysis supporting its claimed needs. I analyze what actual near-term needs the Company has. Next, I review the Company's analysis supporting the proposed modifications, and I evaluate the adequacy and robustness of its alternatives and replacement analysis. Finally, I outline the resources the Company should have considered and the steps the Company should have taken to ensure it procures the least-cost resources to meet its near-term system needs.

17. Q. Why is NV Energy seeking expedited approval for the combustion turbine modifications?

A. NV Energy expressed concern in its Energy Supply Plan ("ESP") about its ability to fill its summer capacity and energy needs due to "unanticipated increases in energy demand and/or shortages in supply."[6] Specifically, NV Energy indicated its worry that if there is another widespread and prolonged heat wave in the west, firm energy products may be limited or unavailable.[7]

[6] NVE IRP Application, Vol. 18, Energy Supply Plan Direct Testimony of Anita Hart at 17:8-9 (pdf 19) [hereinafter "Hart Energy Supply Plan Direct"].
[7] *Id.* at 17:9-12 (pdf 19).

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In response, the Company is attempting to fast-track the project to increase generation output of its gas resources.[8] It claims that the proposed modifications will not only increase output of the units, but also efficiency and operational flexibility.[9] The modifications will also reduce the Company's claimed capacity needs (referred to by the Company as its "open position") by making more internal capacity available to serve customers.[10]

NV Energy indicated that the lead time for this type of plant modification is generally a year, but if it signs a letter of intent in September of this year, the modifications can be completed by the spring of 2022 during the Company's spring outage.[11] This will allow the Company to have the modifications completed in time for the capacity to be available for the summer of 2022.[12]

18. Q. What are the Company's projected near-term capacity needs?

A. The Company projects near-term capacity needs of 1,876 MW in 2022 and 1,982 MW in 2023 in its preferred Net Zero scenario.[13] With such a large capacity gap, the Company plans to continue to rely on market purchases to meet a significant amount of its energy and capacity needs. While it is understandable that the Company would seek to lower its capacity need, it is unclear why it feels that an incremental 146 MW will provide value sufficient to justify an accelerated and abbreviated review process

[8] NVE IRP Application, Vol. 2 at 1.
[9] NVE IRP Application, Vol. 3, Direct Testimony of Dariusz Rekowski at 7:15-18 [hereinafter "Rekowski Direct"].
[10] *Id.* at 9.
[11] NVE IRP Application, Vol. 2 at 1:25-27.
[12] Rekowski Direct, *supra* note 9, at 8:21-9:2.
[13] NVE IRP Application, Vol. 16 at 64, Fig. ECON-6 Load and Resource Table.

that will lock ratepayers into additional fossil resources for another 20 years at least. It is also unclear why the Company was not taking actions to evaluate alternatives to address its system needs before now.

19. Q. Has the Company performed analysis sufficient to demonstrate that the utility needs the services provided by the proposed modifications?

A. No. The Company generally discusses its need to address curtailments and renewable integration on its system, but provides no specific analysis, stating only that:

> The Companies have identified and evaluated two areas of concern:
>
> First, the events from the summer of 2020 demonstrate that external resources may no longer be as readily available as in previous years. The evaluation reviewed curtailments from August 17-23, 2020 for the hours ending 1700-2200. A total of 7,111 MW was curtailed and 5,113 MW or 72 percent were from day-ahead or real-time products.
>
> Second, due to the development of portfolios with large quantities of variable renewable resources in which available resources drop rapidly in the evening hours, producing larger open positions in non-peak load hours. As a result, the Companies have evaluated several options to reliably meet their resource needs. Upgrades the CTs at Chuck Lenzie Power Block, Tracy, Silverhawk, and Harry Allen will assist in alleviating a portion of those resource needs.[14]

20. Q. Did the Company evaluate the cost of the proposed modifications relative to alternative resource options?

A. No. NV Energy conducted a screening analysis using its capital expense recovery ("CER") model but did not conduct a robust modeling exercise. In its screening analysis, the change case the Company tested includes the combustion turbine

[14] NVE Response to SC-NRDC DR 1-06(a) (provided as Attachment DG-2).

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modifications in 2022 and the addition of three grid-tied battery storage projects totaling 66 MW of new capacity and 264 MWh of energy storage to Sierra Pacific Power's system in 2023.[15] The base case contained no plant modifications and no grid-tied batteries.[16] Based on this analysis, NV Energy found that the 30-year present worth revenue requirement ("PWRR") was $44 million less for the scenario with the resources than without.[17]

21. Q. What are your concerns with this type of screening analysis?

A. First, the analysis did not isolate the combustion turbine modifications for which the Company is requesting expedited approval from the unrelated grid-tied battery storage project—it evaluated them together in a single scenario.[18] This is concerning because if the Company had screened the modifications and battery storage projects individually, it might have seen that some modifications were, in fact, uneconomic. By grouping them all together, NV made it very difficult to determine if, on their own, the modification were in fact economic.

Second, NV Energy is very vague about what it actually did as part of the screening analysis. The Company does not appear to have tested resource alternatives with the PLEXOS capacity expansion model, but instead appears to have simply run the PROMOD production cost model with and without the batteries and proposed

[15] Hart Energy Supply Plan Direct, *supra* note 6, at 9:2-22 (pdf 11).
[16] NVE IRP Application, Vol. 3, Integrated Resource Plan Direct Testimony of Anita Hart at 21:15-23 (pdf 23).
[17] *Id.* at 21:19-22 (pdf 23).
[18] *Id.*

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combustion turbine modifications, and let the model dispatch and choose market energy to fill the gap.[19]

Third, the Company did not appear to conduct any sensitivity analysis as part of its screening process to evaluate the risk posed by deviations in load, gas price, and CO_2 price. The Company also failed to evaluate the economics of the proposed modifications over a shorter economic life than 20 years. This is critical for understanding whether the modifications would still be economic even if a unit were retired early.

Finally, the $44 million cost difference between the base case and change case represents only 0.16 percent of the Company's revenue requirement over the entire 30-year period. This is an extremely small cost difference to justify locking ratepayers into significant gas capacity.[20]

22. Q. Did the Company's analysis evaluate all major risks posed by the projects?

A. No. As discussed above, the Company conducted no sensitivity analysis and made no mention of risk assessment. Continued expenditures at gas plants expose the Company, and critically its ratepayers, to risks from gas price volatility and stranded asset risk if the asset becomes uneconomic and uncompetitive (due to the

[19] NV Energy did not provide outputs from either the PROMOD or PLEXOS model that show what analysis the Company did as part of the screening analysis, and what alternative resource builds or dispatches the model was allowed to test. The Company only provided its CER model, which contains the annual total costs from PROMOD by region and by scenario.
[20] NVE IRP Application, Vol. 14, Supply Side Narrative at 147 (pdf 276), Fig. EA-18.

implementation of a CO_2 price, for example) before it has been fully depreciated. Each of these plants has around 20 years of economic life remaining,[21] and these proposed modifications will simply add to each plant's current undepreciated balance. None of these risks were acknowledged or appeared to factor into the Company's decision.

23. Q. What actions should the Company have taken as soon as it realized it may have a resource need in the summer of 2022?

A. A prudent course of action for the utility would have been to evaluate what its system actually needed, fully document that need, and then clearly evaluated the least-cost solution to meet any outstanding needs. NV Energy should have issued an all-source RFP for the services it required. Doing so would have allowed sufficient time for other resources to bid in and potentially provide solutions to meet the Company's purported needs. It has now been nearly a year since the energy shortages of the summer of 2020 that the Company is using to justify its purported near-term needs. By delaying so long, NV Energy now has only one year to procure replacement resources and has therefore limited the universe of options, and also limited its ability to diversify its resource mix and make its system more resilient.

Giving the Company the benefit of the doubt that it only had time to do a rudimentary screening analysis, it still should have isolated the proposed modifications from all other resource options. Specifically, it should have clearly documented the need to modify 146 MW of gas plant capacity in order to reduce a small amount of near-term

[21] *Id.* at 6 (pdf 135), Fig. GEN-1.

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system needs. Further, the Company should have documented that, given this need, the proposed modifications were the least-cost option relative to identified alternatives.

If it had taken all these steps, the Company could have seen that battery storage in combination with distributed generation and other demand-side and load management resources could meet the Company's resource needs for the summer of 2022 at a lower cost and lower risk than the proposed gas plant modifications.

24. Q. How does this current resource need compare to what NV Energy projected in the prior 2018 IRP?

A. For 2022, when NV Energy has a purported near-term resource need, the Company's gross peak projection in the current IRP is virtually identical to what the Company projected in its 2018 IRP. But NV Energy's projected incremental investment in DSM has fallen significantly for this same year. In fact, the Company's projection for incremental DSM investment for 2022 in the current IRP is over 200 MW lower than what the Company projected in 2018 (as shown in Table 1).[22] This shortfall is more than the size of the proposed modifications to the combined cycle plants (146 MW).

In addition, the avoided capacity need from demand response programs has decreased by over 100 MW relative to what was projected in the 2018 IRP.[23] This means that even though the Company's reserve needs have increased, that increase could have

[22] NVE 2018 Integrated Resource Plan Application, Vol. 16 at pdf 254, Fig. Load and Resources Table, Low Carbon Scenario, Docket No. 18-06003 (Pub. Utils. Comm'n of Nev. June 1, 2018), *available at* http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2015_THRU_PRESENT/2018-6/30459.pdf.

[23] *Id.*

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been more than offset by DSM investment if the Company had ramped up DSM and demand response investment as much as it planned in the last IRP.

Table 1: Load and Resource Need in 2021 IRP vs 2018 IRP (MW)[24]

	2021 IRP				Delta from 2018 IRP			
	2022	**2023**	**2024**	**2025**	**2022**	**2023**	**2024**	**2025**
Gross Peak	8,075	8,284	8,496	8,619	(25)	174	245	251
DSM	76	117	150	183	(205)	(229)	(261)	(295)
Private Generation	86	116	166	203	(39)	(25)	14	48
Avoided Capacity* (Demand Response)	163	173	180	193	(114)	(107)	(104)	(95)
Forecast System Peak	7,750	7,878	8,000	8,040	333	535	596	593
Sales Obligations	-	-	-	-	-	-	-	-
NET System Peak	7,750	7,878	8,000	8,040	333	535	596	593
Planning Reserves (16%)	1,240	1,261	1,280	1,286	296	330	341	342
REQUIRED RESOURCES	8,990	9,139	9,280	9,326	629	865	937	935
AVAILABLE RESOURCES	7,114	7,157	8,372	8,643	(183)	(429)	786	1,057
OPEN Position	1,876	1,982	908	683	812	1,294	151	(122)

Note: Negative values shown in red parentheses indicate that in the 2021 IRP, the projection has decreased relative to the 2018 IRP; positive values indicate that in the 2021 IRP the projection has increased relative to the 2018 IRP.

25. Q. Please provide your conclusions regarding the Company's justification for the proposed modifications to the combined cycle plants.

A. I find that the Company did not adequately document and then explain the need for the proposed modifications to its combined cycle plants. Battery storage and combustion turbine units both serve peak needs; therefore, it was important for the Company to have carefully tested the economics of these competing resources as part of a screening analysis. Further, had the Company invested in DSM and demand response as it had planned to do in its last IRP, with this Commission's approval, it would have reduced its near-term peak capacity needs by an amount larger than the proposed

[24] *Id.*

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upgrades. Instead, the Company has under-invested in DSM and is trying to increase its reliance on its aging gas plant capacity with the proposed upgrades—something that it already did at two other gas units in 2020 and 2021—without adequately justifying the need and robustly evaluating alternatives at that time.[25]

V. THE PROPOSED COMBINED CYCLE MODIFICATIONS WILL INCREASE THE COMPANY'S TOTAL CO_2 AND AIR POLLUTION EMISSIONS RELATIVE TO ALTERNATIVES AND DO NOT ALIGN WITH NEVADA'S STATED NET-ZERO BY 2050 GOAL

26. Q. How will the project upgrades impact the Company's total CO_2 and air pollution emissions?

A. NV Energy conducted no capacity expansion or production cost modeling of an optimal base case where the combined cycle units continue to operate without the proposed modifications and the model can select the optimal resource mix to fill its near-term needs; therefore, we have no baseline against which to compare the CO_2 and air pollution emission impacts of the modifications. In the near term, because the Company has a large capacity need, the proposed modifications will likely displace imports.

Over the long term, the modification of the combined cycle plants will likely displace capacity that would otherwise come online from renewables or battery storage. Put another way, in the absence of the proposed modifications, the Company would be more likely to have met that need with renewables and battery storage. Therefore, the

[25] Rekowski Direct, *supra* note 9, at 8-9.

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proposed modifications to the three combined cycle plants will likely increase total CO_2 and criteria air pollutants.

27. Q. How will the proposed modifications impact the Company's marginal emissions rate?

A. A utility's marginal air pollution emissions rate is set by the emissions rate of the last resource needed to meet load in any given hour. Generally, a system's marginal emissions rate is calculated for both on-peak and off-peak time periods (because the resources required to meet load vary significantly during peak and off-peak hours). The marginal emissions rate for NV Energy is a product of both the resources in the Company's own portfolio, and the resources used to produce the electricity that NV Energy imports (the imports have their own marginal and average emissions rate).

If the generation from the modified combined cycle plants displaces generation from dirtier, high pollution emission resources, then the system's marginal emissions rate will decrease as a result of the modifications. But, if the generation from the modified combined cycle plants displaces cleaner, low-emission resources, or even causes the curtailment of zero-emission resources, then the system's marginal emissions rate will increase as a result of the modifications. In other words, the system will become more polluting than it would in the absence of the proposed modifications.

28. Q. Will the installation of these proposed modifications hinder NV Energy in reaching its net zero by 2050 goals?

A. My research indicates it will hinder its goals. The installation of the proposed modifications will add 146 MW of summer peaking capacity and essentially lock in

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over 3,000 MW of gas capacity for 20 plus years, thus making it harder for the Company to reach its net zero goal. By increasing the undepreciated plant balance at each plant, these modifications will make the three gas plants harder to retire. This is extremely concerning given that these plants are scheduled to operate for another two or more decades. Additionally, NV Energy already performed similar modifications at Walter Higgins in 2020 and Chuck Lenzie Unit 1 in 2021 and is proposing similar modifications to Harry Allen in 2023. In total, it already has, or is proposing to, modify six of its gas plants to increase their combined peaking summer capacity by 290 MW (as shown in Table 2).

Table 2: Completed and planned combustion turbine modifications[26]

Unit	Pre-modification summer peak capacity (MW)	Summer peak capacity addition (MW)	Post-modification summer peak capacity (MW)	Upgrade year (*proposed)	Depreciation-based retirement date
Completed Modifications					
Walt Higgins CC	545	59	604	2020	2039
Chuck Lenzie 1	585	40	625	2021	2041
Proposed Modifications					
Silverhawk	560	70	630	2022*	2039
Chuck Lenzie 2	585	40	625	2022*	2041
Tracy 8, 9, 10	553	36	589	2022*	2043
Harry Allen CC	510	45	555	2023*	2046
Total	**3,338**	**290**	**3,628**		

These six plants together will account for 3,628 MW of peak summer capacity if all proposed modifications are competed. This represents 60 percent of NV Energy's current fossil peak summer capacity. This means that NV Energy is planning to keep

[26] NVE IRP Application, Vol. 14, Supply Side Narrative at 6 (pdf 135), Fig. GEN-1; *id*. at 16 (pdf 145), Fig. Figure GEN-3; *id*. at 17 (pdf 146).

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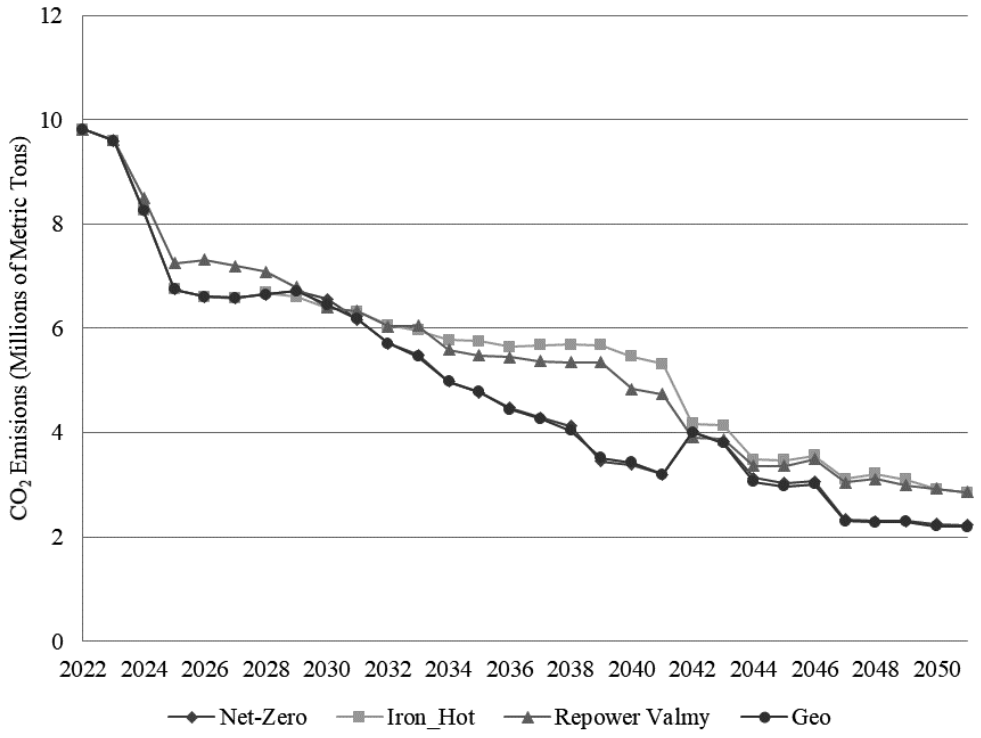
over half (60 percent) of its current fossil generation capacity online for another two decades or longer. Further, in order to comply with the net zero goal, the Company will have to retire and replace, or otherwise rely on unproven and expensive technologies to mitigate the emissions from around 3,700 MW of capacity in less than a decade. For this reason, it is not surprising that, as shown in Figure 1, NV Energy only plans to reduce emissions 70 to 80 percent by 2050 to comply with the state's net zero regulations and does not currently plan to completely phase out fossil resources.

Figure 1: IRP Figure NERA-3 Carbon Dioxide Emissions, 2022-2051 (Millions of Metric Tons)[27]



[27] NVE IRP Application, Vol. 14, Supply Side Narrative at 158 (pdf 288), Fig. NERA-3.

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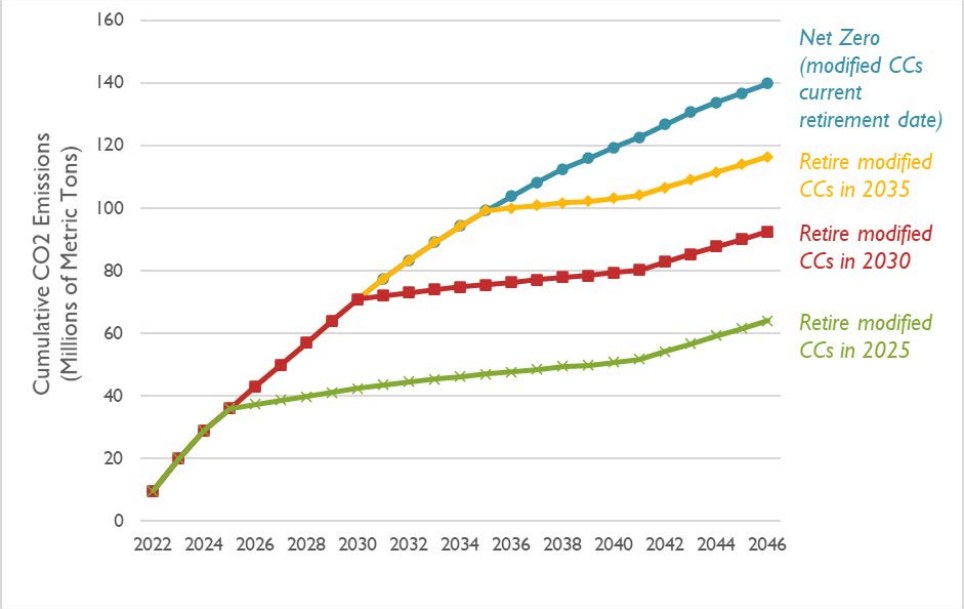
29. Q. What if NV Energy retires any of the combined cycle plants early?

A. If the Company retires any of the six plants that it has already, or proposes to modify, earlier than projected (or more specifically, earlier than 20 years from the modification), this will reduce the Company's cumulative emissions significantly, as shown in Figure 2.

Figure 2: Cumulative CO_2 emission with current and alternative retirement dates for all six modified combined cycle plants[28]



But doing so will require the plant modifications to be paid off in less than the 20 years[29] that NVE modeled, which in turn will make the projects less economic. Specifically, by decreasing the lifetime over which each proposed modification is paid

[28] NVE Workpapers, Attach. ECON-4 - ENERGY MIX _ CO2 BY PLAN.xlsx (available on NVE's Discovery Website in folder labelled "IRP ESP Public Workpapers"); NVE Workpapers, Attach. NERA_NVE 2021 IRP_Emissions Workbook_2021_05_28.xlsx (available on NVE's Discovery Website in folder labelled "IRP ESP NERA Workpapers").

[29] NVE Workpapers, Conf. Attach. CER_screen_BLBFMS – CONF.xlsx (assumed amortization period is not confidential per agreement with NV Energy, full document available pursuant to the protective agreement).

off, the project will become more expensive and ultimately less economic than NV Energy claims it will be based on the analysis it filed in this docket. The Company produced no analysis that evaluated the economics of the upgrades over a shorter time period than 20 years.

30. Q. Please provide your conclusions regarding the emissions impact of the proposed modifications and how they align with Nevada's net zero by 2050 goal?

A. I find that the proposed modifications to the three combined cycle plants will increase the Company's total emissions and will make it harder and more costly to ratepayers for the Company to meet Nevada's net zero by 2050 goal. With the proposed projects, and the modifications NV Energy recently made to two other combined cycle plants, the Company is either locking ratepayers into over 3,700 MW of fossil resources for another two decades or else basing its economic analysis on faulty assumptions around the project lifetimes that make the projects look less costly than they will actually be.

VI. RECOMMENDATIONS FOR THE COMMISSION

31. Q. Please summarize your recommendations.

A. I recommend that the Commission reject the Company's request for expedited approval and instead:

1. Require NV Energy to immediately issue an all-source RFP, using a transparent process and an independent evaluator, for resources that can meet its near-term system needs.

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2. Require NV Energy to analyze the cost of filling its system needs with a combination of battery storage, load management, and DSM options.
3. Require NV Energy to demonstrate that the proposed modifications will not increase the Company's total emissions, and that they are aligned with Nevada's 2050 net zero goal.

32. Q. Does this conclude your testimony?

A. Yes.

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2101 Webster St., Ste. 1300, Oakland, CA 94612

Attachment DG-1

Devi Glick, Principal Associate

Synapse Energy Economics I 485 Massachusetts Avenue, Suite 3 I Cambridge, MA 02139 I 617-453-7050
dglick@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA. *Principal Associate*, June 2021- Present; *Senior Associate*, April 2019 – June 2021; *Associate*, January 2018 – March 2019.

Conducts research and provides expert witness and consulting services on energy sector issues. Examples include:

- Modeling for resource planning using PLEXOS and Encompass utility planning software to evaluate the reasonableness of utility IRP modeling.
- Modeling for resource planning to explore alternative, lower-cost and lower-emission resource portfolio options.
- Providing expert testimony in rate cases on the prudence of continued investment in, and operation of, coal plants based on the economics of plant operations relative to market prices and alternative resource costs.
- Providing expert testimony and analysis on the reasonableness of utility coal plant commitment and dispatch practice in fuel and power cost adjustment dockets.
- Serving as an expert witness on avoided cost of distributed solar PV and submitting direct and surrebuttal testimony regarding the appropriate calculation of benefit categories associated with the value of solar calculations.
- Reviewing and assessing the reasonableness of methodologies and assumptions relied on in utility IRPs and other long-term planning documents for expert report, public comments, and expert testimony.
- Evaluating utility long-term resource plans and developing alternative clean energy portfolios for expert reports.
- Co-authoring public comments on the adequacy of utility coal ash disposal plans, and federal coal ash disposal rules and amendments.
- Analyzing system-level cost impacts of energy efficiency at the state and national level.

Rocky Mountain Institute, Basalt, CO. August 2012 – September 2017
Senior Associate

- Led technical analysis, modeling, training and capacity building work for utilities and governments in Sub-Saharan Africa around integrated resource planning for the central electricity grid energy. Identified over one billion dollars in savings based on improved resource-planning processes.
- Represented RMI as a content expert and presented materials on electricity pricing and rate design at conferences and events.

- Led a project to research and evaluate utility resource planning and spending processes, focusing specifically on integrated resource planning, to highlight systematic overspending on conventional resources and underinvestment and underutilization of distributed energy resources as a least-cost alternative.

Associate

- Led modeling analysis in collaboration with NextGen Climate America which identified a CO2 loophole in the Clean Power Plan of 250 million tons, or 41 percent of EPA projected abatement. Analysis was submitted as an official federal comment which led to a modification to address the loophole in the final rule.
- Led financial and economic modeling in collaboration with a major U.S. utility to quantify the impact that solar PV would have on their sales and helped identify alternative business models which would allow them to recapture a significant portion of this at-risk value.
- Supported the planning, content development, facilitation, and execution of numerous events and workshops with participants from across the electricity sector for RMI's Electricity Innovation Lab (eLab) initiative.
- Co-authored two studies reviewing valuation methodologies for solar PV and laying out new principles and recommendations around pricing and rate design for a distributed energy future in the United States. These studies have been highly cited by the industry and submitted as evidence in numerous Public Utility Commission rate cases.

The University of Michigan, Ann Arbor, MI. *Graduate Student Instructor*, September 2011 – July 2012

The Virginia Sea Grant at the Virginia Institute of Marine Science, Gloucester Point, VA. *Policy Intern*, Summer 2011

Managed a communication network analysis study of coastal resource management stakeholders on the Eastern Shore of the Delmarva Peninsula.

The Commission for Environmental Cooperation (NAFTA), Montreal, QC. *Short Term Educational Program/Intern*, Summer 2010

Researched energy and climate issues relevant to the NAFTA parties to assist the executive director in conducting a GAP analysis of emission monitoring, reporting, and verification systems in North America.

Congressman Tom Allen, Portland, ME. *Technology Systems and Outreach Coordinator*, August 2007 – December 2008

Directed Congressman Allen's technology operation, responded to constituent requests, and represented the Congressman at events throughout southern Maine.

EDUCATION

The University of Michigan, Ann Arbor, MI
Master of Public Policy, Gerald R. Ford School of Public Policy, 2012
Master of Science, School of Natural Resources and the Environment, 2012
Masters Project: *Climate Change Adaptation Planning in U.S. Cities*

Middlebury College, Middlebury, VT
Bachelor of Arts, 2007
Environmental Studies, Policy Focus; Minor in Spanish
Thesis: *Environmental Security in a Changing National Security Environment: Reconciling Divergent Policy Interests, Cold War to Present*

PUBLICATIONS

Glick, D. *Synapse Comments and Surreply Comments to the Minnesota Public Utility Commission in response to Otter Tail Power's 2021 Compliance Filing* Docket E-999/CI-19-704. Synapse Energy Economics for the Sierra Club.

Eash-Gates, P., D. Glick, S. Kwok. R. Wilson. 2020. *Orlando's Renewable Energy Future: The Path to 100 Percent Renewable Energy by 2020.* Synapse Energy Economics for the First 50 Coalition.

Eash-Gates, P., B. Fagan, D. Glick. 2020. *Alternatives to the Surry-Skiffes Creek 500 kV Transmission Line.* Synapse Energy Economics for the National Parks Conservation Association.

Biewald, B., D. Glick, J. Hall, C. Odom, C. Roberto, R. Wilson. 2020. *Investing in Failure: How Large Power Companies are Undermining their Decarbonization Targets.* Synapse Energy Economics for Climate Majority Project.

Glick, D., D. Bhandari, C. Roberto, T. Woolf. 2020. *Review of benefit-cost analysis for the EPA's proposed revisions to the 2015 Steam Electric Effluent Limitations Guidelines.* Synapse Energy Economics for Earthjustice and Environmental Integrity Project.

Camp, E., B. Fagan, J. Frost, N. Garner, D. Glick, A. Hopkins, A. Napoleon, K. Takahashi, D. White, M. Whited, R. Wilson. 2019. *Phase 2 Report on Muskrat Falls Project Rate Mitigation, Revision 1 – September 25, 2019.* Synapse Energy Economics for the Board of Commissioners of Public Utilities, Province of Newfoundland and Labrador.

Camp, E., A. Hopkins, D. Bhandari, N. Garner, A. Allison, N. Peluso, B. Havumaki, D. Glick. 2019. *The Future of Energy Storage in Colorado: Opportunities, Barriers, Analysis, and Policy Recommendations.* Synapse Energy Office for the Colorado Energy Office.

Glick, D., B. Fagan, J. Frost, D. White. 2019. *Big Bend Analysis: Cleaner, Lower-Cost Alternatives to TECO's Billion-Dollar Gas Project*. Synapse Energy Economics for Sierra Club.

Glick, D., F. Ackerman, J. Frost. 2019. *Assessment of Duke Energy's Coal Ash Basin Closure Options Analysis in North Carolina.* Synapse Energy Economics for the Southern Environmental Law Center.

Glick, D., N. Peluso, R. Fagan. 2019. *San Juan Replacement Study: An alternative clean energy resource portfolio to meet Public Service Company of New Mexico's energy, capacity, and flexibility needs after the retirement of the San Juan Generating Station*. Synapse Energy Economics for Sierra Club.

Suphachalasai, S., M. Touati, F. Ackerman, P. Knight, D. Glick, A. Horowitz, J.A. Rogers, T. Amegroud. 2018. *Morocco – Energy Policy MRV: Emission Reductions from Energy Subsidies Reform and Renewable Energy Policy.* Prepared for the World Bank Group.

Camp, E., B. Fagan, J. Frost, D. Glick, A. Hopkins, A. Napoleon, N. Peluso, K. Takahashi, D. White, R. Wilson, T. Woolf. 2018. *Phase 1 Findings on Muskrat Falls Project Rate Mitigation.* Synapse Energy Economics for Board of Commissioners of Public Utilities, Province of Newfoundland and Labrador.

Allison, A., R. Wilson, D. Glick, J. Frost. 2018. *Comments on South Africa 2018 Integrated Resource Plan.* Synapse Energy Economics for Centre for Environmental Rights.

Hopkins, A. S., K. Takahashi, D. Glick, M. Whited. 2018. *Decarbonization of Heating Energy Use in California Buildings: Technology, Markets, Impacts, and Policy Solutions*. Synapse Energy Economics for the Natural Resources Defense Council.

Knight, P., E. Camp, D. Glick, M. Chang. 2018. *Analysis of the Avoided Costs of Compliance of the Massachusetts Global Warming Solutions Act*. Supplement to 2018 AESC Study. Synapse Energy Economics for Massachusetts Department of Energy Resources and Massachusetts Department of Environmental Protection.

Fagan, B., R. Wilson, S. Fields, D. Glick, D. White. 2018. *Nova Scotia Power Inc. Thermal Generation Utilization and Optimization: Economic Analysis of Retention of Fossil-Fueled Thermal Fleet to and Beyond 2030 – M08059*. Prepared for Board Counsel to the Nova Scotia Utility Review Board.

Ackerman, F., D. Glick, T. Vitolo. 2018. *Report on CCR proposed rule*. Prepared for Earthjustice.

Lashof, D. A., D. Weiskopf, D. Glick. 2014. *Potential Emission Leakage Under the Clean Power Plan and a Proposed Solution: A Comment to the US EP*A. NextGen Climate America.

Smith, O., M. Lehrman, D. Glick. 2014. *Rate Design for the Distribution Edge*. Rocky Mountain Institute.

Hansen, L., V. Lacy, D. Glick. 2013. *A Review of Solar PV Benefit & Cost Studies*. Rocky Mountain Institute.

TESTIMONY

North Carolina Utilities Commission (Docket No. E-7, Sub 1250): Direct Testimony of Devi Glick in the Mater of Application Duke Energy Carolinas, LLC Pursuant to §N.C.G.S 62-133.2 and Commission Rule R8-5 Relating to Fuel and Fuel-Related Charge Adjustments for Electric Utilities. On behalf of Sierra Club. May 17, 2021.

Public Utility Commission of Texas (PUC Docket No. 51415): Direct Testimony of Devi Glick in the application of Southwestern Electric Power Company for authority to change rates. On behalf of Sierra Club. March 31, 2021.

Michigan Public Service Commission (Docket No. U-20804): Direct Testimony of Devi Glick in the application of Indiana Michigan Power Company for approval of a Power Supply Cost Recovery Plan and factors (2021). On behalf of Sierra Club. March 12, 2021.

Public Utility Commission of Texas (PUC Docket No. 50997): Direct Testimony of Devi Glick in the application of Southwestern Electric Power Company for authority to reconcile fuel costs for the period May 1, 2017- December 31, 2019. On behalf of Sierra Club. January 7, 2021.

Michigan Public Service Commission (Docket No. U-20224): Direct Testimony of Devi Glick in the application of Indiana Michigan Power Company for Reconciliation of its Power Supply Cost Recovery Plan (Case No. U-20223) for the 12-month period ending December 31, 2019. On behalf of Sierra Club. October 23, 2020.

Public Service Commission of Wisconsin (Docket No. 3270-UR-123): Surrebuttal Testimony of Devi Glick in the application of Madison Gas and Electric Company for authority to change electric and natural gas rates. On behalf of Sierra Club. September 29, 2020.

Public Service Commission of Wisconsin (Docket No. 6680-UR-122): Surrebuttal Testimony of Devi Glick in the application of Wisconsin Power and Light Company for approval to extend electric and natural gas rates into 2021 and for approval of its 2021 fuel cost plan. On behalf of Sierra Club. September 21, 2020.

Public Service Commission of Wisconsin (Docket No. 3270-UR-123): Direct Testimony and Exhibits of Devi Glick in the application of Madison Gas and Electric Company for authority to change electric and natural gas rates. On behalf of Sierra Club. September 18, 2020.

Public Service Commission of Wisconsin (Docket No. 6680-UR-122): Direct Testimony and Exhibits of Devi Glick in the application of Wisconsin Power and Light Company for approval to extend electric and natural gas rates into 2021 and for approval of its 2021 fuel cost plan. On behalf of Sierra Club. September 8, 2020.

Indiana Utility Regulatory Commission (Cause No. 38707-FAC125): Direct Testimony and Exhibits of Devi Glick in the application of Duke Energy Indiana, LLC for approval of a change in its fuel cost adjustment for electric service. On behalf of Sierra Club. September 4, 2020.

Indiana Utility Regulatory Commission (Cause No. 38707-FAC123 S1): Direct Testimony and Exhibits of Devi Glick in the Subdocket for review of Duke Energy Indian, LLC's Generation Unit Commitment Decisions. On behalf of Sierra Club. July 31, 2020.

Indiana Utility Regulatory Commission (Cause No. 38707-FAC124): Direct Testimony and Exhibits of Devi Glick in the application of Duke Energy Indiana, LLC for approval of a change in its fuel cost adjustment for electric service. On behalf of Sierra Club. June 4, 2020.

Arizona Corporation Commission (Docket No. E-01933A-19-0028): Rely to Late-filed ACC Staff Testimony of Devi Glick in the application of Tucson Electric Power Company for the establishment of just and reasonable rates. On behalf of Sierra Club. May 8, 2020.

Indiana Utility Regulatory Commission (Cause No. 38707-FAC123): Direct Testimony and Exhibits of Devi Glick in the application of Duke Energy Indiana, LLC for approval of a change in its fuel cost adjustment for electric service. On behalf of Sierra Club. March 6, 2020.

Texas Public Utility Commission (PUC Docket No. 49831): Direct Testimony of Devi Glick in the application of Southwestern Public Service Company for authority to change rates. On behalf of Sierra Club. February 10, 2020.

New Mexico Public Regulation Commission (Case No. 19-00170-UT): Testimony of Devi Glick in Support of Uncontested Comprehensive Stipulation. On behalf of Sierra Club. January 21, 2020.

Nova Scotia Utility and Review Board (Matter M09420): Expert Evidence of Fagan, B, D. Glick reviewing Nova Scotia Power's Application for Extra Large Industrial Active Demand Control Tariff for Port Hawkesbury Paper. Prepared for Nova Scotia Utility and Review Board Counsel. December 3, 2019.

New Mexico Public Regulation Commission (Case No. 19-00170-UT): Direct Testimony of Devi Glick regarding Southwestern Public Service Company's application for revision of its retail rates and authorization and approval to shorten the service life and abandon its Tolk generation station units. On behalf of Sierra Club. November 22, 2019.

North Carolina Utilities Commission (Docket No. E-100, Sub 158): Responsive testimony of Devi Glick regarding battery storage and PURPA avoided cost rates. On behalf of Southern Alliance for Clean Energy. July 3, 2019.

State Corporation Commission of Virginia (Case No. PUR-2018-00195): Direct testimony of Devi Glick regarding the economic performance of four of Virginia Electric and Power Company's coal-fired units and the Company's petition to recover costs incurred to company with state and federal environmental regulations. On behalf of Sierra Club. April 23, 2019.

Connecticut Siting Council (Docket No. 470B): Joint testimony of Robert Fagan and Devi Glick regarding NTE Connecticut's application for a Certificate of Environmental Compatibility and Public Need for the Killingly generating facility. On behalf of Not Another Power Plant and Sierra Club. April 11, 2019.

Public Service Commission of South Carolina (Docket No. 2018-3-E): Surrebuttal testimony of Devi Glick regarding annual review of base rates of fuel costs for Duke Energy Carolinas. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. August 31, 2018.

Public Service Commission of South Carolina (Docket No. 2018-3-E): Direct testimony of Devi Glick regarding the annual review of base rates of fuel costs for Duke Energy Carolinas. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. August 17, 2018.

Public Service Commission of South Carolina (Docket No. 2018-1-E): Surrebuttal testimony of Devi Glick regarding Duke Energy Progress' net energy metering methodology for valuing distributed energy resources system within South Carolina. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. June 4, 2018.

Public Service Commission of South Carolina (Docket No. 2018-1-E): Direct testimony of Devi Glick regarding Duke Energy Progress' net energy metering methodology for valuing distributed energy resources system within South Carolina. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. May 22, 2018.

Public Service Commission of South Carolina (Docket No. 2018-2-E): Direct testimony of Devi Glick on avoided cost calculations and the costs and benefits of solar net energy metering for South Carolina Electric and Gas Company. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. April 12, 2018.

Public Service Commission of South Carolina (Docket No. 2018-2-E): Surrebuttal testimony of Devi Glick on avoided cost calculations and the costs and benefits of solar net energy metering for South Carolina Electric and Gas Company. On behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. April 4, 2018.

Resume updated August 2021

Attachment DG-2

NV Energy

RESPONSE TO INFORMATION REQUEST

DOCKET NO:	21-06001	**REQUEST DATE:**	07-12-2021
REQUEST NO:	SCNRDC 1-06	**KEYWORD:**	vol 14 pg 145-152; upgrade CTs chuck lenzie power block, tracy, silverhawk, harr
REQUESTER:	Glick	**RESPONDER:**	Lescenski, John

REQUEST:

Reference: Pages 145-152 of Volume 14 of the Joint IRP

Question: Regarding the Company's decision to upgrade the CTs at Chuck Lenzie Power Block, Tracy, Silverhawk, and Harry Allen discussed on pages 145-152 of Volume 14 of the Joint IRP:

a. Has the Company conducted any analysis on its need for the services provided by the proposed upgrades?

i. If no, explain why not.
ii. If yes, identify the date and nature of such analysis.
iii. If yes, provide all reports or other documentation of the results of each such analysis and any supporting calculations, data, documents, modeling inputs and output files, and work papers associated with such analysis.

b. Indicate whether the Company has conducted any economic or net present value analysis of upgrading these units relative to other supply- and demand-side resource options.

i. If no, explain why not.
ii. If yes, identify the date and nature of such analysis.
iii. If yes, provide all reports or other documentation of the results of each such analysis and any supporting calculations, data, documents, modeling inputs and output files, and work papers associated with such analysis.

c. Describe the analysis or decision-making process the Company used in deciding to upgrade the CTs.

d. Indicate the projected lifetime of the CT upgrades.
e. Indicate the projected retirement dates of each of the CC's being upgraded.

f. Indicate whether the Company has applied for and received all new and/or revised air or water permits necessary to allow all of the upgrades to proceed at each plant.

i. If yes, indicate all permits that the Company has either applied for and/or received.

ii. If no, detail all outstanding permits needed by the Company, the steps that the Company needs to take to receive the permits, and the anticipated timeline to complete the process.

g. Indicate whether the Company currently has sufficient natural gas supply and transportation to all plants that are being upgraded.

i. If no, indicate whether the costs provided in Table GEN-3 on pages 145- 146 of Volume 14 of the Joint IRP, Large Turbine Upgrades include all costs associated with expanding the infrastructure and procuring the necessary gas supply. If Table GEN-3 does not include all costs, provide the anticipated costs beyond what is included in the Table GEN-3.

RESPONSE CONFIDENTIAL (yes or no): No

TOTAL NUMBER OF ATTACHMENTS: None

RESPONSE:

a. Yes, the Companies have identified and evaluated two areas of concern: First, the events from the summer of 2020 demonstrate that external resources may no longer be as readily available as in previous years. The evaluation reviewed curtailments from August 17-23, 2020 for the hours ending 1700-2200. A total of 7,111 MW was curtailed and 5,113 MW or 72 percent were from day-ahead or real-time products.

Second, due to the development of portfolios with large quantities of variable renewable resources in which available resources drop rapidly in the evening hours, producing larger open positions in non-peak load hours. As a result, the Companies have evaluated several options to reliably meet their resource needs. Upgrades the CTs at Chuck Lenzie Power Block, Tracy, Silverhawk, and Harry Allen will assist in alleviating a portion of those resource needs.

i. n/a

ii. The Companies performed analysis of the events from the summer of 2020 and have reported the results of that analysis and proposed solutions to the Public Utilities Commission of Nevada (“Commission”) in this instant filing along with Docket Nos. 20-08014, 20-12020, and 21-04036.

iii. Please see dockets referenced in response 1.ii.

b. Other short-term resource options are not currently available in NV Energy's system. Resources outside of NV Energy's system have been subject to curtailment during system emergencies and would not have been available to serve load in August 2020 and July 2021 when system conditions were critical in the region. These upgrades provide peak resources and additional capacity inside NV Energy's system

c. see part a. above

d. The CT upgrades are designed to be available for the remaining life of the CTs. As noted in Figure GEN 1 of the Supply Side narrative, the projected retirement dates are:
Chuck Lenzie Block 2 2041
Harry Allen CC 2046
Silverhawk 2039
Tracy CC 2043

e. See part d. of this response above

f. The Companies have submitted all necessary applications to complete the turbine upgrades, except as noted below for Harry Allen.

i. Chuck Lenzie Block 2
• Permit modifications applied for and been received.
• Block 2 construction planned for Spring 2022
Silverhawk
• Permit modification application has been submitted, expected issuance from Clark County DAQ by end of 2021.
Tracy 8-9
• Permit modification application has been submitted, expected issuance from NDEP-BAPC by end of 2021.
Harry Allen 5-6
• Pending project approval
• Have not started any application process yet

g. As noted in the Supply Plan narrative in this Docket: The upgrades may require additional natural gas capacity and transportation at the Chuck Lenzie and Silverhawk plants. The Companies are working with Kern River to upgrade the metering equipment at both facilities to meet the full load requirements. The scope of work for Chuck Lenzie includes the installation of an additional fuel separator and ultrasonic flow meter leveraging a spare pipe run. The scope of work for Silverhawk includes the replacement of the existing fuel meter with a high capacity meter. The estimates above include estimates for supply infrastructure upgrades that could be required. Potential increases in natural gas transportation are discussed in the 2021 Energy Supply Plan.

AFFIRMATION

STATE OF NEVADA)
: ss.
CARSON CITY)

Pursuant to the requirements of NRS 53.045(1) and NAC 703.710, I, Devi Glick, swear that I am the person identified in the attached Direct Testimony and that such testimony was prepared by me or under my direct supervision; that the answers and information set forth therein are true to the best of my knowledge and belief; and that if asked the questions set forth therein, my answers thereto would, under oath, be the same.

I declare under penalty of perjury under the law of the State of Nevada that the foregoing is true and correct.

Executed on: 08/13/2021

Devi Glick

Sierra Club Environmental Law Program
2101 Webster St., Ste. 1300, Oakland, CA 94612

CERTIFICATE OF SERVICE

I hereby certify that I have this day served **THE DIRECT TESTIMONY OF DEVI GLICK ON BEHALF OF SIERRA CLUB AND NRDC** upon all parties of record in Docket Nos. 21-06001 and 21-06002 by electronic service.

Staff Counsel
Public Utilities Commission of Nevada
1150 E William St
Carson City, NV 89701
pucn.sc@puc.nv.gov

Donald Lomoljo
Public Utilities Commission of Nevada
1150 E William St
Carson City, NV 89701
dlomoljo@puc.nv.gov

Aaron Schaar
NV Energy
6100 Neil Rd
Reno, NV 89511
aschaar@nvenergy.com

Jennifer Fedinec
NV Energy
6226 W Sahara Ave
Las Vegas, NV 89146
jfedinec@nvenergy.com

NV Energy Regulatory Dept.
NV Energy
6100 Neil Rd
Reno, NV 89511
regulatory@nvenergy.com

Timothy Clausen
NV Energy
6100 Neil Rd
Reno, NV 89511
tclausen@nvenergy.com

Michelle Newman
Bureau of Consumer Protection
100 N Carson St
Carson City, NV 89701
mnewman@ag.nv.gov

Whitney Digesti
Bureau of Consumer Protection
100 N Carson St
Carson City, NV 89701
wdigesti@ag.nv.gov

Michael Saunders
Bureau of Consumer Protection
8945 W Russell Rd, Ste 204
Las Vegas, NV 89148
msaunders@ag.nv.gov

Attorney General
Bureau of Consumer Protection
100 N Carson St
Carson City, NV 89701
bcpserv@ag.nv.gov

Carolyn Berry
Bates White
2001 K St NW N, Building Ste 500
Washington, DC 20006
carolyn.berry@bateswhite.com

Clare Valentine
Western Resource Advocates
1536 Wynkoop St #210
Denver, CO 80202
clare.valentine@westernresources.org

Cameron Dyer
Western Resource Advocates
550 W Musser St, Ste I

Regina Nichols
Western Resource Advocates
550 W Musser St, Ste G

Sierra Club Environmental Law Program
2101 Webster St., Ste. 1300, Oakland, CA 94612

Carson City, NV 89703
cameron.dyer@westernresources.org

Rebecca Barker
Earthjustice
50 California St, Ste 500
San Francisco, CA 94111
rbarker@earthjustice.org

David Bender
Earthjustice
3916 Nakoma Rd
Madison, WI 53711
dbender@earthjustice.org

Mario Luna
Earthjustice
1001 G St NW, Ste 1000
Washington, DC 20001
aluna@earthjustice.org

Vicki Baldwin
Parsons Behle & Latimer
201 S Main St, Ste 1800
Salt Lake City, UT 84111
vbaldwin@parsonsbehle.com

Lisa Tormoen Hickey
Tormoen Hickey LLC
3225 Templeton Gap Rd, Ste 217
Colorado Springs, CO 80907
lisahickey@newlawgroup.com

Geoffrey Inge
Regulatory Intelligence LLC
PO Box 270636
Superior, CO 80027
ginge@regintllc.com

Karen Peterson
Allison Mackenzie LTD
402 N Division St
Carson City, NV 89703
kpeterson@allisonmackenzie.com

Carson City, NV 89703
rnichols@westernresources.org

Carter Hall
Earthjustice
1001 G St NW, Ste 1000
Washington, DC 20001
chall@earthjustice.org

Emma Kaboli
Earthjustice
1001 G St NW, Ste 1000
Washington, DC 20001
ekaboli@earthjustice.org

Briana Kobor
Google LLC
201 S Main St, Ste 1800
Salt Lake City, UT 84111
bkobor@google.com

Carolyn Tanner
Tanner Law and Strategy Groups LT
PO Box 18351
Reno, NV 89511
lina@tanner1nv.com

Rikki Seguin
Interwest Energy Alliance
400 Gold Ave SW, Ste 700
Albuquerque, NM 87102
rikki@interwest.org

Justin Townsend
Allison Mackenzie LTD
402 N Division St
Carson City, NV 89703
jtownsend@allisonmackenzie.com

Carole Davis
McDonald Carano LLP
100 W Liberty St 10th Fl
Reno, NV 89501
cdavis@mcdonaldcarano.com

Sierra Club Environmental Law Program
2101 Webster St., Ste. 1300, Oakland, CA 94612

Lucas Foletta
McDonald Carano LLP
100 W Liberty St 10th Fl
Reno, NV 89501
lfoletta@mcdonaldcarano.com

Rick Gilliam
Vote Solar
590 Redstone Dr, Ste 100
Broomfield, CO 80020
rick@votesolar.org

Curt Ledford
Davison Van Cleve PC
300 S 4th St, Ste 1400
Las Vegas, NV 89101
crl@dvclaw.com

Robert Sweetin
Davison Van Cleve PC
300 S 4th St, Ste 1400
Las Vegas, NV 89101
rds@dvclaw.com

Tyler Pepple
Davison Van Cleve PC
300 S 4th St, Ste 1400
Las Vegas, NV 89101
tcp@dvclaw.com

Rebecca Wagner
Wagner Strategies
316 California Ave, Ste 857
Reno, NV 89509
rebwagner@gmail.com

Roman Borisov
NV Energy
6100 Neil Rd
Reno, NV 89511
rborisov@nvenergy.com

Dated at Oakland, CA, this 16th day of August, 2021.

/s/ Miriam Raffel-Smith
Miriam Raffel-Smith
Legal Assistant
Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5745
miriam.raffel-smith@sierraclub.org

Sierra Club Environmental Law Program
2101 Webster St., Ste. 1300, Oakland, CA 94612