December 17, 2018

Public Utilities Commission of Nevada
1150 E. William Street
Carson City, NV 89701

Dear Chair Wilkinson and Members of the Public Utilities Commission,

I am writing on behalf of the Alliance for Industrial Efficiency (the "Alliance") to thank the Public Utilities Commission of Nevada (the "Commission") for its action on the demand-side management (DSM) portion on the 2018 Integrated Resource Plan (IRP) for NV Energy. We also write to encourage the Commission to explore the potential role of combined heat and power (CHP) and waste heat to power (WHP) in Nevada. Potential actions may include opening an investigatory docket to gather updated information about the potential uses of CHP and WHP and explore how to increase CHP and WHP deployment in Nevada. We also encourage the Commission to consider launching a Working Group to identify actions needed to support CHP and WHP in the state.

The Alliance is a diverse coalition that includes representatives from the business, labor, contractor, and academic communities, including 60 member-companies in Nevada alone. For example, Alliance member company Ormat developed a 7.5-MW generating plant at Goodsprings Recovered Energy Generation Station (owned by NV Energy), which converts waste heat from a natural gas pipeline compressor station to electric energy. The Alliance is committed to enhancing manufacturing competitiveness and reducing emissions through industrial energy efficiency, particularly through the use of clean and efficient power generating systems, such as CHP and WHP.

We are pleased to see the Commission approved NV Energy's DSM portion of its 2018 IRP. Our members strongly support utility energy efficiency programs because these programs grow the Nevada economy, reduce grid demand, and boost a diverse business sector. Businesses that invest in efficiency can lower their energy costs and improve their bottom lines. These activities create opportunities for our members in the design, installation, construction, and maintenance of projects. According to the Department of Energy, there are nearly 15,400 energy efficiency jobs in Nevada;[1] robust efficiency programs help keep these workers in business – and create additional opportunities.

We also applaud Nevada's favorable policies for CHP. For example, Nevada's Renewable Portfolio Standard (NRS 704.7801) sets a target of 25 percent renewable energy by 2025. Significantly, up to 15 megawatts (MW) of CHP can be used to meet this target.

[1] Environmental Entrepreneurs (E2) and E4TheFuture, Dec. 2016, "Energy Efficiency Jobs in America" (https://e4thefuture.org/wp-content/uploads/2016/12/EnergyEfficiencyJobsInAmerica_FINAL.pdf).

About CHP and WHP in Nevada

By generating both heat and electricity from a single fuel source, CHP dramatically lowers emissions and increases overall fuel efficiency – allowing utilities and companies to effectively "get more with less." CHP can operate using more than 70 percent of fuel inputs – compared to fossil-fueled power plants, which have an average efficiency of 33 percent.[2] As a consequence, CHP can produce electricity with one-quarter the emissions of an existing coal power plant.[3] Due to its scale, a single CHP investment can achieve significant emissions reductions. WHP, which uses waste heat as its energy source to generate electricity and requires no additional fuel and generates no incremental emissions, also provides significant benefits. CHP and WHP can produce electricity while lowering costs for both host companies and all of Nevada's utility customers.

Further, CHP enhances electric resiliency and reliability in two major ways.[4] First, because CHP systems have the ability to operate independently of the grid, they can provide reliability during a power outage. With a substantial tourism industry and Las Vegas' large levels of energy consumption, electric reliability in Nevada is an important issue. CHP holds particular promise for the hotel and casino industries.[5] In addition, critical infrastructure, such as hospitals or military installations, and manufacturing facilities with CHP have the potential to keep the lights on during power outages.[6] Second, CHP and WHP systems alleviate burdens on transmission and distribution lines because they depend on localized, onsite electricity generation. In this way, CHP and WHP can help avoid costs associated with investment in and construction of transmission infrastructure. Because of its resiliency and reliability benefits, CHP should be a key element of Nevada's broader efforts to modernize its electric grid and make it more reliable.

There is a substantial opportunity to increase CHP deployment in Nevada. There are currently 15 CHP sites in Nevada, generating over 320 megawatts (MW) of clean and efficient power.[7] However, the potential is much greater. The Department of Energy estimates the state has 1,378 MW of remaining CHP technical potential (identified at 2,399 sites), with 275 MW of

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[2] U.S. EPA, Mar. 21, 2016, "CHP Benefits" (https://www.epa.gov/chp/chp-benefits).
[3] Natural Resources Defense Council (NRDC), Apr. 2013, "Combined Heat and Power Systems: Improving the Energy Efficiency of Our Manufacturing Plants, Building, and Other Facilities" (http://www.nrdc.org/energy/files/combined-heat-power-ip.pdf); David Gardiner & Associates and Institute for Industrial Productivity, Jul. 2015, "Combined Heat and Power as a Compliance Option under the CPP" (reporting incremental emissions of natural gas CHP of 450 to 600 lbs/MWh, compared to 2000 to 2200 lbs/MWh for coal) (http://www.dgardiner.com/wp-content/uploads/2015/08/CHP-Pathway-Final-Report-8-18-15.pdf).
[4] Alliance for Industrial Efficiency, 2018, "CHP Response in Natural Disaster Mitigation: Delivering Reliability, Saving Lives" (https://bit.ly/2mTDsmk).
[5] American Council for an Energy-Efficiency Economy, Sep. 2011, "Challenges Facing Combined Heat and Power Today: A State-by-State Assessment," at 53 (https://www.energy.gov/sites/prod/files/2013/11/f4/ie111.pdf#page=63).
[6] U.S. Department of Energy, U.S. Department of Housing and Urban Development, and U.S. Environmental Protection Agency, Sep. 2013, "Guide to Using Combined Heat and Power for Enhancing Reliability and Resiliency in Buildings" (https://www.hud.gov/sites/documents/ENERGY_CHP_FOR_RC.PDF).
[7] U.S. DOE Combined Heat and Power Installation Database, (https://doe.icfwebservices.com/chpdb/state/NV).

remaining onsite technical potential in the industrial sector alone.[8] A 2016 report from the Alliance for Industrial Efficiency found that deploying an economically viable portion of the state's CHP and WHP potential[9] would save Nevada's industrial customers nearly $378 million in cumulative electricity costs from 2016 to 2030.[10] Cutting electricity costs in this way would help make the state's large energy users more competitive.

Finally, Nevada is particularly well-positioned for CHP growth in the hotel and casino sectors. DOE has identified 4,275 MW of CHP technical potential at hotels across the U.S.[11] There are currently 141 CHP installations at U.S. hotels, including an 8.2-MW CHP system at Las Vegas' City Center, a mixed-use resort with the ARIA Resort and Casino as its centerpiece.[12] Hotels and casinos operate 24-7 and have significant thermal and electric loads, which make them especially favorable targets for installing CHP systems.[13]

The Role of CHP and WHP in Utility Resource Planning

While NV Energy's most recent IRP does not address CHP, we hope that NV Energy considers encouraging greater use of CHP in future IRPs by offering incentives to support deployment and including utility-owned CHP in its plans. Utility-owned CHP is a relatively untapped efficiency resource that can improve grid reliability while reducing NV Energy's operational costs. Utility-owned CHP can provide substantial benefits to utilities and all users of the electric grid, including:[14]

- **Low costs and high capacity factors** – CHP is among the most efficient methods for generating power. Baseload CHP has a higher annual capacity factor when compared to central station options.[15]
- **Less risk** – The planning, permitting, and implementation process for CHP (2-3 years) is much shorter than that of a large capacity central station generator (6-10 years). Since future utility loads are difficult to forecast, the option of building smaller CHP systems can reduce the risk involved in developing new power generation assets.[16]

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[8] U.S. Department of Energy, Mar. 2016, "Combined Heat and Power (CHP) Technical Potential in the United States" (https://bit.ly/2N7QfN0).
[9] Percentage of Nevada's technical potential for CHP with less than 10-year payback period.
[10] The Alliance for Industrial Efficiency, Sep. 2016, "State Ranking of Potential Carbon Dioxide Emission Reductions through Industrial Energy Efficiency" (https://bit.ly/2yjAJJL). Report considers potential for CHP alongside other modest industrial efficiency improvements. Citation here refers to unpublished data reflecting CHP and WHP deployment alone.
[11] U.S. DOE, *supra* note 8.
[12] U.S. DOE Combined Heat and Power Installation Database, (https://doe.icfwebservices.com/chpdb/).
[13] EPA Combined Heat and Power Partnership, Dec. 2005, "CHP in the Hotel and Casino Market Sectors," (https://bit.ly/2PiMABJ).
[14] ICF and Sterling Energy Group, Jun. 1, 2017, "Utility-Owned CHP—A Least-Cost Baseload Resource," (https://www.icf.com/resources/white-papers/2017/utility-chp-ownership).
[15] *Id.*
[16] ICF and Sterling Energy Group *supra* note 15.

- **Strategic location value** – Utility-owned CHP systems can be strategically located to relieve grid congestion, deferring the need for new transmission and distribution (T&D) investments, while enhancing reliability.[17]

Some utilities are beginning to recognize these benefits and have started to include CHP in their long-term resource plans. For example, in 2015, Duke Energy (Carolinas and Indiana) explicitly included CHP development and ownership in its integrated resource planning process. Duke also included specific blocks of capacity for CHP in its 2018 IRPs to meet future generation needs:

- Duke Energy Carolinas (2018) – 44 MW total (22 MW in 2020; 22 MW in 2021)[18]
- Duke Energy Progress (2018) – 22 MW total in 2021[19]
- Duke Energy Indiana (2015) – 15 MW by 2020[20,21]

As a result of this planning, Duke partnered with Clemson University in South Carolina on a 15-MW CHP project, which should be operational by 2019.[22] Duke will own the CHP system, while Clemson will purchase the steam it produces to heat its campus. Through this partnership, Duke and its customers will receive an efficient, low-cost, baseload grid generation asset, while reducing greenhouse gas emissions.

Dominion Energy in Virginia is also poised to add CHP to its utility planning process. The Grid Transformation and Security Act of 2018 (SB 966) directs Dominion Energy to consider deploying 200 MW of CHP and WHP, through either supply-side or demand-side incentives, over the next five years in its 2020 integrated resource plan.[23]

Further deployment of CHP and WHP would lower electricity costs and increase resiliency for not only NV Energy's industrial customers, but all ratepayers by reducing the need for costly new power plants and transmission and distribution resources. Ultimately advancing CHP and WHP in Nevada will enhance the resiliency, availability, and reliability of the state's energy infrastructure, and help make its commercial and industrial sector more competitive.

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[17] ICF and Sterling Energy Group *supra* note 15.
[18] Duke Energy Carolinas, 2018, "Duke Energy Carolinas South Carolina Integrated Resource Plan" (http://www.energy.sc.gov/files/2018%20DEC%20Annual%20Plan_SC__Final.pdf).
[19] Duke Energy Progress, 2018, "Duke Energy Progress South Carolina Integrated Resource Plan" (http://www.energy.sc.gov/files/DEP%202018%20IRP.pdf).
[20] Duke Energy Indiana, Nov. 1, 2015, "The Duke Energy Indiana 2015 Integrated Resource Plan: Volume 1" (https://www.in.gov/iurc/files/2015_Duke_IRP_Report_Volumn_1_Public_Version.pdf).
[21] Note that Duke Energy Indiana also evaluated 44 MW of CHP (29 MW in 2016-2020 and 15 MW in 2021-2025) in their "no carbon regulation" portfolio within the IRP and found this target to be cost-effective, although they ultimately selected a 15 MW by 2020 target.
[22] District Energy Magazine, Q1 2018, "Utility Ownership—a new partnership" (https://www.districtenergy.org/blogs/district-energy/2018/01/16/utility-chp-ownership-a-new-partnership).
[23] Virginia General Assembly, 2018, Grid Transformation and Security Act (SB 966), (http://lis.virginia.gov/cgibin/legp604.exe?181+sum+SB966).

We welcome the opportunity for a dialogue between the Commission and our members on CHP and WHP. At that time, we could provide additional background about the benefits of CHP and WHP, the scale of the opportunity in Nevada, and steps NV Energy can take to encourage its use. We are eager to participate in such an education session in 2019 and welcome your thoughts on next steps.

Sincerely,

Jennifer Kefer
Executive Director
Alliance for Industrial Efficiency