



February 6, 2018

Chairman Tom Forese
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

RE: Alliance for Industrial Efficiency Comments Regarding the 2017 Integrated Resource Plans filed by APS and TEP; ACC Docket No. E-00000V-15-0094

Dear Chairman Forese,

The Alliance for Industrial Efficiency (the “Alliance”) appreciates the opportunity to comment on the Integrated Resource Plans (IRPs) for Arizona Public Service (APS) and Tucson Electric Power (TEP). The Alliance is a diverse coalition that includes representatives from the business, contractor, labor and academic communities. We represent trade associations with a strong presence in Arizona, such as the Sheet Metal and Air Conditioning Contractors’ Association (SMACNA). SMACNA companies have been directly involved with some of the most important development projects in the state including the construction of the CyrusOne Phoenix Data Center in Chandler and the expansion of American Express’ offices at Desert Ridge. Members of the Arizona Corporation Commission (the “Commission”) had an opportunity to learn about these projects first hand at a recent business roundtable and tour organized by our members at the sheet metal training center in Phoenix. We are 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 combined heat and power (CHP) and waste heat to power (WHP).

We are writing to support: (1) the consideration of CHP and WHP as supply resource options in APS’ and TEP’s IRPs and (2) the strengthening of each utility’s industrial energy efficiency program offerings.

About CHP and WHP in Arizona

CHP is a sustainable and efficient energy solution that recycles waste heat from power generation and converts it into useful thermal energy. By generating both heat (thermal energy) and electricity from a single fuel source, CHP dramatically increases overall fuel efficiency – allowing utilities and host companies to effectively “get more with less.” CHP more than doubles the fuel efficiency of a conventional plant, using more than 70 percent of fuel inputs. WHP systems recover waste heat and use it to generate electricity with no additional fuel and no incremental emissions. As a consequence, CHP and WHP can produce electricity while lowering costs for both host companies and all Arizona ratepayers.

In Arizona, there is a substantial opportunity to implement CHP. Currently, the state has 12 CHP sites, generating nearly 83 megawatts (MW) of clean and efficient power.¹ The Department of Energy estimates the state has 2,422 MW of remaining CHP and WHP technical potential

¹ U.S. DOE Combined Heat and Power Installation Database, (<https://doe.icfwebservices.com/chpdb/state/AZ>).



capacity (identified at 5,703 sites), with 638 MW of remaining onsite technical potential in the industrial sector alone.² A 2016 report from the Alliance for Industrial Efficiency found that deploying an economically viable portion of the state’s CHP and WHP potential,³ would save Arizona’s industrial sector customers nearly \$524 million in cumulative electricity costs from 2016 to 2030.⁴ Cutting electricity costs in this way would help make the state’s industrial customers more competitive.

Arizona is particularly well-positioned for CHP growth in the manufacturing sector. Manufacturing accounts for 8.6 percent (\$24 billion in 2013) of the total gross state product and employs nearly six percent of the workforce.⁵ Arizona’s industrial sector consumed 16.3 percent of the total energy used statewide in 2013 (or 235.1 trillion British thermal units).⁶ The size of the state’s manufacturing sector and the significant remaining technical potential for CHP indicates that Arizona has a tremendous opportunity for additional CHP and WHP deployment.

The Role of CHP and Energy Efficiency in APS’ and TEP’s Integrated Resource Planning

APS and TEP can harness the potential for CHP by offering incentives to support deployment and including utility-owned CHP in their IRPs. Utility-owned CHP is a relatively untapped efficiency resource that can improve grid reliability while reducing operational costs. Utility-owned CHP can provide substantial benefits to utilities and the grid, including:⁷

- **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.⁸
- **Less risk** – The planning, permitting, and implementation processes for CHP (2-3 years) are 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.⁹
- **Strategic location value** – Utility-owned CHP systems can relieve congestion, deferring the need for new T&D investments, while enhancing reliability.¹⁰

² U.S. Department of Energy, Mar. 2016, “Combined Heat and Power (CHP) Technical Potential in the United States” (<https://www.energy.gov/sites/prod/files/2016/04/f30/CHP%20Technical%20Potential%20Study%203-31-2016%20Final.pdf>).

³ Percentage of Arizona’s technical potential for CHP with less than 10-year payback period.

⁴ The Alliance for Industrial Efficiency, Sep. 2016, “State Ranking of Potential Carbon Dioxide Emission Reductions through Industrial Energy Efficiency” (http://alliance4industrialefficiency.org/wp-content/uploads/2016/09/FINAL-AIE-State-Industrial-Efficiency-Ranking-Report_9_15_16.pdf). Report considers potential for CHP alongside other modest industrial efficiency improvements. Citation here refers to unpublished data reflecting CHP and WHP deployment alone.

⁵ National Association of Manufacturers, Feb. 2015, “Arizona Manufacturing Facts,” (<http://www.nam.org/Data-and-Reports/State-Manufacturing-Data/2014-State-Manufacturing-Data/Manufacturing-Facts--Arizona>).

⁶ U.S. Energy Information Administration, “Arizona: State Profile and Energy Estimates,” December 2015 (<https://www.eia.gov/state/?sid=AZ#tabs-2>).

⁷ 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>).

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*



Some utilities are beginning to recognize these benefits. For example, in 2015, Duke Energy began to include a small amount of CHP development and ownership in its integrated resource planning process. As a result, Duke partnered with Clemson University in South Carolina on a 15 MW CHP project that is planned to be operational by 2019.¹¹ Duke will own the CHP system, while Clemson will purchase all of the steam from the CHP 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.

We recommend that APS and TEP each establish official goals of deploying 50 MW of additional CHP and WHP capacity by 2022.

Further, we support the recommendations in the Arizona Alternative IRP submitted by joint stakeholders,¹² which would strengthen APS' and TEP's energy efficiency program offerings. We strongly encourage the Commission to establish a requirement (or at least a preference) for each utility to adopt a near-term action plan that includes the following:

- At a minimum, APS and TEP should each continue to pursue energy efficiency resources at levels achieved in 2016, for each year from 2020 through 2032.
- APS and TEP should pursue additional efficiency measures and advanced demand-management measures (beyond 2016 levels), including CHP, and measures that are tuned to the evolving load shape¹³ (this should not include efforts being pursued through rate design or energy storage).

Our members strongly support utility energy efficiency programs because these programs grow the Arizona economy, reduce grid demand and boost a diverse business sector. They are a key to leveraging greater market activity for businesses to improve their bottom lines. When our members are more productive with less energy use, they save money, increase profits, and create more jobs. According to the Department of Energy, there are already more than 39,000 energy efficiency jobs in Arizona;¹⁴ robust efficiency programs help keep these workers in business – and create additional opportunities. Having easy access to business, commercial, industrial energy efficiency programs and services provides our members and their Arizona clients with tools to manage high electricity costs through energy-efficient strategies from building retrofits to technological upgrades to manufacturing processes.

¹¹ 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>).

¹² Western Resource Advocates (WRA), Arizona Utility Ratepayer Alliance (AURA), Diné CARE, To Nizhoni Ani, Western Grid Group, Arizona Interfaith Power and Light, Conservative Alliance for Solar Energy (CASE), Tucson 2030 District, Arizona Solar Energy Industries Association (AriSEIA), Efficiency First Arizona, National Association of Energy Service Companies (NAESCO), Solar Energy Industries Association (SEIA), Polyisocyanurate Insulation Manufacturers Association (PIMA), Arizona Community Action Association (ACAA), Southwest Energy Efficiency Project (SWEET), and Our Mother of Sorrows Catholic Church.

¹³ More specifically, measures were selected that maximize peak demand savings in summer months while minimizing savings during daylight hours in the spring months (when solar generation is most available). The proxy measures found to achieve this effect consist primarily of residential cooling measures, commercial cooling measures, and commercial exterior lighting measures.

¹⁴ Environmental Entrepreneurs (E2) and E4TheFuture, Dec. 2016, "Energy Efficiency Jobs in America" (https://e4thefuture.org/wp-content/uploads/2016/12/EnergyEfficiencyJobsInAmerica_FINAL.pdf).



Conclusion

For all of the reasons stated above, the Alliance urges the Commission to establish a requirement for APS and TEP to: (1) Evaluate CHP and WHP as supply resource options in their future IRPs and (2) strengthen their industrial energy efficiency program offerings. Further deployment of CHP and WHP would lower electricity costs and increase resiliency for not only APS' and TEP'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 Arizona will enhance the resiliency, competitiveness, availability and security of Arizona's energy infrastructure.

Thank you for your consideration.

Sincerely,

Jennifer Kefer
Executive Director
Alliance for Industrial Efficiency