BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
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IN THE MATTER OF POSSIBLE MODIFICATIONS TO THE ARIZONA CORPORATION COMMISSION'S THIRD REVISED ENERGY RULES	**Docket No. RU-00000A-18-0284**

COMMENTS OF THE ENERGY STORAGE ASSOCIATION

Pursuant to the Arizona Corporation Commission's ("Commission") Staff's comment opportunity on the third revised draft of proposed modifications to the Commission's Energy Rules in Docket Number RU-00000A-18-0284 on February 18, 2020, ESA respectfully submits these comments for the consideration of the Commissioners and Commission Staff ("Staff").

ESA applauds the Commission for engaging stakeholders over the last several years on reforming the existing energy rules to better reflect the changing system needs and availability of technologies. ESA provided comments in March 2019 and March 2020 to Staff's previous request for comments on modifications to rules for Renewable Energy Standard and Tariff rules and the third revised Energy Rules. ESA appreciates the opportunity to continue to provide input to the Commission and Staff in this docket. In our comments, ESA expresses support for the Commission's interest in reforming the Integrated Resource Planning (IRP) process in Arizona and for its proposal to use a life-cycle cost analysis when assessing utility IRPs. Additionally, ESA respectfully requests that the Commission consider a state-wide peak demand reduction program to help meet the state's sustainability goals as well as to serve ratepayers' interests. Details on demand reduction programs in other states are provided as examples from which

Arizona could draw insight.

I. ABOUT THE ENERGY STORAGE ASSOCIATION

ESA is the national trade association dedicated to energy storage, working toward a more resilient, efficient, sustainable and affordable electricity grid—as is uniquely enabled by energy storage. With over 190 members, ESA represents a diverse group of companies, including independent power producers, electric utilities, energy service companies, financiers, insurers, law firms, installers, manufacturers, component suppliers, and integrators involved in deploying energy storage systems around the globe. Further, our members work with all types of energy storage technologies and chemistries, including lithium-ion, advanced lead-acid, flow batteries, zinc-air, compressed air, and pumped hydro among others. A number of our members have deployed or are presently developing grid energy storage projects in Arizona.

II. COMMENTS

ESA supports the Commission Staff's proposed focus on reforming the state's IRP process, particularly the Commission Staff proposal to inform model inputs and procure resources using all-source RFPs. Doing so fulfills the Commission's first interest and legal obligation as well as provides consumers with the most cost-effective solutions by creating a level playing field for a broader range of solutions. It will assist the Commission with ensuring up-to-date cost estimates for various technologies, including energy storage. ESA also supports the Commission Staff proposal to consider total life-cycle cost when comparing energy solutions proposed in utility IRPs. Using a life-cycle cost analysis provides a more accurate estimate of the immediate and long-term costs, as well as the risks associated with any investments. To build on these reforms, ESA also proposes a demand-side resource approach that will drive investment choices aligned with the Commission Staff's recommendation of a distributed energy resource (DER)-paired energy storage deployment

target.

Reducing peak demand statewide is consistent with the goals of the Commission Staff's draft Energy Rules, which seek to set Arizona on a path to a clean and affordable electric system. Across the state, 17 gas- and oil-fired peaking power plants and peaking units at larger plants help meet statewide peak electric demand. Many of these units are inefficient, infrequently used, and aging—12 out of the 17 are over 45 years old and operated infrequently (most are less efficient than similar plants nationwide).[1] At the same time, Arizona has significant solar generation potential that could support the adoption of energy storage sources to complement solar and other clean resources to replace inefficient, high-emitting peaking plants in vulnerable communities throughout the state. Additionally, Arizona has enacted policy targets to support clean energy adoption and emission reductions that could facilitate replacement of peaking plants with storage, either as a stand-alone asset or as part of a portfolio with clean energy. Key targets in Arizona include:

- 2025: 15% of electricity from renewables, including a third from DERs
- 2050: 50% reduction in greenhouse gas emissions below 2000 levels

These targets suggest that a peak demand reduction program or potential replacement with energy storage would be consistent with Commission Staff's recommendations, and could serve both customer and sustainability interests. Additionally, storage can provide on-site resilience benefits for Arizona customers, helping businesses recovering from COVID-related interruptions with a new option to better manage energy costs going forward.

ESA recommends a peak demand reduction program associated with behind-the-meter (BTM) energy storage for inclusion in Arizona's Energy Rules. Such a program would be

[1] Arizona Corporation Commission (ACC). ACC Staff's "Second Revised Proposed Draft Rules for the Possible Modifications to the Arizona Corporation Commission's Energy Rules." July 2, 2019. https://www.psehealthyenergy.org/wp-content/uploads/2020/05/Arizona.pdf

consistent with the state's 10% distributed renewable storage requirement, which was proposed in the ACC Staff's Second Revised Draft Energy Rules.[2] The inclusion of a demand-side program such as this would also complement the already proposed supply-side programs, resulting in more comprehensive plans which select from a broader set of cost-effective options to help Arizona meet its aforementioned state goals. Key program features that we propose for the Commission's consideration include:

1) Reasonable compensation per kW peak reduction: Reasonable $/kW compensation will ensure greater participation in the program for customers.

2) Pay-for-performance rather than hold to a kW commitment: This incents the utility to forecast the peak accurately and dispatch the signal to aggregators effectively. Pay-for-performance offers a way to match the compensation to the value the DER delivers.

3) Five-year compensation level: Setting a compensation level at a stable rate for a minimum of five years will provide greater predictability of revenue streams for both customers and utilities.

4) Participation in multiple programs: The ability to "value stack" by participating in multiple retail programs can create multiple value streams for the multiple services storage provides, can improve the economics for consumers, and can optimize the operational value of the storage system. Currently, most systems are deployed for one of three single applications: demand charge reduction, backup power, or improving the capacity factor of solar self-generation. This results in storage systems being underutilized for much of the system's lifetime.

5) Design features:
    - Standard offer for residential customers: A single, standard offer option for residential customers reduces program complexity, thereby increasing the likelihood of program participation. Commercial & Industrial (C&I) customers tend to have greater capability to compare offers and therefore may not benefit from standardization.

    - Varying dispatch options: Having a range of options for dispatch-hour windows each day, as well as frequency of dispatch (e.g., daily versus seasonal peaks) provides greater flexibility for program participants to choose the dispatch options that fit their needs and preferences, while addressing multiple local or system-wide grid needs. Doing so also allows incentive levels to match their contribution to avoided costs. For example, offering a daily dispatch option for C&I customers with

[2] Physicians, Scientists, and Engineers for Healthy Energy. "Arizona Peaker Power Plants – Energy Storage Replacement Opportunities." May 2020. https://docket.images.azcc.gov/0000198875.pdf

an incentive level that matches its value may enable high demand C&I customers to achieve potentially large cost savings.

Noteworthy examples of peak demand reduction programs involving energy storage systems are Massachusetts' Connected Solutions Program and Green Mountain Power's (GMP) programs in Vermont.

- The Connected Solutions demand response program incentivizes customers to install BTM energy storage and respond to a utility dispatch signal during peak hours. A key driver for Massachusetts' effort to implement a peak demand reduction program was a report finding that 10% of hours on average in Massachusetts accounted for 40% of annual electricity spend (over $3 billion in costs to ratepayers/year).[3]

- In Vermont, GMP has two battery programs, (1) ESS Tariff program for third parties to provide BTM battery storage to customers in return for bill credits for providing peak event reduction, and (2) Bring Your Own Device (BYOD) program which allows GMP to lease BTM storage to customers for whole-home backup power.

Given Arizona's similar experience with costly peak periods, a demand response program would provide opportunities to mitigate these costs for consumers while also helping the state meet its clean energy goals. Details about Massachusetts' Connected Solutions program and Green Mountain Power's programs are provided below for illustrative purposes.

Connected Solutions Program

Connected Solutions pays customers to curtail their energy when regional electricity demand is forecasted to peak. Customers own the batteries and are compensated on a pay-for-performance basis for the average kW they curtail during dispatch events.

General Program Features

- Uses BTM battery storage to reduce peak energy use
- Program is restricted to battery systems owned by customers

[3] Massachusetts State Government. "State of Charge – Massachusetts Energy Storage Initiative." July 2017. https://www.mass.gov/files/2017-07/state-of-charge-report.pdf

- Participation Options: (1) install battery with new solar; (2) add battery to existing solar; (3) install stand-alone battery
- Incentive rates are set for 5 years
- Program is standardized for residential customers
- Programs vary for C&I customers (each utility chooses their own program features)
- BTM storage is allowed to participate in other state programs
- Dispatch Options:
  - Dispatch for peak hours daily ("daily dispatch")
  - Dispatch for peak hours seasonally ("targeted dispatch")

Residential Program

The residential Connected Solutions program in Massachusetts is standardized across customers, with the incentive set for 5 years and seasonally-based (summer and winter) variations in the performance incentive level ($225/kW and $50/kW respectively) and the number of discharge events per season (30-60 and 5-15 respectively).

Standardized Program Features for Residential Customers

	Summer	Winter
Performance Incentive	$225/kW	$50/kW
Discharge Events per Season	30 to 60	5-15
Months Discharge Events Can Occur	June through September	December through March
Time Discharge Events Can Occur	2 p.m. to 7 p.m.	2 p.m. to 7 p.m.
5-year incentive lock	Yes	Yes

Commercial and Industrial Programs

For commercial and industrial customers, each utility may choose program features of their choice. Similarities between Massachusetts' utilities' program offerings include: (1) each offers C&I customers three options; (2) event durations are approximately 2-3 hours; and (3) the number of events is much higher in the summer than in the winter.

Eversource

Eversource offers a daily dispatch program in the summer only, and a targeted dispatch option in the summer and winter seasons. Incentive levels are $200/kW for daily dispatch, $100/kW for summer targeted dispatch, and $50/kW for winter targeted dispatch. The number of events is typically higher in the summer (60 for daily dispatch; 8 for summer targeted dispatch; and 5 for winter targeted dispatch).

Program Features for C&I Customers of Eversource

	Daily Dispatch (summer only)	Summer Targeted Dispatch	Winter Targeted Dispatch
Incentive (per avg kW reduction per season)	$200/kW	$100/kW	$50/kW
Season dates	June 1 – Sept 30	June 1 – Sept 30	Dec 1 – March 31
Number of events	60	8	5
Event duration	2-3 hours	3 hours	3 hours
Notification	Day before event	Day before event	Day before event
Event timing	2 – 7 pm*	2 – 7 pm*	2 – 7 pm

***on non-holiday weekends**

National Grid

National Grid also offers its customers three options: daily dispatch in the summer; summer targeted dispatch; and winter targeted dispatch. The incentive levels are $200/kW, $35/kW, and $24/kW respectively. Similar to Eversource's dispatch events, National Grid's number of daily dispatch events is higher than its other dispatch options (30-60 events), while summer targeted dispatch (2-8 events) and winter targeted dispatch (~ 5 events) have fewer events.

National Grid's C&I Program Features

	Daily Dispatch (summer only)	Summer Targeted Dispatch	Winter Targeted Dispatch
Incentive	$200/kW	$35/kW	$24/kW
Seasons dates	June, July, Aug, Sept	June, July, Aug, Sept	Dec, Jan, Feb, March
Number of events	30 – 60 (Reduce energy use for a few hours during ~50 periods of high demand during summer)	2-8 (Reduce energy use for a few hours during 2-8 periods of high demand)	~5 (Reduce energy use for a few hours during ~5 periods of high energy demand)
Event Duration	2-3 hours	3 hours	3 hours

National Grid's daily dispatch option has been a pilot program. However, all three utilities in the state have filed for approval of a permanent daily dispatch program that could be approved in the next one or two months.

Green Mountain Power Programs

GMP has two recently approved programs for behind-the meter (BTM) battery storage that offer incentive tariffs through September 30, 2022 to residential and small commercial customers that are not on a time-of-use tariff. The first program ("ESS Tariff") allows GMP to lease BTM battery storage to customers for ten years with an optional five-year extension. The second program is a Bring-Your-Own Device program ("BYOD Tariff") that allows up to 5 MW of battery storage capacity each year. Both Tariffs share the following features: will be offered for up to 5 MW of installed capacity per calendar year and tariffs will expire on 9/30/22.

GMP ESS Tariff

Customers electing the ESS Tariff will lease a battery storage system owned by GMP. The battery storage system can provide the customer with whole-home backup power during a grid outage. The duration of backup power will depend on the amount of energy stored in the battery system at the time of outage and the customer's energy consumption during the outage. The battery storage service also provides GMP with the ability to access and control the battery to reduce power costs.

GMP ESS Tariff Features

Ownership	Utility-owned and leased by customer for 10 years; optional 5-year extension without monthly fees
Eligibility	Residential and residential and small commercial customers not on TOU tariff
Program Duration	Tariff expires September 30, 2022
Size	Up to 5 MW/year
Cost	Leased to customers for $55/month or an upfront one-time payment of $5,500 per system
Participation Cap	Up to 500 customers/year

GMP BYOD Tariff

Customers electing the BYOD Program will purchase equipment from a third-party, which will be installed on their premises and subsequently enrolled into GMP's energy management platform. Customers will have the opportunity to earn up-front incentive payments by allowing GMP shared access to equipment to reduce costs at peak times and allowing GMP to control equipment to achieve other forms of wholesale power market value. This BYOD tariff follows an earlier BYOD pilot.

GMP's BYOD Tariff Features

Ownership	Customers purchase and install equipment
Eligibility	Residential and small commercial customers not on TOU tariff
Program Duration	Tariff will expire on September 30, 2022
Size	Up to 5 MW/year
Cost	Access Disruption Fee: $12.70/equipment kW/month if equipment operation, communication, or access fails and is not restored within 30 days (until access is restored) Software Integration and Communication Fee: $3.97/month
Participation Cap	Varies (Depends on how much each customer chooses to enroll. The system must be capable of providing 3 hours of dispatch at the enrolled kW. E.g. to enroll 5 kW, the system must have at least 15 kWh)
Incentive	Back-up Only Incentive: Customers who allow GMP to manage their system for 3 or 4 hours will get the incentives below. • $850/kW (up to 10 kW) duration of 3 hours at full chosen capacity rating; or • $950/ kW (up to 10kW) duration of 4 hours at full chosen capacity rating. • An additional $100/kW bonus (up to 10 kW) applies to installations in a GMP grid-constrained area Self-Consumption Incentive: Self-consumption customers are eligible for an upfront payment and a location-based adder, if applicable. *Note: These incentives do not include kW multipliers.* • $850 (no kW multiplier) for equipment paired with self- consumption. • An additional $100 shall apply to installations in a GMP-constrained area.

III. CONCLUSION

We appreciate the opportunity to provide these comments on the implementation of reforms to the Commission's Energy Rules. ESA has been encouraged by the extensive engagement with stakeholders on these key issues to date, and looks forward to working with all parties and the Commission to develop specific programmatic elements to support the vision of the Commission in a timely manner.

Respectfully submitted this 9th day of July, 2020.

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