

## EUC Resource Planning Working Group Questions

### Batch 7 Questions

Submitted December 20, 2023

1. Could VAR support that vanished with Decker retirement be provided in the near future through batteries, RICE, or some other alternative? If so, please list the options.

Yes. Many technologies have the ability to provide VAR support to varying degrees including generation with rotating machinery (e.g. RICE, combined-cycle generators, gas turbines, etc.), inverter-based resources (e.g. battery energy storage systems and solar), and traditional T&D voltage equipment (e.g. capacitor banks, voltage regulators, static var compensators (SVC), statcom). Synchronous condensers can also provide VAR support.

2. What is AE's position on investing in heavy transmission reinforcement in the western part of the AE service area? Would this allow for AE to import more renewables from West Texas to avoid congestion and congestion costs?

Transmission build out in the western part of the AE service area would provide additional ability to import power into the AE Load Zone. From a transmission planning perspective, this would be a welcome addition to the grid. Such a build out would have its challenges including but not limited to real estate costs for acquiring rights of way given the growth of the Austin area and restrictions associated with wildlife habitats.

An important consideration is that AE does not have control over transmission between its service area and the renewables in West Texas, and transmission build out in AE's service area may not be sufficient to bring in power from West Texas over the long term. That is, there may be other transmission constraints that AE cannot mitigate.

3. What power plants is AE aware of that are currently burning 100% hydrogen? Please provide utility names and locations.

The HYFLEXPOWER Project successfully ran on 100% hydrogen in France last fall. There are numerous projects in construction and nearing completion in the US. There is a large power plant in Ohio that uses similar technology as the Sandhill Combined Cycle that is currently burning a 15% to 20% blend of hydrogen with plans to move to 100% over time. Universally, gas turbine manufacturers are confident that they can scale up conversion solutions for existing turbines to be able to burn various mixes of hydrogen up to 100%. The following are some websites of interest that may give you recent information:

- [Hydrogen - IEA](#)
- [General Electric- https://www.ge.com/gas-power/future-of-energy/hydrogen-fueled-gas-turbines](https://www.ge.com/gas-power/future-of-energy/hydrogen-fueled-gas-turbines)
- [Electric power Research Institute- https://www.epri.com/research/products/000000003002017544](https://www.epri.com/research/products/000000003002017544)
- [Siemens- https://www.siemens-energy.com/global/en/home/products-services/solutions-usecase/hydrogen/zehtc.html](https://www.siemens-energy.com/global/en/home/products-services/solutions-usecase/hydrogen/zehtc.html)
- [Hitachi- https://solutions.mhi.com/power/decarbonization-technology/hydrogen-gas-turbine/](https://solutions.mhi.com/power/decarbonization-technology/hydrogen-gas-turbine/)
- [PSM is a company that does a lot of retrofits to existing plants, they have some information here... https://www.psm.com/news-press-release-archive/turbomachinery-international-highlights-psm-gearing-up-for-hydrogen-based-gas-turbines?gclid=EAlaIQobChMIgvG0q\\_SygwMVyDbUAR0VcwJBAAAYBCAAEgLOfvD\\_BwE](https://www.psm.com/news-press-release-archive/turbomachinery-international-highlights-psm-gearing-up-for-hydrogen-based-gas-turbines?gclid=EAlaIQobChMIgvG0q_SygwMVyDbUAR0VcwJBAAAYBCAAEgLOfvD_BwE)

4. What power plants is AE aware of that are in planning or construction that will burn 100% hydrogen? Please provide utility names and locations and known status of the projects.

In addition to links provided in the response to question #3, Duke Energy has announced plans to build a system in DeBary, FL to produce, store and combust 100% green hydrogen in a combustion turbine.

5. Please provide any information that AE has about possible green hydrogen (produced using only renewable energy) supply for AE (any offers made or public offers available).

AE has been in discussions with multiple developers to look at various structures for green hydrogen supply. AE also utilizes a 3<sup>rd</sup> party model to look at potential hydrogen costs based on sets of assumptions, such as the cost of electricity as an input. There are a number of potential projects and structures in the planning and development phase in Texas. AE does not have any publicly available offers to share at this time.

6. Please provide any information that AE has about possible pink hydrogen (produced using nuclear energy) supply for AE (any offers made or public offers available).

Currently Texas has only 2 nuclear power plants, South Texas Nuclear Project and Comanche Peak, which are baseload generating resources providing support for the ERCOT grid. The addition of Small Modular Reactors would provide the additional resources for pink hydrogen in Texas. AE does not have any publicly available offers regarding pink hydrogen.

7. Is local solar included in the total AE renewable energy percentage?

Yes, local solar is included as renewables when calculating renewable energy percentage. However, rooftop solar that has not generated a REC is not included in the calculation.

8. How many megawatts of renewable energy does AE need to add by 2027 to meet the 65% renewable energy goal? How much of that is needed to replace existing contracts that will expire?

In the model, we added 650 MW of utility scale solar by 2027 to meet the 65% goal. Currently, 60 MW of wind is expected to expire at the end of 2027.