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Proposed Peabody gas plant, now on hold, makes sense

‘Peakers’ make sense as backup for renewable energy

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IT SHOULD COME as no surprise that people have questions and concerns when one of the leaders in clean energy in Massachusetts proposes building a new gas-fired power plant in Peabody.

But the answers aren't all that complicated, and the concerns should be diminished when all the facts are known.

Simply, the power plant, known as a peaking plant, is needed to prevent an energy crisis like the one that occurred in February in Texas, when the power went out for an extended period. In the wake of that incident, which left more than 100 people dead, developers are scrambling to propose the construction of multiple peaking plants in that region to prevent it from happening in the future.

Secondly, while this may seem counter-intuitive, this plant will reduce, not increase, carbon emissions.

First, a little bit about us. As the state's not-for-profit agency for municipal light plants in Massachusetts, the Massachusetts Municipal Wholesale Electric Company (MMWEC) has assisted its member utilities in developing a diverse resource mix while they serve their load and meet capacity requirements in the New England market. MMWEC and its members have been investing in carbon-free resources for decades. Its members have invested in Berkshire Wind Phase I and II, Hancock Wind, and Eagle Creek hydro, among other projects.

Last fall, MMWEC announced a new contract with Hydro Quebec to bring additional clean energy to the region, and earlier this year MMWEC announced plans to build a new 7 megawatt solar project on its Ludlow site. Six of its member municipal light plants have installed energy storage in recent years, and several are home to community solar projects. Acting together through the Municipal Electric Association of Massachusetts, the municipal light plants helped craft the language included in the climate bill recently signed by Gov. Charlie Baker that establishes a greenhouse gas emissions standard specifically for municipal light plants, demonstrating their commitment to climate change goals.

In fact, half of the 14 municipal light plants participating in the Peabody project have already met the 2030 target of 50 percent carbon-free energy sales, and MMWEC is assisting the others in developing strategic plans to ensure compliance with these targets through 2050.

But carbon neutral or net zero emissions doesn't mean no emissions. MMWEC is proposing to build a 55-megawatt capacity resource in Peabody to assist the participating municipal light plants to meet their capacity requirements, stabilize their rates, and plan for the future. Capacity, as opposed to energy, means utilities must have a certain amount of power on reserve (typically an additional 40 percent of their load), ready only when needed. Think of it as a spare tire. You only need four tires, but you have a spare tire in the event you need it.

This capacity resource helps fulfill the participating municipal light plants' required capacity obligation as load-serving entities in the New England electricity market. The municipal light plants have to have – and pay for – both energy and capacity, not one or the other. By helping to meet their capacity requirements with this resource, this enables the municipal light plants to invest in additional carbon-free, intermittent energy resources such as solar and wind.

The project also helps its participating municipal light plants maintain stable rates for their customers. Because they have the ability to own assets, owning the facility allows the participants to hedge against volatile capacity prices.

The proposed site, home to Peabody Municipal Light Plant facilities, already has much of the infrastructure required for the new capacity resource. It's also located in an import-constrained zone where electricity use is high, meaning a resource like this is especially valuable in that location for grid reliability.

While the municipal light plants work to increase the incorporation of renewable but intermittent resources, we know that the sun doesn't always shine and the wind doesn't always blow. Therefore, capacity resources such as this one are needed to serve as “balancing resources” to ensure the reliability of the grid. Over the next several decades, the massive increase in electrification, to include everything from electric vehicles to heat pumps, will require additional, reliable resources on the grid.

The proposed plant is expected to run approximately 239 hours per year – only when called upon by the New England power grid operator during times of system stress, such as

during extreme weather. Because it's new, the project will be more efficient than 94 percent of similar resources in New England. Therefore, when it does run, it will likely be more efficient than the resources that otherwise would have been called upon by the New England power grid operator. This effectively would result in a *net reduction* of carbon emissions in the region.

Participating municipal light plants can't fully replace the project with renewable energy resources. Because of the intermittency of resources like solar and wind, they do not provide equal capacity to the grid. Energy storage is only available for a few hours at a time, and needs to be charged. If it's charged off the grid – which is currently approximately 50 percent natural gas – there's a good chance it's using fossil fuels for that recharge. The light departments would have to over-procure renewable energy – by hundreds to thousands of megawatts – to provide enough capacity from intermittent carbon-free resources. This would be an extremely expensive endeavor, and would require huge swaths of land that are not readily available for such infrastructure.

MMWEC announced earlier this month that it is pausing the project to re-evaluate its options and determine if an alternative solution, which is economically viable for the non-profit municipal light plants and their customers, is possible. During this time, MMWEC and its participating municipal light plants are considering all feedback. MMWEC and its members are committed to developing a power supply mix that works for each individual light department, while supporting carbon emission goals and enhancing the reliability of an evolving grid. Just as they have for over 100 years, MMWEC's members have not lost sight of their responsibility to provide the low-cost, reliable service their customers have enjoyed for decades.

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