Western Connecticut
COUNCIL OF GOVERNMENTS

March 7, 2024

Esteemed Chairs Lopes and Gresko,
Members of the Environment Committee:

The Western Connecticut Council of Governments (WestCOG) appreciates the opportunity to comment on Raised Bill 298, *An Act Concerning a Study of Combining Energy Storage System Deployment with New Residential Solar Installations.*

As the bill is drafted, the term "energy" is ambiguous. WestCOG **recommends** clarifying this term to include mechanical, thermal, electrical, and chemical energy so that the study is comprehensive and does not omit energy storage technologies that may be applicable and cost-effective.

Discussions on energy storage in Connecticut have been limited to electrochemical batteries. While batteries offer advantages – the electricity they store can be used by any electric device, they can help with grid stress, and the concept is familiar to many people – batteries also suffer from several disadvantages. These include cost, lifespan, safety, economic, environmental, and human rights concerns.

It is important to recognize that electric batteries are not the only form of energy storage available, nor are they necessarily the best option in every case. Many other forms of energy storage exist; some that may be applicable to homes in Connecticut include:

- Thermal storage, which stores heat and can be a good fit for homes, where the largest use of energy is space heating. Heat can be stored in materials such as water, rock, and sand. These materials are orders of magnitude cheaper than the rare earth metals used in batteries, can be locally sourced, do not require complex manufacturing, and do not pose fire or chemical hazards. Thermal storage – whose forms can range from hot water tanks and concrete masses to "sand batteries" and molten salt, – can receive energy captured by photovoltaic panels, solar thermal collectors (which heat water with sunlight), and passive solar buildings. This heat (or cold) can be used to heat (or cool) buildings, either standalone or in a district system, when the sun is not shining.
- Phase change storage, where a material is evaporated or frozen. For instance, the heat or energy from the sun can be used to dry out a store of desiccant. This desiccant 'battery' can then dehumidify air – the energy-intensive part of air conditioning – all day and night. The first generation of these air conditioning systems provide for up to 7 hours of stored cooling capacity, with 60% and 90% reductions in total and peak energy use, respectively.
- Chemical storage. For instance, the electricity from a solar array can be used to split water into hydrogen and oxygen. The hydrogen can be stored on-site for later use by a fuel cell (to produce electricity) or by a hydrogen-powered heat pump (to heat the property).

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Covering the range of energy storage options will provide the state more pathways to reach its energy and environmental goals, potentially opening up avenues that may be faster or lower cost, than a strategy that is focused on one technology.

Thank you for your consideration.

Francis R. Pickering
Executive Director