My name is Meredith Angwin. I live in Vermont. My career was as a chemist, mostly on pollution control and corrosion control for power plants. I have been studying and writing about the grid for the last twelve years or so.

I am writing in support of SB123.

Part one: Incentives

We get what we pay for….by way of incentives. If we provide subsidies for wind and solar, but not nuclear or hydro, we will get more wind and solar, and less nuclear and hydro. This will lead to more fossil fuels on the grid.

When writing my book, *Shorting the Grid: The Hidden Fragility of Our Electric Grid,* I found research that showed that for every MW of solar or wind on the grid, there had to be another MW of "fast-response resources" to back up these types of power plants. There are three types of resources that can qualify as "fast-response." 1) Natural gas 2) Some hydro resources 3) Batteries. Batteries are not available at grid scale yet. Maybe someday, but not now. Building more hydro is not easy.

In practice, solar and wind are backed up by fossil fuels, usually natural gas. Wind and solar lock in fossil fuels.

But you don't have to look up research on this: you can look at electricitymap.org and see the carbon footprint of Germany versus Ontario.

- Germany shut its nuclear and relies on wind and solar---along with coal and natural gas backup. Germany produced 349 grams CO2 per kWh in 2021.
- Ontario shut its coal plants, and it relies on hydro and nuclear. Ontario produced 25 grams per kWh in 2020.

Let's be like Ontario, not Germany! Which means we should support nuclear and hydro, not just wind and solar.

Part two: Transparency

An important part of the title of my book is the *Hidden* Fragility. Many of the decisions that ISO-NE and NEPOOL make are not something ordinary citizens can learn about. Many equivalents of "call-outs" in a government budget are hidden in the "cost of distribution" area of your bill. I urge you to learn what is happening by forcing CT utilities to have heightened transparency on their bills.

Conclusions:

Ordinary citizens have very few levers to pull about what happens on our grid. But state-wide, we can provide incentives for clean power and we can require transparency. Let's do it!

References:

German number 349 grams per kWh is an estimate from Statista. It is behind a paywall, alas.
https://www.statista.com/statistics/1290224/carbon-intensity-power-sector-germany/

Ontario's number of 25 grams per kWh come from the official Ontario website for the Canadian energy regulator
https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-ontario.html