

130th Maine Legislature
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Committee on Energy, Utilities and Technology

LD 1634: An Act to Create the Maine Generation Authority

Testimony of Dr. Richard Silkman in Support

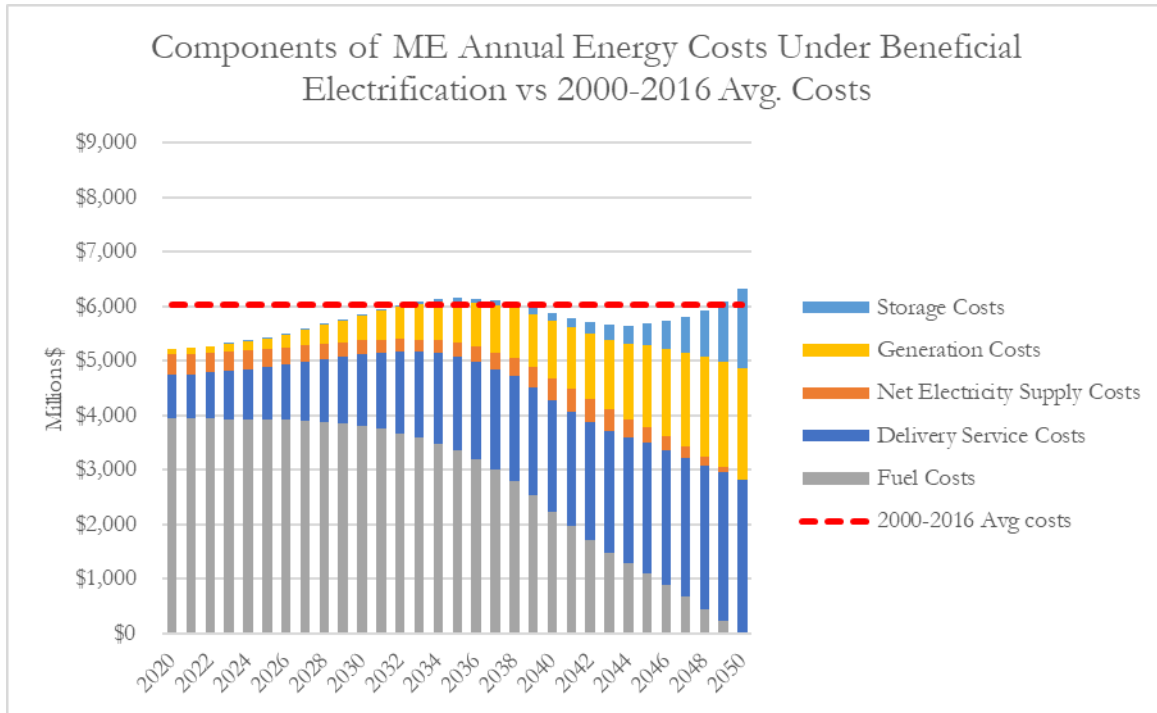
Senator Lawrence, Representative Berry, members of the Committee, my name is Dr. Richard Silkman. I am submitting this testimony in support of LD 1634 – An Act to Create the Maine Generation Authority.

A little over a year ago, I published a study – [A New Energy Policy Direction for Maine: A Pathway to a Zero-Carbon Economy by 2050](#) – that describes how Maine can virtually eliminate carbon from our economy through beneficial electrification and decarbonization of our electricity generation sector ... and, most importantly, do so without increasing the total amount of money we spend on energy economy-wide. It is available in digital format at <https://www.competitive-energy.com/zero-carbon-maine>. For those of you who wish a hard copy, please get in touch with me, and I will send you one.

When I dug into the data and began to model energy use and electricity generation, I discovered a number of interesting relationships and related findings. Perhaps the most important of these is how the shift from fossil fuels to renewable electricity changes the underlying cost structure to provide energy in the economy.

The graph below is taken from Figure 3-7 in my book. The graph shows how the components of Maine's energy costs change during the 30-year transition away from today's energy mix to a zero-carbon, 100% renewable energy mix in 2050. Today, roughly 80% of what Mainers spend on energy is fuel – mostly gasoline, heating oil, natural gas, and propane. This is the gray portion of the bars in the graph. The next largest share is to cost of electricity delivery from Maine's electric utilities, followed by the cost to produce that electricity.

As Maine converts its energy mix to electricity and that electricity is generated by renewable energy (wind, solar and hydro), fuel-related costs fall, eventually to zero in 2050. What takes its place are costs related to the generation (yellow), storage (light blue), and delivery of electricity (dark blue). Unlike fuel costs that are paid for when consumed, the vast majority of these costs are paid for upfront in the form of investments – investments in solar and wind generation, batteries for storage, and poles and wires to deliver the electricity generated.

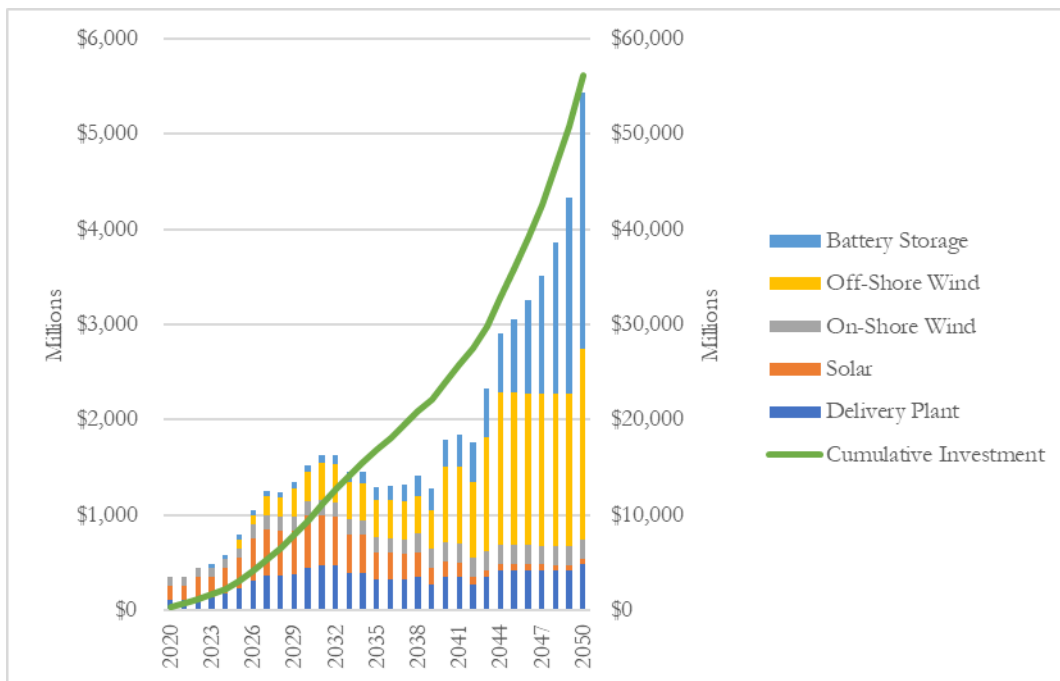


As I noted in a recent op-ed in the Maine Sunday Telegram,

“The imperative to eliminate carbon in our economy through beneficial electrification and deep decarbonization of electricity generation imposes different costs. The most important aspect of the conversion of our economy from one based on fossil fuels to one based on zero-carbon renewable energy is the very different cost structure of the technologies used to provide this type of energy – solar, on-shore and off-shore wind, hydro, geothermal, tidal. In engineering terms, fossil fuels consumed to produce each unit of energy in the old technologies are replaced by the installation of plant and equipment; in economic terms, variable costs are replaced by fixed costs; in accounting terms, operating costs are replaced by investment.”

The total amount of such investment necessary to achieve a zero-carbon economy by 2050 is quite significant – larger than the costs to support virtually every other major transformation of Maine’s economy with the possible exception of the roads, highways, and bridges built during the 20th century to accommodate the automobile.

The graph below is also taken from my book – Figure 3-9. The bars show the amount of investments each year by type of investment – utility delivery plant (poles and wires), solar generation, on-shore and off-shore wind generation, and battery storage. The cumulative investment is shown as the green line – close to \$60 billion over the next 30 years, or almost \$2 billion a year on average.



The only way Maine can afford to make this transition is to borrow money **cheaply**. The annual costs shown in the first of the graphs above are based on a borrowing cost of 3%, amortized over 30 years. These are the terms that institutions such as the Maine Turnpike Authority borrow money. At this borrowing cost, Maine can accomplish the transition to a zero-carbon economy without increasing the amount of money it spends annually for energy.

This is in contrast to the 8% cost of capital charged by electric utilities to their ratepayers to support their investments and the even higher 10% or more charged by private developers of generating plants and battery storage facilities. At these higher costs of capital, Mainers will need to devote more than 20% of their incomes to energy – twice what we currently devote. The problem is that Mainers are just getting by at 10% - most simply do not have an additional 10% of their incomes that are discretionary and can be diverted to cover higher energy costs. And, the same is true for our manufacturers and commercial businesses.

LD 1634 establishes the Maine Generation Authority. The Statement of Fact provides a good overview of the bill and the Maine Generation Authority or MGA. I would like to highlight three key points. First, the MGA is prohibited from constructing, operating, or maintaining any generation that is developed. Its purpose is simply to finance projects that it will own, but that are built and subsequently operated and maintained by private companies. There will be no new government fiefdoms created as a result of LD 1634.

Second, LD 1634 sets forth the approved amount of borrowing that can be undertaken by the MGA over its first decade of operations. This total amount of \$1.5 billion is an amount that can finance the construction of enough renewable generation capacity to generate the electricity that will be used by the new heat pumps and EVs, assuming the Maine Climate Council goals are achieved. This will assure that all of this new electricity demand will be met by zero-carbon generating resources. It does no good to convert space heating and vehicles to electricity if that electricity is generated by fossil fuels.

Third, the bonds issued by the MGA are not general obligation bonds – they are not backed by the full faith and credit of the State of Maine. Instead, like the bonds issued by the Maine Turnpike Authority, the MGA bonds are revenue bonds. The revenue that backs the bonds comes from a surcharge that is applied to the electric bills of all Maine electric ratepayers. This is the same mechanism that is now used to recover the costs of LD 1711 net metering projects and all projects developed under LD 1494 ... except the surcharge will be much lower.

Thank you for your consideration. I would be happy to respond to any questions you might have.