



March 22, 2023  
Senator Stacy Brenner, Chair  
Representative Lori Gramlich, Chair  
Committee on Environment and Natural Resources  
100 State House Station  
Augusta, Maine 04333

Re: Comments for consideration during Working Session on LD 826, "An Act To Prohibit the Disposal of Certain Solar Panels in the State and to Require Bonds to Cover Disposal Costs"

Senator Brenner, Representative Gramlich, and members of the Environment and Natural Resources Committee:

ReVision Energy wishes to share feedback in opposition to LD 826 for your work session. Founded right here in Maine in 2003, ReVision Energy is a local, employee owned, certified B Corporation with over 385 employees across our five branches in New England (with 220 staff in Maine at our Montville and South Portland locations). Our mission is to lead our community in solving the environmental problems caused by fossil fuels while alleviating social injustice. Our vision is to see New England as thriving place where our children, grandchildren, and future generations can enjoy a clean environment and just society. In 2022 alone, we installed 10,000 kilowatts of residential solar and nearly 24 megawatts of commercial solar.

Environmental sustainability and stewardship are at the core of ReVision's mission and values, so we believe it is critically important to be thoughtful about the environmental implications of the entire lifecycle of our energy choices, and responsible treatment of equipment at the end of its useful life is an important part of that consideration. We are generally in favor of legislative and regulatory efforts which support such those efforts, but we believe that LD 826, as proposed, isn't the right approach. We oppose the legislation for four straightforward reasons:

First, we are holistically concerned with the creation of obstacles, and ultimately costs, for solar-specific development and decommissioning. If parties agree, as we do, that a life-cycle approach to all development is important, we should implement policies and protocols across the board, not in a piecemeal manner that targets only one type of development. While well intentioned, the patchwork approach of adding solar specific rules and regulations to existing policy is inefficient, complicated, expensive, and ultimately does a disservice to our state's goals regarding a clean energy transition. We respectfully encourage legislators to apply the same standards to all development, industries, and/or energy sources.

Second, the proposed legislation seems to confuse and conflate a number of different solar technologies and, perhaps inadvertently, lumps them together under a one size fits all solution that we think is inappropriate for the vast majority of solar projects being built in Maine. While we should minimize the possibility that solar equipment of any kind ends up in a landfill or incinerator (just as we do with waste of all kinds), the specific concern about toxic material pollution is typically associated with so called 'thin film' solar technologies, such as cadmium telluride (CdTe) or copper indium gallium diselenide (CIGS) panels. Those are not what is being installed in either residential, commercial or community scale solar projects in Maine or around New England.

Solar panels installed across New England are almost exclusively crystalline silicon modules, which do not constitute toxic waste. It appears the intention is for this legislation to apply to thin



film solar panels, not to crystalline silicon solar panels. There is an argument to be made, then, that this bill does not address an actual issue within Maine's solar industry as there are currently no hazardous solar panels being utilized, and therefore there will be no potentially toxic waste requiring disposal. This bill attempts to provide solutions to an issue that does not exist.

Should Section 3 of LD 826 remain, this language must be clarified to be clear regarding panel type. As discussed, this could include utility-scale thin film solar panels and should not crystalline silicon panels, which are not toxic and even more, should not make their way to landfills based on raw material value. Additionally, the legislation should clarify what a 'de minimus amount' of trace toxins is within panels (for example, crystalline silicon solar panels do include trace amounts of silver solder as part of their electrical circuits, as do nearly all other electronics; the legislation should make clear that these amounts of silver content are de minimus and not intended to be regulated by this section).

Third, as you are aware, effective October 2021, Maine law already requires solar energy developers to have an approved decommissioning plan inclusive of financial assurance in the form of a performance or surety bond or letter of credit for the total decommissioning cost (35-A M.R.S. Subsection 3491 through 3496). Our standard decommissioning plan, which we provide financial assurance for, already includes disposal and recycling. Additionally, if any material used constitutes hazardous waste, the Maine Hazardous Waste Management Regulations must be followed. Therefore, the added language in Section 1 and Section 2 is ultimately unnecessary as these provisions propose an additional layer to existing laws which a) does not make sense because Maine's current decommissioning law already includes responsibly disposing of equipment and Maine's hazardous waste rules direct disposal of hazardous waste, and b) could be confusing and potentially costly as it could imply that there are additional stipulations, confusing investors and resulting in increased bond pricing without adding additional value. Even more, in a time when our state is prioritizing the development of further clean energy resources, let's ensure a level playing field and not add barriers to the solar industry when other non-renewable energy sources do not have bonding requirements.

Fourth and finally, the solar panels in our region are 95% recyclable with technology readily available on the market today as crystalline silicon panels contain valuable raw materials and should be reused, not put in landfills. We anticipate that this percentage will continue to improve while costs drops in the multi-decade timeframe between today and when these solar arrays approach decommissioning. There is a growing recycling industry with robust vendors,<sup>1</sup> and as with so many nascent technologies, we anticipate exponential growth in this sector. At ReVision, if a panel is broken and cannot be repaired, we work directly with local electronics recycler Aurum Recovery Group, based in Goffstown, NH. This service is free to us as the value of scrap material covers all recycling costs, and we in fact receive compensation for the additional value. Recycling then, even at its nascent stage, is free and even revenue producing, which provides assurance that panels will not be sent to landfills when developers could be paid to recycle them instead. Section 3 of LB 826 should not include crystalline silicon panels, then, as they should never be sent to landfills in the first place given their recycling value. Lastly, it is important to note that thin film modules that do contain toxic materials have their own recycling ecosystem and have a cradle-to-grave recycling plan in place managed by the manufacturers themselves, which is worth investigating for compatibility with this bill.<sup>2</sup>

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<sup>1</sup> [Solar Recycling | SolarRecycle.org](https://www.solarrecycling.org/)

<sup>2</sup> <https://www.firstsolar.com/en/Solutions/Recycling>



Responsible planning and end of life recycling are absolutely real issues and need to be considered. But LD 826 will not achieve that goal, and instead harms solar adoption and the potential for job creation today. The good news is there are a variety of local, national and international initiatives in place and developing rapidly to turn end of life solar modules into a valuable revenue stream instead of cost liability. This is a particularly urgent focus from the US Department of Energy, specifically the Solar Energy Technologies Office (SETO). SETO recently released a report which is exclusively focused on the research, recent advancements, and meaningful revenue opportunity in future decades directly related to the decommissioning, recycling and re-integration of raw materials into new manufacturing creating a circular energy economy.<sup>3</sup> Point being, there are plenty of motivated and well-funded, efforts underway to solve this same issue.

To be 100% clear, ReVision Energy is a staunch supporter of end-of-life solar system planning and recycling. The intent of this legislation is good and responsible design, procurement, construction and decommissioning activities is something we support and champion. However, this bill is an attempted solution a problem that does not exist in our state and is already being solved elsewhere. We urge you to find this bill unnecessary at this time and instead allow the solar industry the free-market opportunity to continue to resolve the issue in a way in which it creates financial value for solar system owners and additional investment and jobs instead of the current language, which ultimately could impede growth and harm job creation.

Thank you for your consideration of our perspective. We welcome further discussion, and we are available to address any questions you may have.

Sincerely,

A handwritten signature in black ink, appearing to read "Fortunat Mueller", written in a cursive style.

Fortunat Mueller  
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<sup>3</sup> [Solar Energy Technologies Office Photovoltaics End-of-Life Action Plan](#)