



MPCA Solar Panel Recycling Stakeholder Process MACPZA Spring Conference

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- Brief recap of MPCA stakeholder goal and process
- 4 potential PV module recycling program models
- Why MPCA proposed PS model; PS bill summary; industry feedback
- Summary of legislative action
- Next steps

Recap of goal and process

Goal statement:

- Collaborate to develop and implement PV panel end of life management policy and programs that conserve resources, protect health, promote renewable energy, and support PV panel recycling infrastructure and technology.

Collaboration:

- SEIA, MnSEIA, and Commerce
- Regular communication with counties through AMC, SWAA, MACPZA (2/2020)
- Illinois: Regular communication with IL Sustainable Technology Center and their stakeholder process
- North Carolina: participated in webinars and commented on draft plan
- Washington: regular communication with state agency staff
- Communications with NREL, recovery/recycling companies, manufacturers

Recap of goal and process

All webinars and surveys were open to anyone interested in participating.

Seven webinars over 18 months:

- June 27, 2019: Introduction, white paper, first survey on issues
- October 9, 2019: National/Regional overview - SEIA, ISTC, NREL
- December 11, 2019: PV use/forecasts, manufacturers, recyclers, urban mining
- March 18, 2020: Product Stewardship 101 and EPEAT
- June 11, 2020: Program options/survey, Commerce/Decommissioning, local govt
- December 10, 2020: Further discussion EOL/circular economy, county zoning officials
- December 17, 2020: Expanded discussion of program options, followed by a survey

- Commerce/PUC model extended to solar facilities under 50 MW: permittee individual responsibility
- Product Stewardship model (permittee pays stewardship assessment; mfr's operate statewide program)
- Rate payer funded/statewide program model
- Permittee funded/statewide program model

Why MPCA proposed Product Stewardship model

MPCA proposed a Product Stewardship (PS) model for solar module legislation that most closely aligns with the criteria expressed by stakeholders in our surveys and webinar discussions, including:

- PS covers all solar modules regardless of manufacturer, purchaser, user, date of installation or the regulatory body with jurisdiction over siting, zoning, operations, and decommissioning
- A stewardship assessment fee on each solar module is visible, fair and equitable to all
- PS is the only model that ties in manufacturers for design and material considerations
- PS provides one end-of-life management program for the entire state that isn't dependent upon individual responsibilities or decisions by permittees, or permittee compliance
- There is currently no system for management of modules in installations under 50 MW. The MPCA PS proposal would cover these and ensure proper management.

Bill summary

Bill summary: This bill would establish a manufacturer Product Stewardship program for management of solar PV modules, installation components, and inverters being removed from service. Manufacturers of solar PV modules would create a Product Stewardship Organization (PSO) to administer the program in the state. The program would be funded by a stewardship assessment on the sale of each solar PV module to be installed in the state. There are no end of life fees assessed for participation in the program. The bill establishes an initial goal of an 85% reuse and recycling rate based on solar PV modules removed from service each year. The bill would prohibit disposal of solar PV modules, installation components, and inverters in or on the land or in a waste disposal facility.

The Product Stewardship Organization creates a stewardship plan in accordance with the law's requirements and establishes a stewardship assessment to operate the program in all regions of the state. The Agency reviews and approves the stewardship plan and assessment with a public comment process. The PSO must submit an updated plan and stewardship assessment every five years and these are also subject to public comment and agency approval. The PSO may amend the plan or assessment at other times. The PSO will report annually to the Agency.

Feedback from the industry

- Increased costs will prevent many companies from doing business in MN (installations)
- Solar module mf's might choose not to do business in MN
- Coal, nuclear, natural gas and wind don't have to follow PS
- A PS model on a regional, national or international scale would mitigate the competitive disadvantage
- Prefer market based or private sector-led strategy
- This isn't an issue for another 15-20 years.
- Industry will recycle without needing a law (industry over 50 MW)

Summary of legislative action

- The PS bill was in the Governor's package and was introduced, but late
- Counties supported the PS bill as siting/permitting and waste management authorities
- There were no legislators interested in moving the bill forward this year
- MnSEIA and CGA expressed concerns with the PS bill
 - MPCA met with these groups to talk through their concerns and discuss next steps
- MPCA worked with MnSEIA to draft a study proposal based on the Solar on Landfills study
 - There were no legislators interested in substituting the study for the PS bill
- HF3351 is Rep Scott's bill for PS solar module and wind facility recycling
 - MPCA preferred our PS bill

Solar module recycling proposed study

\$300,000 for a report on the development of a system to reuse and recycle solar photovoltaic modules and installation components in Minnesota. The report must include:

Recommendations for a plan to collect, reuse, and recycle solar photovoltaic modules and installation components at end of life that is convenient and accessible throughout the state, recovers 100 percent of discarded components, and maximizes value and materials recovery, including analysis of:

- the reuse and recycling values of solar photovoltaic modules, installation components and recovered materials;
- system infrastructure and technology needs;
- how to maximize in-state employment and economic development;
- determination of net costs for the program;
- potential benefits and negative impacts of the reuse and recycling system on environmental justice and tribal communities.

The report must include a survey of solar photovoltaic modules and installation components coming out of service now and projected into the future in Minnesota, including a description of how they are currently being managed at end of life, and how they would likely be managed in the future without the proposed reuse and recycling system.

Next steps

- Developing briefing materials to meet with parties that are instrumental to moving a bill forward
- Goal to have monthly meetings with those groups starting in July, 2022
- Discuss:
 - Why an end of life system is needed
 - Why MPCA made their proposal
 - Discuss options with stakeholders to identify and address concerns and find a possible path forward for an EOL system proposal
- Goal to get MnSEIA and others on board so they understand, and hopefully support, what is introduced next time
- Monitor [DOE](#) PV end-of-life 5 year action plan: goal to cut recycling cost in half by 2030

Thank you!

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