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EmPOWER's Role in Building Decarbonization

MWG BUILDINGS AD HOC GROUP

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Energy Futures Group

Vermont-based clean energy consulting firm established in 2010

Areas of Expertise

- Energy efficiency & renewable energy
- Program design
- Integrated resource planning
- Policy development
- Expert witness testimony
- Building codes
- Evaluation
- Cost-effectiveness

Range of Clients

- Government agencies
- Advocates
- Regulators
- Utilities

Clients in 45 states and provinces plus regional, national and international organizations.



How can EmPOWER be utilized to advance building decarbonization?

- Intersection of utility energy efficiency and climate
- If EmPOWER and climate goals continue to be treated independently, success is *much less likely*
- *The path is wide IF* regulators and lawmakers align climate agenda with EmPOWER directives

The Draft Greenhouse Gas Reduction Act Plan proposes this alignment:

“the 2019 GGRA Draft Plan proposes that the state continue to invest in energy efficiency through EmPOWER beyond 2023...[and] to begin incentivizing increased deployment of efficient electric heat pumps to heat homes in Maryland, including in homes that currently use a different fuel for heat”

What do we need to achieve?

“The state should, at minimum be aiming for a complete decarbonization of the building sector by 2050, which would require the electrification of approximately 40,000 existing households each year between 2020 – 2050”

Sierra Club comments to MDE regarding Maryland's 2019
Draft Greenhouse Gas Reduction Plan, 21 April 2020

Even this only gets us close to the goal:

- Increase EmPOWER goals to 3% annual efficiency improvement
- 100% high-efficiency electric heat pump adoption in all new construction by 2025
- Space heater sales reaching 50% electric heat pump by 2030, 90% by 2050 (2020 sales approximately 20% electric heat pump)

Maryland PATHWAYS, 2020 MWG Scenario, June 18, 2020
Energy + Environmental Economics

***Space heater sales reaching 50%
electric heat pump by ~~2030~~ 2025!***

What EmPOWER programs have done:

- *Saving energy*

- Reducing loads is critical for minimizing infrastructure investment requirements
- In some jurisdictions (NY, MA) electrification is justified by reducing site Btu

- *Improving building performance*

- Reduced Operating and Maintenance costs
- Improved Comfort
- Better air and light quality

How? *EmPOWER Builds Markets:*

- *Increasing demand for products*
 - Raising awareness through outreach and marketing
 - Incentives
 - Increase availability
 - Increase sales and purchase/installation
- *Builds Capacity*
 - Design and technology training
 - Workforce development
 - Demonstration projects

EmPOWER is a powerful tool for advancing electrification

So how do we use EmPOWER to meet climate goals?

- In the current framework
- With legislative support

Within the current EmPOWER framework:

- Require reporting of avoided carbon, starting in 2021-2023
- Maximize efficient retrofit of existing electric end uses
 - Very aggressive retirement of electric resistance heat and hot water heating, replace with heat pumps
 - Combined with shell efficiency to reduce loads and improve comfort and satisfaction

- Authorize technical trainings on electrification technology and design
- Authorize demonstration projects and pilot programs
- Authorize utilities to fuel-switch “dirty fuels” for heat and hot water to heat pumps

San Joaquin Valley, CA

- Intersection of low-income community with high energy burdens and poor air quality
- Convert ~1,600 homes from propane and wood to heat pumps

***Maryland must ensure
that no one is left behind!***

Prioritize limited income and black and brown communities:

- Long history of inequitable access to clean energy
- Higher energy burdens
- As the state electrifies, remaining gas customers will have higher infrastructure costs *that struggling families should not be saddled with!*

- Public Service Commission should direct utilities to prioritize alignment with climate goals
- All-electric new construction and renovation tiers to support 2025 Code
- **“Do no harm”** approach to climate
 - Prohibit gas equipment incentives
 - Gas energy efficiency focused only on building shell improvements

Update cost-effectiveness framework:

- Authorize study of participant economics for electrification scenarios, including combining electrification, energy efficiency and demand response
- Recalculate climate benefits so they are consistent with state climate goals

Given that work is ongoing in this important area of research, we find that it is appropriate at this time to adopt the business-as-usual value equivalents of the Itron quantified NEBs for the categories of air emissions.... Should the parties develop additional quantifications...moving forward, the parties may present such analysis in conjunction with planning for future program cycles.*

*Non-Energy Benefits

PSC Order No. 87082 (2015)

To drive the necessary volumes the legislature needs to act:

- Change primary metric from avoided kWh to *avoided carbon*
- Direct PSC to pursue *all cost-effective energy efficiency and electrification* based on value of avoided carbon
 - By definition – if decarbonization is the mandate, the value is the cost of the next cheapest alternative – RNG at the margin



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Resources (1)

- Programs to promote electrification:
 - <https://www.aceee.org/topic-brief/2020/06/programs-electrify-space-heating-homes-and-buildings>
- San Joaquin Valley:
 - <https://www.nrdc.org/experts/merrian-borgeson/california-pilot-wean-1600-homes-fossil-fuels>
- CPUC decision modifying three-prong test:
 - <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M310/K053/310053527.PDF>
- Effect of changes to three-prong test:
 - <https://www.nrdc.org/experts/merrian-borgeson/ca-billion-efficiency-now-open-electrification>

Resources (2)

- SMUD press release on change to avoided carbon:
 - <https://www.smud.org/en/Corporate/About-us/News-and-Media/2020/2020/SMUD-first-in-US-to-change-efficiency-metric-to-avoided-carbon>
- Blog on CA SB 1477
 - <https://www.nrdc.org/experts/merrian-borgeson/ca-launches-200m-programs-reduce-building-emissions>