CLIMATE-FORWARD EFFICIENCY SYMPOSIUM: DAY 2
DISCUSSION GROUP SUMMARY

BACKGROUND

As states and utilities set ambitious decarbonization goals, the case for demand-side measures to reduce emissions is stronger than ever. The ways in which utility energy efficiency programs are designed, operated, and evaluated must evolve to ensure they are on track to achieve an affordable and equitable clean energy future. This symposium explored the wide range of strategies we have at our disposal and share leading examples where climate-forward actions are being taken today.

During day 1 of the symposium, participants learned from and engaged with experts from across the United States that have successfully approached the nexus of energy efficiency programs and decarbonization. Participants also were introduced to multiple strategies to accelerate climate-forward efficiency through legislative, regulatory, and utility actions.

During day 2 of the symposium, we convened three working sessions designed to move climate-forward efficiency into action. The topics of these sessions were as follows:

Breakout 1: Advancing beneficial electrification measures in the building sector to maximize reduction of greenhouse gas emissions (divided into three subgroups to discuss technology, policy, and program)

One of the most vital steps to align energy efficiency with climate change action is to increase the efficiency of buildings in a manner that reduces their greenhouse gas (GHG) emissions. By deploying smart, efficient electric technologies inside buildings, we can deliver the benefits of energy savings to consumers while also reducing GHG emissions and improving grid flexibility. Understanding the opportunities and challenges of beneficial electrification in buildings is vital for stakeholders in the utility, government, and non-profit sectors seeking to design plans to scale up adoption. This discussion focused on the technical challenges, promising emerging technologies, important strategies, and best practices to realize the potential for beneficial electrification.

Breakout 2: Measuring GHG reductions: moving forward on workable approaches and needed data

Aligning energy efficiency with climate change action necessarily requires data to measure the impact of energy reduction on GHG emissions. This discussion will focus on how best to measure efficiency's full impact on GHG emissions and the data needed for such measurement. Questions to be examined will include: What data would be required to design and evaluate utility energy efficiency portfolios focused on maximizing GHG reductions? What practical methods are available for translating energy efficiency measures into estimates or measurements of avoided GHG emissions? What data does each method require, and how can such data be accessed efficiently in the context of privacy and security concerns? What are best practices or pilot programs underway for measuring GHG reductions of energy efficiency portfolios? For this group session exploring the role of data in utility climate-forward efficiency programs, about 25 participants provided written and verbal responses to questions about how utilities will collect, process, and utilize data in service of energy efficiency programs that intentionally target GHG reductions.

Breakout 3: Facilitating legislative and regulatory change: which states might present good opportunities in 2022 and 2023?

Addressing climate change takes leadership. For climate-forward efficiency, legislatures and utility regulatory commissions need to provide such leadership, as witnessed by recent experience in Minnesota and Illinois. In this workshop we will examine and discuss key elements and actions that can enable and establish goals, frameworks, and requirements for utilities and related organizations to expand and align their energy efficiency efforts with decarbonization. From this discussion we will identify states that present good opportunities for taking actions in 2022 and 2023 to advance climate-forward efficiency.

The following is a summary of the discussions from each group.

Advancing beneficial building electrification to maximize reduction of GHG emissions
Technology
Moderator: Jake Marin (VEIC); ACEEE: Mike Waite

What are the barriers to implementing beneficial electrification in buildings?

System cost: Electrifying existing fossil fuel building end uses – especially space heating and water heating with heat pumps – will increase electricity usage and potentially dramatically increase peak loads. This will necessitate increased electricity service (i.e., amperage) and possible 240 V distribution in buildings. Widespread electrification may require electricity infrastructure upgrades: distribution capacity is most likely, but new transmission lines may also be needed. Without public support, infrastructure investments and associated costs may be passed onto customers.

- Operating cost: Electrification may not always lead to reduced operating costs with current prices of electricity and natural gas in much of the country. With increasing intermittent renewable energy supply through the grid, real-time electricity prices are likely to see increasing fluctuations, further complicating the cost-benefit assessment.
- Upfront cost: Heat pump systems can be more expensive than fossil fuel-based systems. The group did discuss caveats to this economic assessment: incremental costs of heating-and-cooling heat pumps over cooling-only equipment is shrinking, and there would be both upfront cost savings with one heating-and-cooling system over separate systems and monthly savings from discontinuing gas service.
- Replacement timing: These cost considerations are unlikely to make replacing a well-functioning system in an existing building attractive. The best time is likely to be at the end of the existing equipment's useful life. However, equipment is often replaced on an "emergency basis" when it fails, leaving no time for retrofit planning, equipment sourcing and service upgrades. In both retrofits and new construction, additional training and coordination of engineers and trades may be needed.
- Cold-climate: The group saw the biggest current technology challenge to be low-temperature performance of space-heating heat pumps in cold climates (and water heating with split system units).
- Specific existing system conversions: There are additional challenges in existing buildings, depending on the heating system in place. Conversion of steam heating systems is particularly challenging. Hot water heating systems have typically required higher temperatures than air-to-water heat pumps can provide. Leaky and inefficient building

envelopes can make it more difficult for heat pumps to keep up with demand. There have been complaints of noisy heat pump water heaters installed in residential spaces.

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What are some promising technologies for beneficial electrification?

- Participants had experience with "smart" electric panels with in-building load control that have the potential to provide similar capacity to a traditional panel with twice its capacity. This could potentially mitigate electricity service upgrades, and similar "off the shelf" load-control devices could benefit renters who do not control building-level decisions and may only purchase technology that can be moved with them.
- Cold-climate space heating heat pump performance has seen major and continuing improvement; those improvements have recently extended to ducted and "mini-ducted" systems. Hybrid or dual-fuel systems – electric heat pump with fossil fuel "boosting" in the coldest weather – could avoid electricity service and infrastructure upgrades with limited use of fossil fuels. These systems have been available for decades, but higher performance systems with more sophisticated controls have been coming to the market.
- New technologies are also becoming available for commercial and multifamily buildings with central plants, including large modular air-to-water heat pump systems and terminal units that use lower temperature water from central air-to-water heat pumps.
- Some whole-building energy efficiency programs are beginning to incentivize a holistic approach to improved efficiency and electrification (particularly in multifamily buildings).
- Others are looking to Europe for rapid low-cost retrofit models and where prevalent energy districts could offer opportunities for campuses and neighborhoods in the U.S. Heat recovery from high cooling load facilities was particularly promising to one participant.
- Emerging developments could support electrification through load shifting, including controllable in-building loads, battery storage, and thermal storage and how it interacts with electrified thermal loads. Many different organizations are working on strategic planning in a way that supports electrification while minimizing constraints on energy infrastructure and supporting integration of low-carbon energy resources. The group discussed the need to also look to proven (and maybe even "old") technologies and how they can be utilized without waiting on new technologies not on the immediate horizon.

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What are some lessons learned and next steps?

- Building electrification challenges can often seem highly specific to certain climates and building types. However, the group realized that many challenges remain the same whether in the southern U.S., California, or the Northeast. This does not, however, eliminate considerations that may weigh more heavily in different locations.
- Widespread heating electrification will increase winter peak loads across much of the U.S. but will be a particular challenge in cold climates. Cold-climate heat pumps need to see continued improvement, but new testing standards and forward-looking modes of energy planning also need to be implemented.
- Water heating in multifamily buildings is expected to be a particular area of focus and intersects with ensuring equitable access to electrification technologies; current efforts to develop "super-efficient room conditioners" could also have a major impact here.
- How to deploy electric vehicle charging in commercial buildings and public spaces remains an open question, as well as how to ensure access for lower income households and renters. Making infrastructure "electrification ready" is likely to support electrification of both vehicles and building end uses.
- Only in some cases did the group see achieving beneficial electrification as a question of developing new products, but rather one of improved and integrative practices including:
    - Education and training of engineers and trades, including how to work across traditional lines of scope and responsibility
    - Bridging the increasingly fluid barrier between utilities and buildings
    - Incorporating traditional, new, and emerging technologies

Advancing beneficial building electrification to maximize reduction of GHG emissions
Policy
Moderator: Jessica Shipley (RAP); ACEEE: Jasmine Mah

What states are seeing progress on electrification policy?

- Vermont - beneficial electrification is part of the state renewable energy standard (2015), and each utility in Vermont has EV and heat pump programs
- Oregon – a Cap-and-Invest program to reduce GHG emissions
    - Different from cap-and-trade programs
    - Make GHG reduction the goal rather than by proxy
    - Gives gas utilities legal confidence/market stability to pursue decarbonization efforts
- Maryland - Future Planning Working Group recommending a GHG reduction metric for efficiency programs

What are the most influential policy steps that states can take to advance beneficial electrification?

- Definition: "Beneficial Electrification" needs to be defined, and provide a supporting analysis to design policies that supporting electrification *when* it is beneficial
- Data: Make sure the marketplace is equitable: data access for energy service providers, but make sure customers' data are protected
- Cost: consider for older buildings, and some buildings may have rent control limits
- Customer barriers: customers face many barriers to electrifying their homes
    - Policies need to think about the customer and guide the customer through the whole process, and attention is needed on the customer outreach component

What barriers exist to promoting beneficial electrification policies?

- Cost: the upfront equipment cost is a major barrier
    - Utility rebates and incentives are potential solutions; federal funding may be an option via Reconciliation bill in Congress
    - Climate change depending on location could also impact operational costs
    - Beneficial electrification means that lifetime costs must be lower than status quo

    - Establishing a rate for electric heat may be a possible solution
- Emergency replacement: there is no time to consider alternatives
- Creating a winter peak demand: An analysis is needed to ensure capacity adequacy

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How are key decision-makers overcoming these barriers?

- Emergency replacement of boilers
    - Switzerland – regulation requires heating electrification unless the contractor can demonstrate that electrification is economically infeasible (Switzerland has a high level of subsidies for electric heat pump equipment)
    - Boulder, CO – based on permit data, the local government alerts residents that their boilers may need replacement in the near future
- Winter peaks
    - Generally, electrification policies do not adequately address winter peak and system capacity issues
    - An integrated distribution planning can be useful, including the load from EVs
- Upgrading electric resistance heating equipment to heat pumps should not be overlooked, which could significantly reduce winter heating demand on the grid
- Pilots that analyze the economics and emissions benefits (e.g., Enbridge hybrid heat pilot with control systems)
- Role of natural gas
    - Keep some gas efficiency programs, but incentivizing programs that use gas as a fuel may be counterproductive
    - Removing gas efficiency won't necessarily lead to electrification. Customers may just opt to pursue cheaper, less efficient gas equipment
    - Gas heat pumps – could be key to transforming the market, reducing load and thereby enabling 'green molecules.' The North American Gas Heat Pump Collaborative (that includes NEEA) is driving this forward

What needs to happen in the next 1/5/10 years to make progress, and who needs to do it?

- A marginal abatement cost analysis may be useful to procure resources
- Actions that would have a big impact now might not necessarily have the same impact 10 years from now; e.g., electrifying vehicles would have a bigger positive impact later when the grid has more renewables—the grid is not clean yet
- States need to come up with reasonable timelines for turnover rates
- How fast is the grid changing? How fast can we adjust emissions reduction needs?

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How can we ensure that electrification policies are centering equity?

- Maryland – examining who will first electrify and who may be left paying for the gas system; more affluent customers would be able to electrify initially
- Electrification that helps reduce monthly energy bills and energy burdens is most ideal
- Thoughtful planning about not burdening marginalized groups if a state transitions from gas
- Ensure marginalized groups participate in the decision-making process
- Workforce development

What questions remain? What more information is needed to make progress on our desired outcomes for beneficial electrification?

- We need as much GHG reductions now as we can get from gas systems, and ensure that policies do not eliminate or prevent investment in energy efficiency
- We should not miss opportunities to get to where we need to be in 20 years
- Find data on costs and benefits of electrification that can be presented at a high-level; the more data that provide actual emissions reduction per measure, the better

Advancing beneficial building electrification to maximize reduction of GHG emissions
Program
Moderator: Tyler Poulson (BEI); ACEEE: Charlotte Cohn

What programs and strategies are decision-makers using to promote beneficial electrification in buildings?

- Behavioral energy efficiency: using utility data and behavioral information to meet customers where they are
- Rebate Programs
    - Good for customers with up-front capital; more challenging to reach LMI customers
    - State programs – Green banks provide low-cost financing
      ex: https://michigansaves.org/
- Consumer Education
    - Workshops: Building Codes
    - Informational Webinars and local community meetings
- Low Income programs
    - 0% APR loans for LMI – Though challenging to find financing entities willing to take on that amount of risk
    - Tariffed on-bill financing/repayment
    - Weatherization Assistance Program – Unclear whether electrification retrofits pass the required savings-investment ratio required for projects. Electric resistance heating and delivered-fuels retrofits have a higher ROI.

What barriers exist to scaling up electrification programs? How can program designers overcome these barriers?

- Workforce
    - Need to train contractors and fund education for existing contractors to build familiarity with heat pumps. Lack of comfort with heat pump technology for many existing contractor businesses.
    - Diversity is key with workforce programs.
- Fuel switching policy: many states prohibit utilities from offering incentives to switch off fossil fuels

- High price of electricity (for some regions) versus natural gas
- Prerequisite home upgrades: electrical panel may need 200A or higher; replacements are often costly (note: “smart” panel could be a potential solution)

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- Lack of awareness among customers, including large commercial investors
- Rebates: allow contractors to access rebates to lower up-front project costs

What needs to happen in the next 1/5/10 years to expand the reach of beneficial electrification programs, and who needs to do it?

- Policy changes: lift fuel-switching moratoria
- Address supply chain barriers: expand heat pump production, distribution, and stocking
- DOE Cold Climate Heat Pump Challenge: more testing and standards for cold climate models
- Performance standards for heat pumps
- Geopolitics: Europe conflicts driving customers away from reliance on natural gas, into non-fossil fuels
- Expanded clean energy generation: decreasing carbon intensity of power system -> improved GHG impacts of electrification

How can we ensure that electrification programs are centering equity?

- Multifamily programs: work with tenants: utilities can take the lead to help renters
- Low-income housing programs: must include rent protection and energy burden considerations
- Natural gas customers – address stranded assets and the “who pays” problem
- DOE’s State and Local Planning for Energy (SLOPE) platform: https://www.energy.gov/eere/slsc/state-and-local-planning-energy-slope-platform
- More funding and resources for equitable decarbonization from state and federal governments

Wrap-Up: What questions remain? What more information is needed to make progress?

- Utility business model reform: How can we reorient the way that utilities are incentivized to build infrastructure and align that with climate goals?
- Performance standards for buildings: How can we match that to our climate and GHG goals? (note: some building performance standards are a quantified component of climate action plans)

Measuring GHG reductions: moving forward on workable approaches and needed data
Moderator: Mike Specian, ACEEE

Themes for Discussion

Participants identified a need for **greater standardization of climate-forward efficiency issues**. These include definitions, data reporting (e.g., units, formats), and methodologies for measuring GHG reductions (e.g., accounting for site/source emissions, deciding which GHGs are in scope). While not every state requires an identical approach, clear guidelines could reduce programmatic inefficiencies and facilitate comparisons between regions.

Participants also recommended **more granular data that focus on when and where energy savings occur so that they can be mapped to avoided GHG emissions**. These data include hourly end use savings profiles, emissions data, and granular locational data (i.e., feeder-level). One participant recommended a shift away from prescriptive EE measures to whole-building or meter-based efficiency. Another participant recognized the need to check from a GHG standpoint for differences between what a utility planned to procure versus what they actually purchased from the market.

A third theme that emerged focused on **obtaining and utilizing the *optimal* amount of data** — enough to generate accurate results, but not so much that their acquisition or processing becomes unwieldy. One participant commented that additional submetering and data logging would be needed, while another suggested that traditional ex post EM&V would no longer be feasible under climate-forward efficiency.

ACEEE
American Council for an Energy-Efficient Economy

Identifying Data Types

Participants identified a variety of data types that could be useful for designing, operating, or evaluating utility climate-forward efficiency portfolios:

- End use load/savings profiles (e.g., NREL End-Use Load Profiles for the U.S. Building Stock)
- Marginal emissions rates (MERs): forecasted (for program design; e.g., Cambium), real-time (for program operation; e.g., PJM five-minute MERs), and historic (for program evaluation)
- AMI data/submetering/equipment sensor logs (e.g., heat pump loads, EV charging)
- Building stock characteristics (e.g., ResStock, ComStock)
- Capacity expansion forecasts
- Embodied carbon for climate-forward efficiency technologies
- Fugitive emissions data (e.g., refrigerant leakage, methane leakage)
- Distribution feeder performance data via SCADA

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Participants also identified which properties of these data were most important. These qualities included granular enough to meet regulatory requirements, publicly available and supported, regularly updated, real-time, and location-specific (e.g., power flows within a utility territory).

Methodologies for Estimating GHG Emissions from EE Measures

There are a variety of methods that utilities can use to translate EE measures into estimates of lifetime avoided GHG. Most methods involve some variation on a common formula. EE measures are modeled to reveal time-dependent energy savings (e.g., on an hourly basis). Marginal emissions rates are forecasted or observed throughout the lifetime of the EE measures. The product of the savings measures (kWh) and the MERs (kg of CO_2/kWh) is integrated over the measure lifetime to yield the total avoided GHG emissions.

The Sacramento Municipal Utility District (SMUD) was the first utility in the U.S. to modify its EE portfolio goals to be based purely on avoided GHG (as opposed to, say, annual kWh or therms saved). With the help of outside contractors, SMUD developed hourly end use savings profiles for each of its incentivized EE measures through 2060. SMUD used forecasts of marginal wholesale electricity prices to infer what resource would be generating on the margin, which was then converted into an hourly marginal emissions rate.

Another option forgoes that granularity and instead measures all energy saved through EE programs, regardless of fuel. These programs typically report savings in terms of Btu.[1] For utility systems that have low amounts of variable renewable energy (i.e., <15%), the average annual MER may be sufficient for converting annual all-fuel savings to annual avoided emissions.

Most states and utilities have yet to elevate GHG reductions to the same level as energy savings in EE portfolios. Therefore, they have not yet devoted significant resources to collecting and utilizing the data required to do so. One participant referenced a strong preference (if not an explicit requirement) that utilities leverage free or low-cost, publicly available data and tools that are consistently and reliably updated. Examples include the Environmental Protection Agency's eGRID, AVERT, and ESIST tools, which can translate energy savings to avoided GHG, though not at particularly high resolution.

Multiple participants offered that every state should not have to develop its own computational process to execute climate-forward efficiency. One participant suggested that a public-facing or open-source platform, potentially populated by ISO/RTO or government-collected data, could be a solution. Participants also identified private companies like Recurve and Synapse that produce products capable of determining the time-dependent value of EE, including avoiding GHG.

Measuring GHG reductions: moving forward on workable approaches and needed data
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Challenges

Participants noted that **interactive effects between EE and distributed energy resources could influence avoided GHG emissions**. Moreover, those interactions are likely to change over the lifetime of measures, as customers install new equipment or utilize it differently over its lifetime, which can last decades in some cases (e.g., weatherization).

Multiple participants noted that utilities will need to contend with **degradation of anticipated savings**. This problem, though not unique to climate-forward efficiency, can adversely impact achieved GHG reductions. Utilities will need to anticipate or verify changes to demand and load profiles over the EE measure lifetimes. These can occur for reasons that include equipment wear and tear, and changes to the equipment scheduling.

Some participants encouraged utilities to **account for the embodied carbon in EE technologies**, as well as emissions associated with activities that go beyond electricity generation. Participants also called for **utility regulatory commissions to acquire enough data science background on**

staff to exercise oversight over utility decarbonization efforts (e.g., connect power flows to emissions rates, utilizing AMI data, performing counterfactual analyses). **Privacy and security protocols** will need to continuously evolve, which may require greater engagement with equipment manufacturers. **Contractors may require up-skilling** to explain, install, and assess the GHG impacts of climate-forward efficiency technologies.

Despite these challenges, the urgency of the climate crisis and roiling of global energy markets compelled one participant to encourage us to **not let the perfect be the enemy of the good**. In other words, it may be preferable to move quickly with imperfect energy/GHG savings estimates rather than delay action in search of a more precise solution. **Understanding the level of uncertainty inherent in any GHG reduction approach** (i.e., measured versus reality) can be helpful in setting acceptable tolerances.

Next Steps

Most participants agreed with the need to move quickly on climate-forward efficiency, despite the range of possible approaches. They **identified a role for ACEEE that involves compiling, vetting, and sharing reputable tools and resources**, including those that identify roles for states, utility planners, and advocates. Other suggestions included:

- Producing or publicizing case studies of successful climate-forward efficiency transitions and cross-sector partnerships
- Facilitating discussions with interest groups to standardize methodologies (e.g., collaborating with National Energy Screening Project)
- Help policymakers and market connect the dots between climate-forward efficiency and lifetime savings
- Help building owners shift toward real-time active energy/GHG management

Facilitating legislative and regulatory change: which states might present good opportunities in 2022 and 2023?
Moderators: Delmar Gillus (Elevate), Chris Duffrin (MNCEE); ACEEE: Dan York

Lessons from Recent Legislative Successes in Illinois and Minnesota

Illinois: Climate and Equitable Jobs Act (CEJA)

- Illinois Clean Jobs Coalition provided strong stakeholder engagement and leadership
- Emphasis on job creation and energy equity: about 40% of CEJA benefits will go to underserved communities

- Extensive community outreach before bill drafting
- Currently the focus is on implementation, including regulatory processes, rulemaking, and agency implementation. A related focus is on equitable learning all around.

Minnesota: Energy Conservation and Optimization Act (ECO)

- Minnesota is a firmly purple state, requiring broad coalition-building to cross political divide and advance legislation
- Bill includes efficient fuel-switching, increased low-income energy efficiency funding, allows necessary pre-weatherization building repairs and upgrades from utility programs; also allows integrated demand response with energy efficiency
- Regulators are focused on implementation; key efforts include advancing commercial building code; workforce development, low-income weatherization investments, and fuel-switching/electrification programs
- Next election will determine whether incremental or major policy change is next.

Coordination and Opposition

- Minnesota's largest gas utility (CenterPoint Energy) coordinates well with its largest electric utility (Xcel Energy). Questions around how benefits are to be counted towards ECO's goals is to be determined.
- Strongest opponents of ECO were fossil fuel industries. Minnesota's largest refinery owners killed the bill in the first year it was proposed. The propane industry also opposed ECO.

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Bill Drafting Strategies to Prepare the Way for Successful Implementation

Illinois

- Process started at grassroots, transitioned to working groups with early and frequent involvement of Governor's office and agencies involved with implementation (e.g., IL EPA, Dept. of Commerce)
- Administrators are pushing engagement with community groups but finding some resistance to new systems and processes to replace existing ones; are trying to support agencies throughout process

Minnesota

- ECO created new challenges and work for regulators from new goals and expansion of programs
- ECO leaves implementation and process details to the regulators to determine
- The Minnesota Department of Commerce (state agency that oversees utility programs) was very involved in the legislative process, and they will be very involved in implementation as it moves forward

Including the Gas Industry Constructively

- Minnesota's ECO provisions require energy efficiency improvements to be implemented before allowing fuel switching. Electric utilities work with gas companies to weatherize before fuel switching. Gas companies credited for appropriate savings.
- Minnesota's cold climate generally means that most customers will not switch to air-source heat pumps without backup heating source. Given current technologies and markets, maintaining incumbent heating fuels in buildings and homes is most likely scenario amidst decarbonization efforts.

Replacing Gas Furnaces with Air-Source Heat Pumps: Costs and Performance

- Costs (installation and operation) depend on where you are in the country. In Minnesota backup electric heat is impractical and expensive. As a result, most customers will probably maintain backup fossil-fuel heating. Cold climate performance of heat pumps will likely continue to improve.

- New construction is different; Center for Energy and Environment (MN) is working with utilities to build efficient, all-electric buildings.

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Promising Opportunities for Similar Advances in Other States, Regions, and Provinces

- British Columbia, Canada*:* all heating systems to be high efficiency by 2030 and there will be caps on gas utility GHGs. *Quebec* has a joint electric-gas utility proposal to allow electric utilities to pay gas utilities like a gas peak generator.
- Newfoundland has enacted changes to allow for non-electric benefits in transportation electrification. Federally, Canada is expected to enact a net zero emissions code.
- Michigan has several processes underway, including grid modernization (led by the PSC) and development of climate policies by the Governor. Are taking a strong look at electrification in MI.
- Colorado had a busy year for legislation. Clean heat plans set GHG requirements for CO gas utilities and electrification requirements for electric utilities; now moving into implementation. CO now implementing legislation to embed equity for health dept, PUC, Just Transition Department.
- Maryland The Climate Solutions Now Act strengthens building codes, increased electric utility targets, building performance standard (BEPS), enviro justice provisions. Maryland EmPower working group is now wrapping up work, which will go to PUC. Leg work around aligning utility programs with climate.
- Pacific Northwest, U.S.: NW energy code proposals under consideration that require heat pumps for space and water heating in commercial buildings. City of Seattle working on carbon-based BEPS Legislature just passed
- Wisconsin: The PSC conducted its required quadrennial review of Focus on Energy (statewide non-utility energy efficiency program). A key issue addressed was decarbonization, such as establishing carbon reduction goals.

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Moving Ahead with Climate-Forward Efficiency

- Suggested first steps
    - Understand the local political environment and self-interest of your state policymakers. Work with legislature to find points of agreement, no matter their political party.
    - Think about where utilities cross over from state to state; changes that advance climate-forward efficiency in one state can be models for similar changes in another state, such as business models and program approaches.
    - Coalition building is at the top of the list. Reconcile challenges with unions and other possible opponents. Try to find areas of agreement with organized labor and then build from there. Some of these difficult conversations need to happen outside of legislative avenues.
    - Our youth are an untapped resource and often excluded from these conversations.
- Equity
    - Need equitable process to get equitable results; processes need to bake equity into policies as they are developed. This applies to coalitions and legislators.
    - Procure funding (such as from philanthropies) to support community groups' participation.
- Labor and workforce development
    - Illinois stakeholders are hoping that partnerships will develop for organized labor to implement projects in underserved communities.
    - Labor unions know that decarbonization is coming and want to be sure they capture new jobs that develop. This provides opportunities to include requirements in legislation that new projects are built by union labor.
- City-level models of success
    - Chicago's recent climate plan is robust.
    - Seattle is ahead of the state, but this poses issues around clarity and alignment with state efforts.