ALLEVIATING THE ENERGY BURDEN: REGULATORY APPROACHES TO SUPPORTING AFFORDABILITY

NARUC CENTER FOR PARTNERSHIPS & INNOVATION
WEBINAR SERIES
JUNE 16, 2022
ABOUT NARUC

- The National Association of Regulatory Utility Commissioners (NARUC) is a non-profit organization founded in 1889.

- Our Members are the state utility regulatory Commissioners in all 50 states & the territories. FERC & FCC Commissioners are also members. NARUC has Associate Members in over 20 other countries.

- NARUC member agencies regulate electricity, natural gas, telecommunications, and water utilities.
ABOUT NARUC’S CENTER FOR PARTNERSHIPS & INNOVATION

- Grant-funded team dedicated to providing technical assistance to members.

- CPI identifies emerging challenges and connects state commissions with expertise and strategies to inform their decision making.

- CPI builds relationships, develops resources, and delivers trainings.

Regularly updated CPI fact sheet with recent publications & upcoming events under Quick Links at:

https://www.naruc.org/cpi-1/
PANELISTS

HON. MARY THRONE
MODERATOR
Commissioner
Wyoming Public Service Commission

COREY DAHL
Regulatory Analyst
Washington State Office of the Attorney General

BORIS LUKANOV, PHD
Senior Scientist
PSE Healthy Energy

GLENN SCHATZ
Chief Revenue Officer
BlocPower
Alleviating the Energy Burden in Washington

COREY DAHL
REGULATORY ANALYST, WASHINGTON STATE ATTORNEY GENERAL’S OFFICE
JUNE 16, 2022
About Public Counsel

• Public Counsel is the utility consumer advocate housed within the Washington Attorney General’s Office
  • We represent residential and small business customers of utilities before the Washington Utilities and Transportation Commission (WUTC)
  • Founded in the early 1980s
  • Staffed with legal and non-legal personnel

• We work in contested and non-contested matters impacting investor-owned electric and natural gas utilities
Response to COVID-19 Emergency

• Companies initially suspended disconnections for non-payment

• WUTC then took steps to develop consistent, enforceable policy (Docket U-200281)

• Public Counsel joined group of advocates to develop a platform of items to address crisis and keep customers connected to essential services
  • Negotiations with Company
  • Commission Staff’s role

• Commission Orders and Governor’s Moratoria
  • Disconnection moratorium stayed in effect until September 30, 2021
  • Expanded bill assistance; provisions for arrearage management; investigation into fees, disconnections, and credit and collections practices; data reporting

• Commission Staff review of disconnections

• Key findings from data
Ongoing and Innovating Programs

• Traditional bill grants and LIHEAP funds
  • All Washington IOUs have a rate-based bill assistance program

• Pilots and proposals for Arrearage Management Programs

• Required bill discount proposals (SB 5295)

• Participatory funding (SB 5295)
Clean Energy Transformation Act

In 2019, the State Legislature passed and Governor signed the Clean Energy Transformation Act (CETA)

- 2030: Greenhouse gas neutrality, 80 percent non-emitting resources
- 2045: 100 percent non-emitting resources

Explicit requirement to include equity in transition to clean energy

- Equitable distribution of benefits - RCW 19.405.060(1)(c)(iii)
- Directly indicates necessity to provide distribution of benefits to:
  - Highly impacted communities: populations determined to be highly impacted by climate change or in Tribal communities – RCW 19.405.020(23)
  - Vulnerable populations: those with disproportionately cumulative risk from adverse socioeconomic factors (employment, housing, transportation costs, access to food and health care, linguistic isolation) and sensitivity factors (low birth weight and high hospitalization rates) – RCW 19.405.020(40)

Utilities must demonstrate progress in reducing energy burden – RCW 19.405.120(1)

- Requirement to offer assistance
- Progress is benchmarked against 6 percent or less energy burden
Questions?

• Email: corey.dahl@atg.wa.gov
• Phone: 206.464.6380
Alleviating Energy Cost Burden

Regulatory Approaches to Supporting Affordability
About PSE

PSE Healthy Energy (PSE) is a nonprofit research institute that studies the way energy production and use impact public health, climate, and the environment.
40 million

U.S. households struggle to pay their energy bills

Maximizing Benefits and Public Support

![Graph showing decarbonization fraction over time with two lines: one for FUND reference case and another for FUND+AIR. The graph indicates that when health benefits are taken into account, global decarbonization happens more rapidly.]

When health benefits are taken into account, global decarbonization happens more rapidly.

Measuring Energy Affordability

Metrics That Matter
# Energy Affordability Metrics

<table>
<thead>
<tr>
<th>Metrics</th>
<th>Definition</th>
<th>Data Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy burden (absolute)</td>
<td>Annual energy bills as a percent of household income</td>
<td>X</td>
</tr>
<tr>
<td>Energy burden (variance)</td>
<td>One standard deviation above mean energy cost burden</td>
<td>X</td>
</tr>
<tr>
<td>Energy burden (percentile)</td>
<td>Population share approach based on a percentile distribution</td>
<td>X</td>
</tr>
<tr>
<td>Mean individual burden</td>
<td>Average of the percent of income spent on energy by each household</td>
<td>X</td>
</tr>
<tr>
<td>Mean group burden</td>
<td>Overall energy expenditures as a percent of total income in the group</td>
<td>X</td>
</tr>
<tr>
<td>Energy affordability gap</td>
<td>The sum of actual energy bills minus affordable energy bills</td>
<td>X</td>
</tr>
<tr>
<td>Energy Use Intensity (EUI)</td>
<td>Energy use per square foot, used as a proxy for energy efficiency</td>
<td>X</td>
</tr>
<tr>
<td>Energy insecurity</td>
<td>Vulnerability to utility disconnections</td>
<td>X</td>
</tr>
<tr>
<td>Gini coefficients and disparity ratios</td>
<td>E.g., energy use intensity (EUI) reported in the lowest income vs. highest income quintiles</td>
<td>X</td>
</tr>
</tbody>
</table>
Methods

Census Tract Level Data

Residential energy use data not available at fine spatial resolution requires interpolation

<table>
<thead>
<tr>
<th>National Dataset</th>
<th>Linear Regression</th>
<th>Tract-Level Energy Prediction</th>
<th>Validation and Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIA Residential Energy Consumption Survey (RECS) provides energy usage data for representative sample of U.S. households: includes data on energy-related housing and demographic characteristics</td>
<td>Used 2015 RECS microdata to identify predictors of energy consumption</td>
<td>Applied regression coefficients to census tract-level demographic and housing predictors from the 2015-2019 American Community Survey</td>
<td>Validated estimates against state-wide, aggregate values</td>
</tr>
<tr>
<td></td>
<td>Predictors include geographic, demographic, energy, and housing characteristics (e.g., climate zone, household income, fuel price, rooms in housing unit)</td>
<td>Climate predictors derived from NOAA data in ArcGIS</td>
<td>Adjusted census tract estimates using energy use weighting to match current state totals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fuel prices from CEO and EIA</td>
<td>Analyzed spatial and demographic trends in energy consumption, energy cost burden</td>
</tr>
</tbody>
</table>


Colorado Findings

- Energy cost burdens are unevenly distributed across Colorado
Colorado Findings

- Low-income census tracts experience dramatically higher energy cost burdens
After sequential interventions, essentially all households would have energy cost burdens that are affordable.
Financing Implications

- Aligning climate and affordability goals can save states billions of dollars.
Key Takeaways

- We can prioritize decarbonization strategies based on their ability to simultaneously reduce energy cost burdens.
- Aligning climate and affordability goals can save states billions of dollars.
- This is in stark contrast to the conventional approach, which puts energy bill assistance and climate investments on separate tracks.
- Requires giving first priority to LMI households for energy efficiency and fuel-switching programs.
- In practice, this will mean policies like grants and low-interest loans, incentives for utilities and landlords, and Green Bank-funded loss reserves to enable LMI households to participate.
Implications for Regulators and IRPs

- Energy cost burden analyses can be explicitly integrated into IRPs
- The goal for IRPs is to meaningfully reduce energy cost burden disparities over time
- Regulators and legislators need to incorporate equity and health considerations into state climate goals
- This can garner additional support for clean energy policies and regulations
Thank You

Boris Lukanov, PhD
Senior Scientist
blukanov@psehealthyenergy.org
Alleviating the Energy Burden: Regulatory Approaches to Supporting Affordability

NARUC Webinar 6/16/22
BlocPower’s mission is to make buildings smarter, greener, healthier, and more profitable. We do this by reducing fossil fuel consumption and pollution in building energy systems.
Smarter, Greener, Healthier Buildings for All

- BlocPower is a Black-owned climate tech company founded in 2014, focused on greening and modernizing residential and small commercial buildings. Over 1200 projects completed to date.
- BlocPower develops, implements, and finances energy efficiency and clean energy projects for building owners in dense, often LMI urban areas in the United States.

Our software platform streamlines energy project identification, design, and install, cutting down the time and cost of completion.

BlocPower financing enables building owners to get much-needed energy-saving improvements with no money upfront and projects can be profitable day one.

BlocPower Wi-Fi connects hard-to-reach community members through affordable mesh networks.

Focus on workforce training and community engagement.
The goal: All-electric buildings powered by solar, wind and other sources of zero-carbon electricity

Why Electrification?

- **Health** - indoor air quality, increasingly impacted by wildfires and natural disasters
- **Equity** - mandates to direct benefits toward disadvantaged communities highlight gaps in building infrastructure
- **Climate Change** - Federal, state and city governments have identified building electrification as a critical component of their climate action plans and roadmaps and have enacted policies to reduce fossil fuel use*
- **Green Workforce Development** - programs introducing electrification training
- **Financial incentives** - over 1,800 incentive programs now exist across the US to support owners in electrifying their heating, cooling and hot water.

*NYC’s Roadmap to 80x50’s included “transitioning away from fossil fuels in buildings”; Boston identifies that 80% of existing buildings must be electrified; Denver, CO includes electrification in their goal of net zero energy.
Electrification is Complex

Government Incentive + Permit
Utility Incentive + Permit
Lender / Investor
Equipment Purchase
Construction Contractor
Engineering

Building Owner

Fragmentation and disparate parties augment miscommunication and prevent collaboration and efficient project assessment.

This drives up costs, reduces profitability, and prevents 5 million SMEs from upgrading.

80%
Project Cost Increase Potential
Electrification *can* be expensive... but it doesn’t have to be

<table>
<thead>
<tr>
<th>Cost</th>
<th>The Problem</th>
<th>How We Can Tackle It</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>Most electric appliances are still more expensive than fossil fuel equivalents</td>
<td>Near-term: Offer incentives to reduce upfront costs. Long-term: Drive up sales volumes</td>
</tr>
<tr>
<td>Labor</td>
<td>Electric appliances are easier to install, but many legacy contractors view them as &quot;premium&quot; products and price accordingly.</td>
<td>Workforce development programs can create well-paying, long-term jobs and reduce cost of electrification over the long term</td>
</tr>
<tr>
<td>Utility Bills</td>
<td>Especially for customers switching off natural gas, operating costs of electric appliances may be higher</td>
<td>Electric heating tariffs or time-of-use tariffs (like low winter electric tariffs) can make the long-run economics of electrification projects much more appealing</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>A cost for any appliance, but for customers that have not serviced their fossil fuel equipment properly, could be viewed as an additional expense</td>
<td>O&amp;M for electric appliances is easier - more skilled labor in a market will bring down costs even further</td>
</tr>
<tr>
<td>Financing</td>
<td>LMI customers may not be eligible for traditional financing</td>
<td>Recent studies have shown very low default rates for on-bill financing programs and other programs that are paid for with increases in net operating income (like solar)</td>
</tr>
</tbody>
</table>
A just transition reframes the typical adoption curve to prioritize historically excluded communities

Typical Market-based Adoption Curve
Adoption driven by access to resources & risk tolerance

Early-adopters: Risk takers who have resources and desire to try new things

Majority

Laggards: Make decisions based on past experience; not economically able to take risk on new ideas

LMI-First Adoption Spiral
Adoption driven by potential to benefit

A just transition centering on those with highest energy burden, negative health impacts, and the compounded burdens of historical racism

BLOCPOWER
Thank you

glenn@blocpower.io
partnerships@blocpower.io
NARUC Innovation Webinar series

One Thursday most months
All NARUC members and stakeholders are invited

DOE Overview of the National Transmission Needs Study (Needs Study)
August 18, 2022 | 2:00 – 3:00 PM EST

No July Webinar

Topics and more webinar information will be added soon!
https://www.naruc.org/cpi-1/innovation-webinars/

NARUC thanks the U.S. Department of Energy for its support of this series.