

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/

NARUC Center for Partnerships & Innovation

Current Activities

Recently Released Publications

- Public Utility Commission Stakeholder Engagen Decision-Making Framework (Jan. 2021) Private, State, and Federal Funding and Financing Options to
- Enable Resilient, Affordable, and Clean Microgrids (Jan. 2021) User Objectives and Design Options for Microgrids to Deliver
- Reliability and Resilience, Clean Energy, Energy Savings, and Other Priorities (Jan. 2021)
- Understanding Cybersecurity for the Smart Grid: Questions for Utilities (Dec. 2020)
- Artificial Intelligence for Natural Gas Utilities: A Primer (Oct. 2020
- Recent Events

- Comprehensive Electricity Planning Blueprint for State Action and related resources A Guide for Public Utility Commissions: Recruiting and Retaining a Cybersecurity Workforce
- Cybersecurity Partnerships and Information Sharing
- Decision-Making for Public Utility

Forthcoming Resources NARUC-NASEO Task Force on

- <u>Cybersecurity Tabletop Exercise Guide</u> (Oct. 2020)
- Integrated Distribution Systems Planning: NARUC partnered with DOE national laboratories to deliver a virtual training in Oct. 2020 on forecasting, control and automation, metrics, resilience, PUC practices, and more. The next session will be held for Western state officials beginning Feb. 26, 2021. Contact Dominic
- NARUC-NASEO Task Force on Comprehensive Electricity Planning, Resources developed by the Task Force will be shared in a virtual workshop on Feb. 11, 2021. Read the Task Force fact sheet. Contact Danielle
- National Council on Electricity Policy (NCEP). <u>Presentations</u> from NCEP's December 2020 Annual Meeting are available as well as an updated Transmission and Distribution Resource Catalog, Contact Kerry
- · Carbon Capture, Utilization and Storage Workshop Webinar Series. Recordings are available from a Western Interstate Energy Board- and NARUC-hosted six-part webinar series in Sept. and Oct. 2020. Contact Kiera

Available Virtual Learning Opportunities

- Cybersecurity Training for State Regulatory Commissions: NARUC is hosting a virtual cybersecurity training on Feb 23-25 2021 Contact Ashton
- · National Council on Electricity Policy (NCEP). Register for a special session on Exploring Optimization through Benefit-Cost Analysis on Feb. 25, 2021, Learn More about NCEP, Contact Kerry
- Emergency Preparedness, Recovery and Resilience Task Force: The EPRR Task Force will meet Feb. 5, 2021 to discuss BRIC funding with FEMA. Contact Will
- Commission Staff Surge Calls, NARUC hosts guarterly calls on which commission staff discuss how different states approach emerging issues in electricity policy. The next call will be held in early Mar., 2021, Summaries from past calls are available. Contact Kiera
- Innovation Webinar Series, NARUC hosts monthly webinars for members and the public, Mar. 11: Data for the Public Interest; Empowering Energy Equity. Apr. 15: Initiative on Cybersecurity in Solar Projects, May. 13: Staffing the Evolving PUC Workforce. Register and find recordings of past events. Contact Dominic
 - Join us! NARUC hosts four working groups for members:
- Performance-Based Regulation. Contact Kerry Microgrids, Contact Kiera
- Electric Vehicles, Contact Jasmine Grid-Interactive Efficient Buildings, Contact Danielle

www.naruc.org/cpi

- Approaches to Economic Development in Commission
- Regulators' Financial Toolbox on Advanced Metering Infrastructure

PANELISTS



HON. MARY THRONE

MODERATOR

Commissioner

Wyoming Public Service Commission









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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

NARUC — June 16, 2022

Alleviating Energy Cost Burden

Regulatory Approaches to Supporting Affordability



Bringing science to energy policy



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.









Pathways to Energy Affordability in Colorado

A report prepared by Physicians, Scientists, and Engineers for Healthy Energy and the Institute for Energy and Environmental Research for the Colorado Energy Office

January 2022



40 million

U.S. households struggle to pay their energy bills

U.S. Energy Information Administration. 2018. "One in Three U.S. Households Faces a Challenge in Meeting Energy Needs." Today in Energy, September 19, 2018. www.eia.gov/todayinenergy/detail.php?id=37072

Maximizing Benefits and Public Support





Measuring Energy Affordability

Metrics That Matter

Energy Affordability Metrics

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





Census Tract Level Data

Residential energy use data not available at fine spatial resolution

requires interpolation

National Dataset	Linear Regression	Tract-Level Energy Prediction	Validation and Analysis
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	Used 2015 RECS microdata to identify predictors of energy consumption Predictors include geographic, demographic, energy, and housing characteristics (e.g., climate zone, household income, fuel price, rooms in housing unit)	Applied regression coefficients to census tract- level demographic and housing predictors from the 2015-2019 American Community Survey Climate predictors derived from NOAA data in ArcGIS Fuel prices from CEO and EIA	Validated estimates against state-wide, aggregate values Adjusted census tract estimates using energy use weighting to match current state totals. Analyzed spatial and demographic trends in energy consumption, energy cost burden

Min, Jihoon, Zeke Hausfather, and Qi Feng Lin. "A High-Resolution Statistical Model of Residential Energy End Use Characteristics for the United States." Journal of Industrial Ecology 14.5 (2010): 791-807

Jones, Christopher, and Daniel M. Kammen. "Spatial Distribution of US Household Carbon Footprints Reveals Suburbanization Undermines Greenhouse Gas Benefits of Urban Population Density." Environmental Science & Technology 48.2 (2014): 895-902.

Colorado Findings

• Energy cost burdens are unevenly distributed across Colorado







Energy Cost Burden (% of MHI)



20.4

Colorado Findings



Low-income census tracts experience dramatically higher energy cost burdens

LMI Efficiency, Community Solar, & Demand Response



 After sequential interventions, essentially *all* households would have energy cost burdens that are affordable

PSE

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 Bankfunded 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

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Alleviating the Energy Burden: Regulatory Approaches to Supporting Affordability

NARUC Webinar 6/16/22

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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 muchneeded 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.



Ų $\mathbf{\star}$ ۱. Engineering Construction Government Building Contractor Incentive + Permit Owner Equipment Purchase Utility Incentive Lender / + Permit Investor

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.

> Project Cost Increase Potential

80%

Electrification can be expensive... but it doesn't have to be



Cost	The Problem	How We Can Tackle It
Equipment	Most electric appliances are still more expensive than fossil fuel equivalents	Near-term: Offer incentives to reduce upfront costs. Long-term: Drive up sales volumes
Labor	Electric appliances are easier to install, but many legacy contractors view them as "premium" products and price accordingly.	Workforce development programs can create well-paying, long-term jobs and reduce cost of electrification over the long term
Utility Bills	Especially for customers switching off natural gas, operating costs of electric appliances may be higher	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
O&M	A cost for any appliance, but for customers that have not serviced their fossil fuel equipment properly, could be viewed as an additional expense	O&M for electric appliances is easier - more skilled labor in a market will bring down costs even further
Financing	LMI customers may not be eligible for traditional financing	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)

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



Thank you

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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.