



Lab Summit

welcome pre-read

NEW MEXICO 2017



welcome

to New Mexico and to our second annual e-Lab Summit — the most expansive convening hosted by Rocky Mountain Institute as part of our Electricity Innovation Lab (e-Lab). Over the next 48 hours, you'll be joining 150 fellow decision makers and practitioners from across the U.S. and around the world to advance the most critical questions we face in transitioning to a cleaner, more distributed, and more resilient electricity system.

As the name suggests, e-Lab is a laboratory, a forum for working together in the spirit of experimentation and co-creation. We will be addressing eight timely topics for transforming the electricity system through discussion “pods.” You have been invited to participate because you and your organization bring a unique perspective, critical expertise, and important resources to advance the concepts we will be working to develop.

This year's e-Lab Summit is designed to:

- Frame and advance actionable strategies to address the most pressing industry needs
- Support key individuals and teams to address and affect change
- Create and strengthen relationships amongst industry leaders and innovators to support meaningful action

e-Lab Summit is a unique event, but even more so a unique process. We invite you to be curious, to question your assumptions (and others'), to seek the unique perspectives of your fellow participants, and to critically and honestly assess the strengths and weaknesses of our collaborative work.

We wish you a productive three days and great success, both for work here at e-Lab Summit and beyond.

The e-Lab team



agenda



MONDAY OCT. 2ND

11:00 am / registration
1:00 pm / kickoff
2:00 pm / pod session #1
3:30 pm / break
4:00 pm / plenary
5:00 pm / networking
6:30 pm / dinner
8:30 pm / optional activities

TUESDAY OCT. 3RD

6:30am / optional activities
7:30 am / breakfast
8:30 am / plenary
9:00 am / case clinics
10:00 am / break
10:30 am / pod session #2
12:00 pm / learning sessions
1:00 pm / lunch & paired walk
3:00 pm / pod session #3
5:00 pm / plenary
6:00 pm / break
7:00 pm / dinner
8:30 pm / optional activities

WEDNESDAY OCT. 4TH

6:30am / optional activities
7:30 am / breakfast
8:30 am / plenary
8:45 am / shift & share
10:00 am / break
10:15 am / pod session #4
12:00 pm / plenary close
1:00 pm / adjourn





logistics

TRANSPORTATION — You will be provided a complimentary Uber ride from the airport to the Tamaya Resort (specific instructions were emailed to you). Return shuttle service will be provided to the airport.

REGISTRATION — After checking in with the hotel, please proceed to our registration desk in front of the Tamaya Ballroom. Registration starts at 11 am.

DRESS CODE — e-Lab Summit is a casual event (think: jeans). Mornings and evenings will be chilly and some activities are outdoors, so please plan accordingly.

PARTICIPANT CONTACT BOOK — A full list of participants is included at the end of this document. We will be distributing contact information after the event.

QUESTIONS — For any logistics questions beforehand or en-route, please contact our event services company, Black Badger Events, blackbadger303@gmail.com or (603) 714-0124.



pod topics

Smart Heating Electrification

Infrastructure Planning and New Mobility

Blockchain and Transactive Energy

Rate Design Pathways

Value Stacking for DERs

Distributed Grid Infrastructure

Utility Business Model Pathways

LMI-Focused Utility Business

**your pod's
pre-read
is in next
section**



smart heating electrification





Smart heating electrification

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- Martha Brook, California Energy Commission
- Devra Wang, Heising-Simons Foundation

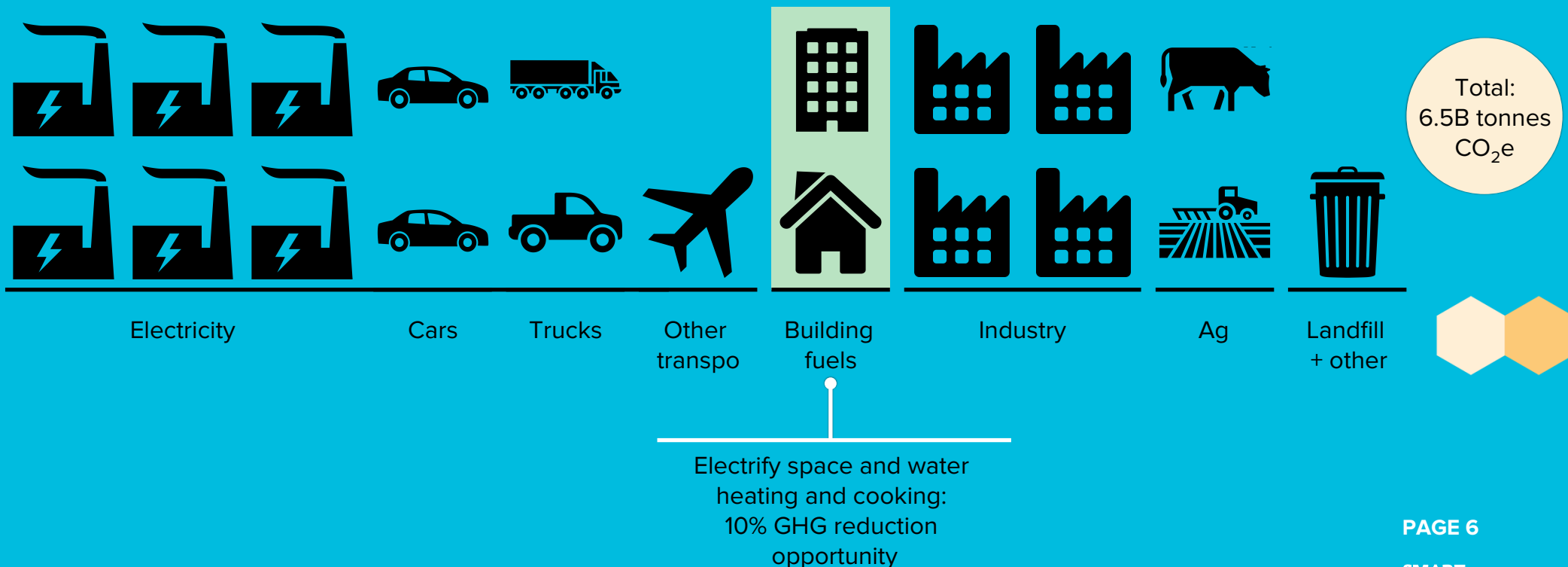
Pod objectives

1. Build a shared understanding of the potential for thermal electrification to support decarbonization and renewables integration
2. Develop and prioritize actionable strategies for overcoming barriers to beneficial thermal electrification
3. Forge connections to support further work in advancing beneficial solutions



Building thermal loads powered by fossil fuels are a major contributor to greenhouse gas emissions

U.S. greenhouse gas emissions by source, 2015

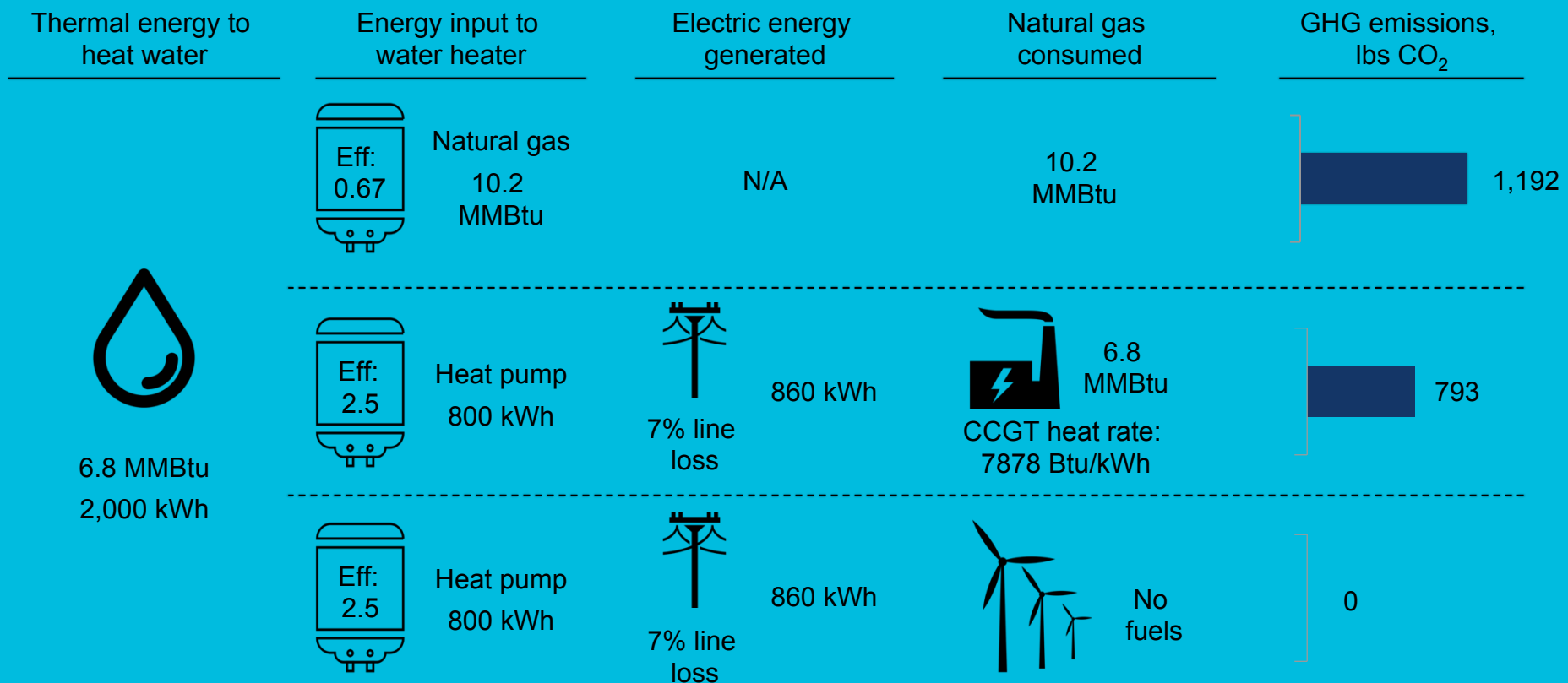


Note: Each icon represents 5% of annual U.S. GHG emissions (rounded to nearest 5%); excludes land use, land use change, and forestry

Source: U.S. EPA GHG Inventory 2015

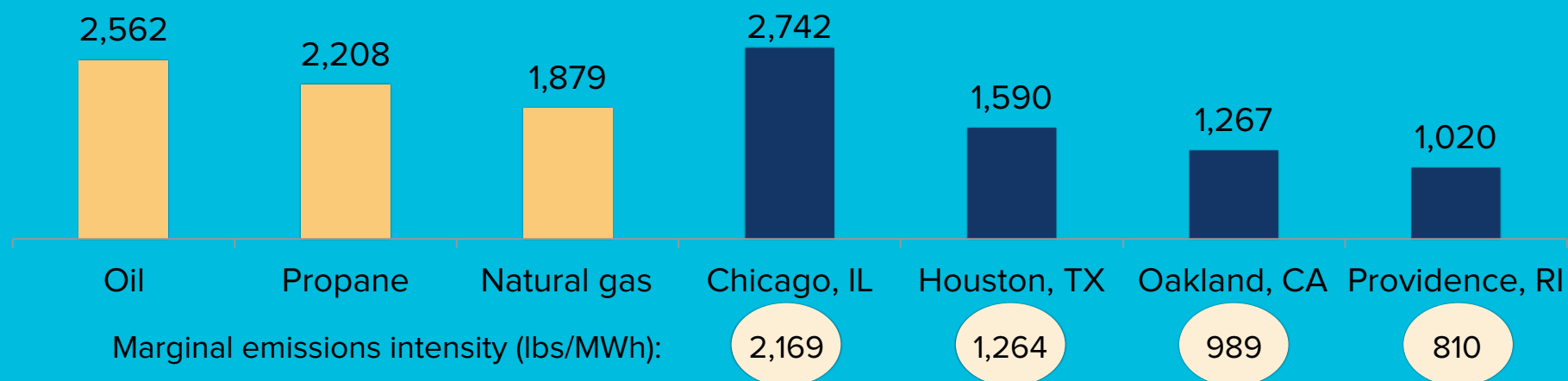
Electric heat pumps consumer less source energy than on-site gas alternatives

Evaluation of annual energy needs and carbon emissions for residential water heater

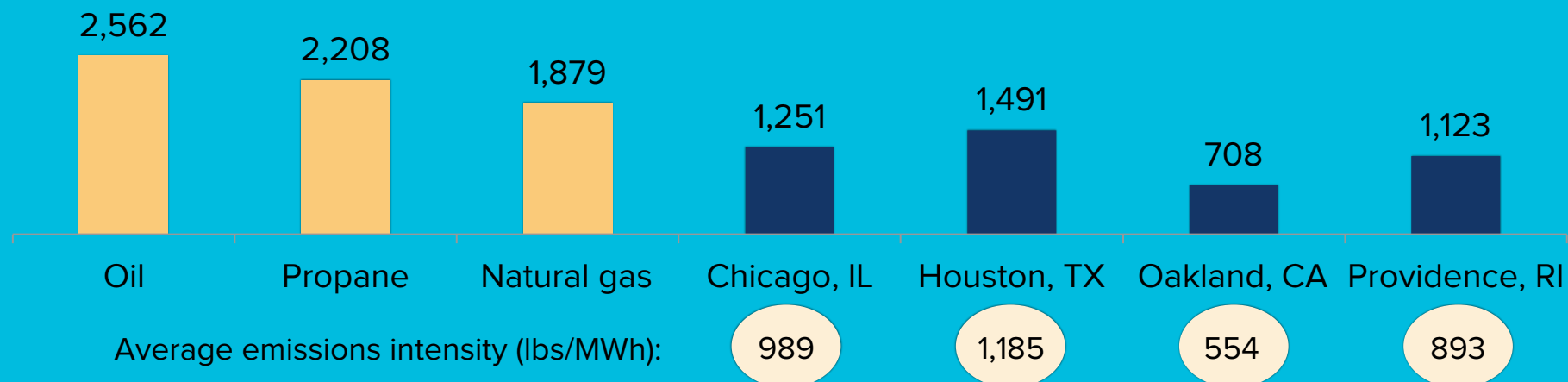


Heat pumps are already lower carbon alternatives to fossil fuels in all but the most coal-dependent systems

Water heater annual emissions, modeled based on **marginal** grid emissions



Water heater annual emissions, modeled based on **average** grid emissions



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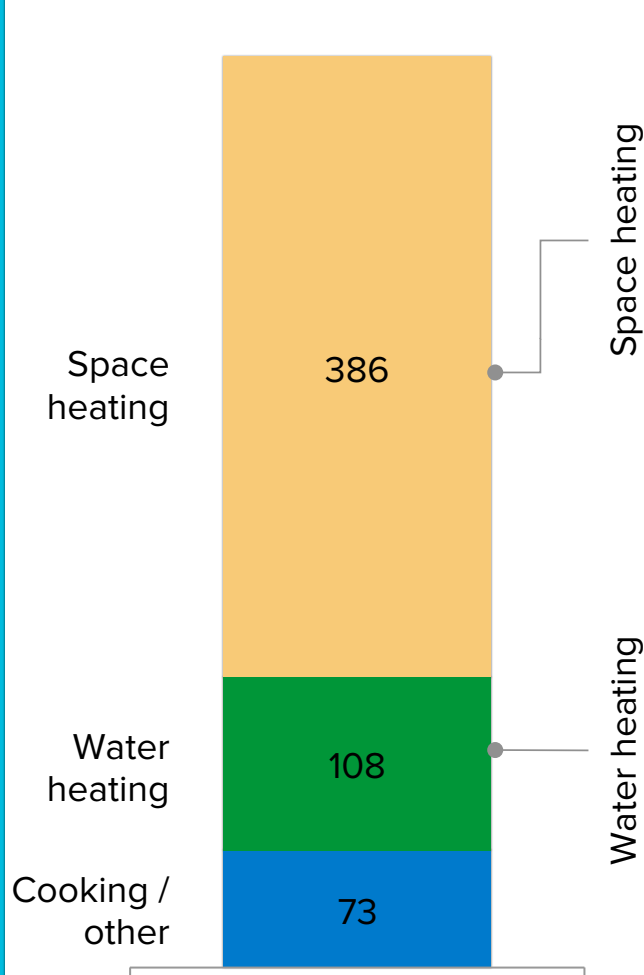
SMART
HEATING
ELECTRIFI-
CATION

Note: Average emissions intensity for coal = 2,158 lbs/MWh; for gas = 921 lbs/MWh

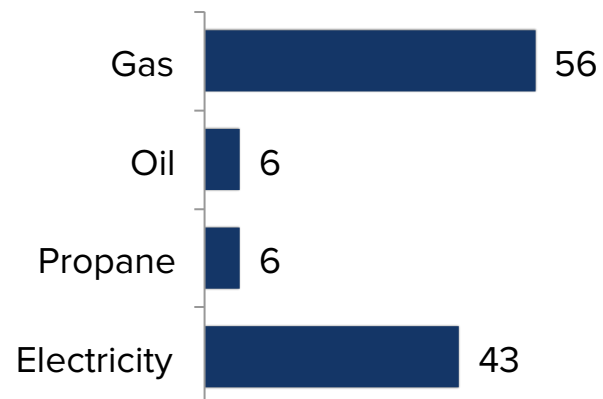
Source: RMI analysis; marginal emissions data from WattTime; average from EPA

Successful electrification will require retrofits in millions of buildings currently relying on gas, oil, and propane

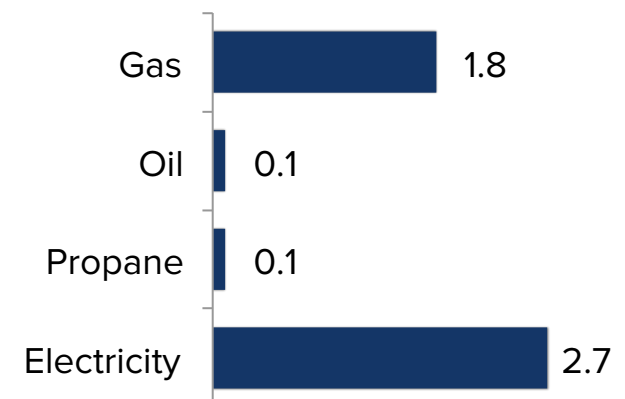
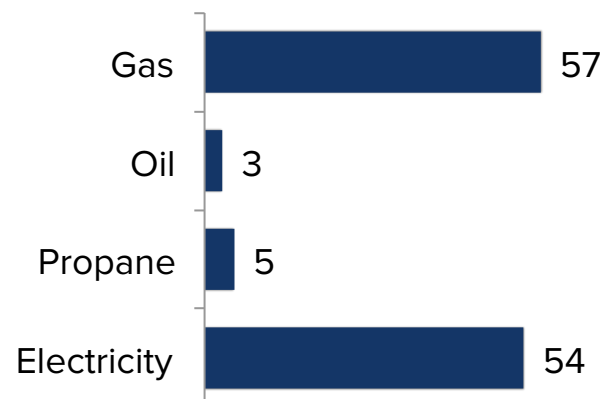
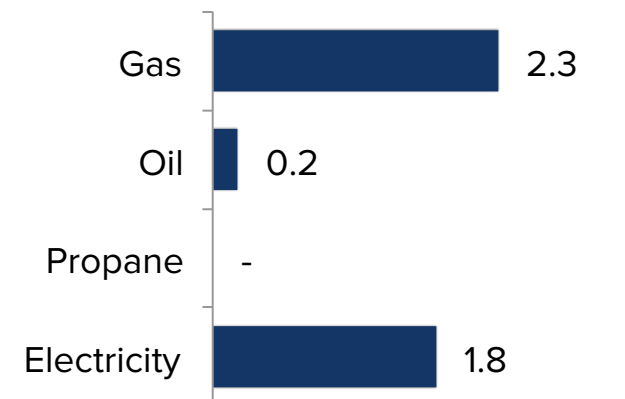
U.S. GHG emissions by building end use, MMTCO₂e 2015



Number of households by primary fuel source



Number of commercial buildings by primary fuel source





When, where, and how should buildings switch from fossil fuels to efficient electric devices for space and water heating?

- What policies, business models, and price signals can support successful electrification programs?
- How should we plan for and manage impacts to the electric grid?
- What are the implications for combined gas and electric utilities?
- What's needed to spur demand from consumers for all-electric homes and devices?





For further research, consider these additional resources

- **Northeastern Regional Assessment of Strategic Electrification**, NEEP, <http://www.neep.org/reports/strategic-electrification-assessment>
- **Northeast ASHP Market Strategies Report**, NEEP, http://www.neep.org/sites/default/files/NEEP_ASHP_2016MTStrategy_Report_FINAL.pdf
- **Electrification and Decarbonization**, NREL, <https://www.nrel.gov/docs/fy17osti/68214.pdf>
- **Opportunity Knocks... for Beneficial Electrification** (webinar), RAP, www.raponline.org/event/opportunity-knocks-for-beneficial-electrification/
- **Electrification: Emerging Opportunities for Utility Growth**, Brattle, http://www.brattle.com/system/news/pdfs/000/001/174/original/Electrification_Whitepaper_Final_Single_Pages.pdf



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blockchain and transactive energy

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distributed grid infrastructure

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distributed grid infrastructure



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infrastructure planning and new mobility

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rate design pathways

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smart heating electrification



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value stacking for DERs

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See you in

new mexico

