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Beneficial Electrification: Up, Up, and Away!

Electrify Indiana
Hoosier Energy
Bloomington, IN

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Introduction

The Regulatory Assistance Project is a global, non-profit team of veteran regulators advising current regulators on energy sector issues. ([www.raponline.org](http://www.raponline.org))

- Philanthropically funded; some contracts
- Non-advocacy; no interventions

Ken Colburn directs RAP’s U.S. Programs. His experience as a regulator came as NH’s Air Director. Ken is also a lifelong electric cooperative member, was a longtime director of NH Electric Cooperative, and serves as NH’s director on NRECA’s Board.
An Example of Electric Cooperative Leadership

Environmentally Beneficial Electrification: The Dawn of “Emissions Efficiency”

The Electricity Journal
September 1, 2016

For a year!

And was followed by a resolution at NRECA’s 2018 Annual Meeting!
Regulatory Assistance Project (RAP)®
NRECA Board President Curtis Wynn’s 2019 Regional Meeting Remarks:

- Today’s challenges: Members want reliable and affordable, but also **sustainable, flexible, and personal** too
- If we don’t act, others will
- **Beneficial electrification** is key
BE Guidance from RAP

**Beneficial Electrification: Ensuring Electrification in the Public Interest**

- Sets out principles to ensure that electrification is beneficial to consumers, the environment, and the grid.
- Separate papers for EVs, water heating, and space heating

[https://www.raponline.org/BE](https://www.raponline.org/BE)
Critical for a Sustainable Future

“Increased Electrification is Essential for Decarbonization”
Renewables: Now Least-Cost & Declining

Xcel Energy, All-Source Bids, December 2017. Existing Plant Average Fuel and O&M from USE IA, Table 8.4, Electric Power Annual 2016
Power sector carbon dioxide emissions fall below transportation sector emissions

Source: U.S. Energy Information Administration, Monthly Energy Review
Scale of Opportunity: Electric Vehicles

Figure 1: Annual global light duty vehicle sales

The EV Trend Is Now Irreversible
Op-Ed: Edicts in China, Europe, and US are leading more automakers to make long-term commitments to electric vehicles.
by: Charles Murray in Automotive, Sustainability on October 13, 2017

Source: Bloomberg New Energy Finance
Scale of Opportunity: Water Heaters & RE

- US wind and solar = \(\sim 85,000 \text{ MW}\)
- Each water heater can provide shaping and storage for \(\sim 2.2 \text{ kW}\) of wind or solar
- Controlling all 45 million would enable integration of \(\sim 100,000 \text{ MW}\) of wind and solar
  - More than double the amount currently on US grid
- 66 million more are gas, propane, and oil; if electrified and controlled => \(\sim 140,000 \text{ MW}\) more
Energy Policy Update

Maine transportation electrification pilot RFP

Posted: 05 Sep 2019 07:32 AM PDT

Maine utility regulators have asked for proposals for pilot programs to support the beneficial electrification of the transportation sector: substituting electricity for fossil fuels in ways that provide benefits, including reductions in emissions.

While Maine's electricity generation is only 12 percent of the state's total energy use, and contributes significantly to the state's greenhouse gas emissions, earlier this year, the Maine State Transportation Department (MaineDOT) approved the Proceed with Care principle for the use of electric vehicles. The law includes several measures designed to support the "beneficial electrification" in Maine's transportation and heating sectors, defined as "electrification of a technology that results in reduction in the use of a fossil fuel, including electrification of a technology that would otherwise require energy from a fossil fuel, and that provides a benefit to a utility, a ratepayer or the environment, without causing harm to utilities, ratepayers or the environment, by improving the efficiency of the electricity grid or reducing consumer costs or emissions, including carbon emissions."
Beneficial Electrification: Plug In for the Greener Grid!

September 27, 2018 | Vignesh Gowrishankar
EPRI “Efficient Electrification” – 3rd Expo
EPRI’s 2018 US National Electrification Assessment
Energy & Economy Have Decoupled

Source: Energy in Context, 15 March 2015
New Technologies Will Continue to Emerge: Ultrasonic Clothes Drying; RF Crop Drying

- Sound waves “shake” out moisture
- 80% reduction in electricity

Standard & Poor’s Utility Practice: “Expect little net load growth going forward.”
And we won’t have smooth sailing politically either…

• The oil and gas industry will fight BE vigorously

• Many obsolete policy barriers persist
  • EERS, fuel-switching prohibitions, load-building, etc.
Keep Focused on What Members Want (from 2019 NRECA Regional Meetings)

Curtis Wynn:
• Sustainable
• Flexible
• Personal

Sheldon Peterson:
• Access, not assets
• Values-based
• Personal
BE Offers “Window of Opportunity” to Do So

- Get closer to members with segmentation, outreach, and new services
  - Re-focus on EE, DERs, (BTM too)
- Reconsider business model: Decouple revenue from kWh sales
- Rethink rate design
  - Beware demand charges
- Engage on flexible demand, analytics, distribution system planning, etc.
The best reason for co-ops to pursue BE and support the Beneficial Electrification League?

All serve a higher purpose
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org
Additional Slides
New Drying Solutions for 2018
Rice, Barley, Soybean, Wheat, Other Seeds

New Drying Solutions for 2019
Alfalfa
Manure
Hemp!
Bagasse, Wood Pulp, Other Biomass
Food Processing
Municipal Drying - Sludge

Less energy 80-92%
Instead, *Beneficial Electrification (BE)* Helps Position Coops for the Future

1. Saves Members Money Long-Term; More Services
2. Reduces Environmental Impacts
3. Enables Better Grid Management