



Energy solutions
for a changing world

Encouraging Building Owner Investment in Water Efficiency through Customer Data Aggregation

Presentation to the NARUC Committee on Water

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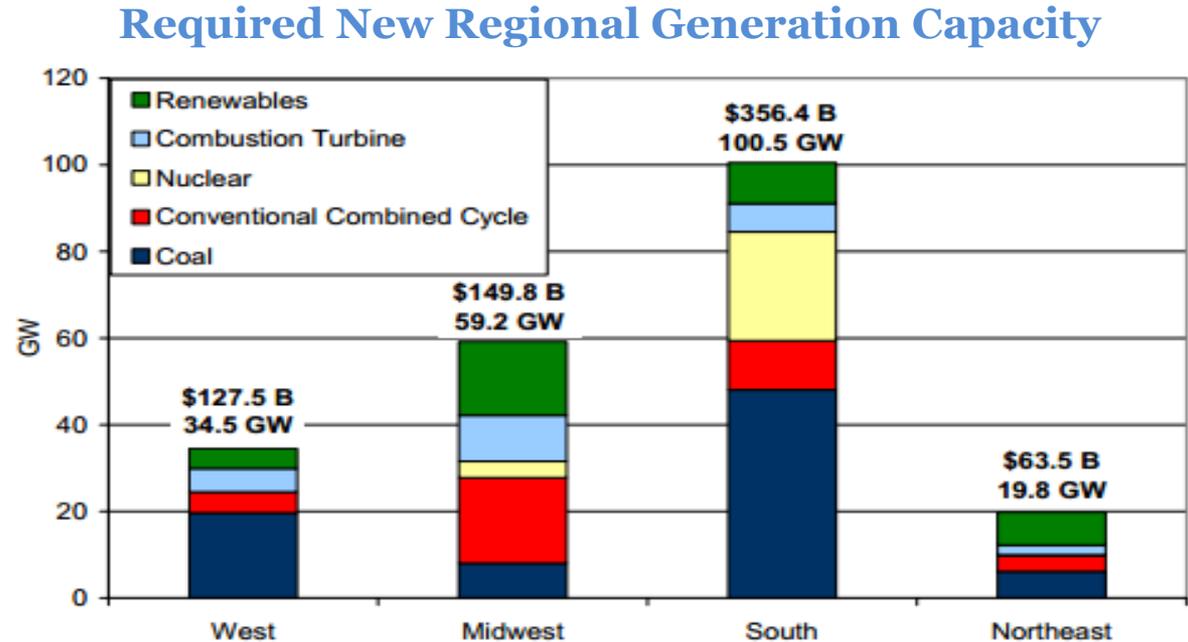
Topics

- Utility System Investment Needs
- How Building Owners Can Help?
- Customer Data & Protecting Privacy



Transforming America's Power Industry: The Investment Challenge 2010-2030, Brattle Group

**\$1.5 to \$2.0
trillion**
Total electric
industry
infrastructure
investment
needs by
2030.



<http://www.brattle.com/documents/UploadLibrary/Upload725.pdf>

Natural Gas System Investment

- According to US DOE:
 - 50% of US natural gas infrastructure was built during the 40s, 50s, and 60s
 - **\$19.2 Billion** dollars required for upgrades

Source: J Pershing, Director of Office of Energy Policy & Systems Analysis, US DOE, presentation to NARUC Subcommittee on Clean Coal, February 9, 2014

Water System Investment Needed

- **\$384 billion** EPA's most recent cost projections of total drinking water system infrastructure (source, treatment plant, pipes, etc.) needed by 2030.
 - **\$247.5 billion** distribution and transmission: replace or refurbish aging/deteriorating lines.
 - **\$72.5 billion** treatment: construct/expand/rehab infrastructure to reduce contamination.
 - **\$39.5 billion** storage: construct/rehab/cover finished water storage reservoirs.
 - **\$20.5 billion** source: construct/rehab intake structures/wells/spring collectors.

EPA Survey Shows \$384 Billion Needed for Drinking Water Infrastructure by 2030, June 4, 2013.

<http://yosemite.epa.gov/opa/admpress.nsf/0/F72C2FDC7D61F92085257B800057655F>

Three Examples of Needed Utility System Investment by 2030

Electricity \$1.5 - 2.0 trillion

Natural Gas \$19.2 billion

Drinking Water \$384 billion

Status Quo: What to expect if utilities and ratepayers are left alone to take on this effort

Pressure:

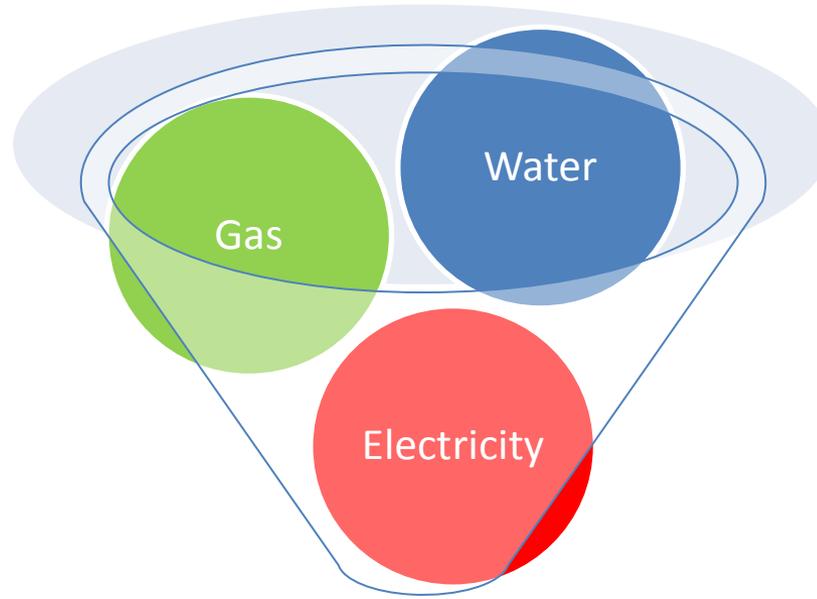
- On rates;
- On company earnings and balance sheets;
- To have more frequent rate cases;
- On regulatory process; and
- On elected and appointed officials.

Commissioner Ron Binz, former Chair CO PUC,
2010 NARUC Summer Meetings Sacramento, CA

What Do Buildings Have to Do with This and How Can They Help?

- Making it easier for building owners to invest in utility system improvements on their own will
 - Take pressure off utility ratepayers, and
 - Open up building owners' potential to invest in improvements to their building's water, electricity and natural gas systems.

How Building Owner's See the World?



Bottom Line: My building's heating/cooling/water/sewer costs

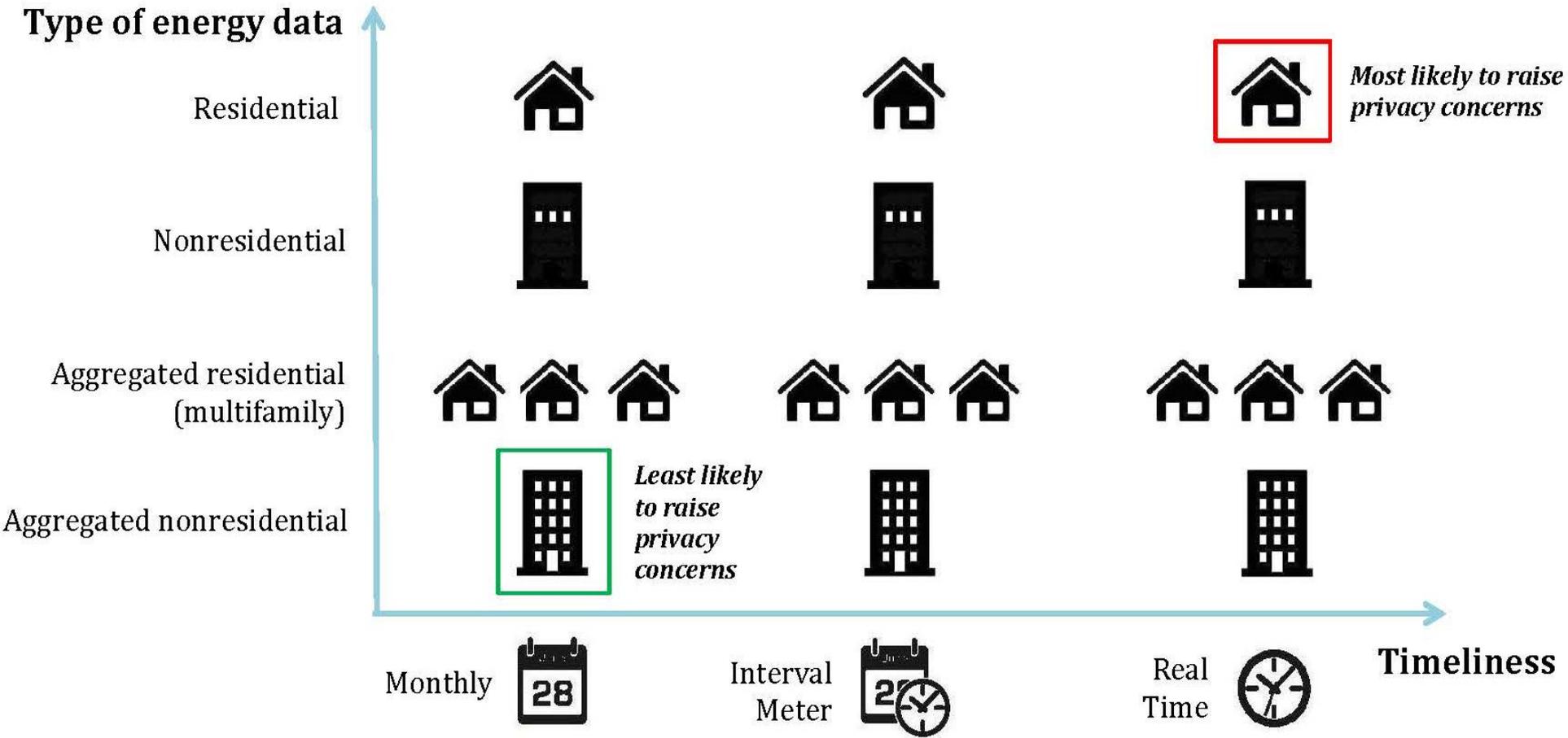
Eliminating this Barrier – A Little Coordination

- How can a building owner readily acquire program data for each occupant and each program?
- Coordinating reasonable access to customer data through **aggregation**

Utility Company (State) OR Public Utility Commission (PUC)	Account Aggregation Threshold Number of accounts / maximum percentage of total energy usage one account can contribute
Avista (Washington)	No threshold
Consolidated Edison (New York)	No threshold
Seattle City Light (Washington)	No threshold
Commonwealth Edison (Illinois)	4
Austin Energy (Texas)	4/80*
Puget Sound Energy (Washington)	5
Pepco (District of Columbia)	5

* Only applies to commercial buildings

Electricity Meter Data Sensitivity



Observations

- Why does a building owner want to invest?
 - Enabling access to 12 consecutive months of water data is good; but,
 - Enabling access to 12 consecutive months of water, gas, and electricity data is better.

Driving Building Efficiency with Aggregated Customer Data

A Brief Review of Selected Practices in the U.S.

July 2013

A recent RAP
publication looking at
this topic from the
electricity program
perspective

www.raponline.org/document/download/id/6637

Recommendations

- If you want to see building owners invest, consider developing a rule that requires aggregation by all utilities, not just one.
- Explore with your staff the best administrative approach to doing this.
 - E.g., Michigan aggregation definition included first in company tariff
 - Illinois, ComEd's electric EE program includes an aggregation component.

Recommendations cont.

- If you are inclined to require utility companies to provide access to customer data,
- Then, through customer aggregation, you can protect customer privacy?

Thanks for the invitation.
I look forward to your questions.

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raonline.org

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Extra slides

Energy Water: the Connection

- Water resources rely on energy:
 - Water is transported, heated, treated, cooled and recycled using energy.
 - Example: 2005 CEC found
 - 19% of state's electricity
 - 30% of states natural gas
 - 88 billion gallons of diesel fuel annually used for sourcing, moving, treating, heating, collecting, re-treating, and disposing of water

Energy Water What's the Connection?

- Energy Sources rely on water:
 - Extraction, mining, refining, and processing of oil, gas and coal,
 - Electric generation: water turns hydro turbine and cools thermal plants.
 - Example: 2009 US Geological Survey Study
 - 49% of total US water use, and
 - 53% of fresh surface-water withdrawals used to support thermoelectric power.

Given this Connection

- Saving water can save energy,
 - Saving water at the customer level and throughout the distribution system can save energy because it reduces the amount of energy needed for water withdrawal, transport, treatment, etc.
- Vice versa: saving energy can save water as well.

Selected Resources

- ACEEE Rachel Young and Eric Makres. *Tackling the Nexus: Exemplary Programs that Save Both Energy and Water*. January 2013. Report Number E131, <http://www.aceee.org/research-report/e131>. American Council for an Energy-Efficient Economy .
- CEC Gary Klein, 2005. *California's WaterEnergy Relationship*. CEC-700-2005-001-SF. <http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-001-SF.PDF>.
- USGS Joan F. Kenny, Nancy L. Barber, Susan S. Hutson, Kristin S. Linsey, John K. Lovelace, and Molly a Maupin. 2009. *Estimated Water Use in the United States in 2005*. Circular 1344. <http://pubs.usgs.gov/circ/1344/pdf/c1344.pdf>. US Geological Survey.
- “Financing the Decarbonized Electric Sector,” Commissioner Ron Binz, CO PUC, NARUC Summer Meetings Sacramento, CA, 2010. <http://www.rbinz.com/Presentations.html>