Challenging Topics in Cost-Effectiveness: *Advanced Metering Infrastructure*

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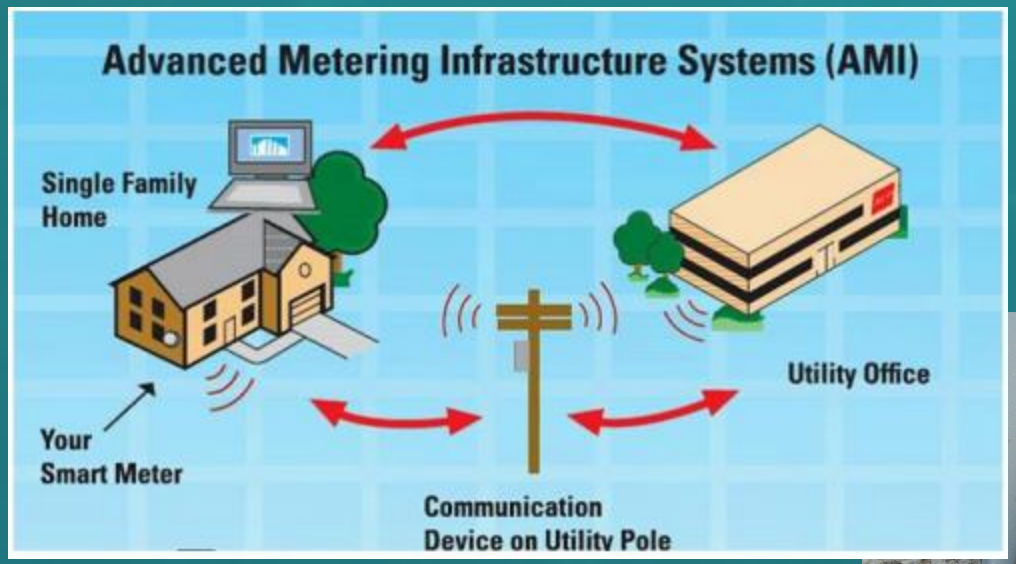
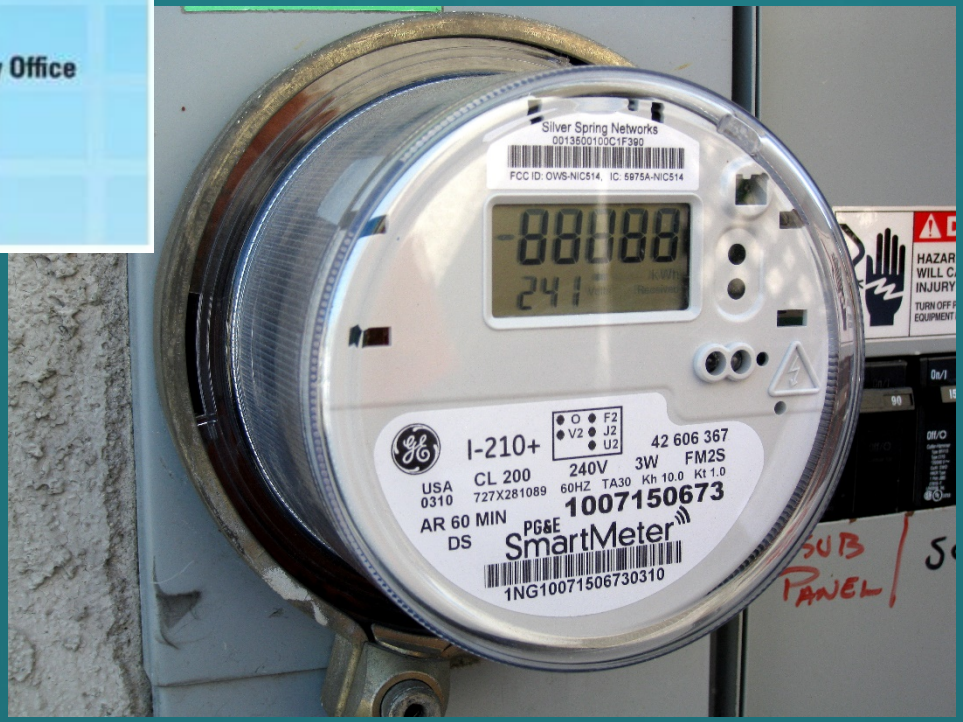
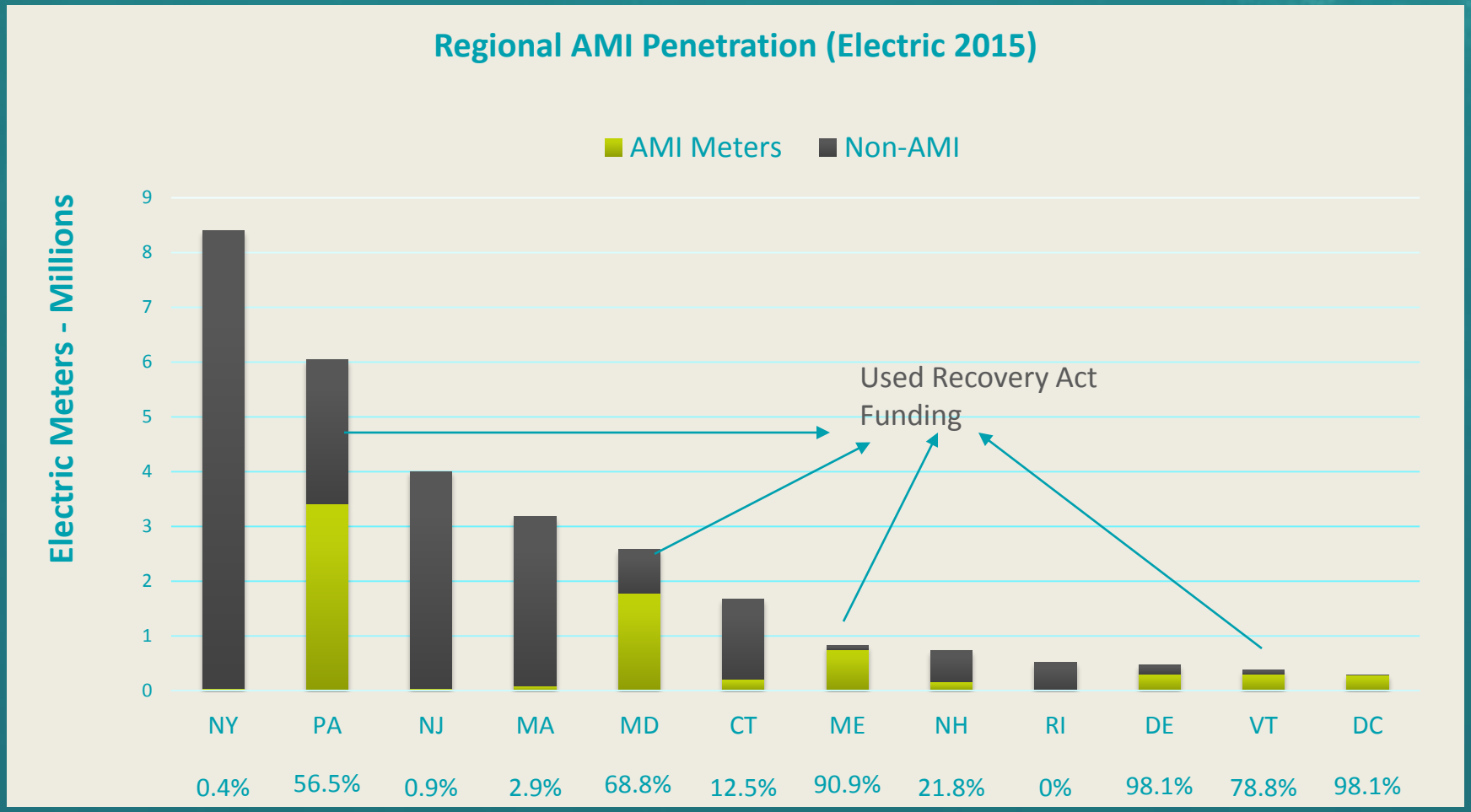
Advanced Metering Infrastructure



"Smart Meter"

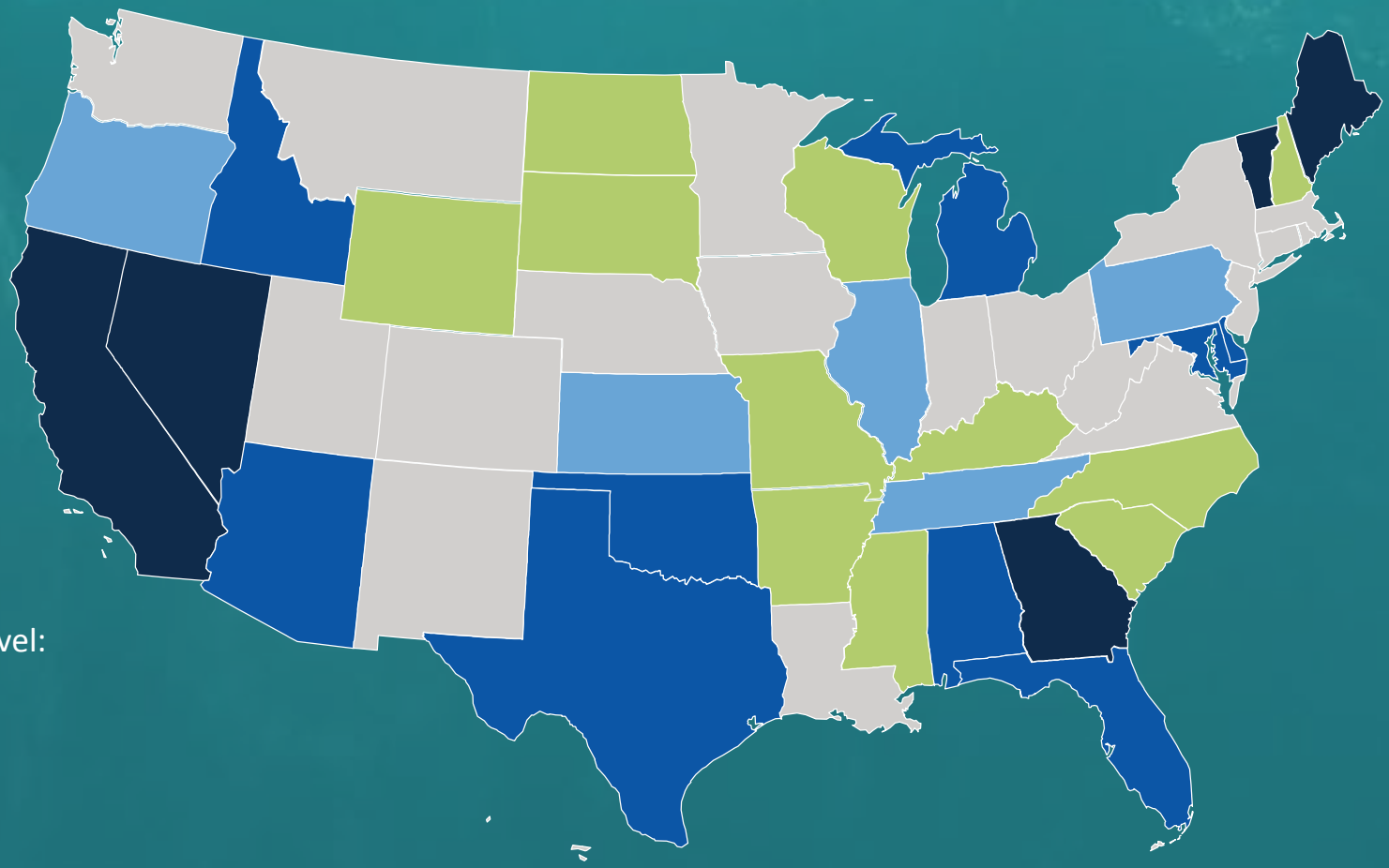


Current Situation



Data for this table was taken from the EIA 861 form, available at :
https://www.eia.gov/electricity/data/eia861/

Current Situation in Perspective, 2015

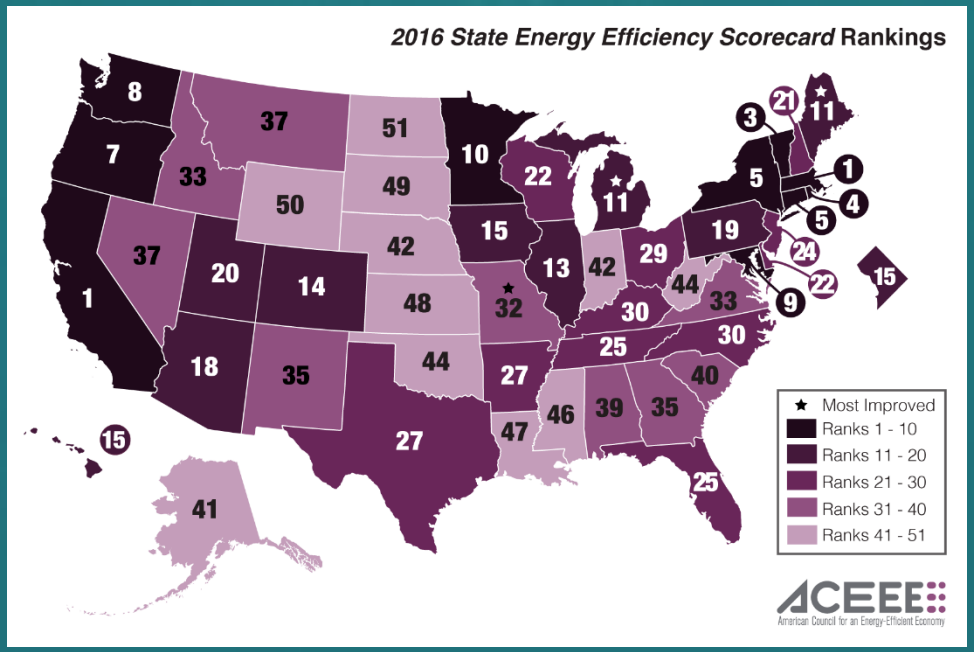


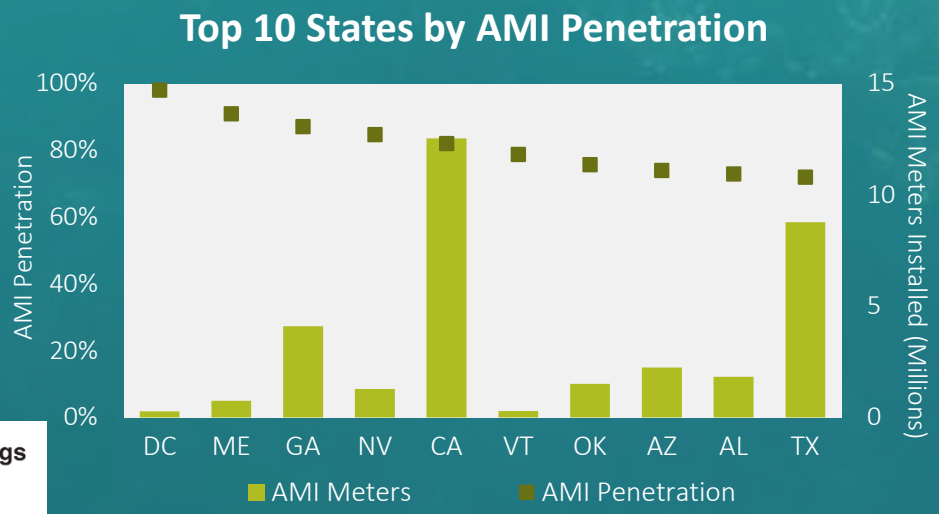
Penetration Level:

- >80%
- 60-79%
- 40-59%
- 20-39%
- <20%

Source: GTM Research, December 2016

How does it compare?





Source: GTM Research

What are the Benefits?

Economic

- Reliability
- Avoided T&D
- Reduction in meter reading & operations
- Engineering & field service operations
- Peak Load Reduction
- Reduced GHG emissions
- Energy Conservation

Qualitative

- Risk reduction
  - Improved compliance with safety standards
  - Theft reduction
- System efficiency & resiliency
  - System planning
  - Crew productivity
- Customer
  - Customer satisfaction
  - Customer convenience
  - Demand Response
- Environmental
  - Conservation Voltage Reduction
  - Priority pollutant reduction

What are the Costs?

Capital Expenses

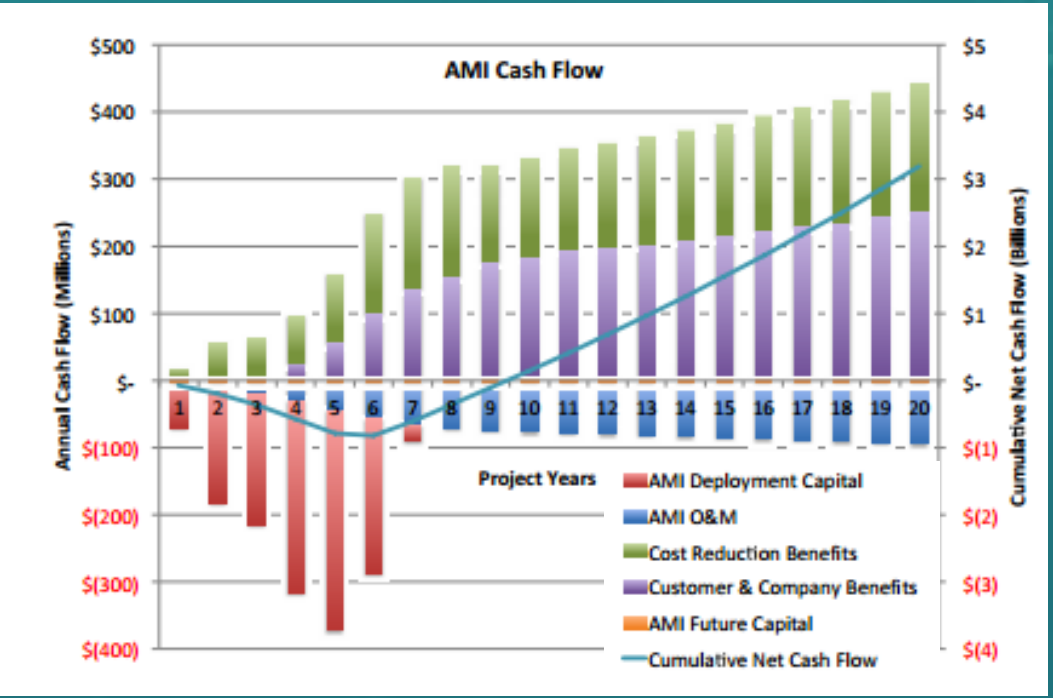
- Metering equipment
- Network & communications infrastructure
- Stranded Costs

Operations & Maintenance

- Infrastructure procurement
- Project management
- Information Technology systems
- Field services
- Revenue reduction

Customer Education

- Marketing
- Customer education



Source: ConEdison Capital Investment and Ongoing Cost-Benefit Comparison

Overview of Cost-Benefit Analyses

Utility	Year Proposed	Meters	Time-Varying Rates	Conservation Voltage Reduction	Stranded Costs	Customer Education	
						Benefit	Cost
CL&P (CT)	2007	3,000 (Deployed)				$	
CMP (ME)	2007	622,000 (Deployed)			$		
BG&E (MD)	2010	1.23M (Deployed)		$		✓	✓
Con Edison (NY)	2010	3.6M (Approved)	✓	$			
GMP (VT)	2010	260,600 (Deployed)		✓	$		
Eversource (MA)	2015	5 percent (Proposed)	$	$	$	✓	$
National Grid (MA)	2015	1.3M (Proposed)	$	$		✓	
Unitil (MA)	2015	103,000 (Deployed, to be upgraded)	✓	✓	✓		✓

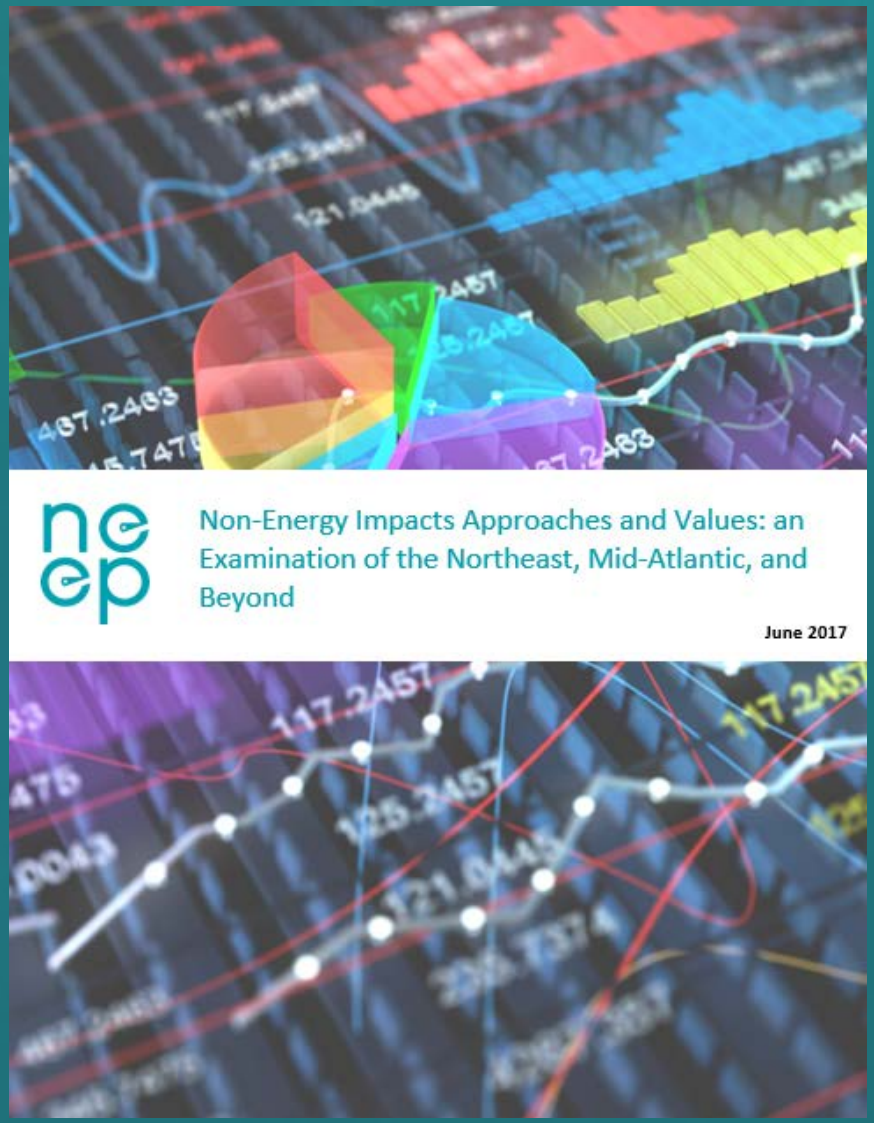
Summary of Findings

- In the event of not monetizing a benefit, that does not mean the benefit has no monetary value
- The business case
  - Depends on goals of the project, scale and dimension, and technological features
- The type of test used: UTC, TRC, or SCT
- Variance in the inclusion of stranded cost, time-varying-rates, conservation voltage reduction, customer education
- Impact of not using Recovery Act of 2009 funds

New NEEP Resource

- Insight into utility trends regarding AMI deployment costs and benefits within the Northeast and Mid-Atlantic
- The report reviews the costs and benefits evaluated in both retrospective and prospective AMI deployment proposals, highlighting any outlying factors.

Recent Research



- How do we characterize common practice regionally? Nationally?
- For what programs and types of impacts are NEIs commonly provided?
- How and when are evidence-based versus other approaches used to estimate NEIs?
- What are some of the pros and cons of states' current practices?

http://www.neep.org/non-energy-impacts-approaches-and-values-examination-northeast-mid-atlantic-and-beyond

Thank you!

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