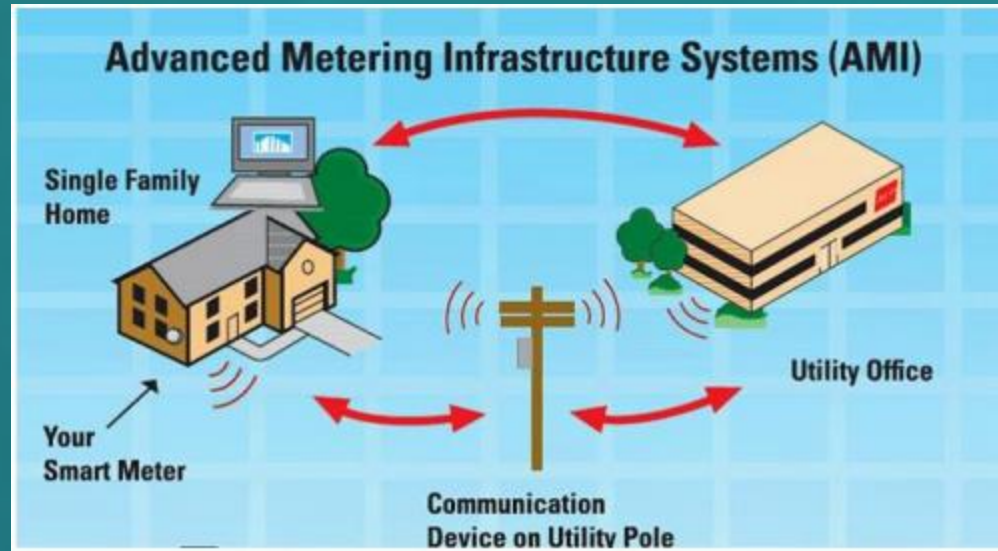




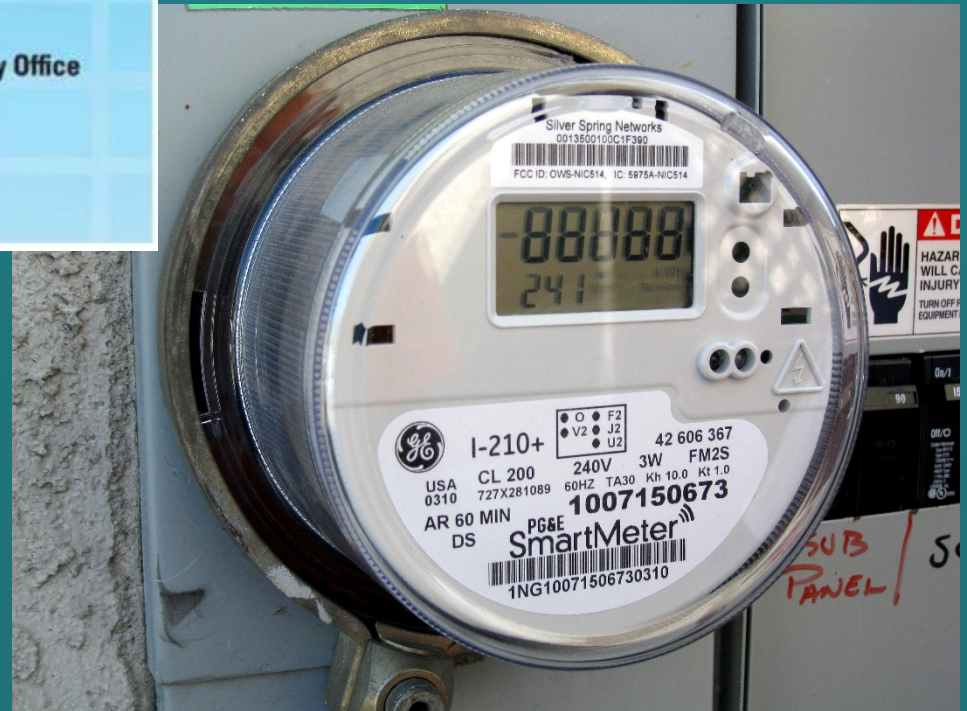
# Challenging Topics in Cost-Effectiveness: *Advanced Metering Infrastructure*

Samantha Caputo  
Research Associate  
Scaputo@neep.org

# Advanced Metering Infrastructure

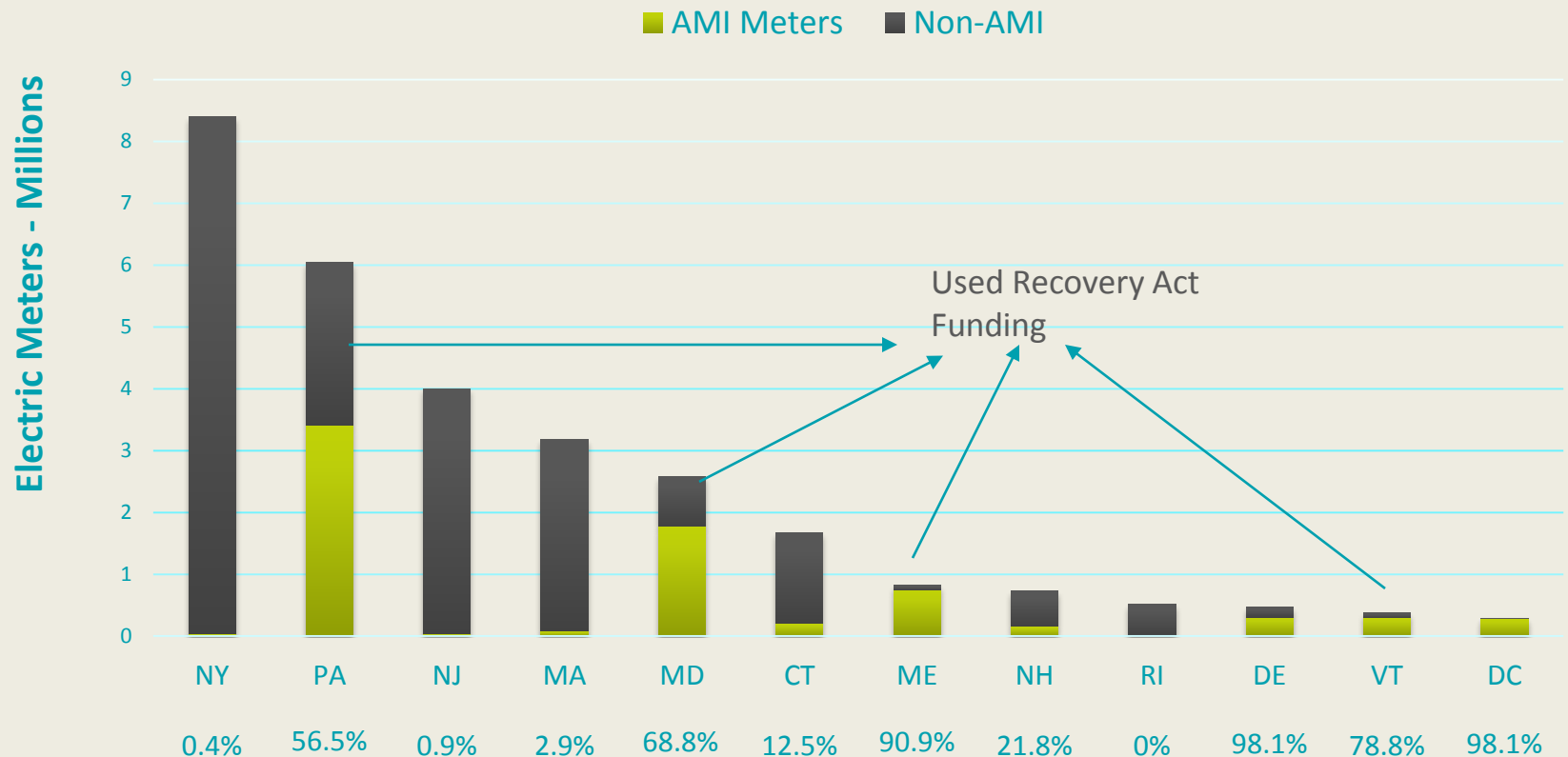


“Smart Meter”

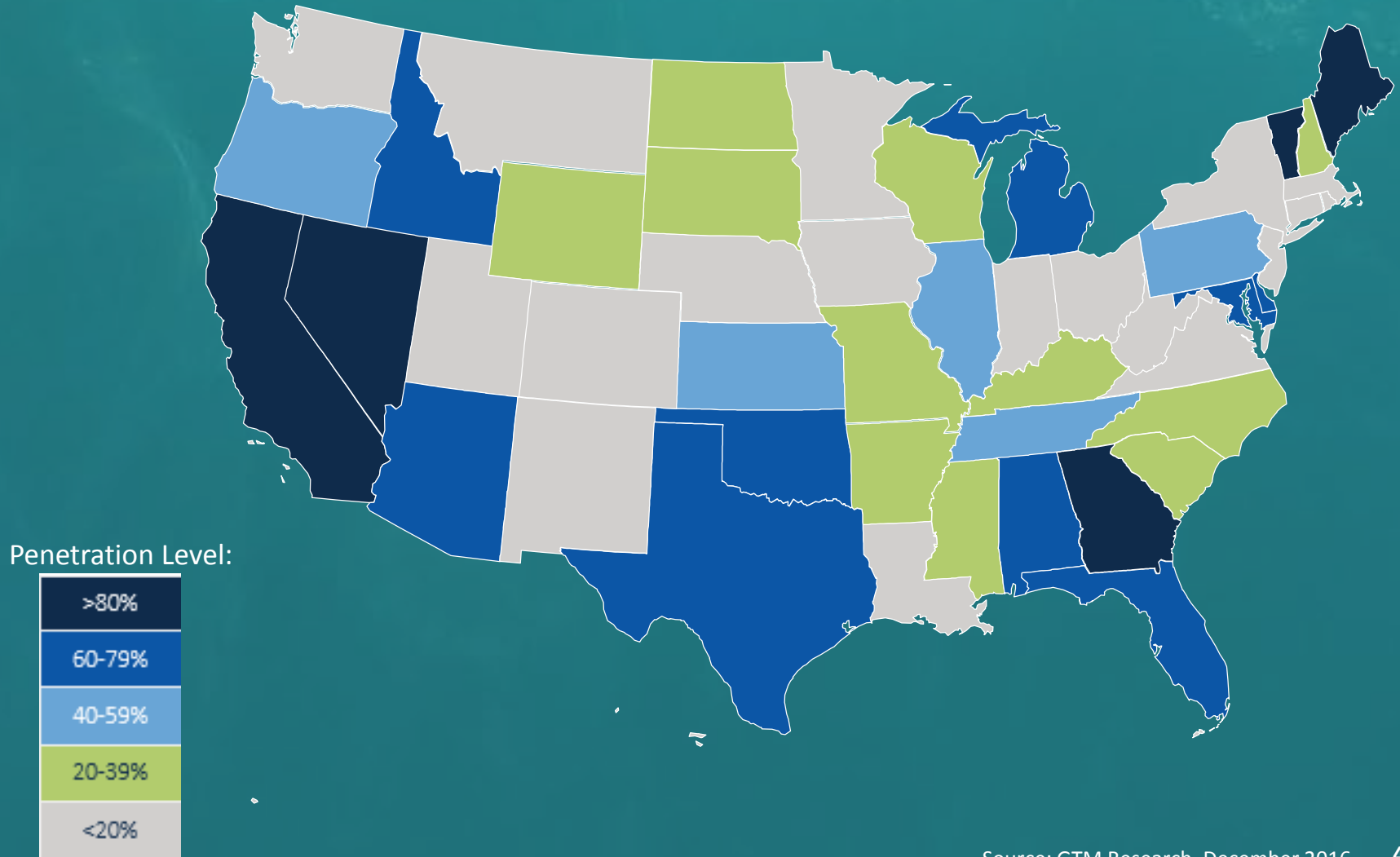


# Current Situation

Regional AMI Penetration (Electric 2015)

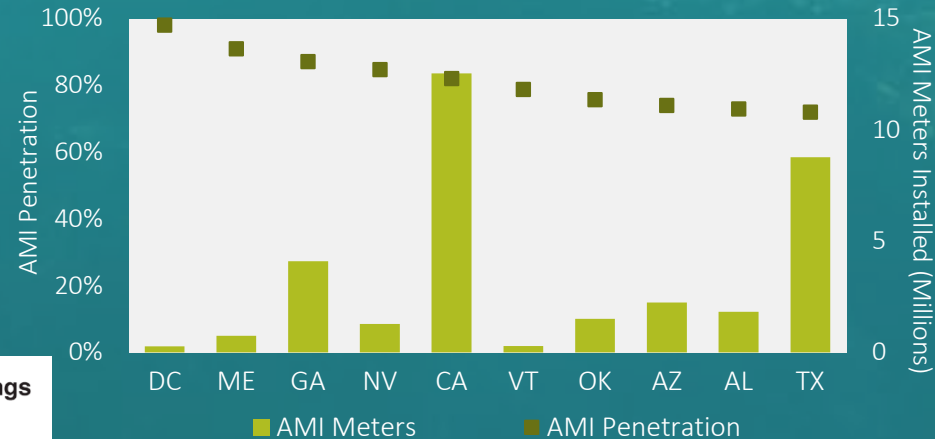


# Current Situation in Perspective, 2015

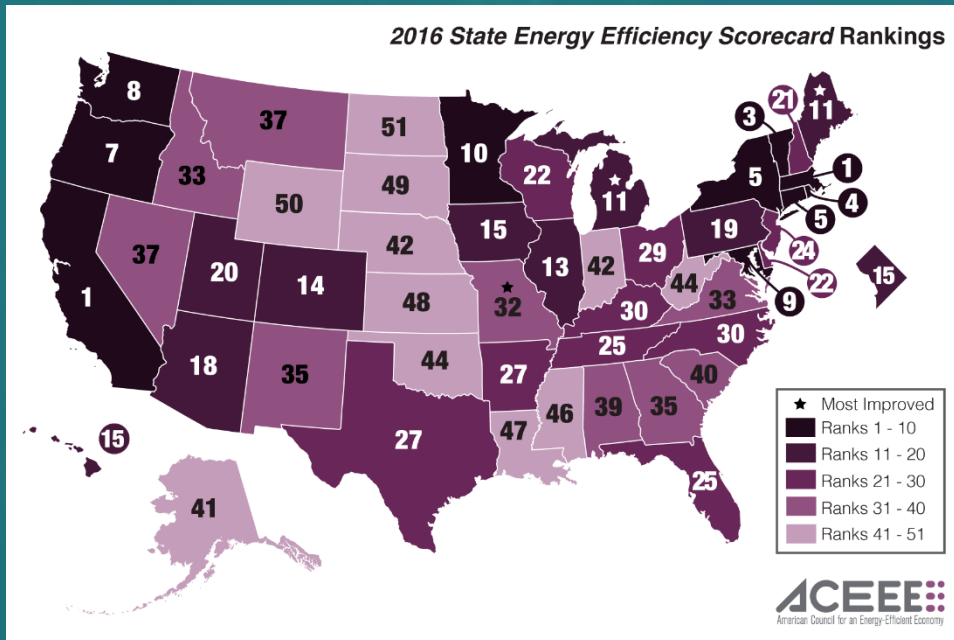


# How does it compare?

## Top 10 States by AMI Penetration



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

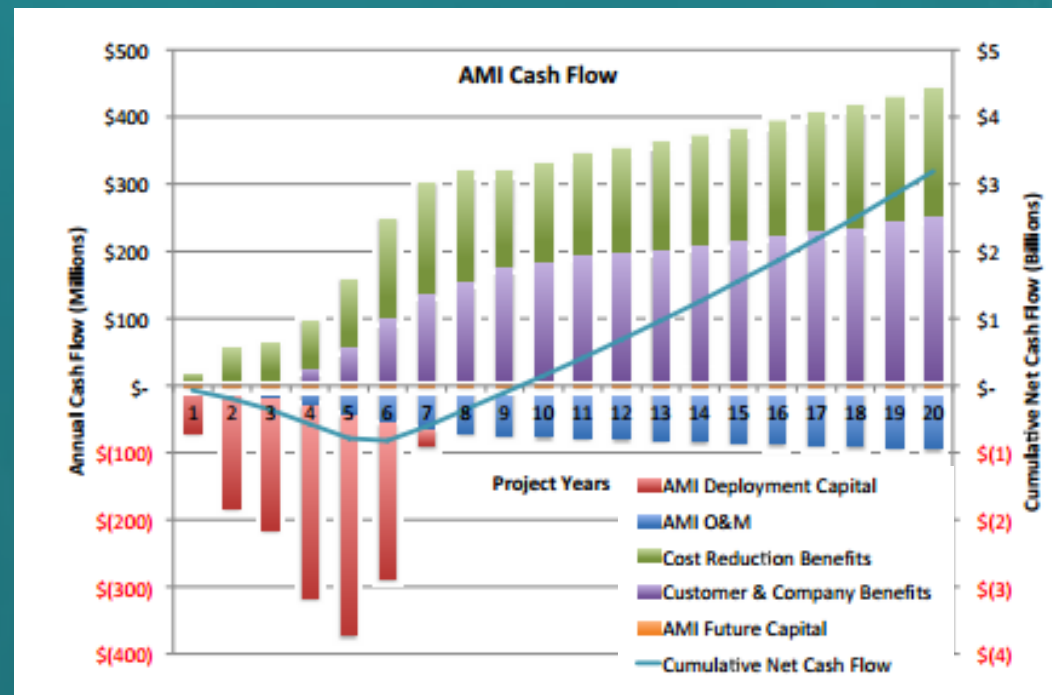
- Metering equipment
- Network & communications infrastructure
- Stranded Costs

## 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



Non-Energy Impacts Approaches and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond

June 2017

- 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!***

*Samantha Caputo*  
*Scaputo@neep.org*