Northeast Energy Efficiency Partnerships

Session 1B:Using Geographically Targeted Energy Efficiency to Deter T&D Investment

Elizabeth Titus, Northeast Energy Efficiency Partnerships

ENERGY FUTURES GROUP

About NEEP

Mission

Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system

Approach

Overcome markets and transform markets via

Collaboration, Education and Enterprise

Vision

Region embraces **next generation energy efficiency** as a core strategy to meet energy needs in a carbon-constrained world

One of six regional energy efficiency organizations (REEOs) funded by the US Department of Energy (US DOE) to link regions to US DOE guidance, products and programs

Presentation Overview

1. The opportunity for geo-targeted efficiency
2. Interest and experience are growing
   - Case studies
3. Learning from case studies (NEEP meta-study)
   - Lessons learned
   - Policy considerations and recommendations

The Opportunity for Geo-Targeting

Efficiency as a T&D Resource

- Only affects growth-related T&D investment
  - Not all T&D investment is growth-related
- Can happen both "passively" and "actively"
  - Passive: by-product of system-wide efficiency programs
  - Active: by design, through geo-targeted programs

NOTE: This presentation focuses on the role efficiency can play in deferring electric T&D investments. However, it should be considered with other demand resources (e.g. Demand Response & Distributed Generation). Also, natural gas efficiency has potential to defer gas T&D.

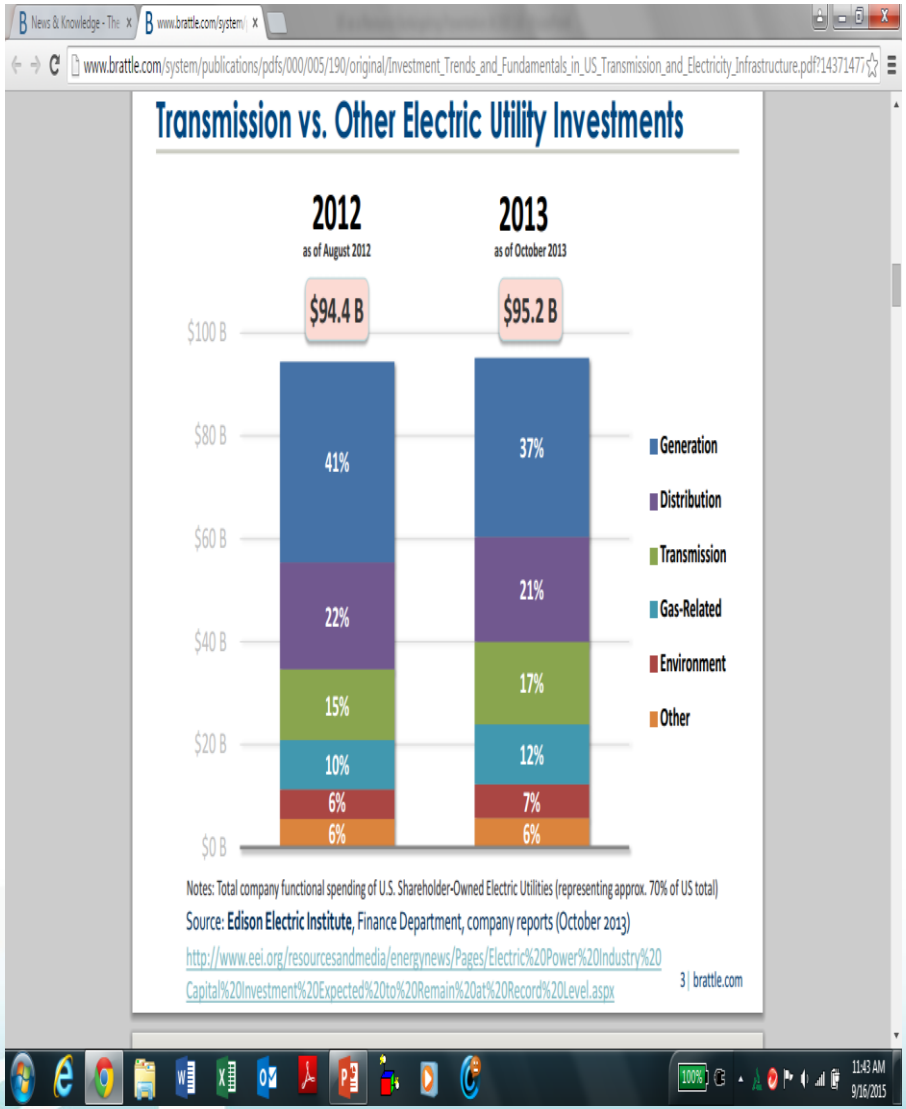
Why is this important?

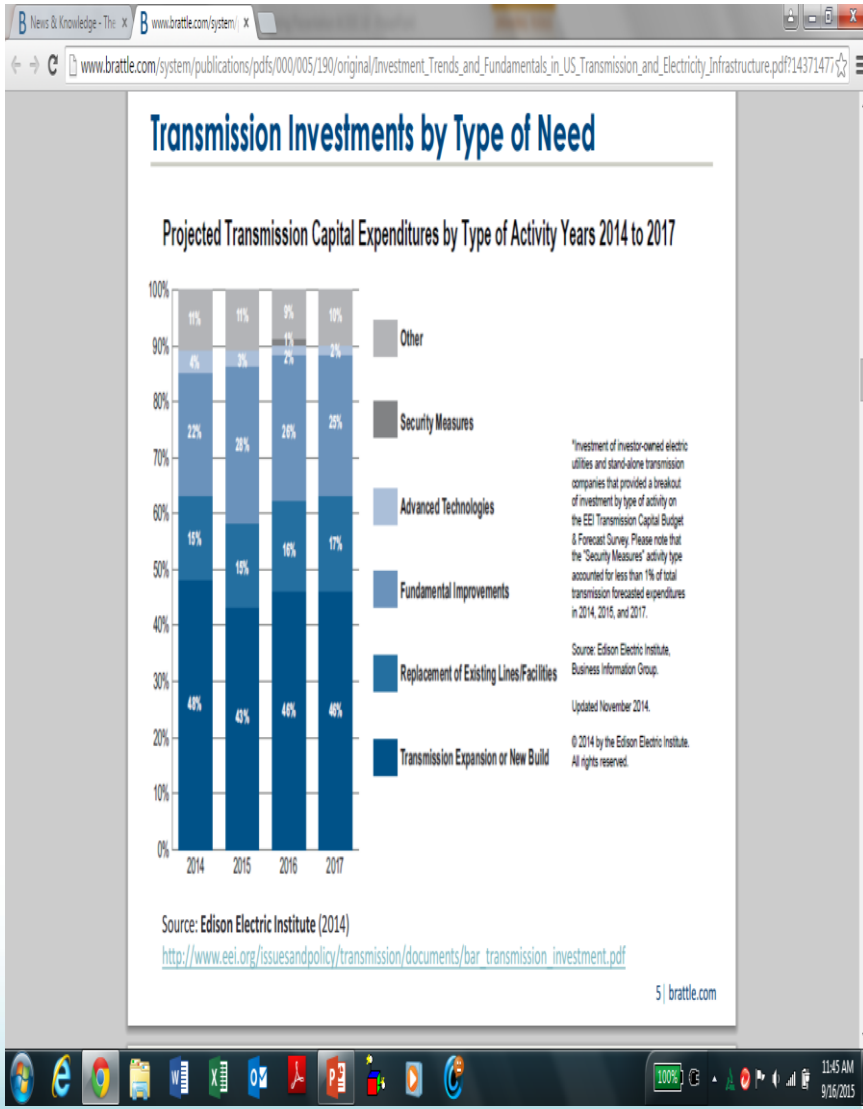
- FERC (2014):
  - Per Order 1000 “transmission providers identify how they will treat resources on a comparable basis, and…identify how they will evaluate and select from competing solutions..”
- Brattle Group Conclusions (July 2015):
  - Transmission investment will remain strong over the next decade
  - Transmission solutions may vary greatly in costs; targeted EE/DR can reduce transmission need
- Eastern Interconnection States Planning Council EISPC (February 2015):
  - Alternatives can be lower cost options that simultaneously support goals and objectives for 21st century infrastructure

Various Local & Regional Benefits to Geo-Targeting

- Alternative to contentious siting/infrastructure planning
- Flexible timing - fast response or longterm planning element
- System reliability and resilience
- Leveraging infrastructure location
- Economic and environmental impacts - “NEIs”

T&D Investment Trends





Interest and Experience are Growing

Case Studies

- Southwest Connecticut (2004)
- Bonneville Power Authority (2014 status)
- California: PG&E (early 1990s, new 2014 efforts)
- Maine (2012 to present)
- Michigan: Indiana & Michigan/AEP (2014)
- Nevada: NV Energy (late 2000s)
- New York: Con Ed (2003 to present)
- New York: LIPA (2014 proposal)
- Oregon: PGE (early 1990s)
- Rhode Island: (2012 to present)
- Vermont (mid-1990s pilot, statewide 2007 to present)
- Massachusetts: National Grid 2015

Note: NEEP report's deeper dive case studies shown in green
Examples NOT in NEEP report shown in blue

2015 Update on Roles of Geotargeting in Massachusetts

- 10 Year DPU Comprehensive Grid Mod Plan
  - Encourages integrated DER; plan options include leveraging energy efficiency programs to incorporate smart devices/AMI
- One Green Communities Act Strategy for Demand Savings
  - Current approach to valuing geographically targeted investments understates the value of those; need to capture full range of benefits
- National Grid's Nantucket Pilot to defer construction of another underwater cable
  - Ongoing; Itemizing benefits, developing methodology

2015 Update on Geotargeting in Maine

- 2012 Maine Pilot Project in Boothbay is being managed by an independent entity (Grid Solar)

- PUC explored: Should Maine designate an entity to coordinate development of lower-cost alternatives to new electric transmission lines?

- Commission Activity Regarding Nontransmission Alternatives Coordinator
  - May 11, 2015 order: declined to designate “Smart Grid Coordinator”
  - June 30, 2015 Notice of Inquiry: requested further comment by July 21, 2015 on various issues relevant to consideration of designating an NTA coordinator.

Learning from Case Studies

Conclusions (1)

The Big Picture

- Growing number of electric examples
- Growing sophistication of leaders
- Initial results are very promising
  - Deferrals have been successful
  - NWAs often considerably less expensive
  - EE usually cheapest of NWAs…
  - …but often needs to be paired w/DR, DG, others
- Legislation/regulation was catalyst in almost all cases

Conclusions (2)

Implementation

- Senior Management buy-in is invaluable
- Cross-disciplinary communications & trust is critical
  - EE planners
  - T&D system planners
- Smaller is easier
- Distribution is easier; transmission is harder
- New analytical tools, big data offer great promise
- Modularity has great value
  - Buys time
  - Allows for calibration of forecasted need

Conclusions (3)

Evaluation

- Results mostly measured at substation (or equiv.)
  - So far, evaluation has primarily been a determination of whether construction could be deferred, or not….
  - Traditional EM&V still has value…but more for informing better planning and implementation in the future
- More work needed
  - How to appropriately quantify and attribute costs and benefits of geotargeted DSM

Policy Considerations for States

1. Require least cost solutions for T&D
   - Alternative is to change utility regulation to provide financial incentives to minimize T&D costs
2. Require long-term forecast of T&D needs
   - Essential to addressing lead time issues
   - Minimum 10 years; 20 years may be better
3. Establish “first cut” screening criteria
   - To trigger detailed assessment of NWAs
4. Promote equitable allocation of non-transmission costs
   - Transmission & NTA options treated differently
   - Some state legislation mandates state policy-makers to advocate for level playing field
   - ISOs required by FERC to consider state policies

Screening Criteria Examples

Current Screening Criteria for Detailed Assessment of NWAs

	Must Be Load Related	Minimum Years Before Need	Maximum Load Reduction Required	Minimum T&D Project Cost	Source
Transmission					
Vermont	Yes	1 to 3 4 to 5 6 to 10	15% 20% 25%	$2.5 Million	Regulatory policy
Maine	Yes			>69 kV or >$20 Million	Legislative standard
Rhode Island	Yes	3	20%	$ 1 Million	Regulatory policy
Pacific Northwest (BPA)	Yes	5		$3 Million	Internal planning criteria
Distribution					
PG&E (California)	Yes	3	2 MW		Internal planning criteria
Rhode Island	Yes	3	20%	$ 1 Million	Regulatory policy
Vermont	Yes		25%	$0.3 Million	Regulatory policy

“Financial incentives and cost allocation methods do not adequately support NTAs” – EISPC, February 2015

Q&A

Elizabeth Titus

Northeastern Energy Efficiency Partnerships (NEEP)

etitus@neep.org

Phone: 781-860-9177 x111

Chris Neme and Jim Grevatt

Energy Futures Group (EFG)

cneme@energyfuturesgroup.com

jgrevatt@energyfuturesgroup.com