ALLIANCE TO SAVE ENERGY

Using less. Doing more.

Financing Energy-Efficient Infrastructure

Unpacking The Toolbox of Best Practices and Partnerships

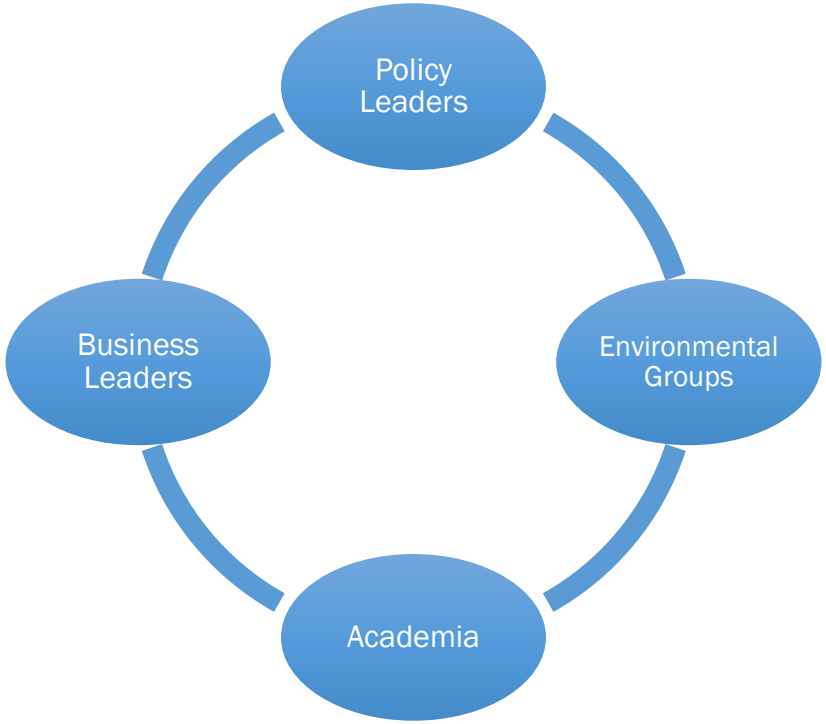
Kateri Callahan
President, Alliance to Save Energy

ACEEE Energy Efficiency Finance Forum

May 22, 2017

What Is the Alliance to Save Energy?

- Structure
  - –Nonprofit organization headquartered in U.S.
  - –International reach, but focus on federal energy efficiency policy
- Vision
  - –*A nation that uses energy more productively to achieve economic growth, a cleaner environment and greater energy security, affordability and reliability*
- Organization
  - –Founded in 1977—celebrating our 40th year!
  - –Staff of 25 professionals
  - –$7 million annual budget



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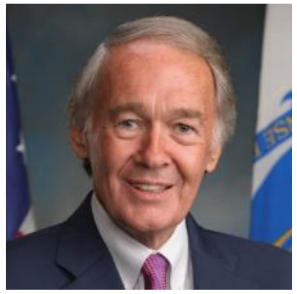

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Looking Back to ARRA: *Infrastructure Investments in Smart Grid*

- DOE Investments of Over $31 Billion in Projects Across the Country
  - $4.5 billion for modernization of the nation's electric grid
  - Private electric sector funding matched to total more than $9.5 billion
- Documented Results:
  - Improvements in distribution system reliability by up to 50%
  - Peak load reductions of more than 30%
  - Reductions in operational costs of up to 50%
  - Improved resilience to weather outages

Overview of Recovery Act-Funded Programs

PROGRAMS	TOTAL OBLIGATIONS	AWARD RECIPIENTS
Smart Grid Investment Grant	$3,482,831,000	99
Smart Grid Regional and Energy Storage Demonstration Projects	$684,829,000	32
Workforce Development Program	$100,000,000	52
Interconnection Transmission Planning	$80,000,000	6
State Assistance for Recovery Act Related Electricity Policies	$48,619,000	49
Enhancing State Energy Assurance	$43,500,000	50
Enhancing Local Government Energy Assurance	$8,024,000	43
Interoperability Standards and Framework	$12,000,000	1
Program Direction[1]	$27,812,000	--

Looking Back to ARRA
Financing Capacity Building in State Energy Offices

- Under ARRA, $3.1 billion was made available for SEP
  - Encouraged financing mechanisms such as revolving loan funds
  - 35 states with revolving loan funds or credit enhancing programs
  - Over $1.6 billion known capitalization
- Proven Track Record of Success:
  - Overall, SEP saved $7.23 for each dollar of federal investment—
    - $256 million annual cost savings
    - 42.3 million MBtu annual energy savings
  - Covers 153 million square feet of energy efficient retrofits in state and local government buildings alone
  - Leverages federal capital--every $50 million in SEP funding results in
    - Over $585 million in economic development
    - Connects 300,000 efficiency experts to business owners and consumers to help them save money through energy efficiency

Today's Opportunity: *Widen the Use of ESPCs in the Government Sector*

- Estimating and Understanding Market Potential
  - The U.S. market for ESCOs, the primary partner for and implementer of ESPCs, was $6.3 billion in 2015 and expected to reach $7 billion in 2017
  - Navigant Research predicts the market will grow to $11.5 billion in 2024
  - MUSH market represents 63% of total
  - New opportunities:
    - Increased demand for green-certified commercial office space
    - Expansion of ESPC Federal and MUSH markets
    - Expand use of ESPCs for mobility and water infrastructure

Today's Opportunity:
Widen the Use of ESPCs in the Federal Sector

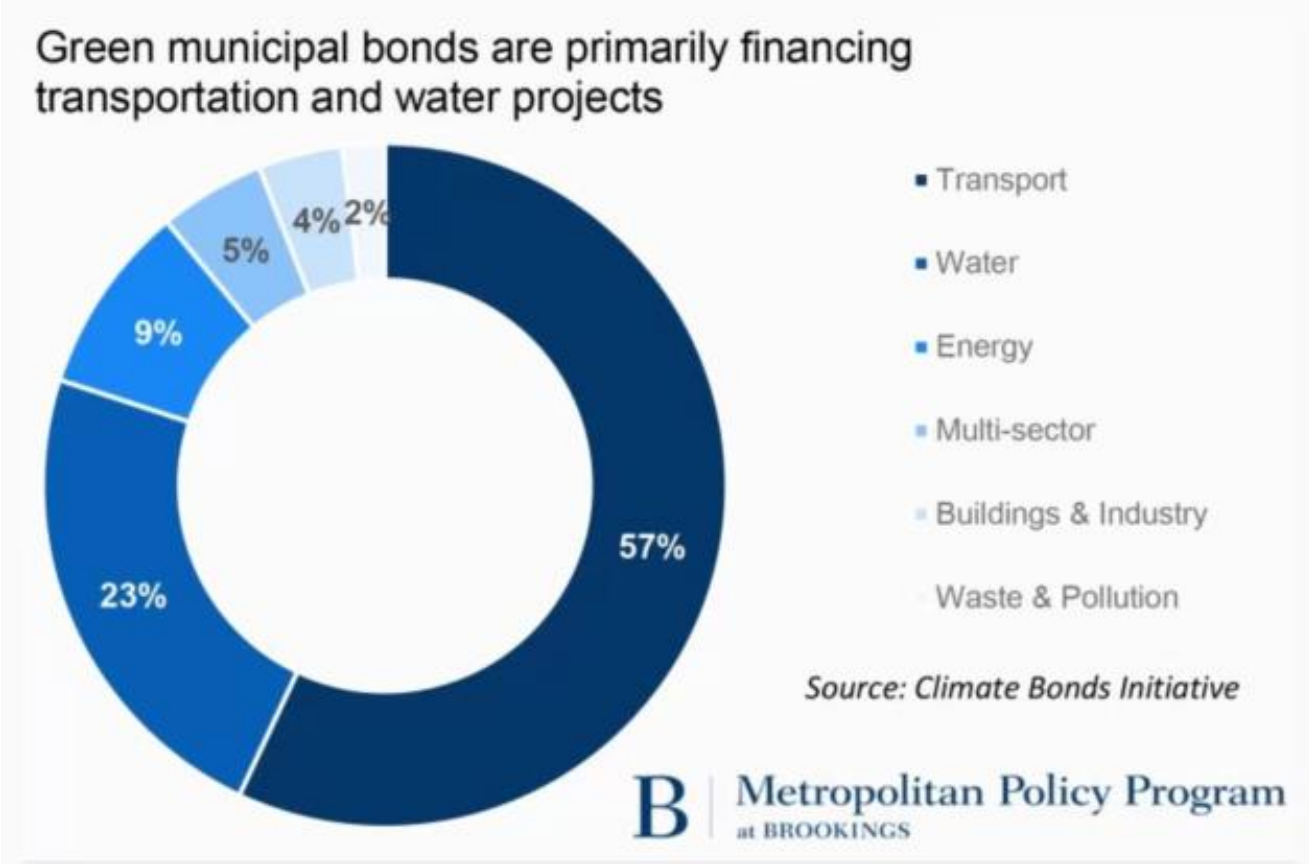
- How?
  - Increasing and extending federal energy and water management goals
  - Expanding use to include mobility projects
- Why?
  - Ensures efficiency improvements without upfront capital costs
  - Guarantees energy/operation cost savings
  - Saves taxpayers money on federal energy & water bills
  - Ensures federal infrastructure improvements
- **Challenge?**
  - Congressional Budget office scoring of ESPC costs does not recognize savings potential

Increase Leverage of Infrastructure Investments: *Maximize Public-Private Partnerships*

- Public Sector
  - Developing policy and regulatory instruments to overcome the barriers and facilitate the scaling-up of investments in energy efficiency projects is critical
- Private Sector
  - Sustaining investments relies on smart project/market development and commercial financing
- How Can Commercial Banks and Financial Institutions Contribute?
  - Dedicated credit lines
  - Risk-sharing facilities

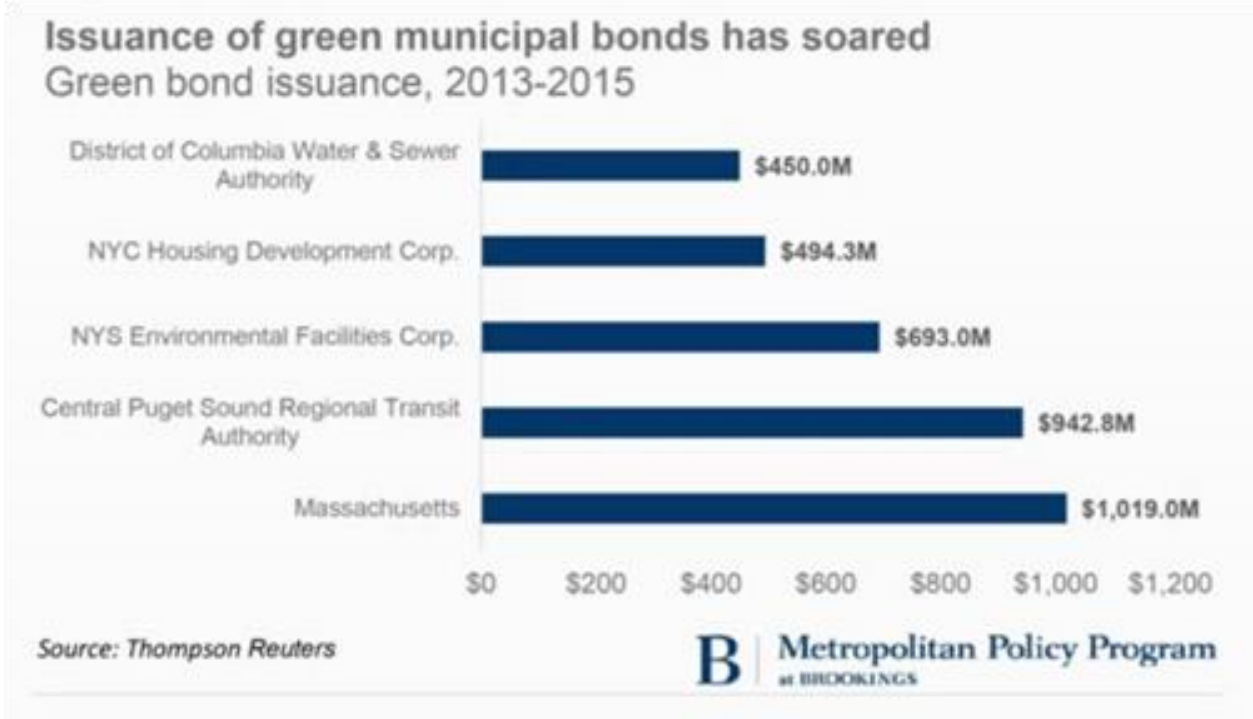
Increase Leverage of Infrastructure Investments: *Scaling Mechanisms: Municipal Green Bonds*

- Capitalize on Momentum:
  - U.S. municipal bond market is $3.8 trillion strong
    - Green labeled municipal bond market grew by 47% from 2014 to 2015
    - Attracts investors with high credit quality and unique tax advantages
    - Presents an opportunity for financing state and local infrastructure investments



Increase Leverage of Infrastructure Investments: *Scaling Mechanisms: Leading Issuers*

- Green Bond Issuances on Both Coasts…and in the Middle, Too
  - Largest Issuer: Washington
    - Over $1 billion
    - Seattle Transit Authority: $923 million
  - Massachusetts, New York, and D.C. active and issuing hundreds of millions
    - D.C. Water Authority example:
    - Taxable, fixed rate, first-ever "century" green bond
  - Connecticut, Cleveland, Indiana, San Francisco PUC, and St. Paul also issued green water bonds



Today's Opportunity:
Ensure Public Confidence in Green Investments

- CarbonCount® Green Bond Scoring Tool
  - Allows apples-to-apples evaluations of bond investments in U.S.-based, energy efficiency and renewable energy projects
  - Calculates project emissions reductions per $1,000 of investment
  - Promotes accountability and transparency in the growing green bond market
  - Encourages allocation of funds to those projects that are most impactful in terms of avoiding climate change

$$\frac{\left(\begin{array}{c}Annaul\ Hourly\ MWh/Therms\\ Avoided\ by\ Underlying\\ EE\ and\ RE\ Projects\end{array}\right) \times \left(\begin{array}{c}Dynamically\ Calculated,\\ Location\ Specific\ Hourly\\ Grid\ Emissions\ Factor\end{array}\right)}{Total\ Capital\ Cost} = CarbonCount^{®}\ Score$$

Federal Policy Outlook: *Opportunities in Tax Reform Debate*

- Accelerated Depreciation for Smart Meters and Smart Grid Systems
  - –Applies to qualified smart electric meters and smart electric grid equipment
  - –Allows cost recovery over 10 years instead of the 20
- Accelerated Depreciation for Equipment
  - – Revise and significantly shorten depreciation of equipment
- Opportunities for tax policy innovation
  - –Energy efficiency savings account concept for up-front costs of energy efficiency
  - –If homeowners could save for energy efficiency upgrades with pre-tax dollars, similar to options for health care costs, would more choose high-efficiency options?

Federal Policy Outlook:
Opportunities in Possible Infrastructure Package

- Water and Wastewater Plants
  - –Typically largest energy consumers for municipalities
  - –Energy efficiency can be cost-effective investment option in local infrastructure.
  - –Savings as much as 30%
- Financing and Infrastructure
  - –From 2009 to 2011, FEMP arranged ESPCs that leveraged $1.2 billion in project investment to save more than $3.5 billion in energy and water costs
  - –Over 20 years, $2.7 billion has been invested in 1,800 UESC projects that have saved more than 32,138,962 trillion BTUs
- Grid Modernization
  - –Reductions in line loss and voltage regulation could save 28 billion kWh in 2030
  - –Reduction of 10% in outage frequency, duration, and impact could save $2.5 billion annually

Federal Policy Outlook: *Potential Tax-Infrastructure Nexus*

- Interest in Infrastructure Package that Emphasizes Need for Public-Private Partnerships
  - Many observers consider infrastructure high on administration's priority list
  - Transportation Secretary Chao announced "principles" for infrastructure by end of May
  - Issue area more ripe than others for bipartisan compromise
- Fiscal Reality Dictating Joint Tax-Infrastructure Approach
  - Tax incentives could be targeted and deployed to target infrastructure priorities
  - Opportunities for efficiency include:
    - Efficiency requirements for procurements made with federal funds
    - Tax-exempt financing for state and local ESPCs

Thank You!

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