2016 NASEO Energy Policy Outlook Conference

State Energy Program Competitive Awards
Kick-Off Event

State Energy Program (SEP)
Weatherization and Intergovernmental Programs
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy

February 9, 2016

Welcome and Introduction

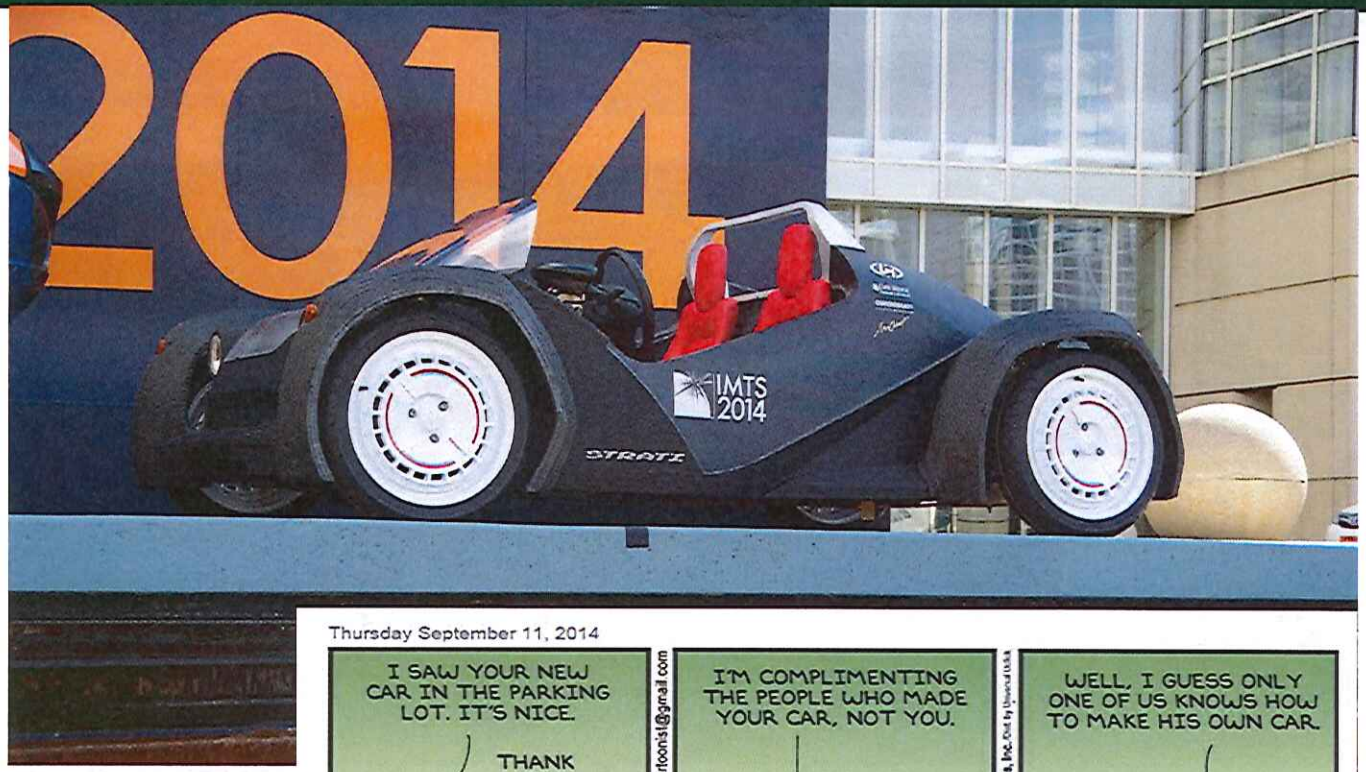
Amy Royden-Bloom

Overview of the SEP Competitive Awards

The Strati

World's First 3D Printed Car using BAAM Technology

U.S. DEPARTMENT OF ENERGY | Advanced Manufacturing



DILBERT
by SCOTT ADAMS

Changing The Game

- ✓ **Dec 2013**
  ORNL, Local Motors partner to produce world's first production 3D printed vehicle
- ✓ **Feb 2014**
  ORNL, Cincinnati partner to develop commercial large-scale manufacturing (BAAM) system
- ✓ **Sept 2014**
  Strati printed live at 2014 IMTS, takes first drive over >100,000 attendees

LOCAL MOTORS™

CINCINNATI®

OAK RIDGE National Laboratory | MANUFACTURING DEMONSTRATION FACILITY

Iconic Shelby Cobra

3D Printed , All-Electric Car using BAAM Technology

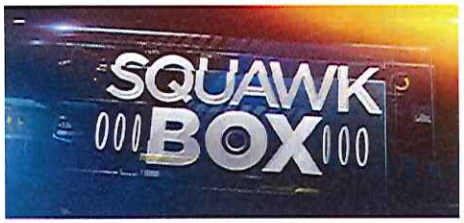
U.S. DEPARTMENT OF ENERGY | Advanced Manufacturing

Redefining Rapid Innovation

- ✓ **Nov 2014**
  Design, print, build and finish a fully functional car in only six weeks!
- ✓ **Jan 2015**
  9 | President Obama, VP Biden briefed on 3D printed car
  10 | Car arrives at 2015 Detroit Auto Show; more than 215,000 attendees

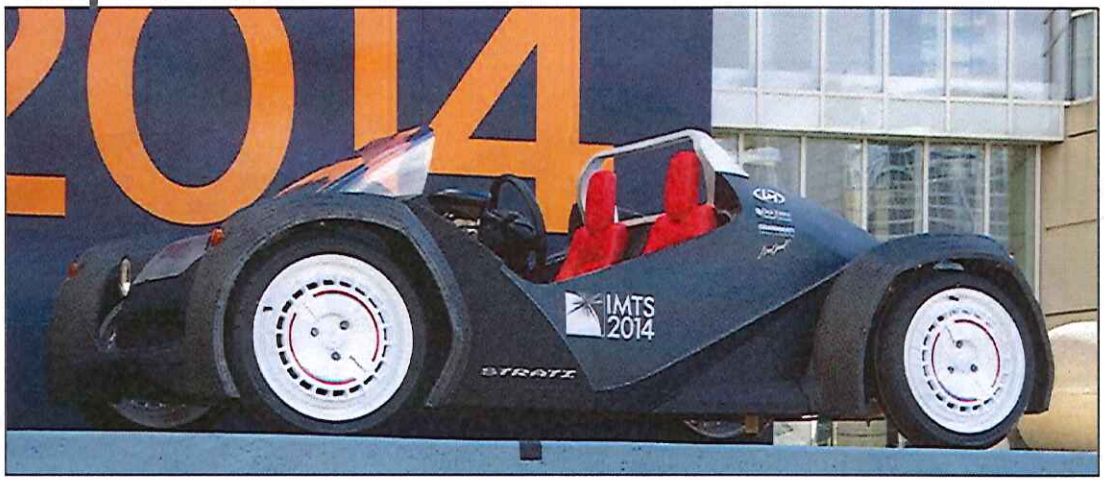
OAK RIDGE National Laboratory | MANUFACTURING DEMONSTRATION FACILITY

NORTH AMERICAN INTERNATIONAL AUTO SHOW



JEOPARDY!®

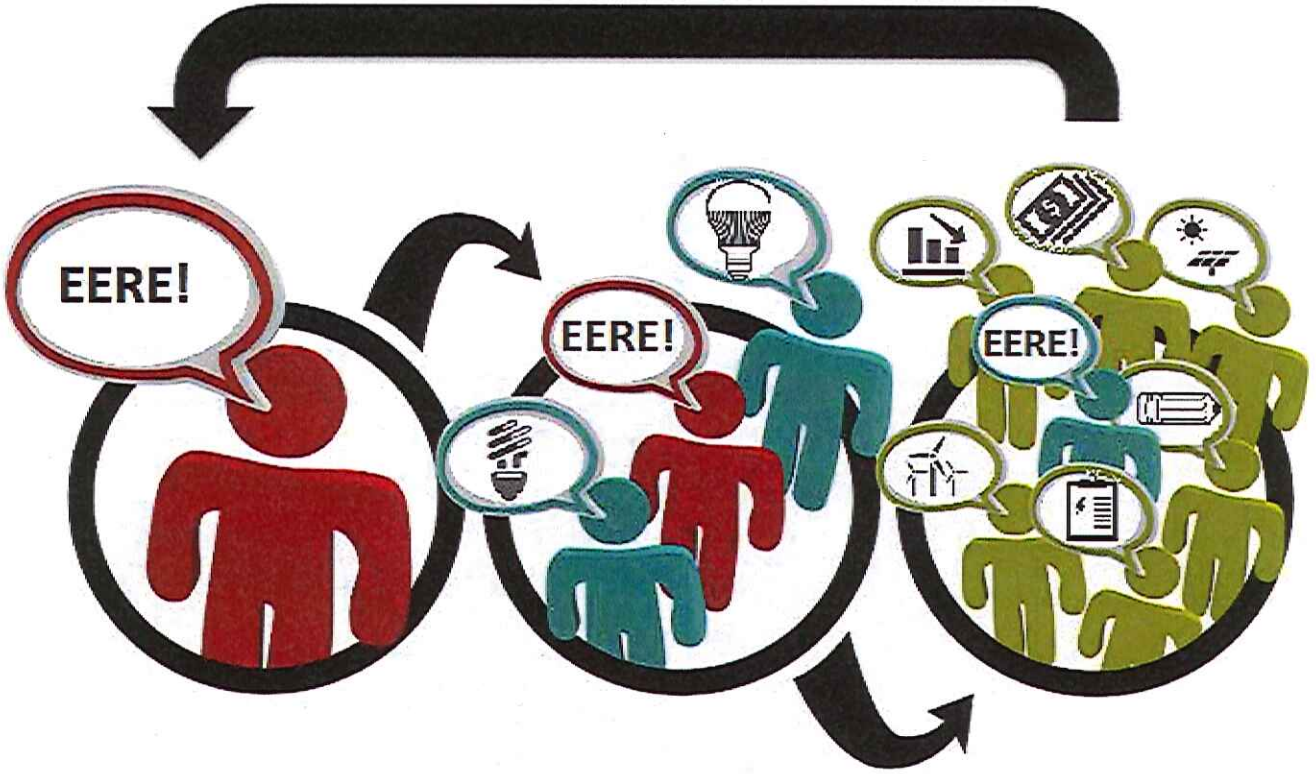
September 2014



November 2014

Peer Exchange and Teamwork

All of our programs grow stronger when we exchange our best ideas and lessons learned!



Teamwork

AOI 1 States:
ME, NY, TN, VA

Project Officers:
Greg Dierkers
Amy Kidd
Charles Satterfield
David St. Jean
Corey Vezina

Advisors:
Alice Dasek, WIPO
Sarah Zaleski, WIPO
Patrick Gilman, WETO
Joan Glickman, BTO
Jim Horne, EPA
Michael Li, EE
Johanna Zetterberg, EE

AOI 2 States:
AK, MN, MO, NE, NH, NM, TN, VT

DOE and State Goals

DOE Goals:

1. *Collaborate* with the Competitive Cooperative Agreement awardees to create successful energy efficiency programs
2. *Understand* what makes a successful program
3. *Share* this information with the SEO networks and stakeholders like NASEO
4. *Replicate* successes across the country
5. *Save* energy!

State Goals:

1. *Develop* easy and effective energy efficiency policy frameworks
2. *Implement* successful programs
3. *Learn* through the process
4. *Share* lessons learned with peer states, cohorts and DOE
5. *Save* energy!

Supporting Resources

DOE will support States in successfully accomplishing their goals by:

- **Leveraging Expertise of DOE EE/RE Offices**
  - Technical Advisors on-hand to help: EE Front Office (Areas 1 and 2); Wind Energy Technology Office (Area 1); Buildings and Technology Office (Area 2); U.S. Environmental Protection Agency (Area 2)

- **Establishing Cohort Collaboration**
  - Project Officers and the Policy & Technical Assistance Team will bring together cohorts of States with similar goals and barriers to enable information sharing and collaboration
  - DOE will feature best practices so that the lessons learned will help others addressing similar situations

- **Providing Technical Assistance (TA)**
  - DOE will offer webinars, workshops, peer exchanges, and other TA to address specific needs of States

Supporting Resources

DOE will support States in successfully accomplishing their goals by:

- **Supporting Data Collection**
  - DOE will work with States to support project data collection. In addition to data webinars, States will have access to one-on-one data support

- **Holding Grant Management Discussions**
  - Participating in project management planning activities to ensure DOE's Program requirements and/or limitations are considered in performance of the work elements
  - Working with awardees in the development of consistent best practices and implementation of those best practices in other programs

- **Disseminating Successes**
  - DOE will make select Implementation Models and Roadmaps publicly available in the State and Local Solution Center and on the SEP website, recognize State success at NASEO events, and feature best practices so that the lessons learned help others addressing similar issues in their energy efficiency efforts

Taxonomy of Deliverables

- **Roadmaps** will serve as a guide for project implementation that achieves State or regional environmental and economic development goals with milestones set for 2020 and 2025. (AOI1 states only)

- **Implementation Models** are highly replicable pathways for the deployment of energy efficiency in an organization. They provide specific details on the approaches organizations take to create sustainable solutions and what they achieved. (AOI2 states only)

Roadmaps

*The "Roadmap" is a guide for project implementation that, to the extent possible, will be **replicable** and serve as "how-to" guides for other States.*

States have flexibility with regard to Roadmap format, but should include the following:

- *Baselining*
- *Time-Horizon and Regional Development Goals*
- *Action/Implementation Plans*

*The Roadmap will serve as a **resource** for other States interested in achieving the same goals.*

Implementation Models: Approaches to Overcome Barriers

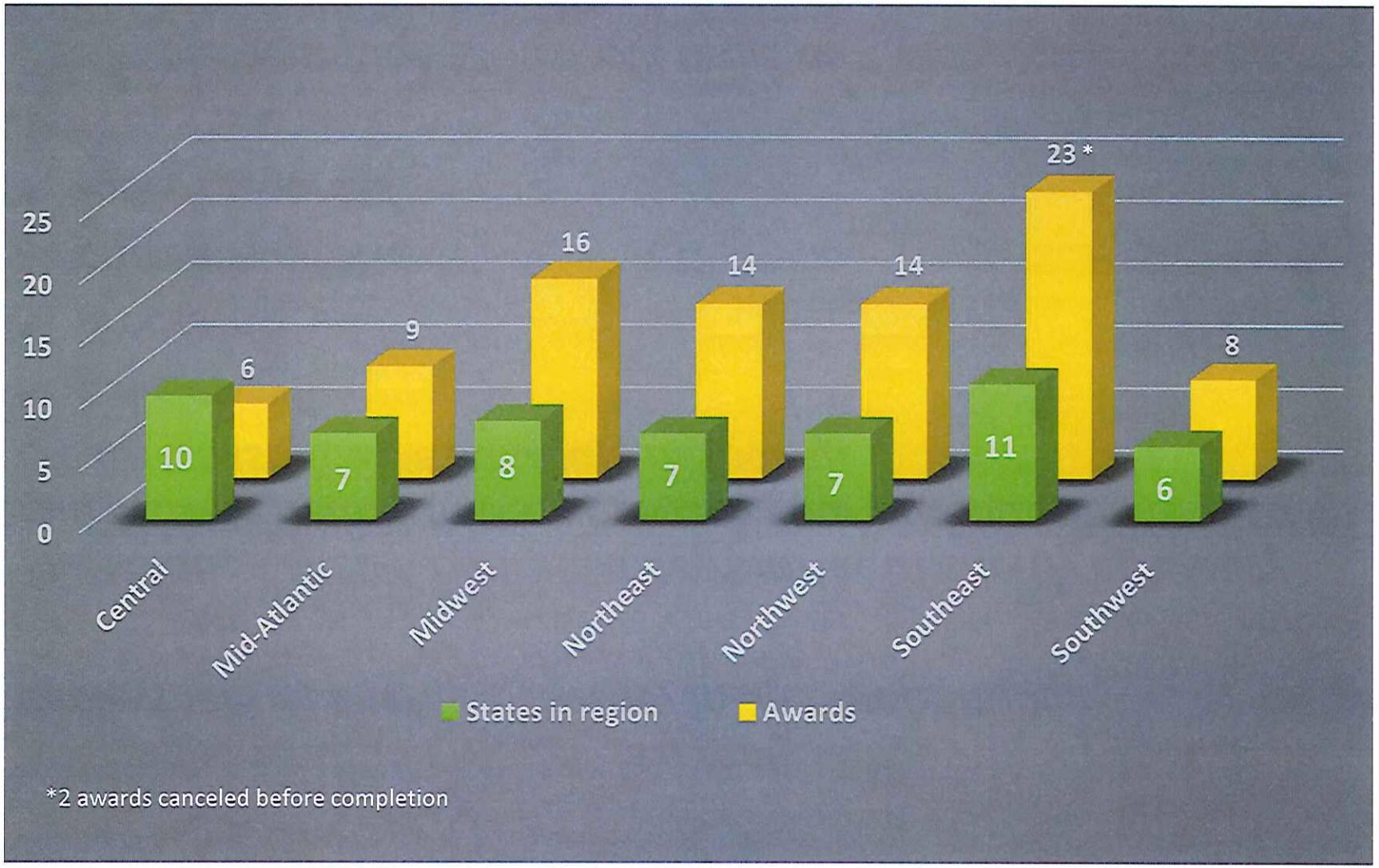
*An "Implementation Model" is a **replicable pathway** for the deployment of energy efficiency in an organization.*

*The solution should address a **key barrier** to energy efficiency and provide details to the approach your organization took to create a **sustainable solution**, including:*

- *policies*
- *processes*
- *outreach efforts*
- *tools/resources*

*The Implementation Model will serve as a **resource** for other States facing similar barriers.*

SEP Competitive Awards 2010 – 2015 by NASEO Region



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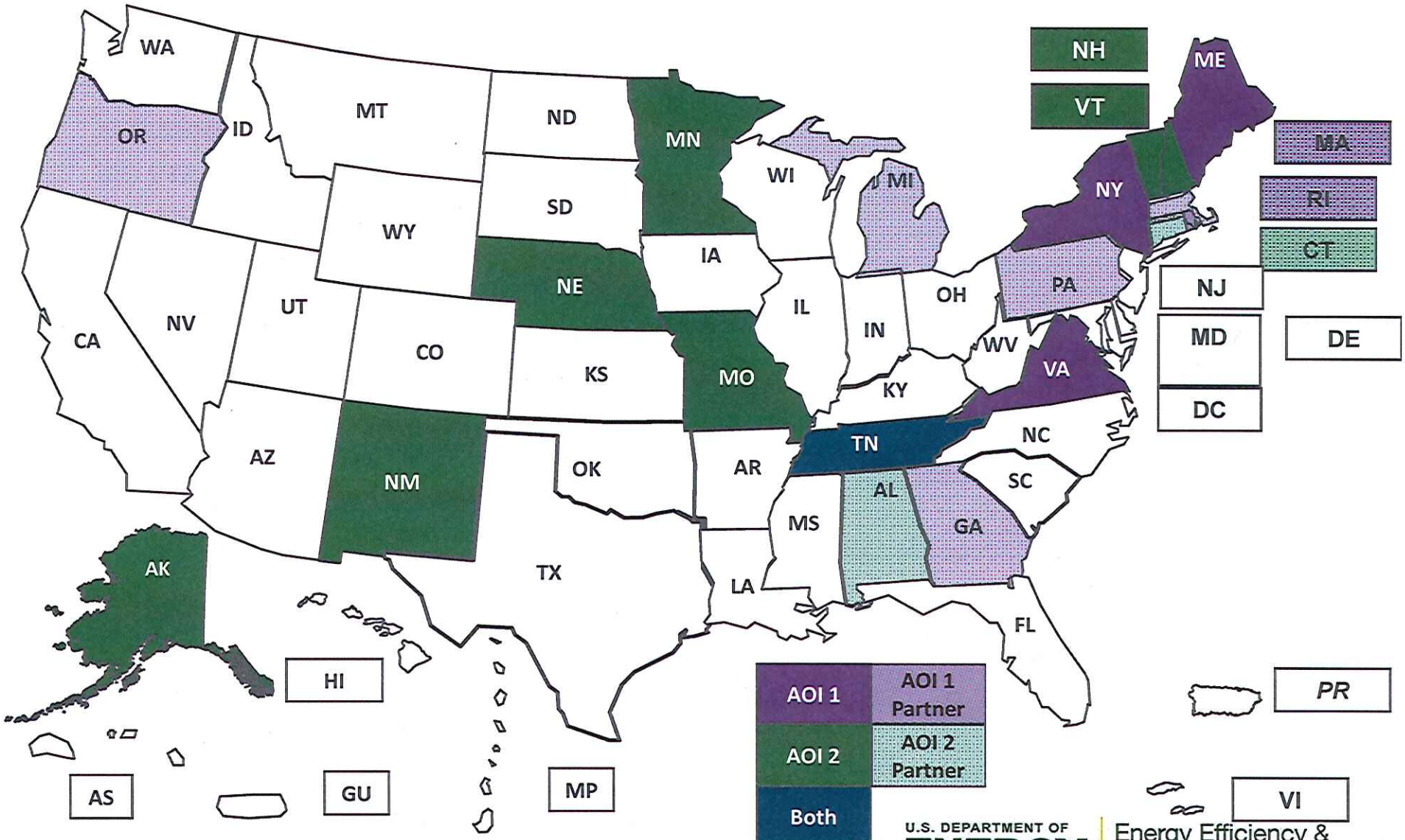
SEP FY15 Competitive Award Distribution



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SEP FY15 Competitive Award – The Numbers

State Energy Planning

Bolster State/regional energy planning by funding efforts to facilitate stakeholder and interagency discussions and related activities concerning (1) the future direction of the energy sector in the region/State, with emphasis on the electric power sector and natural gas supply and transport, and (2) how EE and RE fit into the vision for the future.

ME, NY, TN, VA

Opportunities for Innovative EE and RE Practices

States identify the most impactful areas they could progress in and develop and implement a plan to advance specific EE and RE policies.

Working With Local Governments

AK, MN

Wastewater

NE, NH, NM, TN

Evaluation, Measurement and Verification Frameworks

MO

Valuation of EE

VT

SEP FY15 Competitive Awards

Area	No. of Awards	Funding Levels
1	4	$1,976,705
2	8	$2,996,295
Total	**12**	**$ 4,973,000**

Next Steps

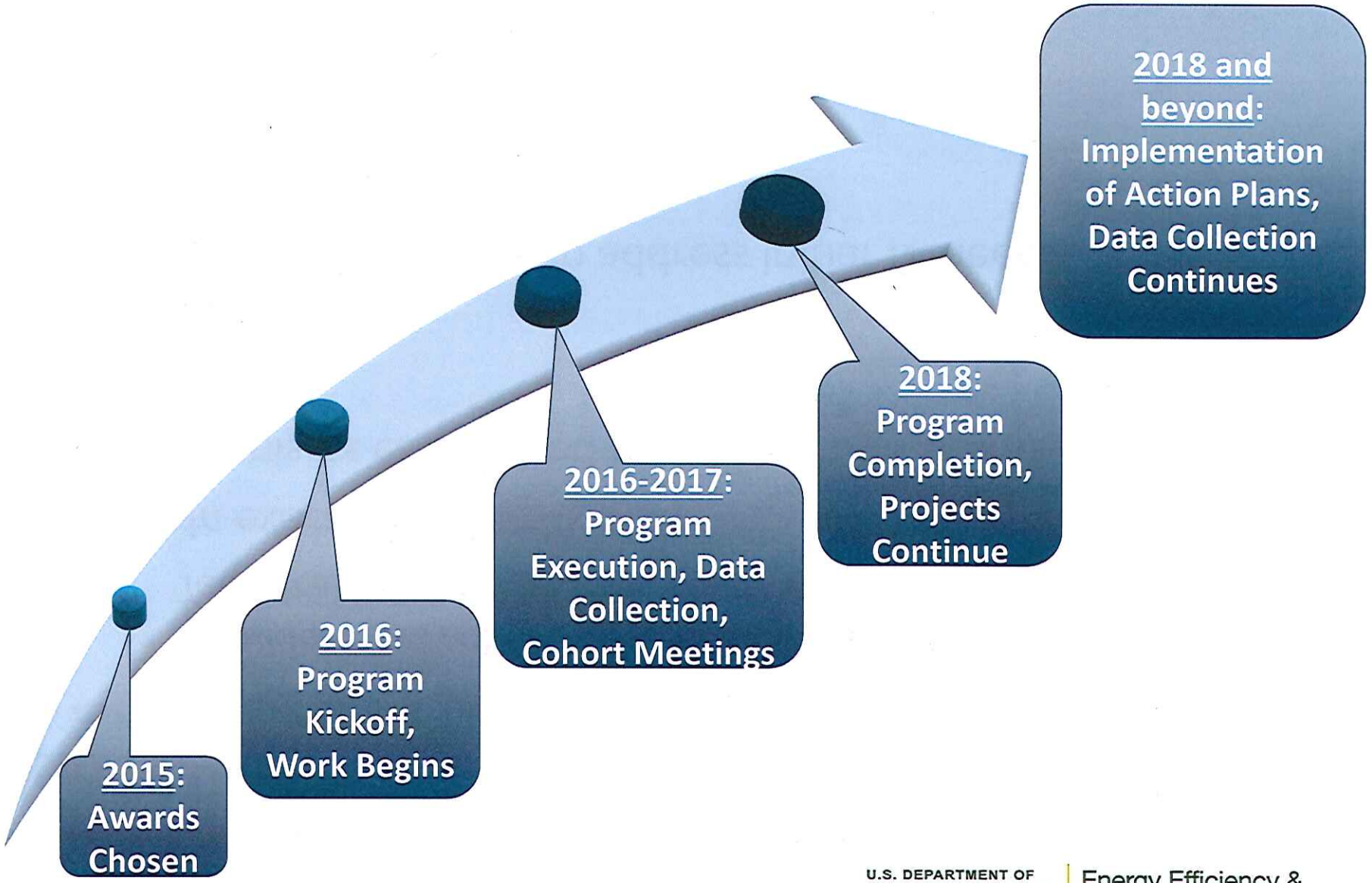
Next 30 Days:

- Communication schedule/calendar
  - Individual and cohort calls with States, Project Officers, Technical Advisors and the Policy Team
- Begin execution of work plan
- Mechanisms established for information sharing

Next 60 Days:

- Schedule of webinars to address initial TA needs

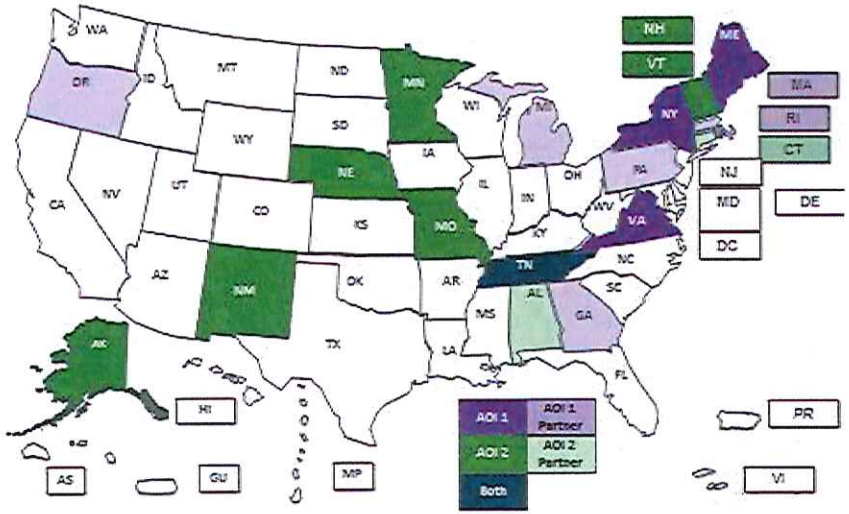
2015 Competitive Award Timeline: 2015 and Beyond



3-Year Strategy and Beyond

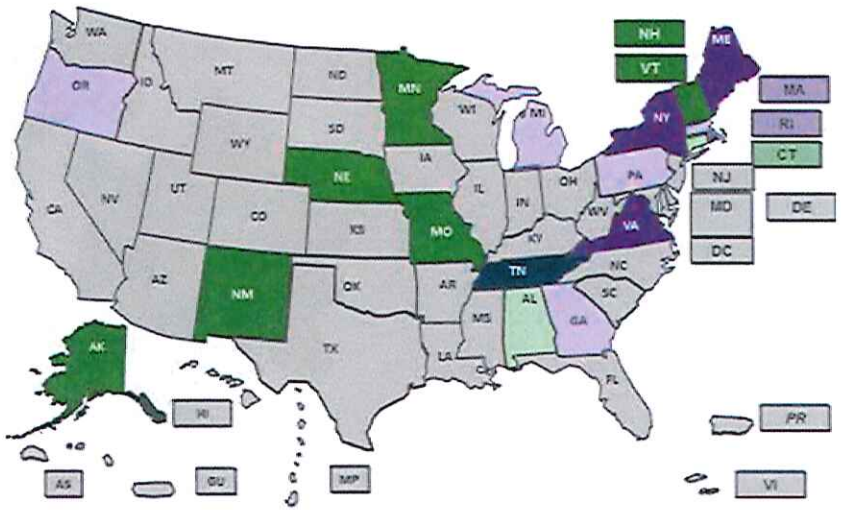
What will it take to document and replicate successful programs?

TODAY



"If we can work together to find the best policy solutions to today's energy needs, we can implement these ideas across the nation for a more energy efficient tomorrow."

TOMORROW



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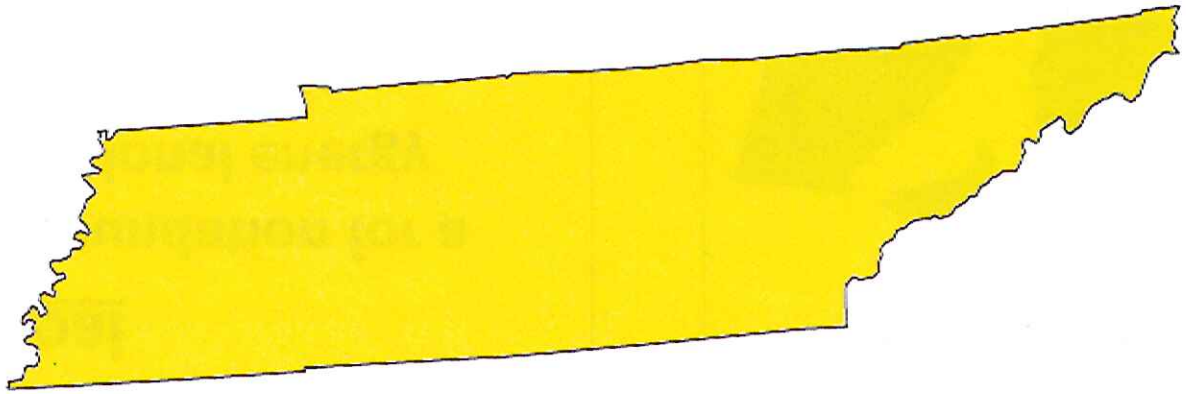
Documenting & Replicating Successful Programs

AREA ONE
STATE ENERGY PLANNING
Tennessee



Amy Kidd

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Area of Interest 1: Tennessee

DOE Funding: $800,000

Cost Match: $171,905

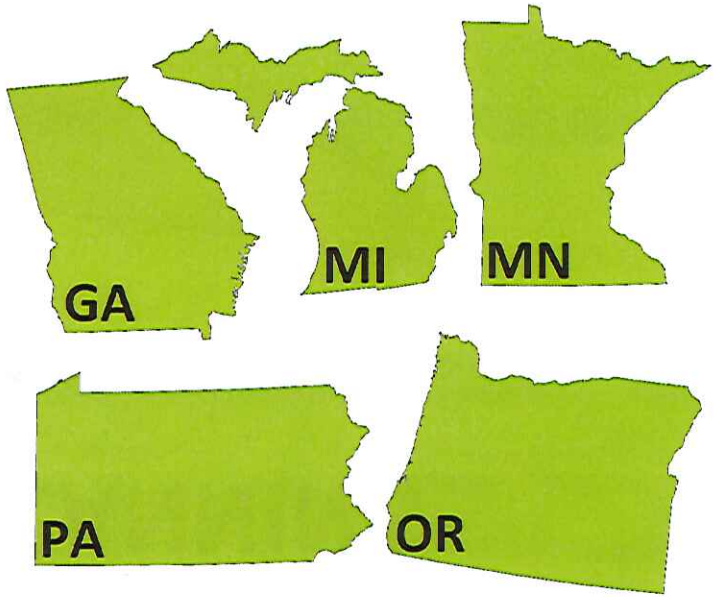
Project Goal

Create the foundation for a voluntary national energy efficiency (EE) registry.

Potential Impact

A standardized, transparent, and non-duplicative tracking system for EE upgrade projects that is both flexible and scalable.

Project Partners



NASEO

The Climate Registry

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Stakeholder Community

- State utility commissions
- State environmental agencies
- Federal agencies that use energy efficiency data
- Private and public sector energy efficiency project and program implementers (e.g. ESCOs)
- Utilities
- Providers of EE services, products and equipment
- EE evaluation experts
- Building code community
- Professional (e.g. ASHRAE) and trade associations (e.g., NEMA, AHRI)
- Energy-intensive industries
- Academic institutions
- Environmental non-profits

TN Area 1: Timeline and Approach

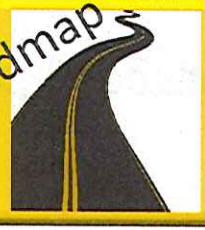
2016 2017

Research

Stakeholder Engagement

Model Principles

Roadmap



Outreach

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AREA ONE
STATE ENERGY PLANNING

Greg Dierkers

Maine, New York, Virginia

Area of Interest 1: Maine – Energy Planning Roadmap

DOE Funding: $284,022

Cost Match: $73,825 (26%)

Project Goals / Outcomes

- Prioritize areas of competitive advantage in the clean energy sector (e.g., wood pellets)
- Identify policies that support market strengths and address the state's energy challenges
- Create a tracking system to measure energy savings, emissions reductions, and economic development indicators
- Build a robust stakeholder network!

Impact

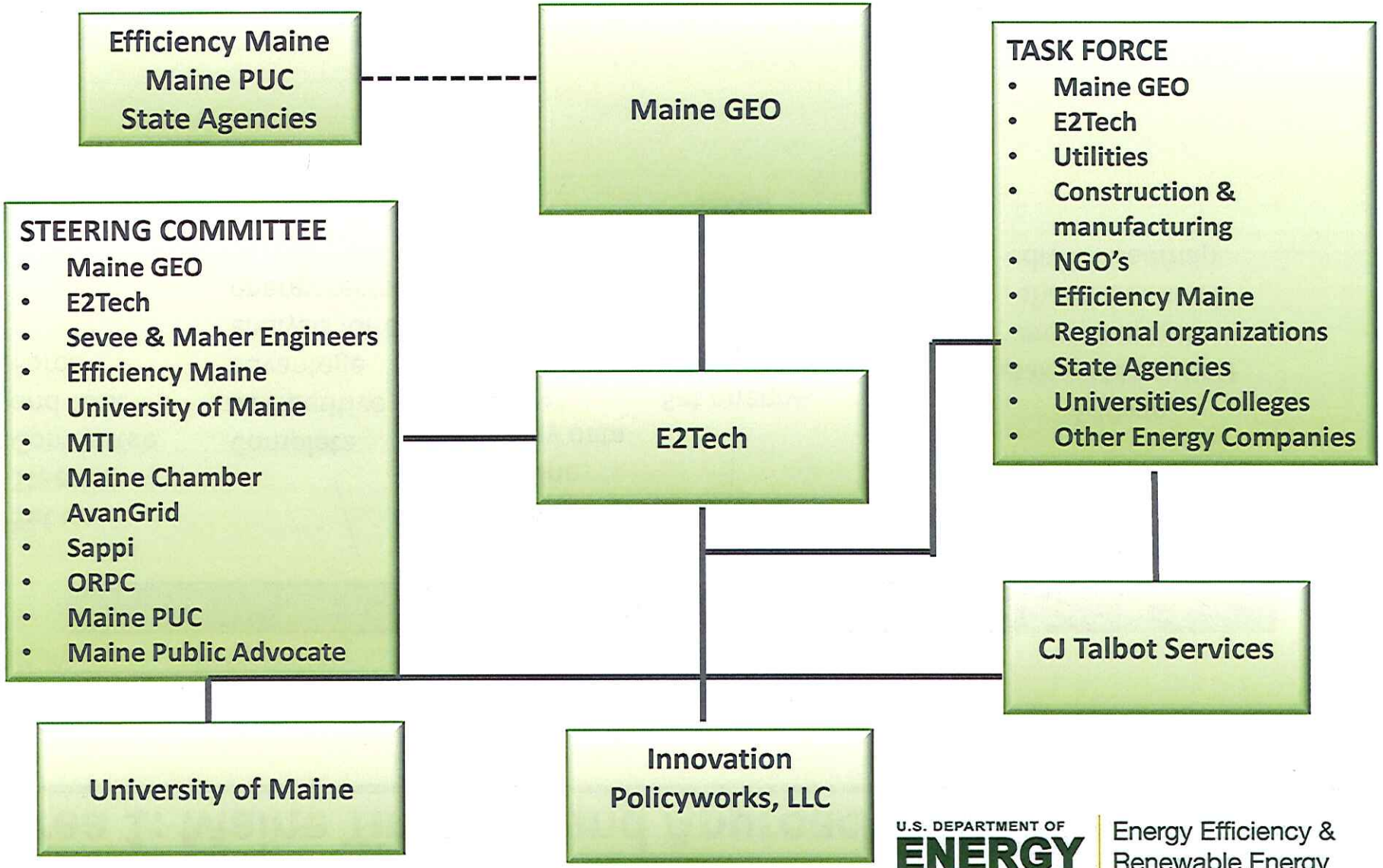
- Achieve electricity and natural gas savings of 20% by 2020
- Reduce heating oil use 20% by 2020
- Weatherize 100% of homes by 2030

Stakeholders

Project Team: Governor's Energy Office, E2Tech

Partners: Efficiency Maine, Maine PUC, Maine Technology Institute, Maine Public Advocate, Utilities, Ocean Renewable Power Co., Maine State Chamber of Commerce, etc.

Maine Energy Planning Roadmap - Project Organization Chart



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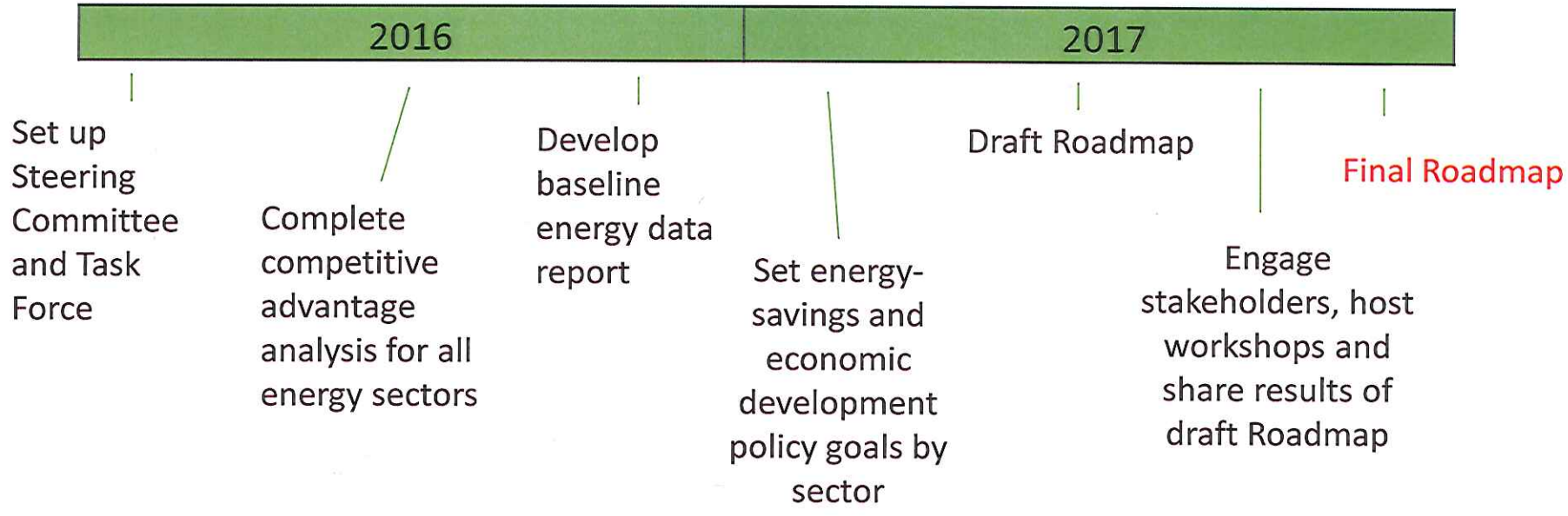
Area 1: Maine Timeline and Approach

Milestones for Documenting and Sharing Success



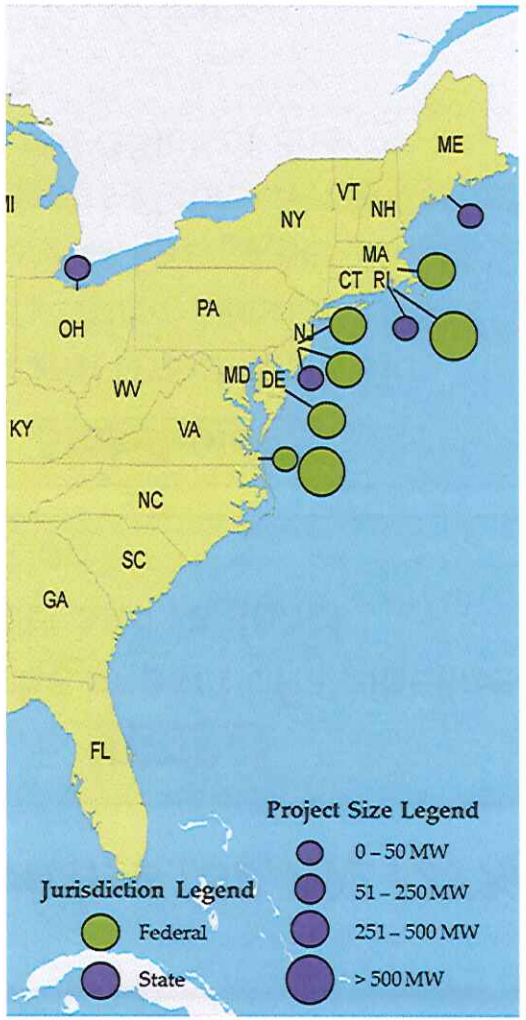
Area 1: New York – Market Opportunity in Northeast

Potential for offshore wind (OSW) in the northeast (background) by 2030

- 3,000+ MW (planned projects)
- $3.5 billion in economic activity
- 17,000 FTE jobs

The roadmap aims to catalyze state cooperation to improve understanding of the Northeast OSW market

Proposed Offshore Wind Energy Projects in the Northeast



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Area of Interest 1: New York – Offshore Wind (MA, ME, RI)

DOE Funding: $592,683

Cost Match: $162,702 (27%)

Project Activity

- Review each state's existing policies to identify enhancements that support OSW
- Prepare market characterization and cost study
- Understand shared regional approaches that will reduce project costs
- Better align existing state and federal activity

Impact

Convey the impact of a pipeline of projects and regional cooperation

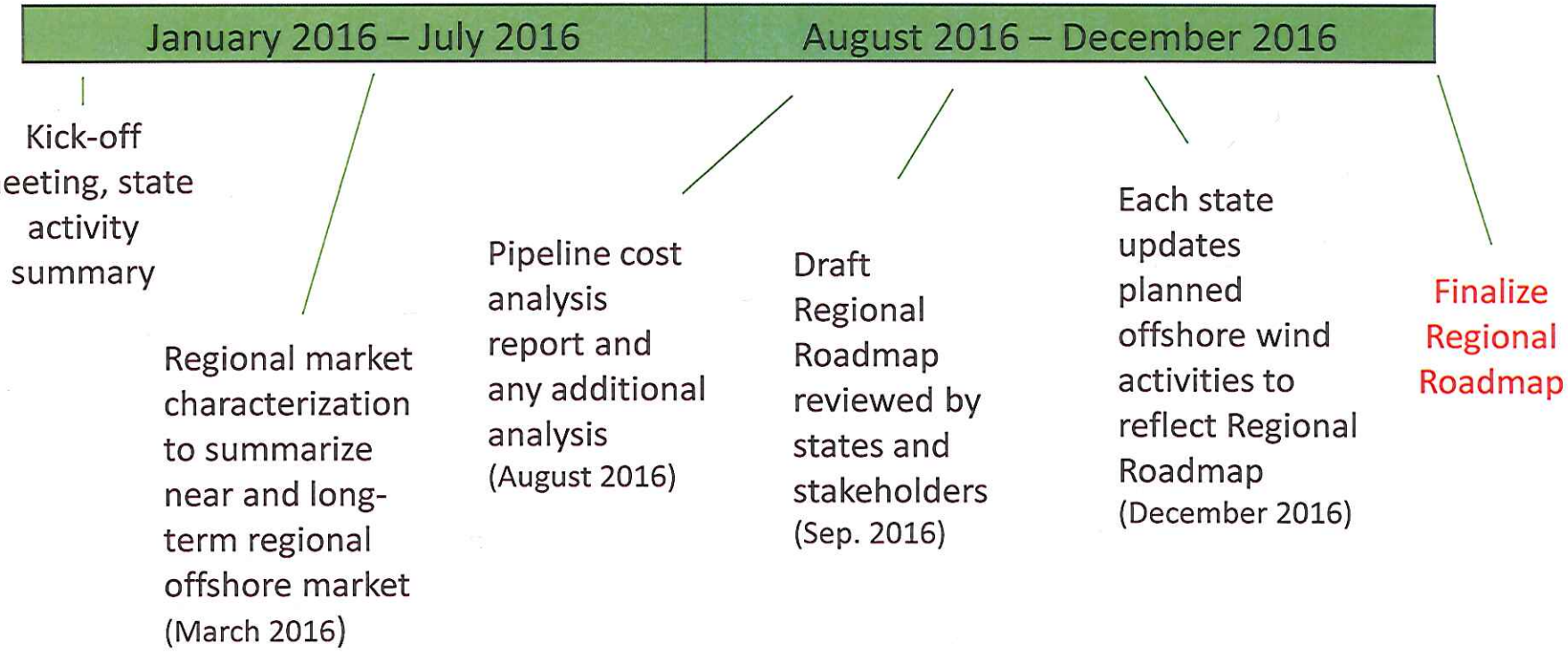
Stakeholders

Project Team: NYSERDA, Maine Governor's Office, Massachusetts Department of Energy Resources, Massachusetts Clean Energy Center, Rhode Island Office of Energy Resources

Partners: CESA, Sustainable Energy Advantage

Area 1: New York Timeline and Approach

Milestones for Documenting and Sharing Success



Area of Interest 1: Virginia – Building More EE

DOE Funding: $300,000

Cost Match: $60,046 (20%)

Project Goals

- Create a baseline to track progress towards 10% energy-savings goal by 2020
- Develop a best practices paper on regulatory and other initiatives for Virginia
- Identify the 7-8 most policies needed to achieve meet EE goal

Impact

Reduce electricity use 10% by 2020

- Save 9.1M MW hrs
- Save $825M in utility bill costs
- Reduce 2.2MMTCO_2

Stakeholders

Project Team: Virginia Department of Mines, Minerals and Energy, Virginia EE Council, Clean Energy Solutions, SEEA

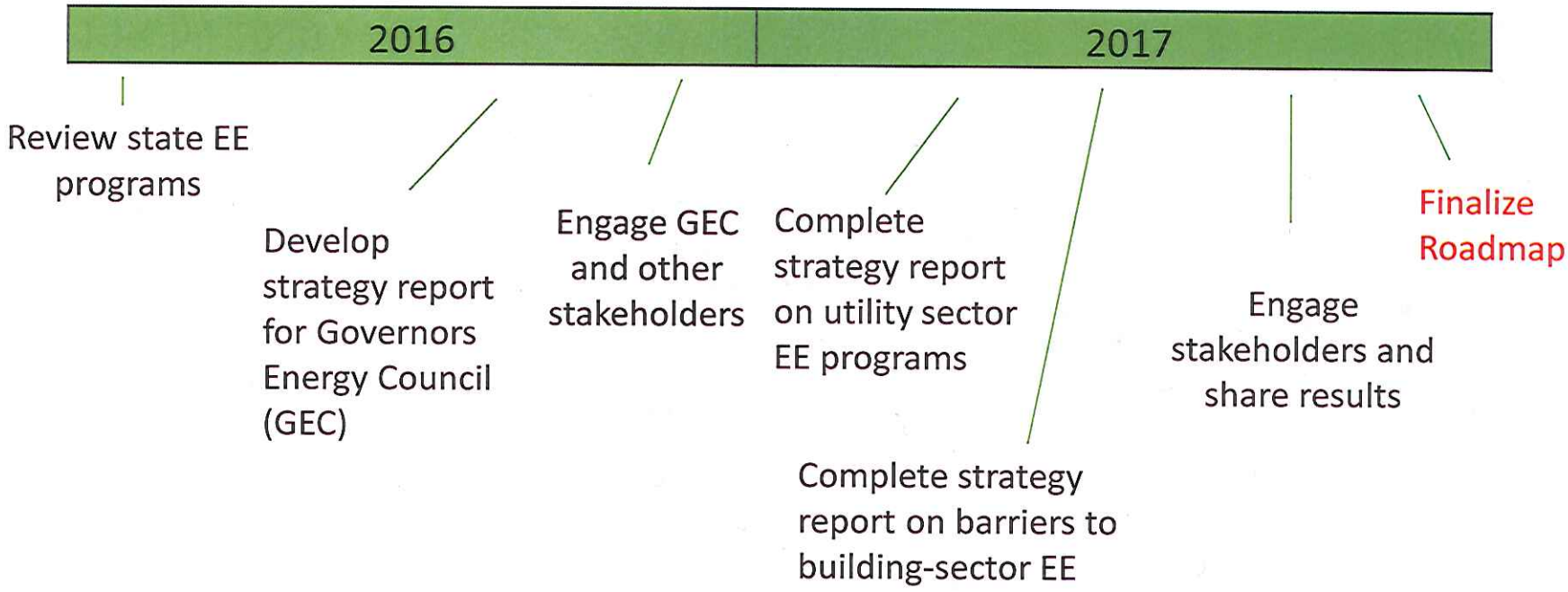
Partners: Governors Executive Committee on Energy Efficiency (GEC)

Area 1: Virginia – Energy Efficiency Market Opportunity

- Improve energy data collection and use
- Engage utilities and building-sector stakeholders to develop EE policy pathways
- Use roadmap to meet Gov. McAuliffe's goal to reduce energy use by 10% by 2020

Area 1: Virginia Timeline and Approach

Milestones for Documenting and Sharing Success



AREA TWO

Working with Local Governments

Greg Dierkers

Alaska, Minnesota

Area 2 Local Governments: Alaska – "Kickstarting" EE in Rural Communities

DOE Funding: $299,330

Cost Match: $60,550

Project Goals / Outcomes:

- Prequalify small project energy efficiency developers (SPEEDs)
- Support up to 20 kick-start grants for rural facilities to identify retrofit opportunities
- Create an Energy Efficiency Technical Assistance Center to support rural grants

Impact

- Creates a sustainable program to deploy energy-efficiency in underserved rural communities
- Est. annual reductions of 17B Btu and 1200 MT of CO_2/year

Stakeholders

Project Team: Alaska Energy Authority, Alaska Housing Finance Corp, Alaska Native Tribal Health, SPEEDs

Partners: Facility owners / operators, municipalities, schools, state buildings

Area 2: Local Government: Assist Local Gov'ts in Increasing EE / RE - Alaska

Outcomes

- Launch an Energy Efficiency Technical Assistance Center
- Develop an energy-savings calculator for facility owners
- Create a network of contractors
- Collection of energy and cost-savings data
- Aligns with DOE peer network

Area 2 Local Governments: Minnesota – Enhancing Energy Planning

DOE Funding: $299,353

Cost Match: $60,000

Project Goals / Outcomes:

- Engage local government partners to embed energy reduction strategies into city plans
- Develop case studies of exemplar cities, a wedge diagram tool, and an energy planning template
- Host a webinar and workshops to train cities to use the energy planning resources
- Support state-wide implementation through an online database for ongoing energy & GHG reduction tracking

Impact

- Save 36M MMBTU / yr by 2040
- Reduce 3M tons of GHG emissions annually by 2040

Stakeholders

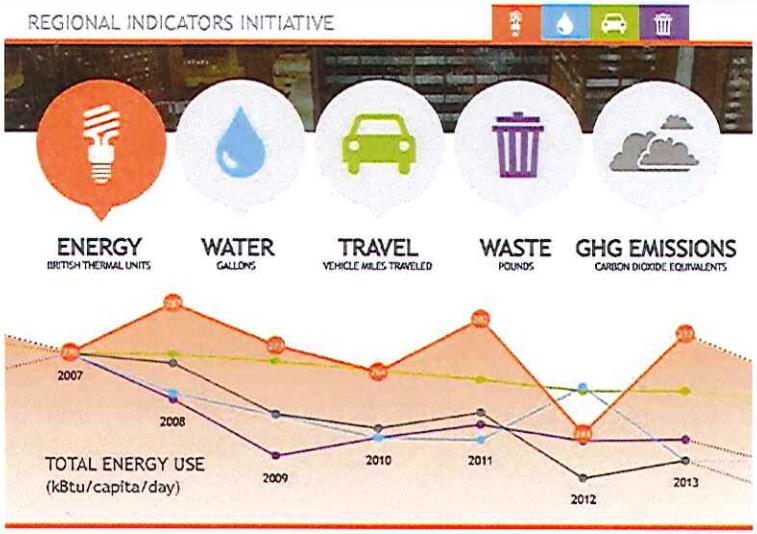
Project Team: MN Dept of Commerce, Division of Energy Resources, University of Minnesota, GPI and LHB

Partners: Local communities TBC

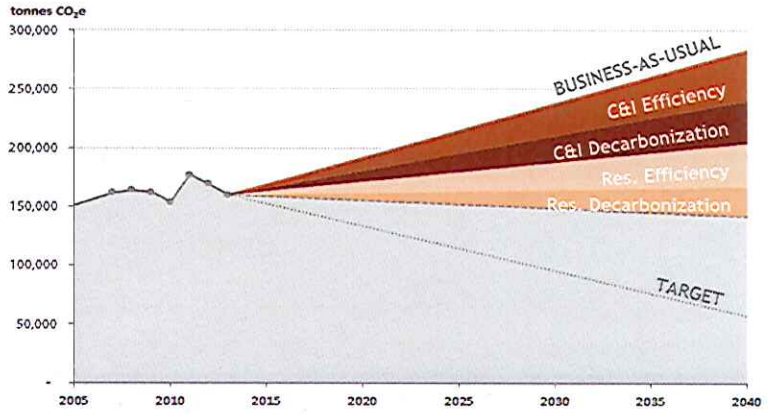
Area 2: Assist Local Gov'ts in Increasing EE / RE – Minnesota

Outcomes

- Build on existing Regional Indicators Initiative efforts to provide energy planning resources to local governments within Twin Cities metro region
- Support integration of energy plans into 2040 Comprehensive Planning process for Twin Cities metro area cities
- Provide workshops on energy planning tools to local governments in the Twin Cities area
- Use case studies, webinar, website, and database to further inform cities statewide

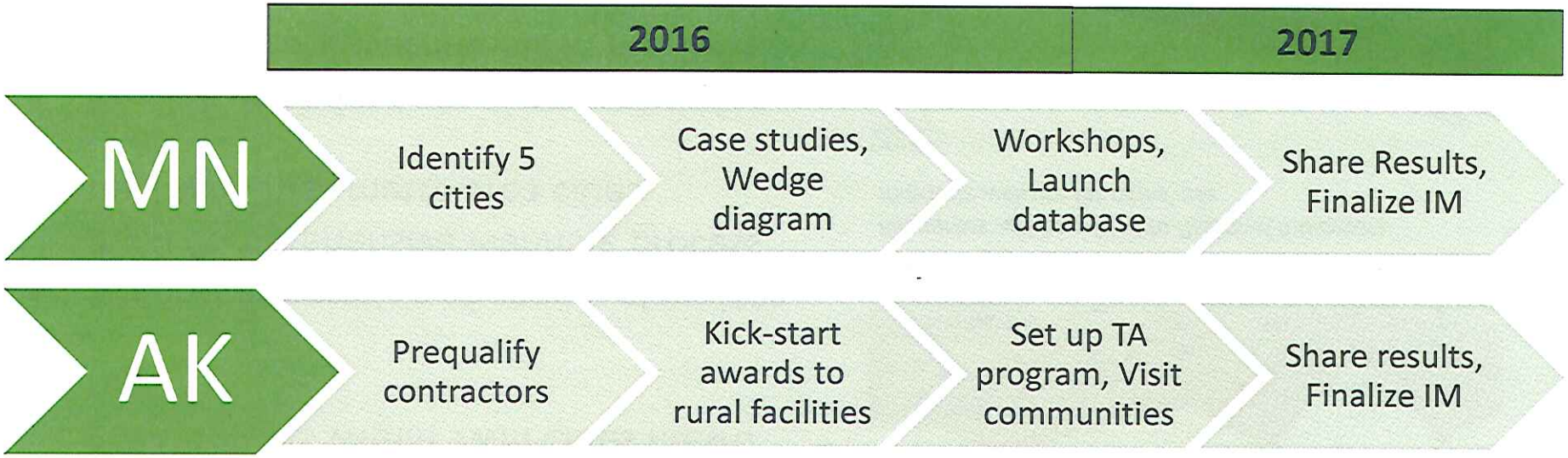


Resources will be added to Regional Indicators Initiative website for cities' use



Example of wedge diagram tool developed for the Regional Indicators Initiative

Area 2: Assist Local Gov'ts in Increasing EE / RE



AREA TWO

Wastewater Treatment Facilities

Alice Dasek

Nebraska, New Hampshire, New Mexico, Tennessee

Area of Interest 2:
Nebraska, New Hampshire, New Mexico, Tennessee (with Alabama)

DOE Funding: $1,343,277

Cost Match: $269,515

Project Goal and Potential Impact

- Inventories of detailed energy performance and audit data for wastewater treatment facilities to enable effective prioritization and design of retrofits in an underserved sector
- Action plans and successful showcase projects in small and medium wastewater treatment facilities saving up to 33.5 million kWh and 30,000 tons of CO_2 annually
- Training and sharing of best practices and lessons learned to motivate and enable other wastewater treatment facilities

Target Markets

Partners & Stakeholders

University of Nebraska, Manufacturing Extension Partnership; NE League of Municipalities; Public Service Company of NH dba Eversource Energy; Unitil Energy Systems; NH Electric Cooperative; Granite State Electric dba Liberty Utilities; US Environmental Protection Agency Regions 1 & 4; Mora County and Cities of Espanola, Taos, Tucumcari, and Ruidoso, NM; NM Rural Water Association; City of Santa Fe, NM; Tennessee Valley Authority; TN Public Power Association; Oak Ridge National Laboratory; TN Municipal League; TN County Services Association; TN Development District Association; TN Municipal Technical Advisory Service; TN County Technical Advisory Service; AL League of Municipalities; AL Water Pollution Control Association; North AL Council of Local Governments; University of Memphis; and Clean Energy Solutions, Inc.

Area 2: Wastewater Vision for Success

Goals

- Save 33.5 million kWh/year and 30,000+ tons of CO_2 through energy efficiency retrofits
- Benchmark energy performance of 400 wastewater treatment facilities in five states
- Complete 110+ energy wastewater facility audits
- Provide training & technical assistance for 75+ municipalities & related stakeholders

Solution Portfolio

- Energy performance data for 400 wastewater treatment facilities
- Showcase projects for comprehensive energy retrofits at 75+ wastewater treatment facilities
- How-to guides for wastewater facility energy conservations plans & retrofits (*NE, NM*)
- Workshop and training materials on sector-specific energy conservation strategies *(NE, NH, NM, TN)*
- Educational materials for wastewater treatment facilities on financing options *(NE, NH, NM, TN)*

Area 2 Wastewater Timeline

	2016			2017		2018
NE	Engage 531 municipalities	Continue municipal engagement	Collect energy performance data & benchmark 300-325 facilities	Perform energy audits on 60-100 facilities	Identify financing options & prepare for 20-25 retrofits	Draft & disseminate project success summaries
NH	Engage 74 municipalities	Collect energy performance data & benchmark 74 facilities	Conduct workshops & discussions	Perform energy audits & provide 1-on-1 technical assistance for 23-35 facilities	Assist 24 facilities in designing project implementation plans	Draft & disseminate project case studies
NM	Create Waste Not technical assistance program for the wastewater sector	Collect energy performance data & benchmark four facilities	Provide technical assistance & training to the facilities	Help facilities draft energy conservation plans & identify project financing options	Share Waste Not training materials & successes	
TN	Engage municipal partners & stakeholders	Collect energy performance data & benchmark 24 facilities	Conduct 24 energy assessments & draft reports on findings	Implement energy conservation measures at 24 facilities	Conduct best practices/ lessons learned workshops	

AREA TWO

Evaluation, Measurement, and Verification Framework

Corey Vezina

Show Me the Savings: A Statewide TRM as a Catalyst for Energy Efficiency in Missouri

Area 2 EM&V Frameworks: Missouri Project Summary

DOE Funding: $268,232

***Cost Match: $147,187** (55%)*

Project Objectives:

- Develop a statewide Technical Reference Manual (TRM) to advance energy efficiency within the state of Missouri.
- Create a framework and shared vision for future of EM&V in Missouri and the Midwest.
- Catalyze ratepayer-funded energy efficiency programs in Missouri by creating a common definition of deemed energy savings.

Impact:

- This project would facilitate coordinated program planning across all MO utilities, lead to greater energy savings, and help determine proper compliance with energy efficiency-related programs and policies through tracking and documentation of energy savings.

Partners

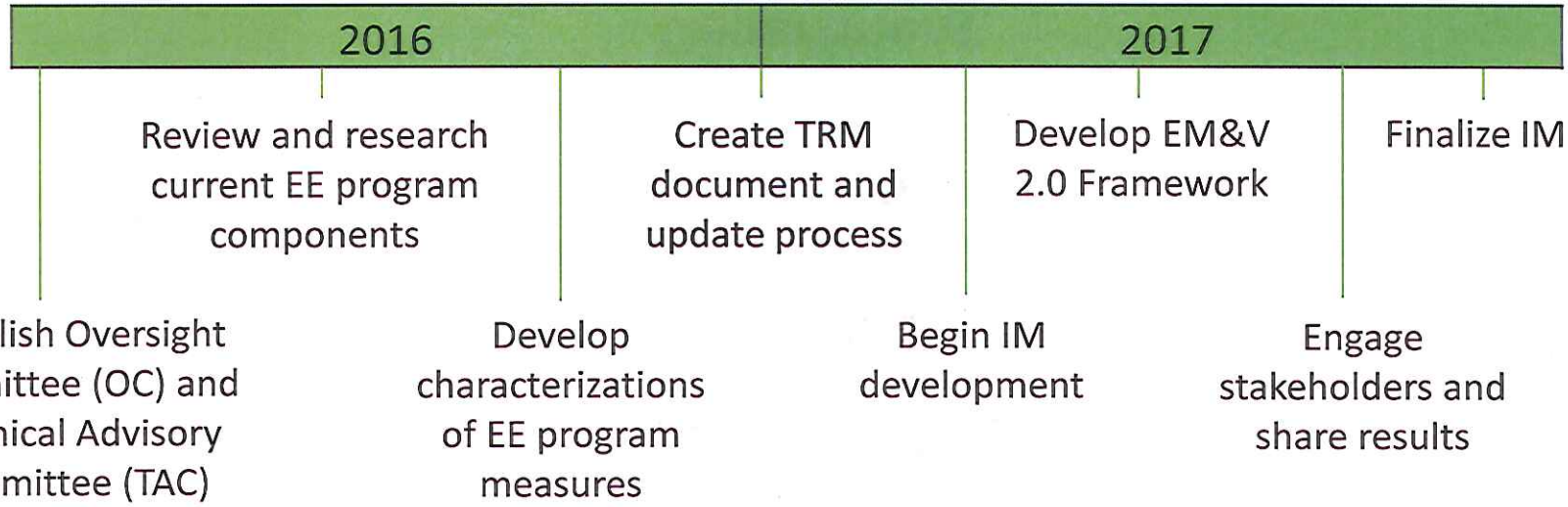
- VT Energy Investment Corp. (VEIC)

Stakeholders

- Missouri utilities, Missouri state agencies, and local non-profit organizations

Area 2: Missouri Timeline and Approach

Milestones for Documenting and Sharing Success



Area 2 EM&V Outcomes:

- Increased certainty and consistency in calculating cost-benefit tests in support of program design and evaluation.
- Creation of a transparent, well-documented assessment of energy savings to facilitate program planning and portfolio reviews.
- Streamlined compliance, leading to reduced costs and greater energy savings impacts.

AREA TWO

Residential Benchmarking and Disclosure

David St. Jean

Home Energy Labeling Information Exchange (HELIX) by Vermont Public Service Department

Area 2 Residential Benchmarking and Disclosure: Vermont in partnership with CT, MA, ME, NH, NY, RI

DOE Funding: $786,103

Cost Match: $749,121 *(95%)*

Project Objectives:

Make U.S. DOE Home Energy Score (HES) data accessible to local Multiple Listing Services (MLSs) and other market interests, which will in turn expedite the creation of large-scale home energy labeling policies and programs that support market valuation of energy efficiency in homes.

Impact:

- Widespread adoption of HES into MLS.
- Jumpstarts "virtuous cycle" of homeowners retrofitting their homes to achieve higher home value.

Partners:

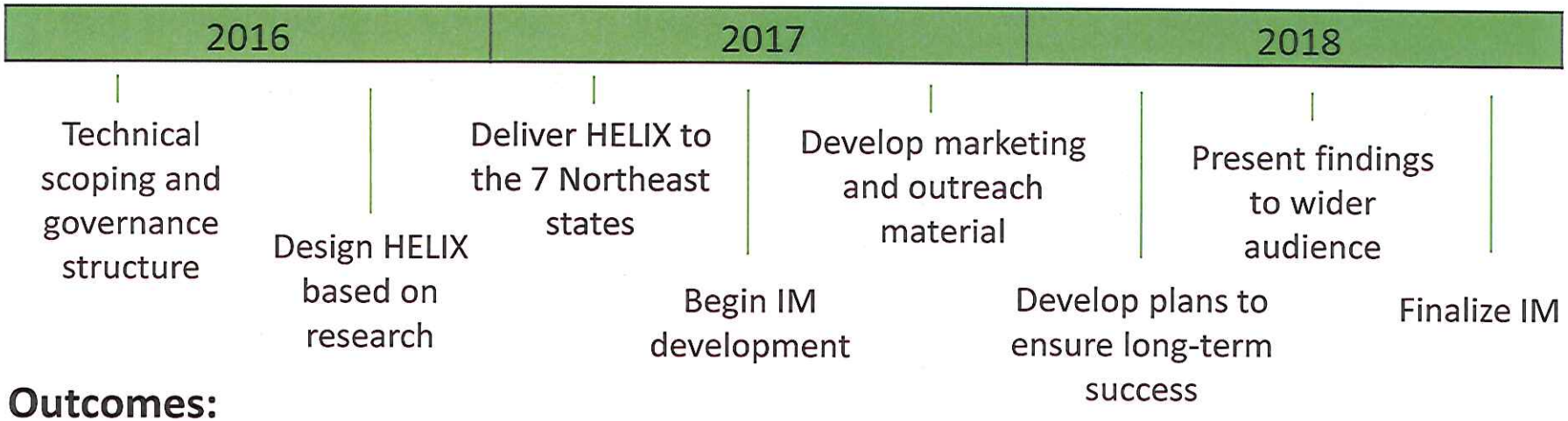
Vermont Public Service Dept., Northeast Energy Efficiency Partnerships, VEIC, MA DOER, NASEO, Energy Futures Group, and the states of Connecticut, Maine, New Hampshire, New York, and Rhode Island.

Stakeholders:

Residential homeowners and home buyers, real estate agencies, assessors, appraisers, energy efficiency programs and service providers, lenders, and energy code officials.

Area 2: Vermont Timeline and Approach

Milestones for Documenting and Sharing Success



Outcomes:

Through HELIX, the project will provide a common, easy to use, publicly accessible database of home energy scores that enables wide, consistent, and correct use of such information in the appraisal and marketing of homes (both rated and unrated) and will aid home owners, buyers, landlords, tenants, realtors and lenders to incorporate the value of home energy attributes into their financial equations.

OPEN DISCUSSION & NEXT STEPS

QUESTIONS?

Thank You

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U.S. DEPARTMENT OF ENERGY

Breakout Room Logistics

Area of Interest 1

State Energy Planning

- ME, NY, VA
- Roosevelt Room

EE Registry

- TN and partners
- Ballroom II

Area of Interest 2

Home Energy Labeling

- VT
- Longworth Room

Wastewater Treatment Facilities

- NE, NH, NM, TN
- Decatur Room