Engaging the Private Sector in State Climate/Energy Planning Processes

Robert Jackson, Michigan Agency for Energy
Clay Nesler, Johnson Controls
Cisco DeVries, Renew Financial


Better Buildings Conference
Engaging the Private Sector in State Climate/Energy Planning Processes
Robert Jackson, Director
Regional and National Response Division
Michigan Agency for Energy
ACCELERATING CLEAN ENERGY GROWTH IN MICHIGAN AND OHIO

Michigan-Northeastern Ohio Regional Roadmap Project
DOE State Energy Program Competitive Grant Award

Project Objective

The Michigan-Northeastern Ohio Regional Roadmap Project (Regional Roadmap Project) will create **regional economic development strategies** and action plans and will identify and map strategic interventions to foster more competitive private-sector **clean energy manufacturing** and **energy efficiency clusters** in Michigan and Ohio.

Michigan-Northeastern Ohio Regional Economic Development Strategies

Stakeholder Engagement Strategy:

- Identified business sectors and demographics, technologies with high energy efficiency value and greatest economic development potential and return of investment in the region.
- Engaged technology end-users in “Listening Sessions” in Michigan and Ohio and social media to solicit input and support on objectives, scope of work, benefits, etc.
- Listened and revised workplans to create regional economical development strategies based feedback.

Michigan-Northeastern Ohio Regional Economic Development Strategies

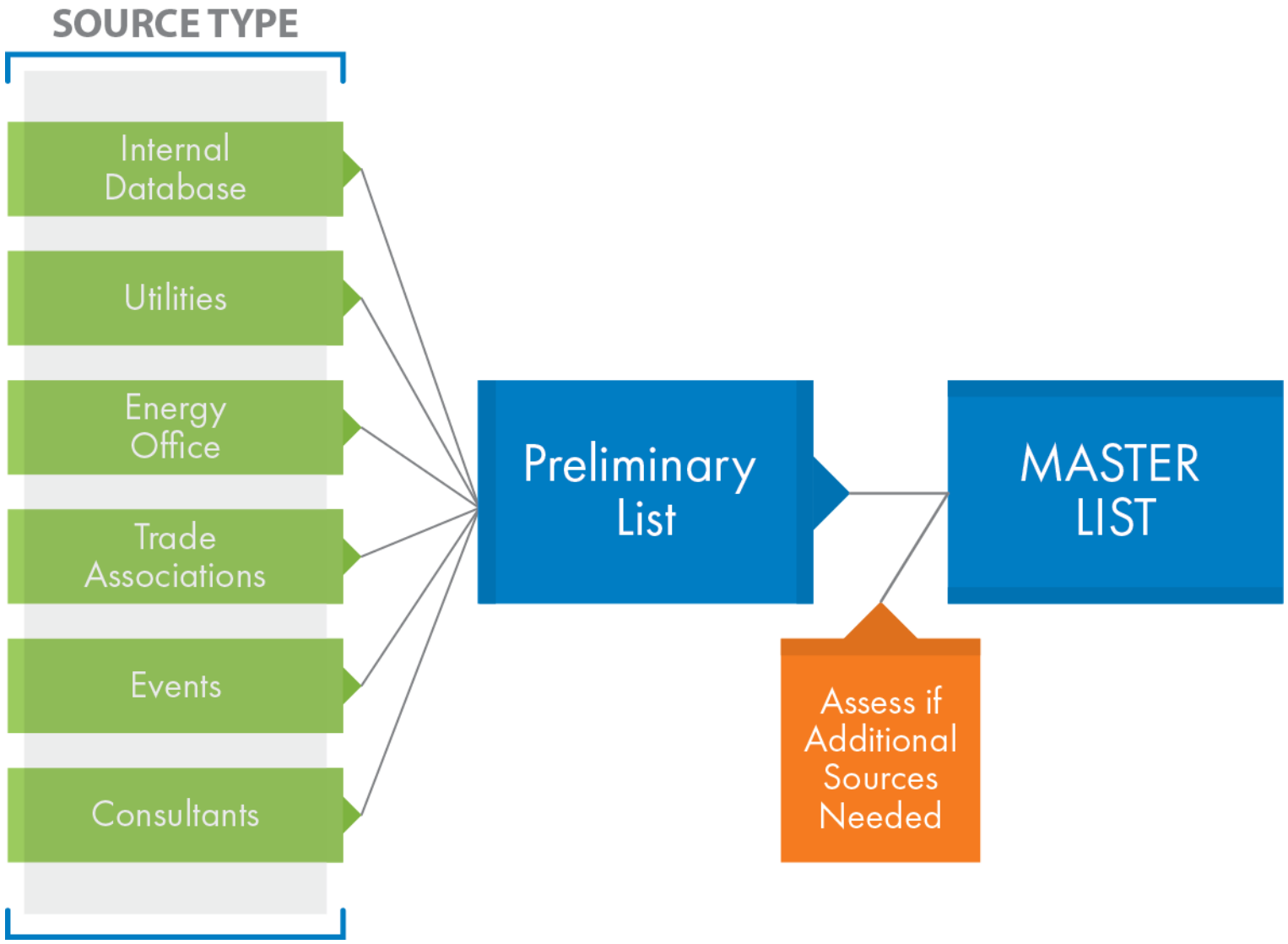
Stakeholder Engagement Strategy:

- Used plan to identify and map strategic opportunities to facilitate competitive private-sector clean energy manufacturing and implementation of energy efficiency clusters in Michigan and Ohio.
- Our intent was to engage end users early in the process to influence manufacturing habits, product designs, technology adoption, access to capital, etc. and uptake in the market place.
- Create a Roadmap that reflects manufacturing in Michigan and Ohio.

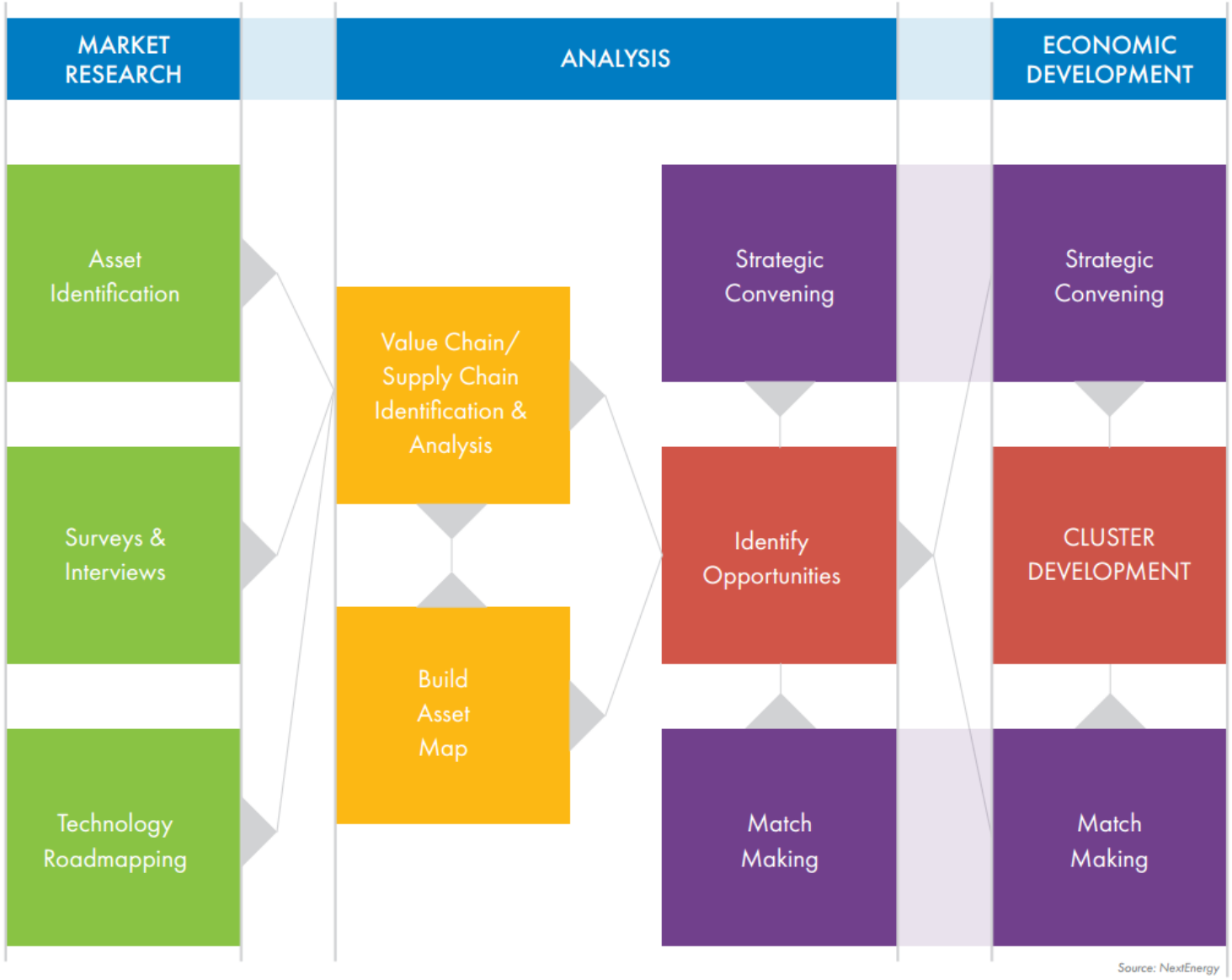
Research Overview

Research Overview – Asset mapping methodology

List development



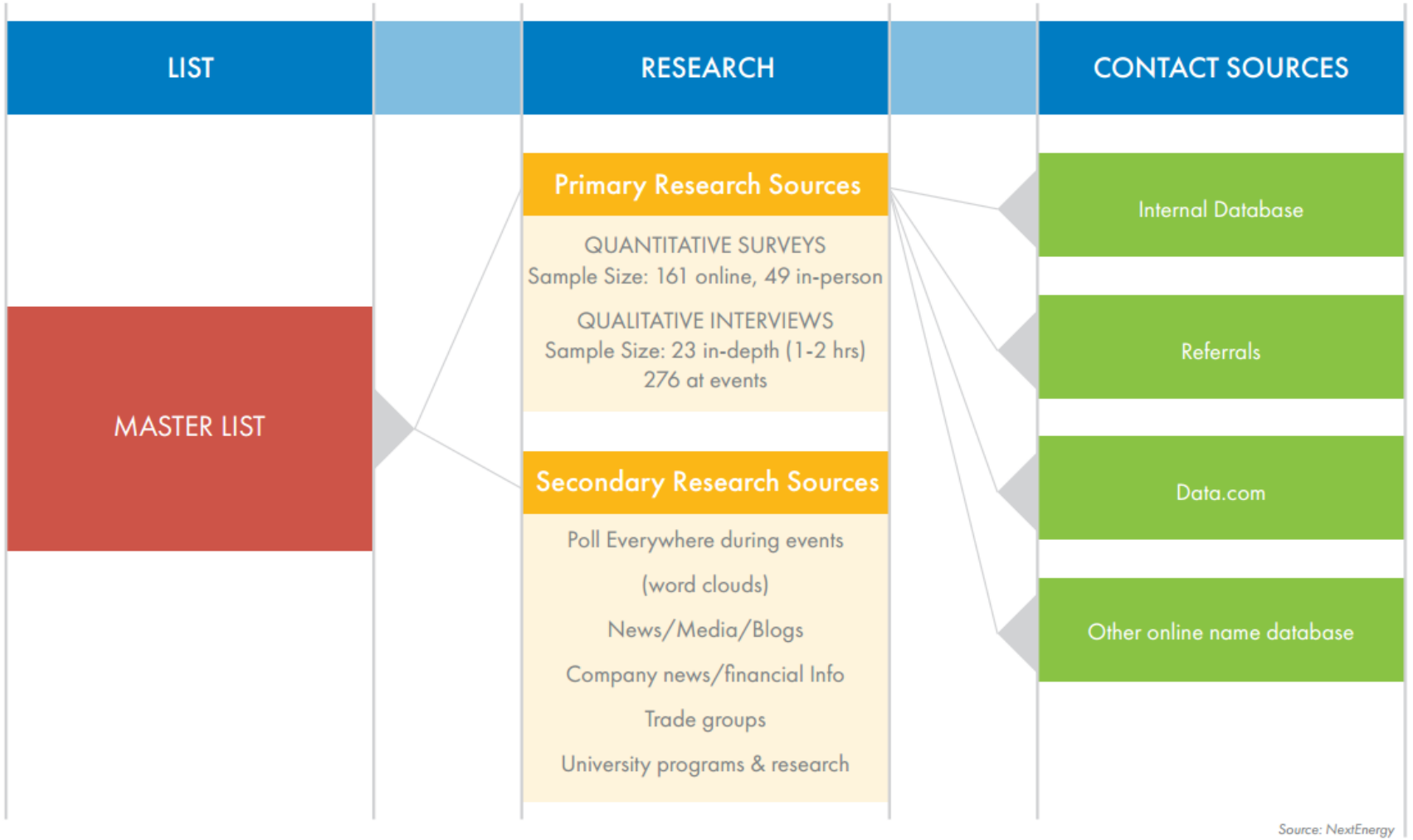
Cluster Development Methodology



Research Overview - Methodology

Surveys & Interview

Data collection process



Research Overview - Survey Highlights

- The Energy Efficiency market is optimistic with 63% expecting to add employees in the next 12 months (only 1% reducing head count)
- Michigan has strong intellectual property and R&D with 11,267 patents claimed to have been identified by EEBT companies and
- Biggest challenges are identifying new customers and acquiring and retaining talent

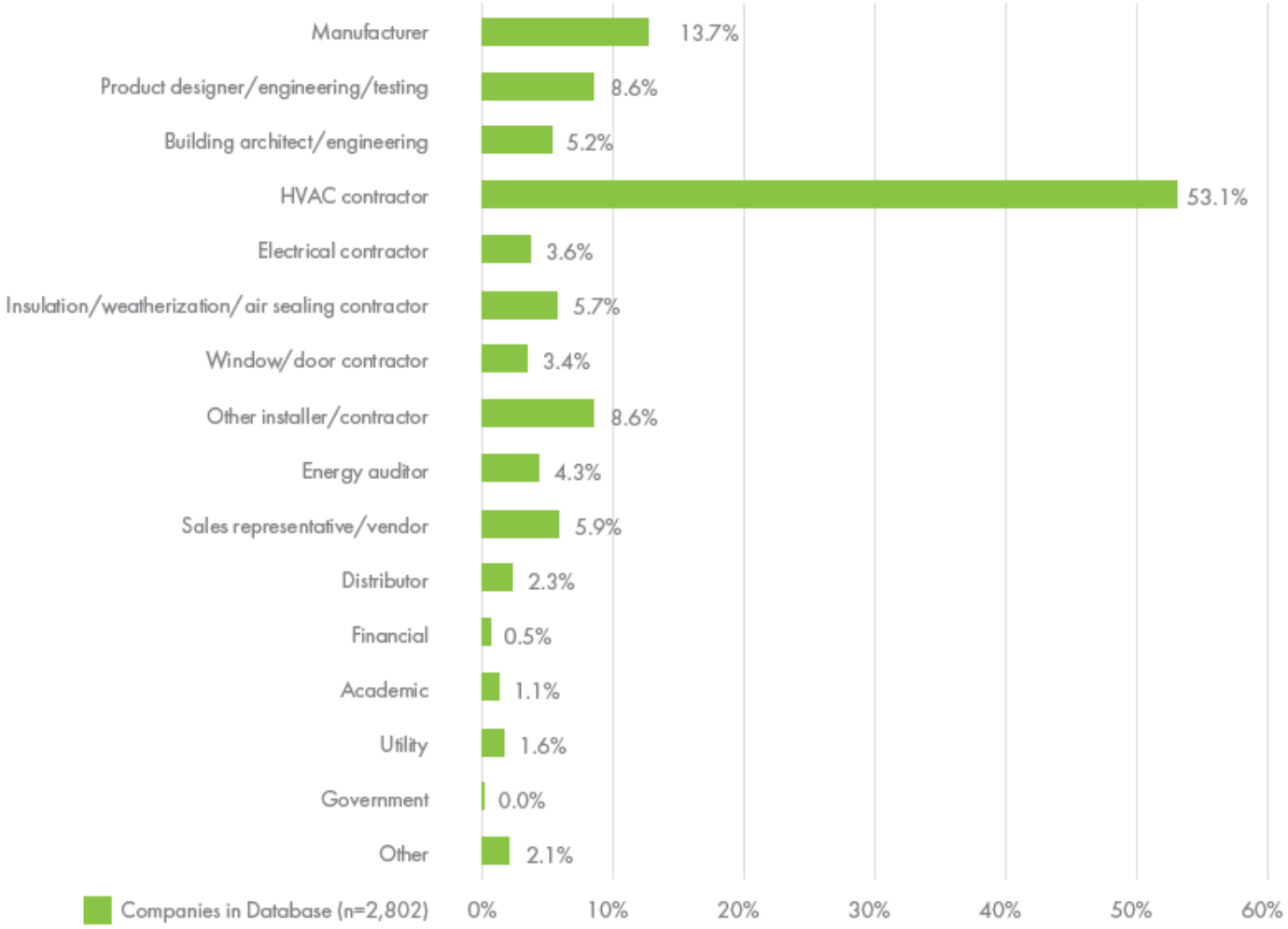
Challenges Facing Business

Sample Size: 144

Source: NextEnergy

Research Overview - Energy Efficiency Value Chain

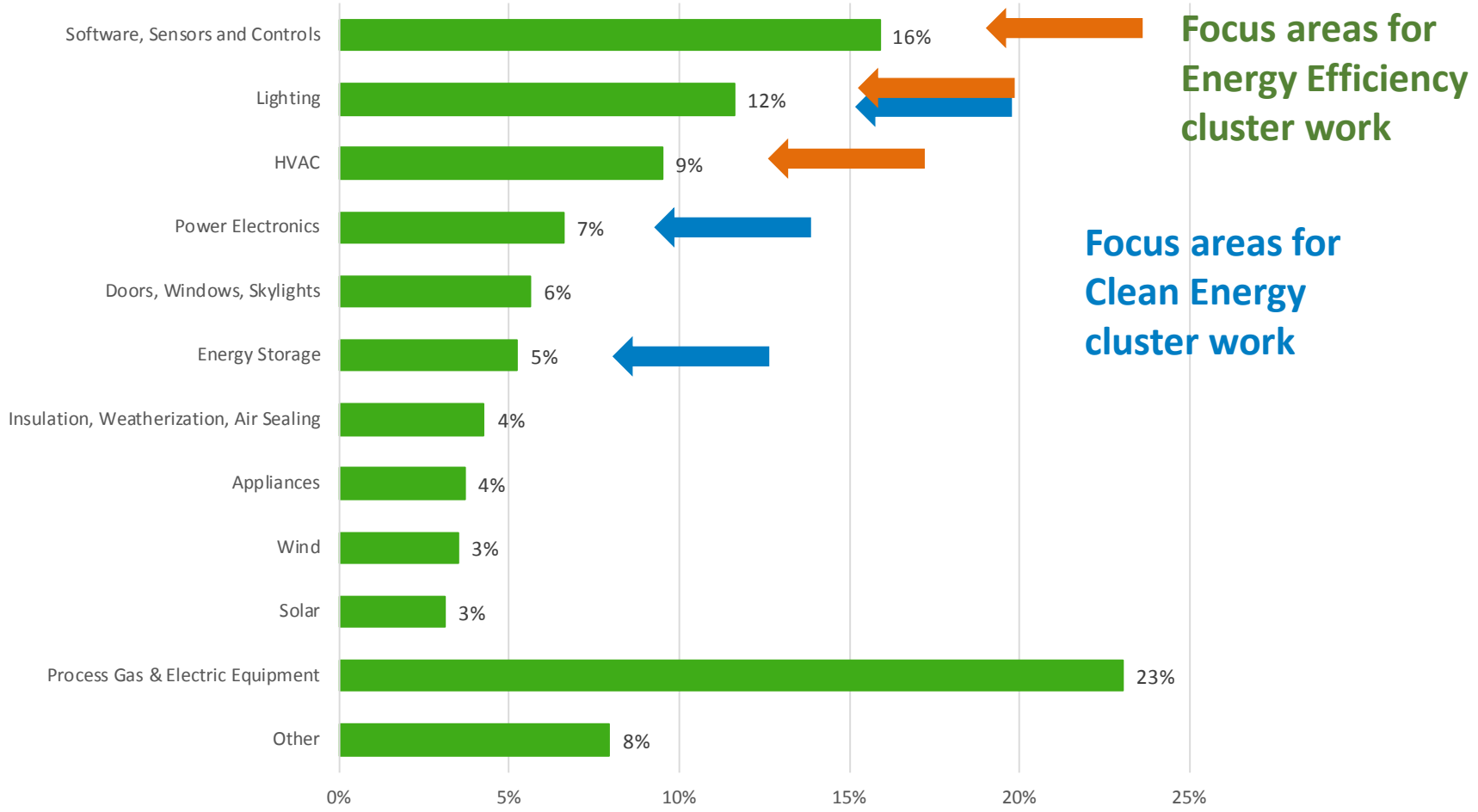
Companies identified as part of the EEBT Value Chain in Michigan



Source: NextEnergy

Research Overview - Manufacturers in Energy Efficient Building Technology

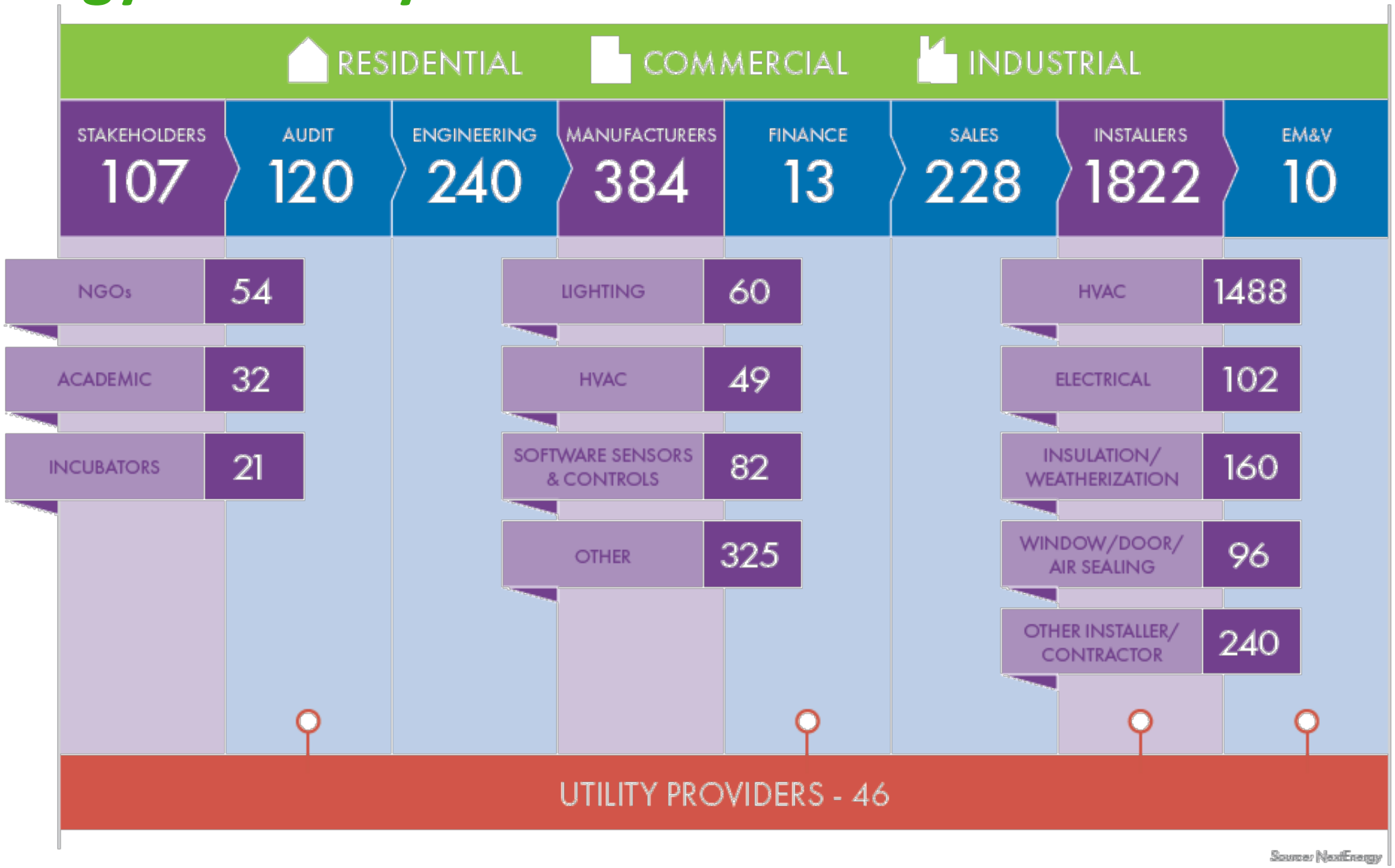
Product Offerings of Energy Efficiency Manufacturers in Michigan



Source: NextEnergy

Energy Efficiency Building -Roadmap Technologies

Energy Efficiency Value Chain



Energy Efficiency Value Chain

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
• PA 295 has driven adoption of energy efficiency • Utility EO programs push energy efficiency market • Michigan Saves and PACE provide path to financing • Strong contractor networks • Diverse ecosystem of energy efficiency assets in MI • Robust manufacturing, research, and engineering base • Strong supply chain has developed from automotive technology developers • Emerging IT and software ecosystem • Many Tier 1 auto suppliers have energy efficiency in their product portfolios, providing opportunity for global markets • Strong IP development channels • Solid education programs	• Energy efficiency programs fluctuation makes availability uncertain (on/off/on, etc.) • Disparate, uncoordinated public programs and processes are difficult for contractors and others to navigate • Customer awareness of energy efficiency technology, benefits, and financing options • Contractors often sell the status quo, in order to not lose or complicate a sale • Silos for energy efficiency, renewable energy, and demand response leads to inefficient programs • Major national and global energy efficiency brands are not located in MI, particularly in HVAC and renewable energy markets • IP development in MI, yet sales in MI are challenging	• Stronger/revised building codes could push energy efficiency • EPA Clean Power Plan provides opportunity to push new technologies (integrated energy efficiency, renewable energy, automated demand response, storage) • Incentivize and grow the contractor "army" of energy efficiency advocates - Sales training for contractors - Energy efficiency sales tools - Business model training and development support • Streamlined EO program and processes • Leverage partnership opportunities with innovators and manufacturers • Better Buy/Sell/Deploy financing options	• State EO and renewable energy policies and legislation are in flux and difficult to plan for • Energy efficiency improvements compete with other capital expenditures • Low energy prices mean energy efficiency ROI is less compelling on its own

Source: NextEnergy

Lighting Supply Chain Michigan

Lighting Supply Chain
NORTHEAST OHIO

Key Findings – Lighting Supply Chain

- A significant portion of the Value Chain is comprised of contractors
- EE programs in Michigan and Ohio are disparate
- Financing for R&D is a challenge and lack of awareness of capital
- EE is still a tough sell
- Strong innovation, engineering, manufacturing base – strong from auto industry
- Limited opportunities for product deployment in Michigan
- Strong need for concise legislation and policies to drive adoption
- Michigan has both “upstream” R+D, “downstream “deployment”
- Sub component manufacturing occurs overseas

Outreach Event - Informing the Marketplace

CLEAN ENERGY ROADMAP PROJECT EVENT METRICS				
EVENT	**YEAR**	**SECTOR (Industrial, Residential, Commercial)**	**# of attendees**	**ACTION**
UPCOMING EVENTS				
Michigan Advanced Lighting Conference	2015	ALL	300	Plan and host
Ohio lighting event (TBD)	2015	ALL	TBD	Plan and host
V2B Mashup	2015	ALL	100	Plan and host
PAST EVENTS				
LED Lighting in Northeast Ohio: Exploring Mutual Opportunities for Success	2015	ALL	40	Plan and host
DTE Energy / ESD Energy Conference & Exhibition	2015	ALL	800	Networking
MI Commercial & Industrial Conference - Upper Peninsula	2015	ALL	150	Presentation
MI Commercial & Industrial Conference - Lower Peninsula	2015	I/C	250	Networking
MI CHP Conference	2015	I/C	100	Networking
MEEA Annual Meeting	2015	ALL	100	Presentation
Midwest Energy Solutions Conference	2015	ALL	630	Presentation
Michigan Advanced Lighting Community Event	2015	ALL	80	Plan and host
Smart Energy Summit	2015	C	250	Matchmaking
Manufacturing in America	2015	I	2300	Networking
MI Commercial & Industrial Conference - Upper Peninsula	2014	ALL	150	Presentation
MI Commercial & Industrial Conference - Lower Peninsula	2014	I/C	250	Presentation
DTE Energy / ESD Energy Conference & Exhibition	2014	ALL	800	Networking
Michigan Energy Efficiency Expo	2014	ALL	200	Exhibited & Sponsored
Michigan Advanced Lighting Conference	2014	I/C	219	Plan and host
Energy Innovation Business Council Networking Event	2014	ALL	75	Presentation
TOTALS				
Total number of project events to date	16			
Total number of future planned events	3			
Total number of event attendees	11,848			

Robert Jackson, Director
Regional and National Response Division
Michigan Agency for Energy

State Opportunities through Third-Party Delivered Energy Efficiency

Leveraging Energy Savings Performance Contracting to cost effectively meet regulatory requirements

Clay Nesler
VP, Global Energy and Sustainability
clay.g.nesler@jci.com

Johnson Controls

Energy Service Company Coalition

Johnson Controls

State Opportunities

- Optimize State CPP Implementation Plans
- Collaborate on EM&V and EE Registry Development
- State NAAQS Implementation Plans
- Regional GHG Programs (AB 32 / RGGI)
- Utility Performance-Based Retrofit Programs
- State Executive Orders

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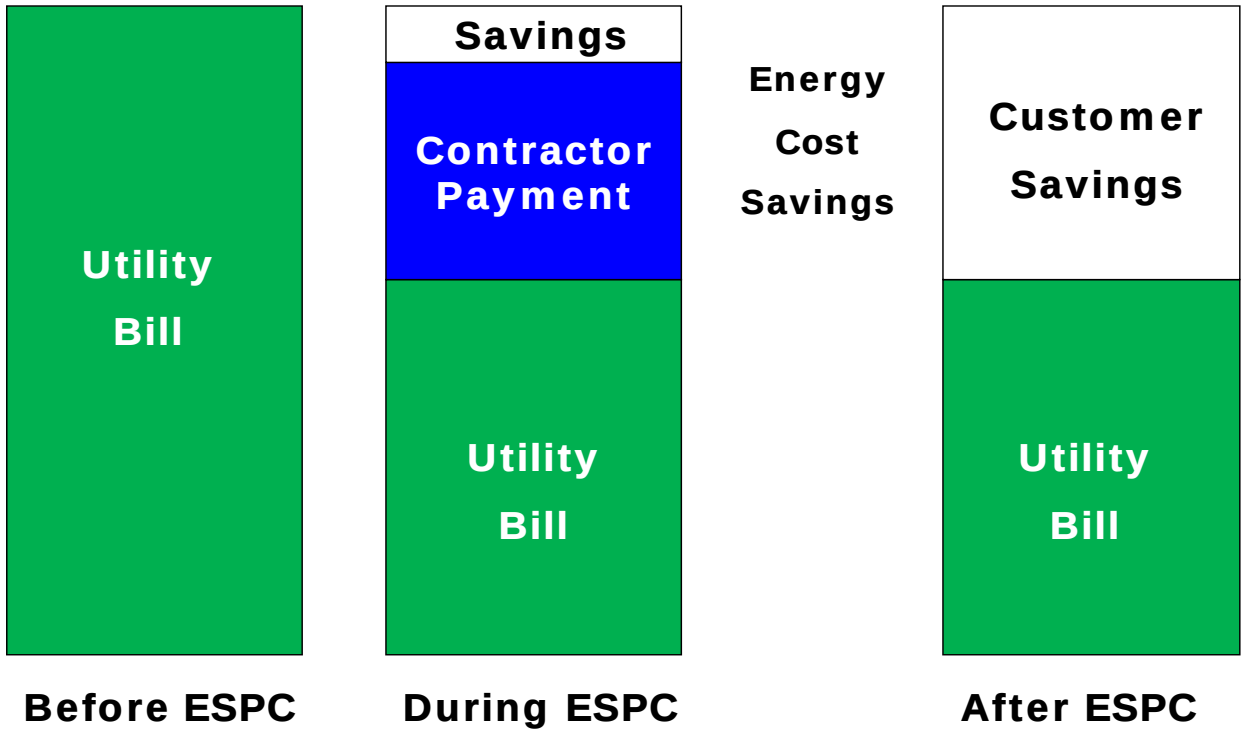
Energy Savings Performance Contracting (ESPC)



- Realigns utility expenses towards improvements which save energy
  - Bundles multiple solutions (lighting, HVAC, controls, building envelope, renewables, etc.)
- Typical project energy reduction ranges between 15% to 30%
  - Contract term typically ranges between 10 to 17 years
  - Typical per project investment can range from $1M to $45M+
- Budget-neutral approach
  - Cost savings sufficient to repay project cost

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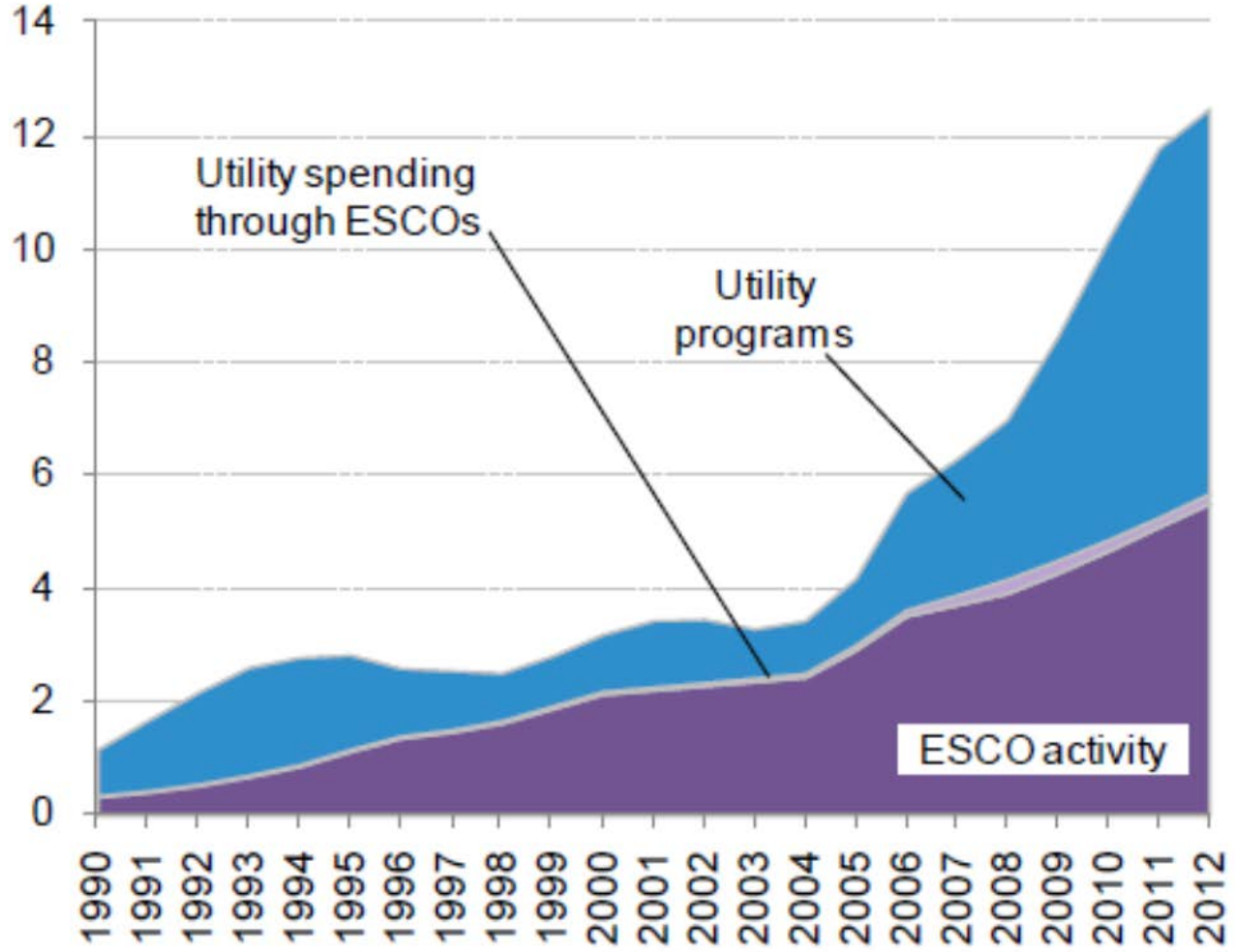
ESPC Market Investment (1990 – 2012)



- $7B+ U.S. investment annually through financing which is repaid through energy cost savings
  - Projected to grow to $10 billion to $15 billion annually by 2020
  - Scalable for 111(d) compliance
- Does not rely on state or utility investment
- Can incorporate other program incentives, rebates and credits

Investment in energy efficiency through ESCOs and utility programs, categorized by program, 1993-2012, ($bn)

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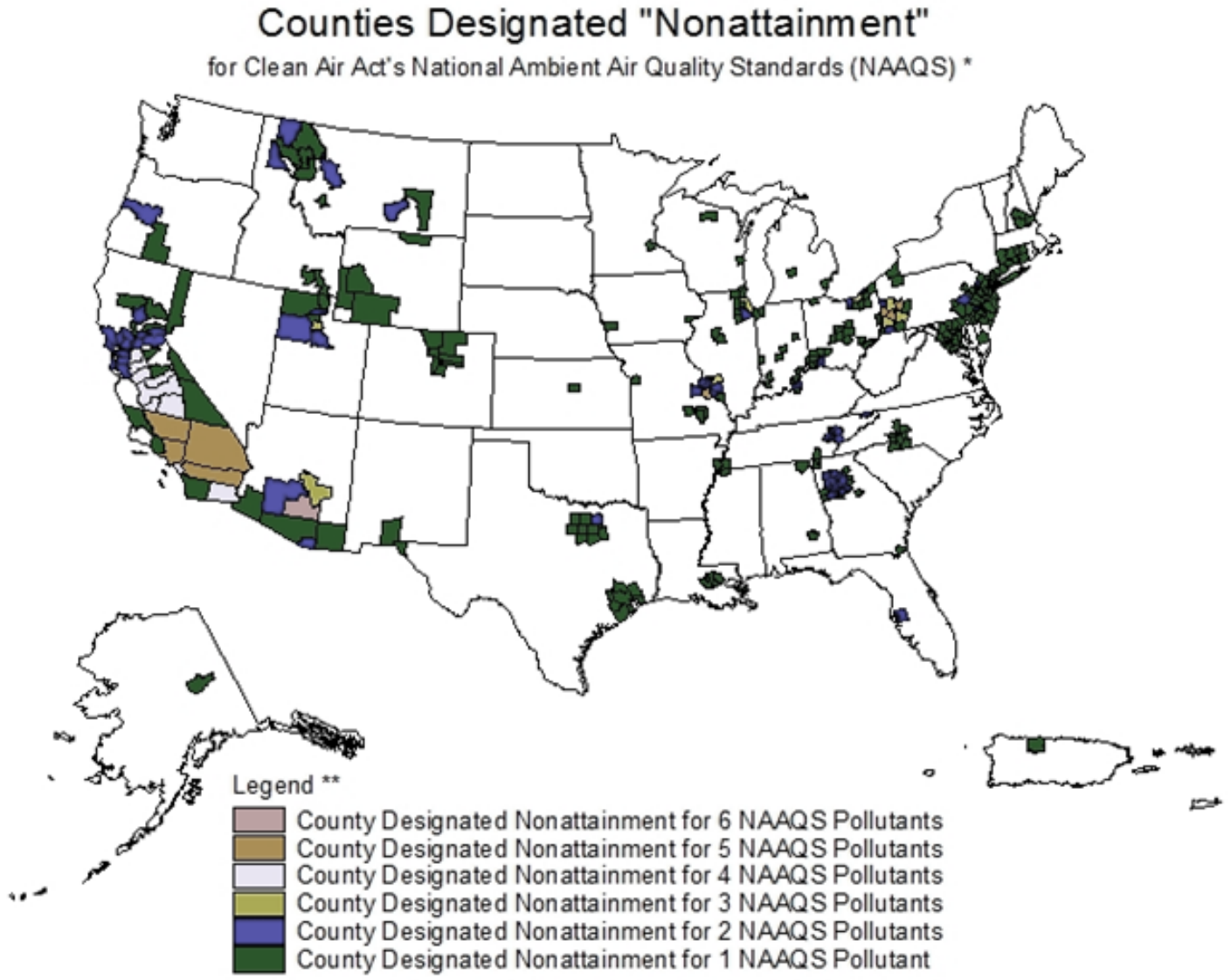
State Implementation Plans for NO_X/SO_X Reductions



36 STATES

Designated Nonattainment must further ↓ NO_x and SO_X emissions to meet federal standards

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State NAAQS Implementation Plans – Shreveport, LA

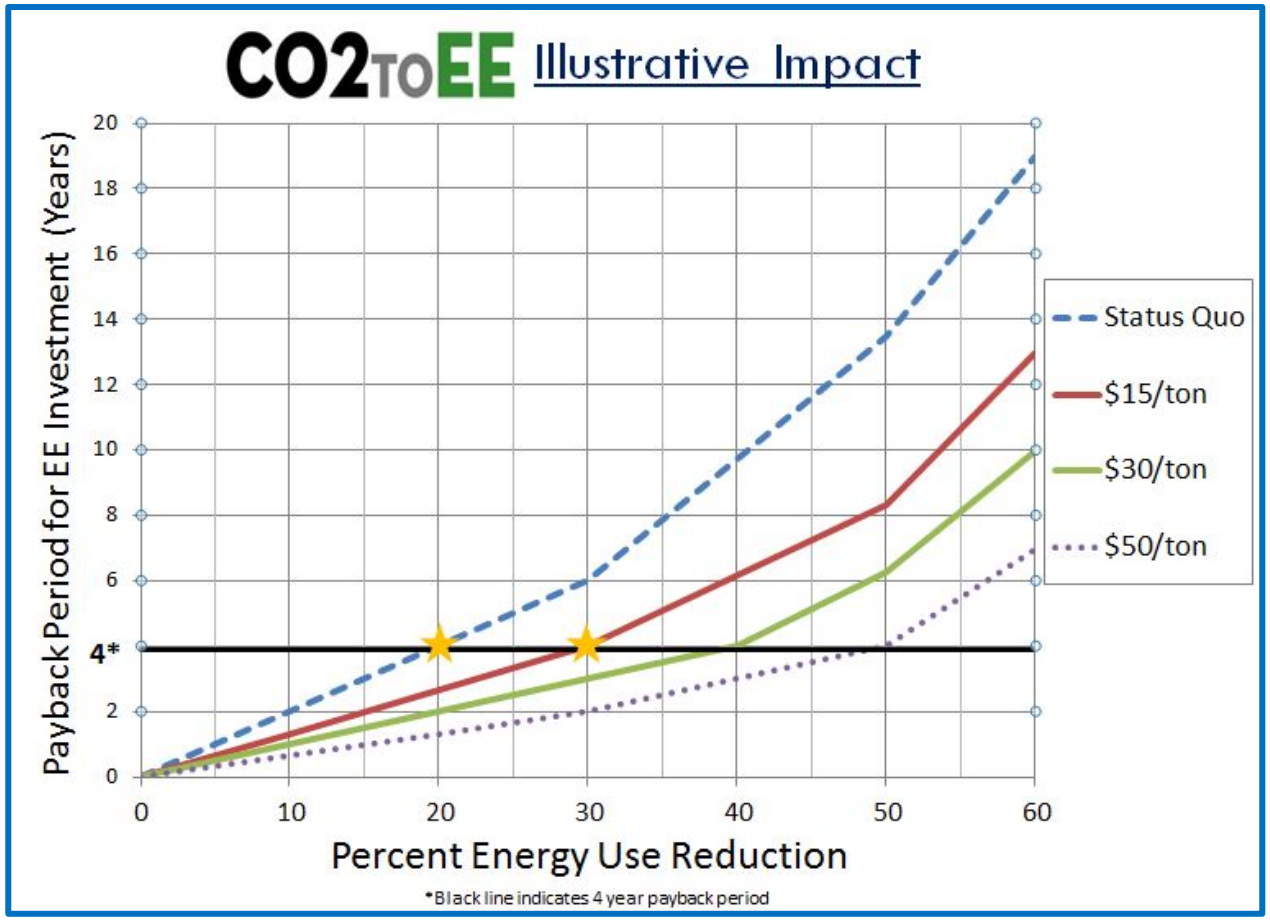
City of Shreveport, Louisiana

- Shreveport's Early Action Compact (EAC) submission to US EPA for the 8-Hour Ozone Standard under the National Ambient Air Quality (NAAQS) Standards
- 20-year ESPC contract utilized for State Implementation Plan
- 33 Municipal Buildings - Energy Savings of 9,121,335 kWh/Yr
- Measurement & Verification (M&V) consistent with EPA Roadmap for Incorporating EERE Policies and Programs into State and Tribal Implementation Plans
  - IPMVP Option A - Retrofit Isolation (pre-retrofit/post-retrofit/ annual sampled inspections)
  - IPMVP Option C - Whole Building (utility bill/ meter-based analysis)
  - Monthly Tracking/Quarterly Reporting/Annual Reconciliation

Scope of Improvements

- Lighting Systems
- Mechanical Systems
- Control Systems
- Water Conservation

Regional GHG Programs - AB 32 / RGGI



Expanding Energy Efficiency Financing for California Businesses, Schools, and Real Estate Owners

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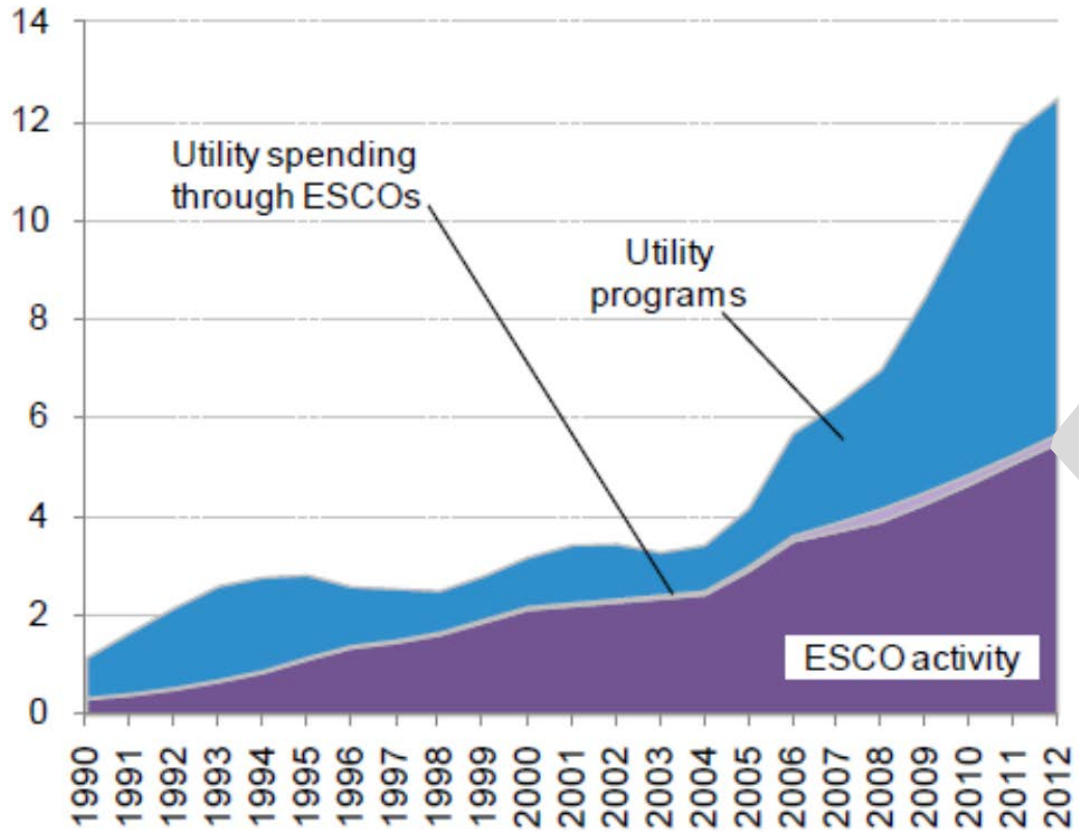
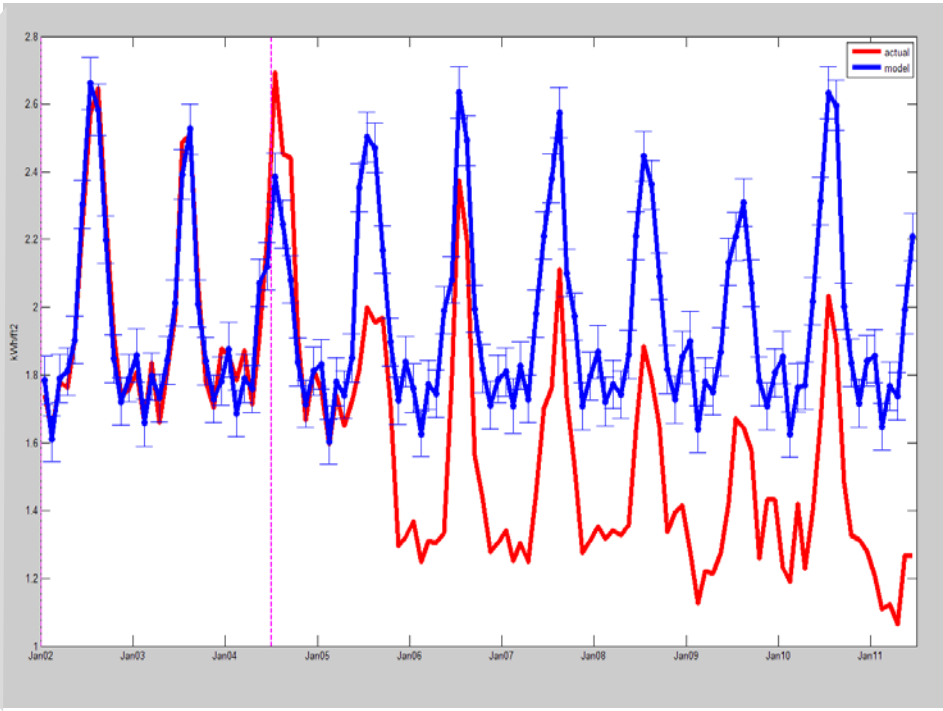
Utility Programs (Performance-based System Retrofits)





Johnson Controls

State Executive Orders – Hawaii DOT

Hawaii Department of Transportation

- 12 Airports
- Lighting, HVAC, Controls, Water (75,000 fixtures)
- Renewable energy (9,100 solar panels/2.6 MW)
- 20 year Energy Savings Performance Contact
- 400 local jobs, while adding more than $670 million in economic development
- 43,000 metric tons of CO2 saved annually.(equivalent to 100,000 barrels of oil)
- $518M savings over 20 years

RENEW FINANCIAL™

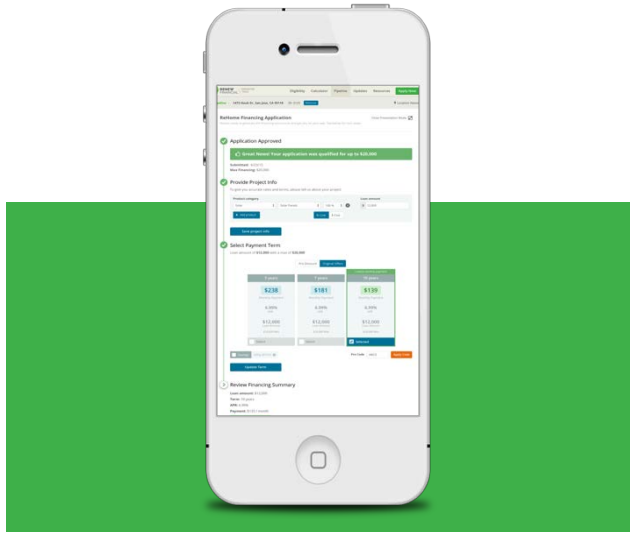
Energy Improvement Financing Made Simple

May 2016

Cisco DeVries/ CEO

Renew Financial: On the Move

RENEW FINANCIAL™



HEADQUARTERED IN OAKLAND, CA

250+
Employees

35,000+
Projects Financed to Date

Prelude Ventures

ANGELENO GROUP

APOLLO Investment Corporation

Claremont Creek Ventures

It All Started with Public Policy

Berkeley Measure G: *Should the People of the City of Berkeley have a goal of 80% reduction in greenhouse gas emissions by 2050 and advise the Mayor to work with the community to develop a plan for Council adoption in 2007, which sets a ten year emissions reduction target and identifies actions by the City and residents to achieve both the ten year target and the ultimate goal of 80% emissions reduction?*

Passed with 81% of the vote in November 2006

28% of U.S. residential energy use could be cut by pursuing cost-effective energy efficiency measures

McKinsey, 2009

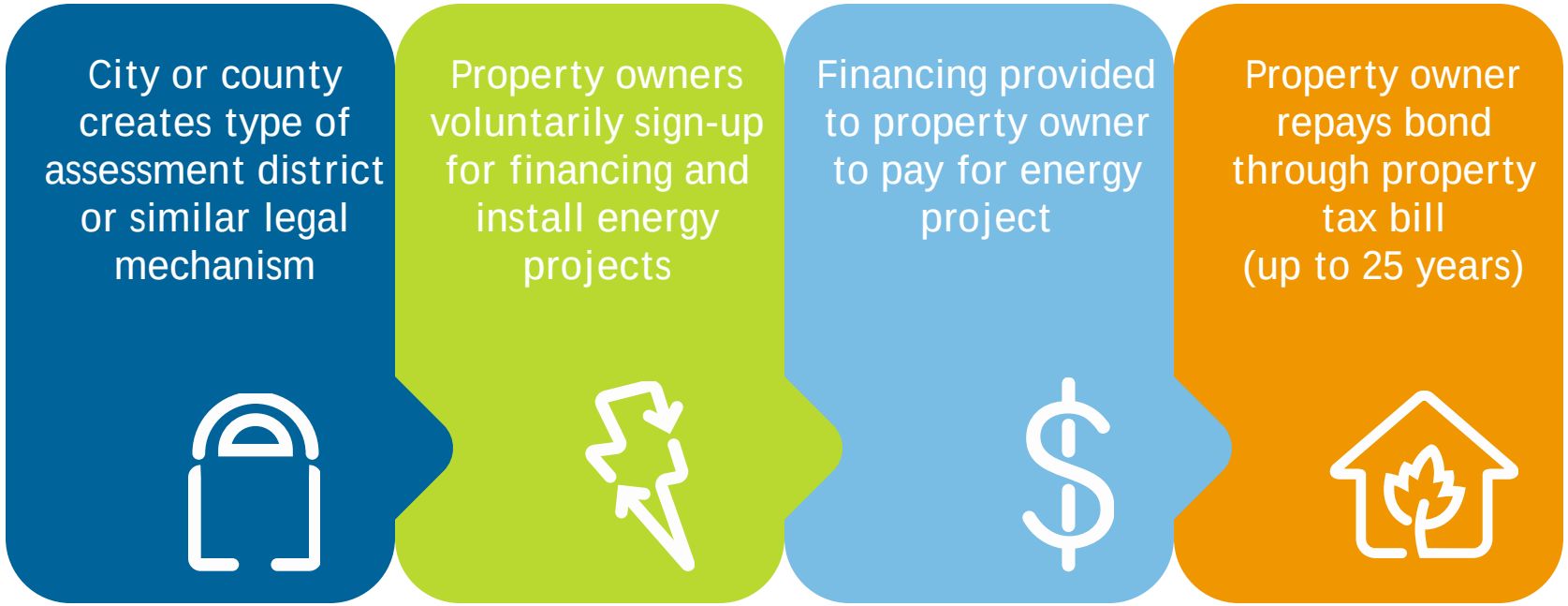
$1.2 Trillion:

what the U.S. would save by investing $512 billion in energy improvements.... while reducing 1.1 gigatons of carbon emissions.

McKinsey, 2009

How PACE Works

PACE = Property Assessed Clean Energy



PACE: Nearing $2 Billion Industry

Residential and Commercial PACE Market Growth

82,000

Number of Home Upgrades

- Energy efficiency: 67%
- Renewable Energy: 19%
- Mixed: 14%

$1,697

million

14,000

Jobs Created

734

Number of Commercial Buildings

- Energy efficiency: 46%
- Renewable Energy: 45%
- Mixed: 9%

$230

million

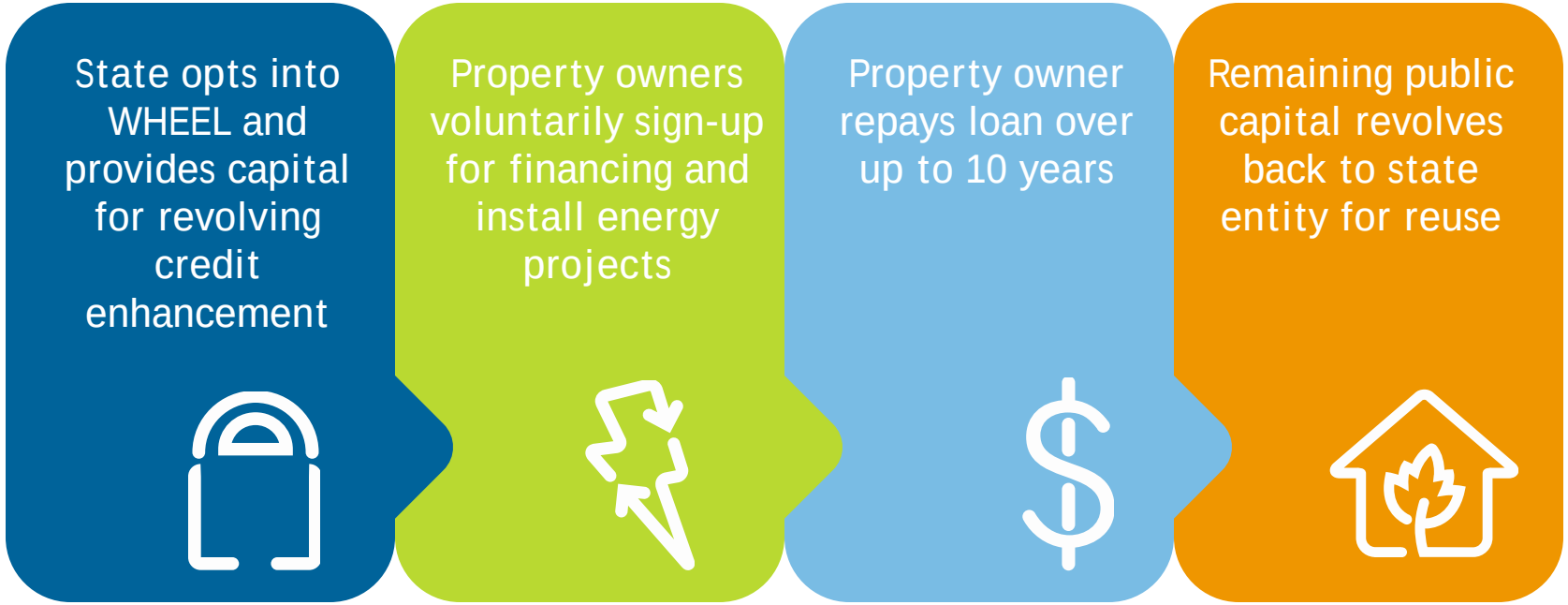
2,700

Jobs Created

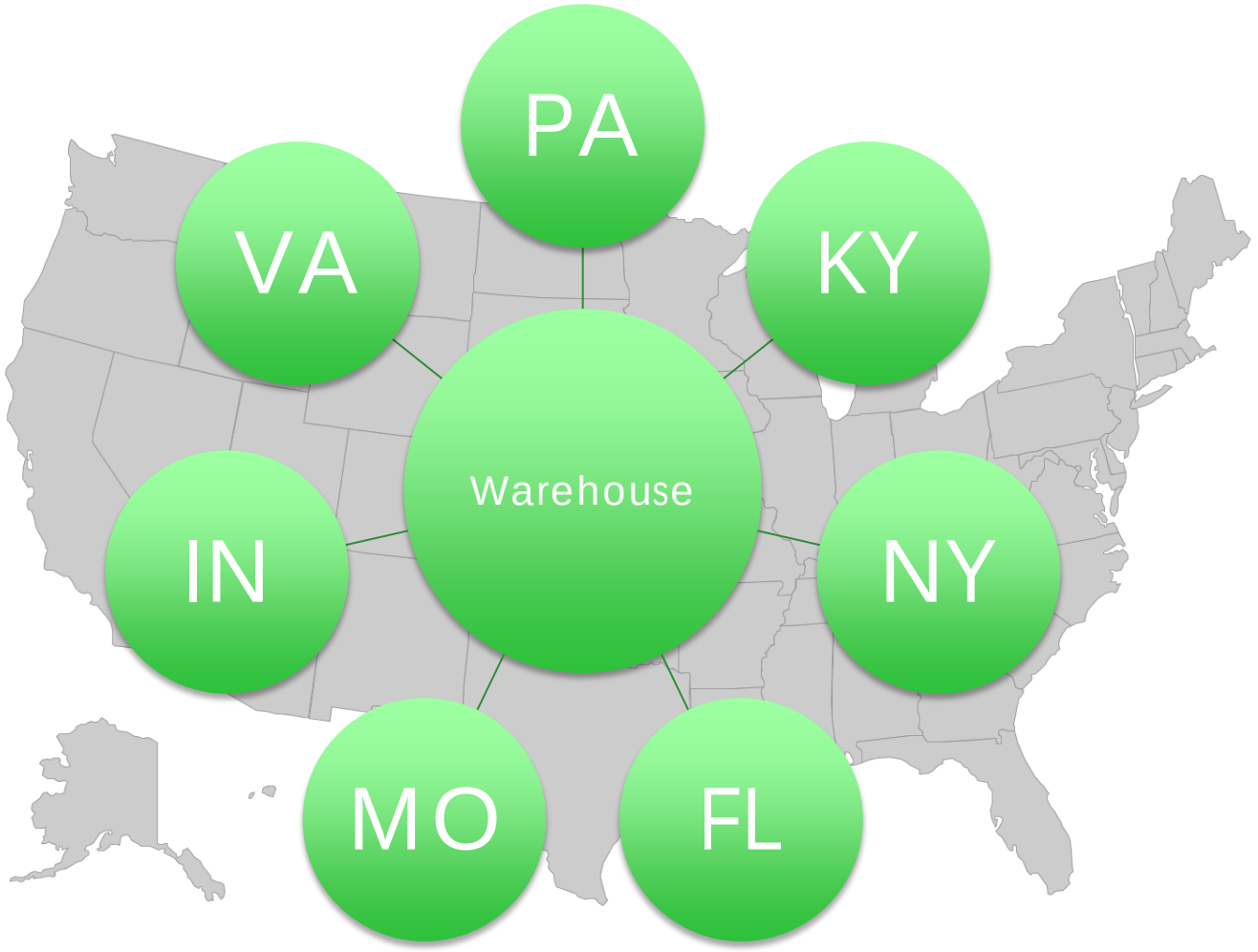
Source: PACE Nation

How WHEEL Works

- WHEEL Leverages Public Capital 5:1
- No Net Subsidy



Warehouse For Home Energy Efficiency Loans (WHEEL)



Lesson: Three Private Sector Partners Needed

Homeowner

Contractor

Banker

➢Lesson: Talk to Them First!

Lessons:

- Keep it simple
- Don’t create new market, intersect with existing market
- The perfect is enemy of the good

ENERGY IMPROVEMENT FINANCING MADE SIMPLE

Cisco DeVries
cisco@renewfinancial.com
@ciscodv