



Cross-Sector Success: ESPC as an Energy Efficiency Strategy

Successes From New Hampshire, Ohio, and North Carolina



New Hampshire: ESPC for State Agencies



ESPC Champions Toolkit

August 23, 2018

Donald Perrin,
State of NH

ESPC Accelerator Update

Donald Perrin

State Energy Manager

Division of Plant and Property Management

Department of Administrative Services

State of New Hampshire

August 23, 2018

NH - ESPC Champions Toolkit

New Hampshire's Challenge

- Limited Energy Staff
- Limited Capital Funds
- Lots of Energy Saving Potential
- Stringent Energy and Fossil Fuel Reduction Goals

NH - ESPC Champions Toolkit

New Hampshire's Resources

- Network of Energy Coordinators
- Enabling Legislation for ESPC
- Ball was Rolling with Pilot Projects

NH - ESPC Champions Toolkit

NH Joins ESPC Accelerator in Early 2016

- Do more projects with limited resources
- Have agencies take ownership of projects
- Have SEM Office act as technical support

What We Needed to Do

Provide agencies with enough information and the right tools so that they could generate, facilitate and complete more energy saving projects.

NH - ESPC Champions Toolkit

Toolkit Components –

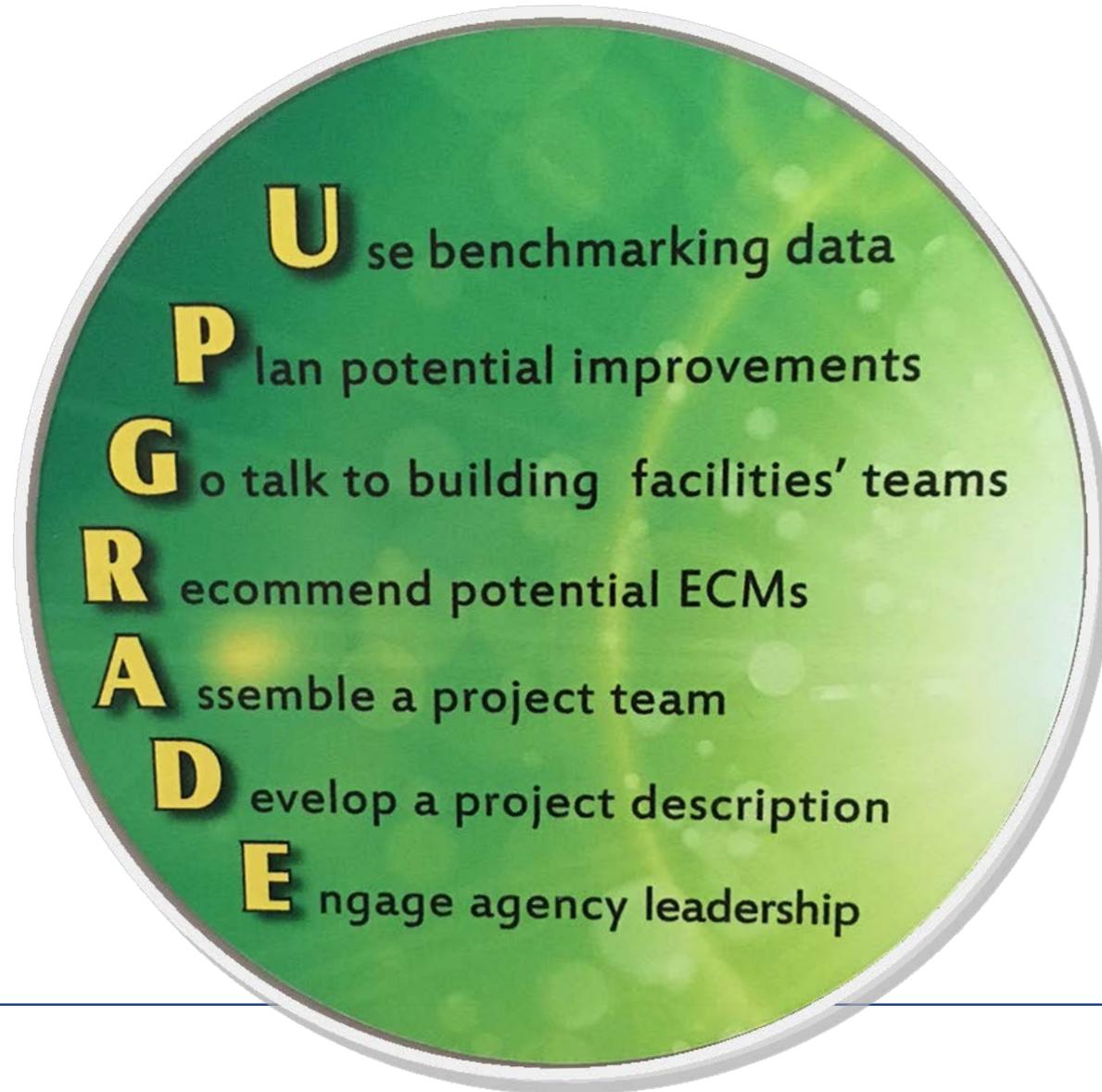
Champion Tools

- Introductory Memo
- UPGRADE Plan
- UPGRADE Reminder
- Leadership Engagement Presentation
- Project Implementation Checklist

Leadership Tools

- Overview Presentation – Champions
- Overview Presentation – Agency Leadership

NH - ESPC Champions Toolkit



NH - ESPC Champions Toolkit

In the Past Year

- Continuing to convene group semi-annually
 - Annual State Energy Conference (spring)
 - Fall meeting

Next Steps

- Present to Commissioners' Group

Goals

- Make ESPC “Business as Usual”
- Keep Energy Coordinators engaged
 - Meet one-on-one with most Energy Coordinators
- Complete more energy saving upgrades!

NH - ESPC Champions Toolkit

Recent Updates and Progress

- Collaborative project with 5 agencies
- Regional in scope (NH Seacoast area)
- Two energy coordinators initiated project as a result of our toolkit launch!

Additional Challenges

- Detaching ourselves from the process
- Understanding and support of upper-management

NH - ESPC Champions Toolkit

Additional Work

- Develop a document checklist as part of the ESPC Champions Toolkit
- Make the documents user friendly
- Work with NH Treasury for a financing mechanism to support these projects

NH - ESPC Champions Toolkit

Questions?

Donald Perrin

State Energy Manager

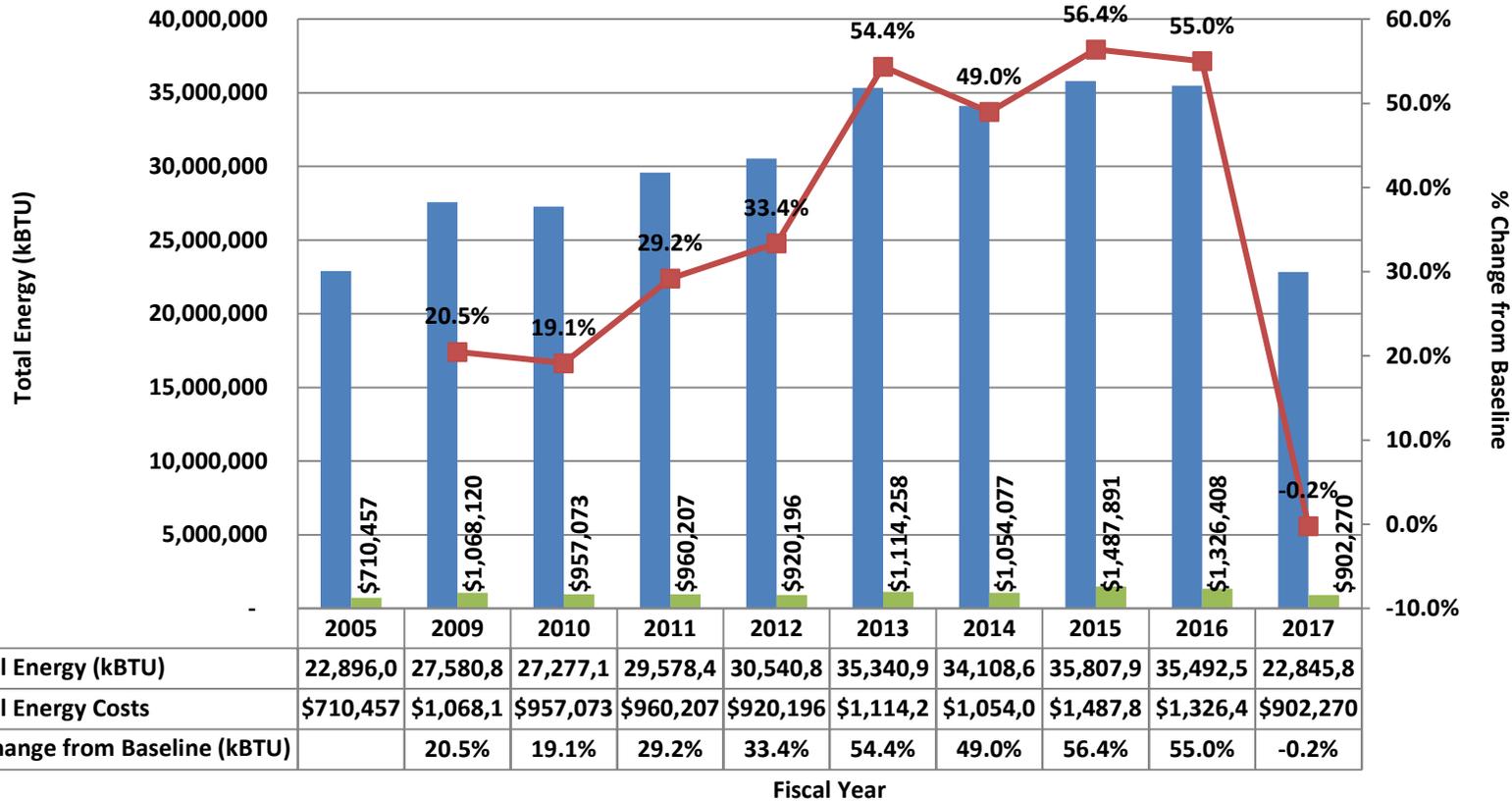
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Success Story of Pilot Project

Cannon Mountain ESPC





Ohio: ESPC for Correctional Facilities

Cross-Sector Success: ESPC as an Energy Efficiency Strategy



Ohio Department of Rehabilitation and Correction

August 23, 2017

Jacqueline Langhals

Energy Conservation & Sustainability Administrator

Our Mission and Goals

Utilities – reduce electricity, natural gas, and water by 2% each year

Waste – reduce total waste by 25% by 2020

Fleet – reduce fuel consumption by 20% by 2020

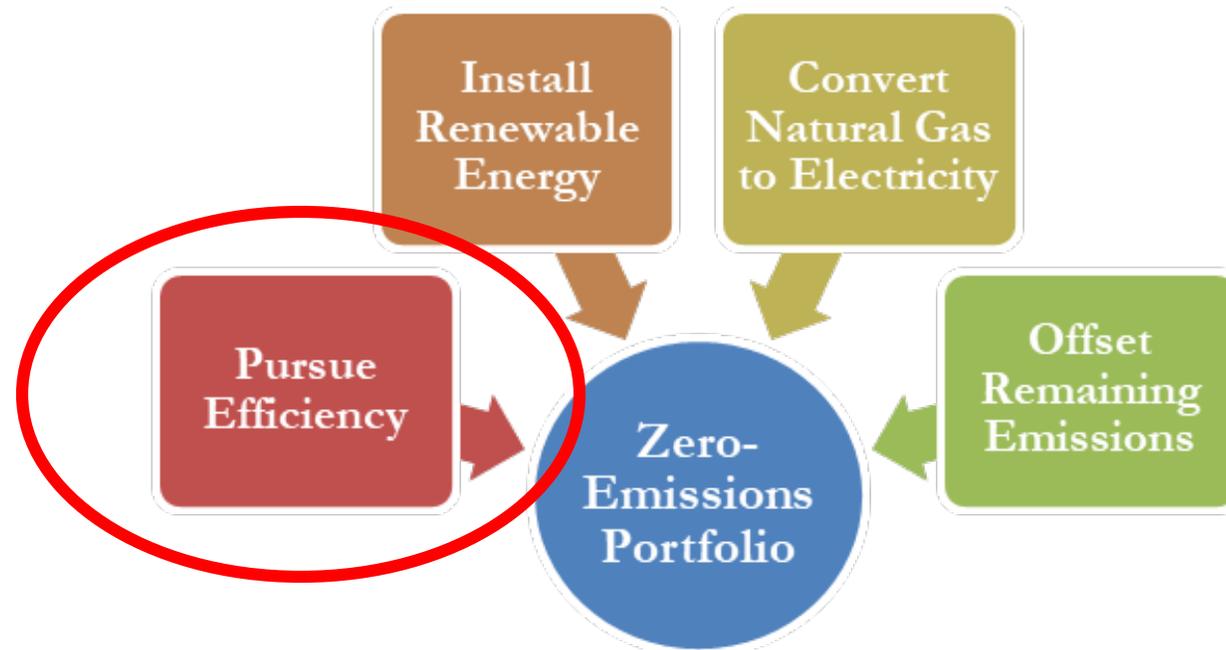
Land, Animals, & Plants – increase conservation efforts

Behavior – increase awareness and training opportunities

Our Mission and Goals

Utilities – reduce electricity, natural gas, and water by 2% each year

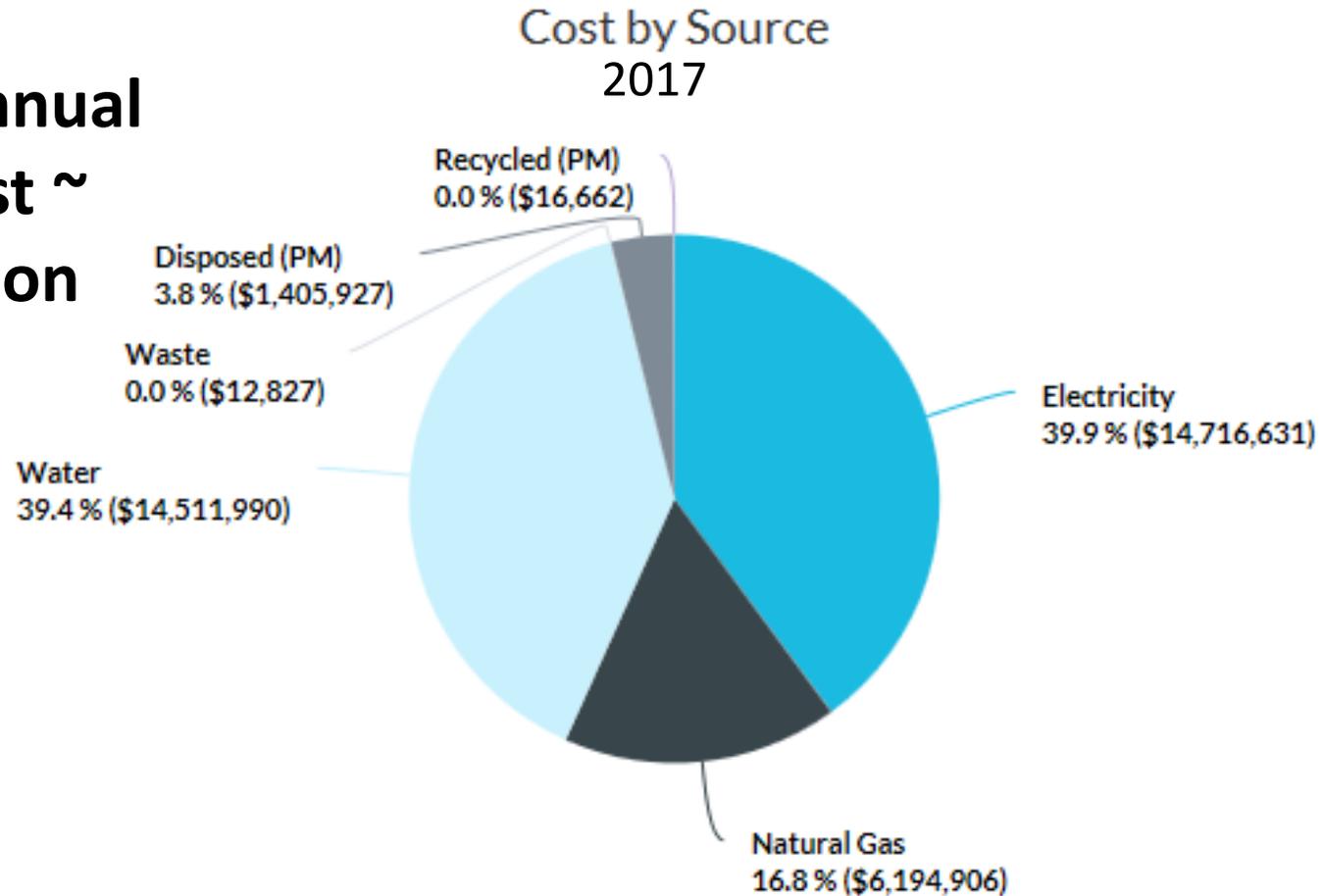
The DRC will operate a zero-emissions portfolio of buildings by 2040



How do we get there?

The DRC will operate a zero-emissions portfolio of buildings by 2040

**Current Annual
Energy Cost ~
\$21.3 Million**



How do we get there?

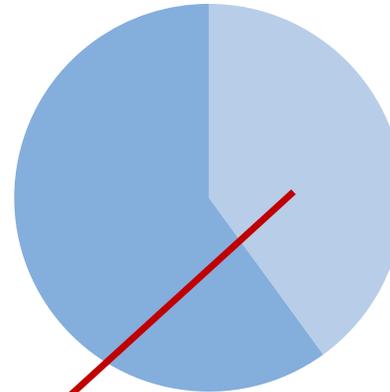
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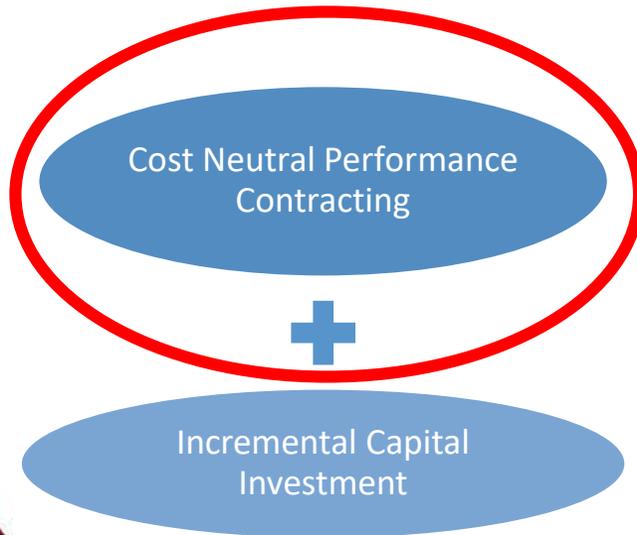


Solar ~
60% @
\$12.8M

At Achievement



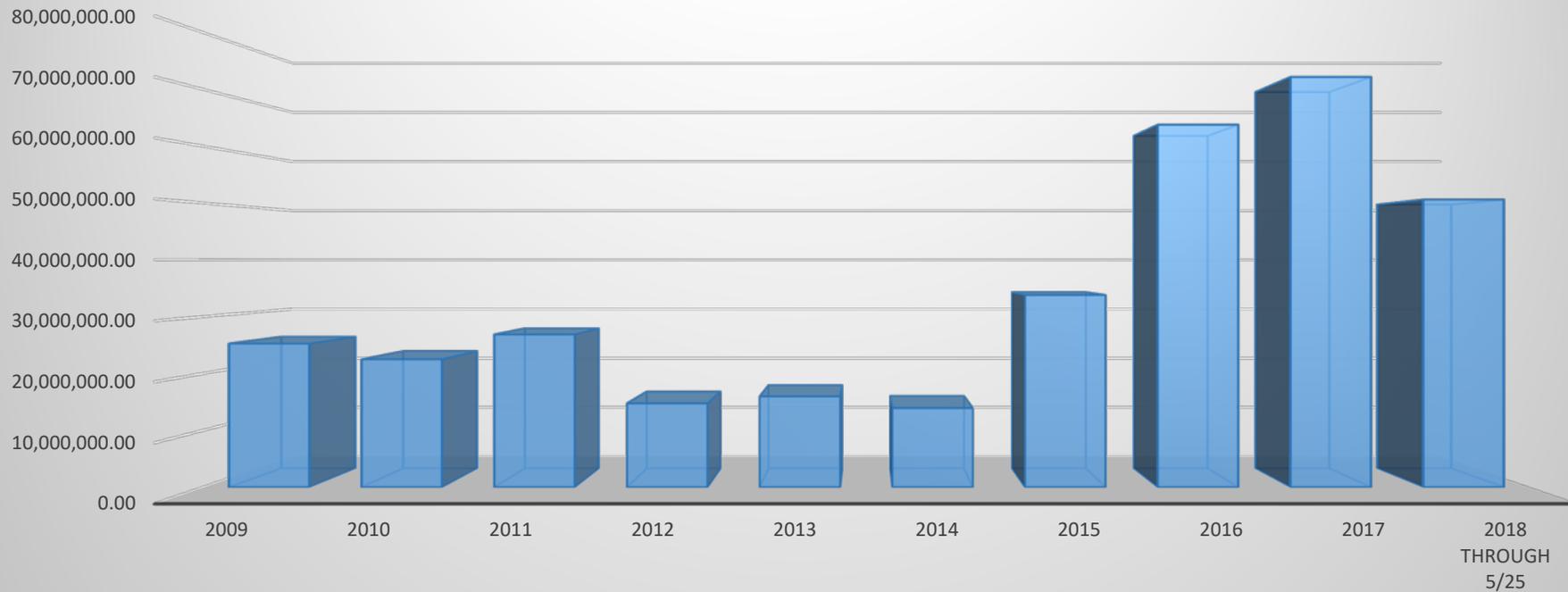
Efficiency ~
40% at
\$8.5M



\$8.5M
annual
savings

Where do we begin?

Fund 7027 ADULT CORRECTIONAL BUILDING Expenditures Fiscal Years 2009 to 2018



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 through 5/25
Series1	25,264,532.38	22,508,173.51	26,871,893.30	14,756,314.14	15,984,451.52	13,925,600.80	33,802,648.06	63,754,436.41	72,151,904.36	50,592,308.95

Key Factors in Targeting a Facility

Energy Reduction Potential – pre-annual utility costs > \$500,000 (> \$1,000,000 preferred)

Facility Support – need buy-in at the institutional level

Facility Need – life of existing equipment; no capital available

Large enough – enough scope to attract competitive solicitations

Continued Use – similar use for next 15 years

Popular ECMs at our Facilities

Lighting Retrofits/ Replacements

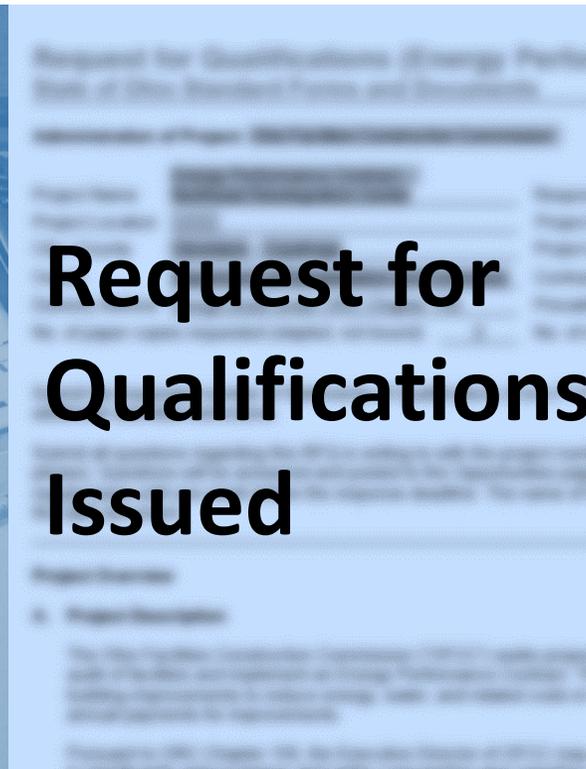
Water Conservation

Kitchen Hood Controls

Steam Conversion

DHW Boilers

Ohio Facilities Construction Commission



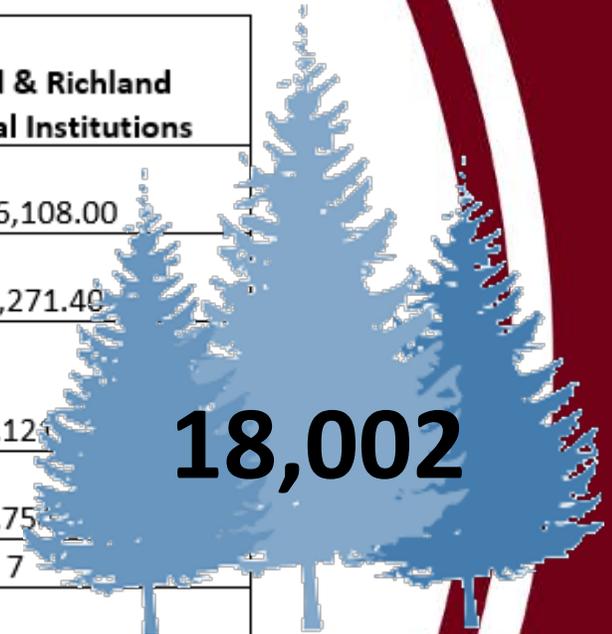
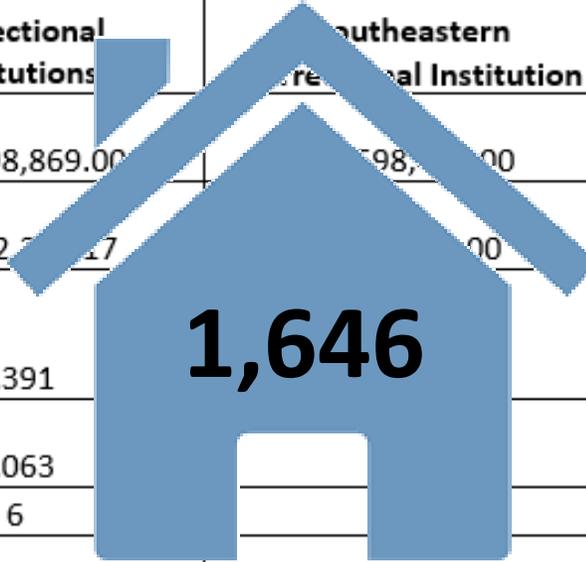
Finalizing the Project



CLEAN AIR & CLEAN ENERGY
ARE GOOD BUSINESS

What OAQDA is looking for

	Belmont and Noble Correctional Institutions	Southeastern Correctional Institution	Mansfield & Richland Correctional Institutions
Project amount financed:	\$10,698,869.00	\$7,998,000.00	\$8,236,108.00
Annual Savings in Dollars	\$1,042,000.00	\$1,000,000.00	\$797,271.40
Annual Energy Reduction	4,391	1,646	6,126
CO2 Tons Reduced	4,063	1,646	4,750
NOx Tons Reduced	6	7	7
ECM Highlight	LED lighting retrofits	LED lighting retrofits	LED lighting retrofits
ECM Highlight	Replace heating boiler with high efficiency condensing boilers	Laundry conversion of existing, steam dryers to natural gas dryers	Replace existing boilers and installation of high efficiency boilers
ECM Highlight	Install VFD's on chilled water pumps	Steam plant and system efficiency upgrades	Install Air Cooled Chillers and pumps with controls



An Inside Look at Marion Correctional



Measurement & Verification

Guaranteed – Actual Savings – how is this calculated?

Annual Reports – make sure assumptions are clearly called out

Third-Party Commissioning

Real-Time Monitoring – starting in construction phase

Lessons Learned and Moving Forward

Project Number	Project Locations	Project Contract Date	Project Current Status	Project financed total including fee (OAQDA Contract)	Project Contract Term	Estimated Annual Utility Savings**	Baseline Utility Cost	Estimated Percent Reduction	TOTAL Savings in Contract Term including est. 5 yrs O & M ***	Simple Payback (financed cost/annual utility savings)
DRC-081017	ORIENT & Pickway Cis	Mar. 24, 2010	CLOSED ASR (cancelled)	\$ 9,268,550	10 years	\$1,308,645	?	?	\$ 13,086,450	7.08
DRC-030081	Ohio Refomatory for Women	Mar. 30,2012	CLOSED ASR (to be cancelled)	\$ 5,651,851	10 years	\$ 664,682	?	?	\$ 6,646,820	8.50
DRC-130045	LEBANON-WARREN CIs	Dec. 18,2014	POST CONSTRUCTION	\$ 13,521,673	15 years	\$ 1,175,926	\$ 3,572,768	33%	\$ 17,638,890	11.50
DRC-140087	MARION CI	Sept 30,2015	Post CONSTRUCTION	\$ 11,063,000	11 years	\$ 1,195,619	?	?	\$ 13,127,350	9.25
DRC-15N001	CHILLICOTHE CI	Dec.15, 2016	CONSTRUCTION	\$ 6,703,045	11 years	\$ 693,070	\$ 2,025,497	34%	\$ 7,890,031	9.67
DRC-17N133	SOUTHEASTERN CORRECTIONAL COMPLEX	Feb. 7, 2018	CONSTRUCTION	\$ 2,598,439	15 years	\$ 224,722	\$ 1,440,446	16%	\$ 3,483,830	11.56
DRC-17N150	MANSFIELD & RICHLAND CIs	Feb.14, 2018	CONSTRUCTION	\$ 8,236,108	15 years	\$ 691,998	\$ 2,572,040	27%	\$ 10,754,920	11.90
DRC-17N151	NOBLE & BELMONT Cis	Apr.26, 2018	CONSTRUCTION	\$ 10,698,896	15 years	\$ 731,649	\$ 3,806,724	19%	\$ 14,814,596	14.62
DRC-17N152	NORTHEASTERN REINTEGRATION CENTER	Aug/Sept	Finalizing Engineering	TBD	TBD	TBD	TBD	TBD	TBD	TBD
						\$6,686,311			\$ 87,442,887	

Some of the numbers ...

\$5,539,098 in savings to date

Project Number	Project Location	Start Date	Project Status	Project Cost	Project Term	Estimated Savings	Estimated Savings	Estimated Percent Reduction	TOTAL Savings in Contract Term including est. 5 yrs O & M ***	Simple Payback (financed cost/annual utility savings)
DRC-081017	ORIENT & Pickway Cis	Mar. 24, 2010	CLOSED ASR (cancelled)	\$ 9,268,550	10 years	\$1,308,645	?	?	\$ 13,086,450	7.08
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Some of the numbers ...

75% decrease in kBtu/sq ft '16-'17

Project Number	Location	Start Date	Project Status	Project financed by OAC	Project Life	Estimated Total Project Cost ***	Estimated Base Building Utility Cost	Estimated Energy Savings %	TOTAL Savings in Construction Term including est. 5 yrs O & M ***	Simple Payback (financed cost/annual utility savings)
DRC-081017	ORIENT & Pickway Cis	Mar. 24, 2010	CLOSED ASR (cancelled)	\$ 9,268,550	10 years	\$1,308,645	?	?	\$ 13,086,450	7.08
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Some of the numbers ...

40% decrease in kBtu/sq ft '16-'17

Project Number	Location	Start Date	Project Status	Project financed by	Project Life	Estimated Total Project Cost ***	Base Case Utility Cost	Estimated Energy Savings %	TOTAL Savings in Construction Term including est. 5 yrs O & M ***	Simple Payback (financed cost/annual utility savings)
DRC-081017	ORIENT & Pickway Cis	Mar. 24, 2010	CLOSED ASR (cancelled)	\$ 9,268,550	10 years	\$1,308,645	?	?	\$ 13,086,450	7.08
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Some of the numbers ...

\$48,000/yr steam leak found at start of construction

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North Carolina: ESPC for Local Governmental Units



Better Building Summit
Energy Saving Performance Contracting
Local Government Units

Reid Conway, PEM



Utility Savings Initiative

North Carolina's Public Building Energy Efficiency Program

- Program Purpose:
 - Assist all public sectors in managing utility consumption and costs
- Program Serves:
 - 14 State Agencies
 - 21 UNC Institutions
 - 58 Community Colleges
 - 115 K-12 Public School systems
 - 100 Counties
 - 548 Municipalities
 - Others as time permits

Utility Savings Initiative

- Encompassing
 - All folks: faculty, staff, students, maintenance, financial, etc.
- Comprehensive program that focuses on
 - Utility accounting
 - Operations and maintenance
 - Facility assessments and audits
 - Identification of possible projects
 - Awareness, Education, outreach, and training
- Provides on-site assistance
- Provides oversight of Performance Contracting (note prior history)

Utility Savings Initiative

- 2007 General Statute to reduce BTU/Sqft of state facilities and the UNC System by 30% by 2015
 - Required Agencies and the UNC System to annually report energy consumption with a 2002-03 baseline and annually submit an updated Strategic Energy Plan
 - Required the Community Colleges to annually report energy consumption with a 2007-08 baseline
 - Created a 30% better energy standard for construction of state funded facilities

ESPC in Local Governmental Units

Utility Savings Initiative (USI)

- 2007 also created legislation on PC
- How, who, requirements
- UNC System, Agencies
- Local Governments
 - 3 year DOE Grant for LG Units/3rd Party Reviewers
 - Targeting Underserved communities

ESPC in Local Governmental Units

Performance Contracting--USI oversees PC for all governmental units

- List of State Qualified ESCOs
- Templates for RFP, IGA and ESA
- Best practices documents
- M and V Guidelines
- General Statues
- LGC Application
- USI on-site Training and hand holding through the process

ESPC in Local Governmental Units

Who are local governmental units in NC?

Cities

Counties

K12s

Community Colleges

Each county outlays funds for both the K12s and the Community Colleges for upkeep and maintenance and utilities. As well as for their own county facilities and utilities. PC is the only avenue that allows K12s and CCs to borrow money, but they must have county board approval.

ESPC in Local Governmental Units

- PC allows the governmental unit to purchase **Guaranteed Positive Cash Flow** that they current don't have from the ESCO.
- To provide that Cash Flow, the ESCO proposes and designs a package of energy cost reduction measures, installs or implements those cost reduction measures, and guarantees the savings of the cost reductions.
- Third party monitoring and verification

*****Contrary to what the ESCO states and Owners want to believe, deep retrofits and solving years of deferred maintenance issues are not achievable*****

ESPC in Local Governmental Units

Challenges for Local Governmental PCs

- Expertise (contracts, financial, maintenance, project mgnt.)
- Time (no one has enough to devote)
- Reluctance for long-term debt
- Money (for projects or for expert assistance)
- Size of projects (usually small less than \$2 million)
- May not know help is available
- Local Boards may not play well together
- Over the moon expectations of what will get done
- Years of underfunding of upkeep and maintenance

ESPC in Local Governmental Units

Overall lack of allocation of adequate resources for Facility Operation, Improvements, Maintenance and Staff.

*****You must be budgeting properly within your current utility accounts to address utility cost fluctuations caused by you or by things outside your control. *****

- Rate increases
- Change in hours of operation
- Change in occupancy
- Change in building use
- Construction
- Weather
- Etc.

ESPC in Local Governmental Units

ESCO Challenges for smaller PCs

- **ESCO wants to do everything and does not have the ability to focus (This only adds time and expense to the project. Larger project-larger profit)**
- **Lower ESCO interest or competition in these small PCs**
- **Lack of owner participation**
- **Lack of owner direction**
- **Owner has already done the low hanging fruit projects**
- **Owner is slow to move forward (sounds too good to be true)**
- **Staff/Board turnover**

ESPC in Local Governmental Units

Performance Contracting

Outreach Efforts within Local Governmental Units

- USI (site visits, emails, EMD, ACCFO, conferences, etc.)
- ESCOs (business development folks, previous jobs, etc.)
- 3rd Party Engineers (business development folks, previous jobs, etc.)
- Energy Services Coalition Workshops
- State Energy Conference
- Word of mouth (good and bad)

ESPC in Local Governmental Units

Performance Contracting Process for Local Governments

- Verify if you are a potential candidate for a PC Project
- Releasing a RFP
- Selecting an ESCO for a Project
- The Investment Grade Audit
- Project Financing
- LGC Approval
- The Energy Services Agreement
- Construction
- Project Management
- Commissioning
- Ongoing Monitoring and Verification (M&V)

ESPC in Local Governmental Units

Performance Contracting Process for Local Governments with USI involvement

- Is there a project?
- Train staff/board on what PC is and clarified ESCO sales pitch
- Helped craft the RFP from USI template
- LGC Application is started to be filled out by Owner
- RFP released and Advertisement in Local paper and posted on the USI Website and emailed to all Qualified Providers
- Mandatory Pre-bid Meeting and Data Packets
- Bid Opening
- Qualified Reviewer Required to Review and Comment on RFP Responses
- Negotiation on IGA and ESA Contracts (USI Templates) (ESCO and Owners Lawyers)
- USI Review and comment
- Notification to Award
- IGA

ESPC in Local Governmental Units

Accomplishments

How to make it better?

- More oversight?
- More rules?
- More training?
- More money to do EE projects?
- More money for Qualified Reviewers?
- More M and V validation?

The list goes on

Thank you all very much

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