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Empowering you to make smart energy choices

Connecticut's Standardized Energy Savings Performance Contracting (ESPC) Program

Department of Energy and Environmental Protection
Connecticut Green Bank

October 2015

Presentation Goals

- Answer these questions:
  - What is Energy Savings Performance Contracting?
  - Why should I consider an ESPC?
  - Why is the CT ESPC program effective?
  - How would I get started?

CT Green Bank role

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GREEN BANK

- Assists CT DEEP in implementing the ESPC program
- Plans to issue Green Bonds for ESPC projects for state projects
- Seeks additional ways to help finance clean energy projects
  - LED Streetlights
  - Aggregation of small ESPC projects

Energy Savings Performance Contracts

Repurpose energy inefficiencies
to fund infrastructure improvements

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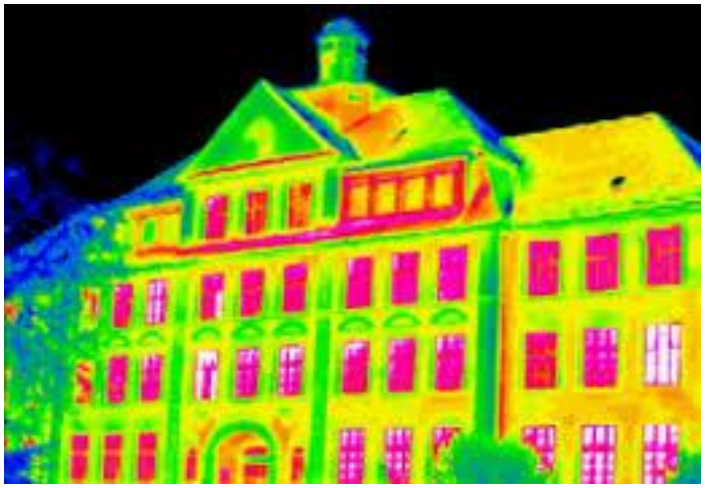
Infrastructure improvements include:

- Upgrading to high efficiency energy systems
- Stabilizing energy costs, improve budget accuracy



- Addressing deferred maintenance
- Eliminating costly emergency repairs

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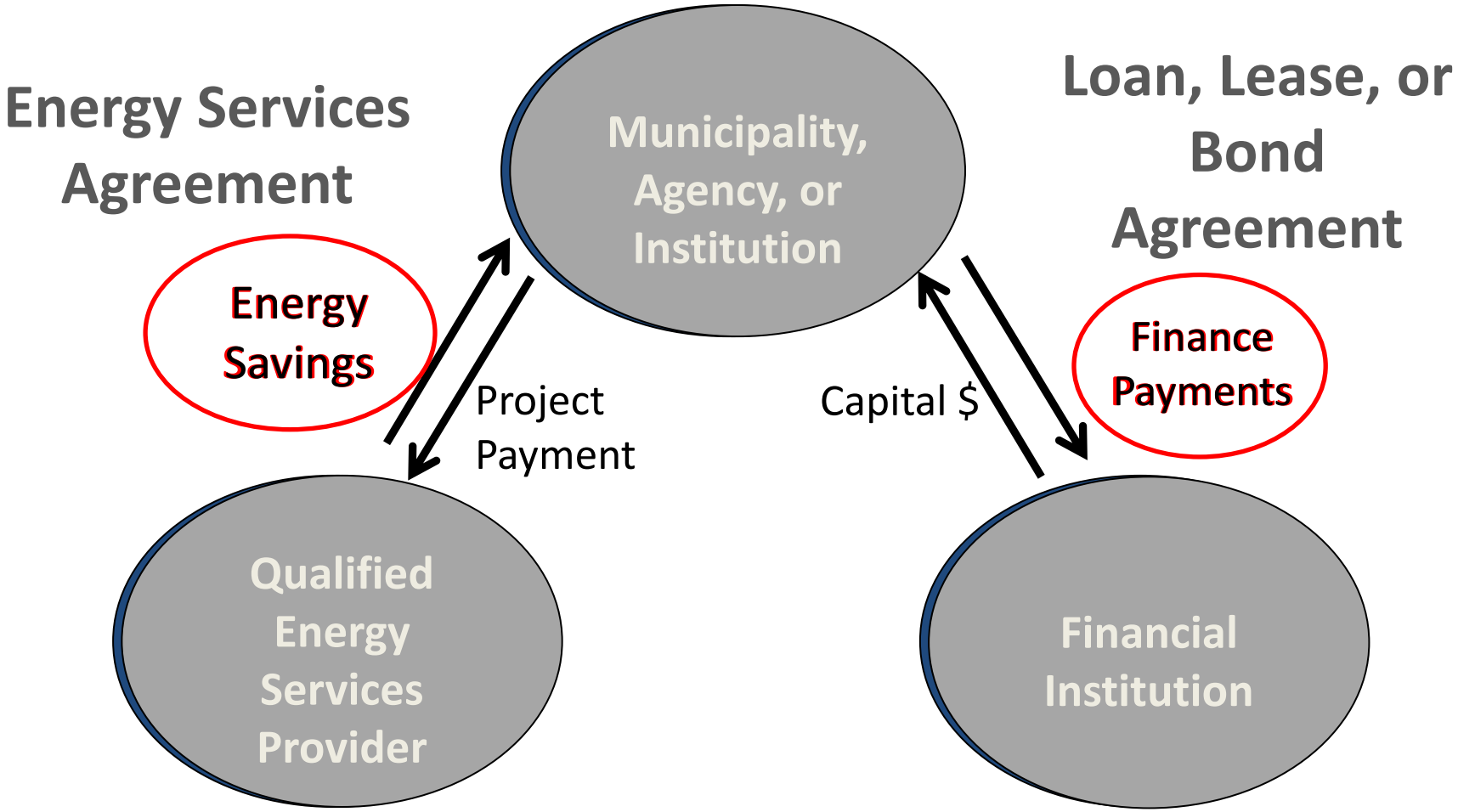
Energy Savings > Finance Payments



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Aggregating Measures Balances Payback

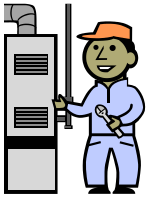
Short (<15 yr) Payback

– High Efficiency Lighting

– Optimized EMS

– Low flow fixtures

Long (>15 yr) Payback



– Advanced HVAC Systems

– Windows

– Building weatherization

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How does the CT ESPC program work?

- Pre-approved, standardized documents
  - Required for use by state agencies, including public colleges/universities
  - Available for use by municipalities

- Pre-qualified vendors (QESPs = “ESCOs”)

- Technical Support

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Pre-Qualified Vendors

- 13 Qualified Energy Services Providers (QESPs) are pre-qualified and on State contract

pepco Energy Services
SIEMENS
energysolutions PROFESSIONALS energy efficiency | simply
TRANE
ESG ENERGY SYSTEMS GROUP
Johnson Controls
Honeywell
NORESCO
AMERESCO Green • Clean • Sustainable
McKinstry For The Life Of Your Building
EATON Powering Business Worldwide
ConEdison Solutions Energy. Efficiency. Expertise.
Schneider Electric

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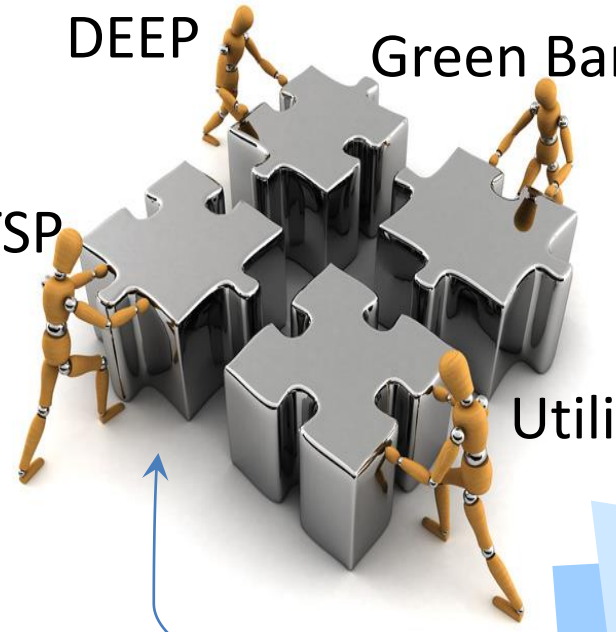
Support Services “Translate” ESPC Lingo



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Support Services – Engineering & Legal

- During IGEA Phase:
  - DEEP Program Manager support
  - Utility support:
    - Technical support services
    - Incentives
- May need to self-fund or use project funds:
  - During QESP selection
  - During construction
  - During M&V period

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Support Services - Financing

- Green Bank staff and legal advisors can provide advice and support on financing options, introductions to capital providers and financial institutions
- Tax-exempt municipal lease/loan guidance documents

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Typical Financing Methods

- State Agency projects will work with CT Green Bank to utilize Revenue Bonds (Green Bonds) for financing

- Municipal Bonds or Tax Exempt Lease Purchase (TELP) are common financing mechanisms for municipal building or K-12 School projects

Performance Contracting Process

Step 1: Select Qualified Energy Services Provider

Step 2: Investment Grade Energy Audit

Step 3: Arrange Financing

Step 4: Finalize ESPC Contract…Construct

Step 5: Measure and Verify

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How to get started

- Contact DEEP (leadbyexample@ct.gov) to:
  - Discuss your specific needs in detail
  - Get assistance with benchmarking your energy use
  - Connect with utility program representatives
- Pull together a Technical Facility Profile
  - Gather utility data and basic facility information
    - Facility type, age, square footage, fuels used, “issues”
- Issue Letter of Interest to QESPs
- Issue standardized RFP for QESPs to do feasibility studies
- Obtain internal approval to select most qualified QESP based on feasibility study and interviews and start IGEA

First Projects under CT ESPC Program

Connecticut Valley Hospital

Dept. of Correction

City of Bristol

Dept. of Motor Vehicles

UConn: Storrs & Health Center

Town of Enfield

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Connecticut Valley Hospital Case Study

Connecticut Valley Hospital
Middletown

- Principal facility of CT Department of Mental Health and Addiction Services
- State hospital since 1868, services include:
  - Forensic (specialized services to individuals involved with the criminal justice system)
  - General psychiatric
  - Inpatient addiction treatment
- Operations are 24/7/365
  - 50+ large institutional, residential, and maintenance buildings over 200 acres
- $5M annually in energy related costs
  - Master metered facility
    - Little visibility into energy consumption details

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Challenge: Aging Infrastructure






Examples:

- Mismatched, abandoned, or out of date equipment
- Deferred maintenance
- Key challenge: Steam distribution system - ongoing loss of ~11M gal/year heated and treated steam and condensate

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Communicating the Opportunity

- 11 million gallons heated and treated steam and condensate per year is equivalent to filling this pool…

…with boiling water, every day.

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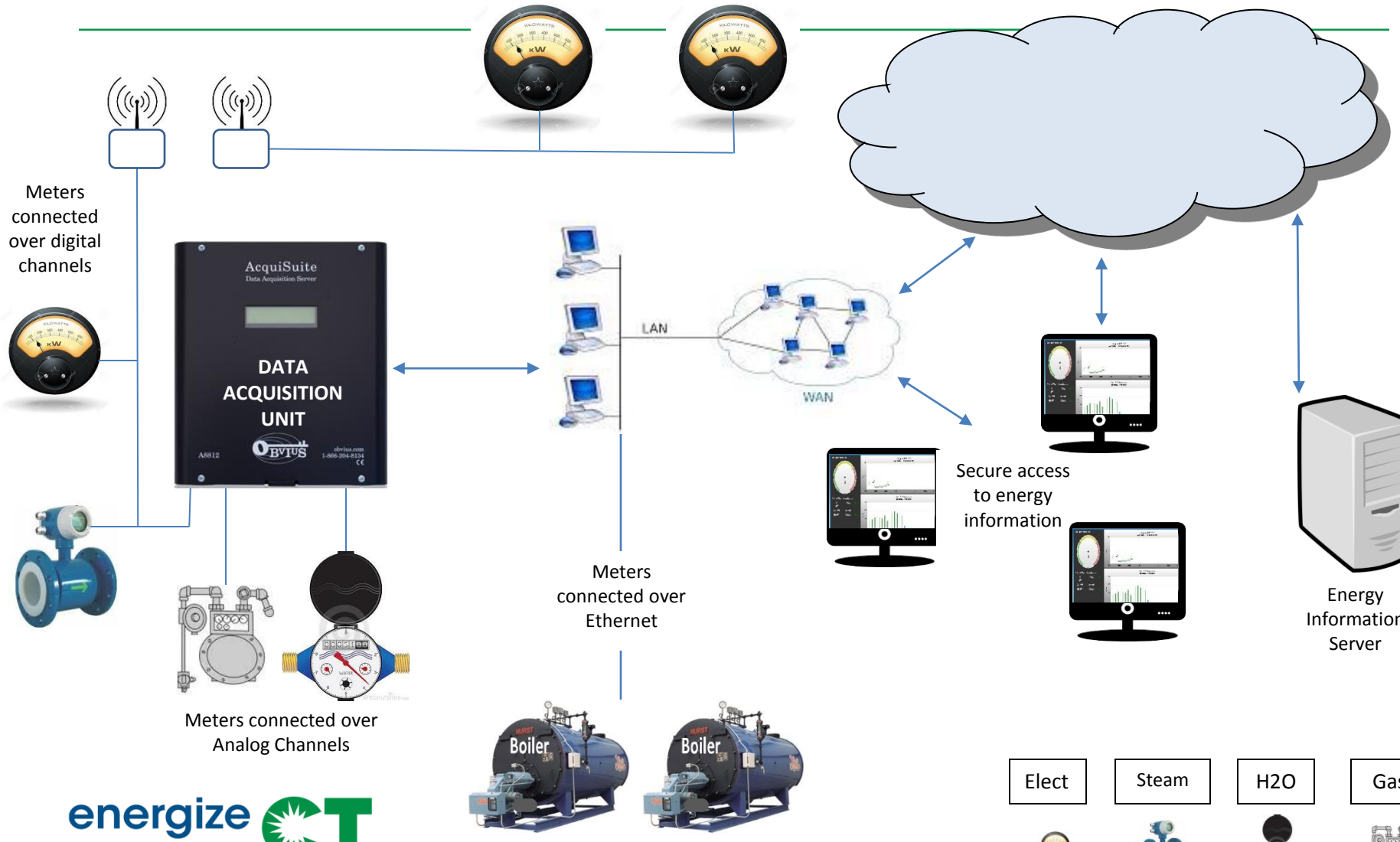
Project History

- First project to utilize DEEP's standardized ESPC process
  - Issued RFP for qualified ESCo in July 2013
  - Selected NORESCO in December 2013
    - Conducted Investment Grade Energy Audit to identify opportunities and quantify costs and savings
  - Benefitted from extensive technical support from CEEF-funded ESPC program manager and owner's representative engineer

Project Strategies

- Installed electric, steam, and water meters in all buildings to establish energy use baseline
  - Will allow for real time monitoring of energy performance by facility personnel or central program administrators

Metering and Sub Metering



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IGEA Results

- Improvements will reduce annual energy-related costs 60%
  - First year energy-cost savings of $3.1M
  - Over 25 year lifetime, savings will ultimately save the State $48M beyond cost of improvements
  - Construction will account for 634 job-years

- NORESCO's guarantee of savings fully covers:
  - Financing of building and infrastructure improvements
  - Measurement and verification of savings
  - Maintenance of new equipment

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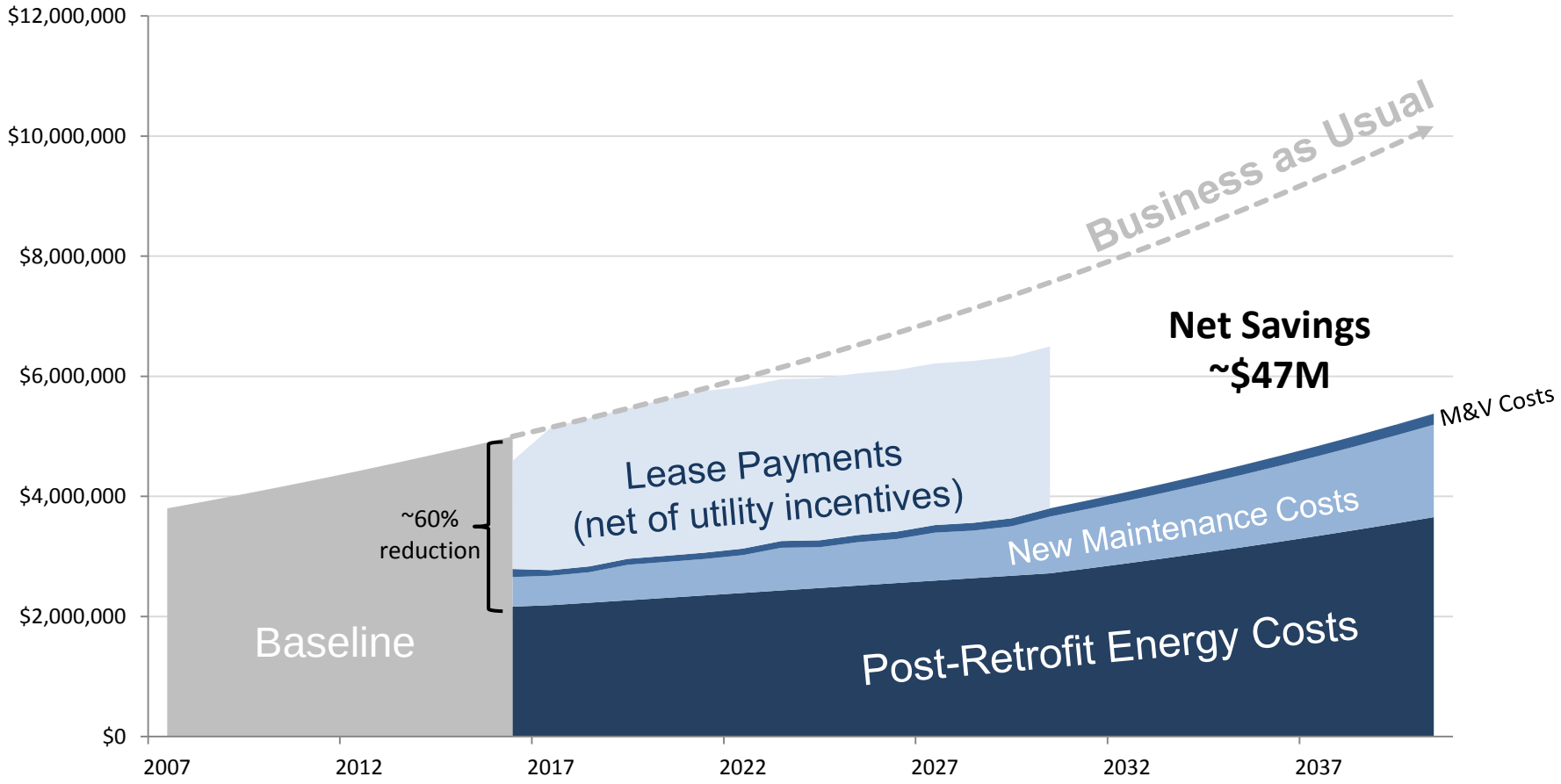
25 Year Economics - DRAFT



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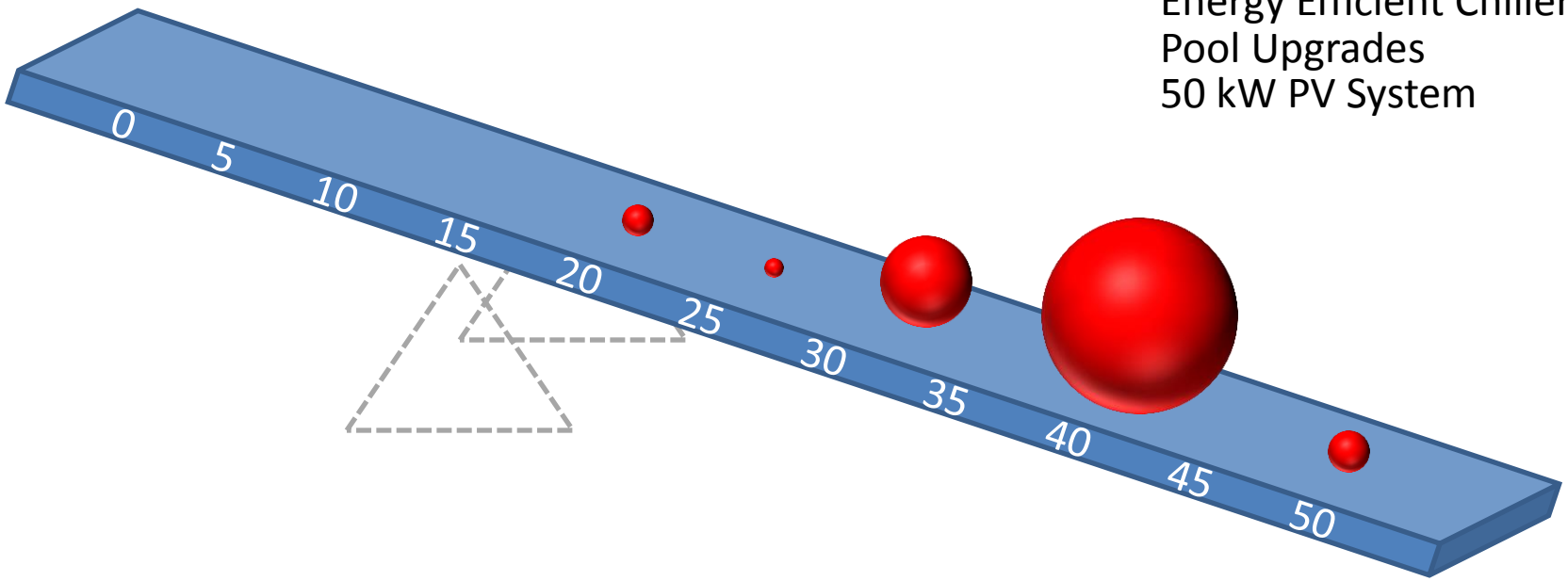
Project Strategies (cont)

- Aggregate fast and slow payback measures so project is cost-effective[1] over financing term
  - Have identified 16 categories of ECMs in 54 buildings, totaling $33M in equipment and control upgrades and replacements
    - Will leverage savings from recently completed (and funded) boiler upgrade

[1] CGS § 16a-37x(2) defines cost-effective as an aggregate payback ≤ 15 years

Long Payback Measures

Air Handling Units
Windows
Energy Efficient Chillers
Pool Upgrades
50 kW PV System



Scale
Cost of Measure = $1M

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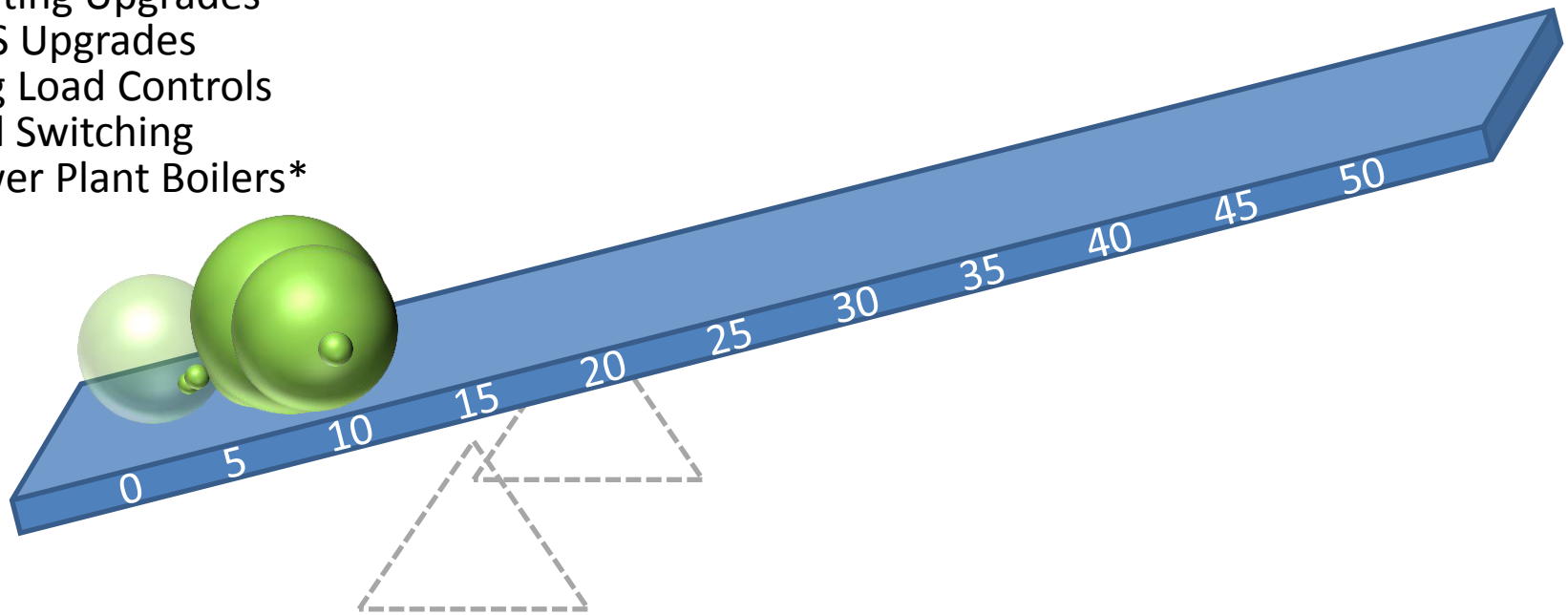
Short Payback Measures

Energy Efficient Transformers
Steam System Upgrades
Insulation and Weatherization
Cogeneration
Pipe/Mech Equip Insulation
Steam Traps
Lighting Upgrades
EMS Upgrades
Plug Load Controls
Fuel Switching
Power Plant Boilers*



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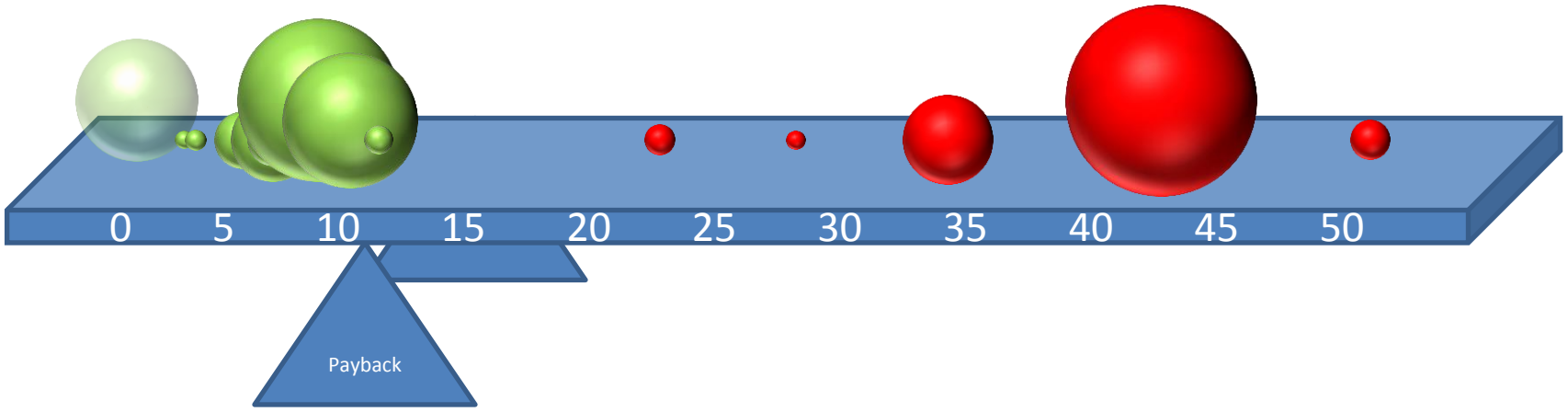
* Boiler project funded and completed in 2014

Scale
Cost of Measure = $1M

Total Project Cost: $33M
Aggregate Simple Payback = 10.8 years



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Scale
Cost of Measure = $1M

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Thank you!

ESPC Program Website:

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