



AUGUST 21-23, 2018 • CLEVELAND, OHIO

# Making Smart Investments: How Banks and Investors Think about Energy Efficiency

Thursday, August 23<sup>rd</sup>, 2018 from 2:00pm – 3:30pm

# Panelists

## Moderator

- **Johanna Zetterberg**, U.S. Department of Energy

## Speakers

- **David Tine**, HSB/Munich RE
- **Jeff Milum**, Investor Confidence Project
- **Paul Bienstock**, Citi

# Paul Bienstock

Citi

# Energy Services Agreements (ESA)

Financing Energy Efficiency Improvements for Corporate Clients

# Executive Summary

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Citi is a leader in energy efficiency finance to help improve the energy performance of corporate facilities, including through use of Energy Services Agreements

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## Energy Services Agreements for Corporate Facilities

- Corporates, including a number with advanced programs that have already been pursuing energy efficiency opportunities, are signaling the need for alternative financing solutions to pursue deeper, untapped opportunities.
  - Cost saving and environmental goals are driving continuous, ongoing improvements
  - Global management systems are providing C-suite level understanding of energy use and prioritization of savings opportunities
- Energy Services Agreements (ESA) are an emerging financing structure increasingly utilized by corporates to pursue energy improvements that may fall outside the reach of internal, self-financed programs.
- No up-front capital usage, no capex expenditure, off-balance sheet, and guaranteed performance and savings are some of the key reasons why corporates are using ESAs.
- Citi is uniquely qualified to work with corporates interested in Energy Services Agreements:
  - Recently closed major ESA for a Fortune 100 client, with a follow-on transaction in process
  - Acted as lender under an ESA where a new Combined Cooling and Power (CCP) system was installed into a data center in London
  - Actively engaged with a number of corporates in various sectors seeking to utilize ESAs
  - Established relationships with equity providers, ESCOs
  - Understand and help integrate the various constituencies involved in a corporate ESA including Operations, Treasury and Corporate Environmental/Sustainability teams.

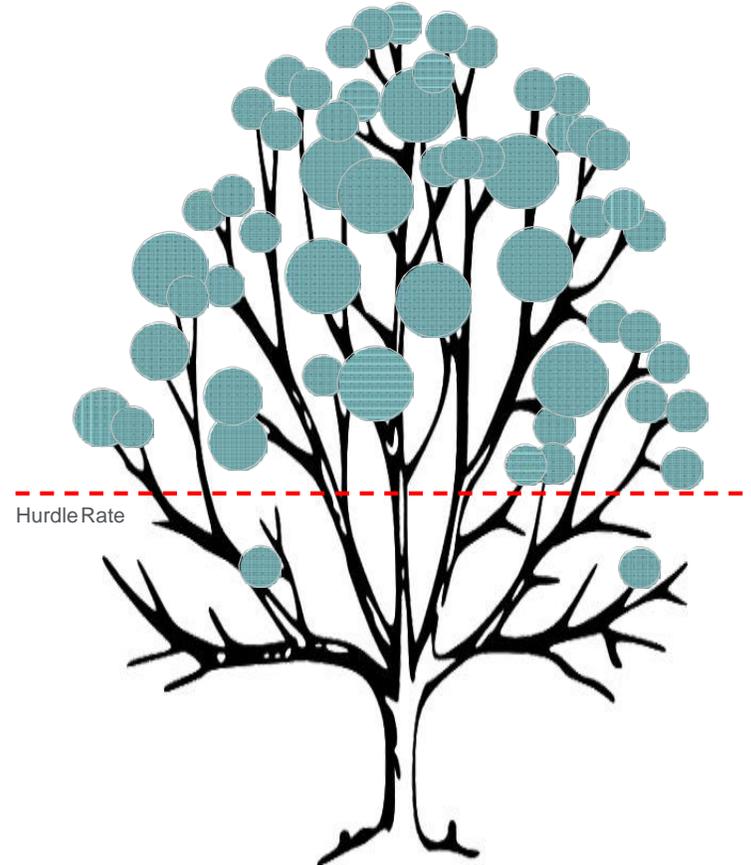
# Market Overview

Corporates with advanced energy efficiency programs that have harvested most of the “low-hanging fruit” face three options: 1) curtail the program; 2) change internal hurdle rates; or, 3) pursue third party finance

## Corporate Energy Efficiency Programs

- Driven by energy and cost savings, and to help meet greenhouse gas and other environmental goals.
- Developed and led by operations and corporate sustainability teams.
- Typically self-financed with internal hurdle (ROI/payback) rates effectively mandating payback periods no greater than 24 to 36 months.
- Becoming increasingly sophisticated with global energy management systems that elevate to senior management energy use, costs, and improvement opportunities.
- Advanced programs, in place for 10+ years, have harvested most of the “low-hanging fruit” (the opportunities that meet internal hurdles).
- Programs in this position have three options going forward:
  - 1) Curtail the program (contrary to cost-saving and environmental goals)
  - 2) Change internal hurdle rates (challenging, given other competitive uses of capital)
  - 3) Obtain third party finance (the genesis for Citi pursuing some of its own energy efficiency improvements, through the Energy Services Agreement)

## Challenge of Internal Hurdle Rates



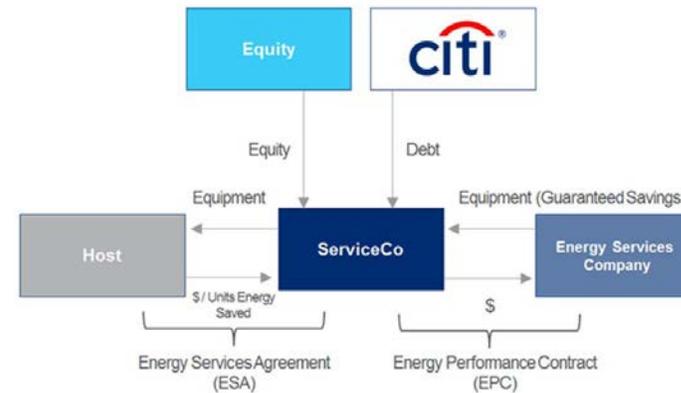
# Energy Services Agreement (ESA) Structure

The ESA approach provides a service agreement (not a lease) to the corporate Host, under which a third party provides energy services, and Host pays amounts equal to a percentage of actual savings over time

## Overview

- A special purpose entity (ServiceCo) is established to (i) enter into an ESA with the Host and (ii) reimburse Energy Services Company (ESCO) for equipment expenditures related to energy efficiency retrofits
  - Outside equity investor will own ServiceCo
  - Lender (Citi) will provide ServiceCo with debt financing
  - ServiceCo debt nonrecourse to the Equity, Host and ESCO
- Under the ESA, ServiceCo covers 100% of retrofit costs, and is paid an amount over time by Host based on Host's energysavings
- ServiceCo subcontracts with ESCO to construct and service energy assets
- If Host energy savings payments to ServiceCo are less than the pre-agreed minimum amount, then the ESCO will make payment to ServiceCo for the shortfall (up to pre-agreed minimum amount), such payments being assigned to the Lender
- ServiceCo and Lender (Citi) take Host and ESCO credit risk

## Structure Diagram



# Case Study: Fortune 100 Technology Customer

Citi Banking (AFG) funded groundbreaking multiple site energy-as-a-service project with no capital outlay from the customer

## Objectives & Approach

- Closed a \$14 million LED lighting upgrade with a Fortune 100 technology customer that covers four non owner-occupied sites in four different states.
- Funded by Citi's loan and an investment by our equity partner; the project will reduce total electricity use for lighting at these four customer sites by 65%.
- The customer will pay for realized energy savings as they are delivered during the 5 year agreement.
- The efficiency-as-a-service model allows the customer to continue to optimize resources and move quickly on a broad-based sustainability rollout.
- SmartWatt Energy, Inc., an energy system optimization company, is constructing and monitoring the ongoing energy savings performance.
- Two follow-on transactions to the above closing have now been completed.

## Results

Fortune 100 Technology Customer
<b>Savings:</b>
Reduced electricity use for lighting by 65%
<b>Environmental benefit:</b>
Eliminated 20,000 tons of annual CO <sub>2</sub> emissions. Over the life of the project, this is equivalent to taking 18,600 cars off the road.



# Transaction Comparison

Multiple funding options exist for energy efficiency projects, however the ESA structure provides the most flexibility and benefits for retrofitting corporate facilities

	Cash Purchase / Traditional Debt Financing	Leasing Structure	ESA Structure
Upfront Capital Cost	<ul style="list-style-type: none"> <li>100% of project cost / Closing costs and fees</li> </ul>	<ul style="list-style-type: none"> <li>Closing costs and fees</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
Net Income Impact	<ul style="list-style-type: none"> <li>Positive impact provided savings exceed interest expense liability</li> </ul>	<ul style="list-style-type: none"> <li>Positive impact provided savings exceed interest expense liability</li> </ul>	<ul style="list-style-type: none"> <li>Positive impact <u>guaranteed</u> given payment obligation via the ESA is based upon actual savings achieved</li> </ul>
Cash Flow Impact	<ul style="list-style-type: none"> <li>Cash flow positive provided 100% of savings are realized</li> </ul>	<ul style="list-style-type: none"> <li>Cash flow positive provided 100% of savings are realized</li> </ul>	<ul style="list-style-type: none"> <li><u>Guaranteed</u> to be cash flow positive given payment obligation is based upon actual savings achieved</li> </ul>
Balance Sheet Impact (subject to customer's own accounting analysis)	<ul style="list-style-type: none"> <li>Total cost of energy efficiency equipment</li> <li>Debt liability</li> </ul>	<ul style="list-style-type: none"> <li>Total cost of energy efficiency equipment</li> <li>Debt liability</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
Performance Guarantee	<ul style="list-style-type: none"> <li>No</li> </ul>	<ul style="list-style-type: none"> <li>No</li> </ul>	<ul style="list-style-type: none"> <li>Yes (given payment obligation is savings based)</li> </ul>
Benefits of Environmental Incentives/Rebates	<ul style="list-style-type: none"> <li>Customer responsible for securing any incentives or rebates</li> </ul>	<ul style="list-style-type: none"> <li>Customer responsible for securing any incentives or rebates</li> </ul>	<ul style="list-style-type: none"> <li>ServiceCo manages the incentives/rebates and they are reflected in reduced ESA service charges</li> </ul>
Periodic Payment Obligation	<ul style="list-style-type: none"> <li>Fixed for loan term</li> </ul>	<ul style="list-style-type: none"> <li>Fixed for lease term</li> </ul>	<ul style="list-style-type: none"> <li>Customer only pays for actual savings realized</li> </ul>

# Asset Finance Group (AFG)

AFG is a capital asset origination and advisory group within Citi's Capital Markets Origination platform with a broad mandate to advise clients and fund asset based financings

## Business Overview

- Monetize big ticket capital assets for bank clients through lease financings, portfolio purchases, partnership and other structures
- Investment and advisory focused on target asset classes in rail, power and energy, shipping, etc.
- Understand underlying asset values to structure solutions; comfortable with complex structures
- Flexible asset financing solutions to achieve required returns
- Leader in structured finance for over 50 years, starting as a lease equity advisor, packager, investor and underwriter
- AFG has a team of 11 professionals with comprehensive asset and investment expertise



## Energy Efficiency Financing

- Assets/Equipment – AFG asset appetite is broad:
  - Distributed Power (Combined Cooling, Heating & Power or “CHP”)
  - Lighting
  - HVAC Systems
- Typical loan parameters for Energy Efficiency equipment:
  - AFG’s focus is on strong counterparties (Hosts and ESCOs), preferably bank clients
  - Commercial/Industrial clients
  - Proven technologies
  - Term up to 10 years, with minimum investment around \$10MM
  - Facility/Asset can be in the U.S. or abroad

# Citi Energy Efficiency Credentials

Citi is a market leader in energy efficiency (EE) finance with numerous first-to-market transactions for public, private and single family properties; underwrote the first two ABS, helping to establish EE as a new asset class

## Landmark Transactions

- **Delaware Sustainable Energy Utility** - \$70mm municipal bond for a public entity that aggregates EE projects across multiple state agencies, and state language and ESCO participation.
- **Green Campus Partners** - \$50mm warehouse facility that provides dedicated capital to fund EE and renewable energy projects, eliminating the need to arrange project-by-project financing.
- **New York State Energy Research Development Authority (NYSERDA)** – up to \$24.8mm in capital markets financing of EE loans to NY residents originated by NYSERDA working group repayment program.
- **Spruce Financial** - a \$100mm (upsized to \$225mm) lending facility to finance the accumulation for subsequent securitization of EE loans to consumers for boilers, replacement windows etc.
- **Renew Financial/WHEEL** - a \$25mm (upsized to \$50mm) facility to finance the accumulation for subsequent securitization of EE loans in a multi-state program that uses available American Recovery and Reinvestment Act (ARRA) state monies as first loss capital.
- **Unilever** - first-ever green sustainability bond, where the proceeds of the £250,000,000 issuance are being used for projects that reduce GHG emissions, water use and waste disposal in Unilever facilities in China, Russia, South Africa, Turkey and the United States.
- **Citi London** - AFG and Citi Operations & Technology pilot of an ESA for a Citi data center in London.
- **Renew Financial/WHEEL** – first-ever asset backed securitization (ABS) of EE loans, \$12.58mm
- **Spruce Financial** – second ever ABS of EE loans; \$83.78mm
- **Fortune 100 ESA** – \$14mm programmatic ESA across multiple sites and for non-owner occupied properties

## Associations and Awards

- **U.S. Department of Energy Better Buildings Challenge**: inaugural member starting in 2011
- **State Energy Efficiency Action (SEE) Action** (SEE Action) for \$24.8mm financing working group
- **New York City Energy Efficiency Corporation (NYCEEC)**: the president of NYCEEC Board
- **U.S.-China Clean Energy Research Center Building Energy Efficiency Program (CERC-BEE)**: industry advisory group combined heat and power on
- **C40 Leadership Group**: partner
- **Environmental Finance**: 2015 Deal of the Year – WHEEL for energy efficiency
- **Financial Times/IFC**: 2015 Achievement in Transformational Finance for Citi EE finance program



# Contacts

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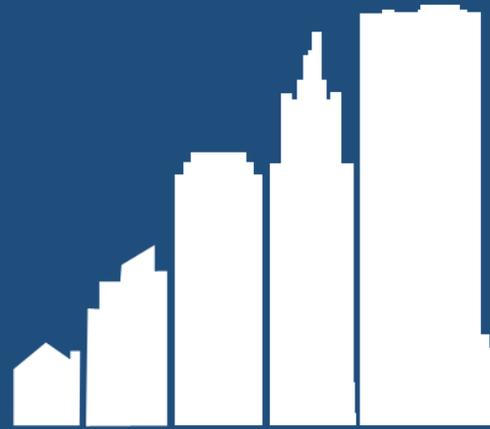
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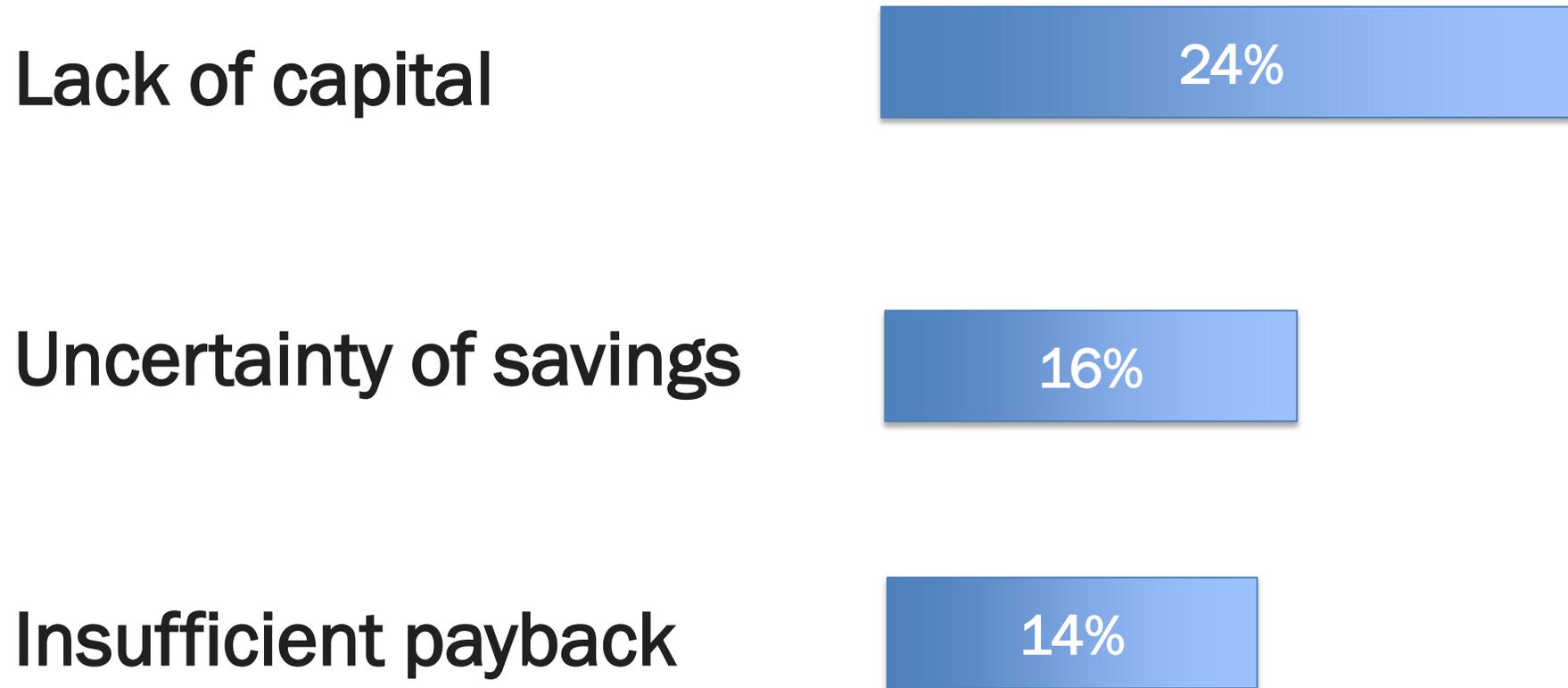
# Jeff Milum

## Investor Confidence Project

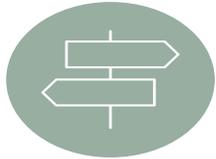


# INVESTOR CONFIDENCE PROJECT

# Energy Efficiency Market Barriers



# More Energy Efficiency Market Barriers



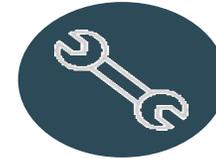
Transaction costs too high vs. cost of project



ROI is smaller than it appears



Difficult to replicate results



Gaps in performance

**01** Soft costs to identify, finance and validate retrofit savings

**02** Energy Price Sensitivity

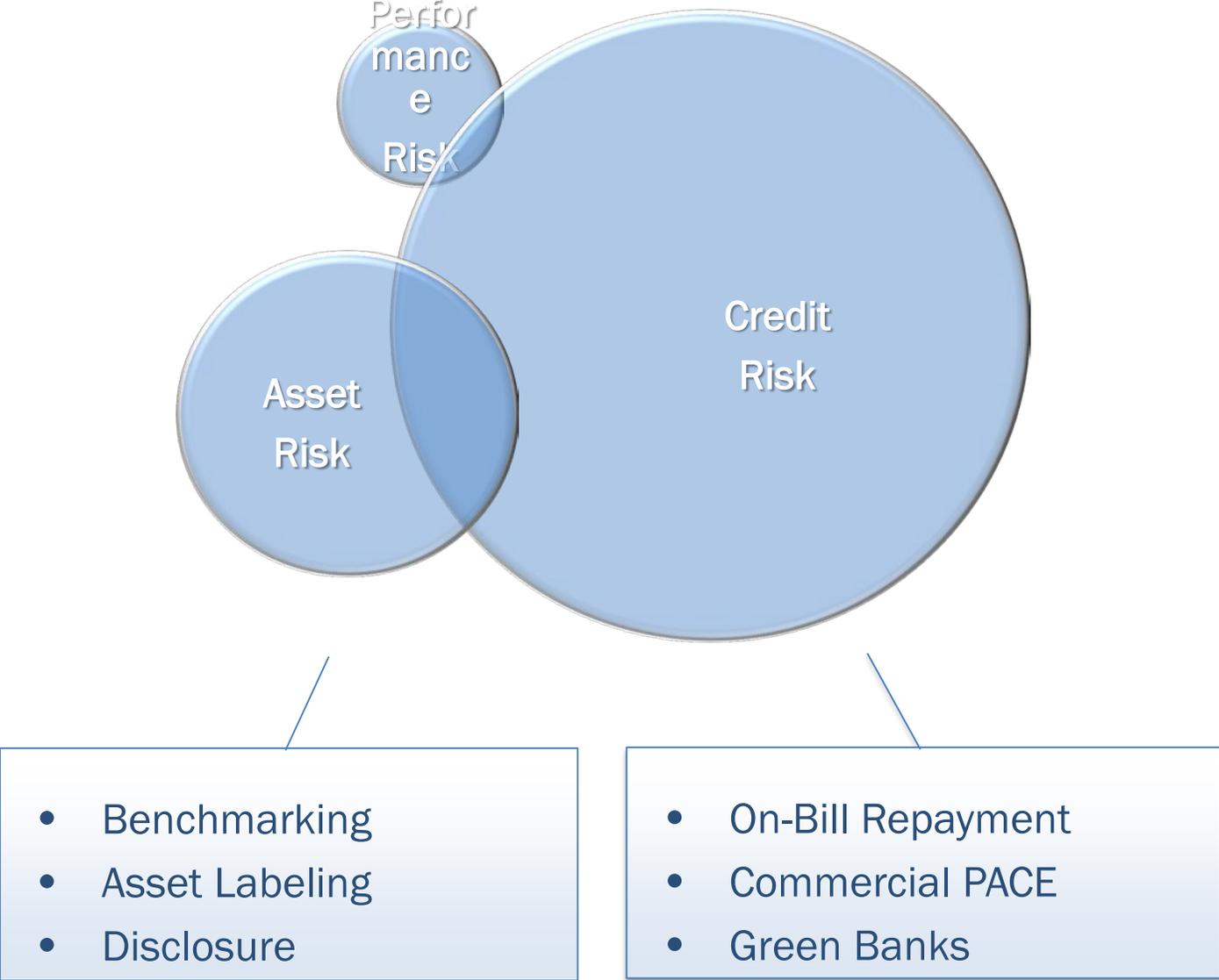
**03** Each building is unique and complex

**04** Variance in audit and retrofit quality

# Yet Another Energy Efficiency Market Barrier



# Underwriting Today



# De-risking projects (and portfolios)

## Project Finance

Long-term financing of projects based upon the projected cash flows of the project rather than the balance sheets of its sponsors.



# New Approaches

- Third Party Ownership
- MESA/ESA
- PPA
- ?????

# Enter Investor Ready Energy Efficiency™

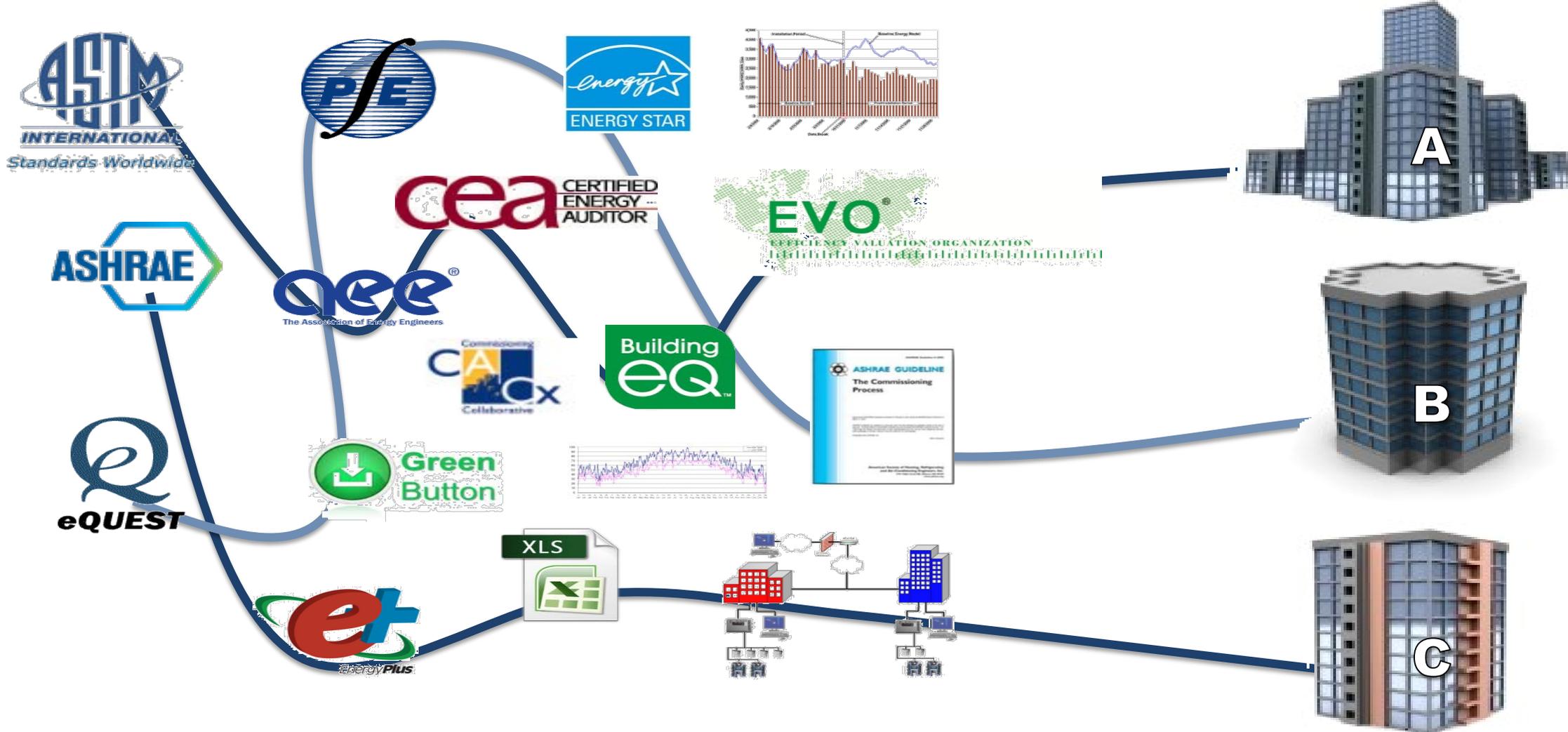


Consistency  
+ Transparency  
+ Reliability

=

**Confidence**

# Energy Efficiency Today



# Lack of Standardization

Unreliable performance

Due diligence

Transaction costs

Secondary transactions

# Investor Ready Energy Efficiency™



Standardized  
Development



Third-Party  
Verification



# ICP Protocols

## Standardized:

- Procedures
- Documentation
- Plans



# ICP Quality Assurance Assessor

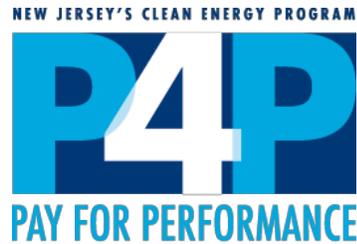


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# Market Update



# ICP Investor Network



Hartford Steam Boiler



SM



## Benefits: Investors

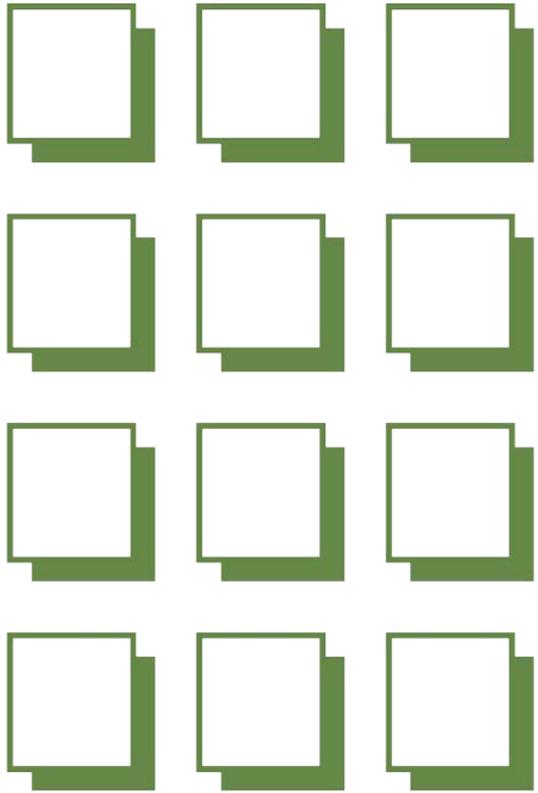
- IREE reduces due diligence costs and speeds underwriting.
- Increases confidence in project fundamentals and engineering.
- Standard projects and document packs with third party allows for the aggregation of projects across borders and programmes.



## Benefits: Building owners

- Increased confidence in project fundamentals and results
- Independent review and certification builds credibility
- Set underwriting criteria for building renovations to ensure ROI and streamline enterprise-wide efficiency procurement





**GBCI**®

- More awareness and reach
- Better resources
- Integration with LEED and more

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***Thank You!***

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Intro: <https://tinyurl.com/y6v2wqpp>

**David Tine**

HSB/Munich RE



## Making Smart Investments: How Banks and Investors Think About Energy Efficiency

U.S. Department of Energy: Better Buildings Summit  
Cleveland, Ohio  
August 23, 2018



Hartford Steam Boiler

# Munich RE Group – Energy Focused Solutions



HSB Inspection & Insurance Company

Green Tech Solutions

Munich Re Trading LLC(MRTL)

Munich Ergo Asset Management GmbH



HSB: 150+ years experience in specialty insurance, inspections and engineering services



Image: Getty Images

# HSB Energy Performance Insurance Solutions



Hartford Steam Boiler



## Energy Shortfall insurance

1.25 GW of insured performance

Across 12 US states and 1  
Canadian province



## Energy Efficiency Insurance

2.176 Million square feet total

- Residential: 220,000 ft<sup>2</sup>
- Small Commercial: 1,220,909 ft<sup>2</sup>
- Industrial: 735,992 ft<sup>2</sup>

# Energy Efficiency Insurance (EEI) Timeline



Hartford Steam Boiler







- Innovative energy services company solutions provider HQ in OH.
- Sustain design intent, remote performance monitoring, mitigate risk guarantee performance enabling lifecycle of equipment
- Established Industrial and Healthcare customer base including:
  - Ford
  - GM
  - Goodyear
  - Shearer's Foods
  - Memorial-Sloan Kettering



- Juice Plant in Lehigh Valley, PA
- 300,000 sq.ft. facility
- \$1.1 M in annual savings & service
- Technologies (ECMs)
  - Steam to Hot H2O system design
  - Chilled H2O System
  - Process Cooling Tower System
  - Process Bottle Cooler Heat Recovery
  - Cool Air Heating Positive pressurization
  - Zero carbon footprint winter

## Residential Market



- Financial and energy technology company with HQ in NYC
- Sealed's HomeAdvance program pre-pays efficiency upgrades, with customer paying back only based on the energy they save
- HSB Insuring Portfolio of Residential EE savings, giving banks more confidence
- ECMs: Weatherization, Smart thermostats, HVAC, Lighting
- Partnerships with several utilities including Con Edison and National Grid to convert more customers to deep retrofits
- Statistical approach leveraging predictive analytics outperformed established EE models (e.g. DOE, HES, REM/Rate)

## Small Commercial Portfolio



- Financial and energy technology company with offices in NY, OR, and Europe
- ECMs: Lighting, Lighting Controls, and Building Controls.
- Building types: Grocery stores, bowling alleys, McDonalds, Fitness Clubs, etc.
- Portfolio level performance coverage
- eQuad platform- Energy Efficiency platform to scale and deploy projects in the European Union.

eQuad by SEAF

## Restaurant Chain Portfolio

**ECOENERGY**  
INSIGHTS



- Managed Restaurant Energy Services Program
- Chain of 300 Fast Food locations in California
- ECMs:
  - RTU Management
  - LED lighting upgrade
  - Lighting Controls
- Energy savings as a way to increase the value of the restaurant chain.
  - Driven by Private Equity firm



# Your contact at HSB



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Questions?