



Energy Efficiency Finance in 2016: Understanding the Market and How to Access It

Tuesday, 2:00 – 3:15
PM

Financing sessions today and tomorrow

- This afternoon (3:45pm):
 - To Finance or Not to Finance
 - The Future of CPACE
 - Green Banks 101
- Tomorrow morning (9:45am)
 - Financial Ally Roundtable
- Tomorrow early afternoon (2pm)
 - Energy Investment Partnerships
 - Reinventing “Energy Efficiency as a Service”
- Tomorrow late afternoon (3:45pm)
 - Efficiency Financing for Low-Income Communities
 - Is Efficiency an Asset Class? Building Investor Confidence

Also look for sector-specific financing sessions!

Energy Efficiency Finance in 2016

- Today's speakers:
 - Jim Barrett, American Council for an Energy-Efficient Economy (ACEEE)
 - Andy Darrell, Environmental Defense Fund

Coming in Summer 2016...



Energy Efficiency Financing Navigator

 **Energy Efficiency Financing Navigator**

Welcome to the Better Buildings Energy Efficiency Financing Navigator!
What would you like to do?



Explore financing options >



Find financing that is right for you >



Connect with the Financial Allies >

[More about the Navigator](#)

[Give us feedback](#)

FIND FINANCING THAT FITS YOUR NEEDS

TELL US ABOUT YOUR ORGANIZATION

Sector

Commercial

State

DC

TELL US ABOUT YOUR PROJECT

Equipment Type

Lighting

Estimated Cost

\$100,000

Estimated Savings

\$25,000

Building Type

Office

Building Ownership

Owned

Owned

Leased

YOUR PREFERENCES

Do you want to consider internal or external financing?

External

Do you want the financing to be on or off balance sheet?

Off balance sheet, and this is a requirement

How important is it that the project provide guaranteed net savings?

Important

How important is it for you to claim depreciation benefits on the equipment?

Not important

How important is it that the savings generated by the project are measured and verified?

Important

How important is it to keep the duration of the financing contract short (e.g. less than 7 years)?

Not important

How important is minimizing complexity of the financing contract (i.e. shorter documents, fewer parties involved)?

Important

***Enter information about
your project...***

FINANCING OPTIONS

		OPTION 1	OPTION 2	OPTION 3	OPTION 4
		ESA	COMMERCIAL PACE	OPERATING LEASE	ESPC
BASIC ATTRIBUTES	Applicable Sectors	✓	✓	✓	○
	Applicable Technologies	Typical project size for an ESA is \$250k+, but your project size is \$100k. Some providers may support smaller projects.		✓	✓
	Project Size	○	✓	✓	✗
CONTACT STRUCTURE	Guaranteed Savings	✓	○	✗	✓
	Measurement & Verification	✓	✗	✗	✓
	Contract Complexity	○	○	✓	○
TAX & BALANCE SHEET	Balance Sheet Treatment	✓	✓	✓	○
	Tax Deductions	—	—	—	—
CONTRACT TERMS	Typical Duration	—	—	—	—
	Typical Close Time	○	○	✓	✗
	Typical Interest Rate	—	—	—	—
MARKET ATTRIBUTES	Time in Market	—	—	—	—
		CONNECT WITH PROVIDERS	CONNECT WITH PROVIDERS	CONNECT WITH PROVIDERS	CONNECT WITH PROVIDERS

...and see tailored suggestions that map your preferences to available options.

✓ MATCH
○ PARTIAL MATCH
✗ NOT A MATCH
— INDIFFERENT

EXPLORE FINANCING OPTIONS

BROWSE BY:

Balance Sheet



Does the asset or financing most commonly appear on or off the customer's balance sheet according to standard industry best practices?

ON BALANCE SHEET

▶ Debt or Loan Financing

▶ Capital Lease

▶ On-Bill Financing

▶ Municipal Lease

▶ QECCB

OFF BALANCE SHEET

▶ ESA

▶ Operating Lease

▶ CPACE

▶ Grant Funding

UNDETERMINED / VARIABLE

▶ ESPC

▶ PRI

▶ Tax-exempt PACE

▶ Crowdfunding

NOT APPLICABLE

▶ Internal CapEx

▶ Internal OpEx

▶ Green Revolving Fund

▶ Stakeholder Fundraising

▶ Performance Insurance

You can also explore options by sorting on different attributes...

EXPLORE FINANCING OPTIONS

BASIC ATTRIBUTES				CONTRACT STRUCTURE			TAX & BALANCE SHEET		CONTRACT TERMS			MARKET ATTRIBUTES	
APPLICABLE SECTORS	SORT			GUARANTEED SAVINGS	MEASUREMENT & VERIFICATION	CONTRACT COMPLEXITY	BALANCE SHEET TREATMENT	TAX DEDUCTIONS	TYPICAL DURATION	TYPICAL CLOSE TIME	TYPICAL INTEREST RATE	TIME IN MARKET	MARKET SIZE
Debt or Loan Financing	All	FILTER <input type="checkbox"/> SELECT ALL <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> MUSH <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Non-Profit		No	No	Low	On balance sheet	Depreciation, Interest	[TBD]	Short	[TBD]	[TBD]	[TBD]
Capital Lease	All			No	No	Low	On balance sheet	Depreciation, Interest	[TBD]	Short	[TBD]	[TBD]	[TBD]
Operating Lease	All	All	Any	No	No	Low	Off balance sheet	All Payments	[TBD]	Short	[TBD]	[TBD]	[TBD]
ESPC	MUSH, Commercial, Industrial	All	\$1M+	Yes	Yes	Medium	Variable	Variable	[TBD]	Medium	[TBD]	Since the late 1990s	\$4.8B
ESA	MUSH, Commercial, Industrial	All	\$250k - \$10M	Yes	Yes	Medium	Off balance sheet	All Payments	[TBD]	Medium	[TBD]	[TBD]	[TBD]
On-Bill Financing	All	All	\$5k - \$350k	No	No	Low	Variable	Variable	[TBD]	Medium	[TBD]	[TBD]	[TBD]
PACE	All	All	\$250k - \$10M	No	No	Medium	Of balance sheet	All Payments	[TBD]	Medium	[TBD]	Since 2007	\$176M
Grant Funding	Non-Profit, MUSH	All	[TBD]	No	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Program-Related Investments	Non-Profit, MUSH	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Below-Market Loans	Non-Profit, MUSH	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Municipal Tax-Exempt Lease	All	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Tax-exempt PACE	Non-Profit, MUSH	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
QECS	MUSH	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Crowdfunding	All	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Performance Insurance	All	All	[TBD]	Yes	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Internal CapEx	All	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Internal OpEx	All	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Internal green revolving fund	All	All	[TBD]	Sometimes	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]
Internal stakeholder fundraising	All	All	[TBD]	No	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]

...or view the full table of options and filter as desired.

CONNECT WITH FINANCIAL ALLIES

SHOW ME ALLIES THAT OFFER:

Leases



**Bank of America
Merrill Lynch**

Bank of America Merrill Lynch

 **METRUS ENERGY**

Metrus Energy

BioStar Lighting

BioStar Lighting

 **Rockwell
FINANCIAL GROUP**

Rockwell Financial Group

**COMMERCIAL
POWER
PARTNERS**

Commercial Power Partners

 **SparkFund**

SparkFund

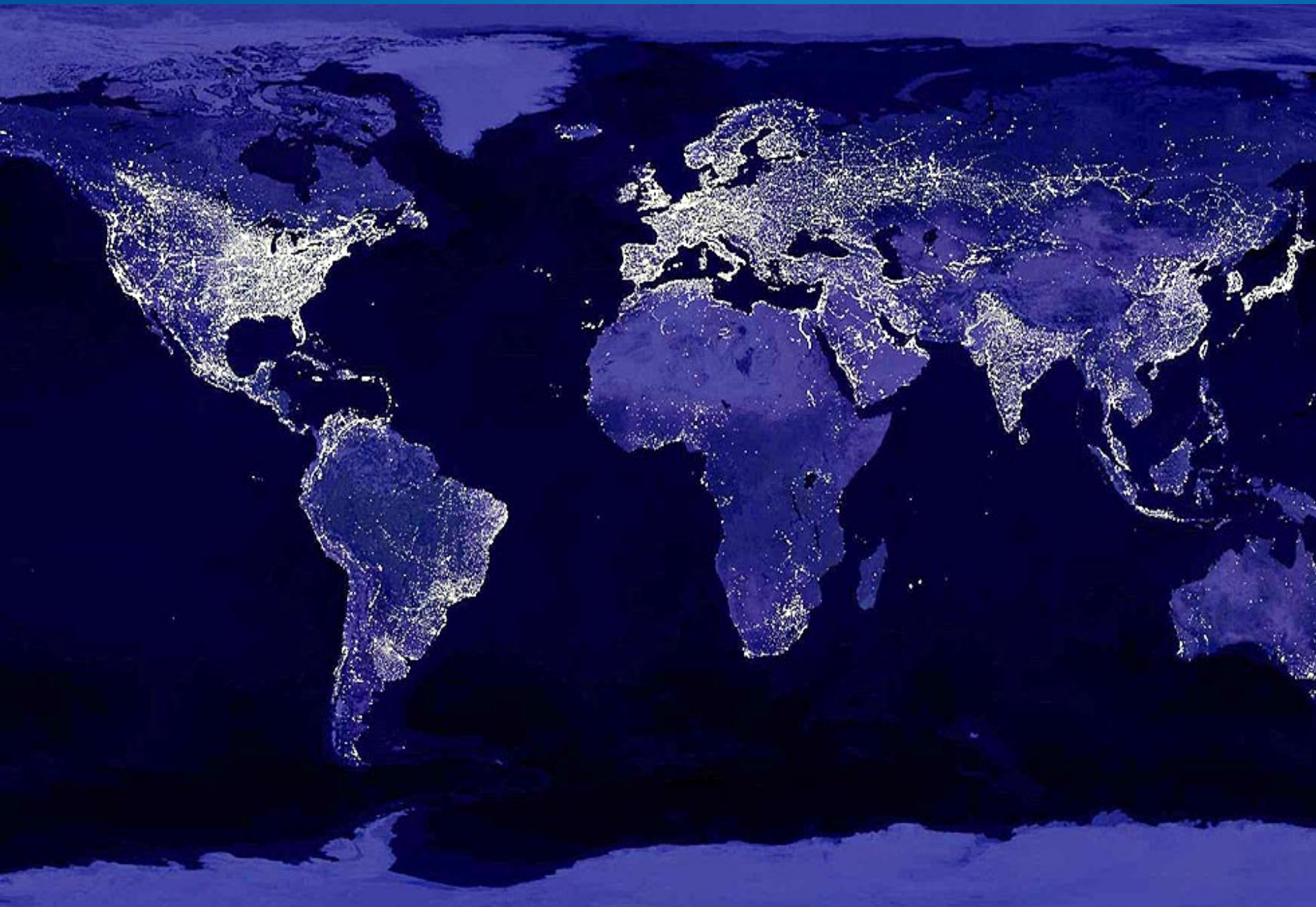
Finally, connect with Financial Allies that offer specific products and services.

Efficiency: Context for a Thriving Market

Andy Darrell adarrell@edf.org

May 10, 2016





The global energy efficiency opportunity:


- Green house gas pollution avoided: **1.1 gigatons** per year by 2020
- Potential global decline in energy demand in 2020: **25%** (larger than today's energy demand in China)
- Potential decrease in energy demand in developing countries: **25%** below business as usual in 2020
- U.S. energy efficiency market potential: **\$1 trillion** in savings by 2020
- Energy efficiency investment needed to meet Europe's climate targets: **€60-100 billion** per year

Source: Various McKinsey analyses; EEFIG report

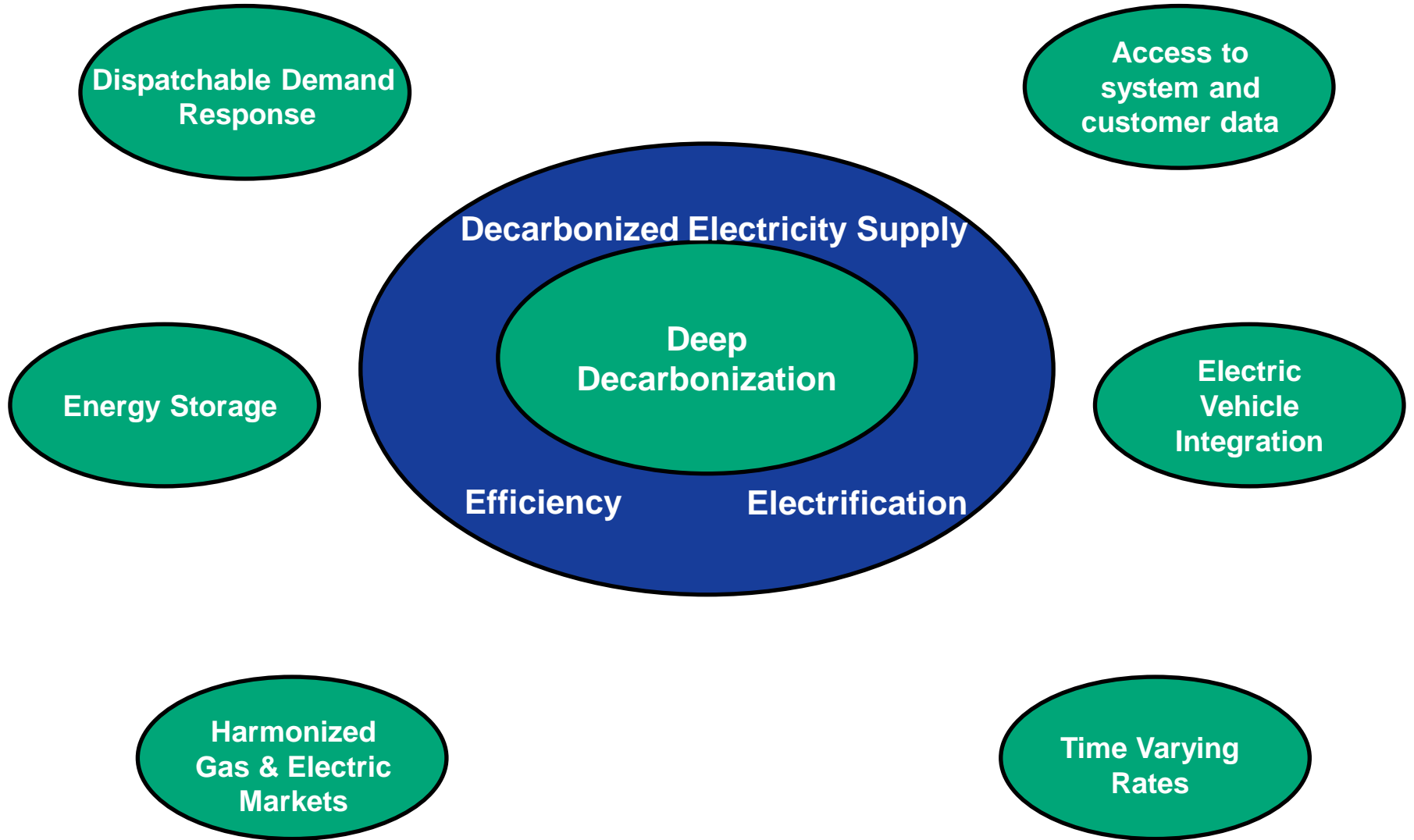
Technology Exists Today

“Renewable electricity generation from technologies that are commercially available today, in combination with a more flexible electric system, is more than adequate to supply 80% of total U.S. electricity generation in 2050 while meeting electricity demand on an hourly basis in every region of the country.”

Money is Increasingly Interested (?)

- **Clean Energy Investment Context**: \$329 billion global investment in clean energy in 2015; highest ever installation of renewable power (mostly solar and wind) (Source: BNEF)
 - **More players**: increasing interest in impact investing among investment firms, family offices, endowments
 - **New Tools to Manage Risk**: Green Banks, PACE, OBR, Pay for Performance ...
 - **Policy context**: Paris momentum, Clean Power Plan, carbon pricing, state clean energy targets, demand-response
- 

Policy Context for the Grid: Demand-Response, Data Access, Pricing



Key Elements of a Healthy Energy Efficiency Market

- Strong demand by owners and investors
- Highly skilled and accredited workforce
- A mix of financing products at attractive rates
- Standardized tools for tracking and quantifying savings
- Active secondary market
- Data transparency, access and confidence

“From a financier's perspective, energy efficiency projects entail **high transaction costs** and are perceived to be **risky** due to the **difficulty of predicting accurately energy cost savings**. Sufficient experience with underwriting energy efficiency loans and **standardized evaluation methods for measuring and verifying energy savings** is still lacking. The **lack of secondary markets** to provide exit opportunities for investors, or further liquidity to the investments is another important barrier.”

— JRC Science and Policy Report, *Financing Building Energy Renovations* (2014), Marina Economidou and Paolo Bertoldi

Standardization Drives Finance



Energy Efficiency
Financial Institutions Group

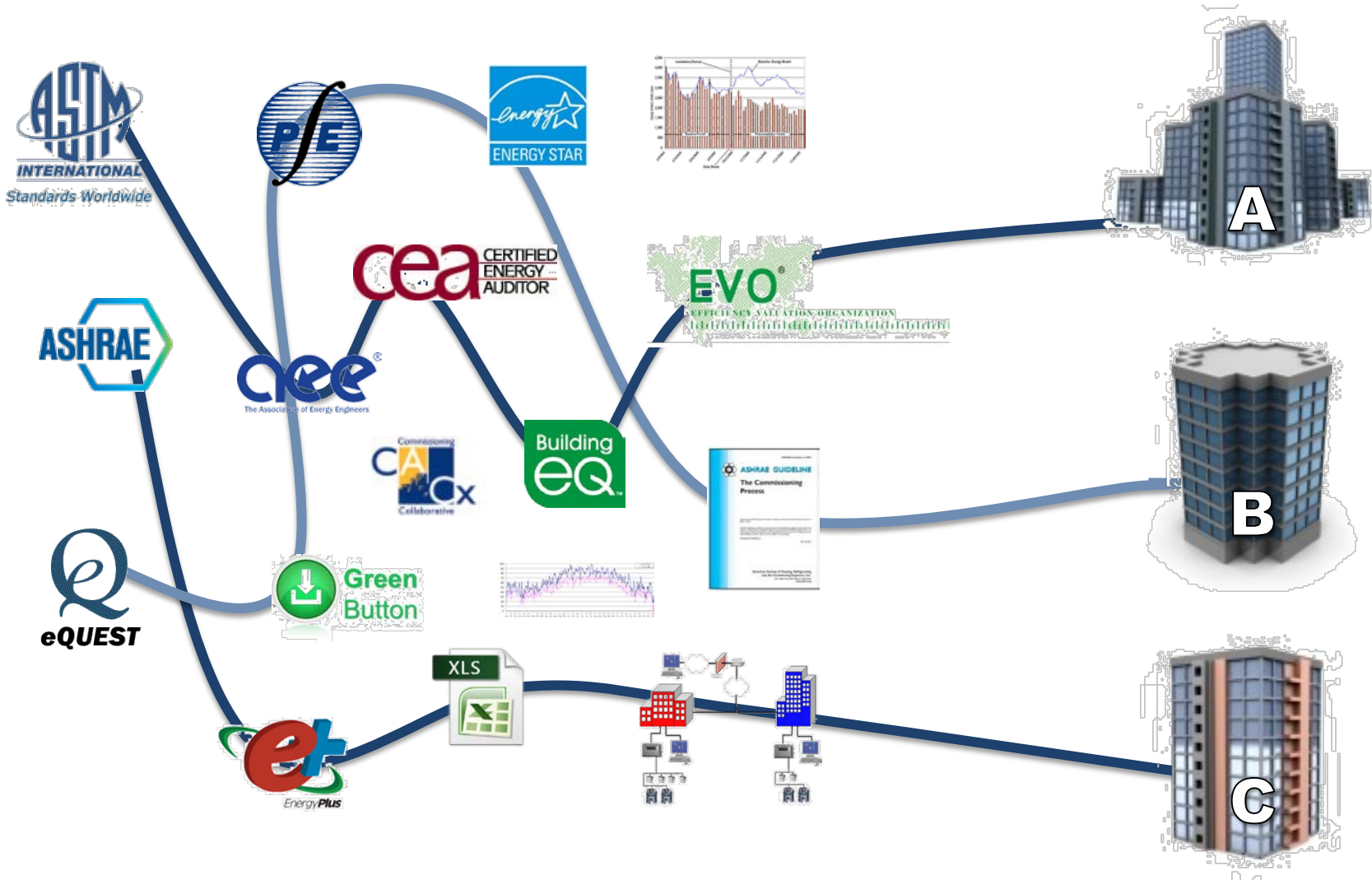
Table 3: EFIG ranking of key drivers affecting supply of energy efficiency investment by market segment.

Buildings Sector	Commercial	Public	Public Rental	Owner Occupied	Private Rental	Average Rank
Standardization	3	1	1	1	2	1.6
Regulatory Stability	1	4	2	4	3	2.8
Increased Investor Confidence & Change in Risk Perception	2	5	7	5	4	4.6
Transaction costs / simplicity	7	10	6	2	1	5.2
Measurement, Reporting & Verification (MRV) and Quality Assurance	4	2	4	10	8	5.6

Table 2: EFIG ranking of key drivers affecting demand for energy efficiency investment by market segment.

Buildings Sector	Commercial	Public	Public Rental	Owner Occupied	Private Rental	Average Rank
Standardization	6	3	1	11	2	4.6
Clear Business Case	1	7	9	9	4	6
Effective enforcement of regulation	4	6	6	8	6	6
Awareness at Key Decision Maker Level & Leadership	2	2	2	12	13	6.2

Lack of Standardization = Greater Risk



Investor Confidence Project

STANDARDIZED ENERGY EFFICIENCY TRANSACTIONS

One trusted label



Ally Network Members

EMVC Solutions

CLIMATE & STRATEGY
PARTNERS



Green Investors



SIEMENS



British Energy Efficiency Federation



lavery/pennell

abundance

Green Investment Bank



powered by eon



Investor Confidence Project: Standardized Protocols

Large Commercial

- Larger project (> \$1MM), whole-building retrofits

Standard Commercial

- Smaller projects (< \$1MM), lighter engineering requirements

Targeted Commercial

- Single measure or non-interactive retrofits

Large Multifamily

- Larger project (> \$1MM), whole-building retrofits

Standard Multifamily

- Smaller projects (< \$1MM), lighter engineering requirements

Targeted Multifamily

- Single measure or non-interactive retrofits

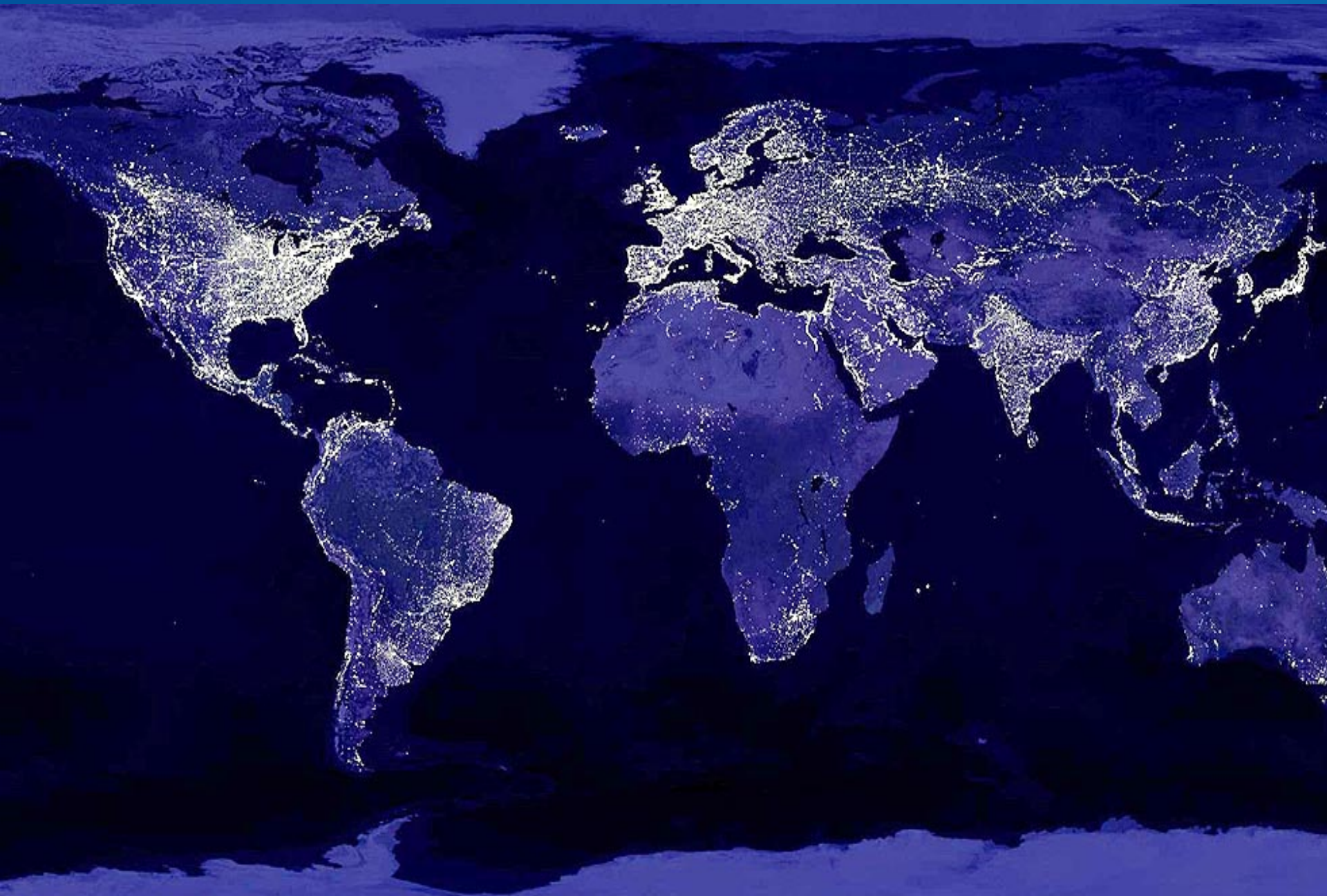
PATH TO A GLOBAL ASSET CLASS



ALLY NETWORK

INVESTOR NETWORK





Thank You

Andy Darrell
Adarrell@edf.org
212-616-1206

