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Metered Energy Efficiency: A New Path to Deep Energy Retrofits

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Why Won’t Deep Energy Retrofits Scale?

1. Multiple Split Incentives
2. Basic Utility Economics
Problem: Traditional EE Is **All** Split Incentives
Problem: (Investor-Owned) Utility Economics

Companies Unplug From the Electric Grid, Delivering a Jolt to Utilities

Forbes
Time To Short Your Electric Utility?

Halving of the addressable market over the next 2 decades

Image: australianinvestmenteducation.com.au
Problem: (Investor-Owned) Utility Economics

Energy efficiency currently represents utility red ink
Utilities earn on investments like generation

Traditional EE = Negative sales
= Lost revenue
= Lost investment
Problem: (Investor-Owned) Utility Economics

Disruptive Challenges:
Financial Implications and Strategic Responses to a Changing Retail Electric Business

Exhibit 3
Vicious Cycle from Disruptive Forces

- Technology Innovation (DER)
- Energy Efficiency (EE/DR)
- Lost Revenues
- Rate Increase Required
- Customer Assessment
- DER
- Behavior Change
Energy Efficiency and Distributed Generation

“Could have a major impact on realized equity returns required investor returns & credit quality”
Solution: Make EE = Generation

1. Meter it efficiently and accurately over long periods of time

2. Buy and sell it *just like generation*
The DeltaMeter®

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“EnergyRM’s M&V not only meets the requirements for adherence to IPMVP, but it is even more rigorous, includes more features, and is a clearer, more prescriptive process than has been commonly implemented previously.

“This enhanced process is sufficiently robust to meet the requirements to be part of a utility’s energy supply portfolio and to provide building operators an improved basis for performance.

“Indeed, we refer to the output from this enhanced M&V process as a virtual meter, and refer to the savings estimated by the virtual meter as efficiency generation (EG).”

source:
Oct. 2010 evaluation of EnergyRM’s technology by Bill Koran of Quantum Energy Services & Technologies, Inc. (QuEST), overseen by David Jump* PhD PE.

* Dr. Jump chairs the Efficiency Valuation Organization’s (EVO’s) Executive Council, and is a member of the IPMVP Committee.
EVO maintains and promotes industry standards for verifying savings in energy efficiency projects.

US Patent #s 8355827 & 8706308

IPMVP = International Performance Measurement and Verification Protocol
Solution: Make EE = Generation

1. Meter it

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*The Metered Energy Efficiency Transaction Structure (MEETS™)*
.............................. a Power Plant

COMMERCIAL BUILDING
- Regular Tenants
  - Pay energy bill: (kWhs)

POWER PLANT
- Builder/Owner
  - Site tenant
  - Puts in improvements
  - Sells yield to utility
  - Maintains performance

LAND OWNER
- Receives lease payments (20+ years)

BUILDING/Tenant Pays Energy Bill
Conventional Utility Meter

Utility Bills for All Metered kWhs

UTILITY
- PPA for kWhs

Power Plant
- Builder/Owner

Investment to Build Power Plant
(Requires a 20+ year PPA)

Investment
Project Investors
Equity & Debt

$-Returns

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MEETS: A Building is a Power Plant

**COMMERCIAL BUILDING**
- Regular Tenants
  - Pay energy bill: (kWhs)

**Energy Operator**
- Site tenant
- Puts in improvements
- Sells EE yield to utility
- Maintains performance

**Building Owner**
- Receives lease payments (20+ years)
- And reduced capital improvement spending
- And Increased building value

**Utility**
- Utility Bills for All Metered kWhs
  - Including the DeltaMeter kWhs

**Building/Tenant Pays Energy Bill**
- Building/Tenant Pays Energy Bill

**DeltaMeter®**
- Dynamic Baseline Utility Meter

**Power Plant**
- Power Plant
- Builder/Owner
- Receives lease payments (20+ years)
- And reduced capital improvement spending
- And Increased building value

**Investment to Build Power Plant**
- Requires a 20 + year PPA

**Project Investors**
- Equity & Debt
- Investment
- $-Returns

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MEETS: A Building is a Power Plant

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UTILITY

Building/Tenant Pays Energy Bill

Utility Bills for All Metered kWhs
- Including the DeltaMeter kWhs

DeltaMeter®
Dynamic Baseline Utility Meter

kWhs

Ratebased, long-term capital deployed on customer premises for energy efficiency yield

Ratebased, long-term capital deployed on customer premises for energy efficiency yield

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Seattle City Light Pilot

Bullitt Foundation Building – Living Building Challenge

- Funding Support for
  - Baseline and meter process: NEEA
  - Billing interface (automated) – OregonBEST

- Terms
  - 20 year agreement
  - PPA price starts at retail plus standard incentives
  - Building pays retail (for both used and “saved” units)
  - PPA has a known escalator (2%)
  - Energy yield from efficiency metered by DeltaMeter
  - Baseline is a composite of actual performance of buildings built to code

- Parties:
  - Bullitt Foundation is Investor and EnergyTenant™
  - Bullitt Subsidiary is Building Owner/Master Tenant
  - Commercial Tenants Occupy Most of the Building
  - Seattle: Mayor and City Council
  - Seattle City Light: Jorge Carrasco
  - Bullitt Foundation: Denis Hayes
The Bullitt Center DeltaMeter

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MEETS Benefits

**Utility**
- New Load Management Resource
- Location-Specific and Reliable
- Only Pay for Units Received
- Rate-baseable: Earnings Opportunity
- No revenue loss

**Building Owner**
- New 20 to 30 Year Tenant
- New Revenue Stream
- Increased Building Value
- Frees Up Capital
- Owner Stays Out of Energy Business

**Investors**
- Finance Based on Utility PPA
- Strong Counterparty
- Lower and Rated Payment Risk
- Well-Understood Instruments
- Scale Through Aggregation

**Society**
- Domestic Jobs
- Environmental Benefit
- Enhanced Building Stock
- Price Stability
- No Tax Dollars Required

DeltaMeter®
More Information on MEETS

www.MeetsCoalition.org
Thank You