

Environmental Defense Fund

Investor Confidence Project

RMAEE – October 22nd, 2015

Presented by: Steve Morgan, PE, CEM

On behalf of: Tracy Phillips, CEM, CDSM, CMVP, LEED AP



Near-Term: Increase Deal-Flow

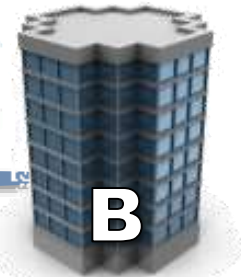
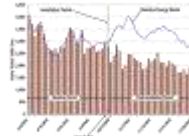
- Increase Confidence in Savings
- Reduce Transaction Costs
- Streamline Origination Process



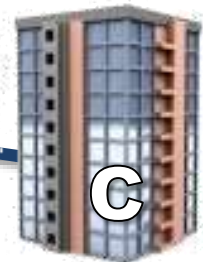
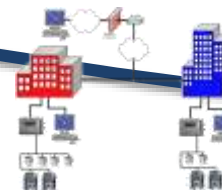
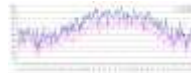
Long-Term: Market Transformation

- Standardized Performance Data
- Project Finance Underwriting
- Enable Portfolios and Securitization

Energy Efficiency Today



B

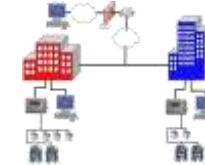
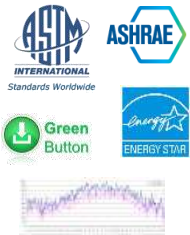


C

Investor Confidence Project Protocols

	Commercial	Multifamily
Large Projects (project size >\$1M)	EPP – Large Commercial	EPP – Large Multifamily
Standard Projects (project size <\$1M)	EPP – Standard Commercial	EPP – Standard Multifamily
Targeted Projects (limited interactivity)	EPP – Targeted Commercial	EPP – Targeted Multifamily

ICP Energy Performance Protocols



BASELINING

- Existing Building
- Drawings
- Weather File
- Energy Usage
- Energy Rates
- Occupancy

SAVINGS

- Model File
- Calibration Data
- Bid Packages
- Certifications

COMMISSION

- Cx Plan
- Cx Authority
- Test Procedures
- Facilities Req.

OPERATIONS

- BMS Points
- Fault Plan
- Maintenance Plan

MEASUREME

- M&V Model
- Regression Model
- Adjustments
- Impact
- Baseline Adjustments

Baseline Development

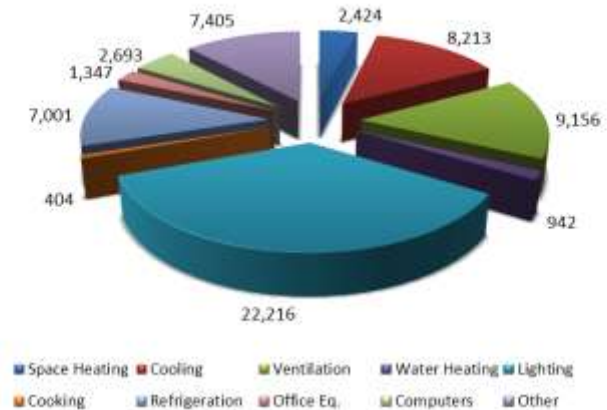
- 12-36 months of utility data
- Develop 12 month baseline
- Determine end-use energy use
- Collect building asset, operational and performance data
- Weather data
- Occupancy data

ASTM E2797-11 BEPA

ASHRAE Guideline 14-
2002
Inverse Modeling Toolkit

BEPA Standard
Appendix X8

EIA Based Electric Usage Allocation (kWh)



Savings Calculations – Large (& Standard)

- Energy modeling software – DOE-2, Trane Trace, etc
- Modeler credentials
 - ASHRAE BEMP, AEE BESA, PE, or 5+ years experience
- Supporting model files
- Model calibration
- Model process description
- Key metric benchmarks
- ECM model variables
- Individual savings results, and packaged results

ASHRAE Standard 140

ASHRAE Guideline 14
Section 5.2.11.3



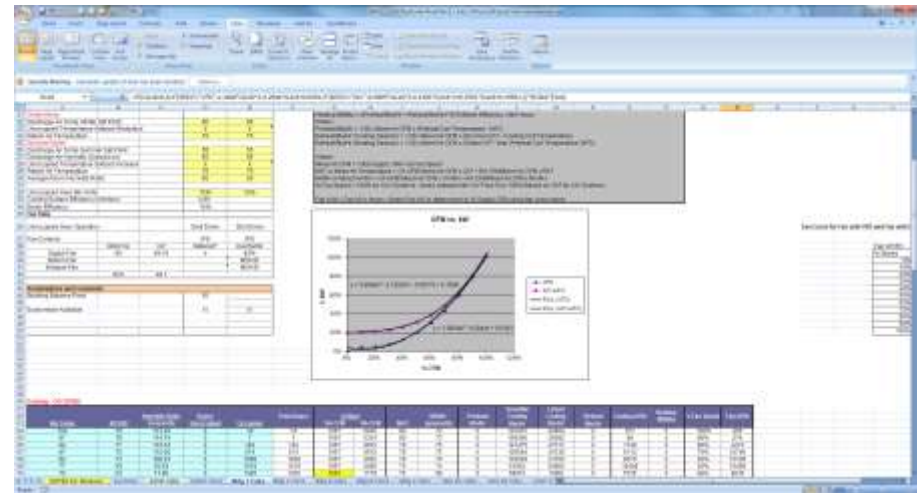
Savings Calculations – Standard/Targeted

Uniform Methods Project
US DOE FEMP Tools

- Non-energy modeling methods
- Transparent
- Documentation

ALL:

- Cost estimates
- Investment criteria
- Savings estimates - checks



Design, Construction and Verification

- Operational performance verification (OPV) Plan
- OPV Effort (targeted commissioning)
- OPV approaches
 - inspection, spot measurements, data logging, BAS trends, FPTs
- Training
- Systems manual

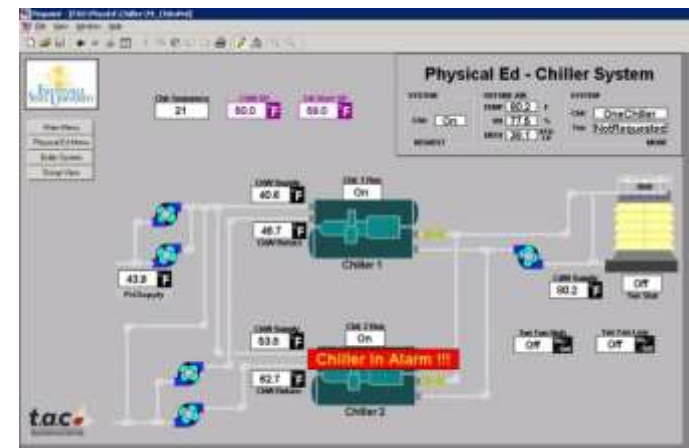
ASHRAE Guideline 1.4



Operations, Maintenance & Monitoring

- OM&M plan
- OM&M process
 - Inspections, RCx, FDD, ongoing Cx, monitoring-based Cx
- OM&M management framework
- Operator's manual
- OM&M training

ASHRAE Handbook 2011 –
Chapter 39



Measurement & Verification

- M&V provider credentials
 - AEE CMVP or 5+ years experience
- M&V plan
- Options A and B: Retrofit Isolation
- Option C: Utility Bill Analysis
- M&V report

IPMVP Core-2014,
Section 7

FEMP M&V Guidelines
Section 4.2.2

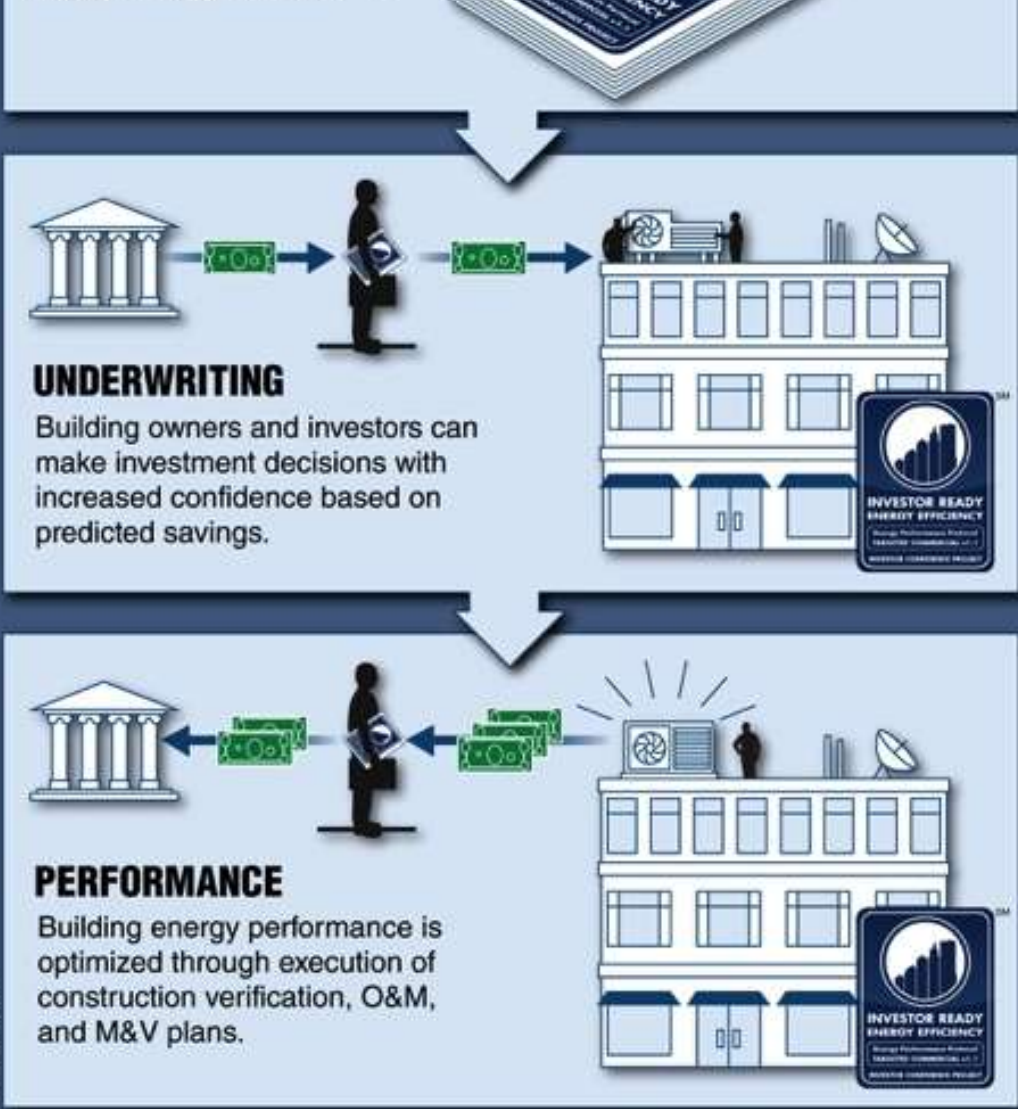
IPMVP Core-2014,
Section 8

Investor Ready Energy Efficiency™ Roadmap to Investor Confidence



ICP Credentialed Software Providers streamline the process of project development, measurement, documentation, verification, and underwriting.

ZMgraphics.com



For more information please visit www.EEperformance.org

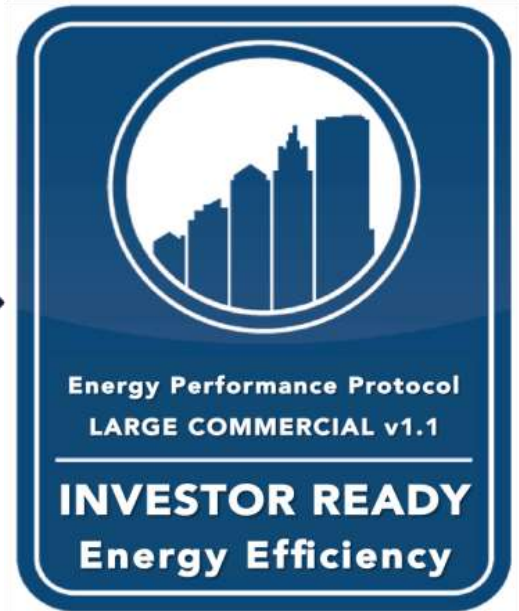
Investor Ready Energy Efficiency™



Project
Development



Third-Party
Verification

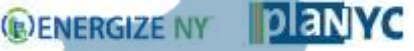


Investor Ready Energy Efficiency™



IREE is the logo in the lobby, like LEED but for a building retrofit project.

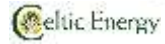




CaliforniaFIRST



EMVC Solutions



Investor Confidence Project

www.EEperformance.org

For More Information:

Matt Golden

Senior Energy Finance Consultant
Environmental Defense Fund

matt@efficiency.org
415.902.4546

Technical Assistance:

Tracy Phillips

Senior Energy Consultant
Environmental Defense Fund

tphillips@sevengenergy.com
720.933.8143

