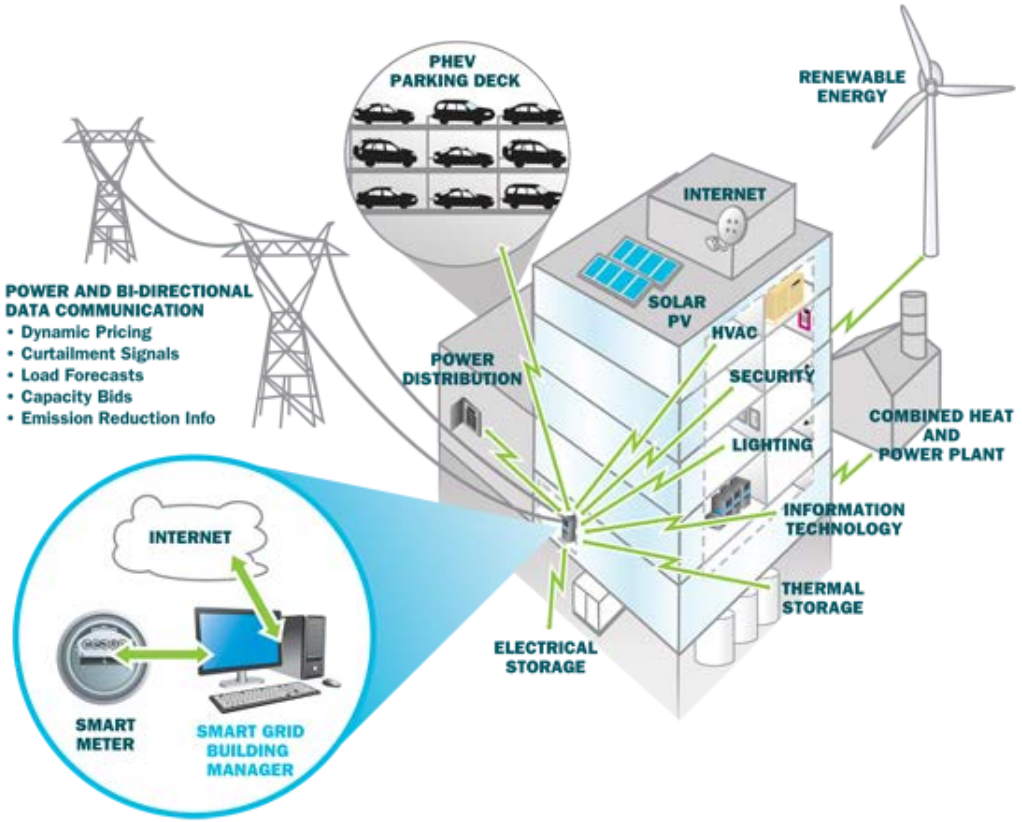
Energy Savings Performance Contract

The Investment Grade Audit (IGA)



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Agenda

- What is an Investment Grade Audit (IGA)
- The Purpose of the IGA
- IGA Role in the ESPC Process
- Key IGA Components
- Systems Evaluated in the IGA
- Data Needed for IGA
- IGA Deliverables
- ECM Examples
- Costs of an IGA
- Discussion / Questions

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What is an Investment Grade Audit (IGA)?

- A process that entails a very thorough, calculated and detailed analysis to identify cost-effective energy conservation measures (ECMs).
- IGA scope of work is based on preliminary utility assessment and customer requirements.
- IGA can be targeted to focus on specific systems of interest.
- Can include aspects of both Level 2 & Level 3 Audits as defined by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) as shown on following slide.

ASHRAE ENERGY AUDITS

The following highlights what is involved in each level of an ASHRAE energy audit.

Type of Audit	Highlights
LEVEL 1	▪ Rapid assessment of building energy systems
	▪ Building energy benchmark
	▪ High-level definition of energy system optimization opportunities
	▪ Outline applicable incentive programs
LEVEL 2	▪ Detailed building survey of systems and operations
	▪ Breakdown of energy source and end use
	▪ Identification of energy-efficiency measures (EEMs) for each energy system
	▪ Range of savings and costs for the EEMs
	▪ Spotlight on operational discrepancies
	▪ Outlining priorities for limited resources, next steps, and identification of EEMs requiring more thorough data collection and analysis (Level 3)
LEVEL 3	▪ Longer-term data collection and analysis
	▪ Whole-building computer simulation calibrated with field data
	▪ Accurate modeling of EEMs and power/energy response
	▪ Bid-level construction cost estimating
	▪ Investment-grade, decision-making support

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What is the Purpose of the IGA?

- To provide all information that may become part of the final Energy Savings Performance Contract
- Significant details to understand the project scope and benefits
- Technical and Financial to be able to track the savings throughout the life of the project or term of the contract

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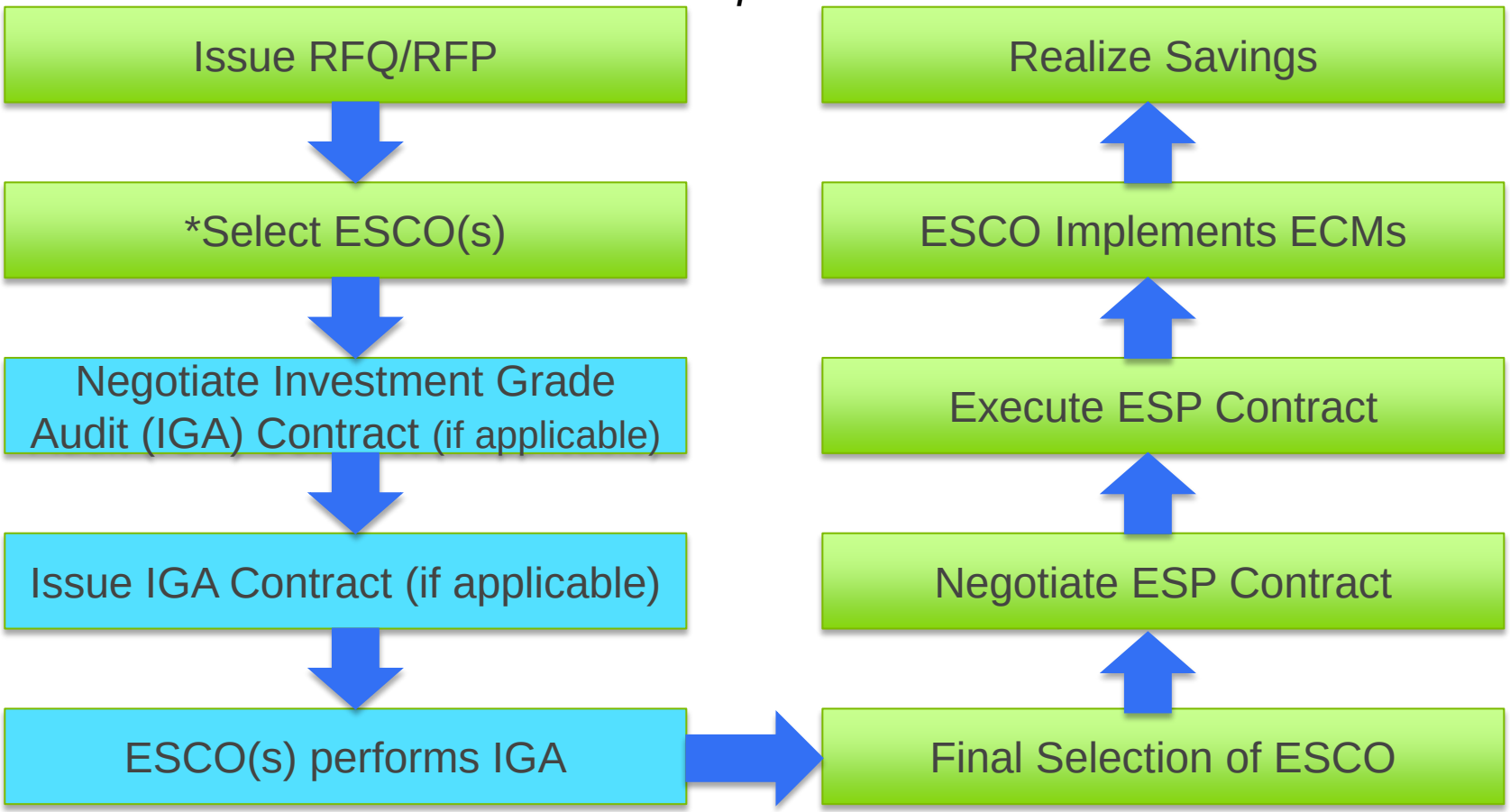
IGA Role in the ESPC Process

Process varies based upon Method of Procurement



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Key IGA Components

- A detailed account of energy and water use by facility
- Energy benchmarking (comparison of usage to similar facilities within similar geography)
- Breakdown of energy use in the building
- Rate analysis
- Review of existing conditions
- Development of potential Energy Conservation Measures (ECMs)
- Identification of Operation and Maintenance Improvement strategies that could produce savings
- Cost / savings analysis of each identified ECM

Key IGA Components

- Project proposal of bundled measures (Scope of Work)
  Measurement & Verification (M&V) Plan
- Ongoing Operations and Maintenance Requirements
- Implementation Plan
- Commissioning Plan
- Financial Plan (Includes Fixed Price, Savings and Finance Options)

Other Potential IGA Components

- Whole Building Modeling
- Sub-metering
- Detailed Energy Modeling
- Life Cycle Cost Analysis

Potential Energy Conservation Measures

- Lighting
- Heating, Ventilating and Air Conditioning (HVAC) Equipment
- Building Envelope
- Steam Systems
- Chilled Water
- Domestic Hot Water
- Other Water Using Systems
- Building Controls
- Energy Generation and Distribution
- Waste Management Systems
- Technology Systems (phone, internet, computers, etc.)

Data needed for the IGA

- 24 months of Utility Bills
- Occupancy Schedules
- Required Occupancy Comfort Conditions (if established)
  - Temperatures / Humidity desired during occupied times
  - Any required air changes
  - Temperatures / Humidity for unoccupied times
- Accurate description of existing building conditions and current operations
- Building Inventory with square footage
- Asbestos Reports
- Hazardous Materials

Site Visits

- Discuss facility operation
- Comfort problems and space requirements
- Recent facility improvements
- Conduct equipment survey
- Measure all important parameters, collect data, install data loggers
- Identify approach to hazardous materials (if any)
- Commissioning documents
- Computerize maintenance system records

IGA Deliverables

- Facilities description and status
  - Future plans for building use
  - Existing needs assessment from maintenance and occupants
- Baseline of energy consumption
  - Review and approve
  - Consider what-ifs
- Analysis of each proposed energy conservation measure (ECM)
  - Review cost and savings estimates
  - Ensure the measurement and verification plan is viable for each measure

IGA Deliverables

- Firm Fixed Price for Scope of Work
- Savings Estimates and Guarantee
- Financing Model (including interest rate, finance term, annual service payment, agreed upon escalation factor)
- Commissioning Plan
- Construction / Implementation Plan
- Measurement and Verification Plan

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Investment Grade Audit Cost?

- Cost can vary based on targeted Scope of Work and Complexity of Building Systems
- Under an ESPC, cost of the IGA must be covered by the savings/benefit
- No cost to the client if stated objectives are not achieved by the ESCO
- If stated objectives are achieved, but client does not move forward with contract, Client pays ESCO established amount stated in IGA Contract / PDA (if applicable).
- IGA typically costs $0.10 – $0.15 per audited square foot

U.S. Department of Energy

Typical Costs for Energy Assessments

Level 1

- $0.03/ft2 - $0.10/ft2

Level 2

- $0.11/ft2 - $0.25/ft2

Level 3

- $0.26/ft2 - $0.70/ft2

- These are audit costs that we have seen for state and federal government audits, but building complexity, size of facility, and distance auditor has to travel all affect final costs.

Discussion / Questions

State Procurement Process

- ESCO's are required to invest capital up front to perform an investment grade audit
- RFP Response may have 2 or 4 ESCOs may get short-listed
- Investment of $100,000 or more each RFP response

Pros / Cons

- This limits competition and eliminates smaller firms
- This increases the cost to all potential projects (unsuccessful ESCOs sunk IGA costs)
- State stipend to purchase IGA's from unsuccessful bidders typically under the actual value

Possible Solutions

- Consider other States Procurement Processes for ESPCs
- Limit IGA Investment to (1) Successful ESCO vs. Short-List
- Limit Short-List to Maximum of (2) ESCOs
- Other?

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Thank you!

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