



The Solutions Network

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Rochester, New York

# **Risk & Responsibility Matrix**

***Recognizing and Assigning Risks in  
DOE Super ESPC Contracts***

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# At the Heart of the Matter...



- ESPCs are backed by a guarantee of a specified level of cost savings and performance
- Government is not obligated to pay for an unmet guarantee
- Question is ...
  - What specifically is being guaranteed?
  - Who is responsible for factors that affect performance and savings?
  - Who pays for what?

# There is no cookie cutter approach ...

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- To achieve best value, the government tailors the contract to suit their site's needs, circumstances, and resources.
- Inherent to the DOE Super ESPC is a broad latitude for the government to negotiate a deal ..
  - to effectively use the agency's resources
  - to yield optimum value
  - that makes good business sense

# The Risk & Responsibility (R/R) Matrix

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- The R/R matrix provides a process for working through the many “forks in the road” that one must face during the ESPC development process.
- The R/R matrix provides a means to address the various options and allocates responsibilities between the ESCO and the government.

# Types of Risk



Performance

Usage

Financial

Uncertainty

- Energy savings are based on:
  - Performance
  - Usage
- Cost savings are based on:
  - Financial elements
  - Uncertainty in the energy savings

# Performance Risk



Performance

Usage

Financial

Uncertainty

- Performance may be compromised by poor design or implementation.
- Equipment performance may change over time due to degradation and/or poor O&M practices.
- *These are factors that the contractor normally (but not always) controls.*

# Usage Risk



Performance

**Usage**

Financial

Uncertainty

- Usage can be defined as:
  - operating hours (lighting, equipment)
  - occupancy or schedules
  - heating and cooling loads (and setpoints)
  - weather
  - production
- *These are factors that the agency (or no one) controls.*

# Financial Risk



Performance

Usage

**Financial**

Uncertainty

- Energy savings must be converted to cost savings.
- What energy rates will be used?
- How might they change over time?
- What other savings will be claimed?

# Savings Uncertainty



Performance

Usage

Financial

**Uncertainty**

- We don't measure savings, we measure energy use before and after — the savings are the difference.
- We never know the exact energy use before and after — there is always some uncertainty in each.
- Claimed savings are always *estimates* because savings cannot be measured.

# Structure of the Matrix

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- Divided into three categories of risk
- Financial risk addresses the money-related risks to the project (implementation and financing costs, and translating energy to dollar savings).
- Given the importance of energy savings, it is addressed in the remaining two categories:
  - Operational risk
  - Performance risk

# General Principles

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- Logic and cost-effectiveness drive responsibility allocation.
- Responsible party then predicts likely tasks/costs to fulfill responsibility, makes sure they're covered in ESPC or agency budget (government pays foreseeable costs).
- Unforeseen costs are paid by the party who caused the cost, or by party who is responsible for that risk area.
- FEMP helps parties complete matrix.

# Financial Risk



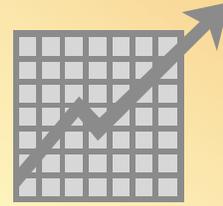
Performance

Operational

**Financial**

- Interest Rate
- Energy Prices
- Construction Costs
- M&V Costs
- Non-Energy Cost Savings
- Delays
- Major Changes in Facility

# Example – Energy Prices



Performance

Usage

**Financial**

- Energy prices fluctuate. In a long-term contract, how will the saved energy be valued?
- On current rates fixed for the contract?
- On real rates that fluctuate over time?
- On fixed rates that escalate for inflation?

# Example - Energy Prices



Performance

Usage

**Financial**

- Fixed rates are easiest to understand, but may not be realistic in 15+ year contract.
- No one can predict what future rates will do. Sudden price escalation can make savings seem to disappear.
- Escalating rates for assumed inflation minimizes risk and reflects real economics.

# Operational Risk



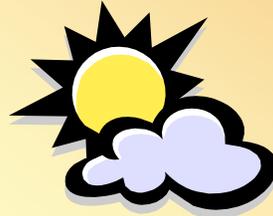
Performance

**Operational**

Financial

- Operating Hours
- Load
- Weather
- User Participation

# Example – Weather



Performance

Usage

Financial

- No one but Mother Nature controls the weather, but it can be a major factor in energy use.
- How shall the baseline be adjusted for weather conditions?
- What happens in mild seasons when promised savings may not materialize?
- What happens in severe seasons?

# Performance Risk



**Performance**

Operational

Financial

- Equipment Performance
- Operations
- Preventive Maintenance
- Equipment Repair and Replacement

# Example – Preventative Maintenance



## Performance

## Operational

## Financial

- Preventive maintenance is a must
- The ESCO always bears the ultimate responsibility due to the guarantee being offered
- What is at stake is who performs the day-to-day activities.
- This is negotiable (specify in the matrix)
- Also — address recourse in event of failure to deliver

# Conclusions on Matrix



Performance

Usage

Financial

- Allows one to study and understand all aspects of the Super ESPC deal
- Ensures that important risks are addressed early and responsibilities assigned
- Dialog fosters mutual understanding of the deal
- FEMP is there to help ensure that matrix serves its purpose, especially at initial proposal and detailed energy survey