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A River of Energy Solutions

Funding Energy Security

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Energy Security

- What is it?
- What's it worth to you?
- If you need it, how much?
- Traditional approach
  - Pros / cons
- Strategic approach
  - Pros / cons
- How are you going to pay for it?
  - Energy security assets have value
  - ESPC / UESC
- Distribution considerations
  - Are you privatized? Do you have a partner, or a utility?
  - Fort Bragg / Fort Dix
- MILCON considerations
- Case study

Energy Security

What is it?

Assured access to energy … to meet operational needs.

- Electricity
- Gas
- Heating / cooling
- *Key point = it's there when you need it!*

Renewable energy

- Important for energy security at a macro level
- Not "dispatchable" when needed

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Do you need it?

- What happens if you don't have it?
- Return when energy is restored?
- Alternative operations location?
- Impacts to mission?
- Cost impacts?
- Risk of life?

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What's it worth to you?

VALUE of energy security is often undefined

- Production – loss of materials / product / idle equipment and staff
- Research – loss of time / materials / data
- Mission Critical – define the cost
- Life Critical – define the cost
  - Can't put a value on human life? Insurance companies, hospitals, courts and military leadership do this every day

Key Point = defining the lower bound is often sufficient

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If you need it, how much?

Define your requirements / reduce the load

- Electricity
- Natural gas
- Heating / Cooling

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Traditional approach

"One generator per building"

- Pros
  - Simple
- Cons
  - Maintenance often ignored
  - Limited redundancy
  - Little value beyond local power
  - Doesn't address natural gas requirements
  - Heating / cooling requirements may not be met if supplied centrally

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Strategic approach

Centralize assets to share the benefit and improve economic value

- Pros
  - Commercial value (peak shaving, etc)
  - More likely to be maintained / operable
  - Redundant supply (propane/air) or thermal storage can be addressed
- Cons
  - Capital intensive

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How are you going to pay for it?

Energy assets have value

- Electric generation
  - Peak shaving / price response
- Natural gas
  - Propane / Air plants
  - Onsite resource development
  - “Curtailment” rates common in industry
- Cooling
  - Thermal energy storage
  - Peak shaving / load shifting
  - Cooling capacity with minimal electric load

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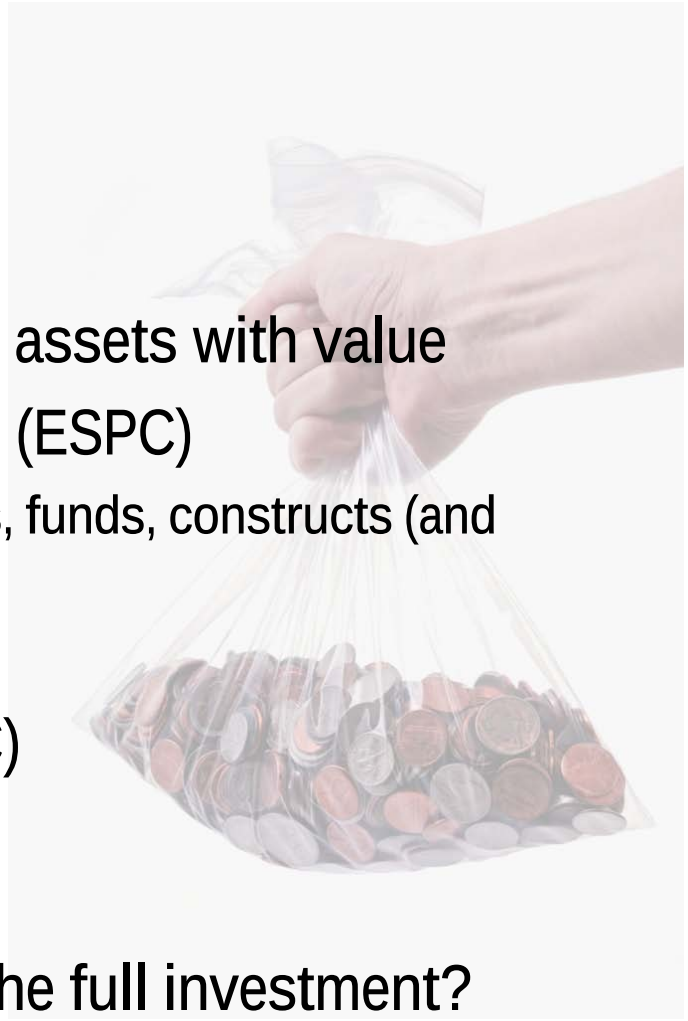
How are you going to pay for it?



Finance Programs are available for energy assets with value

- Energy Savings Performance Contracts (ESPC)
  - Energy Services Company (ESCO) designs, funds, constructs (and operates) the energy asset
  - Investment is recaptured via savings
- Utility Energy Savings Contracts (UESC)
  - Similar to ESPC, but provided by the utility

What if the energy savings doesn't cover the full investment?

- What is the value of energy security?
- Is this "discount" sufficient? Got a better plan?

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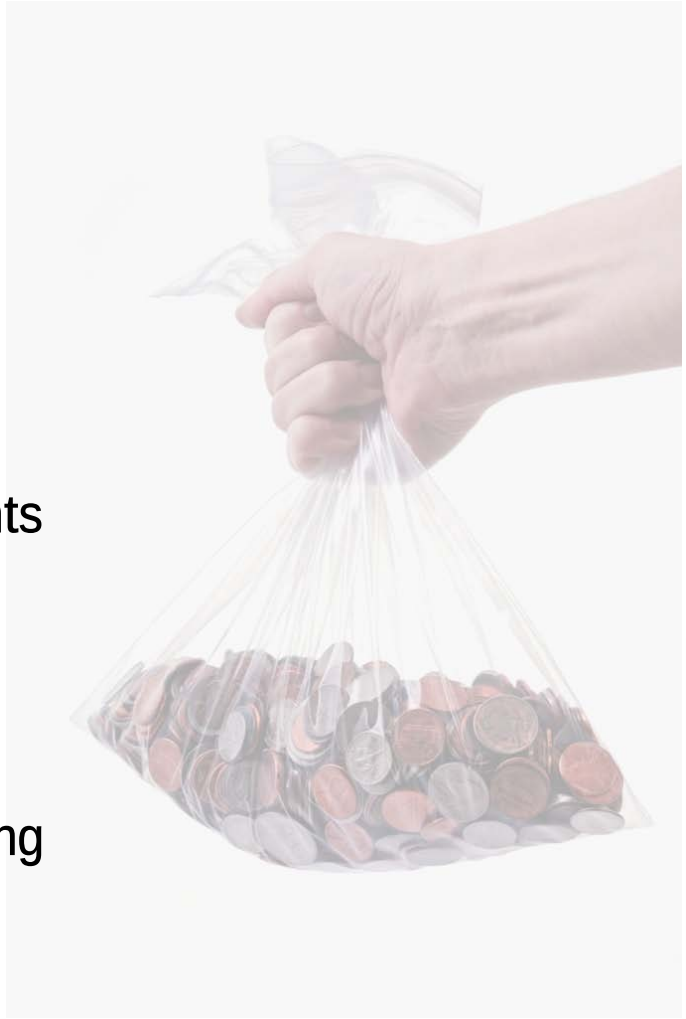
How are you going to pay for it?



Alternative Financing Pros / Cons

- Pros
  - Eliminates or minimizes capital requirements
  - Provides access to SMEs
  - Accountability for performance
- Cons
  - Procurement process can be time-consuming
  - Long-term payment commitment

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Distribution considerations

Utility Privatization

- Electrical and natural gas privatization is common
- Is your system privatized by a “true partner”?
- Distribution can be very difficult if the system is owned / operated by an uncooperative partner.

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MILCON Considerations

- Good …
  - *Ensure that MILCON is performed in compliance with your energy security strategy*
- Better …
  - *Ensure that MILCON incorporates the necessary infrastructure at the building level*
- Best …
  - *Coordinate MILCON funding with alternative financing to provide energy security*

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Case Study

Facility

- FDA laboratory & office space
- 3.7M SF campus build-out

Need

- Support valuable research

Approach

- “ESPC for new construction”

Case Study: http://www1.eere.energy.gov/femp/pdfs/espc_ss_whiteoak.pdf
Video Case Study: http://www1.eere.energy.gov/femp/financing/superespcs_fda.html

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Case Study: GSA White Oak

Initial Phases

- 25.6MW onsite generation
- 70 MMBtu heating capacity
- 10,000 tons cooling capacity

Recent Phase

- New plant for 1.2 million sf expansion
- Additional generation, heating and cooling

Benefits

- Avoided capital cost
- Energy security / reliability
- Demand response capability

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Questions?


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