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Energy Savings Performance Contracting

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Presentation Overview

- Delivery System Comparison
  - ✓ What is Design – Bid – Build?
  - ✓ What is ESPC?
- Energy Savings Performance Contracting (ESPC)
  - ✓ What is an ESCO?
  - ✓ Are you a good candidate?
  - ✓ What can an ESPC accomplish?
  - ✓ ESPC Myths
  - ✓ Cost of Delay
- ESPC Process “How it Works”
- Available Funding Sources in Alaska
- Summary

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Comparison of a typical ESPC vs. Delivery System

- Energy Savings Performance Contracting
- Design – Bid – Build Contracting

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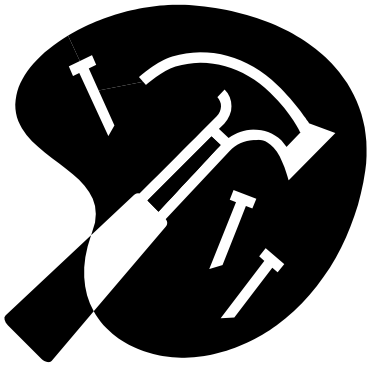
Design – Bid – Build Contracting Delivery

- **Design-bid-build** is a project delivery method in which the agency or owner contracts with separate entities for the design and construction of a project.
- Design-bid-build is the traditional method for project delivery and is most common to Alaska.
- Three sequential phases to design-bid-build:
  - ✓ Design phase
  - ✓ Bidding phase
  - ✓ Construction phase



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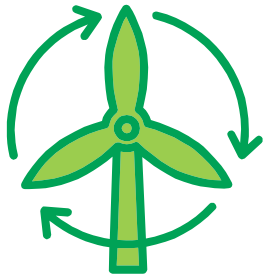
What is an Energy Savings Performance Contract?



- A contract for comprehensive energy / water efficiency and operational improvements
- Energy / water / operational cost savings pay for the improvements.
- Savings are contractually guaranteed

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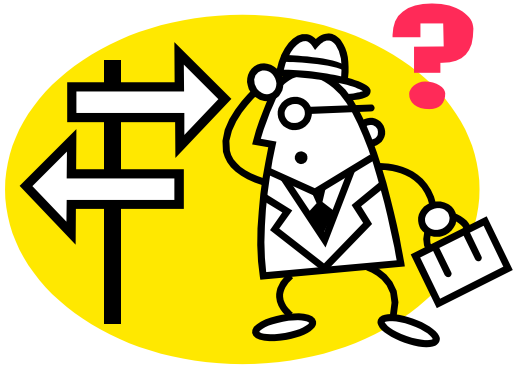
Factors Affecting Choice of Project Delivery System

- Complexity of design
- Desire for flexibility during construction
- Availability of suitable contractors
- Energy expertise and availability of owner
- Ability to define full scope of energy project
- Performance requirements of completed project
- Budget constraints



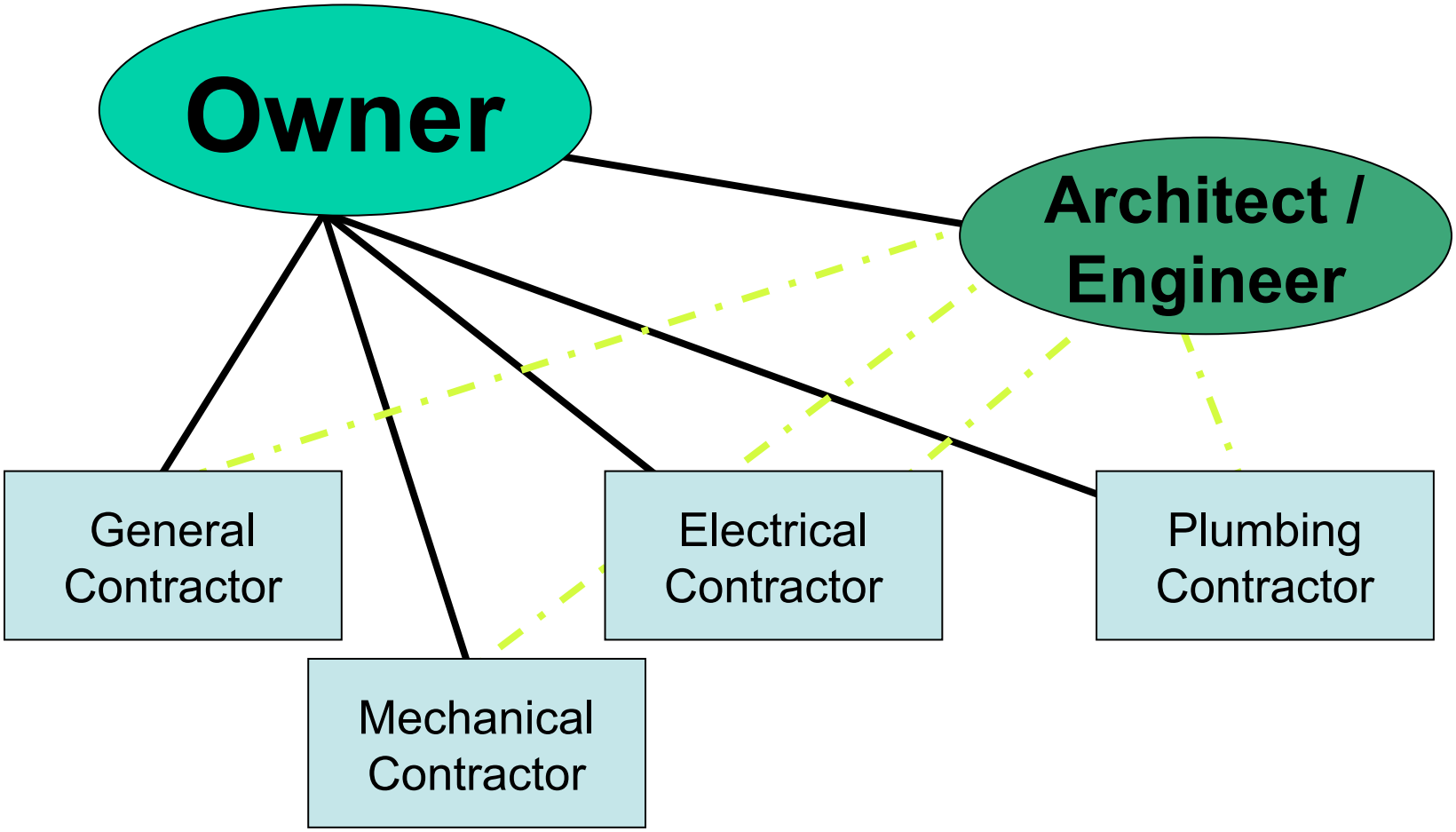
Advantages of Design – Bid – Build:

- Familiarity with process; it's common
- Owner gets a contracted price for a defined scope
- Plans and Specs for quality standards
- Defined legal and procedural guidelines

Disadvantages of Design – Bid – Build:

- Contractors have no input into design phase
- No project fast-tracking
- Potential scope change complications
- Conflicts from interpretation of contract documents and unforeseen conditions
- Limited collaboration between owner, designer and contractor is common
- *Requires high degree of owner involvement for success*

Design – Bid – Build



Energy Services Performance Contracting

- A project delivery system that delivers guarantee energy performance
- Provides complete building / site energy saving solutions
- Reduces building / site energy footprint
- Guaranteed energy savings
- Guaranteed equipment performance
- Long term operational support
- An innovative contracting vehicle to purchase energy improvements
- Project Financing of the entire projects – no up front costs

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What is an ESCO?

- Some similarities to a Design/Build firm
- Turnkey service for energy efficiency projects
- Expertise in energy engineering
- Depending on project scope may also offer:
  - ✓ Commissioning
  - ✓ Training
  - ✓ Maintenance
  - ✓ Savings Monitoring

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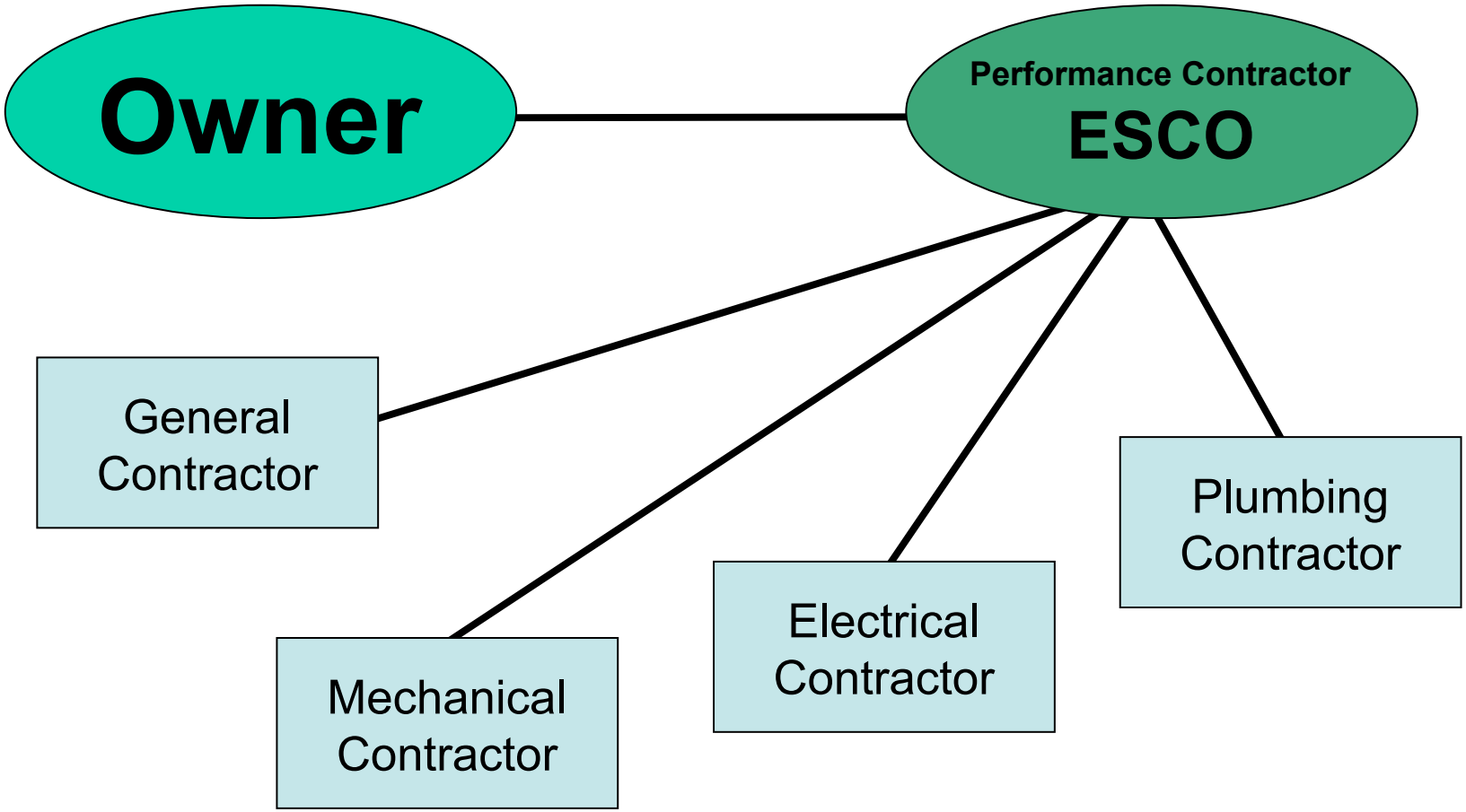
Advantages of Performance Contracting

- Collaboration between owner, designer / builder
- Encourages project constructability
- Value-engineering approach
- Ability to fast-track
- Good cost estimating and scheduling
- Scopes of work are negotiated with owner
- One responsible entity: Performance Contractor (ESCO)

Performance Contracting



Energy Star & LEED Certification

- ESCO's have LEED certified staff familiar with the EPA's Energy Star label program.
- Economic benefits for health and productivity from better thermal, visual, acoustic comfort, and better air quality can be worth 10x as much as the annual utility cost savings.
- Proper measurement of benefits could lead to larger investments in improving indoor environmental quality.
- ESPC projects significantly reduce air pollution.

Measuring Cost Savings

- Accurately assess energy savings for a project.
- Reduces uncertainties to reasonable levels.
- Monitors equipment performance.
- Qualifies additional savings.
- Improves operations and maintenance (O&M).
- Verifies cost savings guarantee is met.
- Allows for future adjustments as needed.

Are you a Good Candidate for ESPC?

- High operating costs / energy usage
- Aging buildings and equipment in need of modernization
- IAQ concerns / comfort problems
- Decreased asset value
- Lack if in-house personnel energy expertise to address needs.
- Constrained capital budgets, or no desire to deploy capital for building upgrades and improvements.
- Grant funding that doesn't fully cover the cost of Energy improvements

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What can ESPC Accomplish?

- Significant reduction in utility use of up to 30%
- Infrastructure modernization
  - ✓ Installation of new energy related equipment / systems
  - ✓ Incorporation of capital improvements
- Equipment inventory consistency
- Better management and tracking of energy use

What can ESPC Accomplish?

- Shift risk of delivery & performance from owner to ESCO
- Environmental Stewardship – mitigation of greenhouse gases
- Provides local construction and energy related jobs
- Long – Term energy partnership
- Implemented with no up-front capital costs and guaranteed savings for the project term
- Lower operating costs = HIGHER profit margins !!

Energy Savings Performance Contracting

- Guarantee can be structured to cover ALL project costs (energy audits, design fees, ongoing fees, financing costs, equipment, materials, and construction).

- Project costs are at 100%
- Utility use is up to 100%
- O&M savings are not typically guaranteed
- Equipment performance

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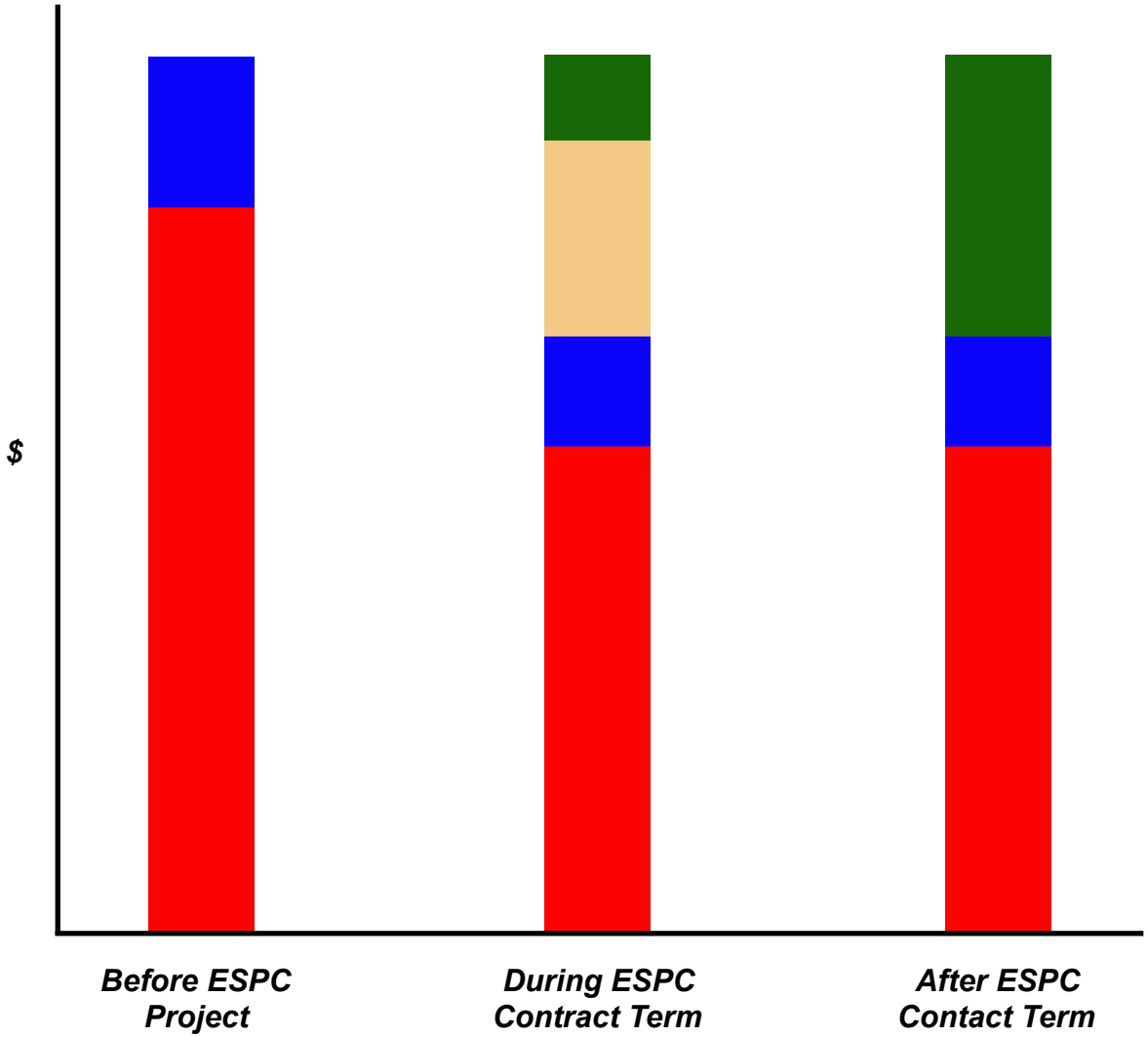
ESPC: Before, During, After



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ESCO Guarantee Risk

- Experience in the industry, especially in the past 10 years, shows that most ESCO's achieve 98 percent or more of their total savings guarantees.
- ESCO companies have substantial internal reserve funds to cover any savings guarantee shortfalls.
- ESCO companies reimburse customers promptly for any guaranteed shortfalls.

Performance Contracting Myths

- Low-bid procurement strategies keep costs low.
  - ✓ This approach seldom addresses life-cycle costs.
- Savings too difficult or expensive to measure.
  - ✓ Refinements in measurement and verification methods decrease costs and increase accuracy of savings measurement.
- Operators believe they will lose control of their facilities.
  - ✓ Operators retain the right and responsibility to maintain control.

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More Performance Contracting Myths

- Appropriated capital improvement funds are preferable to tax-exempt lease financing of projects.
  - ✓ Revenues from operating cost savings pay for costs of capital improvement projects in tax exempt leasing.
- It takes too much time to implement an ESPC project into their facility.
  - ✓ ESPC consultants provide assistance to help agencies implement programs.

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Cost of Delaying ESPC

- Savings from Energy Savings Performance Contracts occur over time.
- The lost savings, had that project been implemented earlier represent the cost of delay.
- Oakridge National Laboratories found that the typical federal project funded through the appropriations process took five years to complete, compared to two years for the ESPC.
- Average duration over which the cost of delay accumulated was approximately three years.
- Value of these lost energy savings was so large, a few months delay eliminated any financial advantage.

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The Basics of How ESPC Works:

- Enter into agreement with ESCO
- ESCO performs initial energy audit
- ESCO / Owner identify energy / water conservation measures, or “ECMs”
- Energy / water operational cost savings from ECMs pays for project.
- ESCO designs and constructs

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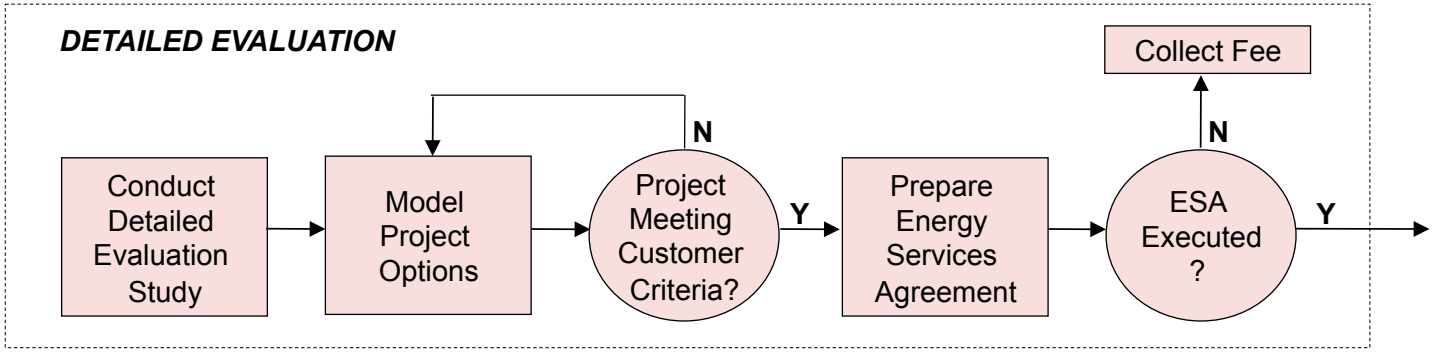
Development Phase



- Establish a baseline for energy use and cost
- Confirm Investment/business criteria
- Identify and evaluate specific utility and maintenance savings opportunities
- Determine final composition of energy efficiency and infrastructure improvements.
- Costs for engineering rolled forward into project implementation
- Execute ESA and secure project financing

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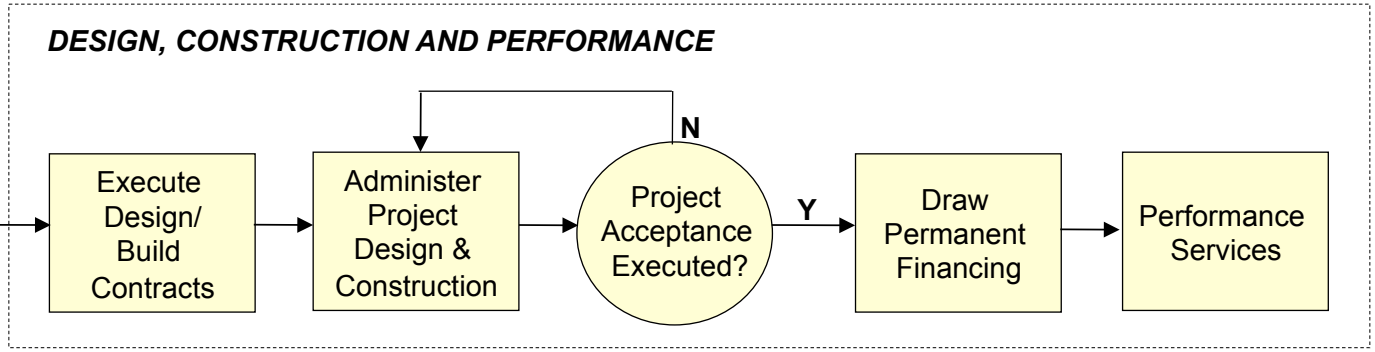
Implementation Phase



- Procure/award design and construction contracts
- Manage the installation and commissioning of the project
- Train staff and provide on-going maintenance service, applicable
- Commissioning and savings performance test conducted at construction completion to obtain customer acceptance
- Maintain performance and verify savings to reconcile guarantee

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Case Study
Elmendorf AFB Anchorage AK

- De-Centralization of 50 yr old co-generation plant
- Design / Install over 280 dedicated steam boilers
- Includes a 22 year O&M contract – essentially a 22 year warranty
- Estimated savings > 1million MMBTU's of energy annually
- Past 4 years 2005 - 2009
- Guarantee Savings $15,706,895.00
- Actual Savings $ 21,135,539.00
- Excess Savings $ 5,428,644.00

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What Funding Sources are Available for ESPC?

- Revolving Loan Fund
- AEA Grant Funding
- Stimulus Funding
- O&M Savings
- Guaranteed Energy Savings
- Mix of grant funding and third party finance

Summary of ESPC Benefits

- Eliminates need for up-front capital
- Creates local jobs
- Fund project entirely from savings
- Reduces facility utility demand requirements
- Modernizes facility infrastructure and increases asset value
- Mitigation of green house gases.
- Single point of responsibility
- Provides protection against future rate increases and market volatility
- ESCO assumes implementation cost and savings performance risks.
  - ✓ Fixed cost
  - ✓ Guaranteed energy savings

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Thank You

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