Department of Commerce Introduction to Performance Contracts

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Photo by Dennis Schroeder, NREL 56461

NREL Team

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Agenda

- Introduction
- What are Performance Contracts?
- Types of Performance Contracts
    - Energy Savings Performance Contracts (ESPCs)
    - ESPC Energy Sales Agreement (ESA)
    - Utility Energy Service Contracts (UESCs)
- How do Performance Contracts Work?
- Key Takeaways and Resources
- Q&A

Poll Questions

1. Can you share with us your bureau and functional job title?
2. Have you worked on any performance contracts in the past?
3. If so, how many years of performance contracting experience do you have?
   - 1-2 years
   - 3-5 years
   - 6-10 years
   - More than 10

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NREL at a Glance

4,060 Workforce, including:

- 3,073 regular/limited term
- 500 contingent workers
- 237 postdoctoral researchers
- 147 graduate student interns
- 103 undergraduate student interns

—as of 12/31/2024

World-class research expertise in:

- Energy Systems Integration
- Transportation and Fuels
- Buildings and Industry

Partnerships with:

- Industry
- Academia
- Government

4 Campuses operate as living laboratories

NREL and DOC

- DOC OFEQ Strategy and Management Group

  Focus on energy and water efficiencies and data collection/reporting, facility assessments, resilience of facilities, performance contracting, real property management/reporting, personal property and transportation.

- Interagency agreement since 2015

  NREL provides expert technical assistance to DOC and its bureaus

What are Performance Contracts?

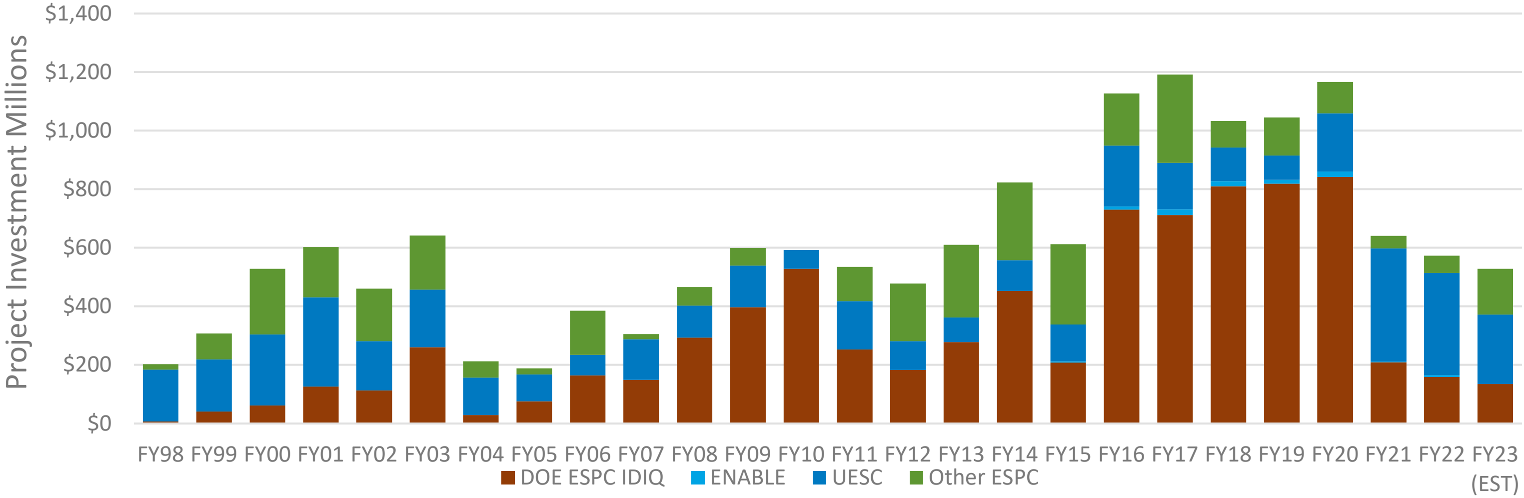
What are Energy Performance Contracts?

A type of ***performance-based services*** contract, authorized by statute, that permits agencies to implement energy and water efficiency projects with little to **no up-front costs or appropriations** from Congress.

- Capital costs for a variety of measures are paid through third-party financing and avoided costs
  - Infrastructure upgrades
  - Replacement of aging, inefficient equipment
  - Onsite energy systems

- Annual contract payments made from savings due to reduced consumption and improved efficiency
- Energy Performance Contracts include Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs)

Performance Contracting Investment FY98 – FY23



	Program Investment (since FY98)	Program Year Start
DOE IDIQ	$8.04B	FY1998
ENABLE ESPC	$0.094B	FY2012
UESC	$4.56B	FY1992
Other ESPC	$3.34B	FY1996
Total Alternative Finance	$16.03B	

Federal Energy Requirements

Energy Act of 2020

- Amends 42 U.S.C. § 8253, requiring Federal agencies to implement identified measures captured as part of EISA 432 evaluations
  - Use of performance contracting to address at least 50% of ECMs identified
  - Implementation of cost-effective ECMs within 2 years of evaluation date
- Amends 42 U.S.C. § 8258, include reporting of efforts on ESPCs and Utility Energy Service Contracts (UESC)

Federal Building Energy Efficiency Rules and Requirements

- Amends 42 U.S.C. § 6834, establishing fossil fuel consumption limits for Federal buildings as directed in Energy Independence and Security Act (EISA) 2007 (Sec. 433)
  - Goal: reduce on-site fossil fuel-generated energy consumption
  - Pertains to new construction and major renovation that exceed established cost thresholds
  - Applies to stationary combustion
  - Includes EISA-Subject buildings and projects

Note: Descriptions are illustrative and not comprehensive.

ESPC Case Study: NIST Solar Array (2019)

Quick Facts:

- Location: Gaithersburg, MD
- Implementation Amount: $10.2M
- Contract Term: 20 years
- Total Guaranteed Savings: $3.5M
    - Annually exceeding guarantee by 35% average/yr
- Estimated GHG Emissions Avoided: 4,251 tons/yr CO2e

Cost Conservation Measure:

- 5 MW DC, 4 MW AC ground-mounted PV system
    - Includes all maintenance, repairs, and replacements
    - Includes a reserve account for purchase of system
    - NIST purchases all produced power at $0.082/kwh (vs. $0.13/kwh from utility)

ESPC ENABLE program, is a 5 MW DC, 4 MW AC ground-mounted PV system using an energy sales agreement (ESA)—the second under ENABLE. It is the largest PV system installed at a civilian government agency (14,700 panels) that uses all of the produced electricity on-site.

Why Performance Contracts?

Improve Facilities & Reduce Costs Without Upfront Spending

Capital costs paid by the contractor. Payments made from cost savings, so agencies can improve facilities without needing extra budget.

Fix Old Equipment & Reduce Maintenance

Replace outdated systems like lighting or HVAC with modern, efficient technology, lowering energy use and avoiding expensive repairs.

Meet Requirements & Support Federal Energy Goals

Energy performance contracts make it easier to meet federal energy targets while improving facilities.

Cut Energy Bills for the Long Term

New systems reduce energy waste, helping facilities save money year after year.

Types of Performance Contracts

Types of Performance Contracts

	DOE Indefinite Delivery, Indefinite Quantity (IDIQ) Energy Savings Performance Contracts (ESPC)*	ESPC Energy Sales Agreements (ESA)	Utility Energy Service Contracts (UESC)
Contract Type	Task Orders (TO) Under DOE IDIQ ESPC	ECM in ESPC DOE IDIQ, or site-specific/stand-alone	GSA Area-wide Contracts; Basic Ordering Agreement or separate contract
Partner	Energy Services Company (ESCO)	ESCO must be on DOE Qualified List and meet requirements of specific contract used	Serving distribution utility (electric, gas or water)
Eligible Facilities	Federally-owned or leased facilities worldwide	Federally-owned or leased facilities or on Federally-owned land	Federally-owned or leased facilities
Project Size	$2 million or larger	Typically, at least 1 MW	Any size
Savings Guarantee / Performance Assurance	Savings guarantee required, annual measurement and verification of performance (M&V)	Savings guarantee required; metering (Option B) is recommended	Performance assurance plan required to verify performance and savings (may include M&V); Savings guarantee not required, negotiable

** Other agencies have ESPC contracts that may have different characteristics (ex. Army MATOC, VA IDIQ)*

Key Features and Types of Contracts

Purpose: Achieve energy savings & ancillary benefits

- Max contract term is 25 years (starting with task order award)
- Financing and appropriations may be combined
- Utility/ESCO is responsible for obtaining financing
- Contracts are firm-fixed-price
- Multiple sites may be included in a single task order
  - ESPC – Sites located worldwide
  - UESC – Sites located within utility service territory
- May include O&M, repair & replacement

Energy Savings Performance Contract (ESPC)

- Prime contractor = Energy Service Company (ESCO) (DOE IDIQ, Army MATOC)
- Savings guarantees and M&V are required – savings must equal or exceed payments each year
- ESCO is responsible for O&M regardless of who performs O&M

Utility Energy Service Contract (UESC)

- Prime contractor = local serving distribution utility (electric, gas, or water)
- Performance assurance plan required – savings intended to equal or exceed payments over contract term (not required on annual basis)

How do Performance Contracts Work?

How do Performance Contracts Work?

Select contractor

Pre-qualified Energy Service Company (ESCO) for ESPC

Serving distribution Utility for UESC

Conduct assessments to evaluate energy/water savings opportunities

Contractor identifies & designs cost effective energy conservation measures (ECMs)

Implement ECMs

ESCO/Utility secures financing and installs measures

Make payments from energy & cost savings

Contract term of up to 25-years to pay for ECMs

Monitor and sustain savings

Via operations & maintenance / measurement & verification

Project Process and Key Milestones

1 Acquisition Planning

- Initial ID of facilities and goals
- Acquisition strategy
- Identify project team

2 Utility/ESCO Selection & PA

- Notice of Opportunity (NOO) or Letter of Interest (LOI)
- Utility/ESCO Selection
- Preliminary Assessment (PA)

3 Project Development

- Investment Grade Audit (IGA)
- Task Order/Proposal
- Negotiations and Task Order Award

4 Implementation and Construction

- Final Design and Construction
- Commissioning and Performance Verification
- Project Acceptance

5 Post-Acceptance Performance

- Invoicing & Payments
- ECM Performance Services (O&M, M&V, recommissioning, etc.)

Energy Conservation Measure (ECM) Examples

Common Examples

(not exhaustive)

- Boiler and chiller upgrades
- Energy management control systems/Building Automation System
- Commissioning/Retro-commissioning
- Building envelope
- HVAC
- Chilled/hot water, steam distribution
- Lighting and lighting control improvements
- Electric motors/drives
- Refrigeration
- Distributed Energy Systems
- Water and wastewater
- Electrical peak shaving/load shifting
- Rate/tariff adjustments
- Appliance/plug load reductions
- Energy consuming devices and support structures






[On-Demand Webinar: Basics of ECMs for Performance Contracts]

Savings: Project Example

Financial viability of a project is contingent on identifying a bundle of ECMs with a combined payback of less than 25 years.

ECM	Cost	Annual Savings	Simple Payback *(before financing)*
Boilers (8)	$1,875,000	$159,500	11.8 years
Building Automation & Controls	$3,150,000	$227,500	13.85 years
Lighting Upgrades	$2,100,000	$126,160	16.7 years
Building Envelope Upgrades	$1,125,000	$32,555	34.56 years
Water Improvements	$1,500,000	$160,000	9.38 years
Total Investment	**$10,000,000**	**$705,715**	**14.17 years**

Savings: Project Example

Removing high-value ECMs can impact the financial viability of the entire project.

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Boilers (8)	$1,875,000	$159,500	11.8 years
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Total Investment	**$10,000,000**	**$705,715**	**14.32 years**

Loss of savings from remove controls ECM **increases combined simple payback for all ECMs**
Agency may need to **find sources of new savings** to keep the project going.

Project Example: Removing ECMs

Removing high-value ECMs can impact the financial viability of the entire project.

ECM	Cost	Annual Savings	Simple Payback* *(before financing)*
~~Boilers (8)~~	~~$1,875,000~~	~~$159,500~~	~~11.8 years~~
Building Automation & Controls	$3,150,000	$227,500	13.85 years
Lighting Upgrades	$2,100,000	$126,160	16.7 years
Building Envelope Upgrades	$1,125,000	$32,555	34.56 years
Water Improvements	$1,500,000	$160,000	9.38 years
Total Investment	**$8,125,000**	**$546,215**	**14.88 years**

Loss of savings from removing boiler ECM **increases combined simple payback for all ECMs by 0.7 years.** After applying financing costs, **contract term may now exceed 25 years.**

Agency may need to **find sources of new savings** to keep the project going.

Project Example – Adding ECMs

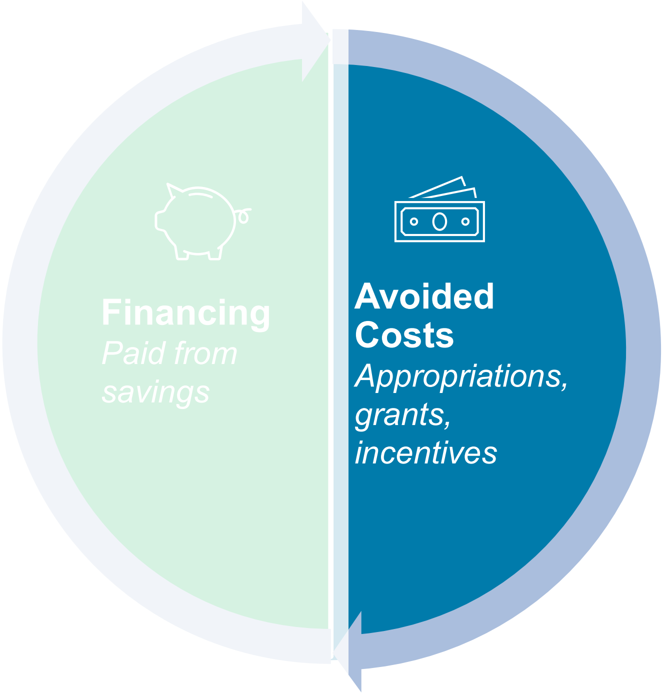
Measures with long-term paybacks (energy storage, microgrids, etc., for resilience) can be added to projects when savings from other ECMs offset high costs.

ECM	Cost	Annual Savings	Simple Payback *(before financing)*
Boilers (8)	$1,875,000	$159,500	11.8 years
Building Automation & Controls	$3,150,000	$225,000	14 years
Lighting Upgrades	$2,100,000	$126,160	16.7 years
Building Envelope Upgrades	$1,125,000	$32,555	34.56 years
Distributed Energy + Storage	$1,500,000	$44,560	33.66 years
Water Improvements	$1,500,000	$130,000	11.54 years
Total Investment	**$11,500,000**	**$750,275**	**15.33 years**

Adding distributed energy + storage system **increases simple payback by 1.15 years.**

Leveraging Avoided Costs to Supplement Direct Savings

- **Appropriations -** Annual budget allocation for energy/water-related expenses (agency specific rules apply)
  - 42 U.S.C. § 8287(a), 42 U.S.C. § 8253(f)(10)(B)
- **Grants –** typically applied to specific ECM or scope of work within project
  - Example - FEMP AFFECT
- **Incentives and Rebates -** applied to financed project payment or contractor
  - May include energy efficiency/technology rebates, demand response credits, etc.
  - Consult DSIRE* and FEMP websites for information



Leveraging of Funds in Performance Contracts

Performance Contract without Appropriations

Completely financed through savings generated by ECMs

Standard Appropriations-Funded Project

Energy costs may be reduced but savings cannot be captured to fund additional scope

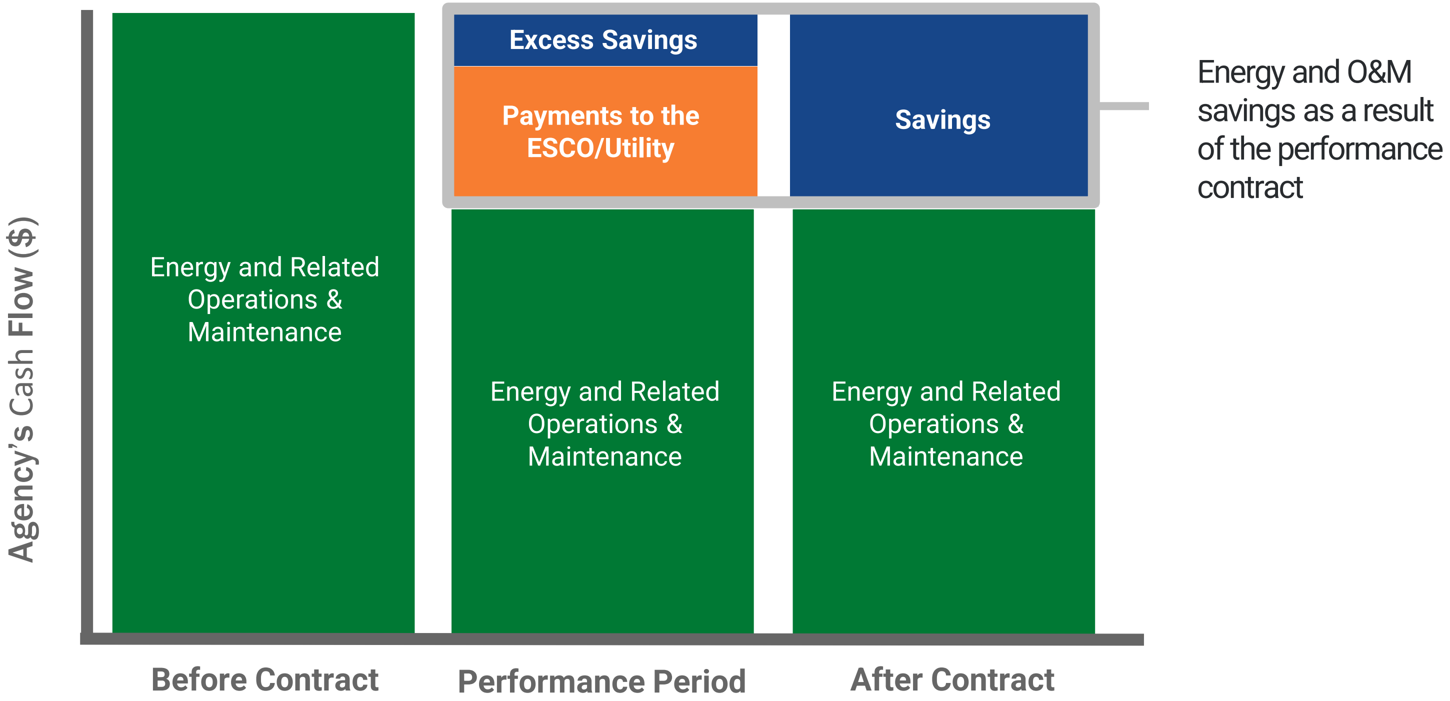
Combined Performance Contracting /Appropriations Project

Savings from appropriations funded measures add to total project savings and can be leveraged to fund additional scope

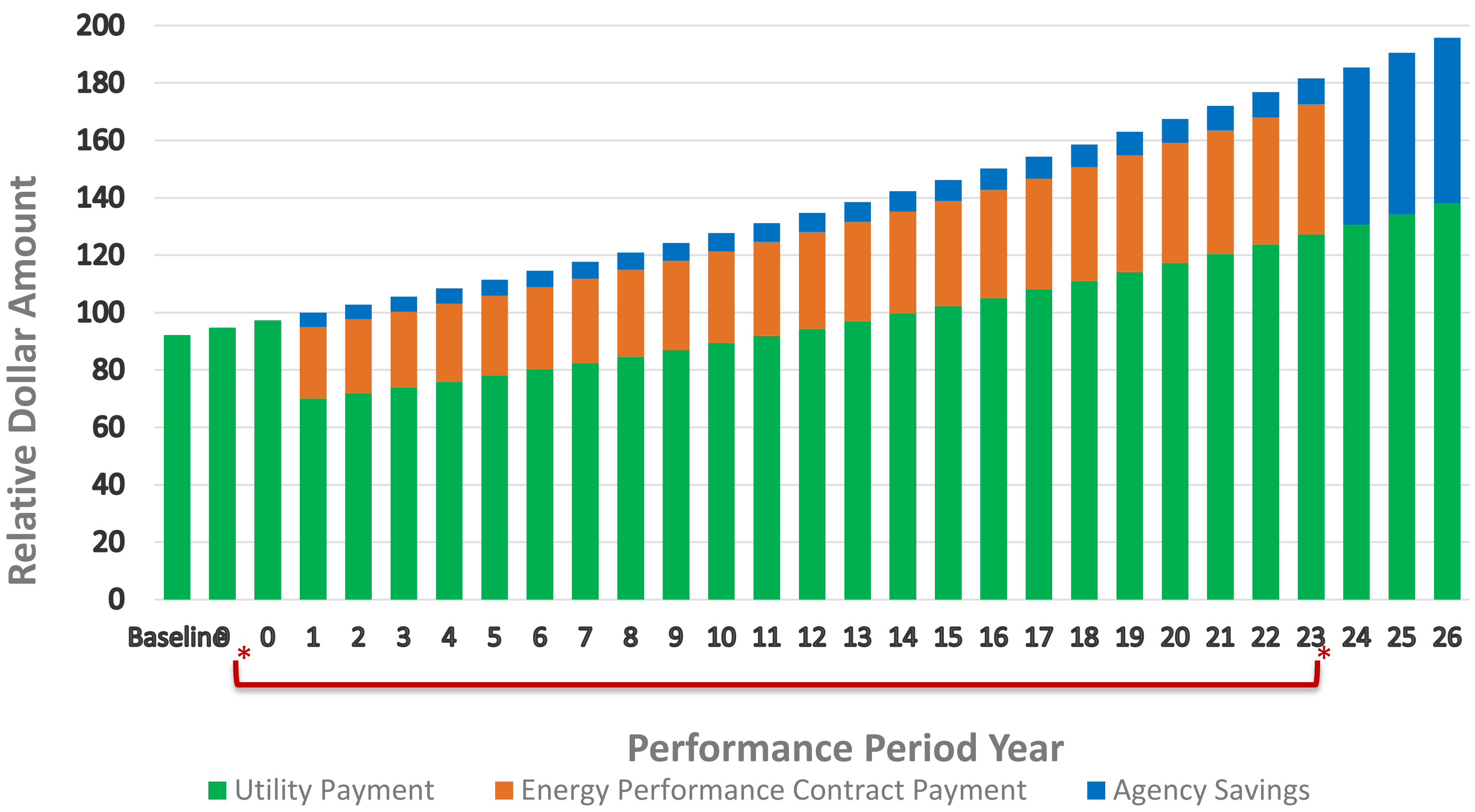
**Analysis of DOE ESPC IDIQ project awards indicates that leveraging appropriations can as much as double the impact of appropriated funds*

Reallocate Agency Utility Bill

Stop paying for wasted energy.
Start paying for efficiency and resilience.



Energy Performance Contract Cash Flow



25-Year Max. Contract Term, begins at task order award

Year(s) 0 represent project implementation (est. 2 years)

Years 1-23 represent the post implementation performance period

Year 23 is project close out (end of task order)

Years 24-26 savings accrue to agency/site

Allowable Savings

Energy and water cost savings

- Energy/water efficiency improvements and reduced usage
- Demand reduction, load management, and load shifting
- Fuel switching
- On-site distributed generation

Energy- and water-related cost savings

- Reduced O&M costs – contracts, materials (recurring)

Avoided Costs

- Avoided/obviated equipment replacement (one time)

Don’t Forget to Leverage Incentives and Grants!

FEMP Funding Opportunities

DSIRE Website - Utility and state grants, rebates, and incentives

Demand Response Programs

Funding for entire project doesn't have to be obligated up front!

- **OMB Memo 12-21** allows energy performance contracts to be scored annually.
  - **Scored annually** - The annual scoring allows the contract to be awarded without the agency having the full cancellation ceiling funding available. Capital costs don't need to be paid up front like construction contracts, but can be paid through annual appropriations, like service contracts.
  - Requires performance assurances or savings guarantee to ensure actual savings accrue to cover annual payments
- **Upfront payment** – need enough budgetary resources to cover payments for fiscal year in which the contract is awarded
- **Annual payments** – need enough annual funds to cover payment specified for individual years in the Financial Task Order Schedules

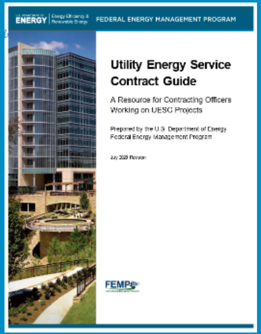
Key Takeaways and Resources

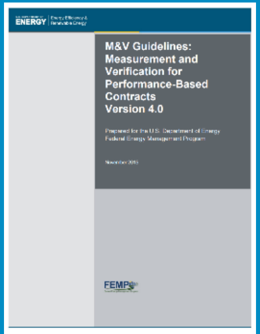
Key Takeaways

- **No upfront capital funding needed** – Project costs are repaid over time using savings from reduced utility and O&M expenses.
- **Annual utility budgets are repurposed** – Instead of paying higher energy bills, agencies redirect those funds toward contract payments.
- **Escalating utility rates - growing savings**
  - As energy prices rise over time, dollar value of energy savings increases
  - Contract payments are fixed but actual utility savings may grow with inflation and rate changes
- **Longer repayment terms reduce annual cost** – Spreading repayment over more years (up to 25) reduces portion of annual budget impact.
- **Cost neutrality is key** – Agencies must ensure annual payments don’t exceed the avoided costs in their existing budget.

Performance Contracting Resources

FEMP offers templates and guides to streamline contract development and save time.





Click below to view and download

UESC Resources

ESPC Resources

- **Guides and Essential Education**
  - UESC Guide
  - ESPC IDIQ Master Contract
  - Performance Assurance and M&V Guidelines
  - FAQs and Case Studies
- **Templates and Examples**
  - Notice of Opportunity / Letter of Interest
  - PA and IGA templates
  - TO and TO RFP templates
  - TO Financial Schedules
  - Project Development Checklists
  - Performance Period Reports

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Image from the Department of Commerce, Office of Facilities and Environmental Quality website. *https://www.commerce.gov/ofeq*

Discussion and Q&A

Thank you

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