



U.S. DEPARTMENT
of **ENERGY**

Office of Critical Minerals
and Energy Innovation

Federal Energy Management Program

2026 Federal Utility Partnership Working Group (FUPWG) Seminar

Washington, D.C. | Day 2, August 7, 2026



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Federal Energy Management Program

Financing Panel



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Utility Interconnection Process



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Utility Interconnection Process

Chris Halpin, PE, CEM, CMVP, USDOE PF
August 7, 2026



Resilience Today, Cost Hedge Tomorrow

Pairing on-site renewable generation with battery storage lets federal facilities island critical assets from the grid during outages while locking in protection against rising utility rates—all funded through the UESC's utility partner.



Distributed, Not Centralized

On-site generation is immune to transmission and distribution damage, letting a facility sustain critical operations even if the wider grid stays down (if configured to operate during grid outage) ([USDOE](#)).



Islanding Keeps Mission Critical Loads Up

On-site generation + storage with grid-forming inverters/other required equipment automatically disconnects and continues serving critical loads when the grid fails ([USDOE](#)).



Hedge Against Rising Rates

Electricity prices have risen roughly 20% cumulatively since 2021 with continued growth forecast through 2027 ([EIA](#)); UESC-funded generation locks in a known cost profile that shields agencies from that volatility.



Revenue & Avoided Costs While Grid-Connected

Distributed energy resources can generate savings (and in some cases revenue streams) while grid-tied, lowering overall microgrid costs and extending survival time during an outage—with no upfront capital ([USDOE](#)).

Interconnection Best Practices Pay Off

Federal agencies that engage the serving utility early and manage interconnection as a parallel workstream ensure that on-site generation does not sit idle while waiting for the interconnection agreement (ICA) to be signed.



Optimize Project Viability and Timeline

Engage utility early to ensure project viability and understand how interconnection will impact project timelines



Protected Savings Case

Confirm net metering and export rules, applicable rates, and standby charges up front to optimize project size and improve cost effectiveness



Streamlined Interconnection Agreement Contracting

Using GSA Areawide Contract “Authorization for the Provision of Services Provided Under the Appropriate Regulatory Authority” Exhibit speeds ICA execution

Skipping Best Practices Creates Pitfalls

Treating interconnection as an afterthought exposes federal projects to schedule slips, unbudgeted costs, and possible disputes that erode the ECM's business case.

Design-Stage Delays

Finalizing system design before consulting the utility risks resizing, re-permitting, and missed construction windows.

ICA Negotiation Disputes

Late ICA legal review to identify problematic terms (indemnification, liability, choice of law, etc.) can stall signature and delay permission to operate.

Underestimated Upgrade Costs

Distribution upgrade costs have ranged roughly \$50,000–\$200,000 per MW ([NLR April 2018](#)).

Storage-Specific Gaps

Overlooking separate interconnection rules for storage/microgrid components can trigger a second application cycle.



Interconnecting to Dominion Energy's Distribution System

Sean Stevens, Director of DER Integration and Management

Parallel Generation

Virginia Regulations for Small Generator Interconnections and North Carolina Interconnection Parameters



Section 20VAC5 - 314:

Regulations Governing
Interconnection of Small
Electrical Generators
and Storage

Section 20VAC5 - 315:

Regulations Governing
Net Energy Metering

E-100 - Sub 101: North Carolina Interconnection
Procedures, Forms, and Agreements

**includes Net Metering*

Distribution Level Interconnections

Net Metering

- For renewable energy generators that **offset** a portion or all of the load behind a Dominion Energy retail meter

Small Generators

- For generators that operate in parallel with the grid, including those that **sell power to the grid**

Solar

Wind

Energy Storage Systems

Microgrids

Natural Gas /
Diesel Generators

Combined Heat and Power
(CHP) Systems

Application Process for Interconnection

☐ **Submit Interconnection Request (IR), deposit, and supporting documentation**

- Level 1: Up to 500 kilowatts (kW); \$100 application fee
- Level 2: 500 kW to 2 megawatts (MW); \$1,000 application fee
- Level 3: Greater than 2 MW; \$1,000 application fee

☐ **Queue Position and Contract Administrator Assigned to Project**

- Contract Administrator is Point of Contact up to execution of Small Generator Interconnection Agreement (SGIA)

☐ **Interdependency Status Assigned**

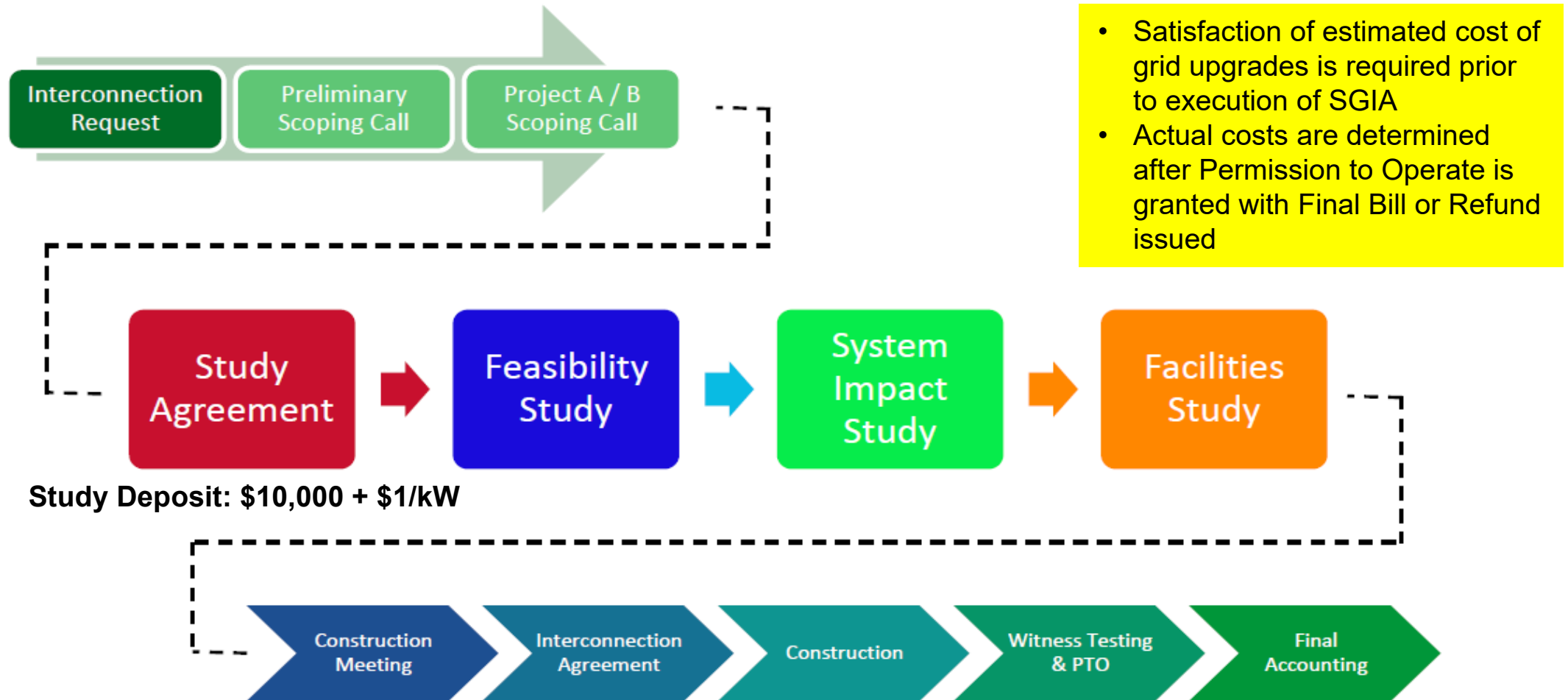
- Interdependency is based on Substation Transformer
- Queue Positions: Project A, Project B, or Subordinate
- Only Project A and B can be studied, only Project A can execute SGIA

Virginia Queue Status Examples:

	Count of Queue No				Sum of Capacity (MW)				Total Count of Queue No	Total Sum of Capacity (MW)
	In Construction	Project A	Project B	Subordinate	In Construction	Project A	Project B	Subordinate		
Battery	27	32	9	18	61	359	153	296	86	869
Diesel	2	15	1	1	29	43	1	1	19	75
Nat. Gas		3				21			3	21
Solar	117	109	88	395	713	507	396	1,969	709	3,585
Grand Total	146	159	98	414	803	930	550	2,266	817	4,550

Queue No	Location (Latitude)	Location (Longitude)	Fuel Type	Capacity (MW)	Substation Name	Substation Transformer	Circuit	Date Queue Number Assigned	Interdependency Status	Status
VA20491			Cancelled	15	Harrisonburg	TX #1	85 356	11/5/2020	Cancelled	C
VA21303	38.492147	-78.848086	Cancelled	15	Harrisonburg	TX #1	82 356	5/3/2021	Cancelled	C
VA22028	38.484565	-78.850441	Cancelled	14.995	Harrisonburg	TX #1	82 356	2/9/2022	Cancelled	C
VA22294	38.492147	-78.848086	Cancelled	15	Harrisonburg	TX #1	82 356	10/20/2022	Cancelled	C
VA24253	38.482212	-78.852442	Solar	5	Harrisonburg	TX #1	82 356	7/18/2024	Project A	A
VA25128	38.482212	-78.852442	Solar	3	Harrisonburg	TX #1	82 356	4/29/2025	Project B	A
VA25129	38.482212	-78.852442	Solar	3	Harrisonburg	TX #1	82 356	4/29/2025	Subordinate	A
VA25130	38.482212	-78.852442	Solar	3	Harrisonburg	TX #1	82 356	4/29/2025	Subordinate	A
VA25131	38.482212	-78.852442	Solar	1	Harrisonburg	TX #1	82 356	4/29/2025	Subordinate	A
VA25132	38.482212	-78.852442	Solar	1	Harrisonburg	TX #1	82 356	4/29/2025	Subordinate	A
VA25133	38.482212	-78.852442	Solar	1	Harrisonburg	TX #1	82 356	4/29/2025	Subordinate	A

Level 3 Study Process and Agreements



Interconnecting Closed Transition Standby Generators

<100 milliseconds (ms)

No Study Deposit

System Protection reviews:

- Drawings (single line diagram [SLD], schematics and logic)
- Sequence of operations
- Testing procedures and results

No SGIA Required

>100 milliseconds (ms)

\$5,000 Study Deposit if >2 MW

System Protection reviews and determines if Fast and Sensitive (F&S) Relay settings can be used to avoid Transfer Trip

- If F&S is **accepted**:
 - SGIA is executed
 - Testing documentation is submitted for review prior to Permission to Operate
- If F&S is **declined** or Transfer Trip is required project follows Level 3 Study Process

>100 milliseconds (ms) for Peak Shaving / Continuous Operation

Follows Level 3 Study Process

- Study Deposit: \$10,000 + \$1/kW
- SGIA



**Dominion
Energy®**

Federal Energy Solutions UESC Program

Fred Parry, CEM, PMP, MBA
Director, Business Operations



Marine Corps Base Quantico

Location: Quantico, Virginia

ECM 1: Peak Shaving and Resilience | (Includes Performance Payment Schedule) | Stadium Substation: Install 3 MW of on-site generation in the Main side portion of campus and include automation system controlled microgrid island



Federal Energy Solutions UESC Program

Interconnection Process: Success Factors and Lessons Learned

KEY LESSON LEARNED: Communication – From cradle to grave, maintain throughout the development process to ensure understanding of customer needs – energy gaps, funding challenges, previous projects, etc.

Government Lessons Learned

- Need for customer/government education
- Timing of government Go/No-Go decisions
- Government project champions
- Government personnel turnover
- Government Authorization to Operate (ATO)

Utility Lessons Learned

- Nonexistence of accurate costs estimate for interconnect agreements
- Government and utility flexibility/creativity
- Utility Permission to Operate (PTO)
- Knowledge and value utility personnel bring to the table

QUESTIONS & DISCUSSION

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Strategies for Strengthening and Scaling Utility Energy Service Contracts



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Explore the 2025 Edition of the Performance Assurance Planning Guide

Introduction



Randy Smidt, Moderator
UESC/ESPC Program Manager
Office of the Deputy Assistant Secretary of
the Army for Energy & Sustainability

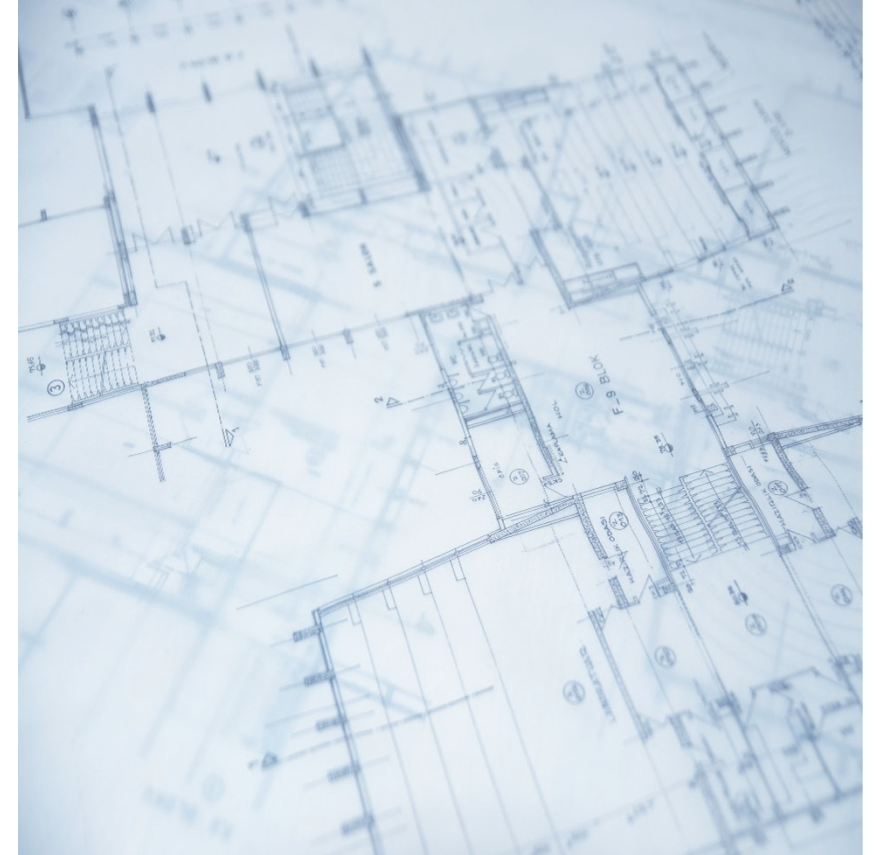


Heather Colbert
Program Manager
National Laboratory
of the Rockies

What Is a Performance Assurance Plan?

A plan that defines pre- and post-installation tasks and responsibilities to ensure long-term energy conservation measure (ECM) performance and savings

- Tailored to reflect site-specific needs (site conditions, staff capabilities, operations and maintenance [O&M] resources, and repair and replacement [R&R] requirements for ECMs)
- Documents requirements and responsibilities for both contractors **AND** site staff
- Details protocols that should be followed during project development, construction, and post-acceptance performance



Policy and Legislative Drivers

OMB Memorandum 12-21

Section II: Conditions for Annual Scoring of UESCs

A UESC may be scored on an annual basis if it requires:

- (1) **energy savings performance assurances or guarantees of the savings** to be generated by improvements, which must cover the full cost of the Federal investment for the improvements;*
- (2) **measurement and verification (M&V) of savings** through commissioning and retrocommissioning; and*
- (3) competition or an alternatives analysis as part of the selection process prior to entering into a UESC.*

42 U.S.C. § 8253 (f)(5)

Follow-Up on Implemented Measures

Each energy manager shall ensure that:

- (A) equipment, including building and equipment controls, is **fully commissioned** at acceptance to be operating at design specifications;*
- (B) a **plan for appropriate operations, maintenance, and repair** of the equipment is in place at acceptance and is followed;*
- (C) **equipment and system performance is measured during its entire life** to ensure proper operations, maintenance, and repair; and*
- (D) energy and water **savings are measured and verified**.*

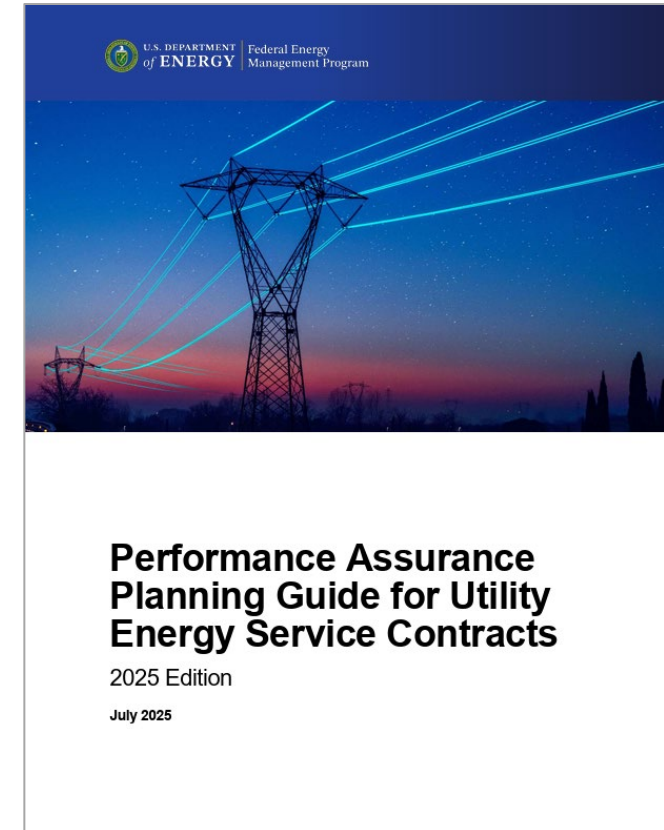
New Guidance Highlights

Provides updated guidance and best practices reflecting lessons learned from agencies across the federal government

- Developed to comply with [42 U.S.C. § 8253 \(f\)\(5\)](#), and [OMB Memo 12-21](#)

Key Updates:

- Planning starts earlier (acquisition planning)
- Expansion of elements of performance assurance
- Some level of measurement and verification (M&V) required (does not require a savings guarantee)
- Emphasizing witnessing (commissioning, M&V)



[Performance Assurance Planning Guide for Utility Energy Service Contracts, 2025 Edition](#)

What Level of Performance Assurance Is Best?

There is no single “best” level of performance assurance—the appropriate level is project-specific and risk-based

The level of rigor for each ECM should reflect key factors:

- ECM complexity
- Savings magnitude and risk of underperformance
- Operational sensitivity (flexible operations vs. mission-critical)
- Agency capabilities and staff resources

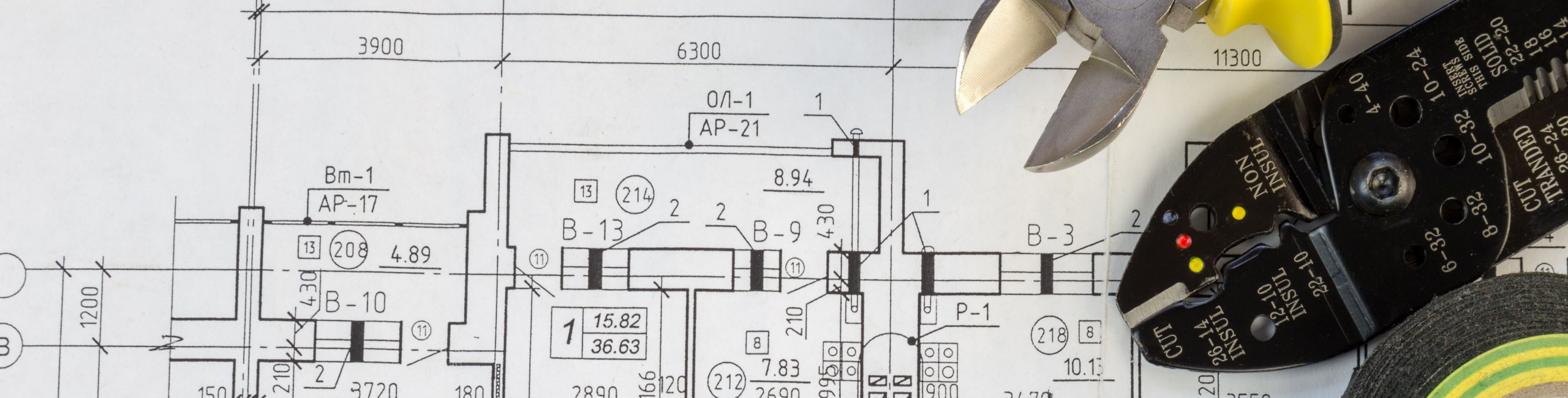
Savings guarantees are not legislatively required for UESCs but may be requested by the agency

- Not all utilities may be able to offer guarantee

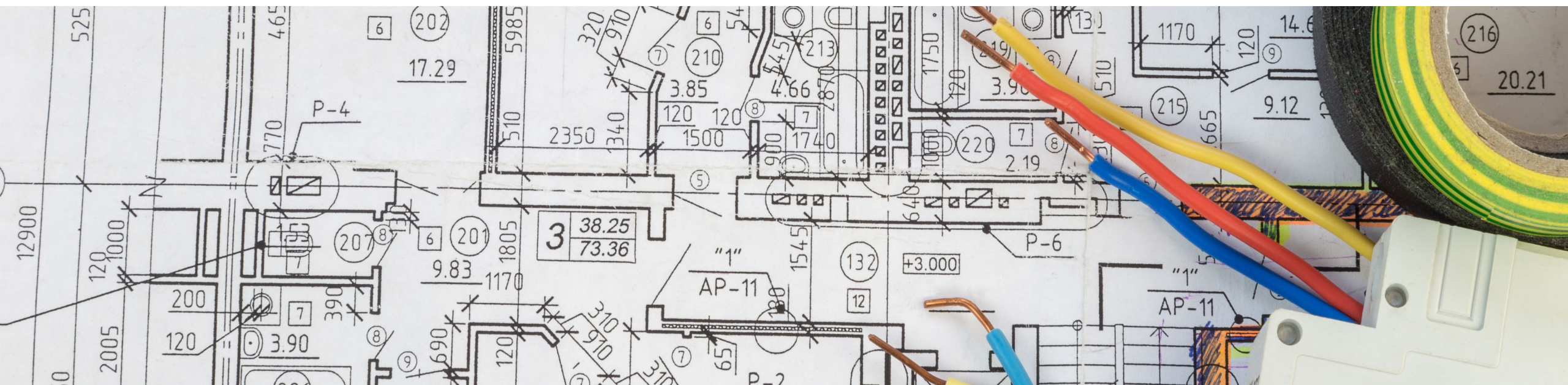
Apply the **right level of rigor to the right measures**—focus resources where performance risk and value are highest

Goal is to balance cost with savings and risk

- **Too little?** Agency may not have assurance or confidence that savings are real
- **Too much?** Project costs increase, which can limit scope
- **Just right!** Adequate for specifics of project and reasonable



The Performance Assurance Plan



Performance Assurance Plan Components

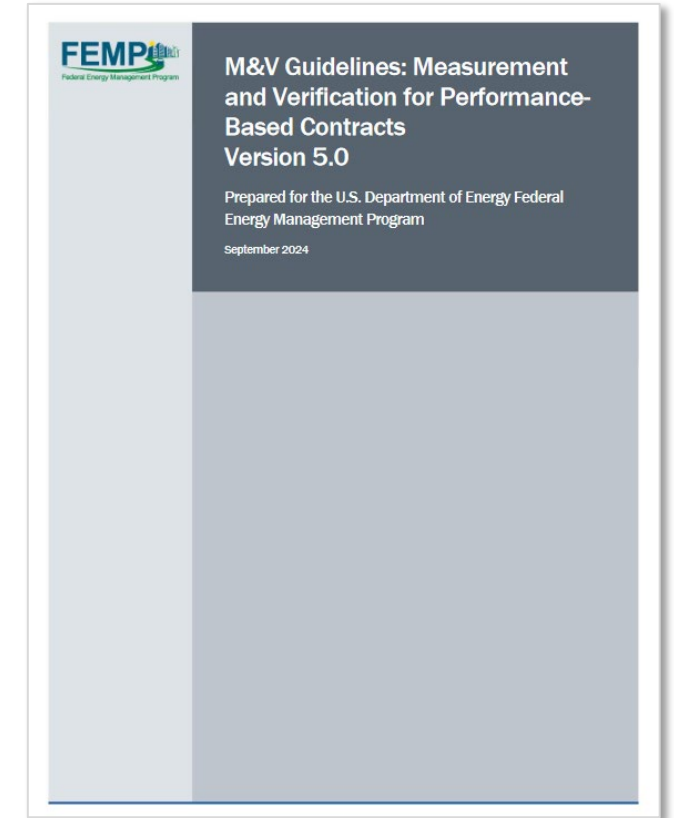
Plan deliverables should be developed specifically for each ECM, and may include some or all the following elements* based on the agency requirements:

- **Commissioning Plan and Reporting**
 - Seasonal commissioning
 - Re-commissioning
- **M&V Plan and Reporting**
 - Energy- and water-use baselines
- **Staff Training Plan**
- **O&M Plan**
- **Repair and Replacement Plan**
- **Warranty Plan**
- Risk, Responsibility, and Performance Matrix (RRPM)
- **Performance Discrepancy Plan**

**These are the more common performance assurance elements, but this is not an exhaustive list*

Measurement and Verification Plan (M&V)

- **The purpose of the M&V Plan:**
 - Accurately assess and monitor ECM performance
 - Reduce risk of lapses in equipment performance
 - Informs the O&M processes
 - Identify the M&V methodology
- **M&V considerations and other factors:**
 - Appropriate to the ECM's complexity
 - Who performs M&V (utility, agency, third-party contractor)
 - Baseline conditions are documented and agreed upon



[FEMP M&V Guidelines Version 5.0](#)

Staff Training Plan

Staff training ensures that agency personnel have the knowledge and skills needed to operate, maintain, and monitor ECMs so that savings persist for the full UESC term

- **Implementation period** – Performance Assurance Plan should document that utility is responsible for delivering training and providing manuals
- **Performance period** – Require refresher training as needed and appropriate for the ECM
- **Agency responsibilities** – Ensure staff participation, integrate training into standard O&M and R&R practices, and maintain institutional knowledge as staff changes occur



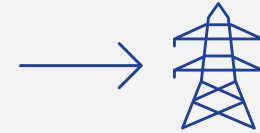
Why Training Matters

ECMs may fail to deliver long-term savings due to operational changes, staff turnover, or lack of system understanding

Operations and Maintenance (O&M) Plan

The O&M Plan defines how ECMs will be operated and maintained over time by the agency or utility

- **Inadequate O&M is one of the leading causes of ECM performance degradation**
- Routine O&M is responsibility of the agency, unless otherwise specified in the contract
- Agency may negotiate O&M to be provided by the utility or third party
- Responsibilities should be negotiated and agreed upon prior to award (with costs reflected in financial schedules)
- Ensure appropriate emergency response plans and procedures are included in the O&M Plan that may affect the site (weather, earthquakes, equipment failure, outages, etc.)
- **Be realistic** – Agencies should only accept responsibilities that they can support



Consider Assigning O&M to Utility when:

- Implementing complex technologies
- Facility has historic problems with deferred maintenance
- Facility has limited staff or high turnover

Repair and Replacement (R&R) Plan

R&R defines preventive/predictive/corrective activities needed to maintain or restore ECM performance over the contract term, including component repairs and end-of-life replacements

- How is it accounted for in a UESC?
 - Planned and budgeted up front during project development
 - Costs are typically included in the financed project cost, **not treated as unexpected expenses**
 - Assumptions based on expected equipment life, operating hours, manufacturer recommendations, and historical failure rates
 - Responsibilities must be clearly documented in the O&M and R&R Plans, including the task order (agency assumes routine O&M and R&R unless otherwise specified)

Condensing Boiler ECM Example

- Expected Life: 15–20 years
- Contract Term: 22 years
- R&R Plan: Utility responsible for one mid-term replacement assumed in year 14 or 19
- Replacement cost included in financed amount
- Key Performance Indicators (including mean time between failures [MTBF], downtime)
- Safety protocols

Warranty Plan

Defines how manufacturer and contractor warranties are documented, managed, and used to protect the agency and support ECM performance

- **Utility Responsibilities**

- Collects and documents all applicable warranties and are reflected in the Warranty Plan
- Ensures warranty requirements are reflected in the O&M and R&R Plans
- Coordinates warranty claims during the warranty period

- **Agency Responsibilities**

- Operates and maintains equipment in accordance with the O&M/R&R Plans (manufacturer specifications and warranty conditions)
- Notifies utility of performance or equipment issues

What a Warranty Plan Typically Includes

- Warranty duration by ECM and component (including extended warranty details, if applicable)
- Covered items (parts, labor, performance)
- Claim procedures and points of contact
- Required operating parameters and maintenance requirements
- Transition plan at warranty expiration

Performance Discrepancy Plan

Defines how performance issues are identified, addressed, and resolved when ECMs do not meet expected performance or savings levels

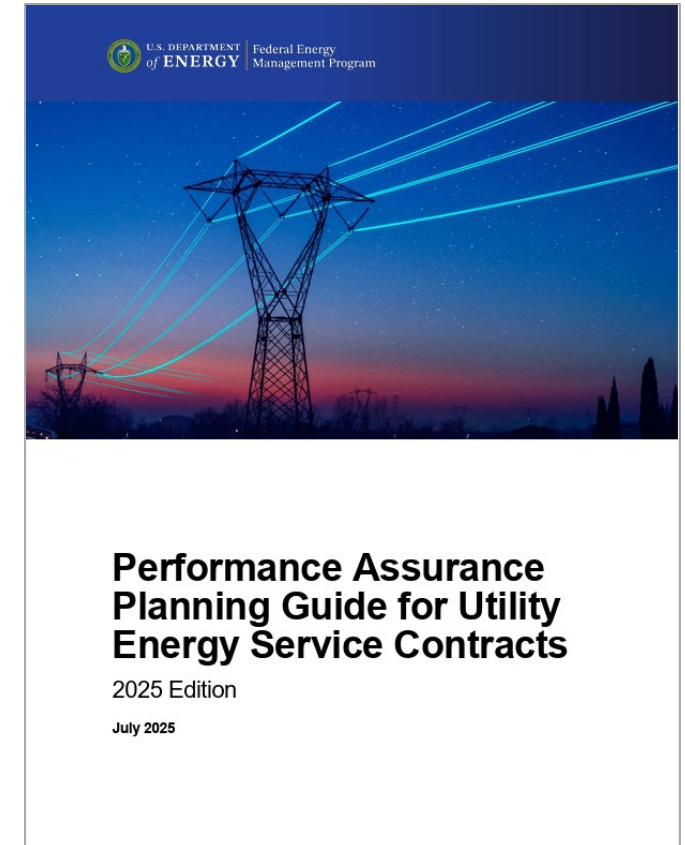
- **Performance shortfalls are expected risks, not failures**
- Plan should clearly identify which party is responsible for taking corrective action when ECMs are not performing as designed
- Helps to reduce disputes, minimize downtime, and preserve agency–contractor relationship
- If not adequately defined in the Plan, agency may not have contractual recourse for holding contractor accountable
 - Withholding payment only an option with a savings guarantee

What a Performance Discrepancy Plan Typically Includes:

- Performance thresholds and triggers
- Notification and response timelines
- Root cause analysis procedures
- Corrective action options
- Verification/documentation that performance is restored

Key Takeaways

- **Stay Informed:** Review [FEMP's updated Performance Assurance Planning Guide](#) to understand new requirements and best practices
- **Communicate and Review:** Notify facilities with projects in development about new guidance and review existing project documentation to address potential gaps or compliance issues
- **Update Processes and Procedures:** Align agency templates, checklists, and review processes with the latest guidance to ensure consistency across projects
- **Train the Team:** Provide refresher training for contracting officer (COs), contracting officer representative/(CORs), and project staff on how the new guidance affects project planning, M&V, and documentation (FEMP can help!)
- **Leverage Support:** Utilize FEMP's experts to help with training and [Technical Assistance](#) for performance assurance



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Wrap Up Discussion and Closing Remarks

Tell Us How FEMP Trainings Reach Your Agency

Training only works if it's reaching the right staff.

Help FEMP understand:

- How your agency identifies training needs
- How training opportunities are communicated internally
- Where FEMP's training could better fit into your existing systems

Your input will help FEMP identify training and communication approaches that better fit your agency's existing workflows.

Takes **less than 5 minutes** to complete.

Scan the QR code or visit the link to share your feedback.



<https://bit.ly/4wuLOCI>

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Thank you!
