

# Welcome to Today's Training on Energy Savings Performance Contracting Basics

Some Organizational Tips Before We Get Started...

- To dial in: 484-589-1011 + your individual access code
- Session will be recorded
- All attendee phone lines will be muted
- Please submit your questions via the “Questions” window
- Questions will be answered at the end of the session
- Presentation slides along with the questions and answers summary will be sent to attendees after the training



## Energy Savings Performance Contracting Basics for State and Local Grantees

September 23, 2010

ARRA EECBG Recipient  
ESPC Webinar Series

# What is TAP?

DOE's Technical Assistance Program (TAP) supports the Energy Efficiency and Conservation Block Grant Program (EECBG) and the State Energy Program (SEP) by providing state, local, and tribal officials the tools and resources needed to implement successful and sustainable clean energy programs.



## TAP offers:

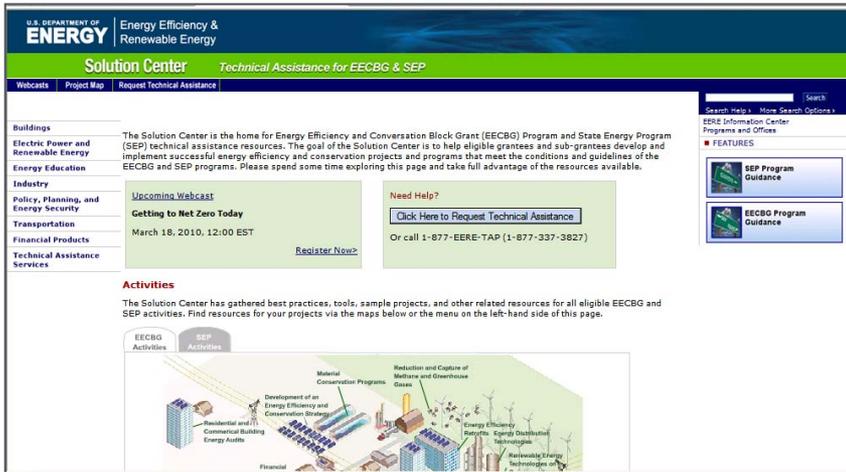
- One-on-one assistance
- Extensive online resource library, including:
  - Webinars
  - Events calendar
  - TAP Blog
  - Best practices and project resources
- Facilitation of peer exchange

## On topics including:

- Energy efficiency and renewable energy technologies
- Program design and implementation
- Financing
- Performance contracting
- State and local capacity building

## We encourage you to:

1) Explore our online resources via the [Solution Center](#)



<http://www1.eere.energy.gov/wip/solutioncenter>

2) Submit a request via the [Technical Assistance Center](#)



[http://www1.eere.energy.gov/wip/solutioncenter/technical\\_assistance.html](http://www1.eere.energy.gov/wip/solutioncenter/technical_assistance.html)

3) Ask questions via our call center at 1-877-337-3827 or email us at [solutioncenter@ee.doe.gov](mailto:solutioncenter@ee.doe.gov)

## Please join us again:

Title: **“Green” Codes and Programs**

Host: J.C. Martel, Southwest Energy Efficiency Alliance

Date: September 24, 2010

Time: 2:00 PM – 3:00 PM EDT

Title: **Designing Effective Renewables Programs**

Host: Cheryl Jenkins, Vermont Energy Investment Corporation

Date: September 28, 2010

Time: 2:00 PM – 3:00 PM EDT

Title: **Driving Demand for Home Energy Improvements: Lessons from the Field**

Host: Sarah Busche, National Renewable Energy Laboratory

Date: September 29, 2010

Time: 3:00 PM – 4:15 PM EDT

Title: **Energy Savings Performance Contracts: Pricing and Financing**

Host: Meg Giuliano, ICF International, Inc.

**Date: October 12, 2010**

**Time: 11:00 AM – 12:30 PM EDT**

For the most up-to-date information and registration links, please visit the Solution Center webcast page at [www.wip.energy.gov/solutioncenter/webcasts](http://www.wip.energy.gov/solutioncenter/webcasts)

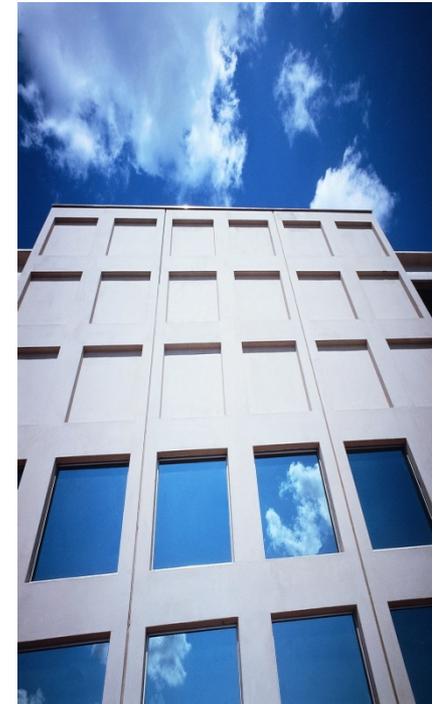


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- Provide subject matter experts and FREE direct technical assistance to Grantees
- Provide technical and other resource materials on DOE's Solution Center
- Develop and perform trainings (workshops and webinars)
- Assist with peer-to-peer information exchange



- ARRA Legal Provisions
- What is an ESPC and what it is NOT?
- Why do an ESPC and how to pay for?
- The ESPC process
- Good ESPC candidates
- ESPC financial basics
- Enabling legislation
- Challenges you may face



- Buy American
- Davis Bacon Act (DBA)
- National Historic Preservation Act (NHPA)
- National Environmental Policy Act (NEPA)



# What Is an ESPC and How Can It Help You?

# What Is an Energy Savings Performance Contract (ESPC)?

- Contract between an Agency and an Energy Service Company (ESCO)
- Method of paying for today's improvements with tomorrow's energy savings
- Mechanism where no up-front capital is required
- Separate financing contract (e.g., net-financing with an interest bearing escrow account)

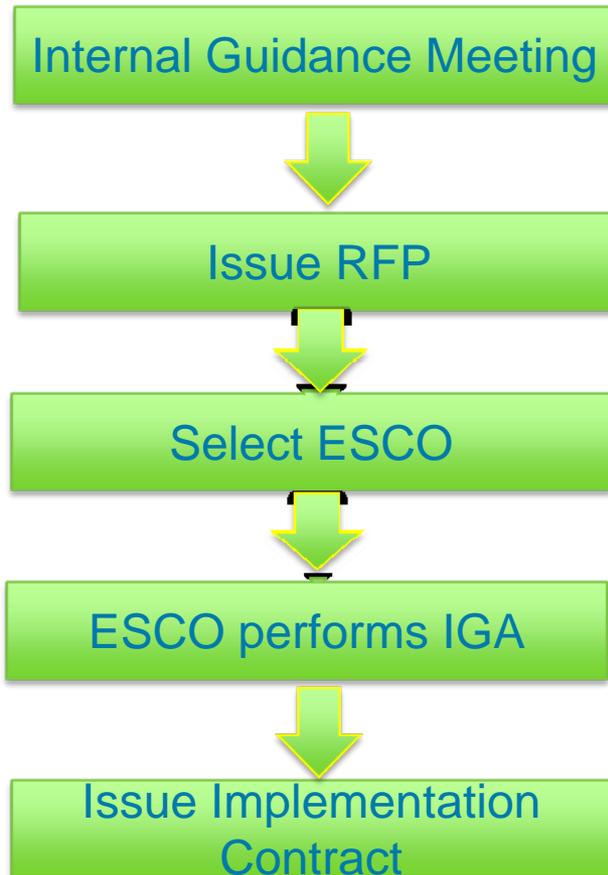


- Construction Contract
- Engineering Services Contract
- Design-Build Contract
- Architectural Services Contract
- Service Contract



# Basic ESPC Flow Chart

## ESPC Process



## Financial Process



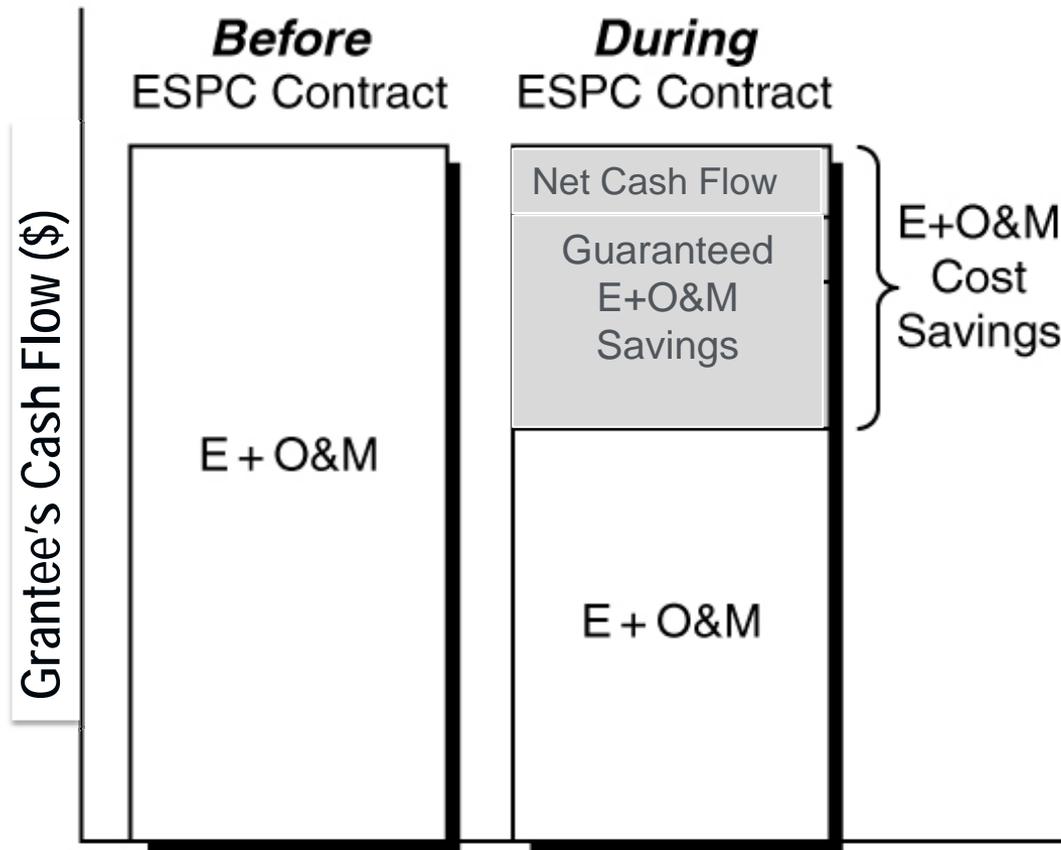
- Facility energy audit
- Facility energy usage statistical analysis
- Architectural design including ADA design and construction
- Mechanical design and construction including plumbing system
- Electrical design and construction
- Civil design including ADA design and construction
- Demolition
- Service
- Maintenance
- Building management system design and installation
- Complete facility commissioning
- Facility maintenance and operator training
- Facility performance measurement & verification
- All jurisdiction's general conditions that apply

- Capital improvement without spending capital dollars
- Save energy, guaranteed
- Lower operating (utility) costs and stabilize budgets
- Handle deferred maintenance (finally)
- Improve indoor air quality, comfort, and productivity
- Avoid the cost of delay
- Leverage EECBG funds



# What pays for an ESPC?

# ESPC Project Cash Flow



Source: FEMP ESPC Training Program

- Long-term partnership
- Agreement on the energy baseline
- Annual savings must exceed annual payments
- ESCO pays in the event of shortfall
  - Savings in future years cannot pay shortfall for earlier years

- Guaranteed project cost
- Guaranteed equipment performance
- ESCO warrants the installed equipment for the payback period of the loan

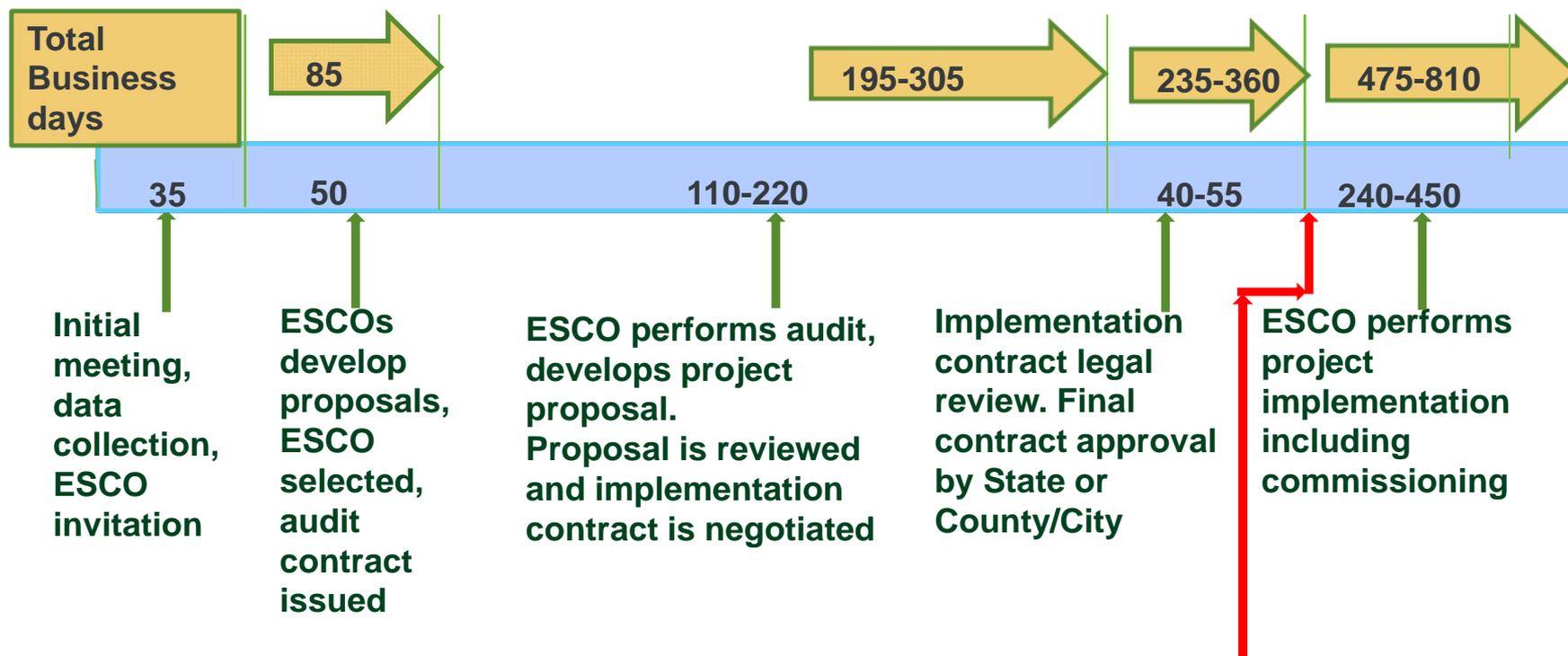


- Time-effective, cost-effective approach for completing facilities energy upgrades
- Future energy savings pays for facility upgrades now
- Guarantee of energy savings
  - Offloads financial and performance risk
- One stop shop = single point of accountability (ESCO)
  - ESCO selected for best value, not lowest bid
- Owner participation in final equipment and subcontractor selection
- Low-interest financing options available
- Annual savings verification done per International Performance Measurement & Verification Protocol (IPMVP)

# The ESPC Process

- Preliminary audit (broad project scope planning)
- Facility owner selects an ESCO
  - RFP
  - Contractor evaluation
- ESCO performs Investment Grade Audit (IGA)
  - Baseline established and agreed to
- ESCO installs and commissions the Energy Conservation Measures (ECMs) selected
  - ESCO guarantees the project cost and energy savings
- ESCO can arrange financing
  - Tax-exempt lease-purchase financing is typical

# ESPC Timeline and Milestones



**Typical earliest funding commitment = 235 days or 47 weeks**

# Good ESPC Candidates

- Deferred Maintenance
- Buildings or facilities with:
  - Energy Use Index (EUI) over 100,000 BTU/sq ft annually
  - Very outdated Energy Management System (EMS), HVAC system, or lighting systems
  - Utility bills over \$500,000 annually
    - Small ESPC projects have difficulty attracting capital due to high transaction costs (to bid, to design, etc.)
- Incandescent traffic signals and street lights

- Energy Management Systems
- Interior and exterior lighting
- Steam distribution system repair
- High efficiency HVAC systems
- Building envelope improvements
- Boiler repair/replacement/efficiency controller
- LED traffic and street light systems
- Water and wastewater treatment plant pumps and motors
- VFDs on motors 5 hp and over



# ESPC Financials Are Important!

- ESCO can, but does not have to, arrange financing
- Tax-exempt lease-purchase financing is typical
- Large project scope is in everyone's interest
  - Owner: Achieves most capital improvement, energy savings
  - ESCO: Lower performance risk
- Separate Financing Contract
  - Net-financing with interest bearing escrow account



# ESPC Cash Flow Analysis

## SAMPLE ESPC CASH FLOW ANALYSIS - NET FINANCING

This Sample spread sheet containing four Tabs depicts an ESPC project that is financed up front, the funds are put into an interest bearing Escrow account, from which payments are made to the ESCO on a monthly basis during the construction period, based on work completed. In this scenario the Lease-Purchase loan is less than what is owed to the contractor because the interest earned on the Escrow account will make up the difference. This is referred to as "Net Financing".

ENERGY PERFORMANCE PROJECT  
Project # 12345

Updated:     date

Finance Details	Amount	Remarks
Lease-Purchase Loan	\$ 18,858,410	
Interest accrued	\$ 998,066	
Escrow Interest Earned	\$ 514,185	See Tab 3
Payback Amount	\$ 19,856,476	See Tab 1
Interest Rate	3.406%	
ESCO Capital Cost	\$ 19,672,595	
Total ESCO award	\$ 27,668,129	Capital cost plus service, M&V and letter of credit for 13 yrs
Capital Funds	\$ -	
Revolving Loan fund Loan	\$ 500,000	includes \$200,000 for SEO Project Management
Period (yrs.)	13	Payments due at the beginning of every 6 month period
Energy Cost Escalation (per yr)	0%	
Labor Cost Escalation (per yr)	2%	

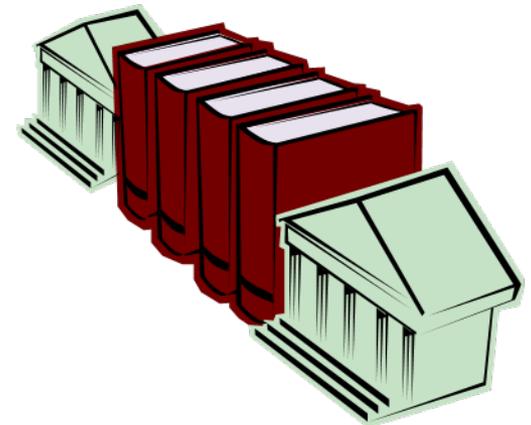
0% interest - 1% admin fee

### CASH FLOW ANALYSIS

Year	Savings			Costs					Total Savings - Total Costs		Net Cash Flow Agency
	ESCO Guaranteed Energy Savings	Service & Contract/Repair Savings	Total Savings	Est. Loan Payment P & I	Revolving Loan Payment	ESCO Service Cost	ESCO M & V	SEO M & V	Guarantee Letter of Credit	Total Agency Costs	
1	\$ 2,392,341	\$ 382,022	\$ 2,774,363	\$ 1,896,641	\$ 70,000	\$ 415,125	\$ 103,698	\$ 50,000	\$ 29,157	\$ 2,564,621	\$ 209,742
2	\$ 2,392,341	\$ 389,662	\$ 2,782,003	\$ 1,896,641	\$ 65,000	\$ 423,428	\$ 105,772	\$ 51,000	\$ 29,157	\$ 2,570,997	\$ 211,006
3	\$ 2,392,341	\$ 397,456	\$ 2,789,797	\$ 1,896,641	\$ 60,000	\$ 431,896	\$ 107,887	\$ 52,020	\$ 29,157	\$ 2,577,601	\$ 212,196
4	\$ 2,392,341	\$ 405,405	\$ 2,797,746	\$ 1,896,641	\$ 55,000	\$ 440,534	\$ 110,045	\$ 53,060	\$ 29,157	\$ 2,584,437	\$ 213,309
5	\$ 2,392,341	\$ 413,513	\$ 2,805,854	\$ 1,896,641	\$ 50,000	\$ 449,345	\$ 112,246	\$ 54,122	\$ 29,157	\$ 2,591,510	\$ 214,344
6	\$ 2,392,341	\$ 421,783	\$ 2,814,124	\$ 1,896,641	\$ 50,000	\$ 458,331	\$ 114,491	\$ 55,204	\$ 29,157	\$ 2,603,824	\$ 210,300
7	\$ 2,392,341	\$ 430,219	\$ 2,822,560	\$ 1,896,641	\$ 45,000	\$ 467,498	\$ 116,781	\$ 56,308	\$ 29,157	\$ 2,611,385	\$ 211,175
8	\$ 2,392,341	\$ 438,823	\$ 2,831,164	\$ 1,896,641	\$ 40,000	\$ 476,848	\$ 119,116	\$ 57,434	\$ 29,157	\$ 2,619,197	\$ 211,968
9	\$ 2,392,341	\$ 447,600	\$ 2,839,941	\$ 1,896,641	\$ 35,000	\$ 486,385	\$ 121,499	\$ 58,583	\$ 29,157	\$ 2,627,265	\$ 212,676
10	\$ 2,392,341	\$ 456,552	\$ 2,848,893	\$ 1,896,641	\$ 35,000	\$ 496,113	\$ 123,929	\$ 59,755	\$ 29,157	\$ 2,640,594	\$ 208,299
11	\$ 2,392,341	\$ 465,683	\$ 2,858,024	\$ 1,896,641		\$ 506,035	\$ 126,407	\$ 60,950	\$ 29,157	\$ 2,619,190	\$ 238,834
12	\$ 2,392,341	\$ 474,996	\$ 2,867,337	\$ 1,896,641		\$ 516,156	\$ 128,935	\$ 62,169	\$ 29,157	\$ 2,633,058	\$ 234,280
13	\$ 2,392,341	\$ 484,496	\$ 2,876,837	\$ 1,896,641		\$ 526,479	\$ 131,514	\$ 63,412	\$ 29,157	\$ 2,647,203	\$ 229,634
14											\$ -
15											\$ -
<b>Total</b>	<b>\$ 31,100,433</b>	<b>\$ 5,608,210</b>	<b>\$ 36,708,643</b>	<b>\$ 24,656,330</b>	<b>\$ 505,000</b>	<b>\$ 6,094,172</b>	<b>\$ 1,522,321</b>	<b>\$ 734,017</b>	<b>\$ 379,041</b>	<b>\$ 33,890,881</b>	<b>\$ 2,817,762</b>

# Don't Allow Legislative and Legal Language to Scare You

- 49 States have enacted ESPC legislation
  - Many different models, not necessarily like federal model
- Local Governments generally covered by State legislation
- Information on state ESPC status
  - [www.ornl.gov/info/esco/legislation/newesco.shtml](http://www.ornl.gov/info/esco/legislation/newesco.shtml)



- Internal stakeholder objections and delays
- Extended negotiations
- Verification of ESCO's cost proposal
- Measurement and Verification (M&V) method selection
- Required maintenance agreements
- Savings reconciliation vs. budget cycle

## Next Steps

The ESPC technical assistance team will reach out to grantees who have stated, in their project summaries, that they are:

- interested in ESPC programs, performance contracting, retrofits, or
- will be implementing an ESPC project:
  - To determine if the projects are good candidates for ESPCs
  - To optimize ESPC projects and goals
  - To discuss the ESPC technical assistance available.

Should you not wish to be contacted or would like additional information, please send an e-mail to [chani.vines@ee.doe.gov](mailto:chani.vines@ee.doe.gov).

## ESPC Technical Assistance Team Contacts

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