

Slides have been updated to reflect the following changes:

- The aggregated limit (or cap) for transformer rebates was removed in September 2023.
- The application deadline for transformer applications is December 8, 2023.
- The matching capacity and phase requirement for transformer replacements was removed in October 2023.

The original webinar was recorded and is posted on the website.

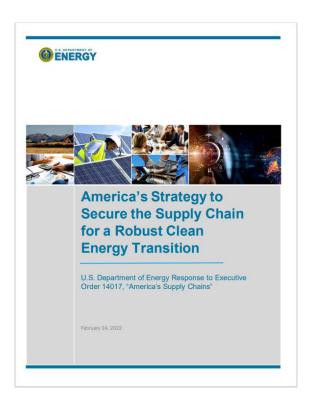


Manufacturing & Energy Supply Chains Office

Dave Howell – Principal Deputy Director August 9, 2023



Executive Order 14017: America's Supply Chains (February 2021–2022)



- The first-ever comprehensive U.S. government strategy to secure our domestic energy supply chains and an Energy Industrial Base
- Lays out dozens of critical strategies and actions to build secure, resilient, and diverse domestic energy supply chains

Deep-Dive Assessment Report Topics

- High-Capacity Batteries 100-Day Report
- Carbon capture materials
- Electric grid including transformers and high voltage direct current
- Energy storage
- Fuel cells and electrolyzers
- Hydropower including pumped storage hydropower
- Neodymium magnets
- Nuclear energy
- Platinum group metals and other catalyst
- Semiconductors
- Solar photovoltaics
- Wind
- Commercialization and competitiveness
- Cybersecurity and digital components

https://www.energy.gov/policy/securing-americas-clean-energy-supply-chain



MESC Mission and Distinctives

Support Scale-Up and Deployment of manufacturing infrastructure critical to the Nation's energy supply to assure a resilient and sustainable energy sector industrial base (ESIB).

- New manufacturing infrastructure to fill critical ESIB gaps
- Manufacturing Facility Upgrades to Reduce Energy Burden and Industrial Base Carbon Emissions
- Develop domestic manufacturing and energy workforce capabilities and resources

Support integrated insights across manufacturing and energy supply chains





Program Offices

Facility and Workforce Assistance Office

Supporting small and medium manufacturing growth, industrial decarbonization, and workforce for energy and manufacturing industries

Primary Stakeholders

- A Broad Group of Industrial Enterprises and Regional Manufacturers
- Academia: Universities, Community Colleges, Technical Schools
- State/Local Governments

Battery and Critical Materials Office

Developing a domestic Batteries and Critical Minerals manufacturing supply chain from cradle to grave and recycling.

Primary Stakeholders

- Upstream and Mid-Stream Mineral Processing, Refining, and Materials Production Enterprises
- Recycling Enterprises
- Focus on
 - Battery materials
 - Rare Earths
 - Platinum Group Metals
 - Other Critical Materials

Analysis and StrategicInvestment Office

Analysis and support to build capabilities across energy technologies and throughout the supply chain for critical components, devices, and systems.

Primary Stakeholders

- Mid-Stream and Down-Stream Components, Device, and Systems Manufacturing Enterprises
- Supply Chain Planning and Forecasting Stakeholders
- Focus Areas: Grid components, Energy Storage, Solar/Wind, Fuel Cells/ Electrolysis, plus others



MESC Program Office Initiatives

Facility and Workforce Assistance

\$1.365 Billion

- FY23 Industrial Assessment Centers (IACs)
 - BIL 40523 IAC Expansions
 - BIL 40521 IAC Implementation grants
- ➤ BIL 40209 Manufacturer and Recycling Grants in Distressed Communities
- ➤ BIL 40534 State Manufacturing Leadership

Battery and Critical Materials

\$6.215 Billion

- ➤ BIL 40207(b) Battery Material Processing Grants
- ➤ BIL 40207(c) Battery Manufacturing and Recycling Grants
- ➤ BIL 40207(f3) Battery Recycling: State/Local Programs
- ➤ BIL 40207(f4) Battery & Crit. Mineral Recycling: Retailer Collection
- ➤ BIL 40205 Rare Earth Demonstration (with FECM)

Analysis and Strategic Investment

\$2.275 Billion

- ➤ BIL 40555 Rebate Program
- > IRA IRS 48C Tax Credits
- ➤ IRA 50143 Manufacturing Conversion Grants
- ➤ IRA Defense Production Act (DPA)
- > FY23 Technical Assistance Modeling, Mapping, and Analysis



Stay connected: MESC activities and opportunities

Join the MESC Newsletter

Stay in Touch! Sign up to receive MESC Updates via the QR code below and/or contact our team by emailing MESC@hq.doe.gov.



Defense Production Act (DPA) Authority

DPA Title III – Expediting production and deliveries or services: "To reduce current or projected shortfalls of industrial resources, critical technology items, or essential materials needed for national defense purposes"

In June 2022, Pres. Biden invoked DPA §303 to provide **DOE** with **DPA Authority to invest in American manufacturing in five technology families**:

- Transformers and electric grid components
- Clean hydrogen
- Solar components
- Insulation
- Heat pumps

A March 2023 summary of responses received to a DOE DPA Request for Information (RFI) across technology areas is available at: https://www.energy.gov/mesc/enhanced-use-defense-production-act-1950

While appropriations to date were directed specifically to heat pumps, DOE/MESC is prepared to continue supporting transformers and electric grid components as funds are available.







www.energy.gov/mesc



Thank you.





MESC

OFFICE OF MANUFACTURING AND ENERGY SUPPLY CHAINS

Transformer and EPS Rebate Programs

DEPARTMENT OF ENERGY OFFICE OF MANUFACTURING AND ENERGY SUPPLY CHAINS

OFFICE OF MANUFACTURING AND ENERGY SUI



Program Overview

Extended Product System (EPS) Rebate Program

- Section 40555(1) Infrastructure Investment and Jobs Act (BIL)[†]
- EPSs are combinations of electric motors, electronic control, and driven load (e.g., pumps, fans, and compressors).
- \$10 million in rebates for purchases of EPS or incorporation of EPS in equipment placed back into service in 2021 and 2022.

<u>Transformer Rebate Program</u>

- BIL section 40555(2)[‡]
- \$10 million in rebates for purchases of efficient distribution transformers that replace inefficient distribution transformers.



| TRANSFORMERS



| Transformer Qualified Entities and Eligibility Window

A Qualified Entity means an owner of industrial or manufacturing facilities, commercial buildings, or multifamily residential buildings; a utility; or an energy service company that fulfill the requirements of the rebate program.

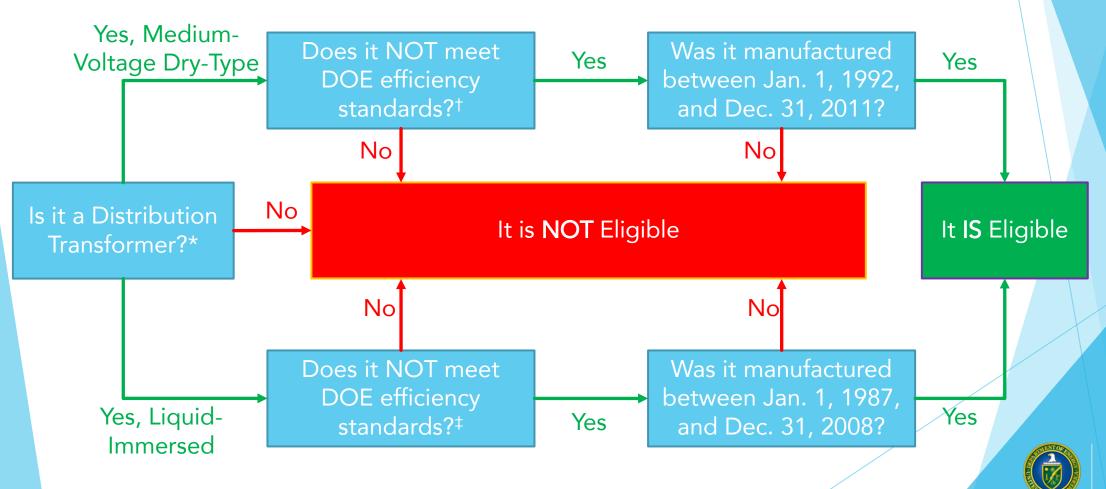
Any qualified entity that is the purchaser of a qualified energy efficient transformer who has replaced a qualified inefficient transformer may apply for a rebate for current, future, or past replacements.

Rebates will be distributed based on when applications are received with additional preference given to applicants that are replacing a qualified energy inefficient transformer in a disadvantaged community, until the exhaustion of funds.



| Qualified Energy *Inefficient* Transformers

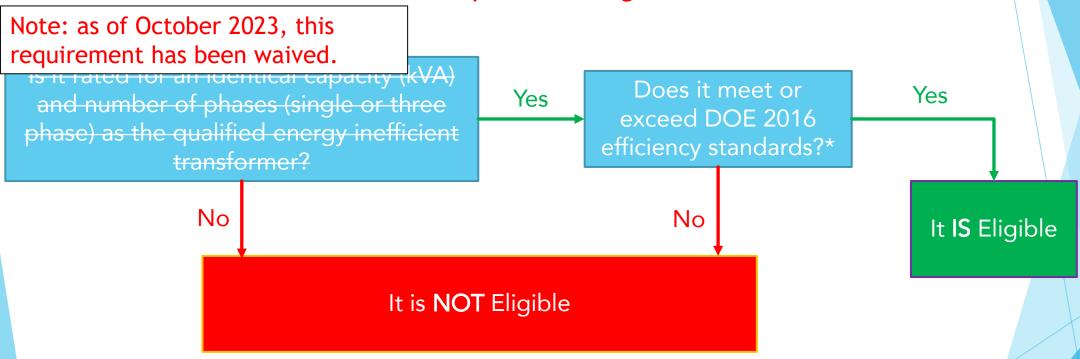
See statute and implementation guidance for full details



* 10 CFR 431.192

| Qualified Energy *Efficient* | Transformers

See statute and implementation guidance for full details





| Transformer Rebate Calculation

The rebate per transformer (R_T) is \$2 multiplied by the difference in core loss (in Watts) between the replaced energy inefficient transformer (L_i) and the installed energy efficient transformer (L_e).

$$R_{T}(\$) = 2 \cdot (L_i - L_e)$$

For example, if the replaced transformer has a core loss of 2,026 W and the new transformer has a core loss of 680 W, the total rebate would be \$2,692.

$$R_{T}(\$) = 2 \cdot (2,026 - 680) = \$2,692$$

Note: as of September 2023, this cap has been waived.

Entities may initially receive up to a \$25,000 cap in aggregate transformer rebates, which may be raised at DOE's discretion.

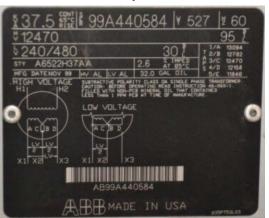


| Transformer Submission Requirements

See statute and implementation guidance for full details

- 1. Description of the applicant.
- 2. Evidence the decommissioned transformer is qualified and has been decommissioned and scrapped.
- 3. Evidence the replacement transformer is qualified.
- 4. Executive officer signature certifying application accuracy.

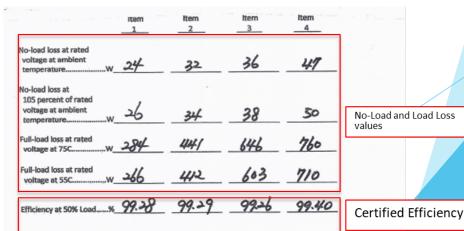
Nameplate



Proof of Purchase



Efficiency Certification



EXTENDED PRODUCTS SYSTEMS



| EPS Qualified Entities and Eligibility Window

A Qualified Entity is either:

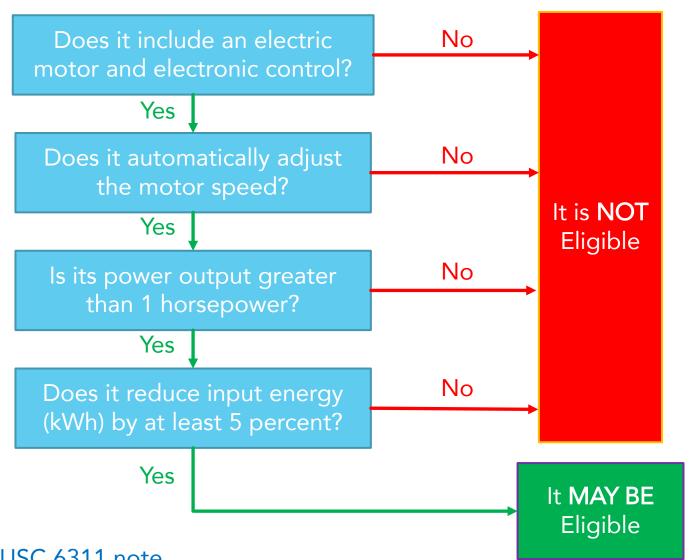
- The purchaser of a qualified, installed EPS; or
- The owner of redesigned machinery or equipment that did not previously use an EPS who incorporates an EPS into that machinery or equipment

Rebates will be distributed based on when applications are received, until the exhaustion of funds.



General EPS Qualifications

See statute and implementation guidance for full details





Product Requirements

See statute and implementation guidance for full details

Table 2: Air Compressor Qualifying Criteria

Equipment class	Qualifying Criteria Minimum package isentropic efficiency	η _{Regr} (package isentropic efficiency reference	d (percentage loss reduction)
		curve)	
Rotary, lubricated, air-	$\eta_{\text{Regr}} + (1 - \eta_{\text{Regr}}) *$	$-0.01549 * ln^{2}(0.4719 *$	5
cooled, variable-speed	(d/100)	V_1) + 0.21573 * $ln(0.4719)$	
compressor		$* V_1) + 0.00905$	
Rotary, lubricated,	$0.02349 + \eta_{Regr} + (1 -$	-0.01549 * ln ² (0.4719 *	5
liquid-cooled, variable-	η_{Regr}) * (d/100)	V_1) + 0.21573 * $ln(0.4719)$	
speed compressor		$*V_1) + 0.00905$	

Note: V_1 = full-load actual volume flow rate, in cubic feet per minute ("cfm")

Table 3: Fan Qualifying Criteria

Fan Equipment Family	Qualifying Criteria Minimum <i>FEI</i>
Axial inline fan	1.20
Centrifugal housed fan	1.15
Centrifugal unhoused fan	1.25
Centrifugal inline fan	1.10
Axial panel fan	1.25
PRV	1.10
Radial housed fan	1.15

Table 1: Pump Qualifying Criteria

Equipment Class*	Qualifying Criteria Maximum <i>PEI_{VL}</i>	Qualifying Criteria Minimum <i>ER**</i>
ESCC.1800.VL	0.48	52
ESCC.3600.VL	0.46	54
ESFM.1800.VL	0.46	54
ESFM.3600.VL	0.48	52
IL.1800.VL	0.46	54
IL.3600.VL	0.45	55
RSV.1800.VL	0.46	54
RSV.3600.VL	0.43	57
ST.1800.VL	0.53	47
ST.3600.VL	0.53	47

*Equipment class designations consist of a combination (in sequential order separated by periods) of: (1) An equipment family (ESCC = end suction close-coupled, ESFM = end suction frame mounted/own bearing, IL = in-line, RSV = radially split, multi-stage, vertical, in-line diffuser casing, ST = submersible turbine; all as defined in section III; (2) nominal speed of rotation (1800 = 1800 rpm, 3600 = 3600 rpm); and (3) VL = variable load.



^{**} ER = $(1-PEI_{VL})*100$

| EPS Rebate Calculation

The rebate per EPS (R_E) is \$25 multiplied by the sum of the nameplate rated horsepower of the electric motor (P_m) and the electronic control (P_c).

$$R_E(\$) = 25 \cdot (P_m + P_c)$$

Entities may receive up to a \$25,000 cap in aggregate EPS rebates per calendar year.

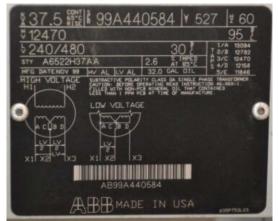


EPS Submission Requirements

See statute and implementation guidance for full details

- 1. Description of the applicant.
- 2. Evidence the EPS is qualified.
- 3. Executive officer signature certifying application accuracy.

Nameplate



Proof of Purchase





| Additional Information

Questions: DOERebates@icf.com

Application Portal: https://doerebates.my.site.com/rebates/s/?language=en_US

EPS Program: https://www.energy.gov/mesc/extended-product-system-rebates

Transformer Program: https://www.energy.gov/mesc/energy-efficient-transformer-rebates

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Agenda

- Rebates Portal Overview
- Registration Overview
- Live Registration Demo
- Rebate Application Overview
 - Energy Efficient Transformer Rebates Program
 - Extended Product System Rebates Program
- Recap





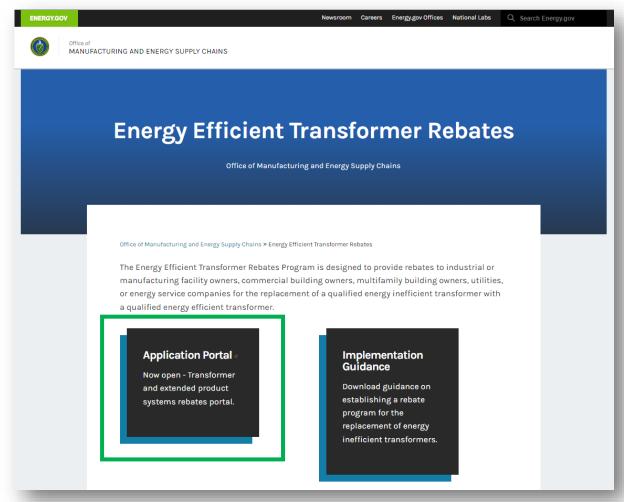


Rebate Portal Overview

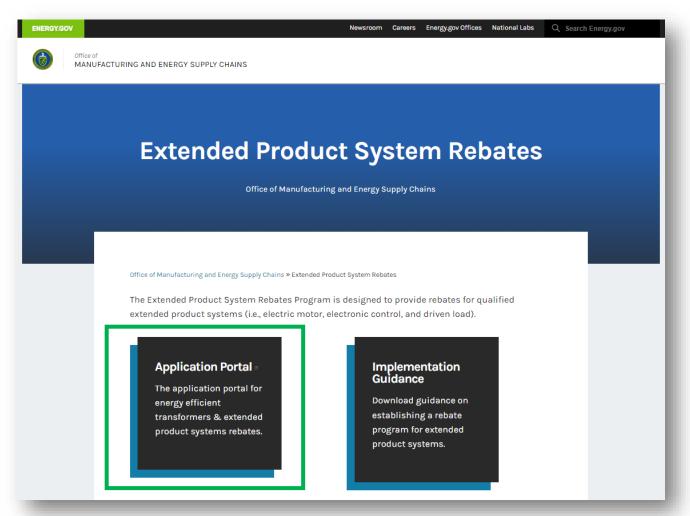


Accessing the Rebates Portal

• The energy efficient transformers and EPS rebates portal (doesness: can be accessed anytime through the DOE MESC website:



https://www.energy.gov/mesc/energy-efficient-transformer-rebates



https://www.energy.gov/mesc/extended-product-system-rebates



DOE Rebates Portal Overview

- Single rebates portal for the two DOE MESC rebate programs (https://doerebates.my.site.com/rebates)
 - Energy Efficient Transformer Rebates Program
 - Extended Product System Rebates Program

Two step process:

- Register: Organization submits one-time registration to the Portal.
- 2. Apply: After confirming eligibility, organization will be able to submit rebate applications through the Portal.
- Applicants may visit the portal to check the application status and receive program updates.
- ICF helpdesk email for any questions or technical support on the registration or application process:



doerebates.my.site.com/rebates



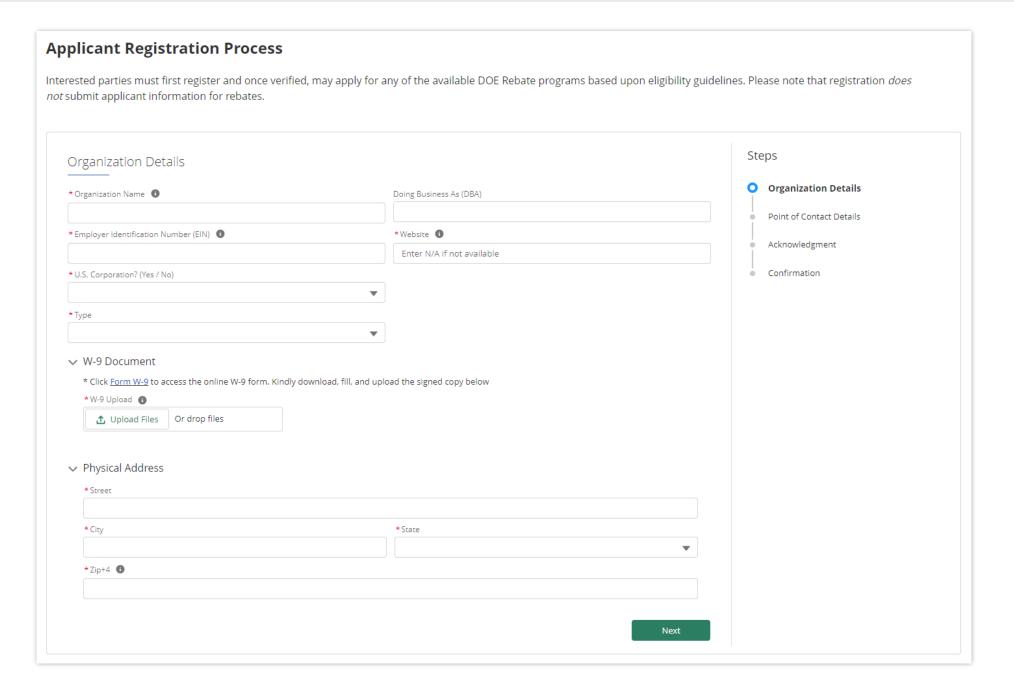




Registration Overview

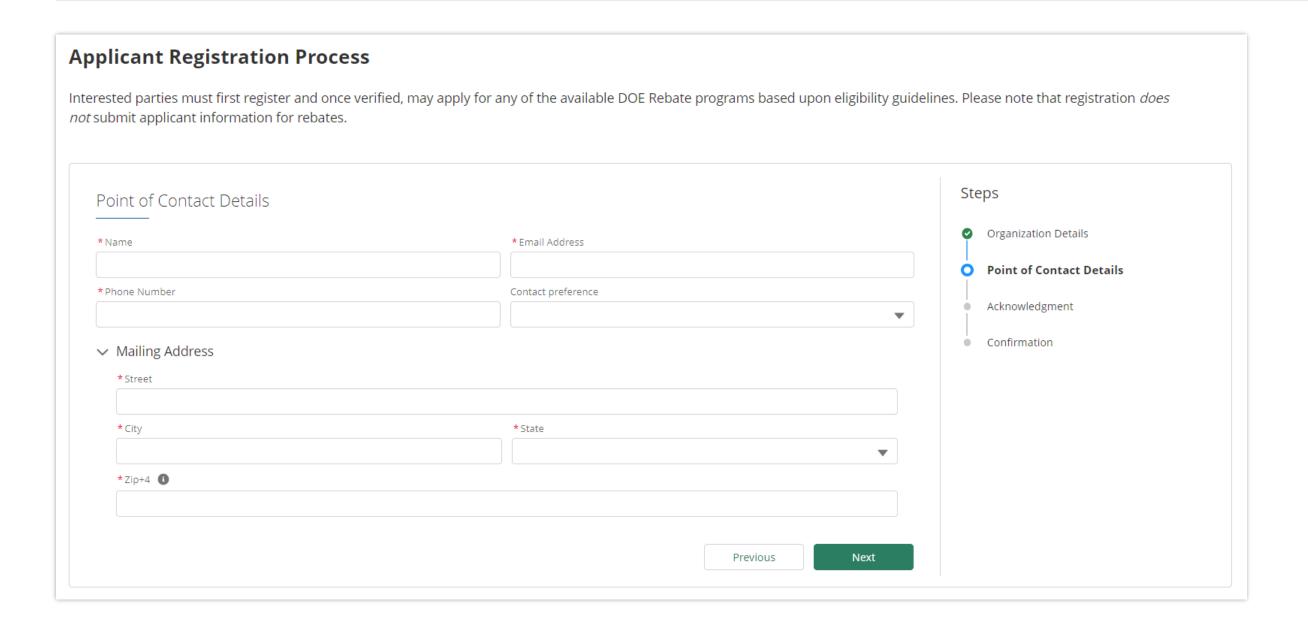


Registration Process: Organization Details (input screen 1 of 3)



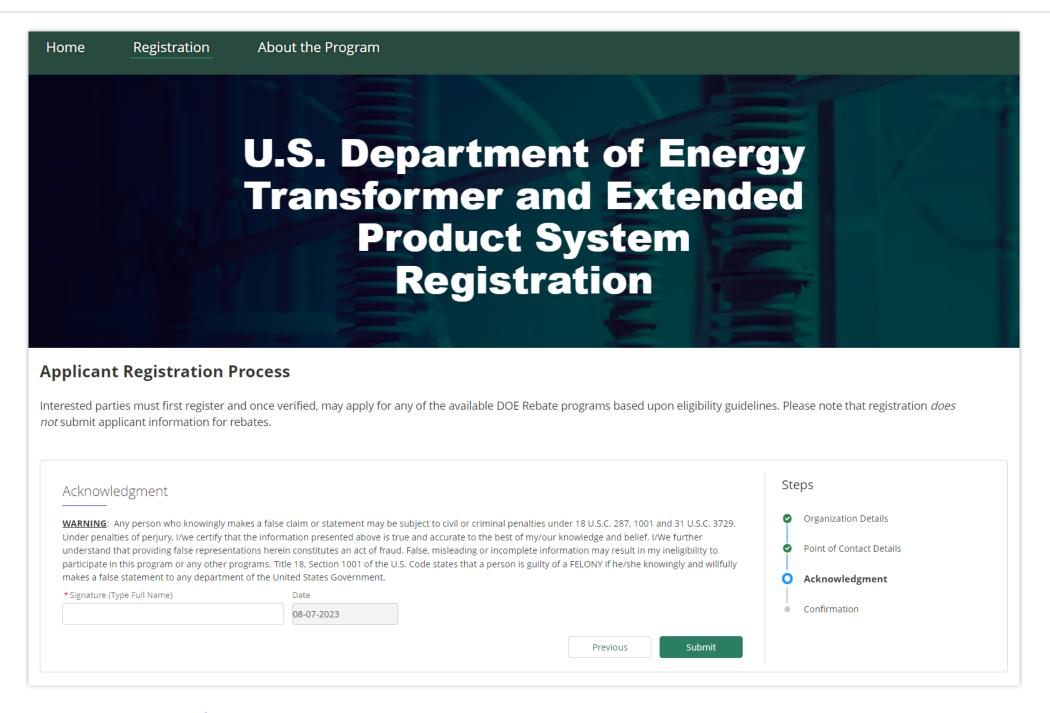


Registration Process: Point of Contact Details (input screen 2 of 3)



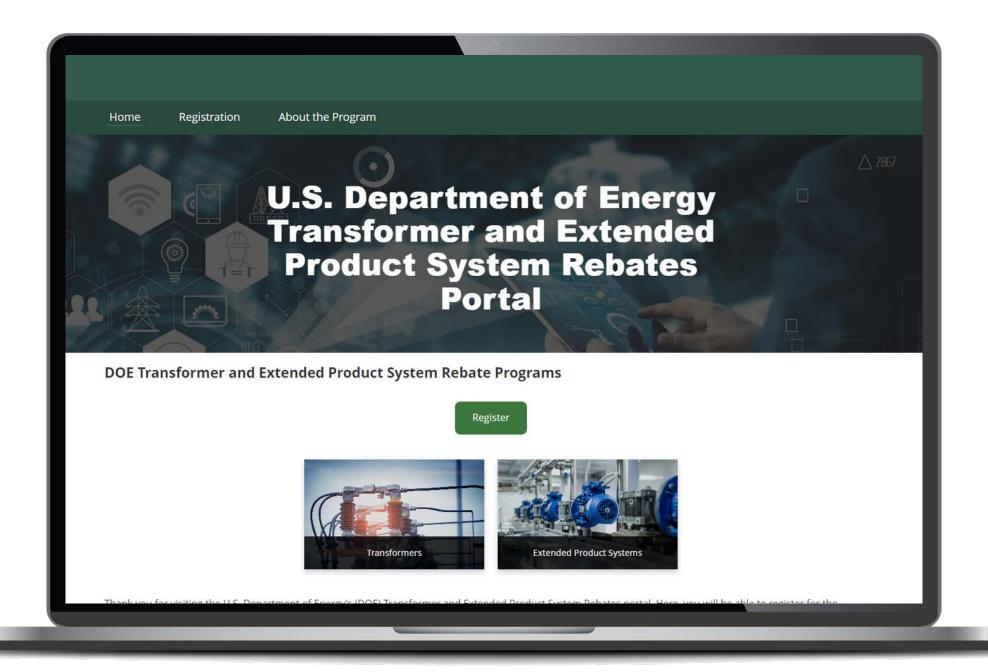


Registration Process: Acknowledgement (input screen 3 of 3)





Rebates Portal Live Demo (5 min)





Organization Registration Vetting and Applications

Eligibility validation may include:

- Applicants are organizations (not individuals)
- Employer Identification Number (EIN) will be checked to match IRS records
- Check to ensure organization is not a sanctioned entity by the U.S. Treasury Office of Foreign Assets Control (OFAC)
- Consistent organizational details between provided EIN and SAM.gov Unique Entity ID (UEI, if provided)
- After confirming organizational eligibility, registrants will be emailed instructions to log into the application portal to submit rebate applications.







Rebate Application Overview



Energy Efficient Transformer Rebates Program Extended Product System Rebates Program

Energy Efficient Transformer Rebate Applications: What You Will Need

Complete details can be found in the DOE Implementation Guidance document: https://www.energy.gov/mesc/energy-efficient-transformer-rebates

REQUIRED PRODUCT INFORMATION

(For qualified energy efficient transformers AND decommissioned inefficient transformers)

- Model number and serial number
- Year of manufacture
- kVA rating and voltage ratings
- Number of phases (1 or 3)
- Transformer type
 - Dry-type distribution
 - Liquid-immersed distribution
- For dry-type transformers, need Basic Impulse Level (BIL) rating
- Transformer core type
 - Amorphous electrical steel
 - Grain-oriented electrical steel

Note: as of October 2023, this requirement has been waived.

• Copy or image of transformer nameplate

REQUIRED DOCUMENTATION

(For purchase of qualified energy efficient transformer)

- Purchase date
- Installation Date
- Location of installation
 - Zip code and census tract
- Proof of eligible purchase
 - Copy of invoice/proof of payment of qualified energy efficient transformer
 - Certification that product is DOE compliant, including basic and individual model number
- Receipt or statement from manufacturer on transformer
 - Efficiency
 - Core loss value
 - Load loss value
 - Full-load loss value at the rated temperature
- Signed statement from authorized officer certifying that information in application is accurate

Rebates will be available until December 31, 2023, or until funds are exhausted.



Note: applications must be submitted by December 8, 2023.

Extended Product System Rebate Applications: Air Compressors What You Will Need

Complete details can be found in the DOE Implementation Guidance document: https://www.energy.gov/mesc/extended-product-system-rebates

REQUIRED PRODUCT INFORMATION

(For qualified extended products: air compressors)

- Manufacturer, model number, and serial number
- Confirmation that air compressor meets qualifications and includes an electric motor (≥1 hp) with electronic controls
- Horsepower of electric motor (on nameplate)
- Confirmation that air compressor will operate
 - At least 2,000 hours/year and
 - At least 75% of the time at or below 70% of the full-load actual volume flow rate
- For purchasers of qualified air compressors, include the qualifying isotropic efficiency
- For owners of redesigned commercial/industrial machinery or equipment, provide description of prior controls and statement confirming they have been removed or disabled
- Copy or image of air compressor nameplate

REQUIRED DOCUMENTATION

(For qualified extended products: air compressors)

- Purchase date
- Installation date and copy of proof of installation (e.g., receipt/invoice/contract)
- Location of installation
 - Zip code and census tract
- Proof of eligible purchase
 - Copy of invoice/proof of payment of qualified extended product air compressor
 - Certification that product is DOE compliant, including basic and individual model number
- For purchasers, copy of manufacturer specification sheets including model number and efficiency rating (isotropic efficiency)
- Signed statement from authorized executive officer certifying that information in application is accurate



Extended Product System Rebate Applications: Fans What You Will Need

Complete details can be found in the DOE Implementation Guidance document: https://www.energy.gov/mesc/extended-product-system-rebates

REQUIRED PRODUCT INFORMATION

(For qualified extended products: fans)

- Manufacturer, model number, and serial number
- Confirmation that fan meets qualifications and includes an electric motor (≥1 hp) with electronic controls
- Horsepower of electric motor (on nameplate)
- Confirmation that fan will operate
 - At least 2,000 hours/year and
 - At least 75% of the time at or below 75% of the maximum design flow
- For purchasers of qualified fans, include the Fan Energy Index (FEI)
- For owners of redesigned commercial/industrial machinery or equipment, provide description of prior throttling or bypass devices and a statement confirming they have been removed or disabled
- Copy or image of fan nameplate

REQUIRED DOCUMENTATION

(For qualified extended products: fans)

- Purchase date
- Installation date and copy of proof of installation (e.g., receipt/invoice/contract)
- Location of installation
 - Zip code and census tract
- Proof of eligible purchase
 - Copy of invoice/proof of payment of qualified extended product fan
 - Certification that product is DOE compliant, including basic and individual model number
- For purchasers, copy of manufacturer specification sheets including model number and Fan Energy Index (FEI)
 - Include documentation supporting the qualified FEI was calculated and verified according to AMCA 214–21



Extended Product System Rebate Applications: Pumps What You Will Need

Complete details can be found in the DOE Implementation Guidance document: https://www.energy.gov/mesc/extended-product-system-rebates

REQUIRED PRODUCT INFORMATION

(For qualified extended products: pumps)

- Manufacturer, model number, and serial number
- Confirmation that pump meets qualifications and includes an electric motor (≥1 hp) with electronic controls
- Horsepower of electric motor (on nameplate)
- Confirmation that pump will operate
 - At least 2,000 hours/year and
 - At least 75% of the time at or below 75% of the maximum design flow
- For purchasers of qualified pumps, include the variable load pump energy index (PEIVL)
- For owners of the redesigned commercial/ industrial machinery or equipment, provide description of prior throttling or bypass devices and statement confirming they have been removed or disabled
- Copy or image of pump nameplate

REQUIRED DOCUMENTATION

(For qualified extended products: pumps)

- Purchase date
- Installation date and copy of proof of installation (e.g., receipt/invoice/contract)
- Location of installation
 - -Zip code and census tract
- Proof of eligible purchase
 - Copy of invoice/proof of payment of qualified extended product pump
 - Certification that product is DOE compliant, including basic and individual model number
- For purchasers, copy of manufacturer specification sheets including model number and variable load pump energy index (PEIVL)
 - Include a copy of the pump energy rating label or certificate



Recap

- Rebates Portal is now open for registration:
 - Energy Efficient Transformer Rebates Program
 - Extended Product System Rebates Program
- Transformers: Entities may initially receive up to a \$25,000 cap in aggregate transformer rebates, which may be raised at DOE's discretion.
 - DOE program page: energy.gov/mesc/energy-efficient-transformer-rebates.
- Extended Product Systems (EPS): Entities may receive up to a \$25,000 cap in aggregate EPS rebates that will be distributed based on when applications are received, until the exhaustion of funds.
 - DOE program page: energy.gov/mesc/extended-product-system-rebates.

Thank you for visiting the U.S. Department of Energy's (DOE) Transformer and Extended Product System Rebates portal. Here, you will be able to register for the Website and program administered by ICF Incorporated under DOE BPA Award 89303023ASE000001 doerebates.my.site.com/rebates

Note: as of September 2023,

this cap has been waived.

Any questions? Please email DOERebates@icf.com

DOE Transformer and Extended Product System Rebate Programs

U.S. Department of Energy

Transformer and Extended

Product System Rebates

Portal

Go to the Portal now to register your organization and then submit your application(s)!





Portal URL:

doerebates.my.site.com/rebates

Any questions, please email:

DOERebates@icf.com

in linkedin.com/company/icf-international/

twitter.com/icf

f https://www.facebook.com/ThisIsICF/

icf.com

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