

The Department of Energy's EITPIC Prize Competition

Electricity Industry Technology and Practices Innovation Challenge

OFFICIAL RULES

The U.S. Department of Energy's (DOE's) Office of Electricity (OE) *Electricity Industry Technology and Practices Innovation Challenge (EITPIC)* aims to further technology advancement and utilization by identifying opportunities to utilize technology that will creatively transform current electric utility industry practice(s).

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A. CHALLENGE SUMMARY

1. INTRODUCTION AND BACKGROUND

The U.S. electricity sector is facing unprecedented changes.^{1,2} Increasingly sophisticated cyber and physical technologies, evolving customer and societal expectations, and electric industry restructuring have created a range of challenges and opportunities in how the electricity system is managed and operated today. Some of these changes are at the wholesale (i.e. bulk-power generation and transmission) level, some are at the retail (distribution and customer/end-use) level, and some at the transmission and distribution interface.

Electricity sits at the center of our nation's economy and way of life. Even small disruptions are felt across society with consequences that can cascade to other critical infrastructures, such as the health, communications, transportation, water, and financial sectors.

The electricity sector is now more than 100 years old, built on a patchwork of complex operating and planning practices and procedures. This patchwork evolved over time to ensure the safe and reliable business of generating and delivering electricity, contributing to the electricity system's robustness. However, conventional approaches to deal with the accelerating pace of change may be inadequate given future challenges, such as the rapidly growing interdependence of natural gas and electricity.

The Department of Energy (DOE) seeks to build off of the electricity sector's current transformation efforts and drive fundamental shifts in how the electricity system is managed and operated in the future by issuing the Electricity Industry Technology and Practices Innovation Challenge. Prizes will be awarded to contestants who have identified technologies or practices that can be used or changed to advance bulk power system (BPS) performance.

2. CHALLENGE FOCUS AND SCOPE

The Challenge will *focus* on developing technologies and/or solutions that can improve grid operations by addressing vulnerabilities; countering emergent threats; mitigating fuel delivery infrastructure interdependencies; enhancing grid reliability; or achieving greater system resilience.

¹ Staff Report to the Secretary on Electricity Markets and Reliability, U.S. Department of Energy, August 2017.

² Transforming the Nation's Electricity System: The Second Installment of the Quadrennial Energy Review, Summary for Policymakers, January 2017, and U.S. Department of Energy.

These technologies or practices address five key areas of interest of the nation's electricity system:

- Cyber and physical risk mitigation;
- Operational efficiency;
- Reliability and resilience;
- Facilitation of emergency response and recovery; and
- Safety.

The *scope* of technologies and/or solutions to be considered for the Challenge are those that affect the planning, construction, and/or operations of the BPS.

In addition, due to its importance to the reliability and resilience of the BPS, fuel delivery infrastructure (interdependent with electric generation) is considered in scope.

To be considered in scope, any proposed technologies or solutions for fuel delivery infrastructure must have both a direct and substantial effect on the reliability and resilience of the BPS. Examples of electric-fuel delivery infrastructure interdependency include, but are not limited to: natural gas delivery for electric generation, river and truck transport for oil used in dual-fuel electric generation, and water access for hydropower.

Definitions

Bulk [electric] power system (BPS): A bulk power system is a large interconnected electrical system made up of generation and transmission facilities and their control systems. A BPS does not include facilities used in the local distribution of electric energy.³

Procedures: In the electric power industry, a widely-adopted voluntary standard (*e.g.*, National Electrical Safety Code specifications on conductor line spacing); an informal yet widely adopted industry practice.

Participant: An individual or entity applying to the prize competition

Winner: An individual or entity selected to receive a prize under this prize competition.

Authority

DOE will utilize the Challenge authority contained in Section 24 of the Stevenson-Wydler Technology Innovation Act of 1980 (Pub. L. No. 96-480), as amended by section 105 of the America COMPETES Reauthorization Act of 2010 (Pub. L. No. 111-358) (the COMPETES Act³) and section 401 of the American Innovation and Competitiveness Act (Pub. L. No. 114-329) (codified at 15 U.S.C. § 3719) to administer and award the prize.

³ P. 6, definition effective 7/1/16, "Glossary of Terms Used in NERC Reliability Standards," Updated July 3, 2018, North American Electric Reliability Corp., https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf

3. PRIZES TO WIN AND PRIZE STRUCTURE

The Challenge offers up to \$1 million in total prizes to up to 25 Winners.

The prizes will be awarded to selectees in two (2) Tiers based on the submitter's application:

- Valid Tier 1 submissions will be eligible to receive:
 - Gold Award (\$100,000)
 - Silver Award (\$50,000)
 - Bronze Award (\$35,000)

- Valid Tier 2 submissions will be eligible to receive:
 - Gold Award (\$25,000)
 - Silver Award (\$20,000)
 - Bronze award (\$15,000)

Distinguishing characteristics of a Tier 1 submission, as compared to a Tier 2 submission, include the following:

- A Tier 1 submission is expected to demonstrate a more complex idea than a Tier 2 submission.
- A Tier 1 submission is expected to demonstrate a higher level of maturation than a Tier 2 submission.
- The viability of a Tier 1 idea is expected to be more thoroughly validated and demonstrated than the viability of a Tier 2 idea.

It is at the sole discretion of the Participant to determine if the idea should be entered as a Tier 1 versus Tier 2 submission. Refer to Section B.2 Submission Specifics of this document for detailed requirements for Tier 1 versus Tier 2 submissions.

Tier 1 Winners may be provided a future opportunity to present their idea(s) either in-person or remotely to DOE and other energy sector stakeholders.

A successful Challenge entry shall describe:

- 1) the technology (if any) or practice that is currently used in the BPS,
- 2) why that technology or practice should be changed,
- 3) how the technology or practice should be changed, and
- 4) the benefits of that change.

If the innovation obviates the rationale for a specific practice or procedure, the Participant shall identify the practice or procedure, the impact of that practice or procedure, and how the innovation would make that practice or procedure obsolete.

If the innovation addresses a technology or practice in fuel delivery infrastructure interdependencies with the BPS, that interdependency must be identified and described, and the Participant shall address how making that change will affect the BPS.

Examples of responsive Challenge entries include, but are not limited to, innovations that:

- Gather and interpret data to enable faster, more accurate operational decisions;
- Deliver high-quality post-event intelligence to accelerate recovery operations;
- Maximize the value of reserve margins;
- Upgrade transmission line infrastructure in existing corridors with minimal disturbance or need to alter rights-of-way;
- Reduce, eliminate, or otherwise streamline a current, more expensive capital or operating expenditure, including through the use of information and communications technologies;
- Integrate the increasingly just-in-time nature of real time operations into long-term bulk-power planning;
- Reduce or mitigate fuel-security risk for electric generation;
- Maintain reliable and resilient operations under a situation when system or asset data are incomplete or inconsistent; and
- Ensure that a fault on a portion of the system can be both detected and mitigated in a timely way that prevents harm to personnel or equipment on that system.

DOE may elect not to select an idea if DOE is aware that the idea is already being considered or developed.

4. IMPORTANT DATES AND DEADLINES

Participants must register at <https://www.netl.doe.gov/OEElectricityChallenge> by 8:00 PM Eastern Time (ET) on April 26, 2019 to submit an entry. Participants will receive submission instructions via email (email could take up to one business day) once registration is complete. Entries must be submitted by 8:00 PM Eastern Time (ET) on April 30, 2019.

Prize Competition Announced:	January 24, 2019
Registration Begins:	February 4, 2019
Registration Deadline:	April 26, 2019 at 8:00 PM ET
Question Submission Deadline:	April 26, 2019 at 8:00 PM ET
Submission Entry Deadline:	April 30, 2019 at 8:00 PM ET
Winners Announced:	August 30, 2019
Awards Disbursed:	September 30, 2019

All dates are subject to change including prize competition openings, deadlines, and announcements.

5. QUESTIONS

For questions about the prize competition, contact: OEElectricityChallenge@netl.doe.gov. Questions and comments concerning this Challenge shall be submitted not later than **April 26, 2019**. Questions submitted after that date may not allow the Government sufficient time to respond.

B. OFFICIAL PRIZE RULES

The U.S. Department of Energy's (DOE's) Office of Electricity (OE) *Electricity Industry Technology and Practices Innovation Challenge (EITPIC)* prize competition aims to further technology advancement and utilization by identifying opportunities to utilize technology creatively to transform current electric utility practices.

1. HOW TO ENTER PRIZE COMPETITION

Participants must register at <https://www.netl.doe.gov/OEElectricityChallenge> by 8:00 PM Eastern Time (ET) on April 26, 2019 to submit an entry. Participants will receive submission instructions via email (email could take up to one business day) once registration is complete. Entries must be submitted by 8:00 PM Eastern Time (ET) on April 30, 2019.

Participants may enter more than one submission; however, each submission must be unique and not be duplicative or redundant of another submission entered by the Participant.

Once registration is complete, Participants will receive an email that includes a password to the submission portal, the submission instructions, and the required Submission Template. Complete the template for your entry as a single PDF file and submit to the submission portal by 8:00 PM Eastern Time (ET) on April 30, 2019.

2. SUBMISSION SPECIFICS

The Submission Template will require the following information:

Cover page:

- Title of submission.
- Identification of Tier 1 or Tier 2 submission.
- Identification of key area(s) of interest addressed.
- Name (person or entity) of participant(s).
- Type of entity (*e.g.* individual, academia, industry).
- Contact information (mailing address, phone number and email address) of the point of contact for the submission.

Abstract: The abstract must contain a summary of the proposed idea suitable for public dissemination. The abstract must be 1000 words or less and contain no graphics. This document must not include any proprietary or sensitive business information.

Narrative:

- Tier 1 Submissions
 - Written narrative of no more than fifteen (15) pages describing the idea

- and addressing the evaluation criteria.
- Link to a video recorded presentation (such as YouTube, Vimeo, etc.) of no more than five (5) minutes in length that highlights the submission, its benefits, and the likelihood of implementation.
- Tier 2 Submissions
 - Written narrative of no more than eight (8) pages describing the idea and addressing the evaluation criteria.

Optional Information: The entry may include up to eight (8) pages of letters that support the key aspects of the technology or practice. Letters of support do not count toward the stated page limit of the narrative.

Narratives and abstracts should not include any Personally Identifiable Information (PII) (*i.e.*, information that can be used to distinguish or trace an individual’s identity). All pages must be formatted to fit on 8.5 x 11-inch paper with margins not less than one inch on every side. Use a font size of 11 point or larger. Stated page limits shall include all text, index, graphs/charts, images, logos, appendix, etc.

Entering your Submission to the Challenge will constitute your acceptance of the Official Rules and your assertion of eligibility. Participants must register prior to submitting an entry.

3. EVALUATION CRITERIA

Submissions will be screened for compliance with the Official Rules. The eligible submissions will be evaluated and scored by a panel of judges on a scale of 0-100 points (one hundred being the highest) using the evaluation criteria described below.

Submissions must focus on one or more of the five (5) key areas of interest:

- 1) Cyber and physical risk mitigation
- 2) Operational efficiency
- 3) Reliability and resilience
- 4) Facilitation of emergency response and recovery
- 5) Safety

Submissions will be scored using the following evaluation criteria:

- TECHNICAL MERIT AND VIABILITY (30 points)
 - Extent to which the submission clearly and convincingly demonstrates how the proposed idea will advance the key areas of interest beyond the current level of development or practice, and
 - Extent to which the viability of the idea is validated as evidenced by peer reviewed or collaborated data, and/or results of previous and ongoing work.

- POTENTIAL TO MATURE & IMPLEMENT (30 points)
 - Extent to which the submission convincingly demonstrates the likelihood of electricity sector acceptance, and
 - Extent to which the submission demonstrates the likelihood that the idea could be matured to an implementable practice or procedure.

- INNOVATION AND TRANSFORMATION (20 points)
 - Extent to which the proposed idea is potentially transformative compared to existing approaches, and
 - Extent to which the proposed idea is innovative compared to existing and emerging approaches and technologies.

- POTENTIAL MAGNITUDE OF IMPACT (20 points)
 - Extent to which the submission convincingly demonstrates the idea either a) significantly impacts a single key area of interest or b) effectively addresses multiple key areas of interest.

4. PROGRAM POLICY FACTORS

While the scores of the judges will be carefully considered, it is important to maximize the impact of the prize competition. Some factors outside the control of the Participants and beyond the scope of the judges' review may be needed to accomplish this goal. The following is a list of such factors that, in addition to the judges' scores, may be considered in determining Winners.

- It may be desirable to select an idea with a lower score to obtain a broader diversity of ideas across the five key areas of interest, and
- It may be desirable to select an idea that represents a diversity of technologies, and/or a diversity of types of electric utility industry operations, and/or diversity of geographic regions.

C. TERMS AND CONDITIONS

By submitting an entry in the EITPIC prize competition, the Participant acknowledges and agrees to the following Terms and Conditions. Participant acknowledgement of these Terms and Conditions will be made upon submission of the entry and may require documentation. Participants must register prior to submitting an entry.

DOE reserves the right to require additional documentation demonstrating a Participant's compliance with the official EITPIC, including the Terms and Conditions, of this prize competition at any time and to disqualify those Participants who are unable to satisfactorily demonstrate compliance to DOE.

1. ELIGIBILITY

Eligibility is subject to verification before monetary prizes are awarded. To be eligible to win, Participants must comply with the following eligibility requirements,

- a) Participants must have complied with all requirements set forth in the Official Rules for EITPIC.
- b) Individual must be a United States citizen or a U.S. permanent resident and be at least 18 years of age.
- c) The submitting entity must be incorporated in and maintain a primary place of business in the United States.
- d) DOE employees and DOE support service contractors, individuals who have been employed by DOE, or who have worked for DOE as a support service contractor within six months prior to the submission entry deadline, are not eligible to participate.
- e) DOE/National Nuclear Security Administration (NNSA) Federally-Funded Research and Development Centers (FFRDCs) and National Laboratories (NL) are not eligible to participate.
- f) Non-DOE Federal entities and Federal employees are not eligible to participate.
- g) A Participant may not be a Federal grantee using Federal funds to participate.
- h) Federal contractors may not use Federal funds from a Federal contract to participate in the EITPIC or to fund efforts in support of a Participant.
- i) Prize Administrator employees directly involved in the administration of this prize competition are not eligible to participate.

A Participant will not be disqualified for using Federal facilities or consulting with Federal employees during a competition if the facilities and employees are made available to all entities participating in the competition on an equitable basis.

By uploading an entry, a Participant certifies that it complies with the eligibility requirements described above. As soon as DOE becomes aware that a Participant is not eligible to win the EITPIC, the Participant may be disqualified.

2. PARTICIPANT REPRESENTATIONS AND WARRANTIES

Upon submission, the Participant hereby represents and warrants that:

- a) it is the sole author and copyright owner of the submission; that the submission is an original work of the Participant and that the Participant has sufficient rights to use and to authorize others, including DOE, to use the submission, as specified throughout the Official Rules; that the submission does not infringe upon any copyright or upon any other third party rights of which the Participant is aware; and that the submission is free of malware;
- b) the submission, and any use thereof by DOE, is not defamatory or libelous in any manner; does not constitute or result in any misappropriation or other violation of the publicity rights or right of privacy of any person or entity, or infringe, misappropriate or otherwise violate any intellectual property rights, privacy rights, or any other rights of any person or entity;
- c) it is free to enter this competition without the consent of any third party and has the capability to fully perform its obligations as stipulated by the EITPIC Rules;
- d) (in the case of a submission from an individual) he/she is a United States citizen or a U.S. permanent resident, and 18 years or older;
- e) it is not a party to (and it agrees that it shall not become a party to) any agreement, obligation, or understanding that is inconsistent with the EITPIC Terms and Conditions or might limit or impair DOE's rights or the Participant's obligations under the EITPIC Rules or Terms and Conditions;
- f) there is no suit, proceeding, or any other claim pending or threatened against the Participant, nor does any circumstance exist, to its knowledge, which may be the basis of any such suit, proceeding, or other claim, that could limit or impair the Participant's performance of its obligations pursuant to the EITPIC Rules or Terms and Conditions;
- g) it will not infringe, violate, or interfere with the intellectual property, publicity, privacy, contract or other right of any third party in the course of performance of this agreement, or cause DOE to do any of the same;
- h) it will comply with all applicable laws, rules, and regulations in performing under these Terms and Conditions; and
- i) it otherwise meets the eligibility requirements set forth by the prize competition statutory authority and provided in Section C.1.

3. VERIFICATION FOR PAYMENTS

DOE will verify the identity and the role of a Participant potentially qualified to receive the prize. Receiving a prize payment is contingent upon fulfilling all requirements contained herein. DOE will notify each Winner using provided email contact information after the date that results are announced. Each Winner will be required to sign and return to DOE, within 30 days of the date the notice is sent, a completed Request for ACH Banking Information form, and a completed W9 form (<https://www.irs.gov/pub/irs-pdf/fw9.pdf>). Winners who are not individuals must register with SAM at <https://www.sam.gov/> in order to receive payment. At the sole discretion of DOE, a winning Participant may be

disqualified from the competition and receive no prize funds if:

- a) the person/entity cannot be contacted;
- b) the person/entity fails to sign and return the required documentation within the required time period;
- c) the notification is returned as undeliverable;
- d) the submission or person/entity is not otherwise in compliant with the Rules.

Prizes awarded under this competition will be paid by electronic funds transfer and may be subject to federal income taxes. DOE will comply with the Internal Revenue Service withholding and reporting requirements, where applicable.

4. GOVERNMENT REPRESENTATIONS AND WARRANTIES

Any and all information provided by or obtained from the Federal Government is without any warranty or representation whatsoever, including but not limited to its suitability for any particular purpose.

5. RECORDS RETENTION AND FOIA

The use of protective markings such as “Do Not Publicly Release – Trade Secret” or “Do Not Publicly Release – Confidential Proprietary Business Information” in the Header or Footer of the Submission is strongly encouraged where appropriate. However, Participants should be aware that the use of protective markings is not dispositive as to whether information will be released publicly pursuant to a request for records under the Freedom of Information Act (FOIA), 5 U.S.C. § 552, as amended by the OPEN Government Act of 2007, Pub. L. No. 110-175. Information received from the Participant is considered to be a federal agency record, and as such, subject to public release under FOIA. Participants should therefore use care in only submitting information that is necessary for purposes of this competition.

Decisions to disclose or withhold information received from a Participant are based on the applicability of one or more of the nine FOIA exemptions codified at 5 U.S.C. § 552(b), not on the existence or nonexistence of protective markings. Only the agency’s designated FOIA Officer may determine if information sought under a FOIA request will be withheld pursuant to one or more of the nine FOIA exemptions. For more information on the DOE’s FOIA process and regulations, please see 10 CFR Part 1004 and/or visit the DOE’s FOIA website here: <https://www.energy.gov/management/office-management/operational-management/freedom-information-act>.

6. USE OF DATA

All data submitted under the EITPIC prize competition will be made available to DOE and parties authorized to act on behalf of DOE. By accepting these Terms and Conditions, the Participant consents to the use of data submitted to DOE for evaluation

purposes and for any other purpose consistent with these rules. For example, pursuant to section 12, each Winner consents to DOE making each Winner's submission publicly available for promotional purposes through any form of media, worldwide, without further permission, payment or consideration. All materials submitted to DOE as part of a submission become DOE records and cannot be returned.

7. INTELLECTUAL PROPERTY OWNERSHIP

DOE may not gain an interest in the intellectual property submitted to the EITPIC without the written consent of the Participant. DOE may negotiate a license for the use of intellectual property developed by a Participant in EITPIC.

8. RELATIONSHIP OF THE PARTIES

Nothing contained in these Terms and Conditions is intended to create or constitute a relationship between DOE and the Participant. Participation in the EITPIC does not imply any form of sanction, endorsement, or support of the Participant by DOE, nor does it grant either party any authority to act as agent, nor assume or create any obligation, on behalf of the other party. Participants may not use the DOE logo or official seal in their submissions.

9. LIABILITY AND INSURANCE

Upon registration at <https://www.netl.doe.gov/OEElectricityChallenge>, all Participants agree to assume and, thereby, have assumed any and all risks of injury or loss in connection with or in any way arising from participation in this competition, or development of any submission. Upon registration, except in the case of willful misconduct, all Participants agree to and thereby waive and release any and all claims or causes of action against the Federal Government and its officers, employees, and agents for any and all injury or damage of any nature whatsoever (whether existing or thereafter arising, whether direct, indirect, or consequential and whether foreseeable or not), arising from their participation in the competition, whether the claim or cause of action arises under contract or tort.

Further, upon registration, all Participants must agree to indemnify the Federal Government against third party claims for damages arising from or related to prize competition activities.

Based on the subject matter of the EITPIC, the type of work that it will require, as well as the unlikelihood of claims for death, bodily injury, property damage, or loss potentially arising from or related to participation in the EITPIC, no individual or entity participating in the prize competition is required to obtain liability insurance or demonstrate financial responsibility in order to participate in this prize competition.

10. JUDGES

Each submission will be judged by a qualified panel of experts selected by DOE at its sole discretion. A judge may not (A) have personal or financial interests in, or be an employee, officer, director, or agent of any entity that is a registered Participant in this competition; or (B) have a familial or financial relationship with a registered Participant.

The panel will judge the submissions based on the evaluation criteria identified above and determine a final score for each submission. DOE's final determination of Winners will take judges' scores and program policy factors listed earlier in the prize rules document into account.

11. RESOLUTION OF DISPUTES

Official Rules and Terms and Conditions, which are final and binding in all matters related to the competition. The final scores and final determination Participation constitutes each Participant's full and unconditional agreement to these of Winners are final and binding on all Participants. The final scores of the Judging Panel and the final determination of Winners may not be challenged by the Participants.

12. PUBLICITY

The Winners of these prizes may be featured on DOE social media sites, newsletters, and other similar forms of media. Except where prohibited by law, participation in the competition constitutes each Winner's consent to DOE's and its agents' use of each Winner's name, likeness, photograph, voice, opinions, and/or hometown and state information, and abstract of each Winner's submission for promotional purposes through any form of media, worldwide, without further permission, payment or consideration.

13. GENERAL CONDITIONS

DOE reserves the right to cancel, suspend, and/or modify the competition, or any part of it, if any fraud, technical failure, or any other factor beyond DOE's reasonable control impairs the integrity or proper functioning of the competition, as determined by DOE in its sole discretion. DOE is not responsible for, nor is it required to accept, incomplete, late, misdirected, damaged, unlawful, or illicit submissions.

ALL DECISIONS BY DOE ARE FINAL AND BINDING IN ALL MATTERS RELATED TO THE PRIZE COMPETITION.