Plug & Play DER Challenge - FAQs

PROCESS QUESTIONS

What is required for the submission?
For the Sept 7th deadline the following is required:
- a submission abstract (500 words)
- a draft concept paper (word or pdf format)
- a presentation in 16:9 format (ppt or pdf format) (template is available, email sthomas@sepapower.org if interested)
- *Suggested:* concepts (graphical and visual ideas) for a poster (ppt or pdf format) (template is available, email sthomas@sepapower.org if interested)
- *Suggested:* bio and image

For content details, see the Detailed Call for Concepts pdf on the Plug and Play DER Challenge webpage in the Submission Content section (starting on p. 6)

How do I submit my materials?
You must complete your intent to submit, then you will be given a link and prompt to create a login for the submission system to submit your materials.

Is there some kind of judging/evaluation process?
Yes, the submission rules document describes the evaluation process. See the last section of the Detailed Call for Concepts pdf on the Plug and Play DER Challenge webpage.

How many folks will actually get to the live demonstration?
The demonstration phase of the challenge is still being planned. The organizers expect that concept submitters may wish to form teams for participation in the demonstration phase. The anticipated number of teams to participate will be announced at the start of the demonstration phase.

What are the submission formats accepted?
Presentations must be in 16:9 format (ppt or pdf format)
Posters should be sized either 24X36 (portrait) or 36X24 (landscape) (ppt or pdf format)
Concept papers (word or pdf format)

Can teams from outside the USA enter?
For Phase 1, the conceptual phase, we don't have any geographical restriction on where a submission can come from. For Phase 2, we are still working to develop a funding mechanism that could support a challenge prize. Depending on the funding mechanism there could be additional requirements to be eligible for support.

How long should the abstract be? 2-4 pages?
The suggested length is approximately one page (500 words).

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Can we learn what other groups might be planning to submit applications so we might team with them?

We decided to make this a two-phase project to provide individuals with the opportunity to learn about each other's ideas during the concept phase, and to potentially re-form teams. Those who present their concepts at the [North America Smart Energy Week / Solar Power International Conference](https://example.com) in Anaheim, CA in September will have many opportunities to network with others and share ideas. Some may combine their teams and ideas for a revised submission after the event. Collaborating and forming teams is a great way to refine ideas for Phase 2. If you are interested in teaming for Phase 1 we also include the option to have your contact information to be shared during the Intent to Submit process.

What email should we use for contact if we have any follow-up or clarification?

You can contact Bruce Nordman (bnordman@lbl.gov) or Steve Widegren (steve.widergren@pnnl.gov) for technical questions (e.g., proposal content), and Sharon Thomas at SEPA for any other questions including uploading submissions online (sthomas@sepapower.org)

How should proposals be submitted?

You must first complete your intent to submit online at the Plug and Play DER Challenge website at http://plugandplayder.org/. You will be provided instructions on how to submit your Phase 1 proposal which is due September 7th. <u>You must complete the intent to submit to be provided details on how to submit</u>.

TECHNICAL QUESTIONS

What is an Energy Services Interface?

An Energy Services Interface (ESI) defines the coordinated interactions between DER facilities and the electric grid, to clarify how different DER technologies and facilities will communicate with the grid in a common way. The ESI topic involves issues of system architecture, responsibilities, business relationships, and coordination that drive the provision of grid services.

What qualifies as a DER facility?

DER technologies include distributed generation, storage, and flexible loads. A DER facility can coordinate the operation of one or more of these types of technologies. The important architectural aspect is that a DER facility has one electrical connection to the electric grid and a communications interface represented by the ESI. A DER facility can be any size or sector, that can be connected to the electric distribution system.

Does this challenge pertain to DER facilities located at the distribution level only?

Yes.

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Is there a funding prize or award for the Plug & Play DER Challenge or is it just for recognition/visibility? There is no monetary award for the concept papers (Phase 1 of the challenge). We are looking into the ability to offer some funding arrangement for participating in Phase 2 of the challenge, which is a demonstration of the winning concepts from Phase 1, but at this time there is no monetary award. Phase 2 still needs to be planned and we do not have a solution for where the funding will come from yet.

I have been working on smoothing out interoperability challenges and my existing solution seems like a perfect answer to this challenge. Can I submit an already existing solution? This challenge is designed for visionary interoperability to catapult the industry beyond where we are today. The requirement is to propose an interface specification. You can draw on existing implementations, but at this stage we are interested in the interface and not how the interface is supported. A submission must include the items listed in the Detailed Call for Concepts pdf on the Plug and Play DER Challenge webpage in the Submission Content section (starting on p. 6)

How will any intellectual property be handled?
We expect that in some implementations there will be technologies that have IP associated. The focus in the concept paper and the challenge is the interface specification; this is what will be evaluated. That specification must be open; inspectable, shareable, and freely useable by others. Your implementation of that specification might utilize IP on either side of the interface, but the definition of that interface needs to be open.
Please do not include the word "confidential" (or include anything you consider to be confidential) in your submission, because the selected proposals for Phase I will be posted on the website.

ADDITIONAL QUESTIONS

Will this effort include focusing on IEC interoperability standards, including IEC 61850, CIM (IEC 61970 and 61968), and the IEC 62351 cybersecurity standards?
The challenge is open to reference any existing standards in defining the interface specification or communication protocols, including these IEC standards. We expect that some submissions will build off of existing standards, but we are specifically looking for new ideas that go beyond incremental improvements.

Has blockchain been considered or been submitted as a solution for the interoperability challenge?
People have begun submitting their "Intent to Submit" information and this form allows for a short description of projects, but at this time we are not able to share this

information. Blockchain has sophisticated technological features for auditability and cybersecurity, but Blockchain alone would likely not cover the entire interface specification. A proposal that includes Blockchain as a component can be submitted.

Do you see power line communication (PLC) technology being applied to support the charging of EVs at any location?

We are agnostic to the specific standards put together for an interface specification. The criteria for interoperability emphasize a layered approach to the way interface specifications are defined. So we would expect that the physical-layer communication technology (e.g., PLC, radio signal, or a hard-wired) are kept independent of the application-layer protocols used for informational aspects (e.g., message definitions, message content, and interaction processes) so that it can be layered on top of communication technologies like PLC.

Your demonstration could use PLC, or not use it, but regardless we would like to see an interface specification that allows the same upper layers of that specification to run on other physical-layer networking protocols.

Do you see existing/developing DER standards such as IEEE 2030.5 (2018) and SunSpec to play a role in the ESI?

These are examples of standards that could be built upon (see previous comment on IEC standards); submissions may reference portions of these or other standards in their interface specification. There are many dimensions related to interoperability covered in the evaluation criteria and existing standards may cover only some of these.

In this challenge, we are looking to move the state of the art to another level, to address aspects that would simplify integration beyond what is presently offered in existing standards. In the case of IEEE 2030.5, different function sets are available for configuring different types of DER technologies. With the ESI concept, we encourage submitters to be more performance oriented in terms of the service to be performed so that the same interface specification can apply to multiple DER technologies and thus avoid having to define DER technology-specific content. Note that direct control of inverter settings are not in the spirit of grid services scope of this challenge.

There is a lot of work going on to "harmonize" interoperability across CIM and IEC 61850 models. Would you see this effort as falling within your scope?

We do not consider harmonization to fall within the scope of this challenge. While harmonizing or addressing the differences in the way CIM and IEC 61850 model information is important work, the interoperability criteria for this challenge emphasize the need for specifying or referencing a specific information model as part of the interface specification. The common information model (CIM) expresses the information using a state of the art semantic technology approach. This has beneficial interoperability implications in comparison with the IEC 61850 approach. There are other standards (e.g., IEEE 2030.5) that have an information model

associated with them using semantic technology approaches. We would expect a concept submission to use modern expressions for how the information model is documented, as it is an important part of the evaluation.