

Breakout Session Discussion

Breakout #2: So You Want to Run a Competition?

Objective: *Identify methods of running a competition that encourage wide-spread participation, yet produce results that industry might buy into.*

November 18, 2014

Breakout #2: So You Want to Run a Competition?

- ▶ What grid optimization competition structure would likely have the greatest impact?
 - What competition design alternatives should be considered?
 - Are there alternative (non-competition) program structures that should also be considered?

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- ▶ How do we ensure participation that leads to maximum impact?
 - Whom should we target in the design of the competition?
 - How do we adequately incentivize both academic and industry participation?
 - How do we make this appealing to both power systems veterans and new entrants?
 - How do we limit the barriers to entry (i.e. high performance computing resources, expensive software, power system technical understanding, etc.)?
 - Where and how should we market the competition?

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- ▶ What are the strengths/weaknesses of the following testing procedure alternatives:
 - 1) Participants submit solutions to ARPA-E
 - 2) Participants run their code on ARPA-E defined/hosted virtual machine
 - 3) Participants submit executable objects to be run by ARPA-E to generate results
 - 4) Other (or a hybrid approach)

- Which of these testing procedures might allow the most fair evaluation of solution time, convergence robustness, and other important solution method attributes?

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- ▶ What should the testing platform (service and interface) look like?
 - How do we ensure the benchmarking platform employed by ARPA-E is compatible with the development platforms that participants may be using?
 - Pros/Cons of web-based vs. local platforms for testing?
 - How do we handle approaches that leverage parallel computing?
 - What type(s) of organizations could host the testing platform?

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- ▶ When/how should the test scenarios be made available to teams?
 - Are different scenarios for the final scoring/evaluation required? Why/why not?
 - Should we impose limits on the number of times a team can have their solutions scored?

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- ▶ How should new optimization methods and/or solutions be evaluated?
 - Does ARPA-E need to know the details of the methodology or only the solutions?
 - Should we require the solutions and/or methods be made public and/or open source?
 - What form of independent verification is required?
 - How should solutions be scored?
 - To what extent can the scoring method be used reveal the strengths and weaknesses of different solutions for different types of cases?

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- ▶ When is a victor declared? X months vs X% improvement vs. X performance target
 - How do we define “X?” What improvement should be targeted, for example?

Breakout #2 Readout Summary
