DOE Low-cost Wireless Meter Challenge

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What is a DOE Challenge?

Why DOE does Challenges

DOE's Building Technologies Office has a proven record of successful Challenges. BTO undertakes Challenges for a variety of reasons:

- Address identified EE needs
- Catalyze technology creation
- Ensure market successes
- Form partnerships with private sector and manufacturers

What Occurs During a Challenge

A DOE Technology Challenge consists of:

- Aspirational performance specification
- Response period during which manufacturers generate spec compliant technology
- Technology is tested and vetted by DOE to ensure it meets the spec
- Technology is incorporated into a DOE campaign to aid in its deployment
- Technology gains acceptance in the market!

What Kind of Specification Again?

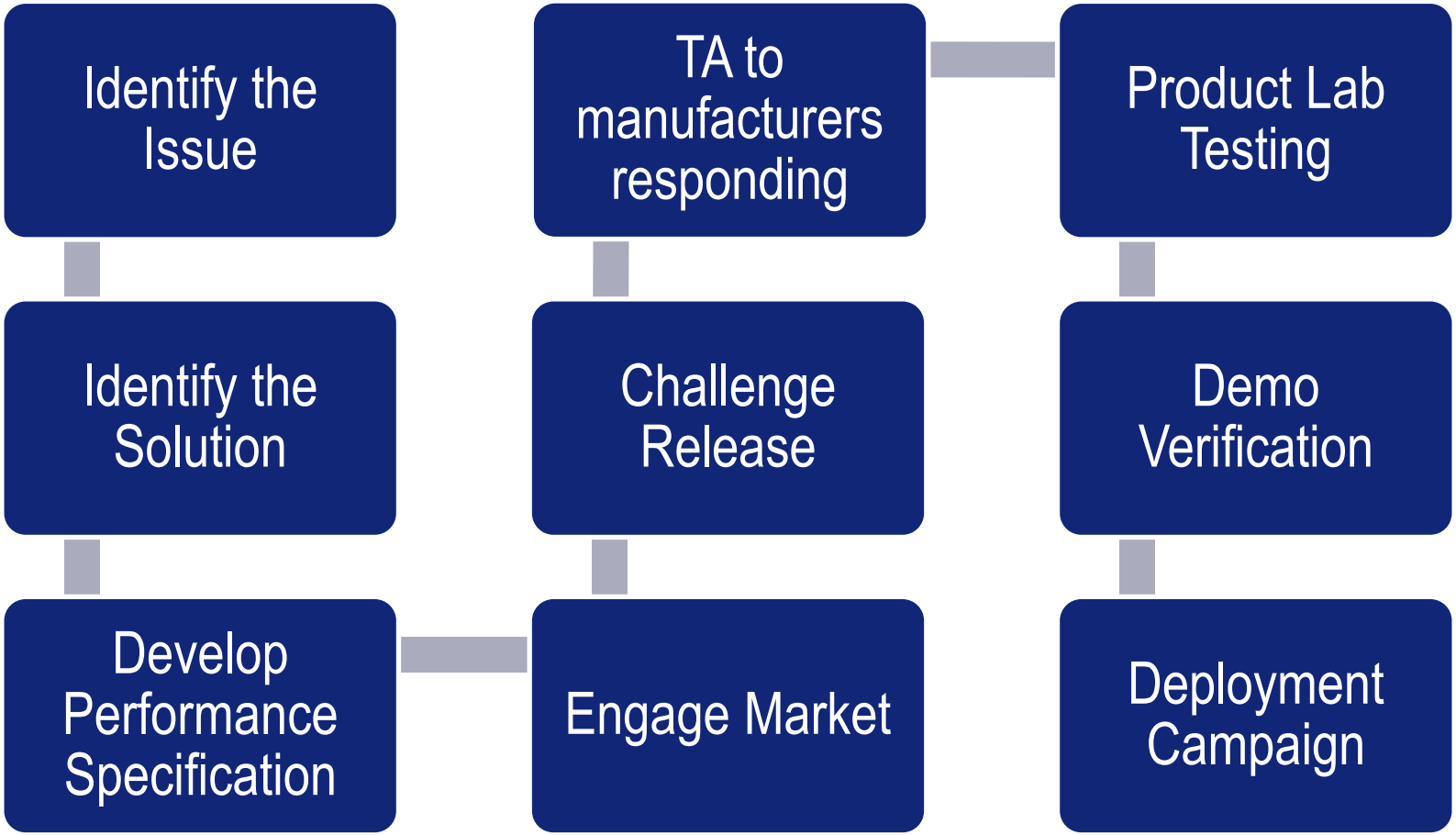
Procurement specification

- **Audience:** building owners/people who purchase new equipment for commercial buildings
- **Purpose:** help people get quotes for high efficiency equipment
- **Efficiency level:** highest efficiency products currently on the market

***Challenge specification

- **Audience:** manufacturers
- **Role**: challenge manufacturers to produce more efficient equipment; clarify commercial building owner needs
- **Efficiency level:** higher than any product currently on the market; stretch goal

Challenge Model



The Wireless Metering Challenge

Wireless Metering Challenge Quick Overview

- DOE wishes to leverage the success of its Roof Top Unit Challenge (RTU Challenge) by releasing another challenge aimed at reducing the price of panel level sub-metering devices through the application of low-cost wireless meters.
- DOE has worked with federal government agencies, private building owners and non-profit organizations to vet the specification.
- DOE has released the specification to the market at large and is interested in discerning two things:
  - Which manufacturers may be interested in meeting the challenge?
  - Which building owners may be interested in implementing technologies that meet the challenge?

Reason for this Challenge

Problem Statement:

- To most effectively improve a building's energy efficiency, energy use must first be measured.
- However, sub-metered energy use data are not available for many buildings, often due to the high cost of metering and gathering data.
- The commercial building market, including the federal sector, is in need of reliable, cost-effective metering systems – especially at the panel level.
- DOE can catalyze the creation of such a meter by working with building owners to marshal demand while concurrently helping manufacturers develop technologies.

Technical and Market Potential

Technical Potential

- Using metering systems to enable energy efficiency actions is estimated to deliver minimum electricity energy savings of at least 2%.
- For all commercial buildings this corresponds to annual primary electricity energy and cost savings of 71 trillion BTU/yr and $1.7 billion/year.

Market Potential

- Federal government actively looking to increase metering and disclosure as required under various guidance and Congressional mandates.
- Disclosure laws becoming more common – notably NYC.
- Better Building Alliance members and others in the market have expressed strong interest in panel level sub-metering to address a variety of concerns.

Desired Outcomes

Impact of Challenge Project:

- Panel level sub-meters that cost a fraction of the previous price.
- Significantly increase the amount of panel level sub-metering occurring in the commercial space.
- Support government and private sector commercial building energy efficiency improvement efforts.
- Analyzing energy use data from sub-meters becomes industry standard when identifying improvements in building operations and efficiency strategies.
- Sub-meters support a range of activities and savings mechanisms from occupant awareness to ongoing metering-based commissioning.

DOE Role

- DOE develops an aspirational performance specification and issues it as a challenge to manufacturers to spur the development of low cost electric metering systems.
- DOE works with building owners and manufacturers to understand the spec and to ensure it is a stretch, but feasible.
- DOE asks building owners to sign a “Letter of Interest” in purchasing spec compliant technologies and asks manufacturers to sign a “Letter of Intent” to signify willingness to attempt the development of the technology.
- DOE provides third party verification that technology meets spec.

Building Owner Role

RIGHT NOW:

- Comment on specification – already done, thanks!
- Sign Letter of Interest to indicate desire to procure spec compliant technologies.
- Join BBA and engage Energy Management and Information Systems team.

Once technologies are available:

- Sign up to demonstrate the products with DOE.
- Share lessons learned, energy savings estimates and other pertinent info with others.
- Incorporate new technologies into regular procurement cycles.

Manufacturer Role

RIGHT NOW:

- Comment on specification – already done, thanks!
- Sign Letter of Intent to indicate plans to produce spec compliant technologies.
  - If your firm **INTENDS TO PARTICIPATE** please set up a discussion with Jason Koman (jason.koman@ee.doe.gov) in the next 60 days.
- Work on developing your product with technical assistance and Challenge rules guidance from DOE.
- Submit prototypes for testing.

Current Timeline

- Soft launch was April 2013
- Official explanation webinar was May 2
- Finalize list of suppliers planning to submit prototypes
- Formal program launched May 30
  - Included formal rules for submitting prototypes to Challenge, timelines etc.
- Receive prototypes and verify compliance
- In-building field test
- Name challenge compliant entries
- Work with building owners, private and federal, to deploy technology

For More Information

Low-cost Wireless Meter Challenge website:

http://www1.eere.energy.gov/buildings/commercial/bba_wireless_metering.html