BTP and FEMP

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

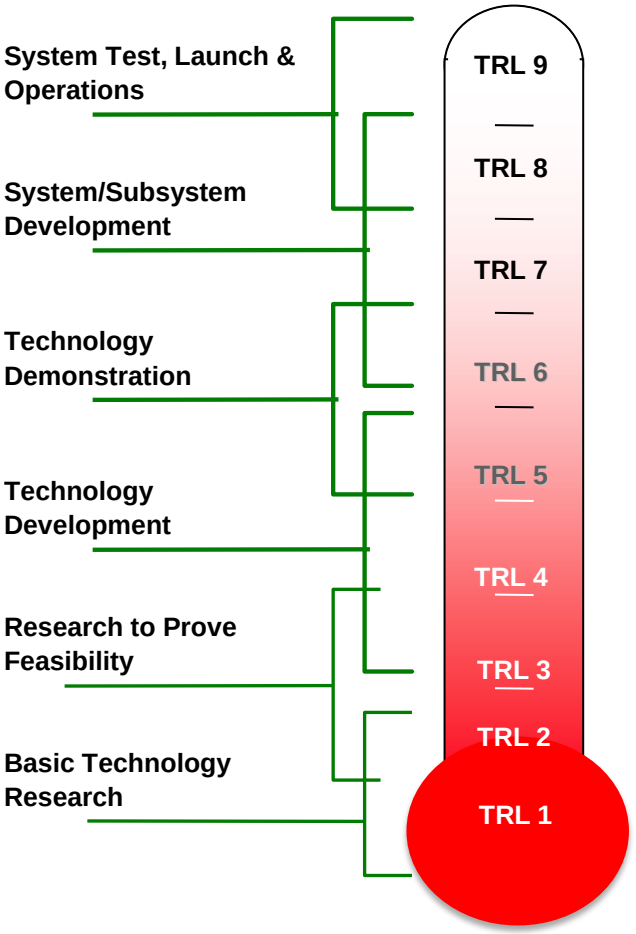
Technology Portal

March 15, 2012

Background

- This presentation was developed by the National Renewable Energy Laboratory at the request of the U.S. Department of Defense Tri-Services and the Federal Energy Management Program.
- It incorporates initial feedback from representatives of the Interagency Task Force Technology Deployment Working Group.

Technology Readiness Levels



Technology Readiness Levels (TRLs)

9. Actual system "flight proven" through successful mission operations
8. Actual system completed and "flight qualified" through test and demonstration
7. System prototype demonstration in a operational environment
6. System/subsystem model or prototype demonstration in a relevant environment
5. Component and/or breadboard validation in relevant environment
4. Component and/or breadboard validation in laboratory environment
3. Analytical and experimental critical function and/or characteristic proof of concept
2. Technology concept and/or application formulated
1. Basic principles observed and reported

Source: Tri-Service Tech Panel, March 2011

Goal

The ultimate goal of the technology portal is to empower building owners and operators to reduce the energy consumption of their facilities by accelerating the adoption of cost effective, energy efficient technologies and strategies while simultaneously reducing the risk of this adoption. This accelerated adoption and reduced risk is accomplished by providing technology and strategy performance data that building owners and operators can use in their own business case assessments.

Why is Technology Performance Data Important?

- Without credible data, internal champions can't take action.
- Without credible data, internal champions can't get management buy-in.
- Case study data are not always relevant for all applications.

In this context, internal champions refer to stakeholders who influence energy consumption and/or the procurement of energy-consuming systems or technologies

Key Elements of Technology Evaluation

- Third-party laboratory testing
  - Pros: Controlled experiment; accurate performance evaluation for specific operating conditions and assumed usage patterns.
  - Cons: May not reveal reliability and integration information or business productivity impacts. Assumptions may not mimic actual usage patterns.

- Field testing – ***Current basis for most tech evaluation programs***
  - Pros: Provides information on reliability, whole system integration, business productivity impacts, and actual use patterns.
  - Cons: Involves a less controlled experiment, fewer sensors, and less accurate equipment. Harder to generalize site-specific results to other facilities.

- Analytical methods
  - Pros: Results can be generalized while accounting for building- and site-specific parameters.
  - Cons: Accuracy depends heavily on whether inputs incorporate findings from third-party laboratory and field testing. (Without third-party lab and field testing, garbage in, garbage out)

- *The **combination** of (1) third-party laboratory testing, (2) field testing, and (3) analytical methods can be **more effective** than any one of these approaches alone. It is understood that some programs should focus on a single approach, but providing additional means to integrate these three approaches will improve prediction of power and energy use. (Quality in, quality out.)*

Common Issues: Barriers in Current Process

- Third-party laboratory testing
  - Manufacturers lack incentive to fund testing of their products.
  - End users don't know which tests to request.
  - Results are not centrally located or easily accessible.
  - Results often don't fully describe energy performance.

- Field testing – ***Current basis for most tech evaluation programs***
  - Case studies are difficult to generalize across different building types, applications, and climates.
  - Results are not shared effectively, leading to duplicate efforts.
  - Field test plans are not standardized.

- Analytical methods
  - Lack of high-quality inputs inhibits accurate analysis.
  - Collection of high-quality inputs is often time- and resource-intensive.

Overcoming Barriers

- Integrate with existing efforts to coordinate and standardize the technology evaluation process

- Interagency Task Force Technology Deployment Working Group
  - FEMP
  - GSA
  - Tri-Services
  - BTP

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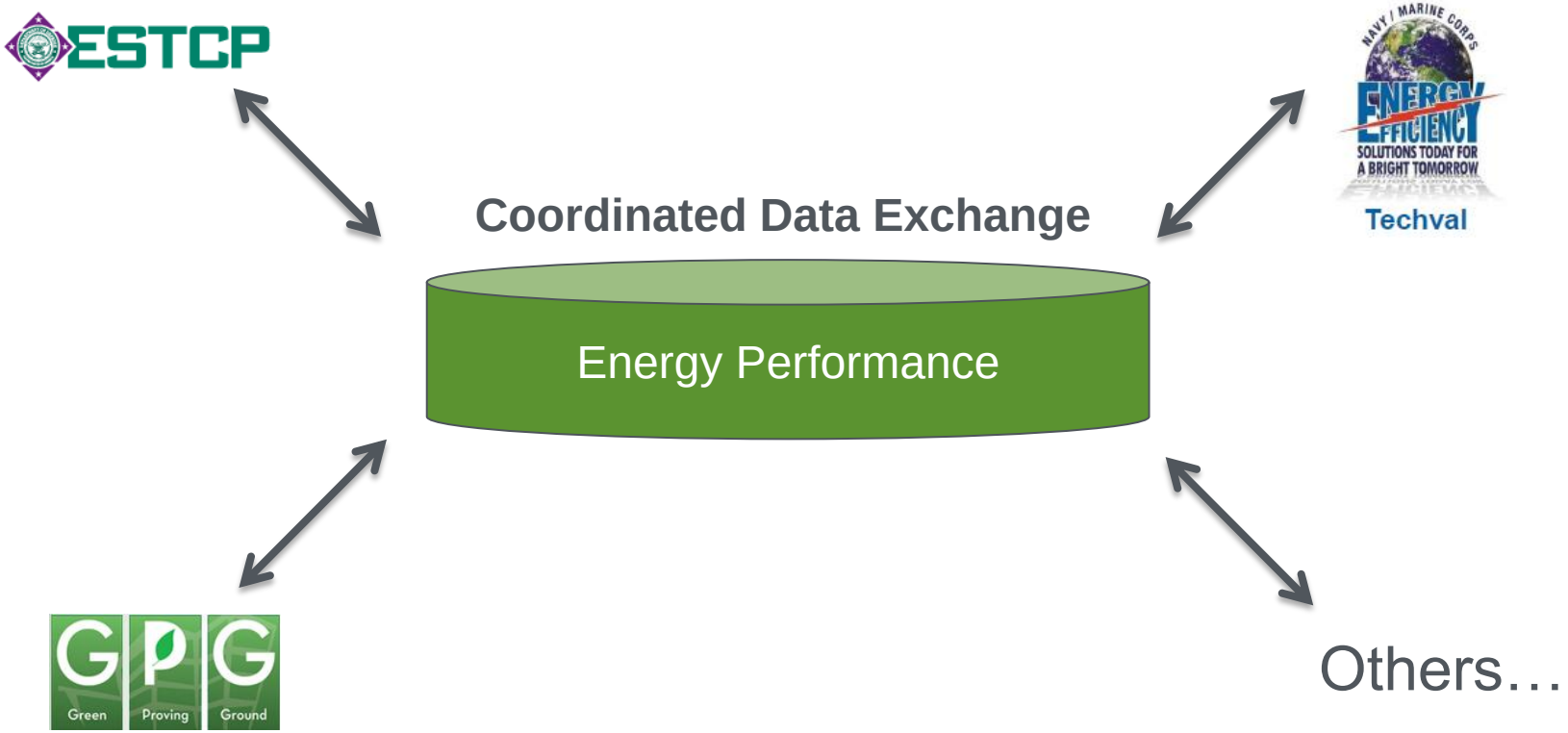
GSA

Reduce Technology Evaluation Cost by Distributing Work



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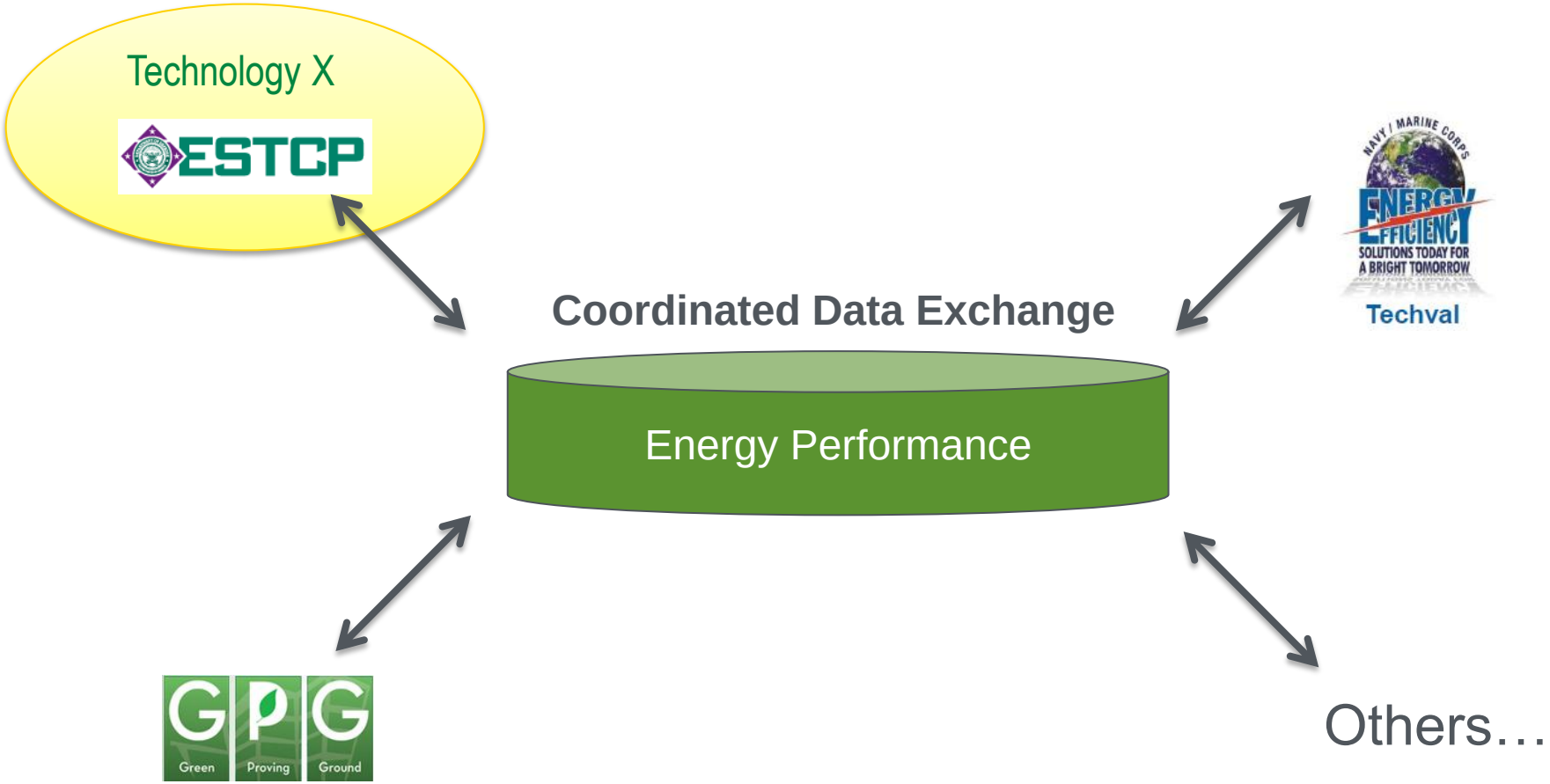

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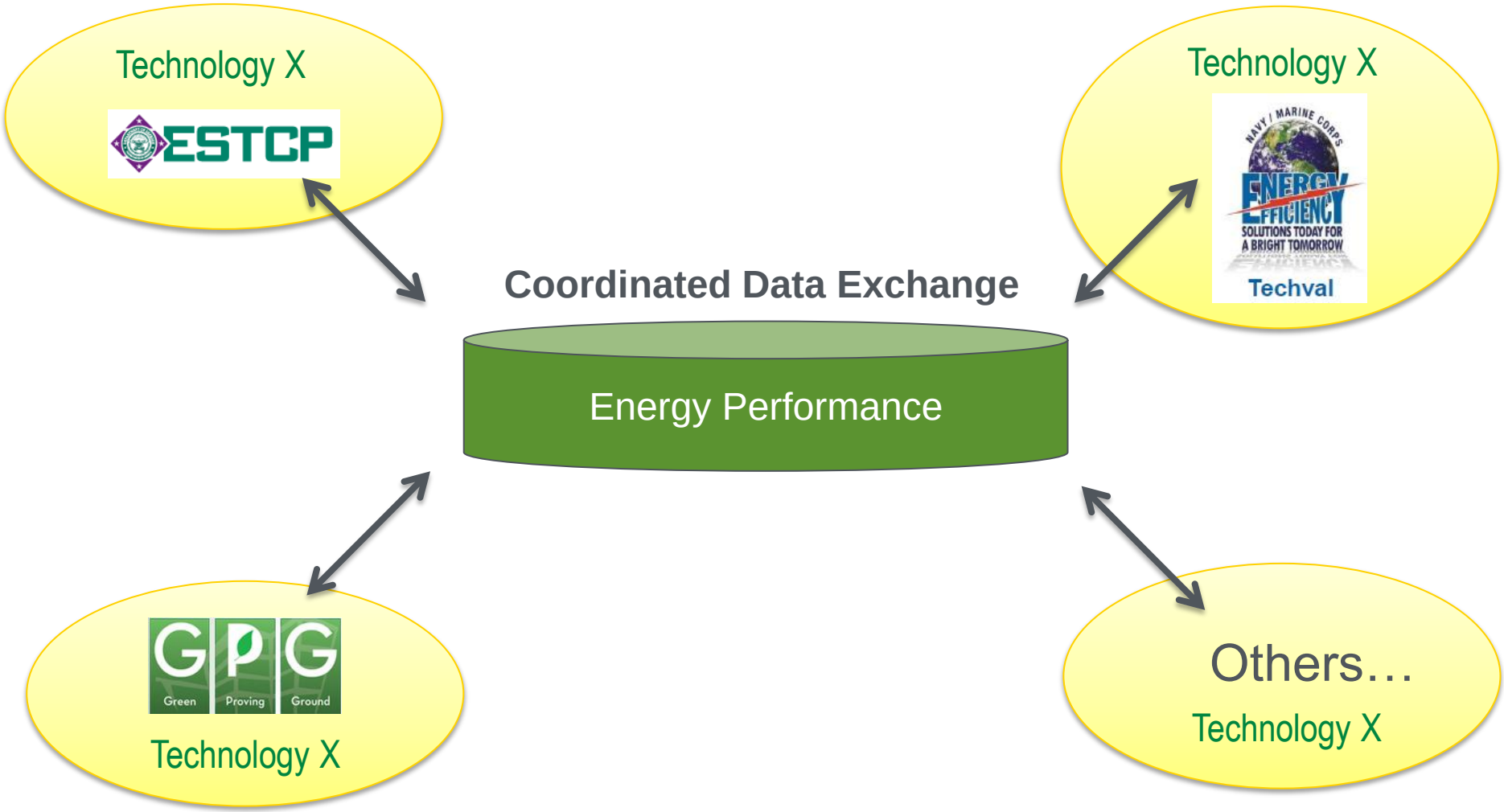

Q & A

Discussion

Action Item

- For other organizations and agencies that would like to provide feedback, please contact Shawn Herrera and Bill Livingood.

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