

The Technology Performance Exchange™

Emerging Technologies Showcase

August 27, 2014

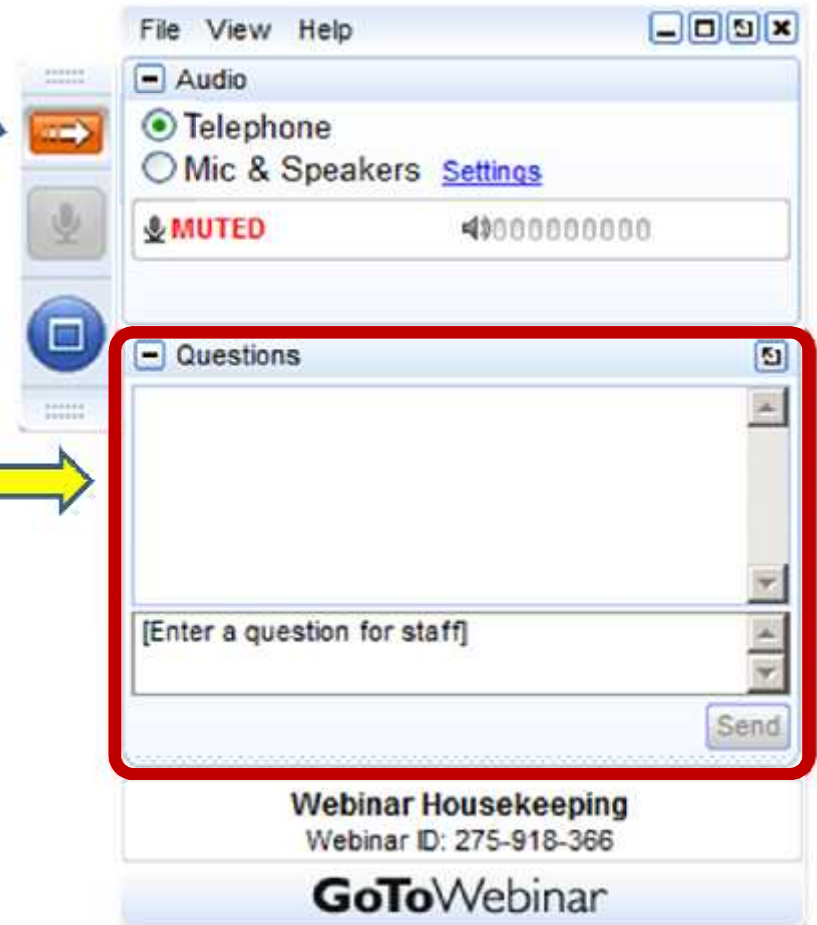
Welcome. Today's webinar is being recorded and will be posted at:

- www.E3Tnw.org
- www.ConduitNW.org



GoToWebinar Logistics

- Minimize or maximize control panel
- Phone lines are muted
- Please use question pane to ask questions during Q & A or if you have any technical issues



NOTE: Today's presentation is being recorded and will be available at <http://e3tnw.org/Webinars> within 48 hours

The Technology Performance Exchange™

Daniel Studer

National Renewable Energy Laboratory

Emerging Technologies Showcase

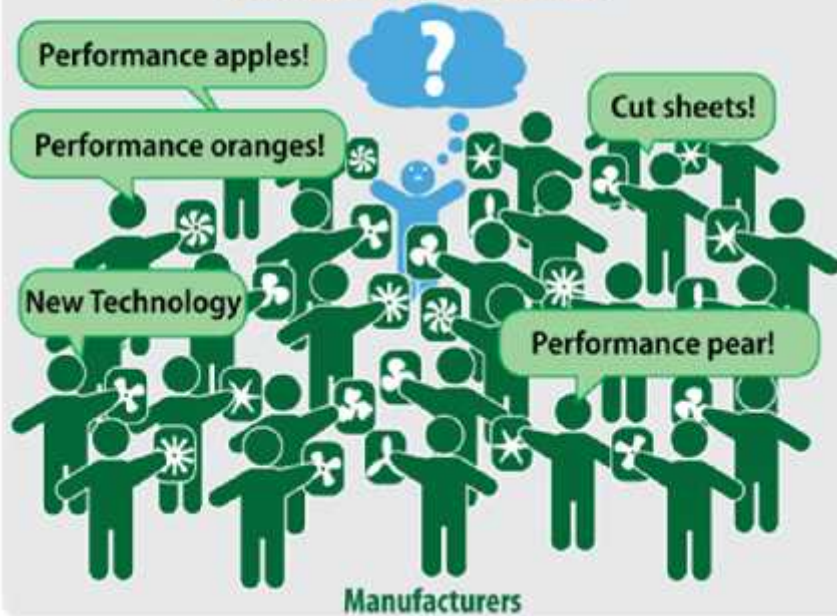
August 27, 2014



Introduction

PROBLEM: How do building owners/operators, utilities, and technology demonstrators make informed decisions on energy saving technologies?

Building Owners/Operators, Utilities,
and Technology Demonstrators



PROBLEM: How do manufacturers/distributors reach potential customers and provide them with the information they need?



Credit: Marjorie Schott, NREL

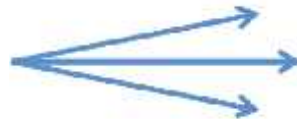
Introduction

Analysts

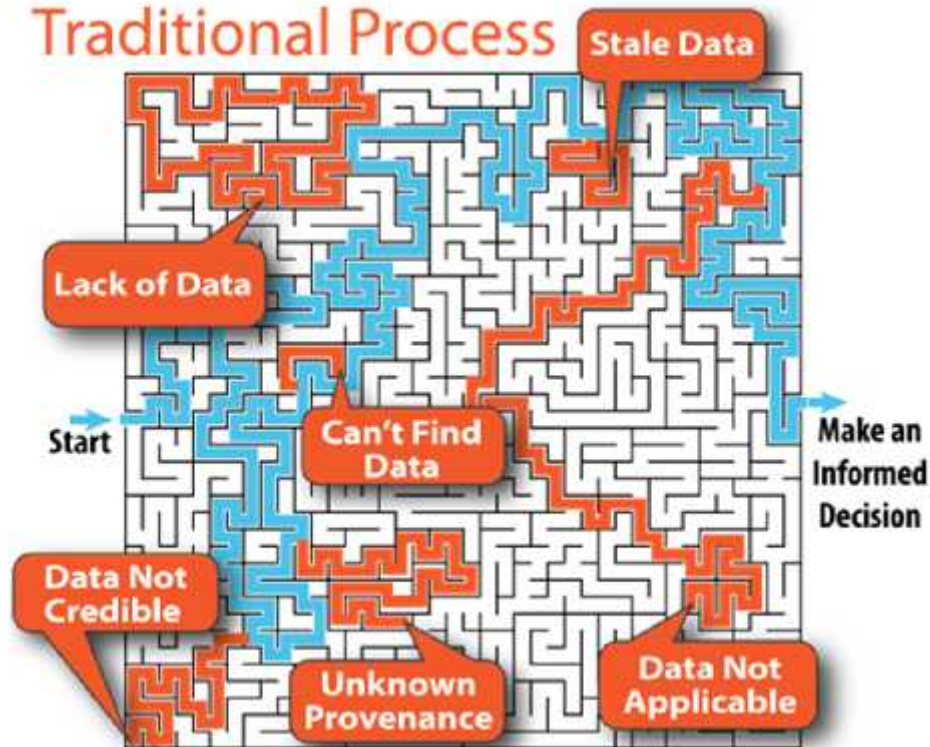
- Engineers
- Energy modelers
- Researchers

Implementers

- Commercial building owners/operators
- Utilities
- Technology evaluation staff

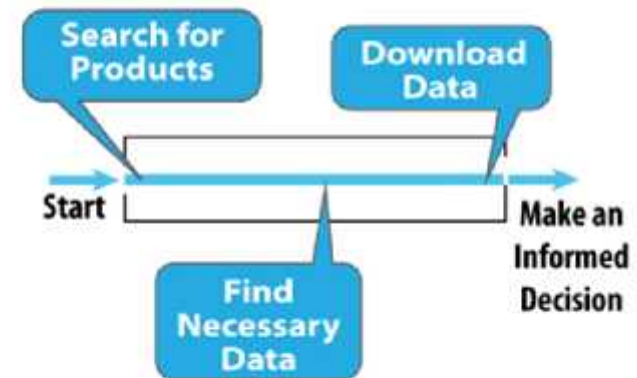


Traditional Process



credit: <http://www.mazegenerator.net/>

TPEX Process



Credit: Marjorie Schott, NREL

The Technology Performance Exchange

TPEX™ Technology Performance Exchange™
Confidence through data.

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Home | Technology Categories | Companies | About | Developers | Log in | Register

- 1. REGISTER**
Manufacturers and Brand Owners add your products to the site
3rd Party Test Laboratory or Contributing Evaluators add detailed performance data
Basic Users view product data
REGISTER NOW
- 2. SEARCH OR BROWSE TECHNOLOGIES**
Search for cost-effective, energy-efficient technologies
- 3. COMPARE DETAILED ENERGY PERFORMANCE DATA**
- 4. EVALUATE ENERGY AND COST SAVINGS**
Use data in your calculations and energy simulations
Present the results to encourage capital investment in energy saving technologies

SEARCH PRODUCTS [Search Bar]

BROWSE TECHNOLOGY CATEGORIES

SSL Replacement Lamps	Hot-Water Boilers	DHI: Indoor Units
Non-SSL Lamps	Steam Boilers	DHI: Outdoor Units
Lamp Ballasts	Compressors	Heat Pump Water Heaters
Non SSL Luminaires	Rooftop Units	Transformers
SSL Luminaires	Gas Fired Unit Heaters	Photovoltaic Modules
	Pumps	Inverters

Manufacturers
Learn how to submit your products to the Technology Performance Exchange.

Partners/Developers
Learn about the Technology Performance Exchange API.

Credit: Daniel Studer, NREL

The Technology Performance Exchange

Data Entry Forms

- Minimum parameters necessary to support a robust analysis
- Product specific
- Identified through engineering analysis
- Analysis tool agnostic

Fan Power Input (W) ?

None

Cooling Performance Map Download ?

Download Template

Cooling Performance Map Upload ?

Choose File No file chosen

Upload Excel Spreadsheet

Heating Performance Map Download ?

Download Template

Heating Performance Map Upload ?

Choose File No file chosen

Upload Excel Spreadsheet

Self-Measured, Field

None

Non-Measurable Physical Property/Design Criteria

Self-Measured, Field

Self-Measured, Laboratory

Measured By Others, Field

Measured By Others, Laboratory

Calculated Using Self-Measured Field Data

Calculated Using Self-Measured Laboratory Data

Calculated Using Others' Measured Field Data

Calculated Using Others' Measured Laboratory Data

Reported by External Source, Derivation Unknown

Calculated Using External Data, Derivation Unknown

- None -

SAVE AND COMPLETE LATER or SUBMIT

Credit: Daniel Studer, NREL

Performance Map Example

Basic Information	
Brand Owner	
Brand	
Product Line/Family Name	
Model Number	

Legend	
	Fill this information in first
	Provide DHP indoor unit cooling performance information in these cells for the conditions specified


Performance Map																					
Outdoor Air Dry-Bulb Temperature	Indoor Air Wet-Bulb Temperature																				
	13.9°C			16.1°C			17.8°C			19.4°C			21.1°C			22.8°C			24.4°C		
	CC	SC	EI	CC	SC	EI	CC	SC	EI	CC	SC	EI	CC	SC	EI	CC	SC	EI	CC	SC	EI
-5.0°C																					
-3.9°C																					
-1.1°C																					
1.7°C																					
4.4°C																					
7.2°C																					
10.0°C																					
12.8°C																					
15.6°C																					
18.3°C																					
21.1°C																					
23.9°C																					
26.7°C																					
29.4°C																					
32.2°C																					
35.0°C																					
37.8°C																					
40.6°C																					
43.3°C																					

CC: Cooling Capacity (kW)
 SC: Sensible Capacity (kW)
 EI: Energy Input (kW)

Credit: Daniel Studer, NREL

Data Provenance

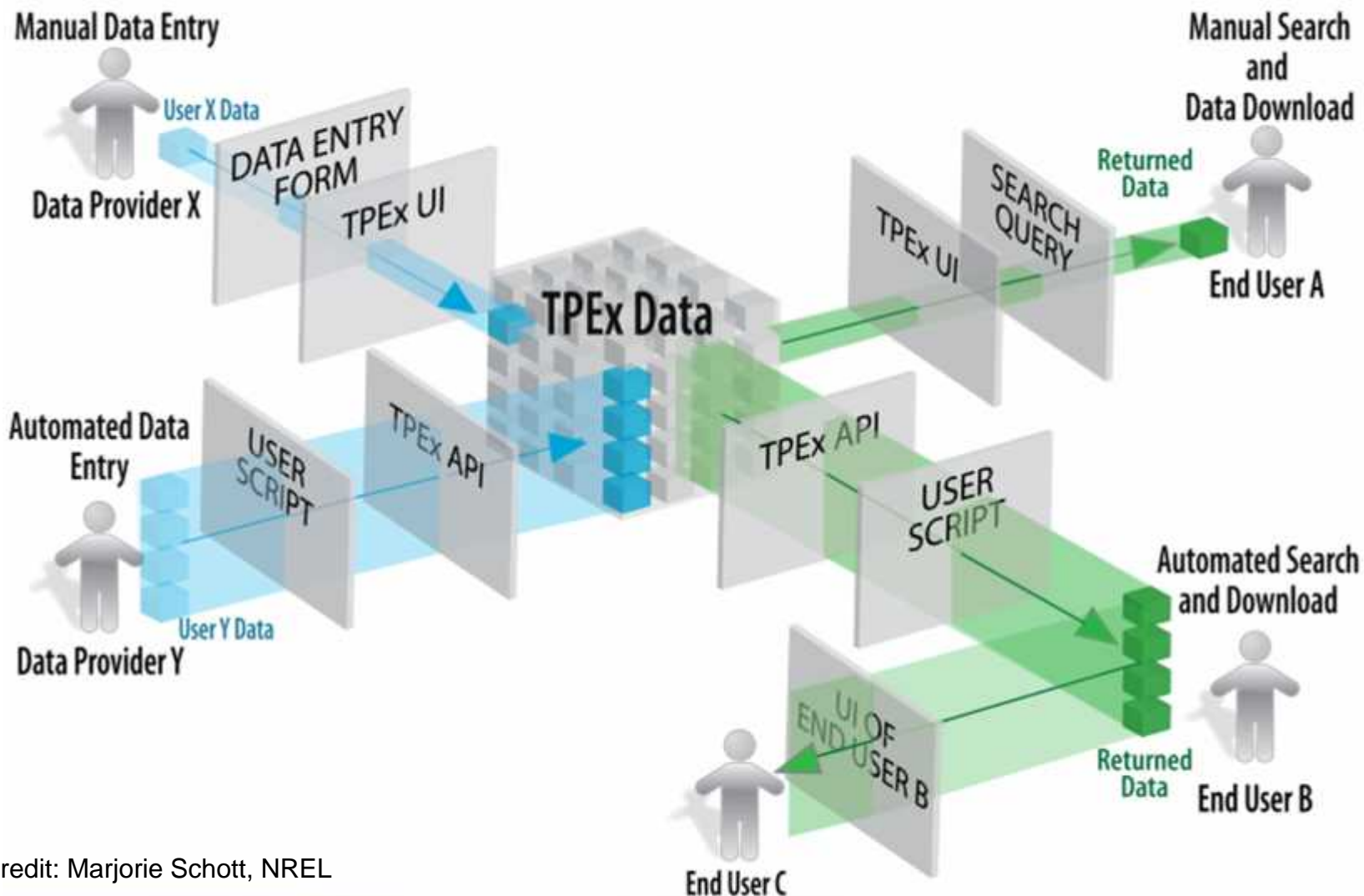
How can we ensure data credibility?

▶ Weighted Efficiency at 240 Volts ?			96.41 %
(1 report)			
▼ Nominal Input Voltage ?			389.51 Vdc
(1 report)			
Source	Posted on	Derivation	Data
National Renewable Energy Laboratory	12/20/2013	Calculated Using External Data, Derivation Unknown	389.51 

Credit: Daniel Studer, NREL

- Organization Type
- Organization Name
- Posting Date
- Derivation Method

Data Accessibility

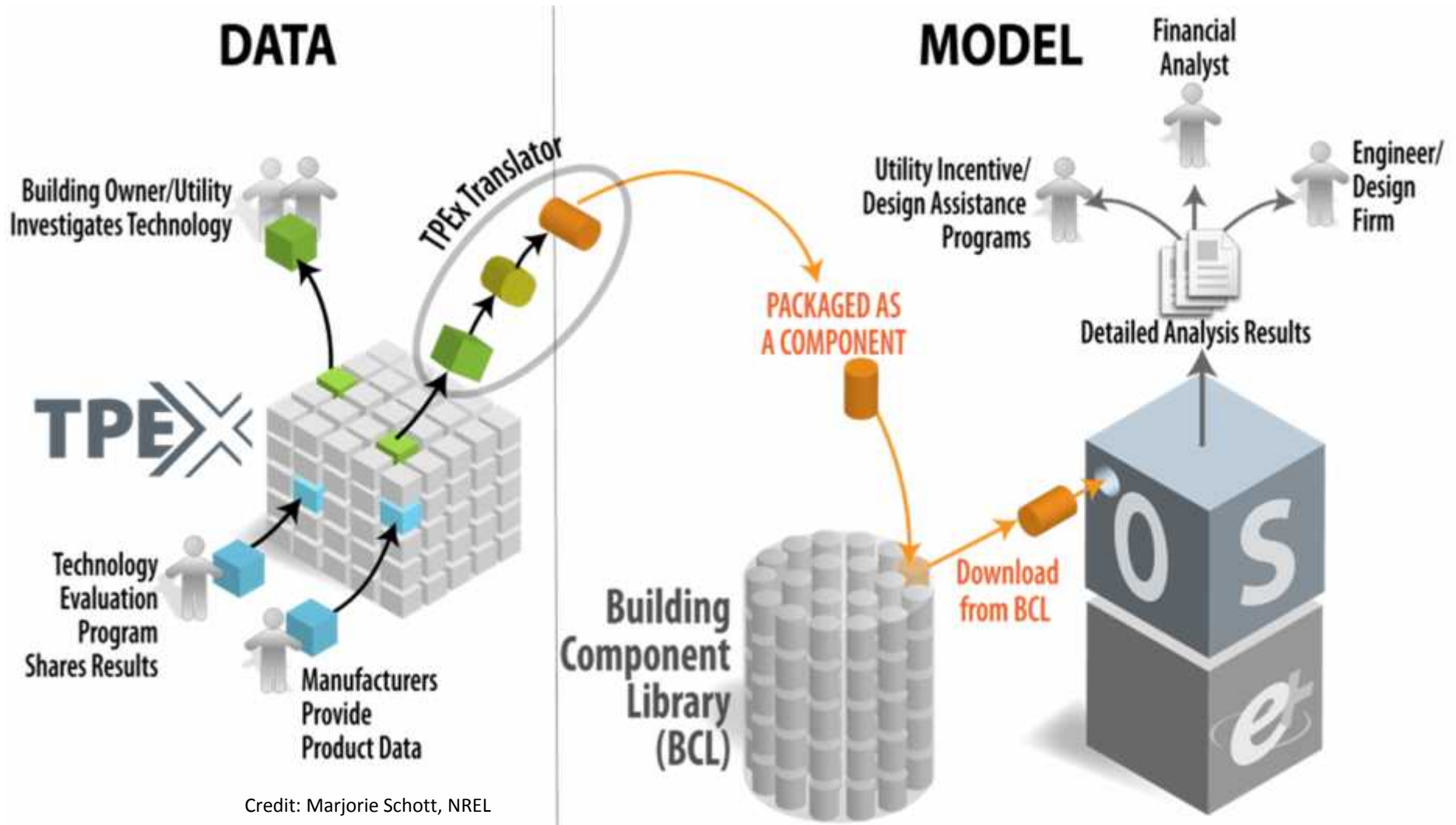


Credit: Marjorie Schott, NREL

Demonstration

www.TPEx.org

Lowering Analysis Barriers

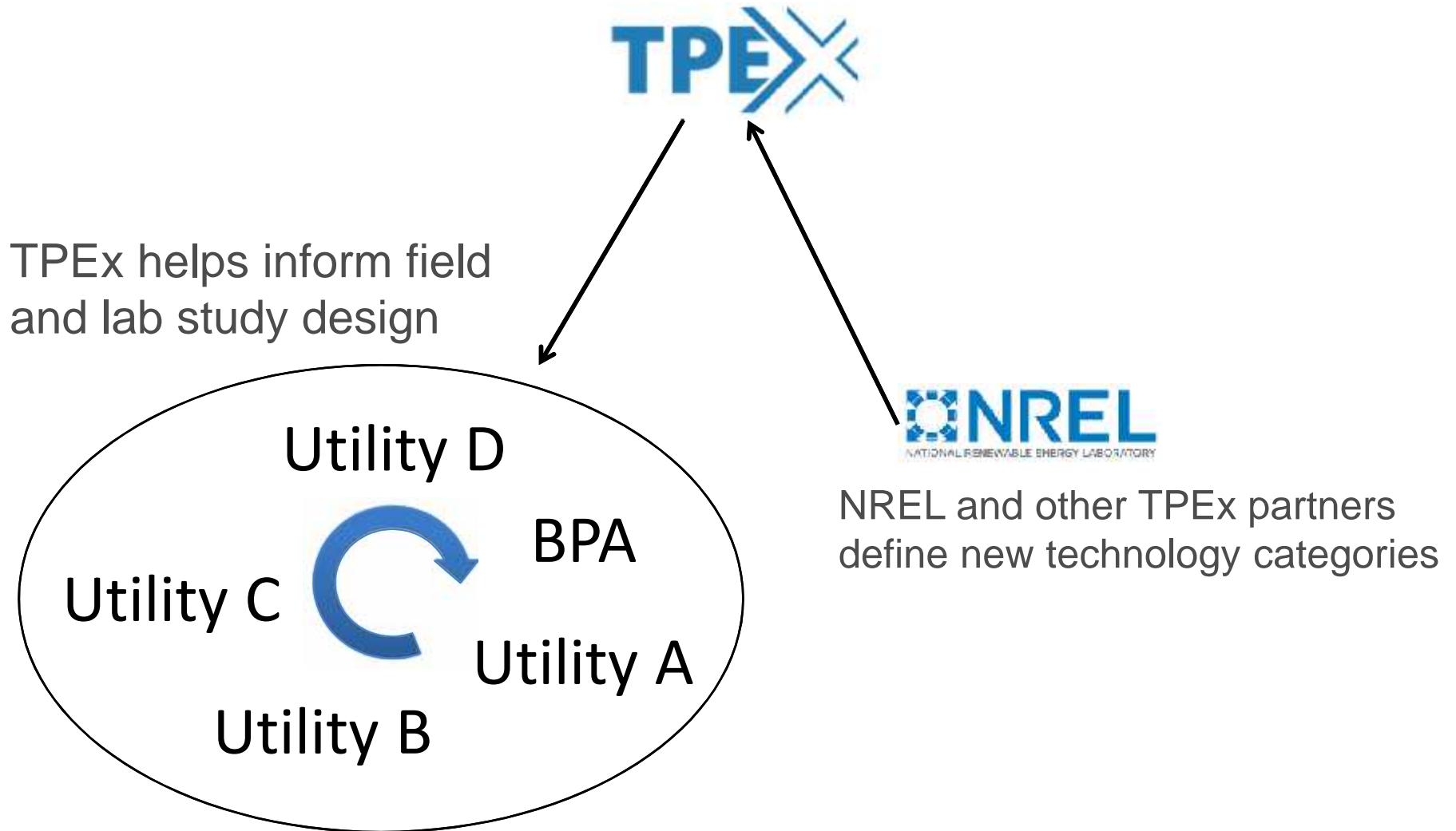


Credit: Marjorie Schott, NREL

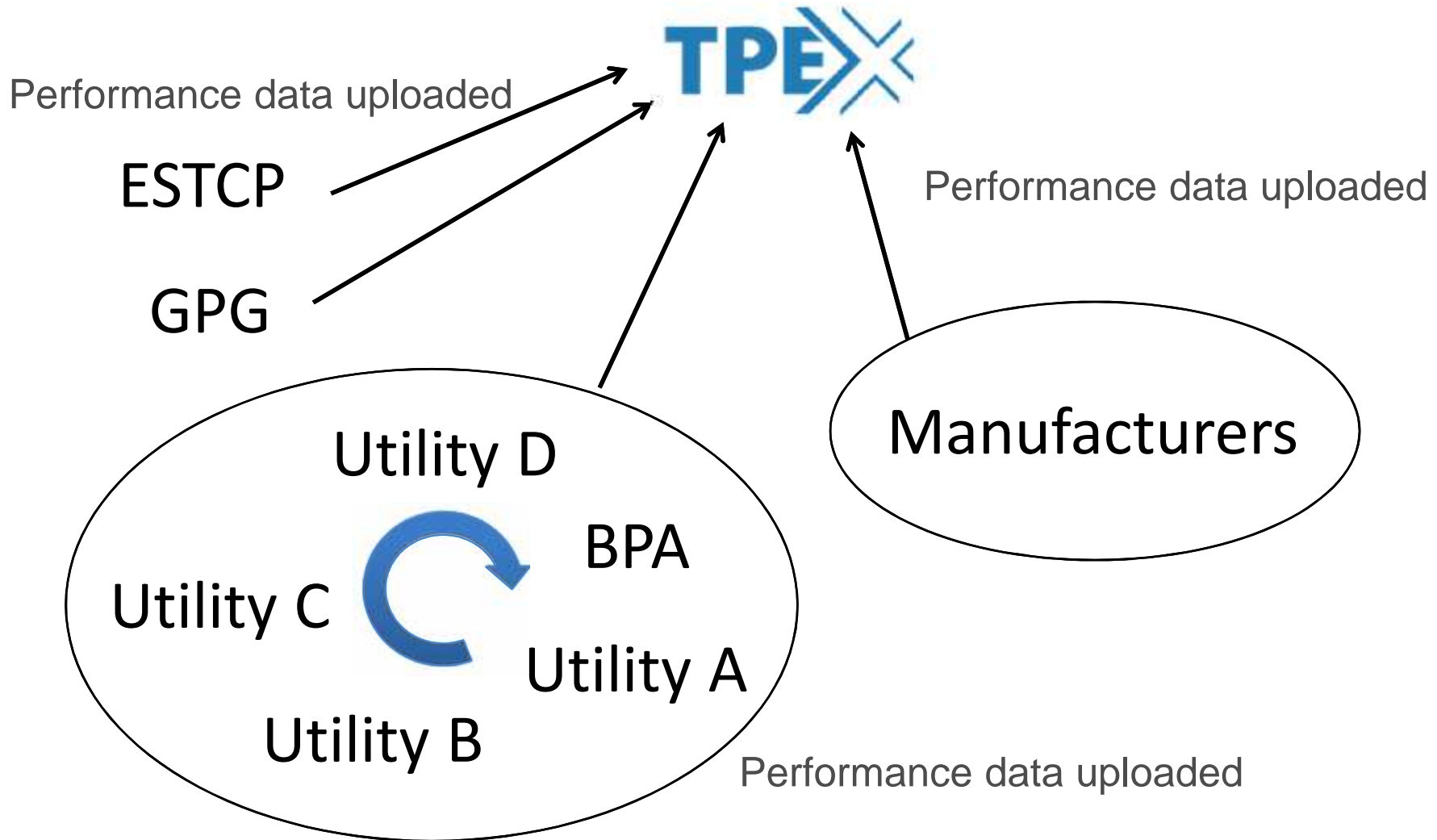
Electric Utility Benefits

- Data aggregator
 - Combine *similar* data from many sources
 - Allow users to analyze performance before field demonstration
 - Verify with limited field testing, if necessary
- Qualified product list development/maintenance

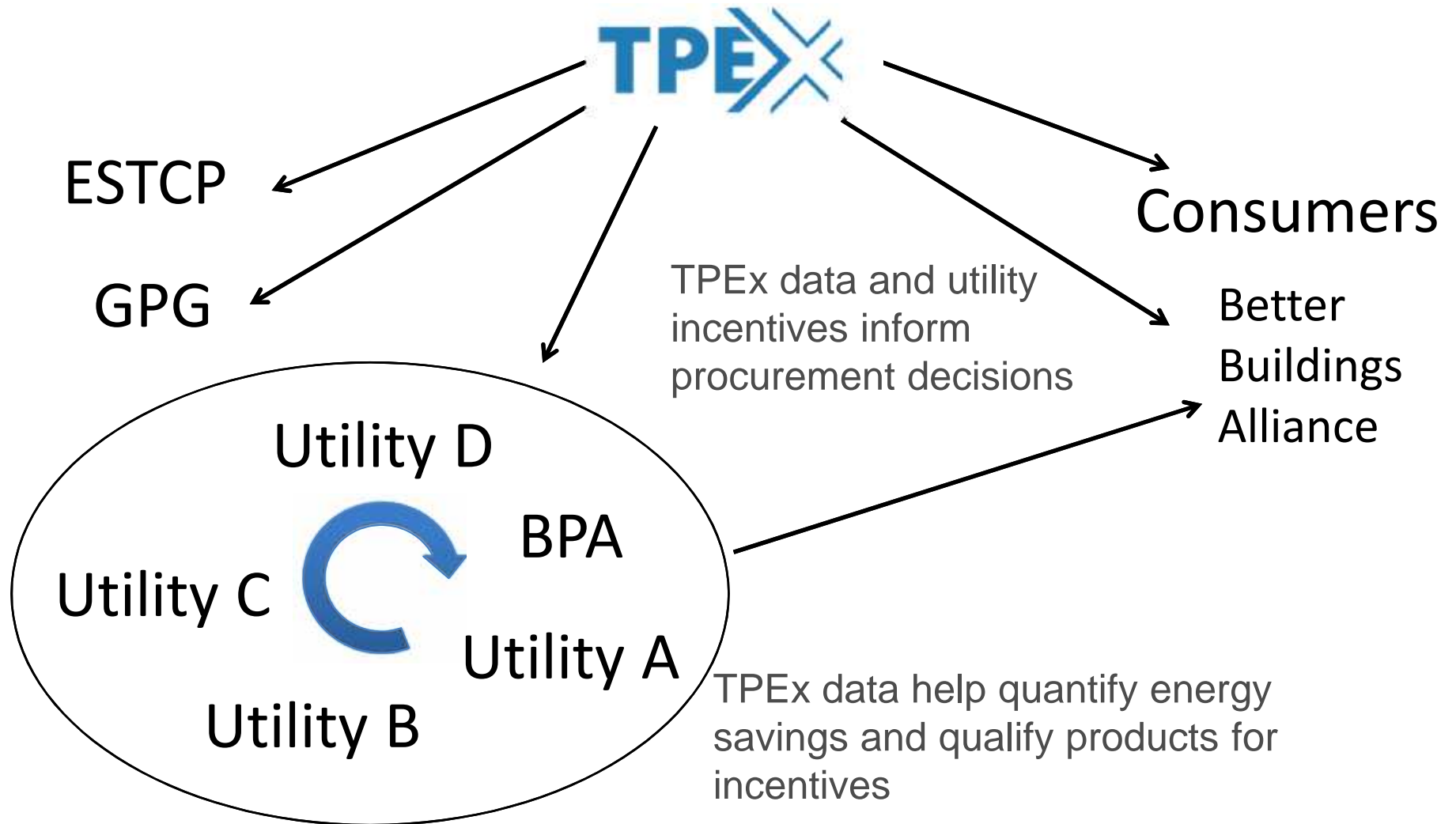
Utility/TPEX Interactions



Utility/TPEX Interactions



Utility/TPEX Interactions



Project Status

- TPEX is live at www.TPEX.org
- 17 technology categories implemented (18th in-progress)
- DOE [RFI](#) requesting manufacturer performance data
- 20,000+ product datasets
- Public commitments from Target, Walmart, the Bonneville Power Administration, and LG
- Ongoing interactions with additional manufacturers and utilities

Next Steps

- Seeking additional commitments from
 - Product manufacturers: Provide data
 - Retailers: Request vendors provide data to TPEX
- Working with utilities to pilot TPEX integration in technology demonstration workflows
 - Interested in identifying additional partners

Questions?

Daniel Studer
TPEX@nrel.gov

Upcoming Showcase Webinars

- CEA 2045 Concept – Tuesday, September 23, 2014
- Engine Generator Block Heaters – Wednesday, October 15, 2014

Information and registration at www.e3tnw.org/webinars

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More information about emerging technologies:

E3T database: www.e3tnw.org

E3T Program: www.bpa.gov/energy/n/emerging_technology/

Conduit: www.ConduitNW.org