ENERGY STAR®
Electric Vehicle Supply Equipment
Draft 2 Test Method Webinar

October 21, 2015

ENERGY STAR Products Labeling Program

Webinar Details

- Webinar slides and related materials will be available on the EVSE Product Development Web page:
  - www.energystar.gov/NewSpecs
  - *Follow link to "Version 1.0 is in Development" under "Electric Vehicle Supply Equipment"*

- Audio provided via teleconference:

  Call in: +1 (877) 423-6338 (U.S.)
  +1 (571) 281-2578 (International)
  Code: **773-366** #

  - Phone lines will remain open during discussion
  - Please mute line unless speaking
  - Press *6 to mute and *6 to un-mute your line

Webinar Agenda

- Introductions and Recap of the ENERGY STAR specification development process
- Discussion of the EVSE Test Method
  - Definitions
  - Scope
  - Test Set-up
  - Test Conduct
- Data Assembly
  - Data Assembly Form
- Connected Functionality

Webinar Agenda

Time	Topic
1:00–1:20	**Introductions and Specification Development Recap**
1:20–1:50	Definitions and Scope
1:50–2:20	Test Setup
2:20–2:50	Test Conduct
2:50–3:00	Data Assembly
3:00–3:45	Connected Criteria and Next Steps
3:45–4:00	Open Comment

Introductions

Verena Radulovic
U.S. Environmental Protection Agency

Barney Carlson
Idaho National Laboratory

Matt Malinowski
ICF International

Ted Bohn
Argonne National Laboratory

Emmy Phelan
ICF International

Doug Frazee
ICF International

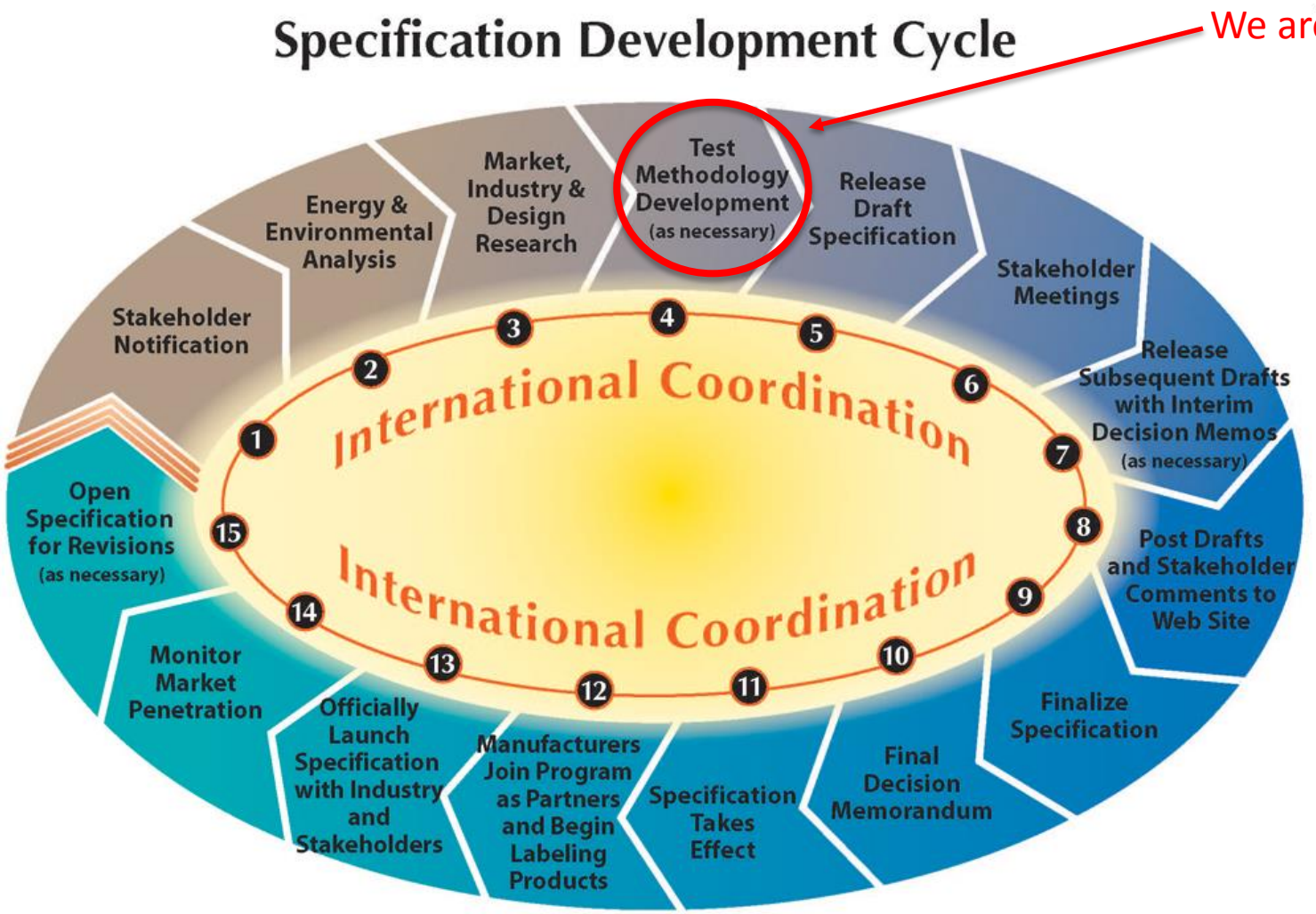
Bruce Nordman
Lawrence Berkley National Laboratory

Alan Meier
Lawrence Berkley National Laboratory

Recap of Specification Development: Guiding Principles of Specification Development

- Cost-effective efficiency
- Performance maintained or enhanced
- Significant energy savings potential
- Efficiency improvements are achievable with non-proprietary technology
- Product differentiation and testing are feasible
- Labeling can be effective in the market

Recap of certification program



Specification Development Process

- Data-driven process
  - EPA analyzes data assembled by manufacturers or obtained elsewhere
  - Proposes levels that recognize top performers in the market
- All proposals are validated through specification drafts
- Only one ENERGY STAR level

Timeline thus Far

Event	Date
Scoping Report Published	*September 2013*
EVSE Specification Development Launch and Draft 1 Test Method Published	*June 19, 2015*
Draft 1 Test Method Webinar	*July 9, 2015*
Draft 2 Test Method Published	*October 6, 2015*
Draft 2 Test Method Webinar	**October 21, 2015**

Introducing ENERGY STAR Draft 2 Test Method for EVSE

- Draft 2 developed with Dept. of Energy's Argonne National Laboratory, Idaho National Laboratory, and Lawrence Berkeley National Laboratory.
- Draft includes changes to the following sections in response to feedback:
  - Scope
  - Definitions
  - Test Setup
  - Test Conduct
  - Other Considerations: Connected Functionality

- Impacts on measurement results should be minor

General Stakeholder Feedback

- One group of stakeholders expressed support for an ENERGY STAR EVSE test method and specification.
- Another stakeholder does not support EPA developing a specification:
  - May stifle the market and innovations for this product category
  - Energy savings would be minimal, as EVSE products are already efficient in their active charging and relatively efficient in standby

EPA appreciates stakeholder support and engagement on the creation of a specification and test method for EVSE. In its initial market and engineering assessment, EPA identified savings opportunities for EVSE products, based on differences in power consumption among EVSE products when not actively charging, and present and anticipated growth in this product category over the past few years. The energy savings potential supports the development of an ENERGY STAR specification.

Definitions and Scope

Time	Topic
1:00–1:20	Introductions and Specification Development Recap
1:20–1:50	**Definitions and Scope**
1:50–2:20	Test Setup
2:20–2:50	Test Conduct
2:50–3:00	Data Assembly
3:00–3:45	Connected Criteria and Next Steps
3:45–4:00	Open Comment

Level 1 and Level 2 Definitions and Scope

- **Level 2 Lower Current Limit**
  - One stakeholder noted that to harmonize with Society of Automotive Engineers (SAE) J1772 and not exclude any high-voltage but lower current equipment, EPA should remove "greater than 16 amperes" from the Level 2 definition.

EPA has removed this language from the Level 2 definition to harmonize with SAE J1772.

Level 2: A galvanically-connected EVSE with a single-phase input voltage range from 208 to 240 volts AC and maximum output current ~~greater than 16 amperes AC and~~ less than or equal to 80 amperes AC.

Level 1 and Level 2 Definitions and Scope

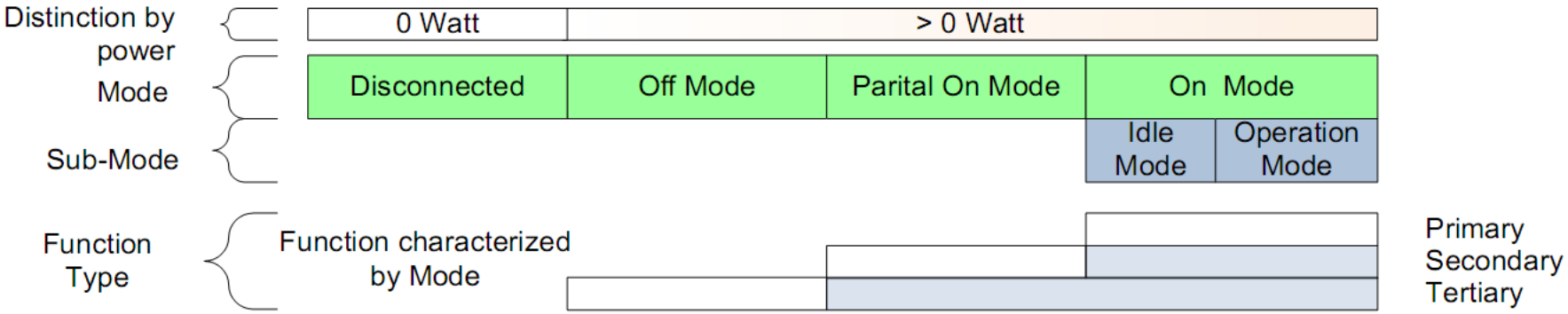
- **Level 1 versus Level 2 Efficiency**
  - One stakeholder noted that the efficiency of charging with Level 1 EVSE may be lower than Level 2, even if the Level 1 EVSE is efficient in itself
    - Due to lower efficiency of the car's battery charger at lower voltages and the longer duration of the charge, which increases the impact of ancillary loads

EPA continues to propose that the test boundaries for the EVSE exclude the vehicle's on-board charger to only reflect the amount of power that the EVSE draws.

EPA seeks additional feedback on the differences between the efficiency of the car's on-board chargers when supplied by Level 1 versus Level 2 EVSE.

Operating Modes

- Definitions based on the standard operational mode names from IEC 62542 – Environmental Standardization for Electrical and Electronic Products and Systems.
- Consistent operating mode terminology eliminates confusion and ambiguity across product types.



Operating Modes/Harmonization

- Stakeholders suggested that EPA should harmonize with SAE J2894 mode definitions and clarify where harmonization with external standards or test methods occurs in the specification

EPA has provided footnotes referring to definitions in industry standards where appropriate, but has retained the previously proposed functions and function categories.

EPA notes that any definition of a mode will be incomplete and that the mode will be fully specified only through the test setup and test conduct instructions in the body of the test method. Since these specific instructions will be different than those in other industry standards, EPA considers it less confusing to use the more general function categories rather than existing definitions.

Operating Modes

- A stakeholder requested that EPA define SAE J1772 states A, B, and C as well as switch modes S1/S2 and measurement points L1, L2, and duty cycle

EPA has clarified all terms for testing and provided a cross-reference to definitions in other standards, where applicable.

Primary and Secondary Functions

- **EVSE Functions**
  - Stakeholders requested changes to the primary/secondary functions:
    - Adding climate conditioning to the mode definitions.
    - Removing ambient lighting but adding safety functions and pilot signal to the secondary functions

- EPA has:
  - Revised the primary function definition to state that the primary function of an EVSE is supplying current, regardless of how that current is used within the vehicle.
  - Added safety functions and pilot signal as examples of secondary functions.

Primary and Secondary Functions (cont'd)

Primary Function: Function providing the intended purpose. For EVSE, Primary Functions are:

a) ~~Charging.~~ Providing current to a connected load.

Secondary Function: Function that enables, supplements or enhances a primary function. For EVSE, Secondary Functions are:

…

d) Communicating with the vehicle;
e) Illumination of display, indicator lights, or ambient lighting;
f) Public access control (RFID card, authorization, etc.);
g) Safety Functions;
h) Control Pilot Signal
i) Wake-up function.

Scope

- **Included Products**
  - One stakeholder noted that there are EVSE that support both Level 1 and Level 2 and requested that they be accommodated

EPA has revised the scope to clarify that these products are included, and energy efficiency requirements for them will be developed in the specification.

4.1 Included Products

~~4.1.1 Level 1 and Level 2 EVSE that (1) have a rated current less than or equal to 80 amperes; (2) have an SAE J1772 coupler intended for electric vehicle charging; and (3) are outside the vehicle.~~

4.1.1 Level 1 EVSE.

4.1.2 Level 2 EVSE.

4.1.3 Level 1/Level 2 EVSE

Scope

- **Excluded Products**
  - EPA should track DC Fast Chargers for future consideration
  - EPA should clarify that DC Slow Chargers are not allowed

As the impacts of AC EVSE are expected to be greater, EPA will consider DC fast and slow chargers in future versions of the EVSE specification. However, EPA has amended the scope to exclude DC chargers.

4.2 Excluded Products

…

~~4.2.2 Fast DC EVSE.~~

~~4.2.3 Wireless/Inductive EVSE.~~

~~4.2.4 Power electronic components inside the vehicle~~.

4.2.2 DC EVSE.

Scope

- **Commercial Units**
  - One stakeholder requested clarification whether commercial EVSE are included in scope

Commercial EVSE are in the scope of the specification and are meant to be included in the definition of a Level 2 charger.

EPA would appreciate further feedback from stakeholders on EVSE intended for residential versus commercial use.

Scope

- **Couplers**
  - One stakeholder noted that referencing the SAE J1772 coupler excludes some products that nonetheless support the SAE J1772 protocol and requested clarification that this was intentional.

EPA has removed the SAE J1772 coupler requirement from the scope such that the eventual specification can be applied to EVSE that ship without the coupler. As a result, EPA has included instructions in the Draft 2 test method that EVSE without a coupler be tested with an adapter, to be provided by the manufacturer, as the SAE J1772 physical interface is the industry standard.

242 b) Output Coupler: The SAE J1772 interface shall be used to connect between the UUT and
243 VEM. If the UUT does not have an SAE J1772 output coupler, an adapter shall be provided
244 by the manufacturer.

Test Setup

Time	Topic
1:00–1:20	Introductions and Specification Development Recap
1:20–1:50	Definitions and Scope
1:50–2:20	**Test Setup**
2:20–2:50	Test Conduct
2:50–3:00	Data Assembly
3:00–3:45	Connected Criteria and Next Steps
3:45–4:00	Open Comment

EVSE Test Boundary

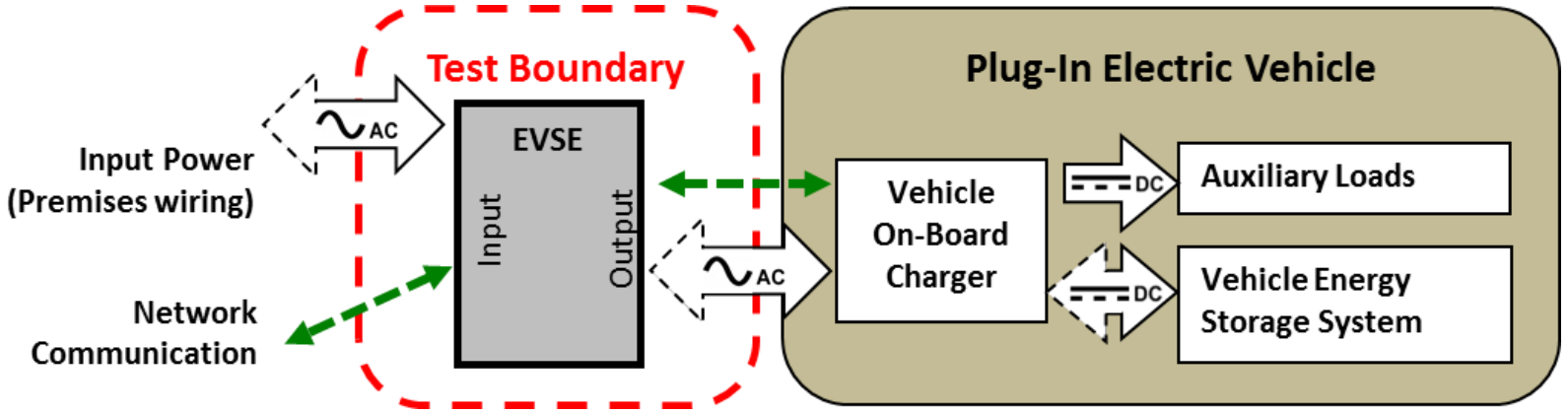
- **Reverse Power Flow**
  - One stakeholder commented that EVSE should be able to support reverse power flow from the vehicle to the grid as long as the car's onboard inverter supports it. However, another group of stakeholders recommended that EPA remove such speculative features from the test method until products in the market support them.

EPA proposes to retain the option to account for reverse power flows in this test method, given rapidly changing EVSE technologies. Based on trends in vehicle electrification, EPA anticipates that such functionality may become more commonplace and thus seeks to develop a test method that can account for such functionalities when measuring power consumption.

EVSE Test Boundary

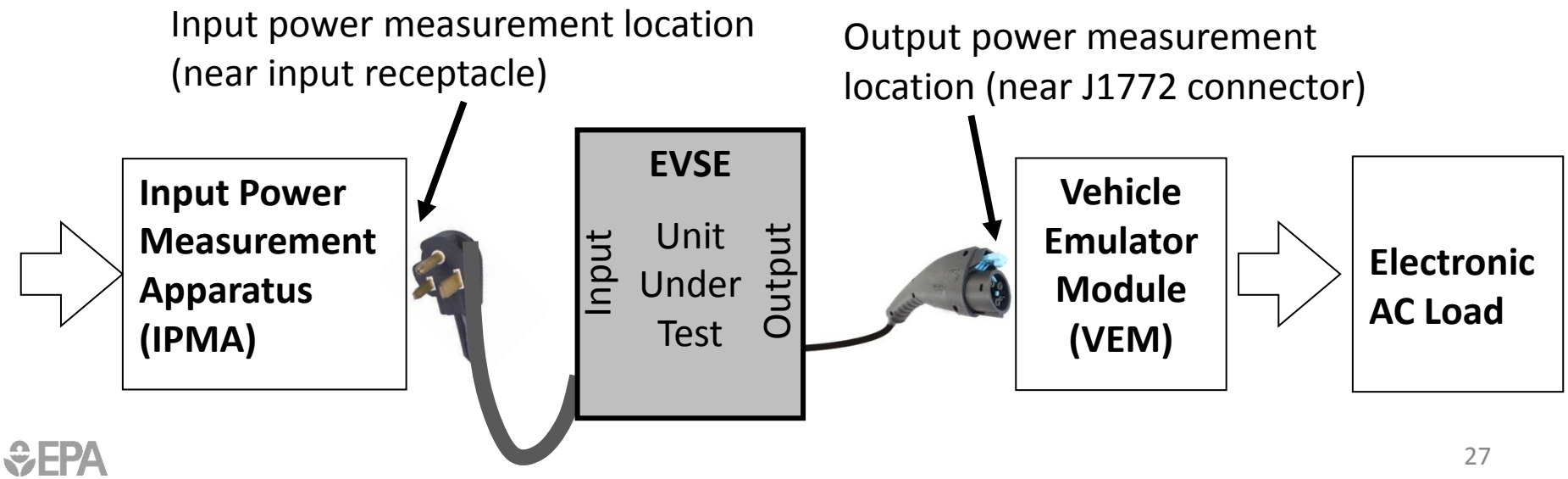
- **Labeling Vehicles**
  - One group of stakeholders commented that EPA should consider labeling entire vehicles, due to varying battery charging efficiency

EPA has a program that labels vehicles based on efficiency. At this time, the ENERGY STAR program is only including off-board components in its Version 1.0 specification to highlight energy efficiency of EVSE.



Test Setup

- Stakeholders requested changes to the description of:
  - Input Power Measurement Apparatus (IPMA)
    - Plug and cord
    - Hardwire connection
  - Vehicle Emulator Module (VEM)



Test Setup—Cables

- Various stakeholders recommended the following changes to the cable length requirements:
  - Cable length should be set to 1 foot
  - All cables should be the default length provided by the manufacturer
  - Cables should be the longest length sold with the EVSE
- Specify the cable type such that a consistent gauge is used for a particular rated current

To avoid confusion over conductor type and provide the most repeatable results, EPA has revised the test setup instructions to require measurements directly at the input power connection (e.g., screw terminals) inside the EVSE for products that do not ship with an input power cord.

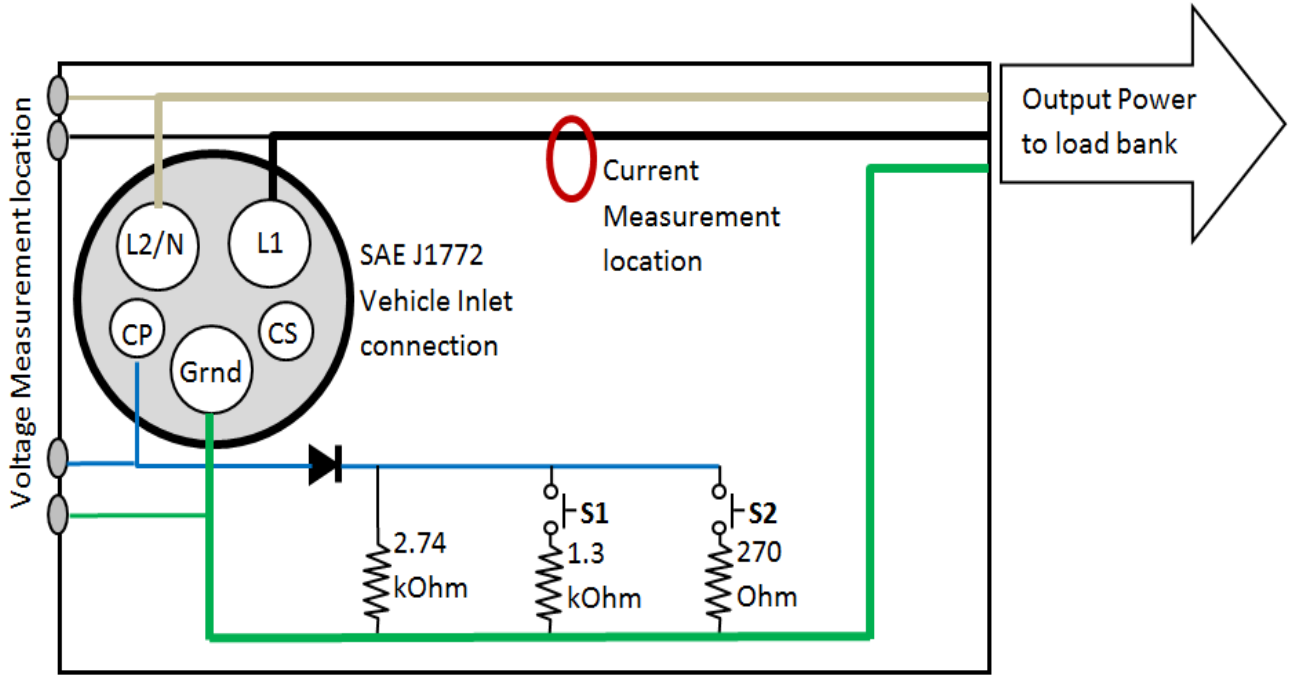
Test Setup—Cables (cont'd)

- For EVSE intended for **hardwire connection**
  - Voltage Measurement shall be measured at the hardwire connection location at the input terminal of the EVSE.
  - Current Measurement shall be measured on the wiring to the EVSE hardwire connection.

- For EVSE equipped with an **input plug and cord**
  - Voltage Measurement shall be measured at the wiring terminals of the receptacle providing power to the EVSE input plug.
  - Current Measurement shall be measured on the wiring connected to receptacle terminals.

Test Setup – Output Measurements

- Voltage Measurement shall be measured at the Vehicle Emulation Module at the J1772 vehicle inlet port.
- Current Measurement shall be measured at the Vehicle Emulation Module at the J1772 vehicle inlet port.
- Duty Cycle of the Control Pilot shall be measured to determine the EVSE available current, but not recorded



Test Setup – Mounting

- **UUT Mounting**
  - One stakeholder commented that UUT should be mounted per the manufacturers' instructions with reference to a "vertical surface or structure”

EPA has clarified that mounting be performed:

- Per manufacturer’s instructions
- Otherwise, on a non-conductive surface

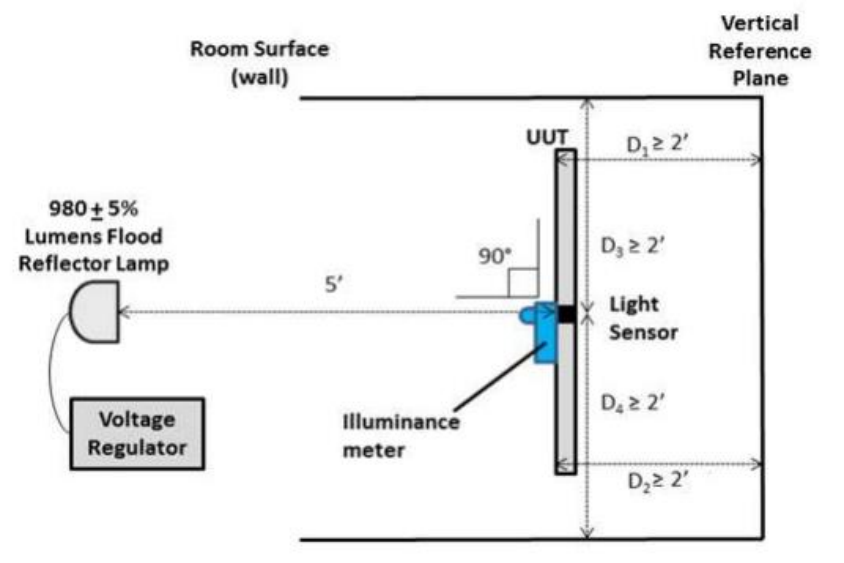
Test Setup – Room Illuminance and ABC

- Stakeholders requested clarification on whether indicator LEDs that are subject to Automatic Brightness Control (ABC) should be tested in dark room conditions.
- Conversely, how would LEDs be tested if not subject to ABC but controlled by an eco-mode

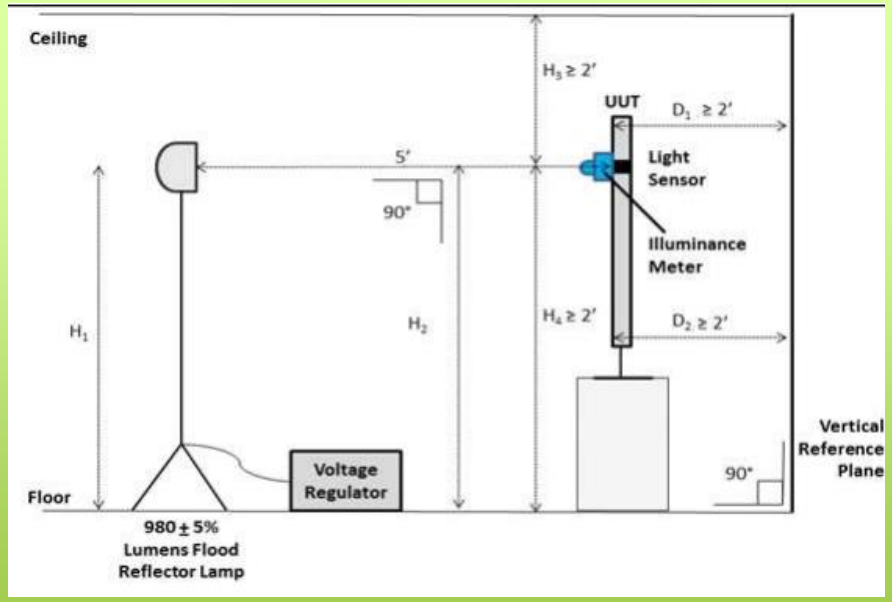
- EPA has included two tests for ABC – under bright and dark conditions
  - All models with ABC enabled by default should be tested according to Section 6.1.C
- Units shall be tested as shipped

Test Setup – Room Illuminance (cont'd)

- Light source alignment for bright and dark lighting conditions



Test Setup – Top View



Test Setup – Side View

Test Setup – Room Illuminance (cont'd)

1) Lamp Type:

a) Standard spectrum halogen flood reflector lamp. …

b) Rated Brightness: 980 ± 5% lumens.

2) Light Source Alignment For Testing Products With ABC Enabled By Default:

…

f) Illuminance values shall be obtained by varying the input voltage of the lamp.

3) Setting Illuminance Conditions:

d) The lamp shall be adjusted such that the illuminance meter reads **300 ± 9.0 lux**. …

f) … the above steps a) through e) shall be repeated with a target illuminance equal to **12 ± 1.0 lux**.

Test Conduct

Time	Topic
1:00–1:20	Introductions and Specification Development Recap
1:20–1:50	Definitions and Scope
1:50–2:20	Test Setup
2:20–2:50	**Test Conduct**
2:50–3:00	Data Assembly
3:00–3:45	Connected Criteria and Next Steps
3:45–4:00	Open Comment

New test: APD

- **Power Down Time**
  - A stakeholder commented that the test method should be revised to address the amount of time required to transition from higher power modes to low power modes by requiring a power-down time limit.

EPA has added an automatic power down (APD) test

New test: APD (cont'd)

7.2 Auto Power Down (APD) Function

A) APD testing shall be conducted only for products that have an APD timer.

B) Conduct the UUT preparation procedure in section 7.1.

C) Ensure the APD timing is set to the default value.

D) Ensure any demand-response functionality is disabled.

1) If demand-response functionality cannot be disabled and a demand-response function occurs during a test, the results from the test shall be replaced with results from a substitute test.

E) State C: Plug in the UUT output connection to J1772 vehicle inlet on VEM. Connect S1 in the VEM.

F) Begin measuring the elapsed time to APD after the product ceases performance of all Primary Functions.

G) Measure and record the average power before APD over a 2 minute period.

H) Allow the UUT to automatically power-down.

I) Verify that the device is in the expected APD low-power state and record the time to APD.

J) Measure and record the average power after APD over a 2 minute period.

K) Power shall be measured according to IEC 62301 Ed 2.0-2011; with the additional guidance in Section 6 of this document.

New test: APD (cont'd)

- Which SAE J1772 state should the EVSE-vehicle interface be in during the test?
- Which features remain on following APD?

Ground Current

- **Ground Current**
  - One stakeholder commented that measurement of ground current be removed throughout the test method, as this is a safety test already performed elsewhere.

EPA has removed the language requiring measurement and recording of ground current. However, it is still important to note that all required industry safety tests should be performed prior to ENERGY STAR testing.

Control Pilot

- **Control Pilot Signal**
  - Two stakeholders commented that measurement of the pilot signal be removed throughout the test method as the EVSE should supply whatever current is required by the load up to its rating. Measuring the pilot is an unnecessary burden.

EPA has removed the requirement to record the control pilot signal properties. The control pilot shall still be measured to calculate the load current for the Operation Mode test.

Partial On Mode and Idle Mode Testing

- **Timer Functions**
  - A stakeholder noted that demand response and timer functions may be inherent to a model and thus cannot be disabled.

EPA has added language to account for models with demand response and timer functions that cannot be disabled:

462 C) Ensure any demand-response functionality or timer is disabled.

463 1) If demand-response functionality or timer cannot be disabled and a demand-response or timer
464 function occurs during a test, the results from the test shall be replaced with results from a
465 substitute test.

Test Conduct—Operation Mode

- Calculate the available current based on Control Pilot duty cycle only:

Table 3: Available Current Calculation from Control Pilot Duty Cycle % (SAE J1772)

Duty Cycle (%)	Available Current (A)
10% ≤ Duty Cycle ≤ 85%	% Duty Cycle x 0.6
85% < Duty Cycle ≤ 96%	(% Duty Cycle – 64) x 2.5

Previously:

4) Determine the full current output, defined as the lesser of the two:

a) Nameplate output current; and

b) The calculated available current from the measured Control Pilot Duty Cycle percentage.

Operation Mode Testing

- **Power Factor**
  - One stakeholder commented that power factor will be close to unity in Operation Mode and need not be measured in this mode.

EPA has removed the power factor measurement from the test method, as power factor is expected to be in close to unity in On Mode.

- **Average Power Loss versus Instantaneous Power Loss**
  - A stakeholder recommended that a requirement be set to report average power loss in addition to percent efficiency as both values may be necessary to inform the ENERGY STAR specification development process.

EPA will collect the power loss in addition to the percent efficiency. Whether this would be an average or instantaneous power loss value will depend on the conditions.

Test Conduct—Operation Mode

- Testing conducted in State C (SAE 1772 connected, and vehicle ready)
- Operate at full current for ≥ 30 min

- Test each supported loading condition:

Table 4: Loading Conditions for UUT

	Test Condition Current (A)	Example for 80 A capable UUT	Example for 32 capable UUT	Example for 16 A capable UUT
Loading Condition 1	Available Current (determined in Section 7.5.C), above) ± 2%.	80.0 A	32.0 A	16.0 A
Loading Condition 2	30.0 A ±0.6 A	30.0 A	30.0 A	Do not test
Loading Condition 3	15.0 A ±0.3 A	15.0 A	15.0 A	15.0 A
Loading Condition 4	4.00 A ±0.1A	4.0 A	4.0 A	4.0 A

EPA has adjusted the example loading conditions to reflect higher nameplate current models.

Partial On Mode and Idle Mode Testing

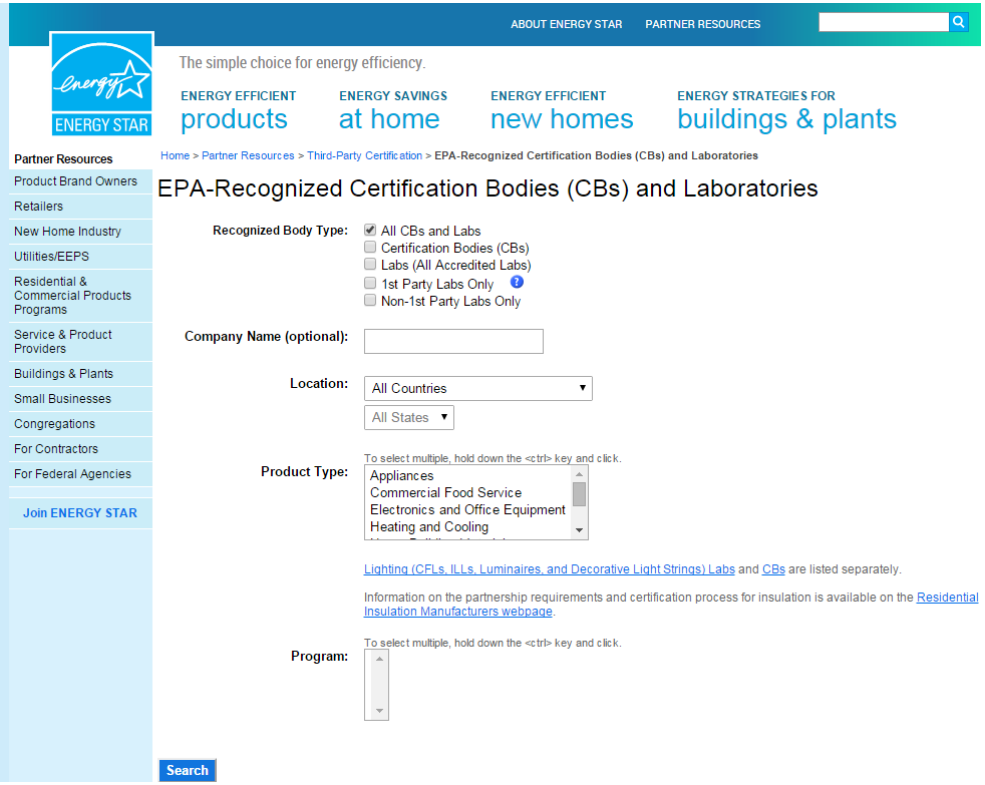
- **Standby Power**
  - A stakeholder commented that there should be additional instructions for measuring standby power, such as accumulating energy over a period of time and reporting average power, to capture cyclical behaviors during Partial On Mode.

EPA has included a reference to IEC 62301, which outlines how to measure standby power over a period of time.

Certification/Verification Testing

- A stakeholder requested that an annex be added to ensure that energy usage is measured in several different labs periodically to ensure consistency.

Per EPA's third party certification program, all EPA-approved labs will need to be accredited to perform the EVSE testing. As such, all testing labs should be set up to yield repeatable results and capture accurate test data, such that it is not necessary to test EVSE in different labs.



Data Assembly and Next Steps

Time	Topic
1:00–1:20	Introductions and Specification Development Recap
1:20–1:50	Definitions and Scope
1:50–2:20	Test Setup
2:20–2:50	Test Conduct
2:50–3:00	**Data Assembly**
3:00–3:45	Connected Criteria and Next Steps
3:45–4:00	Open Comment

Data Assembly

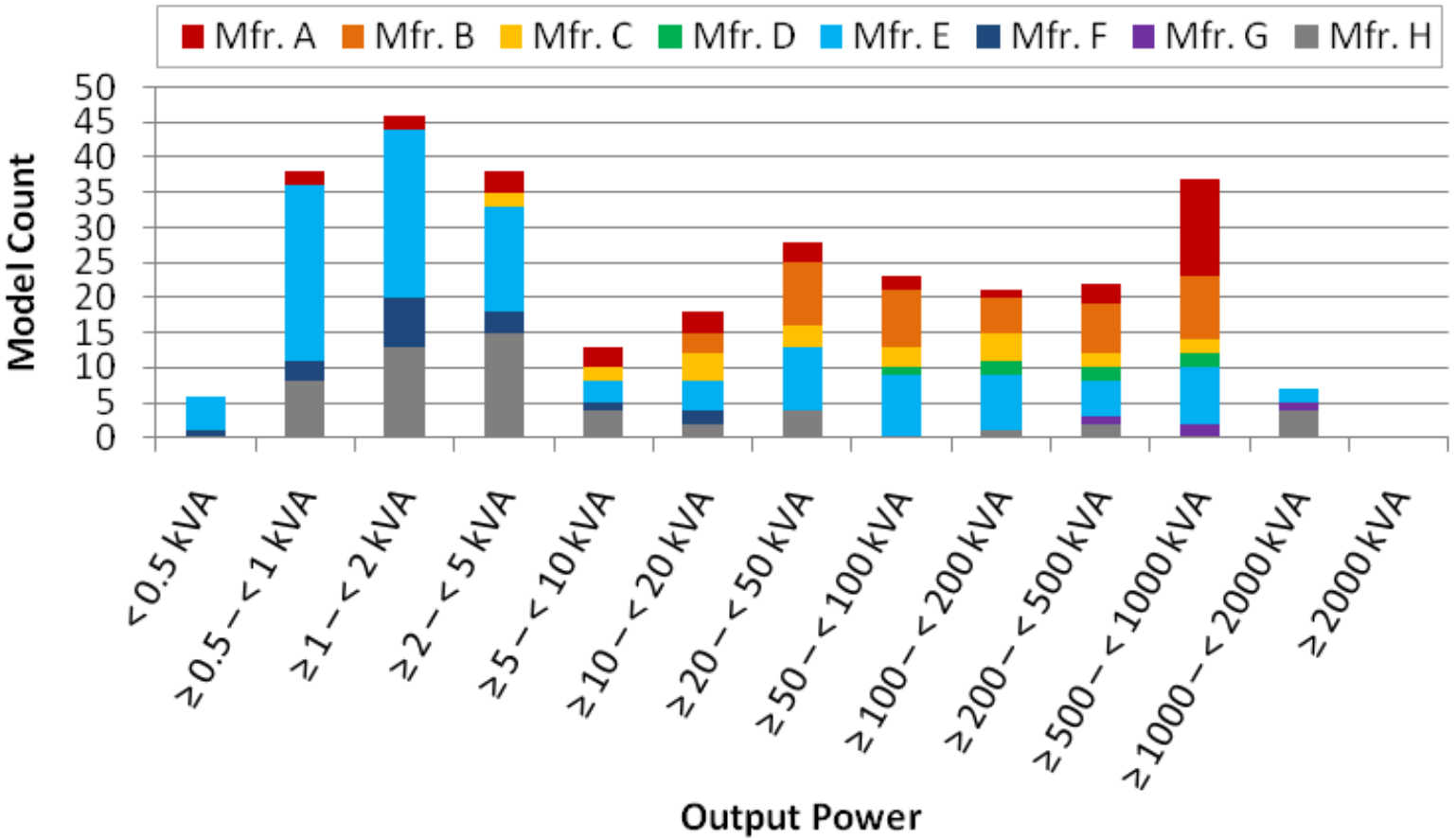
- EPA has not proposed performance levels for EVSE at this time but is assembling data to inform the specification setting process.
- Manufacturers are invited to share data using the form distributed with the Draft 2 test method.
- EPA considers that the Draft 2 Test Method is sufficiently developed at this stage to test the energy efficiency of EVSE within the proposed scope of products. EPA believes that additional changes to the test method in response to stakeholder feedback to this Draft 2 will be minor, such that any data collected now will be valid for the purposes of informing the specification development process.
- Once EVSE test data is available, EPA will use the data to develop a first draft of the specification's energy efficiency requirements

Data Assembly Form

	PRODUCT DESCRIPTION	(Insert Columns for Additional Models)	
GENERAL		**VALUE**	**UNITS**
1	Manufacturer		
2	Model Number		
MODEL INFORMATION			
3	Type of Product (e.g., Level 1, Level 2, or Level 1/Level 2 EVSE)		
4	Maximum Nameplate Current		A
5	Cord Set Length		ft
6	Input Connection: Hardwired OR Supplied with Input Cord and Plug?		
7	If Above Answer is "Supplied with Input Cord and Plug", Enter Cord Length		ft
8	Network Capable?		Y or N
9	If network capable, which connection (e.g., Wi-Fi, Ethernet, Cellular modem, other)?		Y or N
10	Automatic Brightness Control (ABC) Capable?		Y or N
11	Automatic Brightness Control (ABC) Enabled As-shipped?		Y or N
12	Demand Response Capable?		Y or N
13	Presence of Occupancy Sensor(s)?		Y or N
TEST RESULTS for High-Illuminance Condition or if model does not have ABC			
	Test Conditions Measurement		
14	AC Input Voltage		V
15	AC input frequency		Hz
16	Room Illuminance		lux
	Auto Power Down (APD) Function		
17	Elapsed Time to APD after product ceases performance of Primary Functions		s
18	Average Power before APD over a 2 minute period*		W
19	Average Power after APD over a 2 minute period*		W

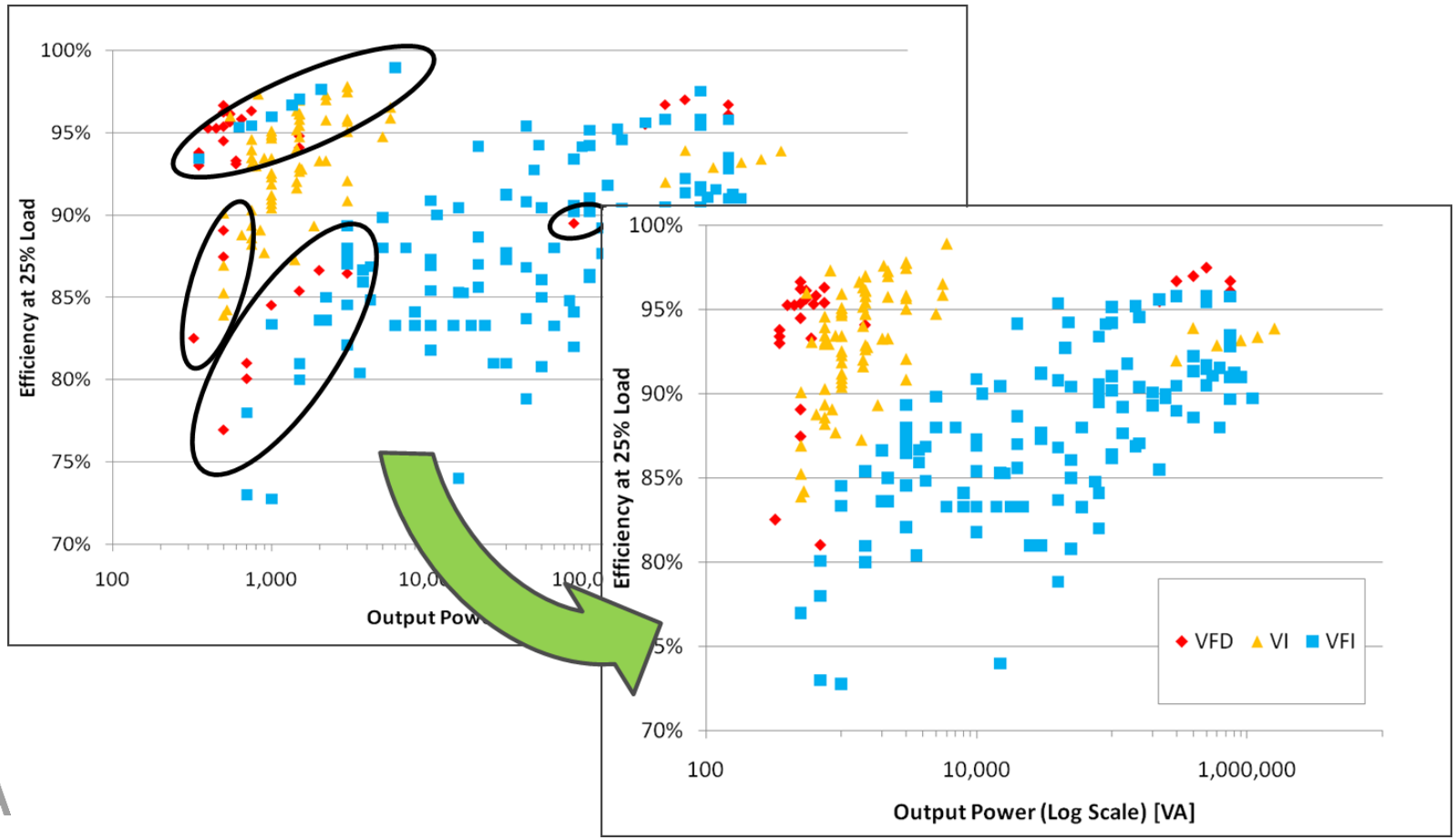
Data Assembly Process

- EPA will compile all data and published anonymized summaries

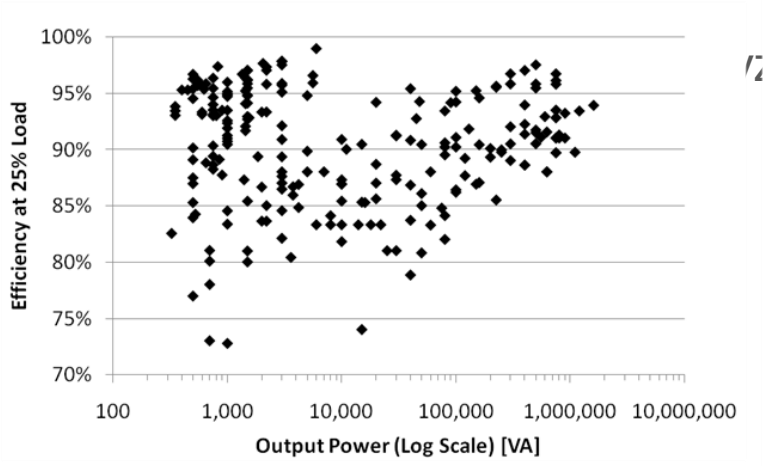


Data Assembly Process (cont'd)

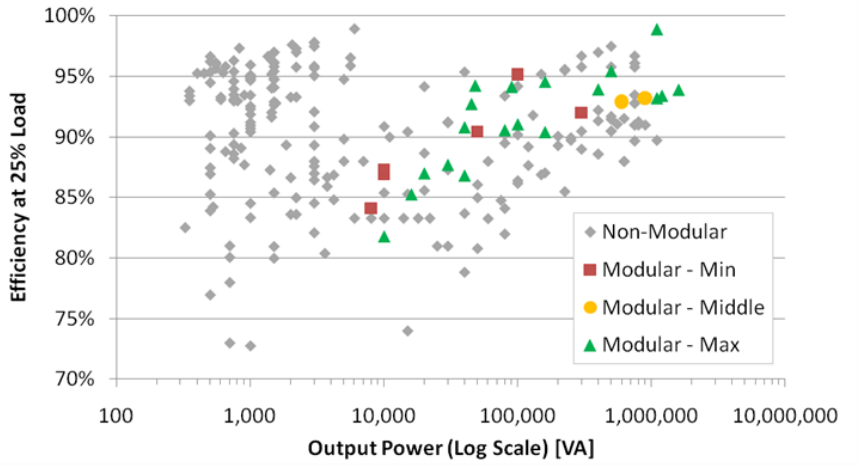
- Data will be validated and analyzed to understand impacts on efficiency



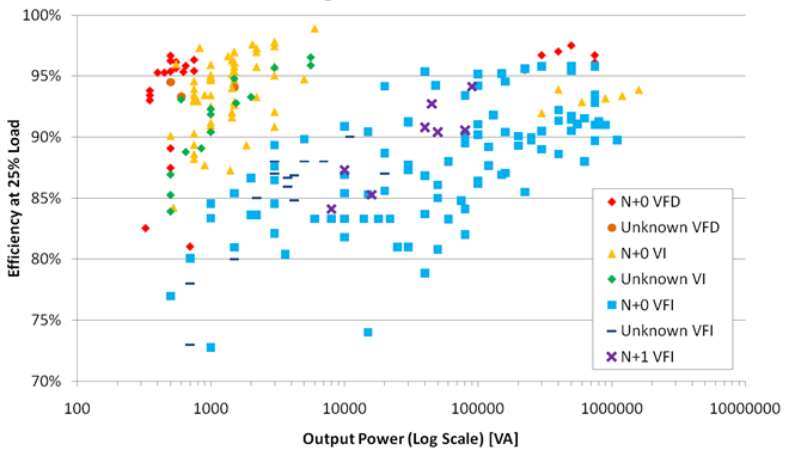
Data Assembly Process (cont'd)



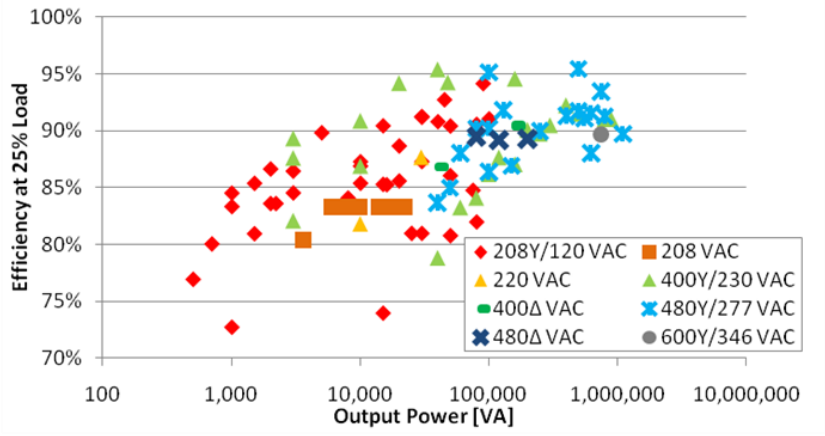
Output Power



Modularity



Redundancy



Output Voltage

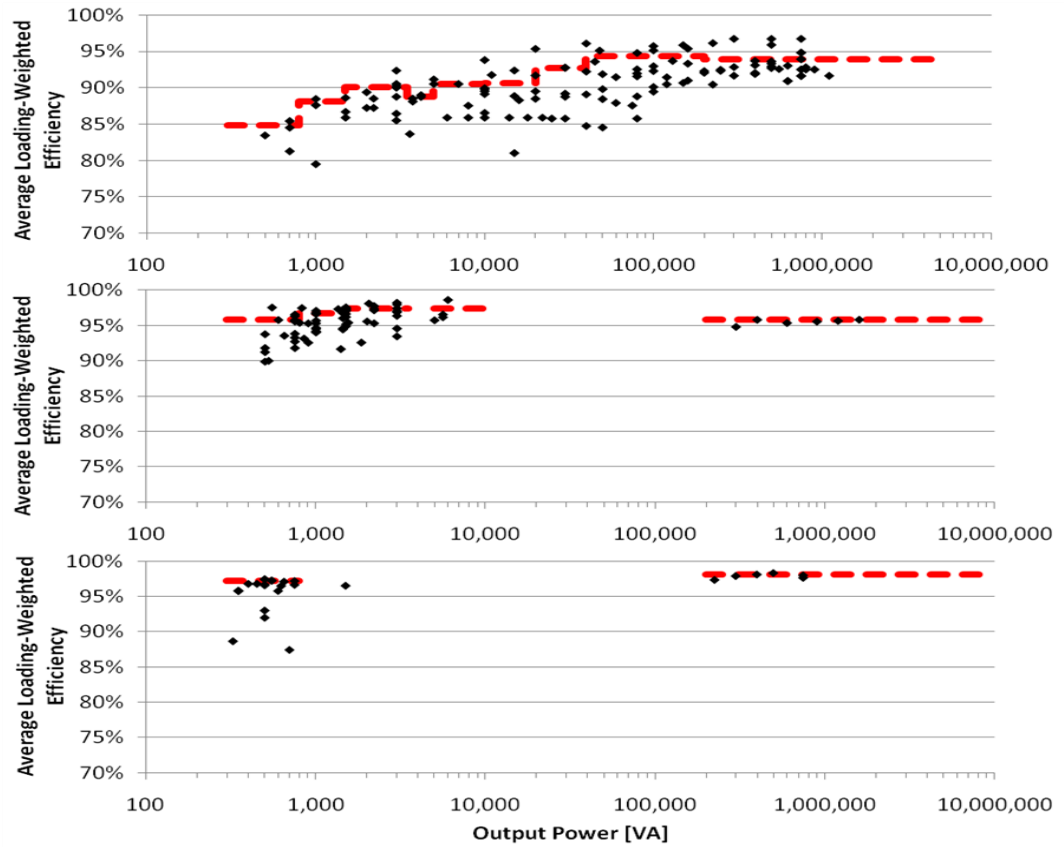
Data Assembly Process (cont'd)

- Finally, EPA will propose efficiency requirements that recognize the top performers in the market

VFI:

VI:

VFD:



Data Assembly Process (cont'd)

VFI:

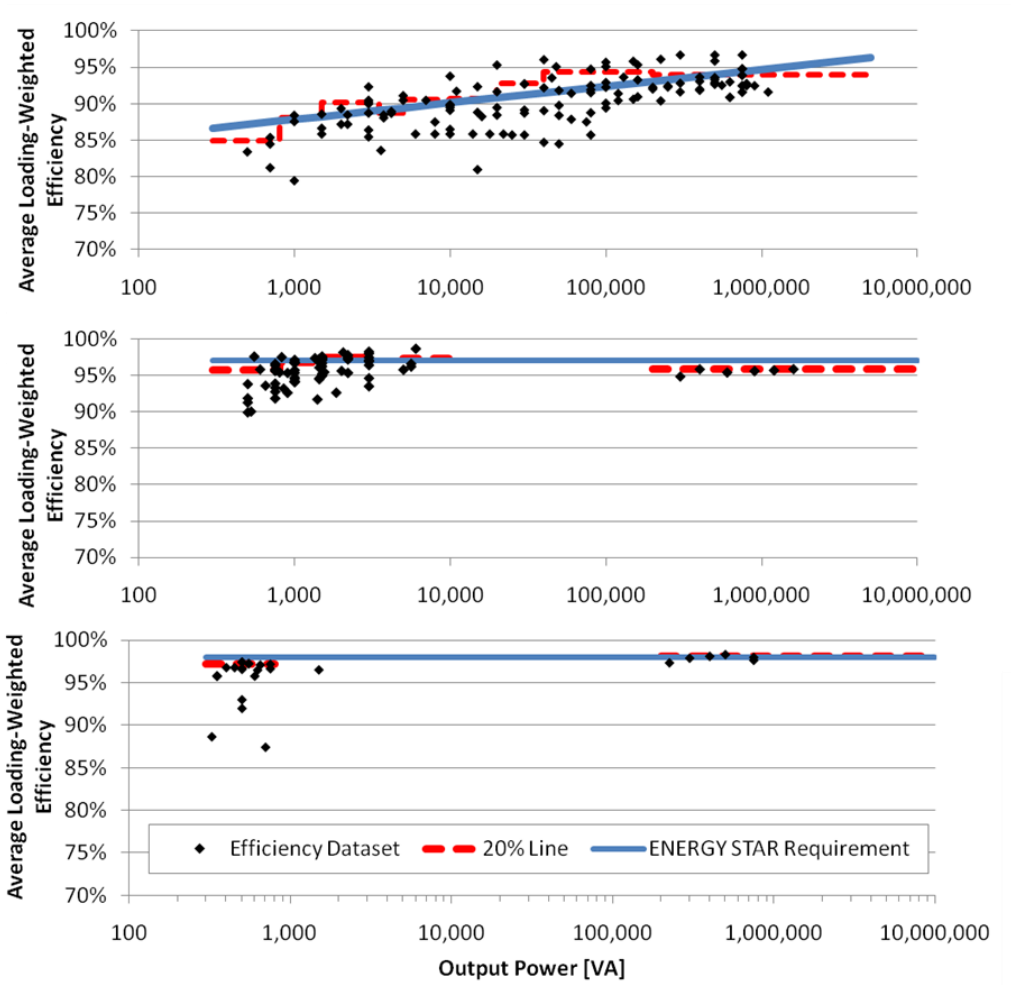
$Eff_{AVG} \geq 0.0099 \times \ln(P) + 0.81$

VI:

$Eff_{AVG} \geq 0.97$

VFD:

$Eff_{AVG} \geq 0.98$



Connected Functionality

Time	Topic
1:00–1:20	Introductions and Specification Development Recap
1:20–1:50	Definitions and Scope
1:50–2:20	Test Setup
2:20–2:50	Test Conduct
2:50–3:00	Data Assembly
3:00–3:45	**Connected Criteria and Next Steps**
3:45–4:00	Open Comment

Stakeholder Feedback to Connected Functionality

- **Connected Functionality Testing**
  - One stakeholder commented that EPA should not reference a particular protocol for Smart-grid Connectivity, but rather set performance goals that multiple protocols can meet.
  - Another group of stakeholders stressed the importance of testing and certifying response to both events and price signals, and recommended that EPA refer to Title 24 California Building Efficiency Standards Joint Appendix 5 and the related International Green Construction Code (IgCC).

EPA continues to include a placeholder for connected EVSE test methodology and plans to propose ENERGY STAR EVSE Connected Functionality criteria in the specification, prior to finalizing the test methodology.

Connected Functionality

- EPA continues to include a placeholder for connected EVSE test methodology and plans to propose criteria or parameters that enhance consumer benefits and greater efficiencies resulting from connected functionality in the specification

- Criteria could address:
  1. Open standards and open access, either at the level of the device and/or the cloud
  2. Grid response: including demand response and price response
  3. Metering

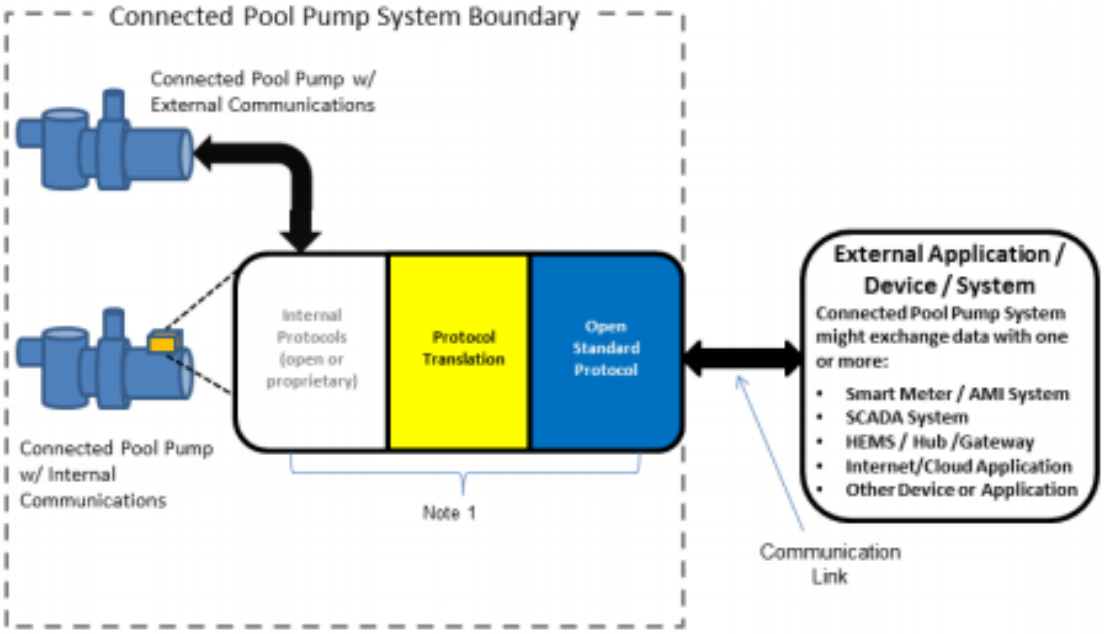
Connected Functionality: Anticipated Benefits

1. Consumer savings through automatic shifting of EVSE charging in response to price signals, in accordance with consumer preferences;
2. Enhanced consumer understanding of EV fuel costs through availability of EVSE meter data;
3. Consumer and utility/load management entity benefits from Demand Response programs; and
4. Utility/load management entity verification of EVSE load shed, and notification of consumer override, through limited sharing of data that will respect consumers' privacy;

Open Standards and Open Access: Anticipated Benefits

Are the definitions and criteria as specified in Sections 1.6 and 4.1 of the Version 1.1 ENERGY STAR Pool Pumps specification appropriate for and applicable to connected EVSE?

B) Connected Pool Pump System (CPPS): As shown in Figure 1, includes the ENERGY STAR certified pool pump, integrated or separate communications hardware, and additional hardware and software required to enable connected functionality.



Open Standards and Open Access (cont'd)

A) The CPPS Communication Link, noted in Figure 1, shall use Open Standards for all communication layers to enable functionalities listed in Table 2.

B) An Interface Control Document (ICD), Application Programming Interface (API), or other documentation shall be made available to interested parties that, at minimum, allows access to the functionalities listed in Table 2.

Table 2: Functionalities Applicable to the Communications Criteria

Functionalities
Section 4.2 Energy Consumption Reporting ICD/API/other doc. must include: • Accuracy • Units • Measurement Interval
Section 4.4 Operational Status, User Settings, and Messages
Section 4.5 Demand Response

Notes:

1. A CPPS that enables economical and direct communications, that comply with 4.1.A and 4.1.B, on the consumer's premises is preferred; but alternative approaches, where the CPPS only complies with 4.1.A and 4.1.B outside of the consumer's premises, are also acceptable.
2. A product that includes an embedded modular communications port that complies with 4.1.A and 4.1.B need not be supplied with a compatible communications module.

Feedback Request

- **Grid Response**

  - What level of specificity is appropriate?
  - Should EPA define default responses, mandate multiple response modes, configurability and the like?

- **Ancillary Services**

  Are there ancillary services (e.g. temporarily increased load, power factor correction) that EVSE could provide that would be of value to utilities?

Feedback Request

- **Price Responsiveness**

  - What are the key use cases, e.g.:
    - Price responsiveness,
    - Ability to participate in utility price response programs,
    - Ability to integrate with price aware/responsive Energy Management Systems?

Feedback Request

- **Metering**

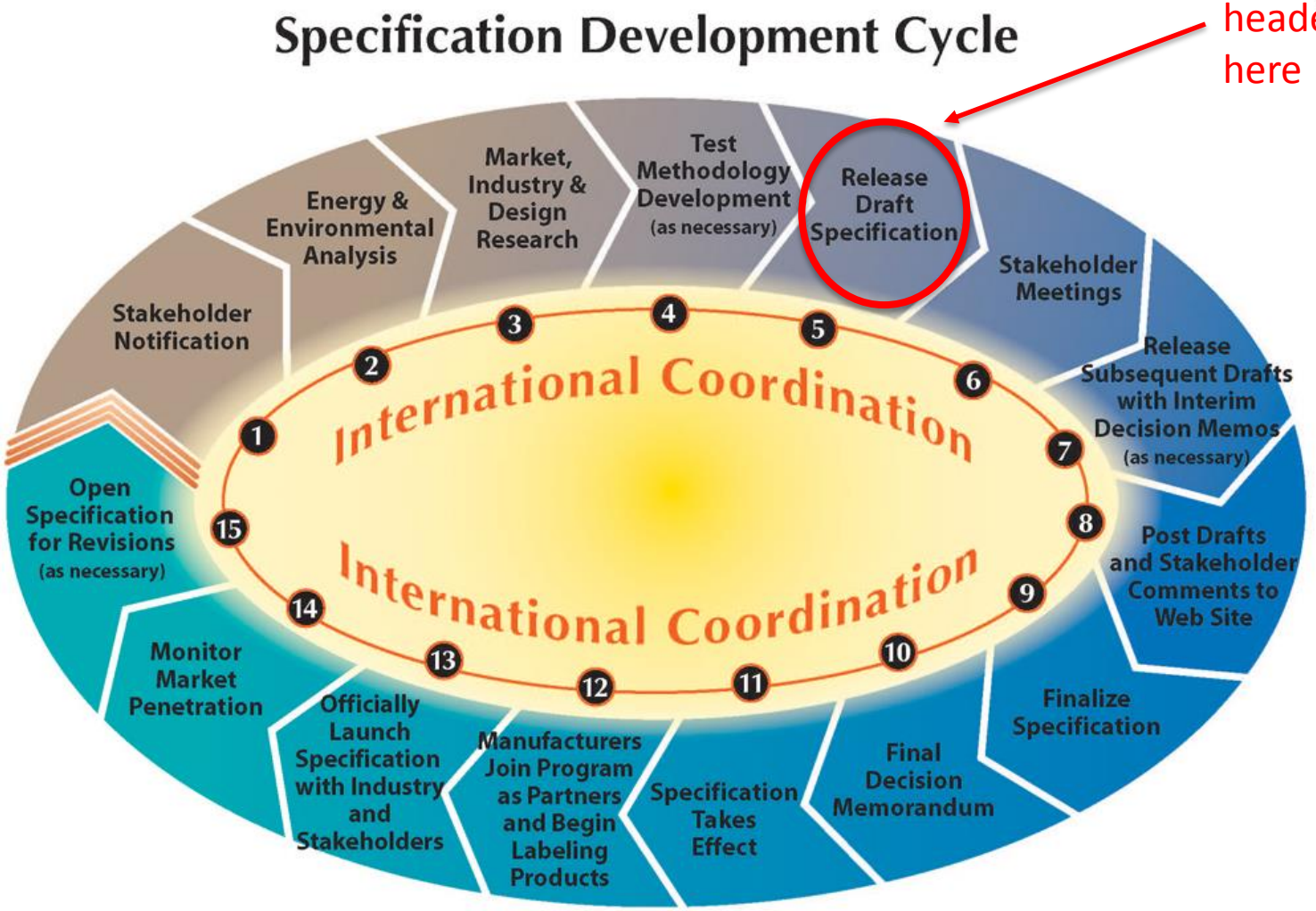
  - What are the key use cases and how do EVSE's currently provide metering data, if at all?
  - If applicable, what level of precision is appropriate?

- **Existing Certification Programs**

  Are there programs under development or existing programs for certification of EVSE connected functionality that ENERGY STAR can leverage?

Next Steps: After Data Assembly and Stakeholder feedback

We are headed here



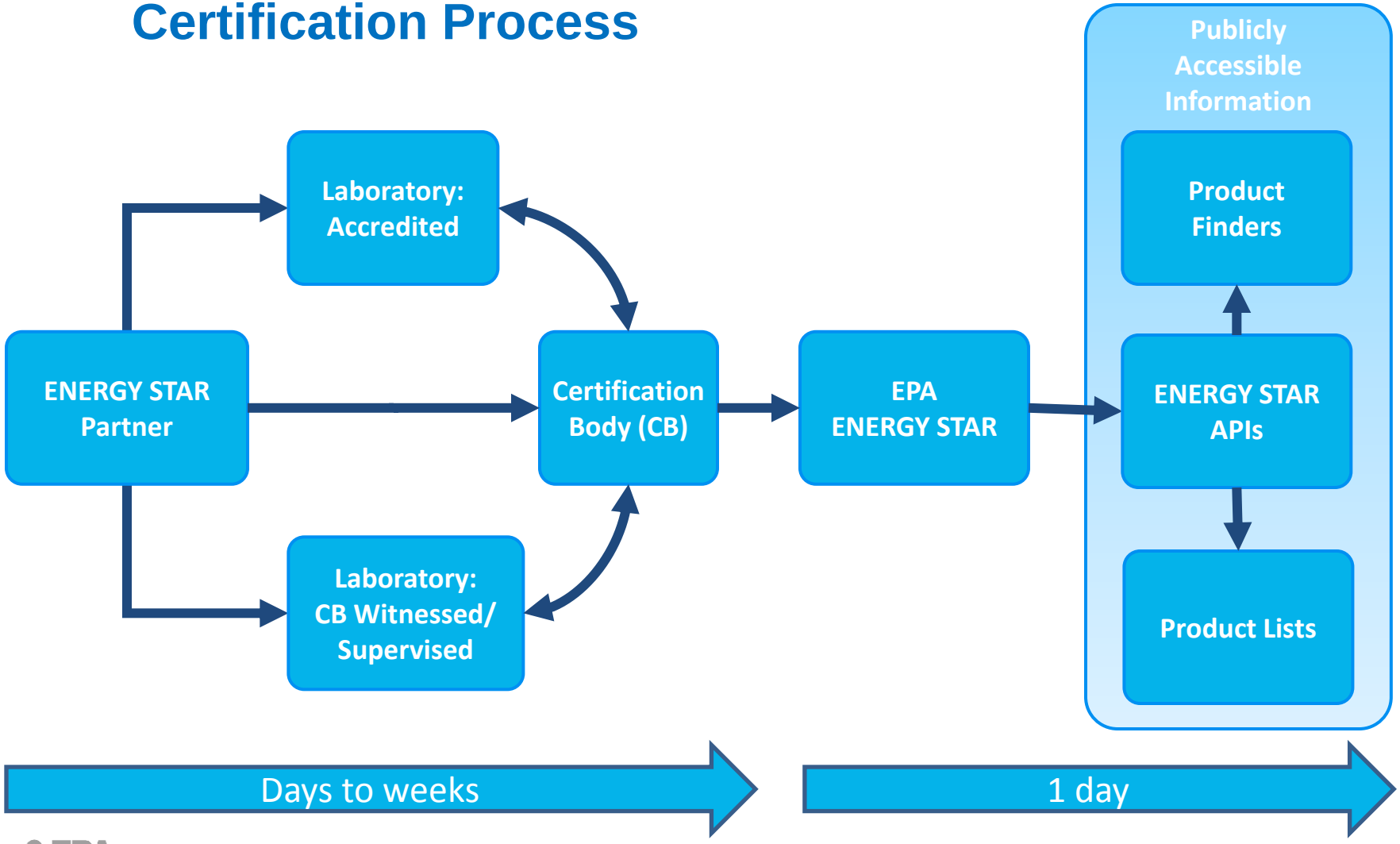
Next Steps

Event	Date
Scoping Report Published	*September 2013*
EVSE Specification Development Launch and Draft 1 Test Method Published	*June 19, 2015*
Draft 1 Test Method Webinar	*July 9, 2015*
Draft 2 Test Method Published	*October 6, 2015*
Draft 2 Test Method Webinar	*October 21, 2015*
Comments and Data Due	**November 17, 2015**
Draft 1 Specification	**December 2015**
Additional Draft Specifications	**Early 2016**
Final Specification Effective	**Mid-2016**

Looking ahead:
Once specification is finalized - 3rd Party Certification

- The U.S. Environmental Protection Agency (EPA) requires all ENERGY STAR products to be third-party certified.
  - Products are tested in an EPA-recognized laboratory and reviewed by an EPA-recognized certification body before they can carry the label.
- Representative models and product families will be established for EVSE
  - Test results from one model can be used to represent other models that have the same core components.
  - Reduces time and testing burden for certification.

Certification Process



Comments

- Again, comments and data are due on **November 17, 2015.**
- Please send all comments to:

ElectricVehicleSupplyEquipment@energystar.gov

- Unless marked as confidential, all comments will be posted to the EVSE product development page at www.energystar.gov/products/spec/electric_vehicle_supply_equipment_pd
- Accessible through www.energystar.gov/NewSpecs and clicking on "Version 1.0 is in development" under "Electric Vehicle Supply Equipment"

Webinar Agenda

Time	Topic
1:00–1:20	Introductions and Specification Development Recap
1:20–1:50	Definitions and Scope
1:50–2:20	Test Setup
2:20–2:50	Test Conduct
2:50–3:00	Data Assembly
3:00–3:45	Connected Criteria and Next Steps
3:45–4:00	**Open Comment**

Thank you!

To be added to EPA's stakeholder listserve
to receive specification updates, please email:

ElectricVehicleSupplyEquipment@energystar.gov.

Verena Radulovic
Product Manager, ENERGY STAR
(202) 343-9845
Radulovic.Verena@epa.gov

www.energystar.gov/productdevelopment