



ENERGY STAR®

Most Efficient 2015 System HVAC Status and Messaging Preliminary Proposal

June 24, 2014

Goals of Webinar

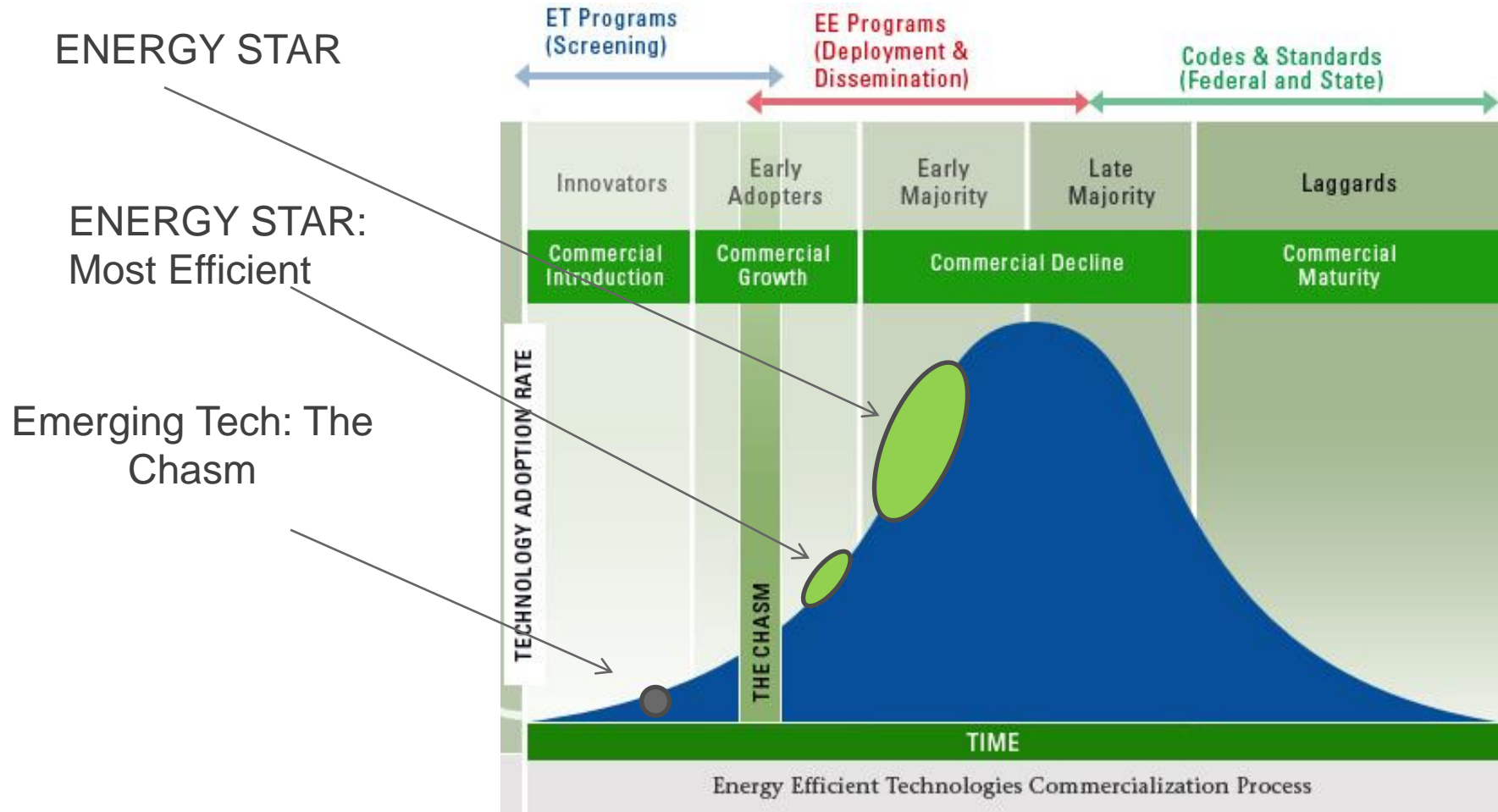
- Review ENERGY STAR Most Efficient goals and target audience
- Present specific requirements
 - Present intention behind ESME HVAC system status and messaging requirements
 - Review specific requirements in preliminary proposal
 - Seek specific feedback on the impact of the proposed requirements, in particular whether they fulfill the stated intention

ENERGY STAR Most Efficient Goal and Target Audience



- Goal: Drive more energy efficient products into the market more quickly
 - Identify the top, few, most energy efficient products
 - Avoid confusing consumers or harming the ENERGY STAR brand
 - Align with ENERGY STAR program goal of reducing GHGs
- Targeted Audience: Early adopters, environmental interest

ENERGY STAR Most Efficient



ENERGY STAR Most Efficient Categories in 2014



- Boilers
- Ceiling and Vent Fans
- CAC/ASHP
- Furnaces
- Geothermal Heat Pumps
- Clothes Washers
- Computer Monitors
- Refrigerators
- Televisions
- Windows

HVAC
Products

Proposed 2015 System status and messaging criteria



- Applies to ENERGY STAR Most Efficient CAC/ASHP (ducted and ductless), geothermal heat pumps, and furnaces
- Requirements closely tied to comfort, energy savings and cost savings
- Changes to the current criteria:
 - More specific
 - Include static pressure and refrigerant charge requirements
 - Most of the criteria apply to ductless units as well, except for static pressure requirement.

Intention of system status and messaging criteria



- Address opportunities to mitigate the most common installation and maintenance problems
 - Duct leakage, undersized ducts - not amenable to equipment criteria
 - Improper sizing – not amenable to system status (mitigated by modulating compressors)
 - Filters never changed
 - Refrigerant charge errors
 - Incorrect airflow at installation
 - Irregular service, multiple service calls, persistent issues

Proposed 2015 System status and messaging criteria – Unit Setup Information



- **Criteria:** Units shall be capable of transmitting setup information to at least one controller on the market, including capacity, stages of cooling and heating and default air flow requirements. The controller may be a thermostat or an on-board controller designed to coordinate operation of an entire HVAC system
- **Purpose:** Simplify installation such that the equipment is installed correctly and delivers designed performance
- **Information:** Capacity, the number of stages of cooling and heating, and default air flow for each stage
 - **When:** During system installation
 - **For:** Contractors

Q 1: Is this the information required to determine proper system setup? What other information would be useful to assist in quality and correct installation of the system?

Proposed 2015 System status and messaging criteria – Static Pressure

- **Criteria:** Ducted units which include a blower fan will provide a signal that can be used to estimate the static pressure across the fan
- **Purpose:** Static pressure is a good indicator of overall operating condition of a system. Helps identify need for filter change or system service
- **Information:** Signal available to determine static pressure
 - **When:** During installation, system maintenance and/or troubleshooting
 - **For:** Service technicians

Q 2: Are there any other ways to effectively determine pressure drop besides a signal from the blower fan?

Proposed 2015 System status and messaging criteria – Refrigerant Charge

- **Criteria:** Units shall be capable of transmitting signals from which errors in refrigerant charge may be estimated, such as subcool or superheat, to at least one controller on the market. The controller may be a thermostat or an on-board controller designed to coordinate operation of an entire HVAC system
- **Purpose:** Monitor refrigerant charge to identify if the system is undercharged or overcharged
- **Information:** Signal available to assess refrigerant charge
 - **When:** During installation, system maintenance and/or troubleshooting
 - **For:** Service technicians

Q 3: How do current products relay refrigerant charge issues to the system controller?

Proposed 2015 System status and messaging criteria – Fault History



- **Criteria:** Service personnel shall be able to access a log displaying fault history in plain text. The product may enable access through any mechanism, for example: 1) a text-based display (e.g. LED) permanently incorporated into the unit, 2) at least one thermostat available on the market, 3) a diagnostic tool available on the market which can be brought to the work site by the service personnel. Other equivalent mechanisms are also acceptable
- **Purpose:** Easily accessible and user-friendly fault history log will enable contractors to detect and address the issue faster
- **Information:** System fault history in plain text
 - **When:** During system maintenance and/or troubleshooting
 - **For:** Service technicians

Q 4: What other information would be helpful for contractors or service technicians in performing proper maintenance and servicing of the system?

Proposed 2015 System status and messaging criteria – Resident Alerts in Plain Text

- **Criteria:** Units shall facilitate display, in plain text, of messages to residents. This will include, at minimum, that the air filter needs changing, and that the unit needs professional service. This may be through display on the thermostat or other control device in occupied space in the home, or through any other system that can reach residents directly. Displays on a unit inside a closet, basement or attic, or outside of conditioned space, will not be sufficient
- **Purpose:** Easy to read and understand maintenance alerts in plain text for residents
- **Information:** Maintenance alerts such as air filter change in plain text
 - **When:** During system operation and regular maintenance
 - **For:** Residents/Home owners

Q 5: What other maintenance alerts or information would be useful for the residents for proper maintenance of the system?

Proposed Schedule for 2015 Criteria



- Comments due **July 7, 2014**
- **July** release ENERGY STAR Most Efficient 2015 proposals, including HVAC
- **September** finalize 2015 criteria and begin distributing ENERGY STAR Most Efficient 2015 mark
- Update list of recognized products January 1, 2015

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Questions?



Thank You