Connected Appliances: Charting Progress and Identifying Consumer Value, Part II

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Roadmapping Webinar
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Appliance Roadmapping Goals

- Build on more than 20 years of partnership to foster the future success of the ENERGY STAR program for appliances
- Look ahead creatively to the next five years, with the goal of maintaining an ENERGY STAR appliance program that delivers on consumer expectations for performance and efficiency
- Establish pathways to further engagement between EPA ENERGY STAR, appliance manufacturers, retailers and energy efficiency program sponsors on an ongoing basis
- Charting progress and identifying consumer value of connected functionality
ENERGY STAR Connected Criteria

Our goal: Use ENERGY STAR connected criteria to leverage the national platform that utilities can rely on and consumers look for.

- ENERGY STAR criteria provide consistent definitions and approaches, a consistent set of starter functionality, and an emphasis on open standards.
- ENERGY STAR is a trusted resource that can help consumers find these connected products and identify the benefits they offer.
Agenda for Today’s Webinar

• Overview and discussion of working group topics
  – Room Air Conditioners
  – Kitchen Appliances
  – Consumer Messaging
• Next steps for connected appliance roadmapping
Room Air Conditioners
Connected Room Air Conditioners Today

- 2016 – the year of Connected Room Air Conditioners
  - Multiple ENERGY STAR models under at least five brands
  - 4 ENERGY STAR connected models from 3 manufacturers
Energy Benefits of Connected Room Air Conditioners

- **Grid Load Balancing** – DR enables utilities to better manage peak demand
- **Increase Penetration of Renewable Generation** – connected room ACs can adjust their usage based on price or in response to signals that can increase utilization of clean, renewable energy
- **Energy Savings** – no need to let it run all day; turn it on when you are headed home
- **Save $** - monetary benefits accrue when consumers:
  - Reduce usage in peak price periods, or
  - Enroll in DR
ENERGY STAR Connected Room Air Conditioners

- Overview of Optional Connected Criteria
  - Open-standards communications
  - Application Programming Interface (API)
  - Messages related to energy consumption
  - Energy consumption reporting
  - Smartphone control

- Save energy when at work or vacation
- Turn on the Room AC on the commute home, rather than leaving it on all day
ENERGY STAR Connected RACs are Smart Grid Ready

Demand Response (DR) – used by utilities to balance summer peaking
- Delay Appliance Load (DAL) – set temperature increased by ≥ 4°F for at least 4 hours
- Temporary Appliance Load Reduction (TALR) – compressor disabled for 10 minutes

• Providing Grid benefits while limiting consumer impacts
  - 85°F limit for Demand Response
  - No more than (1) DAL and (3) TALR responses per day
  - DR Override – If consumers get too hot, they can always override
Connected Room AC Utility Programs

Join coolNYC to keep your neighborhood cool this summer!
Control your air conditioners from anywhere, save money and energy, and earn rewards!

I'm new
Sign up for 2016

Returning participant
Reconnect your equipment

Check my status
I already signed up

Cool Control A/C program

Ways to Participate
- Get a smartAC kit for your A/C
- Get a Total Watt Thermostat
- Use your Friedrich B21
- Use your Frigidaire Cool Connect

Find out more
- How do I qualify to be in this program?
- Saving money and energy
- What are Conservation Events?
- Where do I sign up for a free kit?

Earn credits on your electric bill with peak time savings.

Cool off with our coolControl A/C program

Use our smartAC Kit to control your air conditioner from your phone.
Collect a $30 gift card for every kit you successfully set up.
Case Study – ConEd CoolNYC

Outsmart the Heat with Smarter A/Cs

Take control of the temperature in your home even when you’re not there. Try a smart A/C kit that connects to any window or wall A/C with our coolNYC program - or sign up with your already Wi-Fi-ready room A/Cs.

You’ll be able to:

1. Turn on your A/C while headed home.
2. Control the temperature when you’re out and your pet is at home.
3. Monitor in real time how much energy your A/C is using and see how you can save.
4. Earn rewards – by participating in the program during extreme heat.
5. Keep your neighborhood cool.

Join Now
How would you like to participate?

Click the box that best describes you

I DON’T HAVE A WI-FI ENABLED AC

SIGN UP FOR A SMARTAC KIT

SIGN UP FOR 2016

I HAVE A WI-FI ENABLED AC

MY AC IS WI-FI ENABLED

SIGN UP FOR 2016
Kitchen Appliances
Kitchen Appliances – Connected Refrigerator

• Potential energy and non-energy benefits and consumer lifestyle interests
  – Overall connected refrigerator

• Look in the fridge without opening the door
• Remote temperature adjustment
• Delay defrost
• Delay ice maker cycles
• Fewer car trips to grocery store, managing food expiration to minimize food waste, order groceries from app
Kitchen Appliances – Refrigerator Door Opening

- Look in the refrigerator without opening the door

- Data
- Studies
- Forum
- Expansion to exploring potential energy and non-energy benefits and consumer lifestyle interests
- Expansion to exploring other connected features of refrigerators
- Expansion to exploring the kitchen suite
Home Renovation

- Design and functionality motivations drive home renovation
- Resale (69%), costs (62%) and energy efficiency (67%) are strong considerations
- Consumers rate health, green and smart technology 25-42% as very to extremely important

Kitchen

- Top interior room for renovation is the kitchen
- General consumer mindset – the heart of the home is the kitchen
  - Gathering place for meal enjoyment, entertainment, socializing and can be a quiet space for individuals to reflect

Kitchen Appliances – Entire Suite

- Work group to share and summarize potential energy/non-energy benefits and sources, prioritize list of most promising features/programs that the group identifies to further explore and develop in the kitchen space

- Refrigerator
  - Door openings, fewer trips to grocery, food expiration, order groceries

- Dishwasher
  - Delayed start, choose cycles, adjust drying times, load reduction/shift

- Oven / cooktop
  - Turn-off, pre-heat, cook to specific temp, recipe and cooking tips

- Coffee maker
Consumer Messaging
Consumer Messaging on Connected

• What are the barriers to consumer understanding of connected?
  – Mind space to learn
  – Privacy
  – Data security
  – Emotional value, appeal
  – Types of benefits
  – Other?

• What messaging is resonating with consumers?
  – Opportunity to collaborate to rise the tides for all boats
Current ENERGY STAR Resources on Connected Residential Refrigerators

Qualifying product list

Product finder
- Product finder would indicate connected Y/N
- Results of a product finder search would include “connects using” (e.g., Wi-Fi)

(3) Additional fields, on QPL advanced view
- **Connects Using:** Wired Ethernet, Wi-Fi, Zigbee, HomePlug Green PHY
- **Communication Standard Application Layer:** SEP 1.x, SEP2.x, OpenADR
- **Direct on-premises Open-standard Based Interconnection** – Yes/No
Other ENERGY STAR Resources

• What other ENERGY STAR resources can the EPA team explore further to support on the connected front?

• [www.energystar.gov/marketing_materials](http://www.energystar.gov/marketing_materials)
  – Messaging
  – How-to, tips, overview guides, flyers
  – Infographics
  – Website, webpage
  – Social media graphics, copy
  – Ask the Expert video, blog
  – Training material
  – Seasonal campaign
  – Linking partners
Connected Appliances – Future Opportunities

• Realize the IoT vision of connected “things” doing really smart things by working together
  – Pool Pump monitors weather conditions, water quality and pool usage to dynamically minimize energy use
  – Connected Thermostat maintains comfort but minimizes energy use thru access to weather data, integration with the alarm system and, access to geo-locational services
  – Integration with other connected devices – when the alarm is armed, all connected devices go into a low-power mode
  – Dishwasher/Clothes Washer – communicates projected hot water usage to enable optimization of hot water generation
  – Intelligent management of energy storage and rooftop solar
Next Steps in the Connected Roadmapping Process

• Further engagement between EPA ENERGY STAR, appliance manufacturers, retailers and energy efficiency program sponsors
  – Spring - Summer working groups
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Thank you for participating!

Check for updates on the Appliance Roadmapping web site