



Communicating with Smart Appliances

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OpenADR ++ Alliance
Users Conference
June 6, 2023



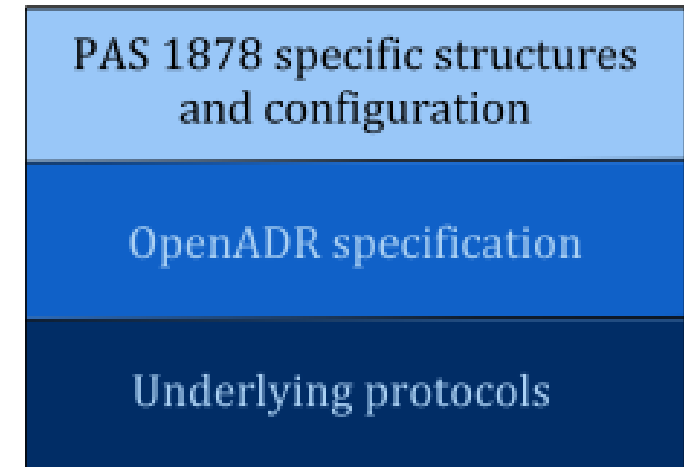
PAS 1878

- The purpose of this PAS is to enable **standardized control, subject to an explicit consumer consent, of energy smart appliances (ESAs)** on an electricity network in order to:
 - match the short-term availability of intermittent renewable energy generation sources such as wind and solar;
 - decrease the peak load on the electrical transmission and distribution networks to alleviate the need for network upgrades to handle new domestic appliance types, such as electric vehicle (EV) chargepoints and electric heating, ventilation and air conditioning (HVAC) systems;
 - allow control of electricity network characteristics such as line frequency, system inertia and network voltage, and help prevent network and generation outages; and
 - to allow the offset of short-term market imbalances by controlling flexible load on the network.

PAS 1878

- OpenADR was developed to allow straightforward transactional communication between grid and end point entities. It provides a communications framework and a data model schema. Although the system could be used to reach as far as an ESA, a gateway is generally used between OpenADR on the grid-side and the ESA in the home-side. (Draft for Comments)
- The Energy Management Gateway is not explicitly described in PAS 1878. Rather the communication flows between Actors A and B and the premises are treated separately, through Routine Mode and Response Mode operation. Also, requirements are placed upon the external interface in PAS 1878. In the amalgamated architecture, **no additional requirements are placed upon the means of communication between Actors A and B and the CEM, allowing any suitable physical layer approach to be taken.** (PAS 1878, E.2.4 Energy Management Gateway)

Figure F.1 – Alignment of Annex F to the OpenADR protocol definition



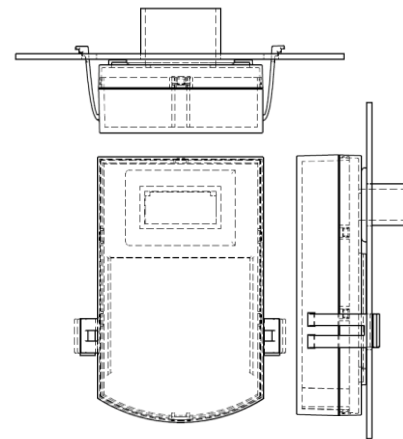
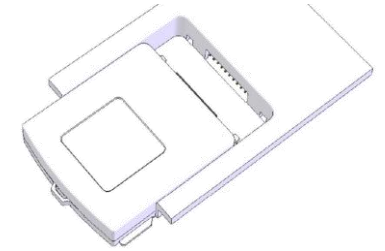
Smart Appliances in U.S.



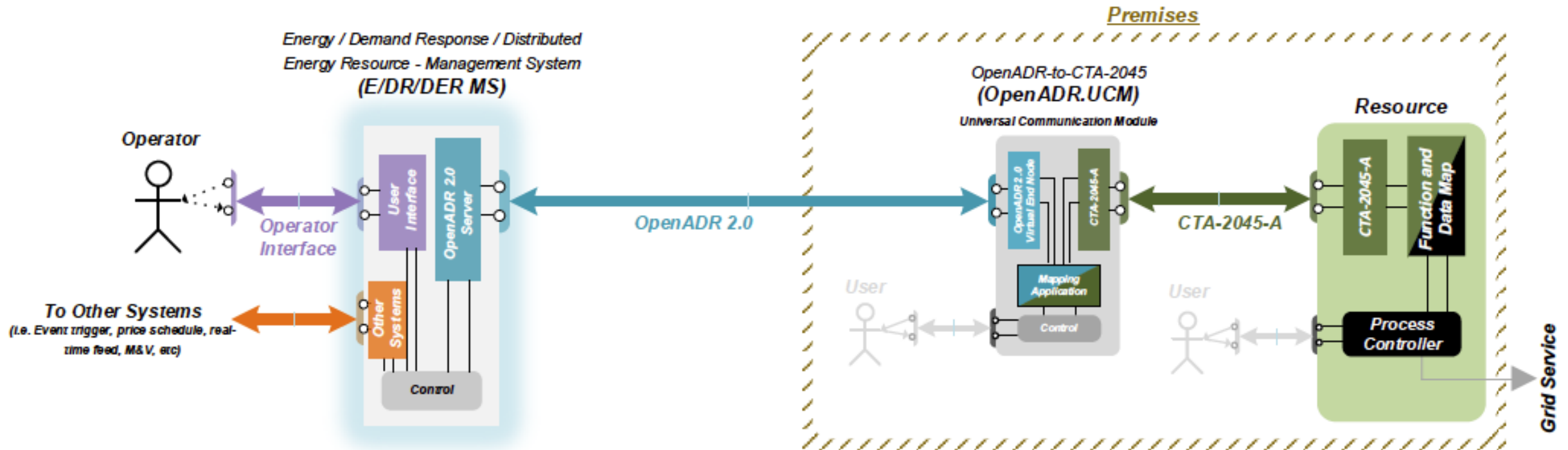
- Discussion in U.S. around Smart Appliances as untapped market
- In particular cost, effectiveness and carbon impact of electric heat pump water heaters (HPWH) was recognized
- But large appliance manufacturers weren't focused on opportunity; thus three initiatives
 - Energy efficiency standards via U.S. Department of Energy – Energy Star Program
 - State regulations – Washington, Oregon, California
 - Need for a pathway to connectivity

EcoPort™ in a Nutshell

- CTA-2045 is a modular communications standard that enables appliances to add a simple interface that can connect to any means of communications using plug-in modules
- EcoPort is the brand name for devices that passed testing to CTA-2045 requirements
- **EcoPort Site: openadr.org/ecoport**



EcoPort > OpenADR Interoperability



EcoPort™ Timeline

- Feb 2021 ANSI/CTA-2045 published
- Q2 2021 OpenADR++ Alliance selected to operate testing/certification program.
Geoff Wickes joins Alliance Board.
- Q3 2021 EcoPort brand name exercise – utility, manufacturer, regulatory stakeholders
- 2021-22 Supply Chain Issues
- 2022 Washington, Oregon affirmed 2023 deadlines for statutory requirements
- 2022 California PUC Decision required CTA 2045 in utility Heat Pump Water Heater programs.

- **Oct 2022** *First certified products !!!*
- **Q4 2022** *Initial Utility Water Heater Demand Response Programs*

Product Listing

ecoport.openadr.org

ECOPORT

Customers and Installers
now have a choice.

EcoPort certified water heaters and other home appliances, enabling a more efficient, more economical, and greener utility grid.

**NOTE: NOT JUST WATER HEATERS;
POOL PUMPS, DISHWASHERS...**



The new degree of comfort.®

Rheem | ProTerra

Rheem® has expanded the ProTerra® family of heat pump water heaters, the most efficient and most advanced solutions available, with new 120-volt plug-in models. ProTerra Pl...

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American Standard | ASHPWH-65

The American Standard Water Heaters AURA Hybrid is modern heat pump water heater that delivers maximum energy savings, quality you can trust, intelligence and connectivity...

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e-Radio USA Inc. | P2DFMLTEM2045AC

e-Radio's AC form factor UCM offers privacy-preserving and zero-congestion FM radio broadcast technology to receive real-time low-latency advisory information combine...

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e-Radio USA Inc. | P2DFMLTEM2045DC

e-Radio's DC form factor FM + LTE cellular UCM offers privacy-preserving and zero-congestion FM radio broadcast technology to receive real-time low-latency advisory i...

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On Heat Pump Water Heater Day [#HeatPumpItUp](#) @OpenADRAlliance announces first water heaters and components to achieve EcoPort certification, the Alliance's newest certification program compliant with the CTA-2045 standard. [@rheem_water](#), [@_ASWH](#), e-Radio. bit.ly/3DyHRmN



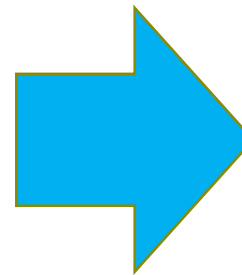
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CONFERENCE

2023 Hot Water Forum & Hot Air Forum

March 7 – 9, 2023

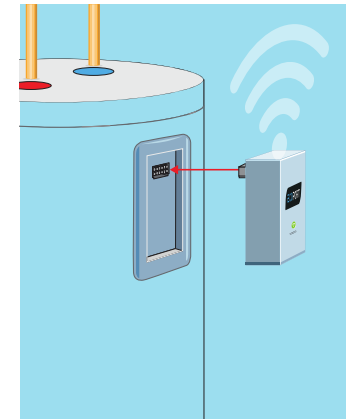
KIOSK AT
OPENADR
DISTRIBUTECH
BOOTH



www.openadr.org/ecoport



A New OpenADR Alliance Program



EcoPort is the brand name for products certified to the CTA-2045 standard, a modular communication interface for smart appliances.

Local utilities can support EcoPort-enabled water heaters, pool pumps and more as part of their local peak-load management or time of use rate programs.

EcoPort can help utilities and consumers prevent up to 100 million tons of carbon emissions annually.

What are the long-term benefits of EcoPort?

Enable a cleaner, more resilient power grid

Create thousands of good-paying jobs in the building industry

Promote equity through investment in under-served communities

Millions of tons of carbon emissions savings each year

Contact

CERTIFICATION

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EcoPort Site: openadr.org/ecoport