

DR18.10 ADR Development and Deployment for HVAC Distributors

OVERVIEW

WHAT IS THE PURPOSE OF THIS PROJECT?

This project worked to increase the availability of OpenADR certified controls solutions by engaging heating, ventilation, and air conditioning (HVAC) distribution sales channels. This project built on the lessons learned from the Upstream HVAC with ADR Pilot that Energy Solutions implemented for SCE June 2013 – December 2015. This was the first known application of the upstream model to demand response by a utility in the U.S. As such, a significant aspect of the pilot focused on innovation of the design, in terms of the eligibility rules, policies, and incentives for implementation. Second, in combining demand responsive controls with the sale of high efficiency HVAC equipment, the pilot achieved the integrated demand side management objective.



Image 1: HVAC Unit on Commercial Building

The **2013-2015** Pilot enrolled three HVAC distributor participants and two contractor participants and installed three projects. The Project Team engaged with key participants at all levels of the organization for education and outreach. The lessons learned and recommendations from the pilot were as follows:

- Including DR controls adds complexity to the HVAC equipment sales process.
- HVAC controls and equipment sales staff are siloed.
- Understanding the HVAC equipment delivery process is important to uncover opportunities to integrate ADR.
- OpenADR is still relatively new.
- High efficiency sales requirement limits eligible market.
- Participants view DR as gaining competitive edge.

For this **2019-2020 project**, The Project Team worked primarily with six HVAC distributors responsible for over 70 percent of HVAC equipment sales in southern California, as well as three manufacturers' representatives. Project objectives consisted of:

- **Identify OpenADR-certified HVAC control solutions** for each distributor and understand sales practices.
- **Engage with HVAC distributors** to inform them of Auto-DR Program requirements and opportunities to utilize incentives.
- **Technical support** to make selected controls solutions more ADR-capable out-of-the-box, and more easily ADR-enabled during installation.

- **Refine upstream ADR program design** - Incentives, project delivery, application and enrollment are vital ADR program elements, and need to more closely reflect distributor business models and evolving market conditions.

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WHAT ACTIVITIES WERE CONDUCTED?

The project scope and organization are drawn from feedback provided by a participating distributor from the 2013 pilot:

"First, we had to find a technology to work with. Then, we had to learn how to install the new technology and integrate it with our system. Finally, we had to understand the technology well enough to be comfortable bringing it to a customer."

The project consisted of 4 main activities:

- **Activity 1:** The purpose of Activity 1 was to work with each distributor to identify a complementary portfolio of OpenADR certified solutions that fit with the existing HVAC equipment offerings. The Project Team researched and highlighted any OpenADR certified controls the distributors already sold and worked with distributors to identify other potential eligible technologies, either through OpenADR certification of existing controls offerings, or through adding new products to their lines.
- **Activity 2:** The purpose of Activity 2 was to understand distributors' sales methods, channels, and strategies for packaged HVAC controls, and to discuss opportunities and options to integrate demand response capabilities with sale of packaged HVAC controls. The Project Team contacted six HVAC distributors, as well as three manufacturers' representatives, about their sales practices.
- **Activity 3:** The purpose of Activity 2 was to understand distributors' sales methods, channels, and strategies for packaged HVAC controls, and to discuss opportunities and options to integrate demand response capabilities with sale of packaged HVAC controls.
- **Activity 4:** Activity 4 was designed for supporting the overall project goals by informing and educating distributors about state code and utility ADR program requirements and about how to take advantage of the market opportunity to sell OpenADR controls. Much of the distributor engagement throughout the project included educational components, through continued conversations via phone calls, in-person meetings, and a lunch and learn events.

FINDINGS

WHAT WERE THE MAJOR FINDINGS?

Market Capacity for Selling OpenADR Certified and ADR-Capable Products:

Feedback from distributors who participated in the 2013 pilot highlighted that choosing the right technology and making an effective and efficient sales proposition was a major barrier to selling OpenADR certified technologies. The Project Team hypothesized that OpenADR-certified products have expanded since the 2013 pilot, but that assistance was still necessary to help distributors choose additional products develop sales strategies. The goal of this activity was to provide any assistance that would increase the availability and sales of OpenADR solutions.

Four distributors stocked OpenADR 2.0 certified solutions for the commercial market. None stocked VENS but would be willing to do so if there was greater and more consistent customer demand. The Project Team successfully increased the OpenADR product offerings for one distributor, who started carrying Zen Ecosystems thermostats in 2019.

The distributors vary in their response to this lack of demand, with some being more proactive about sales, and others not promoting ADR at all. Many are interested in distributor incentives to help increase controls sales.

Inform and Educate HVAC Distributors:

The goal of this activity was to support the overall project objectives by informing distributors about state code and utility ADR program requirements and about how to take advantage of the market opportunity to sell OpenADR controls. Distributor staff varied in the level of understanding of ADR programs, but most controls staff were familiar with ADR and the concept of dynamic tariffs. Staff understood the potential market opportunity of customer demand from CPP.

Provide Technical Support to Manufacturers:

The Project Team assessed the OpenADR certified solutions that distributors already stocked for ADR capability “out-of-the-box”. The hypothesis was that, although controls are OpenADR certified, they vary in the ease to which contractors can enable them on-site for ADR participation.

Three smart thermostats and one EMS were evaluated. The scores were based on the existence and accessibility of a DR mode display, ease of installation, whether it met SCE’s Auto-DR stranded asset policy, and the availability of default strategies for ADR. The thermostats scored higher than the EMS. The Project Team also completed OpenADR signal testing with one thermostat manufacturer and confirmed that thermostat setpoints respond to an event signal from the DRAS. The Project Team also discussed with SCE, and after internal deliberations, the SCE Auto-DR Program Manager moved to update its stranded asset policy for Express Auto-DR applications.

RECOMMENDATIONS

WHAT WAS RECOMMENDED?

The Project Team refined program design recommendations based on distributor feedback collected throughout this project and informed by the 2013 pilot project. First, the team concluded that distributor incentives would best facilitate sales of OpenADR products. Second, the team recommends streamlining and simplifying steps during project delivery and application processing to minimize distributor and contractor burden.

Project delivery could be streamlined by offering a single DR strategy option, automate or remotely connect controls to the DRAS, and having the distributor or contractor confirm controls installation and connection to the DRAS. ADR program application process can be simplified to four steps: including the ADR Program Terms & Conditions form during the initial sale, collecting customer information during installation (contractor), verifying DRAS connection (manufacturer) and submit ADR incentive application (distributor), and reviewing and paying ADR incentives (program implementer). The DR program enrollment would be simplified to just Critical Peak Pricing.

The team also developed new incentives recommendations based on an updated analysis of incremental measure costs of thermostats and EMS. For thermostats, incentive range from \$16-32/ton or \$270-360/unit. The Project Team also presented a few ADR incentive design options for EMS controls for SCE to consider.

The full findings are based on the report “DR18.10 ADR Development and Deployment for HVAC Distributors” which is available at www.dret-ca.com.