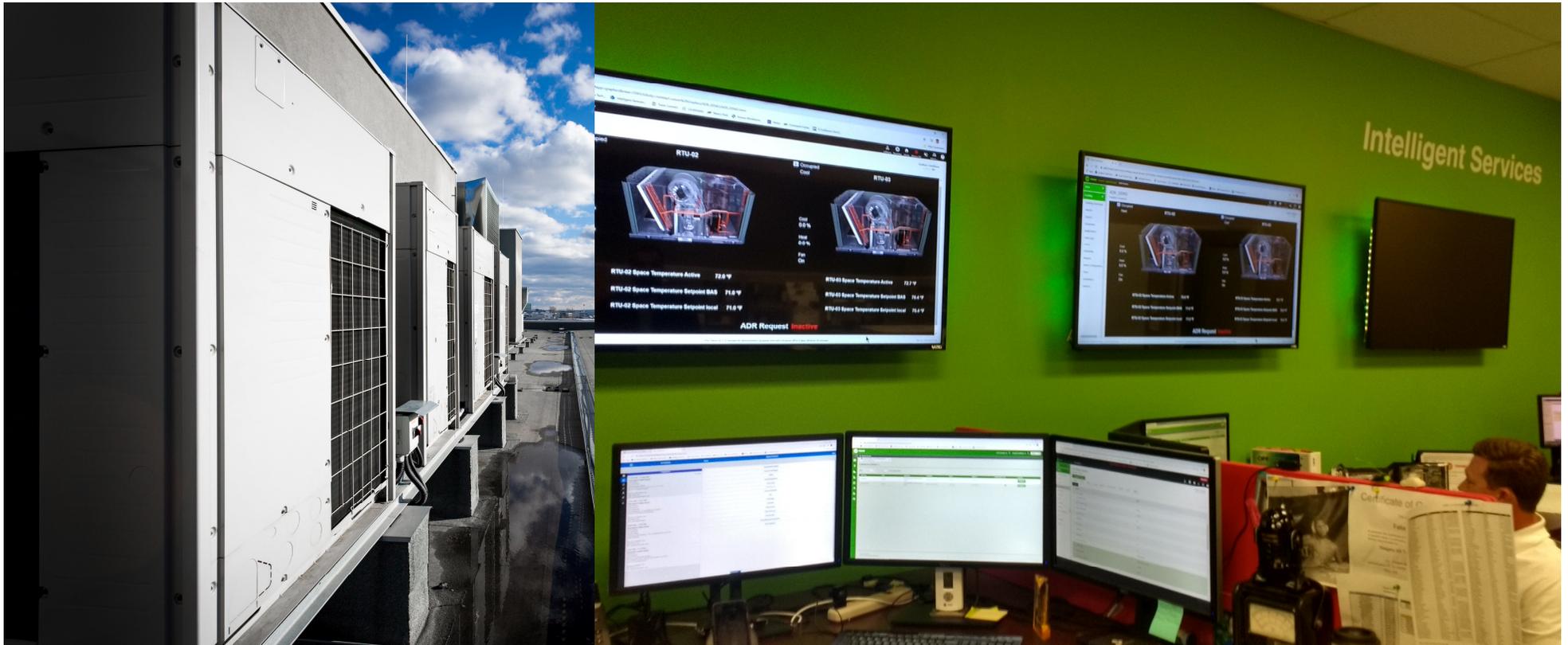


ADR Solution Development and Deployment for HVAC Distributors

Open ADR Alliance Webinar



Mark Martine, SCE
Kitty Wang, Energy Solutions
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AGENDA

- 1 Project Overview**
Background, objectives, scope and schedule
- 2 Activity 1: Identify OpenADR Solutions**
Summary of solutions identified
- 3 Activity 2: Research Existing Sales Practices**
Insights and lessons learned
- 4 Activity 3: Provide Technical Support to Manufacturers**
Activities completed and successes
- 5 Activity 4: Inform and Educate Distributors**
Activities completed and successes
- 6 Activity 5: Communicate Findings – Program Design Recommendations**
Presentation and discussion



Project Overview



Regulatory and Business Drivers for Project



CEC and CPUC Decisions:

- 2008 Energy Action Plan, CEC – Loading Order and DR
- 2010 Automated Demand Response, CPUC
- IDSM budgets in 2018-2025 Utility Business Plans, CPUC
- 2019 Default CPP for SCE commercial customers, CPUC

From SCE's Business Plan

...SCE will aim to reduce costs and increase EE adoption by **simplifying and streamlining offerings**. This will include **increased use of upstream and midstream offerings and self-service delivery channels**... It will also entail reducing the number of customer touchpoints in certain sectors.

Project Objectives: Build Market Capacity to Utilize (Upstream) ADR Incentives

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

--HVAC Distributor, SCE Territory
2014

Project Objectives: Build Market Capacity to Utilize (Upstream) ADR Incentives

1

Address Market Feedback on Building Capacity

Work with market to:

- Identify OADR products and
- Understand sales practices

2

Inform and Educate HVAC Distributors

Direct engagement with distributors on:

- ADR Program and technology eligibility
- Title 24, Part 6 DR requirements

3

Provide Technical Support to Manufacturers

Support ADR-capable solutions out-of-the-box by:

- DRAS signal testing and connection support
- Assess identified solutions for ADR-capability out-of-box

4

Refine Upstream ADR Design

Update recommendations:

- Incentive design
- Project delivery
- Application and enrollment

Activity 1: Identify OpenADR Solutions

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ADR-Certified Products Identified

HVAC Distributor	Ferguson	Sigler	Trane	US Air Conditioning (US AC)	RSD
OpenADR Certified Thermostats	Zen Ecosystems Ecobee	Carrier Côt 5C Carrier Côt 7C		Venstar ColorTouch, Explorer, and Explorer mini	Pelican Wireless
OpenADR Certified EMS		Carrier Comfort iVU			
Non-Certified, ADR-Capable Controls	Honeywell, Braeburn Systems, and White Rodgers (Wi-Fi) t-stats	Connect 33 Connectstat,	Concierge and Tracer SC+ EMS; Pivot Smart T- stat (Wi-Fi)		Honeywell (Wi-Fi) tstats

Activity 2: Research Existing Sales Practices

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HVAC Distributor Sales Practices



Controls Sales Volumes Vary

Sold both independently and bundled with equipment. Portion of controls sold with HVAC equipment varied from 10 -20 percent to a high of 90 percent across distributors



Promotion of ADR Contingent on Demand

Consumer awareness of ADR solutions is negligible. Distributors promote ADR when upstream incentives are available*, through internal staff education, customer events, and contractor networks.



Sales Strategies Work to Overcome Contractor Inertia

Contractors stick with familiar products with proven track record. One distributor profiles new products using social media.



Distributors with Controls Divisions Prefer EMS over Thermostat

Distributors with controls divisions prioritized energy management systems while distributors without controls teams focused on thermostats.



New Products Decisions are Made at Different Levels for Each Distributor

Some distributors make decisions for new products at the local level, others make new product decisions centrally at the national level.

*Upstream incentives include 2013 pilot, 2019 Manage Your Power pilot at SCE.

Activity 3: Provide Technical Support to Manufacturers

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ADR-Capable Out-of-the Box Product Assessment

Certified Solution	DR-Mode Display*	DR-Mode Display Access**	Installation & Configuration***	On Site VEN or Gateway*	Overall ADR Readiness/ Friendliness
Zen Ecosystems thermostats	1	2	2.5	1	6.5
Pelican Wireless thermostats	1	3	2.5	1	7.5
Carrier I-Vu EMS software add-on VEN	0.5	1	1	1	3.5, more information needed
Venstar thermostats	1	2	2.5	0	5.5

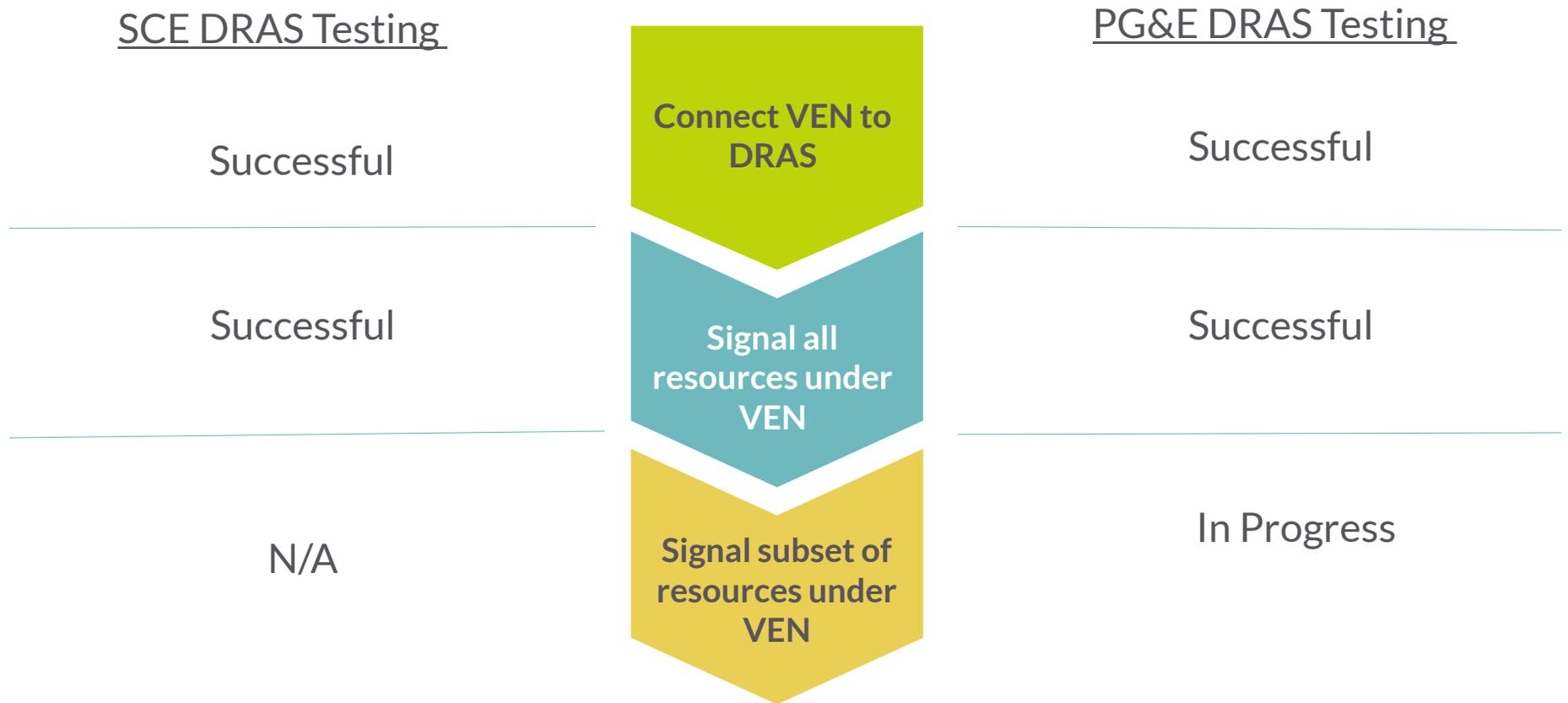
*0 = "no"; 1 = "yes",

**1 = >2 clicks from homepage, 2 = 1 to 2 clicks from homepage, 3 = on homepage

***1 = need controls engineer support; 2 = need contractor support; 3 = self-install

OpenADR Signal Testing Support for Venstar

Goal: Confirm Venstar's VEN could successfully connect to and respond to a signal from SCE and PG&E's Demand Response Automation Servers (DRAS)



Activity 4: Inform and Educate Distributors

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	Distributor	In-Person Meeting Dates	Calls and Emails
1	Ferguson	4/29, 10/1	3/28, 4/2, 5/24, 6/25, 7/30
2	Lennox		5/20, 5/21, 6/12, 7/22, 8/7
3	RSD		5/1, 5/9, 5/15, 5/28, 6/7
4	Sigler	5/30, 8/13	4/23, 7/30, 8/29, 10/3, 10/23
5	Trane	4/24, (2020): 2/18 2/21	3/18, 4/29, 9/12, 10/15, 12/4, (2020): 1/27, 2/11, 2/21
6	US Air Conditioning, Venstar	5/22, 8/2, (2020): 3/11	6/5, 6/24, 7/12, 8/1
7	DMG, NSW*, Air Tretment		8/15, 8/16
8	GridLink, UDI*	9/16	8/6, 8/8



*Norman S. Wrightm Universal Devices Inc.

Activity 5: Communicate Findings – Program Design Recommendations



Distributor Feedback on Design



Upstream Incentive would spur ADR controls sales

- An upstream incentive is the difference between distributor making customer aware of available incentives, and selling controls whenever possible, creatively
- Upstream incentive would enhance margins for controls sales and motivate sales engineers and account managers via commissions



Need to simplify program design

- Limit to two application fields for contractors – zip code and SAID
- Getting install address can be challenging for distributors, just like with other upstream EE programs
- Distributors need to be able to easily estimate incentives for any particular project
- Remove stranded asset testing for SMB



Project incentives should be based on number of thermostats or (for EMS controls) number of HVAC units

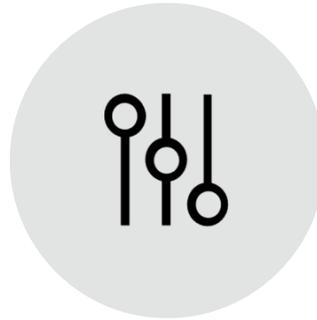
- Number of thermostats or HVAC units determine project costs
- Contractors are unlikely to know the total site tonnage for a retrofit project
- Sites with higher load shed potential can realize higher compensation via ongoing DR participation payments

Project Delivery Recommendations



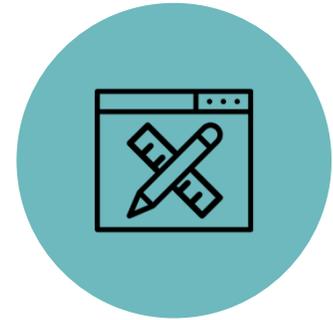
Easy installation & setup for contractors

pre-configure controls from
factory (manufacturers),
leverage cloud-based
controls & VENS



Limit DR strategies

2-3 strategies e.g.
temperature reset “basic”,
“light”, and “green/eco”



Streamline post-inspection & verification

Leverage trade allies &
remote verification.

Pathways to Implementation of Design Recommendations



Layer with Existing Programs

Add to upstream efficiency, low income, electrification, schools



Upstream Incentive Option to Existing ADR Program

Payment to HVAC distributors following eligible sales



Standalone Upstream ADR Program

Allow to-code equipment to maximize eligible market

 Questions?

