

DR17SDGE0002: Expansion Study of the Statewide Expansion of Auto-DR Express Solutions

STRATEGIES TO INCREASE ADOPTION OF AUTO-DR PROGRAMS INTO SMALL AND MEDIUM BUSINESSES

The Demand Response Emerging Technology (DR-ET) teams of San Diego Gas & Electric (SDG&E), Southern California Edison (SCE), and Pacific Gas & Electric (PG&E) worked together to develop strategies to increase adoption of Automated Demand Response (Auto-DR) into Small and Medium Businesses (SMB).

In the past, Auto-DR projects were focused on large commercial or industrial sites. These Auto-DR programs were vendor driven, so their higher cost and additional instructional overhead necessitated projects that had larger incentive amounts. Due to this, the SMB community has historically been underserved by Auto-DR programs and vendors and aggregators perceive SMB customers as not cost effective to engage.

SMB represents a lot of untapped potential for DR, specifically when it comes to consistent, fast response, and locational dispatch capabilities. SMB Auto-DR implementations do not have the same constraints as with industrial customers. SMB sites generally will allow distribution of load shed across the service territory, especially in the case when a chain of stores participates. If implemented correctly, SMB sites participating with HVAC or lighting measures can respond within minutes and provide consistent participation across all events. With smart thermostats and HVAC and lighting controllers coming down in cost, Auto-DR implementations has become more cost effective for SMB and, in the case of HVAC implementations, can often be completely paid for using the existing utility incentive structure.

The DR-ET teams asked ASWB Engineering (ASWB) to study how to improve uptake on the existing Small and Medium Business Auto-DR solutions— “Auto-DR Express” and “FastTrack” —and develop a program model that all three utilities could adopt.



INTRODUCTION

What is this technology?

AUTO-DR BACKGROUND

In 2006, SCE introduced the Auto-DR incentive program to incentivize vendors and customers to increase DR participation by providing evaluation of DR potential, equipment installations, and DR automation. The Auto-DR program was originally created for larger customers with facility peaks above 200 kW. Customers went through a preliminary assessment and then a technical audit, before applying and reserving Auto-DR incentives to offset Auto-DR implementation costs. These steps were considered necessary at the time, as DR potential for various facility types was not yet well known and the load shed potential of industrial processes can vary from facility to facility.

Auto-DR incentives based on the post-install load shed test required thorough and potentially costly audits and the customer bore the risk of reduced incentives if the actual load shed potential was lower than estimated. For these reasons, vendors targeted larger industrial customers who could shed more kW, leaving SMB customers out of the target market for Auto-DR.

In 2010, SCE wanted to expand their Auto-DR programs to include more facility types. They surveyed vendors and customers who confirmed that the audits were too costly for smaller sites and the post-install incentives were a risk that smaller customers were not willing to take. SCE requested ASWB to provide a solution to address the audit requirements and remove the risk of uncertainty associated with the Auto-DR incentives. ASWB came up with a deemed program structure, which removed the preliminary and technical audits, and replaced them with four inputs:

- Climate zone
- Peak kW
- Facility type
- Selected DR measures

By making the load shed and associated incentives deemed, this structure also removed the risk for customers who may not receive the incentives they were expecting after the load shed test. Initial facility eligibility was only for retail, office, and grocery stores between 100 to 199 kW.

What We Did?

Needs Assessment

A needs assessment was conducted by interviewing vendors and customers who have participated in Demand Response or are new to it, along with utility stakeholders to learn what needed to be addressed to increase SMB uptake. Requests from vendors and customers were taken into consideration when evaluating the additional facility types to include in Auto-DR Express.

Evaluation of Data

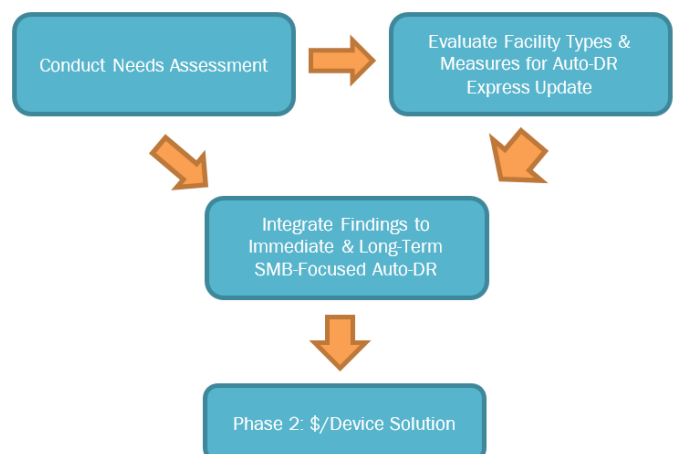
ASWB also evaluated 10 years of Auto-DR participant data and other DR pilots to determine the consistency of the load shed performance of the requested facility types. This allowed ASWB to determine which facility types and measures that had not previously been considered for Auto-DR Express were a good fit for program updates.

Revise Auto-DR Express Tool and Program

As the calculation structure of the Auto-DR Express tool stayed the same and the tool still required facility peak kW as an input, the DR-ET teams determined the requirement of peak kW as an input for incentive calculations was still an issue for vendor/customer participation in the Auto-DR Express programs.

In order to address the peak kW issue, the DR-ET teams requested a modification to the Auto-DR Express program structure that would remove the peak kW requirement by calculating Auto-DR incentives based on easily observable facility data, namely the number of installed thermostats and unitary AC controllers. This “\$ per device” solution would allow vendors and customers to get concrete Auto-DR incentive estimates at the time of sale based on facility type, number of devices sold and climate zone.

Figure 1: Research Methodology



Three recommended solutions to increase SMB uptake of ADR programs:

- 1. Immediate** - Adopt a modified Auto-DR Express offering to address vendor and customer needs, such as a streamlining the offering between all three IOUs, expanding the facility eligibility and making one-time incentive calculations easier.
- 2. Long-Term SMB Program Redesign** – Include a direct install option in a full program redesign intended to increase participation from SMB. Direct install will address vendor and customer concerns with difficulties in providing on-going incentives, reducing confusion during selection of DR programs, eliminate the concern of too many touchpoints and address cash flow concerns.
- 3. Dollar Per Device (Phase 2)** - The dollar per device solution (\$ per device) was requested by the IOUs after ASWB presented the immediate and long-term solutions. This solution, referred to as Phase 2, utilized databases from vendors to create a \$ per device proof of concept. The tool provided incentives per unitary AC controller for retail sites. ASWB documented additional databases and considerations for future efforts were documented as well.

Considerations for Long-Term SMB Program Redesign

| Develop standard Auto-DR participation package | Vendor Approval | Participation Performance | On-going Incentives |
|---|--|--|--|
| <p>Packages focus on addressing customer/vendor concerns of comfort and uncertainty of one-time and on-going incentives.</p> <ul style="list-style-type: none"> • Require participation of 100% or 75% of all events. • Considerations for shorter duration but fast response packages. • Measures should be limited in aggressiveness, minimizing occupancy discomfort or event fatigue. • Focus on reliable and consistent participation from all participants, rather than occasional large kW that is unpredictable. • All packages will not require any upfront costs and on-going incentives will be deemed, as long as customer meets participation requirements. | <p>Pre-approved vendors with validating through reporting/ trending will allow for less M&V and reduced field time, reducing FTE program operating cost.</p> | <p>Vendor will be responsible for ensuring their Auto-DR system responds to the IOU events and the implemented measures initiate as intended.</p> <ul style="list-style-type: none"> • Opt out of the event will be controlled by the vendor and must meet the implementation package's participation requirements. <ul style="list-style-type: none"> o Vendor will provide reports for IOUs to confirm the site participated in DR events with their selected implementation package. o If reports show too many of one particular vendor's customers are allowed to opt out, the vendor's eligibility for the Auto-DR direct install program will be put on hold until the issue is resolved. Example of a possible issue: excessive opt out requests from one vendor may mean that vendor's sales team is not setting correct customer expectations. | <ul style="list-style-type: none"> • Standard Implementation packages and associated on-going incentives will be worked out with aggregators before program rollout. • Less time and resources to pull SMB customers into their portfolio: implementation packages have mandatory participation and the terms and conditions have already been agreed to by the customer. <ul style="list-style-type: none"> o Aggregator would interact with IOU's Auto-DR team, select which implementation package they're interested in, and sign those customers into their portfolio without needing to interact with individual customers. o IOU Auto-DR team would then move the selected customers onto that specific aggregator's DR program. • Less risk for aggregators as the vendors are responsible for meeting participation requirements and IOU Auto-DR teams are responsible for making sure participation is maintained. • Customer would receive their portion of the on-going incentive from the IOU. This makes it so there are less customer touchpoints and switching their load shed from one aggregator to another would be transparent. |

CONCLUSIONS

Long-Term Solution Direct Install Program Design

The proposed long-term solution allows for a streamlined experience for customers, vendors, and aggregators. Customers will only need to interact with a vendor once, sign an application, and get an installed system that provides consistent on-going incentives. Vendors benefit from a direct install pay structure, which minimizes overhead costs from multiple customer touchpoints. Utilities will have less costly M&V and project validation costs, while gaining additional visibility into customer participation. IOUs will also have more distributed load shed potential across their service territory, compared to industrial DR. Aggregators will be able to acquire large groups of SMB participants, all with a mandatory participation agreement, without having to manage individual SMBs customer directly.

Next Steps Pilot Program Needed

The next step for increasing SMB uptake in Auto-DR Express is to pilot the proposed long-term solution. Including IoT devices with cloud functionality would develop a program to provide incentives to a residential or small or medium business customer to acquire energy management technology for use in the customer's home or place of business. Such IoT devices allow access to real time databases which would also allow the utility to yield useful data within the budgets provided.

A pilot not only best serves the needs of SMB customers, while meeting CPUC decisions regarding SMB outreach in disadvantaged communities, but will also provide more useful data at lower M&V costs via IoT devices.

These Findings are based on the report "Expansion Study of the Statewide Expansion of Auto-DR Express Solutions," which is available from the ETCC program website, <https://www.etcc-ca.com/reports>.

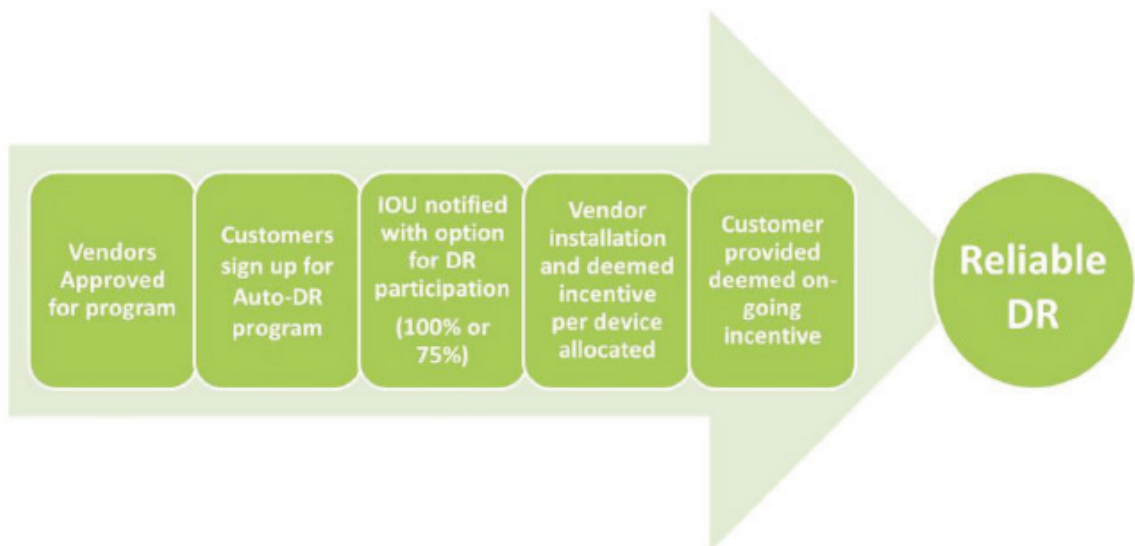


Figure 2: Direct Install Program Process