SAN DIEGO GAS & ELECTRIC COMPANY

REPORT ON DEMAND RESPONSE INTEGRATION INTO CAISO WHOLESALE MARKETS

January 31, 2011

09-08-027 Compliance Report

DR Integration into Wholesale Markets

Contents

1. Executive Summary

San Diego Gas and Electric (SDG&E) submits this report on the progress of transitioning its retail Demand Response (DR) programs into the CAISO Wholesale Market in compliance with Ordering Paragraph 24b of D.09-08-027. During the intervening time period SDG&E made a number of filings associated with enabling the compatibility of retail DR programs with the CAISO markets:

- AL 2152-E, on March 18, 2010 filed in accordance with Ordering Paragraph (OP) 25 of California Public Utilities Commission Decision (D.) 09-08-027 identifying transition associated with Capacity Bidding Program and the Participating Load Pilot.
- AL 2177-E, on June 14, 2010, which proposes to establish the Demand Response Wholesale Market Pilot (DRWMP) as a method to implement Proxy Demand Response beginning in 2010. This advice letter was filed in response to the requirements of OP 26 of D.09-08-027 as well as supporting OP5 of D.10-06-002.
- AL 2189-E, on August 16, 2010, an information filing in compliance with OP 26 of D.09-08-027 addressing the efforts associated with including a 10-minute dispatch notification
- AL 2177-E-A, on September 23, 2010, a supplemental advice letter filing associated with the formation of the DRWMP designed as a vehicle to support the transition of programs into the CAISO markets into the 2012-2014 program period.

Although, with the filing of this report, SDG&E has met all of the current regulatory requirements to inform the Commission on its plans and progress to transition its retail DR programs to the CAISO wholesale markets, the process of integration will be ongoing using the DRWMP as a cost-effective method to provide an orderly transition.

The DRWMP was approved on November 18, 2010 with implementation in process to be prepared for bidding into the CAISO market in February 2011 with the completion of the CAISO market model update for PDR. Along with the transitions taking place, a significant amount of analysis that will support further transition into the 2012-2014 program cycle, will be completed during 2011 as part of the DRWMP. Unresolved issues regarding the treatment of IOU/LSE under-collection of revenue and customer protections have resulted in a current prohibition on Utility participation in PDR. The DRWMP is designed to be flexible enough to allow for controlled review, analysis and implementation as issues such as these are addressed to continue the transition without negatively impacting the stability of current demand response programs. In anticipation of this effort SDG&E has registered PDR resources and conducted training internally to support the transition. DRWMP will serve as a basis for defining and developing additional training and/or awareness efforts that might be required both internally or externally to ensure a smooth transition.

Once the DRWMP is operational and additional experience has been gained its SDG&E's intention to provide an update on the status of the transition, further analysis of costs and benefits, as well as lessons learned.

2. Status of Program Transition to Wholesale Market Capability

While no programs have as of yet been able to be fully transitioned per the requirements for PDR or other associated with D.09-08-027, SDG&E DR Programs have functioned under the new market paradigm since April 1, 2009 when MRTU became operational.,. Through the 2009 Participating Load Pilot (PLP), which operated prior to the completion of the PDR product, there were significant lessons learned about transitioning retail DR programs both from a structural as well as an operational perspective. As a result an internal education effort was also launched to increase understanding of the issues and support program design activities for the 2012-2014 application.

Although Ordering Paragraph (OP) 27 in D.09-08-027 indicates that Participating Load (PL) may provide an alternative to PDR to transition DR Programs to the CAISO market, SDG&E has concluded that although the PLP provided many insights, the requirements to be a PL resource do not provide a suitable vehicle by which to transition any of its existing DR Programs to the CAISO markets. The CAISO Participating Load (PL) product is limited in its applicability to Non Spinning Reserves and Real-Time Energy, and was designed to accommodate large pumping facilities typically associated with pump storage units or large aqueduct pumps. SDG&E has neither of these types of facilities on its system nor are its DR Programs designed to operate in the timeframes of the CAISO Non Spinning Reserve or Real-time energy market which require achieving energy dispatch levels in 10 minutes or less.

Timing of PDR Implementation

At the time that D.09-08-027 was issued, there was a possibility that the PDR product would be available for the summer of 2010 and with sufficient time to adapt existing DR Programs to PDR for the 2010 summer season. Due to delays outside of Utility control, such as FERC approval of PDR Tariff changes, the product was not available for registration in the CAISO market system (a lengthy process) until August 2010 eliminating the possibility of bidding into PDR during the peak summer season.

As required by OP 25 in D.09-08-027, SDG&E filed AL 2152-E on March 18, 2010, outlining the steps necessary to make ten percent of its existing DR Programs comply with the CAISO PDR requirements. At that time, SDG&E proposed that at least a portion of the Capacity Bidding Program (CBP) be transitioned to PDR by the summer of 2011, and described that methodology and process in Advice Letter 2152-E, dated March 18, 2010. Due to the ongoing series of events being addressed in the Commission's Demand Response Rulemaking (R. 07-01-041) that have occurred and are still ongoing followed the filing of AL 2152-E, SDG&E anticipates that it won't be able to determine the timing of meeting this requirement until such time as the Commission resolves all of the issues in the Phase 4 Part 2 of R. 07-01-041.

CPUC Demand Response Rulemaking (R.07-01-041) – Phase IV Part 2

While the PDR delays were a significant issue delaying integration in 2010, equally significant were unresolved issues regarding adequate consumer protections that also prevented SDG&E from bidding any DR Programs or pilots into the CAISO as PDR. SDG&E followed a number of directives from the Commission to advance the effort to transition to the CAISO markets. As required by OP 26 of D.09-08-027, SDG&E filed an advice letter 2189-E on August 16 complying with the requirement to meet the 10 minute dispatch requirements of the CAISO which included a plan to convert the DRWMP to pilot PDR.

In compliance with OP 5 of D.10-06-02, SDG&E filed Advice letter 2177-E on June 14, 2010 to establish a Demand Response Wholesale Market Pilot (DRWMP) to bid DR into the CAISO as PDR. As a result of the FERC delay in the approval of the CAISO PDR tariff, the CAISO was not prepared to accept PDR bids until the fall of 2010. SDG&E's Advice Letter 2177-E-A to establish the DRWMP was approved by the commission on November 18, 2010 and plans are in place to bid PDR through the DRWMP in early 2011. Progress has been made in DRWMP readiness to ensure that the necessary technical requirements for bidding and telemetry with the CAISO will be in place to support an early 2011 deployment. DRWMP details are provided elsewhere in this report.

DR Activity Inclusion in CAISO Markets

SDG&E continues to include DR Program capacity in its next day and intra-day resource planning and adjusts demand schedules accordingly when DR Program events are called. While no DR Programs are currently bid into the CAISO Markets, SDG&E intends to register a portion of its Capacity Bidding Program as a Proxy Demand Resource to directly bid this capacity into the CAISO Markets once the Commission determines that SDG&E is authorized to bid programs other than the DRWMP as PDR. Currently, SDG&E triggers DR Program events based on several factors including incremental dispatch cost, forecast of market prices and system conditions.

3. Lessons Learned from 2009 Pilot and 2010 DRWMP Development

Scope of 2009 PLP

The San Diego Gas and Electric (SDG&E) Participating Load Pilot (Pilot) provided for Commercial and small Industrial customers to aggregate as a single Participating Load resource to interface with the CAISO wholesale market. Participating customers and aggregators nominated a monthly load reduction. On a daily basis, these aggregated nominations were bid into the CAISO Day Ahead Market as Non-Spinning Reserve, a contingency resource that is expected to fully respond to a real-time energy dispatch within 10 minutes of notification. When the contingency PL resource was dispatched by the CAISO, the participants were notified to achieve their load reduction nominations. Despite the fact that the CAISO typically issues an end instruction about 20 - 30 minutes after initial dispatch of energy from Non Spinning Reserve Capacity, the Pilot used a fixed duration of two (2) hours for all Pilot events, providing customers with a predictable event period and mirroring existing retail demand response programs.

The Pilot differed from typical retail DR programs in several ways:

- Participants were required to respond with 10 minutes of CAISO dispatch. With the latencies incumbent in the systems between the CAISO and Participants, their actual response time was generally no more than 5 minutes.
- Due to the CAISO technical requirements for Non Spinning Reserves, all PL resources were required to provide 24 x 7 telemetry at 1-minute granularity. This provided a significant challenge for many of the Participants.
- To align the retail and wholesale settlements, a “meter before, meter after” baseline was chosen for the Pilot. This simple-to-understand baseline was intended to accurately assess the load reduction and its impact on the grid, similar to baselines used with generation. Analyses comparing various baseline calculations were performed on the data.

The 2009 Pilot is SDG&E’s only experience up to this point of bidding a retail DR service into the CAISO market. The fact that it was limited to the CAISO Non Spinning Reserve product provides direction as to the next steps for assessment associated with the interface among DR programs and the CAISO markets.

PLP Wholesale Market Value

The wholesale market revenues for the PLP consisted of AS Non-Spinning Reserve payments and energy payments for actual dispatches. CAISO Non Spinning Reserve capacity payments average $1 per MW each hour. This correlates to a capacity payment of approximately $0.17 per kW/month for a retail weekday 8-hour product. Due to the limited duration of energy dispatch the revenue earned from energy payments is negligible. For example, in the 2009 PLP, the total wholesale revenues were $1,279 for AS capacity payments and $268 for energy payments[1]. The capacity payments represent what was earned for approximately 1.5 MW of capacity bid 16 hours a day for the entire five month period of the pilot which closely represents the typical retail summer program period. Since existing retail DR programs don't generally qualify for CAISO AS capacity payments, even these capacity payments would not be available to programs directly bid into the CAISO market. Since there is no central capacity market Utility program incentive payments will remain the de facto capacity payments to incent DR to participate in the wholesale electric markets.

PLP Technical Challenges

The CAISO requires that all Participating Load resources providing Ancillary Services provide real-time telemetry. Note that this requirement extends to PDRs providing Ancillary Services and/or PDRs providing more than 10 MW of reduction. This requirement for providing telemetry was a significant technical challenge from interfacing with the CAISO, to interfacing with Aggregators and Participants. In addition, it was a costly endeavor to provide telemetry solutions per-Participant.

Interfacing with the CAISO offered several challenges; primarily because the published telemetry requirements for Participating Load are not geared towards the aggregated nature of demand response. As a result, many of the CAISO requirements needed to be detailed or modified through discussion and negotiation with the CAISO. Some of the issues uncovered in the Pilot – specifically related to telemetry representing pseudo-generation – have been incorporated into the telemetry requirements for PDR at the CAISO. As such, telemetry required for PDR still offers many challenges; however, it

[1] Wholesale market revenues were retained by SDG&E and not passed through to PLP participants.

also offers more value by providing a view of pseudo-generation to the CAISO in real time.

The requirement for 24x7 telemetry at all resource levels regardless of schedule should be reviewed. It is necessary that there be a clear understanding of actual requirements for telemetry delivery as well as an outage reporting mechanism to clearly communicate both planned and unplanned outages.

To meet the CAISO 10 minute requirement for Non Spinning Reserves energy dispatch, an automated notification infrastructure is highly desirable. Despite some Participants' expectations that AutoDR would not be necessary to meet Pilot requirements, it became evident during the course of the Pilot that there was a resulting performance difference.

With 5-minute interval meter data not readily available, 15 minute interval meters were used during the Pilot, consistent with other retail DR programs. While in typical programs 15-minute metering is sufficient, consistent with the wholesale A/S products, events in the 2009 Pilot could occur at any 5-minute interval. In fact, the CAISO requires 5-minute metering for the settlement of real-time energy. A lesson from the Pilot is that requiring 5-minute interval meters for participation in PL would allow for a streamlining of the meter submittal process to the CAISO as well as increased accuracy of settlements. However, SDG&E does not believe that the benefits associated with 5 minute metering outweigh the costs and at this point does not recommend that this be a requirement for DR Programs and PDR participation.

DRWMP Scope and Development

In advance of the planned DRWMP start in February, 2011, SDG&E has put thought and effort into the processes and procedures required to bid DR into the CAISO PDR products with the intention that the DRWMP will be a dynamic pilot, operating in a contained environment and acting as a vehicle to transition programs and processes to support integration of retail DR programs with the wholesale market. The development of a DRWMP tariff is an example of this approach, which proved successful during the

PL Pilot. SDG&E believes that this approach will provide an ability to thoroughly review needs prior to large scale implementation without slowing down the transition.

The DRWMP provides for six different product types that are both aligned with CAISO products and familiar to the DR community. These products are described more fully in Schedule DRWMP. In summary, these products are:

1. Participating Load (PL) – Non-Spin A/S 11a-7p Only
2. Participating Load (PL) – Non-Spin A/S Select Hours
3. Proxy Demand Response (PDR) – Non-Spin A/S 11a-7p Only
4. Proxy Demand Response (PDR) – Non-Spin A/S Select Hours
5. Proxy Demand Response (PDR) – Day-Ahead (DA) Energy 11a-7p Summer, 1p-9p Winter Only (8 Hours)
6. Proxy Demand Response (PDR) – Day-Ahead (DA) Energy Select Hours (Minimum 4 Hours)

The structure of the DRWMP contains components that reflect both PL and PDR elements incorporating the requirements of both OP 5 of D. 10-06-002, but also OP 26 of D. 09-08-027.

Given the early-2011 timeframe of DRWMP, as well as SDG&E's contention that PL is not suitable for the transition of DR programs the primary focus on wholesale integration will be the PDR.

The new PDR products, numbers 3 and 4, are modeled similarly to the 2009 PL 11-7 and 24 x 7 products. Notable exceptions are:

- PDR resources do not need to be separated into a CLAP, greatly simplifying Utility procurement.
- DRWMP A/S events are reduced to 30-minutes from the PLP 2-hours.
- PDR telemetry includes a slightly more challenging "pseudo-generation" component which provides more value to the CAISO.
- Hours of Operation which are aligned for analysis to support Resource Adequacy.

- The Select Hours product – to be phased in – allows Participants flexibility to nominate into non-peak hours to provide contingency resources to the wholesale market off-peak.

Expanded Products

OP 5 of D.10-06-005 required each Investor Owned Utility "… to modify its Participating Load Pilot program to Proxy Demand Resource pilot programs for summer 2010." Since the PLP was narrowly focused on the adaptation of DR to perform as Non Spinning Reserve product in the CAISO market, SDG&E added a Day Ahead Energy product to the DRWMP. The addition of the product is designed to gain experience within the SDG&E DR portfolio as a PDR product that specifically aligns with existing DR programs. The addition of the DA Energy product also supports the commission requirement to enable ten percent of the Megawatts enrolled in DR Programs to be compliant with the CAISO PDR requirements.

Additional areas of analysis and testing include the value of custom baselines, pricing strategies, RDRP needs, and incorporation of battery storage technology capabilities.

Expected Wholesale Integration Challenges

Program Nomination –v– CAISO Registration

DRWMP and CBP currently allow participants and aggregators to nominate their monthly quantities five days prior to the start of the month. However, the CAISO PDR registration process requires approximately 15 calendar days to complete from the time that the Demand Response Provider (DRP) submits a registration until an updated PDR is available for bidding which will require the nominations to be advanced for participation in PDR. Advancing the participant nomination deadline to align with the CAISO registration timeline is anticipated to have a negative impact on program participation reducing the ability for participants to accurately nominate so far in advance of the performance period. It's SDG&E's intention to explore this issue more thoroughly during the 2011 DRWMP activities to better understand the impacts and the actual limitations of the CAISO. During the DRWMP the actual bids to the CAISO will be managed to ensure that the quantity bid to the CAISO does not exceed the quantities nominated by participants. The ultimate goal is to ensure that the most reliable DR possible is able to be provided; the infrastructure and processes required to provide for more timely enrollment and closer to real-time bidding/nomination activity is a necessity. The DRWMP intends to focus on this issue.

The traditional notion of nomination in itself complicates aggregations in a number of ways. Many retail programs – including the DRWMP, CBP, and the PLP from 2009 – have the notion of a nomination. This nomination allows a Participant to opt-out for a period of time by nominating zero. This could mean that a participant nominating zero could negatively impact the wholesale settlement for a PDR resource through non-performance, even though they have opted-out on the retail level. This type of issue needs to be addressed through mechanisms such as tariff changes as well as operational management efforts. During 2011 issues such as these will be studied to ensure that they have been adequately addressed prior to the start of the 2012-2014 program cycle.

Dual Participation

Much has been discussed regarding the costs and benefits of allowing dual or multiple participation, to achieve greater amounts of DR. The main concern of proponents of multiple participation is that Participants are not overpaid or “paid twice” for their DR. This can be a significant issue to provide all necessary systems with the data to perform correct settlement calculations and, in fact, to perform the calculations correctly in any case; however, a more immediate operational concern comes into play when integrating customers to the wholesale market. Dual participation restrictions may forbid events from different programs from occurring simultaneously or overlapping for a single customer or participant. The bids into the wholesale markets are a financially binding agreement and are not intended to be malleable after the fact. This, combined with the fact that the day-ahead capacity bids are due 10AM the day prior to the operating day, will often mean that wholesale bids are due before it is known if a different program will be called. Since a capacity bid does not necessarily equate to a wholesale energy dispatch, this poses an operational challenge. SDG&E proposes to eliminate simultaneous participation under a rate structure such as CPP, and a DR program, which will resolve this particular problem.

Day-ahead baseline

Both the CAISO PDR product and the SDG&E DRWMP utilize a 10 in 10 baseline for performance measurement of the non-Ancillary Services products. While these baselines are similar, the resultant performance measurements will not be equal. The DRWMP aggregates a number of participants into a single PDR but applies the baseline to each participant individually to measure performance. An individual participant may be an aggregation of more than one customer in which case the baseline is measured at the aggregated participant level. Aggregated participants can vary in their selection of whether to apply a morning adjustment to their baseline. In contrast, the CAISO aggregates the participant meter data into a single meter, before calculating the wholesale baseline. While SDG&E can replicate the CAISO baseline to validate wholesale settlement, those values will not be used for retail settlement. SDG&E does not find it necessary to limit the event day adjustment to 20% and is reviewing the ability to allow adjustments up to 40% to better reflect actual performance.

4. Impacts of DR Programs to Scarcity Pricing

The CAISO implemented the Scarcity Pricing mechanism in early December 2010 after design changes from the mechanism that was originally outlined in 2007. During the development of the final product there were numerous references to the use of DR to mitigate scarcity situations although without any specificity. Prior to approving the CAISO Tariff changes, FERC questioned the mechanisms that would allow DR to have positive impacts[2]:

> *Please explain the basis for your statement that "demand can operate to reduce and eliminate the shortage either by participating in the [CA]ISO's ancillary*

[2] On March 31, 2010, … the Commission's Office of Energy Market Regulation issued a letter requesting additional information concerning the ISO's tariff amendment.

services markets or as part of a load serving entities' program to reduce usage," given that demand resources are not currently eligible to participate in the CAISO spinning and regulation services markets.

The CAISO response was that there is significant DR participation in their Participating Load product as Non Spinning Reserves and that

> *…Load serving entities have load reduction programs that would allow the load serving entities to curtail loads under specific situations….As a result, when a supply scarcity is expected, load serving entities may voluntarily reduce their loads to avoid the high market prices. Such load reduction will eventually help the ISO reduce the likelihood of experiencing a scarcity condition.*

This does not acknowledge that price responsiveness by itself may not be enough to eliminate a scarcity situation. When there is insufficient supply to meet demand, this will be reflected in market results so long as they include DR bids. It is the lack of sufficient *reserves* that determines whether or not an actual scarcity event is called. The CAISO uses its own load forecast rather than bid-in demand to determine reserve requirements. As such, price responsive demand by itself (i.e., non-participating load with a price curve) will not reduce the likelihood of a scarcity pricing event. DR programs that can be bid as a resource presumably could be included in the CAISO market optimization determining whether or not there is sufficient supply to meet *forecast* demand.

5. Barriers to Integrating to PDR and PL

Product Matching

DR Programs Day Ahead products and notification timelines align well with the CAISO Day Ahead market timelines[3], but alignment is required for other products. Utility DR Day Of programs have notification times between 3 hours and 30 minutes prior to the event, while the CAISO Day Of (Real Time) energy dispatch sends *advisory* notifications

[3] CAISO Day Ahead market results are published at 1 PM one day prior to the event day and Program notifications are by 3 PM one day prior to the event day.

45 minutes prior to the operating hour and every 15 minutes thereafter and actually dispatches energy continuously throughout the hour in five minute intervals. While the advisory dispatch could serve as the basis for calling events, there could be minor wholesale settlement implications if the energy was not dispatched in the five minute intervals. Utility DR programs are designed with RA requirements in mind and the availability requirements, event durations and seasons are poorly aligned with CAISO products other than Day Ahead energy. RA eligibility provides a mechanism to gain long term capacity value that allows the utility to justify the level of incentive payments necessary to attract DR. The value of CAISO spot energy and capacity market revenues, by themselves, are not large enough to justify utility run DR programs and SDG&E believes these markets are better served without the introduction of utility programs.

Telemetry

Telemetry requirements for CAISO AS products impose both customer and DRP costs that are not recoverable through the CAISO market revenues. The new PDR telemetry requirements clarify some of the technical requirements while also increasing the complexity of the computed pseudo-generation. Due to this barrier as well as SDG&E's portfolio and needs assessment, SDG&E continues to look for benefits to the rate payer for converting DR into AS products.

Metering

Real time energy and ancillary services require submittal of five minute meter data to the CAISO. Currently, utility load meter data processes record at 15 minute intervals but are submitted to the CAISO at hourly levels. Special handling is required to submit disaggregated data to meet the RT requirements and subsets of hourly data that correspond to PDRs need to be submitted to the CAISO DRS in addition to OMAR.

DR Portfolio Maintenance

As noted in previous sections, there are a number of items that are particular to registering a PDR or creating a PL resource in the CAISO that present challenges to the migration of existing DR Programs to the CAISO wholesale markets. PDRs can only be composed of one LSE and one sub-LAP. This requires breaking DR program registrations into smaller increments than are currently administered in the wholesale market. Existing DR programs allow participation by direct access entities which require the development of separate PDRs although the sub-LAP requirement is currently not an issue for SDG&E since the territory is a single-sub-LAP. If SDG&E were to transition existing programs to the current Participating Load product there would be additional issues. For example, the process to establish a PL pseudo generator and CLAP in the CAISO network model is best reserved for static participation. Further, the requirement to schedule the underlying load at the CLAP begins to broach the issue of scheduling retail load at a level of granularity below the Utility default Load Aggregation Point.

6. Overcoming Barriers

Expansion of CAISO Reliability Products

Throughout the stakeholder processes for scarcity pricing and non-generator ancillary services, the prospect of implementing a reserve product with a 30 minute advance notice has arisen. While a 30 minute product would better align with DR program notification timelines and end use customer capabilities, the actual product design continues to be deferred to an undetermined future date. SDG&E is interested in investigating a 30 minute product[4] for ratepayer benefits and intends to engage in CAISO stakeholder processes that advance the development of the new product.

Addressing technical requirements

The CAISO places a high value on ten minute products that can be used for ancillary services and real-time energy five minute dispatches. The only practical way to accomplish this from a DR standpoint is full automation from CAISO dispatch to customer curtailment. This can be accomplished through passing the CAISO Automated Dispatch System (ADS) signal through a medium that disperses that notice to PLCs on customer equipment. This issue is being considered as proposals for changes funding for technology enablement such as TI/TA are incorporated into the 2012-2014 application.

[4] A 30 minute product would also need to be designed in a manner that provides RA capacity credit as well.

The infrastructure required to ensure that enrollments, eligibility, program/rate participation are all managed properly to support proper forecasting and bidding is significantly enhanced from the current/previous structure. SDG&E has analyzed the requirements, having defined the systems, processes and basic functionality that will be required. Given the number of systems and parties involved there is a significant amount of bidirectional communication required within SDG&E as well as externally with no fewer than 15 new interfaces having been identified as necessary supporting the integration of both CBP as well as CPP into the wholesale market.

7. Conclusion

Transition of SDG&E's retail demand response programs to integrate with CAISO markets is ongoing. The implementation of the CAISO PDR product, which is a key to initiating the transition since it provides the best match to retail DR program operations, was delayed limiting the opportunity to design and implement retail program operations changes necessary to comply with PDR requirements.

Further, the Commission's appropriately cautious approach to establishing adequate consumer protections prevented SDG&E from implementing program changes outlined in the various compliance filings submitted by SDG&E. SDG&E's first experience with PDR products will occur during 2011 in the DRWMP, approved by the Commission in November 2010, and will provide valuable experience in informing the transition of other programs to the CAISO markets.

SDG&E intends to continue transition of its programs as appropriate, leveraging DRWMP as a mechanism to do so and to determine how to efficiently present Day-Of programs to the wholesale market. CBP is targeted as the first existing program for full transition with expectations that the entire program will be integrated sometime during the 2012-2014 program cycle and support the implementation of the enabling technologies such as Auto DR required by participants to ensure reliable, shorter response times can be achieved, through programs such as TI/TA. Data automation solutions will be essential to deal with the large volume of data from customers that will occur outside of the pilots. Once the data from 2011 is evaluated the extent of these issues and the true costs and benefits will be better able to be assessed. Updates on lessons learned and findings will be shared as appropriate throughout this process with a full report to be provided at the conclusion of the DRWMP 2011 pilot period.

SDG&E is optimistic that any experience gained by market participants and the CAISO will serve to inform whether modifications to the CAISO products and processes or utility programs will provide a better alignment between Utility programs, DR participant capabilities and wholesale market design. SDG&E anticipates that significant progress in wholesale market integration can be accomplished during the 2012 -2014 DR program cycle. While not every issue outlined in this report will be (or can be) resolved during the 2012 -2014 program cycle, the initial PDR products and the addition of the Reliability Demand Response Product (RDRP) provide a solid foundation to transition a significant portion of SDG&E's retail DR programs to the CAISO wholesale markets.