

TCR Go-Live Go / No-Go Final Recommendation

October 8, 2013

Readiness Workstream

Revision History

Version Number	Date	Author	Change Description
1.0	10/8/13	E. Jester, E. Aguilar, A. Miller	Initial Version

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Executive Summary

This report contains the final Go/No-Go recommendations from the SPP Integrated Marketplace Program and the Change Working Group (CWG) for TCR Go-Live on October 18, 2013. These recommendations are based on the Go/No-Go criteria and analysis provided by SPP in the Go/No-Go Assessment on October 3, 2013.

The Readiness Workstream developed 17 Go/No-Go criteria to be used as input into the final Go/No-Go decision for TCR Go-Live. Currently, 15 of the 17 have been met and 2 are tracking on time. The status of each criterion is detailed in the Criteria Status table on the following page; high-level analysis of each criterion is provided in the **Criteria Analysis** section. Detailed analysis of additional areas is available in the **Appendix**.

The Integrated Marketplace Program and the CWG have made the following recommendations:

Integrated Marketplace Program:	Move forward with TCR Go-Live on October 18, 2013.
Change Working Group:	On October 7, The CWG voted “yes” to moving forward with TCR Go-Live on October 18, 2013.

Criteria Status

The following table contains the status of the TCR Go/No-Go Criteria as of October 7, 2013.

Identifier	Responsible Entity	Criteria	Status
TCR.GL.01	MP	Market Participant participation in TCR Market Trials verified	Complete
TCR.GL.02	SPP	Annual TCR auction timeline validated through TCR Market Trials	Complete
TCR.GL.03	SPP	Monthly TCR auction timeline validated through TCR Market Trials	Complete
TCR.GL.04	SPP	SPP posts three consecutive Settlement Statements with TCR daily charge types	Complete
TCR.GL.05	SPP	SPP posts one Settlement Statement with TCR daily and monthly charge types	Complete
TCR.GL.06	SPP	Business owner approval for the exit of TCR SAT (Site Acceptance Testing)	Complete
TCR.GL.07	SPP	Business owner approval for the exit of TCR SIT (System Integration Testing)	Complete
TCR.GL.08	SPP	Business owner approval for the exit of TCR FIT (Functional Integration Testing)	Complete
TCR.GL.09	SPP	Business owner approval for the exit of TCR Performance Test Phase	Complete
TCR.GL.10	SPP	Business owner approval for the exit of Non-Functional Test Phase	Complete
TCR.GL.11	SPP	All systems supporting TCR have the latest Commercial/ Network Model	Tracking on time
TCR.GL.12	SPP	TCR Go-Live plan is documented and approved by SPP Business Owners	Complete
TCR.GL.13	SPP	Plan for risk mitigation for potential market delay after TCR awards is documented	Complete
TCR.GL.14	SPP	SPP Staff ready to support the TCR Go-Live	Complete
TCR.GL.15	SPP	The EADS TCR data store is operational in production prior to TCR Go-Live	Complete
TCR.GL.16	SPP	CFTC application for waiver submitted by Legal/Regulatory in July for approval prior to TCR Go-Live	Tracking on time
TCR.GL.17	SPP	All known issues/risks that could impact TCR Go-Live are published and assessed	Complete

SPP Recommendation

The Integrated Marketplace Program recommends following the current TCR Go-Live Timeline, with a TCR Go-Live on October 18, 2013. The following points summarize why SPP believes the TCR Market is ready for implementation:

1. The TCR systems are integrated with the SPP system landscape: All interfaces required to run TCR Markets have been fully operational since March 2013.
2. The TCR systems have been exercised across functional areas: Integration required for cross-functional testing, including required upstream data for TCR charge type calculations, has been operational since the start of Settlements Market Trials (August 2013). Recent issues with Monthly TCR charges have been fixed.
3. The TCR system is producing accurate results: Two years of testing (1,700 days of effort) has resulted in a TCR engine that is producing quality results, which have been validated during Acceptance Testing, Integration Testing, and Market Trials.
4. The Congestion Hedging and other SPP support staff are ready. The Congestion Hedging team completed their Staff Readiness Certification in September 2013 and the Directors of all areas involved have confirmed their areas are ready for October 18, 2013 Go-Live.
5. The only remaining TCR Workaround is manageable. An automated system is in place which leverages the Decision Support System (DSS, the EIS Data Warehouse) to iHedge interface for Parallel Flow Data, is planned to operate until after Marketplace Go Live.
6. SPP has addressed Market Participant questions by providing Revenue Adequacy analysis results and an explanation of the Technical Team efforts in order to increase confidence.

CWG Recommendation

The Change Working Group (CWG) recommends SPP move forward with the TCR Go-Live as scheduled on October 18, 2013, based on the criteria and analysis made available as of October 7, 2013.

The following table represents the results of the CWG TCR Go/No-Go vote.

First Name	Last Name	Position		TCR Vote - Go	TCR Vote - No-Go
Aaron	Rome	Member	Midwest Energy		x
Adam	Cochran	Member	Tenaska Power Services	x	
Amber	Metzker	Member	Xcel Energy		x
Brett	Kruse	Member	Calpine	*Absent	
Brian	Gedrich	Member	NextEra Energy	*Absent	
Chris	Lyons	Member	Exelon	*Absent	
Eric	Alexander	Member	Grand River Dam Authority	x	
Erin	Jester	Secretary	SPP		
Greg	DePratt	Member	Empire District	x	
James	Fife	Member	Entergy Asset Management		x
Jim	Jacoby	Member	AEP	x	
Jim	Medford	Member	Westar		x
Joe Dan	Wilson	Member	Golden Spread	*Absent	
John	Seck	Member	KMEA	x	
Jon	Sunneberg	Member	NPPD	x	
Keith	Tynes	Member	East Texas Electric Coop		x
Kevin	Carter	Member	Duke Energy	Absent	
Lee	Anderson	Member	Lincoln Electric		x
Mandi	Howell	Member	Western Farmers		x
Mark	Worf	Member	Sunflower Electric	x	
Mike	Mushrush	Member	Oklahoma Municipal Power Authority		x
Mike	Lindberg	Member	KBPU	x	
Mitch	Krysa	Member	KCPL	x	
Robert	Stillwell	Member	City of Independence		x
Sanjay	Wankhade	Member	Kelson Energy	x	
Shane	Jenson	Member	OPPD		x
Shawn	Geil	Member	KEPCO		x
Jason	Bailey	Member	OGE		x
Stuart	Bowles	Member	AECC	x	
Terry	Gates	Vice Chairman	AEP	x	
Tyler	Wolford	Chairman	City Utilities of Springfield	x	
Walt	Shumate	Member	Shell Energy	*Absent	

*Although unable to attend the meeting to submit a vote, the following companies let SPP know they would have voted to “Go”.

- Shell Energy
- NextEra Energy
- Calpine
- Exelon
- Golden Spread

TCR No-Go votes were submitted as follows:

Westar Energy and Midwest Energy

Westar and Midwest votes, "No Go," for the October 18, 2013 TCR Auction Go-live for the following reasons:

1. We still have concerns for the possibility extreme outliers we are seeing in the monthly auctions and our ability to effectively manage or mitigate the risk associated with them. SPP has given their explanation for the reasons for the outliers, but if they continue to exist with an expected higher participation volume, are MPs prepared to deal with the financial implications and the potential uplift possibility that has been explained to them so far as a result of low participation.
2. We are still concerned that the TCR cycle has not had a successful end-to-end run. At this point, there should have been a successful complete run.
3. SPP should have already submitted a Contingency Plan to address the legal untangling of ARR/TCR Auction results in the event the Integrated Marketplace is delayed. Contingency Plans are a normal part of project planning, why wait?

Westar still has concerns about revenue adequacy. We would like to run the November and December auctions and use those results in Parallel Ops testing.

In the event that it is decided the TCR auction will be delayed, Westar and Midwest would vote for the December 2, 2013 go live date. All MPs would benefit from some additional time.

Xcel Energy

Xcel Energy's No Vote Reason:

Xcel Energy (SPS) voted no to TCR Go-Live due to a load settlement registration issue that has an adverse impact on the congestion hedging process. The registration of the wholesale load with more than one capacity supplier will not permit full allocation of hedging rights for that customer. We had requested SPP assistance on this issue earlier this summer, but did not make any progress until 2 weeks ago. The issue is not yet resolved, although SPP staff has offered potential interim solutions which may provide some hedge rather than none. We have learned from discussion with other MP's we are not the only customers that need a resolution to this situation. We feel this gap in hedge availability should be resolved before going live.

Entergy Asset Management

Voted No-Go in support of entities (which they have relationships with) which are concerned about the system - which they feel needs additional work and testing.

Lincoln Electric

No vote is based on our desire to further research the impact of our GFAs.

Western Farmers Electric Coop

WFEC is in the process of a long term transition of load serving responsibilities from an incumbent load serving entity in the SPP to WFEC. Since June 1, 2012 WFEC has served a defined hourly discrete quantity of capacity backed load and will continue to do so for years to come. There are separate identifiable long term NITS transmission reservations in place from capacity resources to these loads. There are multiple complicating factors involved with two entities being responsible for a load and the SPP directed WFEC to register the loads in question as new load settlement zones. That registration was completed with assistance from SPP, WFEC and the incumbent utility and WFEC openly discussed with SPP the reason for registering these load zones was to allow for the issuance of AAR rights for these loads. WFEC and the incumbent utility completed registration of these new WFEC load settlement zones with SPP approval and assistance prior to the April deadline. SPP agreed at that time, the incumbent utility would receive the ARRs as their market system did not have a way to transfer those rights to WFEC prior to being allocated to the owner of the NITS service. SPP, WFEC and the incumbent utility had discussions in which the SPP explained how after converting ARRs to TCRs in the auction process the TCRs could be transferred using the SPP Bulletin Board from the incumbent utility to WFEC. Although WFEC and the incumbent utility would have preferred just transferring those rights before the auction process started SPP and bilateral contract terms would not allow that occurrence. SPP did explain we not only could but should use the Bulletin Board to transfer the TCRs after the incumbent utility had converted the ARR s to TCRS. WFEC had reached agreement with the incumbent utility of a process to either monetize those ARR rights or convert them to TCRs in a bilateral agreement.

In September WFEC reported our historical loads for the ARR allocation process and was concerned about how the historical loads of this transitioning load was being reported and entered into the SPP model for ARR allocations. WFEC and the incumbent utility discussed this with the SPP and could not get the issue resolved. SPP agreed to get a response from other experts inside SPP and then to contact us again as the staff did not have a solution for reporting the embedded load from the incumbent utility as a separate load. SPP at that time stated they would not enforce the deadline for reporting these historical loads until the issue could be resolved. We have not received an answer on this issue that will allow ARRs to be allocated for this load at this time.

WFEC cannot and will not support any TCR auction process starting until the issue is resolved. WFEC requires some method to receive ARR rights for this load and has already made concession to accomplish this without breaking the system by using the SPP Bulletin Board. WFEC is very concerned the SPP is not providing a method to allocate and transfer the ARR/TCR rights to potentially mitigate congestion charges for this load and thus will vote no for starting the process on time unless we receive assurances from SPP that ARR rights will be available to WFEC for hedging the potential congestion charges for these loads.

Oklahoma Municipal Power Authority

The reasoning behind my vote is based on a few things:

- Last minute availability of corrected auction results
 - There have been major flaws discovered and addressed during Market Trials; not just minor glitches. Yet MP's are being asked to make a Go-Live decision based on a month of good data, which we received one business day prior to our vote this afternoon.

At this point in the process, MP's should have been approaching boredom with the results coming out of TCR Market Trials. Decisions as critical as these should be made based on consistent data and results over some period of time. I am not sure what this period of time should be, but I am certain it is something greater than what we were given here.

Omaha Public Power District

OPPD votes no on the October Go Live of the TCR auction due to the fact that if the Day 2 Market is delayed, ARR gains / losses will have to be erased off the books (off of which we budget) or will have to be funded by MP's. SPP has not filed with FERC to nullify the ARR's in such a case to date, despite the fact there is a precedent for such a filing by CAISO. Additionally, bidding strategies could be revealed and then nullified in such a case. Delaying the TCR auction to December presents no major issues such as TCR auction timeline compression nor tariff overhauls. SPP and OPPD systems appear ready and able to handle the October TCR auction, however, just because you can do something (go live) doesn't mean you should.

Kansas Electric Power Cooperative, Inc.

KEPCo feels that it is pre-mature to "go-live" with TCR market operations given the current state of the program overall. The limited amount of "Bid to Bill" data available, the current status of regulatory approvals, and the progress in Structured Market Trials, among other issues create too much uncertainty to proceed at this time.

Oklahoma Gas & Electric

OG&E's two primary reasons for voting No are:

1. TCR Market System/Design

- a. TCR trials were impacted by software errors, which denied MPs the time to perform a full "bid to bill" process.
- b. Phase 1 trials were invalidated.
- c. Phase 2 trials were impacted by continuing to fix software issues.
- d. There are no more trials scheduled for MPs to test the system.
- e. We still do not know if revenue adequacy is a big problem or not.
- f. We still are unsure about what impact an overall market delay would have on an already executed ARR/TCR market for March, April, May of 2014.

2. TCR Settlements

- a. Overall settlements were delayed by two months which greatly impacted the TCR workstream. SPP just two days ago released September TCR settlements. August results were error filled. October results are still settling.

- b. OG&E received a spreadsheet that showed \$12 million of uplift for OG&E in August. When we had the SPP TCR team and SPP Settlements team on a phone call they were not on the same page as far as uplift. SPP settlements said they had been seeing these large uplifts all along. SPP TCRs said they did not expect these results. Ultimately, SPP corrected the information. It was evident to all that even inside SPP there is uncertainty as to the presence or size of uplift or inadequacy.
- c. This vote precedes our ability to digest September and October settlement results.

OG&E also took into consideration the fact that two major SPP workstreams areas, both markets and settlements, are red.

TCR Go Votes were submitted as follows:

City Utilities of Springfield

SPP satisfactorily addressed each concern we brought up about the TCR market, and our internal systems & processes are ready for an October 2013 TCR start.

American Electric Cooperative Corporation

AECC votes in the affirmative, i.e. YES, to begin SPP's TCR Market on October 18, 2013. This decision is based on the following criteria:

1. SPP has demonstrated that its systems and processes are sufficiently developed to successfully operate the TCR Market.
2. AECC's Congestion Management staff is trained and processes are in place to go-live in SPP's TCR Market.

AECC is a member of ACES and agrees with ACES' stance that the original TCR Go Live schedule should be maintained.

Kansas City Power & Light

KCP&L will vote "Go" on the CWG Transmission Congestion Rights (TCR) Go/No-Go vote on October 7th and appreciates this opportunity to provide additional comments on the issues that impacted the TCR go/no-go decision.

SPP has been forthcoming in presenting the concerns around the monthly settlement charge type issue that was last discussed at the 10/3/13 CWG meeting by Philip Bruich of SPP. SPP has explained that a fix to the calculations of monthly payback was put into production on 10/2/2013 and they have accelerated the settlements calendar so that the monthly charges will post on 10/4/13. KCP&L is currently reviewing the information that has been made available by SPP and does not believe that this issue warrants a delay in the TCR market process.

The concerns about TCR Market revenue adequacy are unlikely to be alleviated prior to go-live due to the complex nature of the situation and the differences in Market Participant (MP)

behavior between market trials and actual markets. Therefore this issue was not a factor in the determination of the KCP&L vote.

Although KCP&L is aware of the concerns of other MPs about the negation of TCRs in the event of an overall market delay from March 1st, at this time we do not share this concern and it was not a factor in the determination of the KCP&L vote.

In addition to the issues that are directly related to the TCR market, KCP&L has significant concerns about the overall readiness of the Integrated Marketplace for the planned March 1, 2014 go-live. There are many issues to be resolved prior to the commencement of parallel operations (see parallel ops go-live criteria) which is the next segment of the critical path of the Marketplace project. Settlements readiness and the ability of KCP&L and our vendors to integrate the Marketplace updates into KCP&L systems prior to Parallel Operations is a particular concern.

KCP&L is fully prepared to participate in the interim TCR auction if it is held beginning on October 18th.

Empire District Electric Company

While Empire has several concerns with the IM project as a whole and how TCR's will tie in to the overall market Go-Live date, we feel that the software and processes related to TCR's are functioning well enough to vote Yes on a recommendation for TCR Go-Live.

Empire would caveat this yes vote with the condition that Empire would not be held liable for positions that occur prior to the Market Go-Live (in the event of a market delay). This has been discussed at several meetings and while Empire is not clear on the exact process that SPP will use to wipe out the TCR's that would have occurred prior to market start, we believe that SPP has made a commitment to address TCR/Market delay issues.

Kelson/Dogwood

Voted Go because Kelson (Dogwood) is not participating in the TCR Market and does not want anything to hold up Integrated Marketplace implementation because of the expected financial benefits.

Accomplished Criteria

The following criteria have been met as of the publishing date of this report.

Identifier	Responsible Entity	Criteria
TCR.GL.01	MP	Market Participant participation in TCR Market Trials verified
TCR.GL.02	SPP	Annual TCR auction timeline validated through TCR Market Trials
TCR.GL.03	SPP	Monthly TCR auction timeline validated through TCR Market Trials
TCR.GL.04	SPP	SPP posts three consecutive Settlement Statements with TCR daily charge types
TCR.GL.05	SPP	SPP posts one Settlement Statement with TCR daily and monthly charge types
TCR.GL.06	SPP	Business owner approval for the exit of TCR SAT (Site Acceptance Testing)
TCR.GL.07	SPP	Business owner approval for the exit of TCR SIT (System Integration Testing)
TCR.GL.08	SPP	Business owner approval for the exit of TCR FIT (Functional Integration Testing)
TCR.GL.09	SPP	Business owner approval for the exit of TCR Performance Test Phase
TCR.GL.10	SPP	Business owner approval for the exit of Non-Functional Test Phase
TCR.GL.12	SPP	TCR Go-Live plan is documented and approved by SPP Business Owners
TCR.GL.13	SPP	Plan for risk mitigation for potential market delay after TCR awards is documented
TCR.GL.14	SPP	SPP Staff ready to support the TCR Go-Live
TCR.GL.15	SPP	The EADS TCR data store is operational in production prior to TCR Go-Live
TCR.GL.17	SPP	All known issues/risks that could impact TCR Go-Live are published and assessed

Analysis of Completed Criteria

TCR.GL.01: Market Participant participation in TCR Market Trials verified

This criterion is based on Readiness Metrics TCR-05 and TCR-06 (new metric pending). High Priority MPs have been participating per the defined metric (TCR-05). Participation in the October 2013 monthly auction is being closely monitored; High Priority MPs were asked to submit their intended level of participation and participation will be tracked based on that.

TCR-05 measured MP participation during all of TCR Market Trials. This metric is 'green', indicating that >90% of the High Priority MPs and over 50% of candidate ARRs nominated and participated in the TCR auction (either in annual or monthly). High Priority MPs are defined by TCR workstream as any MP with a current NITS reservation on OASIS.

TCR-06 is a new metric added to specifically track MP participation in the last monthly auction during TCR Market Trials. This metric is 'red'. The High Priority MPs were asked to specify if they intended to participate or not in the Allocation and Auction via RMS. All 19 of the High Priority MPs opted to participate, or not to participate in both the Allocation and Auction. All High Priority MPs participated in the Allocation as planned and only one failed to submit their portfolio in the Auction. The failure of the one MP to submit their portfolio is what caused the 'red' status of TCR-06.

TCR.GL.02: Annual TCR auction timeline validated through TCR Market Trials

As of the September 2013 Readiness Metrics update (and confirmed with the TCR team) this metric is 'Blue' or complete. The Annual TCR Auction concluded on the 17th of May, and the re-run finished on the 19th of July. The Annual Auction results were posted on the aforementioned dates.

TCR.GL.03: Monthly TCR auction timeline validated through TCR Market Trials

As of the September Readiness Metrics update (and confirmed with the TCR team) this metric is 'Blue' or complete. The monthly auction timelines have been monitored throughout TCR Market Trials. The last week of October 2013 concludes the second round of the October Monthly TCR Auction. The auction results are posted.

TCR.GL.04: SPP posts three consecutive Settlement Statements with TCR daily charge types

Settlement statements, including TCR daily charge types, are currently being posted daily. Statements have been posted every calendar day since August 5 except for the August 20 Final settlement. The interface between TCR/ARRs and Settlements sets the sign convention for the buy/sell flags and the TCR Self-Convert quantities were in correct for the first ten days of August.

TCR.GL.05: SPP posts one Settlement Statement with TCR daily and monthly charge types

The August monthly TCR charges were incorrectly published in early September. KIL #695 and 696 documented that Month end ArrPaybackMnthlyAmt and TcrPaybackMnthlyAmt were

incorrect. A fix for the two related defects has been tested and was installed in Production on October 2. The September 30 monthly TCR charges were published to Participants on October 4. The Monthly TCR/ARR fix was successful and results have been successfully validated to the penny by Market Participants.

TCR.GL.06: Business owner approval for the exit of TCR SAT (Site Acceptance Testing)

Business owner approval has been obtained and documented for TCR SAT. All SAT Test Cases have been executed. This consisted of conducting an Annual Allocation, Annual Auction, two Incremental Allocations and two Monthly Auctions. A 99% pass rate was achieved. There are no open defects from the SAT phase.

TCR.GL.07: Business owner approval for the exit of TCR SIT (System Integration Testing)

Business owner approval for test stage exit has been obtained and documented. For TCR SIT, 100% of SIT Test Cases have been executed and 100% of SIT Test Cases passed. There are no open defects from the SIT phase.

TCR.GL.08: Business owner approval for the exit of TCR FIT (Functional Integration Testing)

Business owner approval for test stage exit has been obtained and documented. For TCR FIT, 100% of test cases have been executed and 98.5% have passed. The small percentage of deferred FIT cases is regarding parallel flow forecast (PFF) data. The PFF test cases have been added to the regression test plans for execution once the Markets system has sufficient historical data. There are no open critical or high defects from the FIT phase.

TCR.GL.09: Business owner approval for the exit of TCR Performance Test Phase

Business owner approval for test stage exit has been obtained and documented. TCR Performance testing included the following:

- Planned and executed performance tests (baseline, duration, stress)
- Established baseline performance against expected normal load
- Identified and resolved potential bottlenecks, memory leaks, and server capacity issues
- Reviewed performance test findings with IT stakeholders
- Assisted with the investigation and resolution of issues
- Raised 10 defects which have all been addressed
- Retested with vendor fixes

TCR.GL.10: Business owner approval for the exit of Non-Functional Test (NFT) Phase

Business owner approval for test stage exit has been obtained and documented. 100% of the NFT test cases were tested and passed. Results were reviewed with the ITAWG and IT support teams.

TCR.GL.12: TCR Go-Live plan is documented and approved by SPP Business Owners

The TCR Go-Live plan has been completed and approved by SPP Business owners. The team will be using this plan to execute the technical steps required leading up the October 18 Go-Live.

TCR.GL.13: Plan for risk mitigation for potential market delay after TCR awards is documented

This plan has been documented and was presented to the CWG during the August meeting. In the event that a contingency plan to be filed, such a plan would be included with other tariff changes that would be needed to effectuate a market implementation delay.

TCR.GL.14: SPP Staff ready to support the TCR Go-Live

Resources are confirmed ready by the Directors over the areas in scope for TCR go-live. This decision is qualitative and based on assessment of staff and knowledge of training, testing, and participation in other staff readiness activities. Directors in the following areas have given their approval that enough staff has demonstrated the knowledge and skills needed to support the business functions required for the TCR processes: Congestion Hedging, IT Applications, IT Operations, and Credit.

The three high impact departments included in this criterion have also gone through a Staff Readiness Certification process. This process is in addition to the directors of those areas confirming that their staff is ready for TCR Go-Live on October 18. The Staff Readiness Certification effort is a three part process to confirm staff readiness prior to Go-Live. The steps include completing training and reviewing all relevant process documentation, demonstrating knowledge by performing job tasks, and obtaining final approval by management.

Department Status of Readiness Certification Process:

- The TCR team is complete with this process and has everything documented.
- Credit and Risk Management is still in the process of completing their certification and plan to be done prior to TCR Go-Live (they are not involved in the TCR process until December and have supported TCR Market Trials since inception).
- The IT Applications team is complete with their interim sign off for TCR Go-Live and will have final sign-off complete for Markets Go-Live.

TCR.GL.15: The EADS TCR data store is operational in production prior to TCR Go-Live

The TCR to EADS interface has been running in Production for several months. The EADS team recently concluded validation of all functionality with the last fixes implemented on October 2, 2013. This interface is now fully operational.

TCR.GL.17: All known issues/risks that could impact TCR Go-Live are published and assessed

TCR Go-Live issues/risks were evaluated by the TCR workstream and other program resources, as needed. Additionally, Market Participants were given the opportunity to officially submit risks to the program after the September CWG meeting. The MP risks were submitted via the Request Management System and tracked by the Readiness workstream.

Please refer to the detailed list of all documented issues/risks in the **TCR Go-Live Risks & Issues** section of this document.

In Progress Criteria

The following criteria are in progress as of the publishing date of this report. They are scheduled to be complete prior to TCR go-live and are tracking on time.

Identifier	Responsible Entity	Criteria
TCR.GL.11	SPP	All systems supporting TCR have the latest Commercial/Network Model
TCR.GL.16	SPP	CFTC application for waiver submitted by Legal/Regulatory in July for approval prior to TCR Go-Live

TCR.GL.11: All systems supporting TCR have the latest Commercial/Network Model

An issue arose on October 2 that requires TCR, EMS, CMS and portal to consume a model update. This is a low risk and the updated model will be consumed prior to TCR Go-Live. The TCR team estimates it will be consumed by October 11.

TCR.GL.16: CFTC application for waiver submitted by Legal/Regulatory in July for approval prior to TCR Go-Live

SPP received an order from FERC on September 30, 2013 conditionally accepting the CFTC tariff changes subject to SPP making a compliance filing due in 30 days from the date of the order which will be October 30, 2013. There is no impact to TCR Go-Live if the filing is received later than October 30, 2013.

TCR Go-Live Risks & Issues

Known Risks

The following **risks** to TCR Go-Live have been identified by Market Participants and SPP:

1. SPP Manual Workarounds cause risk to TCR processes
 - **Mitigation:** There will only be one remaining workaround, leveraging the DSS to iHedge interface for Parallel Flow Data, which is planned to operate until well after Marketplace Go Live.
Four other workarounds that were presented in September have all been resolved. The manual creation and data clean up workaround was resolved on 10/1/2013 when MAS 10 was consumed by TCRXFER and iHedge. The manual correction of dates for the Commercial Model was resolved on 9/16/2013 when the interface issue #232 was implemented. The manual creation of TSR reservations in OTT was resolved on 9/27/2013 when issue #224 was implemented into PROD with OTT release 1.4.4. The manual modification of the Product Period name was resolved on 9/27/2013 when issue #222 was implemented into PROD with OTT release 1.4.4.
 - **SPP Assessed Risk Level:** Low
 - **CWG Assessed Risk Level:**
 - Xcel: Low
 - OMPA: Low
 - CU: Low
 - KCPL: Low

2. Revenue Inadequacy could pose risk to TCR Market
 - **Mitigation:** Through its TCR revenue adequacy analysis, SPP has determined that, given similar Day-Ahead Market and TCR models with consistent system capabilities, the TCR auction produces awards that are adequately funded by Day Ahead Market congestion revenues.
 - **SPP Assessed Risk Level:** Low
 - SPP categorizes this as low risk because of the established processes and the way that the systems work. Revenue inadequacies that may be seen after go live are not due to modeling or hand-offs between systems. Since modeling has been clearly shown to be the same, SPP feels like design issues are left. SPP believes the MWG has specifically designed the market to address those concerns so therefore assessed this as low risk.
 - **CWG Assessed Risk Level:**
 - KCPL: Low
 - Xcel: Medium
 - OMPA: Medium. Agree it's an ongoing risk that you can't fully test/prove out, but still it is at least a Medium.

- CU: Medium. SPP has shown consistency in their processes, but Revenue Inadequacy risk is still present, as it is in all RTO markets.

3. The amount of Settlement data available for analysis causes Revenue Adequacy concerns for Market Participants.
 - This risk was raised during the CWG recommendation meeting on October 7 by Xcel. The concern was the lack of Settlements data to properly address the Revenue Adequacy risk.
 - **SPP Assessed Risk Level:** Low
 - **CWG Assessed Risk Level:**
 - Xcel: Medium
4. GFA break-outs after the October 18, 2013 TCR Go-Live could pose a risk to TCR processes, derail the timeline, and require a rerun. This risk is regarding those MPs that have a GFA that do not communicate to the TCR team that they want that carve out until after we have started the annual TCR process, then it's a risk to the process.
 - **Mitigation:** SPP has made proper communications to all GFA holders
 - **SPP Assessed Risk Level:** Low
 - **CWG Assessed Risk Level:**
 - OMPA: Low
 - KCPL: Low
 - CU: Medium
5. There is concern to be had after SPP provides the detailed response of how they will handle allocating the ARRs/TCRs for the GFA Carve Outs, that FERC may not approve of the process and require changes. This risk is referring to p 46 of the Compliance Order for the GFA Tariff language in ER13-2078
 - This risk was raised during the CWG recommendation meeting on October 7 by Xcel.
 - **SPP Assessed Risk Level:** Low
 - **CWG Assessed Risk Level:**
 - Xcel: Medium
6. SPP's outage modeling process causes the potential risk of an uneven playing field among participants and ARR/TCR underfunding with an uplift to market participants
 - **Mitigation:** These concerns are noted and will be continuously reviewed for potential improvements to the on-going evolution of the IM Congestion Hedging process. All input and suggestions are appreciated. If the desire is to change existing process, these topics should be addressed formally at a working group level. Outage reporting and modeling have been tested and verified to be consistent with the Market Protocols.

SPP is compliant based on outage coordination assumptions. Assumptions necessary for outage delivery to the TCR team may cause rev inadequacy because planned outages may be submitted up to operating day. There may be a

delta between when they are uploaded and when the TCR team consumes the outage data and runs the option, and when the members and operators submit the planned outage. SPP Criteria currently allows this. MMU and Markets Forensics will consistently assess the magnitude of error caused by outage coordination.

- **SPP Assessed Risk Level:** Low
- **CWG Assessed Risk Level:**
 - KCPL: Low
 - OMPA: Low
 - Xcel: Medium
 - AEP: Medium
 - TEA: Medium
 - CU: Medium

7. Delay in Markets Go-Live after TCR Go-Live could cause rework and cause financial risk. The current 'red' status of the Markets workstream and Settlements workstreams increases risk of Market delay.

- **MP Example** - If an MP establishes a 2014 budget based on the results of the Auction settled in November of 2013, (when ARR ACP are reported), and these are later declared null and void, the MP incurs financial risk.
- **Mitigation:** Plan for risk mitigation for potential market delay after TCR awards is documented and posted. SPP has discussed its plans to unwind TCR positions in the event of a market delay. With more input from participants, SPP can take additional measures to address the concern in the next few months.
- **SPP Assessed Risk Level:** Low
- **CWG Assessed Risk Level:**
 - CU: Low
 - KCPL: Low
 - Westar: Medium
 - AEP: Medium
 - OGE: Medium
 - KEPCo: Medium/High
 - OMPA: Medium/High. A TCR go-live and an eventual Market delay is a Medium/High risk.
 - Xcel: High

8. Delays in Settlements data impacts MP's ability to validate TCR strategies. There is insufficient time to validate October Mock Auction results via Settlements. Two month delay in SPP Settlement delivery has compressed MP's vendor delivery of software which in turn has reduced MP's ability to properly validate settlement data.

- **Mitigation:**
 - All determinants supporting TCR Settlements have been fully integrated since the start of Settlements Market Trials
 - Participants have been able to fully validate all hourly and daily Settlements charges since the 8/14 Operating Date

- The remaining monthly TCR settlements are computationally easy to verify. Any issues may be discovered with these calculations would be issues with settlements and would be addressed prior to going live.
 - **SPP Assessed Risk Level:** Low
 - **CWG Assessed Risk Level:**
 - CU: Low
 - KCPL: Low
 - AEP: See both sides – it has been a struggle to validate Settlements, but they have confirmed the TCR Charge Types
 - Xcel: High. Due to the fact that the monthly fix was available on Friday, October 4 and only have one month of Settlements data.
 - OGE: High. Agree that Settlements has been integrated as stated above, but it hasn't been correct.
 - KEPCo: High
 - OMPA: High (If MP's cannot fully test their settlements systems (where the monetary impacts of glitches are found), there is a greater possibility that issues are missed)
9. Lack of complete End to End Market Trials testing could have impacts to system behavior after patches have been applied, impacts on awards due to poor modeling quality, and ARR/TCR underfunding and an uplift to MPs. TCR system has been validated in pieces but not from a true bid-to-bill perspective
- **Mitigation:** TCR Market Trials provided an opportunity to test and solidify business process.

The issues that came up and were resolved have put us in a position to go-live. All risks will never be completely mitigated. As a result we have business controls, procedures and reports that will continuously evaluate and address those potential risks.

All of the functionality required for accurate and complete processing of TCRs is operational and has been thoroughly tested and verified. There is low risk that subsequent testing would reveal issues with awarded TCRs. Any issues with other system components would be addressed throughout the remainder of Market Trials and Parallel Operations.

In order to better understand these concerns, suggestions, and expectations the Congestion Hedging group is available to meet with the submitter.

Changes to MUI may be considered for post go-live improvements.

- **SPP Assessed Risk Level:** Low
- **CWG Assessed Risk Level:**
 - CU: Low
 - KCPL: Low
 - AEP: Medium (similar issue to Xcel)

- Xcel: High (due to a registration issue that has not been fixed yet so they have not been able to test bid-to-bill)
- Western Farmers: High (similar issue to Xcel)
- OMPA: High (Fully integrated testing also goes hand in hand with actual time to test and get comfortable with TCR results)

10. Market Participants are not ready to participate in a financially binding TCR Market

- **Mitigation:**
 - SPP offered multiple sessions two additional TCR training courses (ARR Allocation and TCR Bid Activity)
 - The Readiness workstream added an additional TCR participation metric (TCR-06) to ensure MPs participated in the October monthly auction as they would intend to participate in production.
- **SPP Assessed Risk Level:** Low
- **CWG Assessed Risk Level:**
 - AEP: Low
 - OMPA: Low
 - CU: Low
 - KCPL: Medium
 - Xcel: High (for reasons described in risk #9 above)

Known Issues

The following three concerns were identified by MPs as issues. These are resolved items which have been addressed and corrected, but still show a lingering effect on what MPs are seeing.

1. TCR to Settlements Transactions – Sell Indicator Logic Change
 - The interface between TCR/ARRs and Settlements sets the sign convention for the buy/sell flags
 - TCR Self-Convert quantities were being incorrectly reversed
 - **Resolution:** This fix was implemented in August. This issue was communicated in the Settlements CWG update on Aug 21 and SMT call on Aug 23, and resulted in incorrect ARRUplift values being settled for the first 10 days of August prior to the fix being implemented. Settlements staff recalculated the monthly uplift based upon adjustments to correct for the first ten days. Those calculations reduce the monthly August uplift for the SPP footprint from \$29M to \$1.274M.

2. Limit Expansion in Monthly Allocation carried to Monthly Auction
 - In August Monthly On-peak we noted we were short 2.5 M\$ in revenue. While this is still less than the 3.2 M\$ were ahead from August On-peak in the Annual, SPP still needed to investigate.
 - **Resolution:**
 - SPP found this was caused by expanded limits from the Monthly Allocation not being carried forward to the Monthly Auction.

- SPP developed a process to include these and used it successfully in September and October monthly processes.

3. Various Auction Clearing Price (ACP) Questions from Monthly Auctions

- The outlying clearing prices in the Annual and Monthly Auction were primarily a result of the way Self-converts are modeled and settled. Please keep in mind a self-convert sends a signal to the market that you want the TCR “no matter what” and this signal matches up with how self-converts settle. Regardless of the price, the MP is paying for the TCR and receiving the same revenue for their ARR, thus the net settlement is zero.

Technical causes of high prices include:

- Self-converts being slightly curtailed in the auction.
- Lack or complete absence of counter-flow positions.
- Very large differences in Shift Factors on related SLs
- Complete lack of participation at given SL (ACP only for completeness)

As above the high-price Self-converts pay equally for the high-price ARRs. In the case of complete lack of participation at an SL, no TCRs settle, so the ACP has zero effect.

The following issues have been identified by Market Participants and SPP:

4. Defects in the two TCR Monthly Charge Types. SPP Settlements will be manually supporting two specific TCR charge types as per KIL#695 and KIL#696.
 - **Resolution:** The monthly TCR/ARR fix was migrated to the PROD environment on October 2. The September monthly results will be posted on Friday, October
5. MPs concerned with auction clearing results. MPs recognized unforeseen events and unintended consequences during TCR Market Trials:
 - ARR awards are not as closely correlated to the round capacity as anticipated (e.g. Nominate 100MW and awarded 88MW).
 - When self-convert bids are placed the TCR self-convert award is not at 100% resulting in forced “cash outs” of ARRs.
 - Self-convert success is largely dependent on the behavior of other MPs.
 - TCR market trials software issues
 - Software issue identified in Phase 1 and rerun was not performed.
 - Phase 2 was run but software issues still existed.
 - Phase 2 rerun validated the software fix but did not allow MPs a true phase rerun because the system availability topology (CROW outage/derate validation) was validated in real-time which is not congruent with a true model run that is required to look into the future for system availability.
 - **Resolution:** The issues listed are part of the TCR Market Design. Due to the competitive nature of an auction process, a MP may not be able to get every TCR

that is desired, including self converts, due to the fact that it is dependent upon the behavior of other MPs in this complex system.

Self converts that are not attainable in the annual process are carried forward to the monthly process if the difference is not being settled. Otherwise, they are being honored by a “cash out”, as stated and as intended by the design.

The analysis for the software issue seen in phase 1 was not scheduled to be tested until the phase 2 auction. The fix was tested, verified and validated during this phase, culminating in a rerun of the phase 2 process to ensure the process was correct.

Appendix

Supporting Documentation

The following documents provide additional information on the Go/No-Go Criteria and data used for the analysis:

Document	Location	Associated Criteria
Go/No-Go Criteria Spreadsheet	Readiness Center	All
Readiness Metrics Status	iDashboard	TCR.GL.01, TCR.GL.02, TCR.GL.03
Readiness Metrics descriptions	Readiness folder	TCR.GL.01, TCR.GL.02, TCR.GL.03
Known Issues Log	Market Trials folder	TCR.GL.17
TCR Go-Live Discussion Presentation (Sept 11 CWG teleconference materials)	CWG Meeting Materials folder	All
TCR Go Live Discussion and Delay Options Review (Sept CWG Meeting materials)	CWG Meeting Materials folder	All

TCR Revenue Adequacy Study

Through its TCR Revenue Adequacy Analysis, SPP has determined that, given similar Day-Ahead Market and TCR models with consistent system capabilities, the TCR auction produces awards that are adequately funded by Day-Ahead Market congestion revenues. *Note this study is not intended to imply the TCR Market will be revenue adequate, for reasons not limited to MP behavior, product granularity, outage assumptions, and parallel flow.

Background

Other RTOs have experienced funding issues with congestion rights. Funding issues are most often the result of differences between the Day-Ahead market models and those used for TCRs.

Some modeling discrepancy must be expected as the TCR auction has, at its shortest, a monthly time frame, while the Day-Ahead market solves hourly. The bidding behavior of Market Participants also impacts revenue adequacy. If the market is sufficiently competitive, the effects of particular bidding strategies should be minimized.

Without a fully operational market with real financial incentives, SPP cannot assess its vulnerability to TCR revenue adequacy apart from verifying consistency of models and other assumptions between Day-Ahead and TCR markets. The Structured Market Trials phase of the Integrated Marketplace project does not provide financial incentives to achieve realistic market outcomes. Given these limitations, SPP conducted analysis of TCR revenue adequacy.

Objective

SPP conducted two phases of analysis: 1) a simplified assessment of TCR revenue adequacy using Structured Market Trials data and 2) a controlled input simulation of a TCR auction and a corresponding Day-Ahead market case. The purpose of the simulation was to demonstrate that software and models between Day-Ahead and TCR markets produce results that are consistent with Market Protocols and do not contribute to revenue inadequacy.

Analysis and Results

August 2013 Market Trials Assessment

SPP staff used the August monthly TCR market trials auction inputs, adding some additional auction bids due to lack of participation, to produce TCR awards. These awards were then compared to the congestion revenues generated by a Day-Ahead market case. The revenue substantially exceeded the TCR payments, though the hourly magnitudes of the payments were of a reasonable order of magnitude. Lack of participation in the market trials auction rendered unrealistic results.

September 2013 Day-Ahead/TCR Simulation

For the analysis, the Congestion Hedging group and Market Operations coordinated model inputs, creating a TCR auction environment matched to a single Day-Ahead case, as opposed to the monthly or annual auction. The Market Monitoring Unit then computed TCR auction bids that perfectly hedged the transmission congestion in the Day-Ahead Market case. In this

environment, SPP anticipated a nearly perfect match between the TCR awards and the Day-Ahead congestion revenues.

The results indicated the models were consistent. In the different auction scenarios, the range of TCR revenue adequacy was 98.5% to 103%. The small differences could be attributed to inherent differences in the models and sensitivity to particular model inputs.

Conclusions and Looking Ahead

The revenue adequacy analysis has shown the Day-Ahead Market and TCR models are practically identical. Moreover, no evidence was uncovered to indicate issues with TCR funding.

Because of factors such as differing timeframes and participant behavior, the risk of underfunding in the TCR market cannot be eliminated. The SPP Market was designed with the experiences of other markets in mind. On-going reporting and analysis by the Congestion Hedging team, Market Operations, and the Market Monitoring Unit will be crucial in minimizing any realized revenue inadequacy in the Integrated Marketplace.

Technical Review Team Effort

SPP TCR Go-Live Technical Review Team

Purpose: The Technical Review Team consists of multiple SPP departments including Congestion Hedging, Energy Management System Modeling, Outage Coordination, Market Monitoring, Market Forensics, Commercial Modeling, Operations Market Support, and Operations Modeling & Data Integrity. The team was formed to ensure that shared business processes are working as designed, data is hand offs from team to team are successful, and all interfaces with Congestion Hedging are working as designed.

High-level results: No cross-departmental hand-offs are of concern with respect to Go Live with TCR.

Summary of findings:

The team identified, discussed, and documented handoffs to TCR:

1. Outage assumptions
2. Network Model
3. Flowgate Model
4. Contingencies
5. Monitored elements
6. Transmission facility ratings
7. Power System Simulator for Engineering (PSSE) bus numbers
8. Pricing Node to Electrical Node relationships, pulled from Commercial Model
9. Pricing Note to Settlement Location and Market Participant to Asset Owner relationships, pulled from Commercial Model
10. Load Distribution Factors pulled from the Enterprise Analytics Data Store
11. Parallel Flow pulled from Data Services System

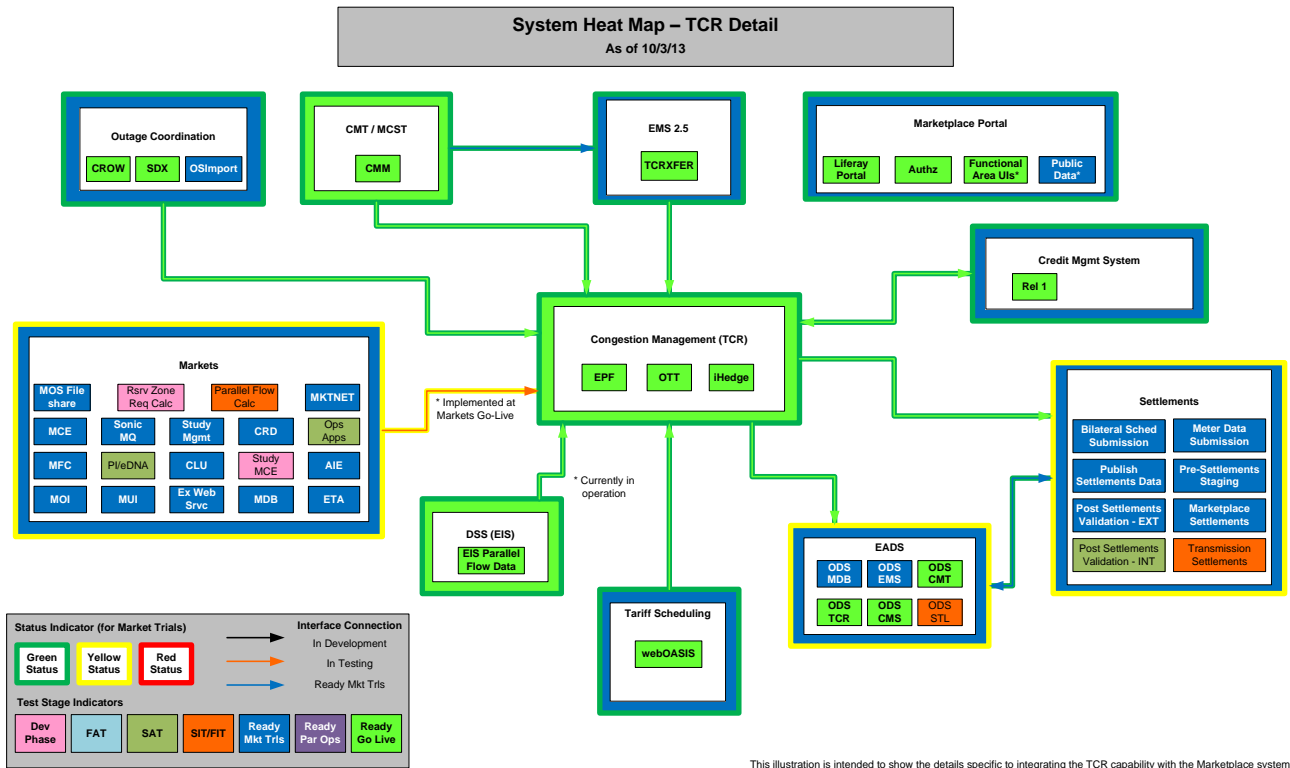
The team has confirmed that each group involved has a common understanding of what the data is and how it will be delivered. This has been in practice during Market Trials. The Technical Team further validated the business processes, procedures, and assumptions for TCR Go-Live preparation by doing the following:

- Validating a common understanding of what the data is and how it will be delivered.
- Discussing required validations performed by Operations before delivery to Congestion Hedging.
- Discussing additional information needed by Congestion Hedging to allow them to make adjustments to input data as needed. The team identified some manual workarounds.
- Identifying some required software changes surrounding Effective Dating Flowgates. All activities are part of an internal checklist ("Model delivery EMS --> TCR").

- * Team did not validate input data, only validated handoffs and business assumptions.
- * Team did not find significant issues, mitigation plans to resolve issues identified have been implemented.

TCR Systems diagram:

There were 15 interfaces that were validated as illustrated below.



This illustration is intended to show the details specific to integrating the TCR capability with the Marketplace systems.

FERC Order Impacts

The compliance items regarding Market-Based Congestion Management required in the September 20, 2013 FERC Order has no identified impact to TCR go-live. FERC prescribes clarifications and changes to the TCR processes; there are no required system changes.

The following table contains the TCR-related changes per the FERC Order with impacts to the TCR processes.

Ordered change	System Impact	Tariff Impact
(par 179) Accordingly, we require SPP to submit a compliance filing 60 days after the date of this order to revise the Tariff so that transmission customers with rights to roll over their agreement will be able to obtain ARRs in the Annual Allocation Process without requiring them to give more than one year notice.	No	Yes
(par 181) We find that SPP has not complied with the Commission’s requirement to include a provision stating that the TCR auction is “subject to review by the Market Monitor and mitigation, as needed.” While SPP made the TCR auction subject to a Market Monitor, it did not make it subject to mitigation, as needed. Accordingly, we direct SPP to submit a compliance filing within 60 days of the date of this order that provides that TCR auctions will also be subject to mitigation, as needed. We note that this could be addressed by adding “subject to review by the Market Monitor consistent with Attachment AG” to report any market manipulation concerns with the TCR Auction to the Commission.	No	Yes
(par 196) Thus, we direct SPP to file a compliance filing within 60 days from the date of the order to modify section 7.1.3(1) to state, in part, that the: ARR Nomination Cap <u>for a particular month or season</u> is equal to the minimum lesser of a) the sum Network Integration Transmission Service Candidate ARRs <u>for that particular month or season</u> as calculated in Section 7.1.2 of this Attachment AE and any additional Network Integration Transmission Service Candidate ARRs <u>for that particular month or season</u> as calculated in Section 7.5.1 of this Attachment AE or b) One hundred and three percent (103%) of the average of that customer’s three most recent annual peak Network Loads.	No	Yes
(par 196) Also, because GFAs will be providing service equivalent to network integration transmission service and will be subject to equivalent swings in load, the revisions we are directing for the calculation of the ARR nomination cap in section 7.1.3(1) also should apply to	No	Yes

the ARR nomination caps for GFAs. Therefore, we direct SPP to revise section 7.1.3(3) to conform to the revised Tariff provisions we direct herein for section 7.1.3(1).		
(par 198) Thus, we direct SPP to explain in a compliance filing due 60 days following the date of this order, whether point-to-point transmission customers subject to re-dispatch during a peak period (e.g., summer) should be entitled to off-peak ARRs during the peak period with the overloads.	No	No