Draft Final Proposal

A New Scheduling Priority Class for Regulatory Must-Run Pumping Load in the Integrated Forward Market

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Table of Contents

1 Background 3
2 The ISO Proposal 4
2.1 A new scheduling priority class for regulatory must-run pumping load 4
2.2 Regulatory must-run pumping load certification 5
3 Curtailment of Regulatory Must-Run Pumping Load 6
4 Next Steps 6
Appendix: 8
1 Some of the Integrated Forward Market (IFM) Parameter Values 8
2 IFM LMPs of April 19, 2010, HE06 9

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1 Background

Certain pumping facilities operated by participating load within the California Independent System Operator (ISO) balancing authority provide water services that are vital to the state of California and the health and welfare of its residents. The services may also be subject to federal and state laws that also restrict the operation of the facilities. While the schedules of some existing pumping facilities are protected by Existing Transmission Contracts (ETCs), concerns have been raised with the expiration of such contracts in the near future that the schedules of these critical pumping facilities may be curtailed in the absence of a higher priority consideration in the ISO scheduling process.[1] Curtailment could interrupt or interfere with various federal and state legal and regulatory requirements to meet state water project obligations and violate state and federal legal and regulatory requirements that govern stream flow, water temperature, water quality and quantity, flood control space, after-bay, reservoir, or lake elevation, and other environmental and wildlife constraints.[2]

The ISO recognizes that these pumping facilities require a reliable and flexible supply of energy in order to perform their functions without violating applicable state and federal law. The ISO has the obligation to ensure energy supply to such pumping facilities in the energy scheduling process through its markets, in the absence of a system contingency that affects the facilities. The ISO tariff states the obligation as follows:

> Nothing in this CAISO Tariff is intended to permit or require the violation of federal or California law concerning hydro-generation and Dispatch, including but not limited to fish release requirements, minimum and maximum dam reservoir levels for flood control purposes, and in-stream flow levels. In carrying out its functions, the CAISO will comply with and will have the necessary authority to give instructions to Participating TOs and Market Participants to enable it to comply with requirements of environmental legislation and environmental agencies having authority over the CAISO in relation to Environmental Dispatch and will expect that submitted Bids, including Self-Schedules will support compliance with the requirements of environmental legislation and environmental agencies having authority over Generators in relation to Environmental Dispatch. In contracting for Ancillary Services and Imbalance Energy the CAISO will not act as principal but as agent for and on behalf of the relevant Scheduling Coordinators.[3]

The purposes of this stakeholder process is to develop revisions to the ISO tariff so that it can provide necessary protection for the schedules of the critical pumping load regardless of the

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1 Pumping load, as participating load, is modeled at the nodal or Custom Load Aggregation Point level. As such, it could be curtailed before load modeled at Default Load Aggregation Point (DLAP) level when transmission constraints are binding in the ISO day-ahead market. With a higher scheduling priority, as the ISO is proposing, pumping load will, in effect, enjoy a scheduling priority on par as load scheduled at the DLAP.

2 ISO tariff sections 9.3.1.2.1 and 22.13.

3 ISO tariff section 22.13.

status of ETC.[4] Currently the definition of Regulatory Must-Run Generation in the ISO tariff applies to generation only. However certain pumping load as discussed above may also be subject to similar federal and state laws that govern irrigation and water supply. As a result, the ISO proposes an extension of the Regulatory Must-Run definition to applicable pumping load.

The ISO expects that these tariff revisions may be applicable to other pumping load schedules that also have regulatory must-run type of requirements. Based on the ways of scheduling different types of generation and load in its markets by pre-defined priorities, the ISO also proposes to create a new scheduling priority class.

The ISO started the stakeholder process in December 2010. Since then, the ISO has

- posted a straw proposal on December 16, 2010;
- held a stakeholder conference call on December 22, 2010;
- received stakeholder comments on January 11, 2010;
- posted a revised straw proposal on January 26, 2011;
- held the second stakeholder conference call on February 2, 2011; and
- received stakeholder comments on February 10, 2010.

This draft final proposal identifies the ISO's recommendations, building on the previous versions of proposals and stakeholder inputs.

2 The ISO Proposal

2.1 A new scheduling priority class for regulatory must-run pumping load

The ISO proposes to create a new scheduling priority class in the Integrated Forward Market (IFM) for pumping load with regulatory must-run requirements. The new scheduling priority class will ensure that schedules of regulatory must-run pumping load will not be curtailed unless there is a system contingency that affects the physical capability of transferring energy to the locations of the pumping facilities, or there is severe shortage of energy supply such that the demand of the ISO system cannot be met.

The proposed new scheduling priority class for regulatory must-run pumping load has the following characteristics.

1) It has a scheduling priority just below ETCs and Converted Rights, but above transmission constraints. The market parameter value ("penalty price") of the class is $5100/MWh in the scheduling run and $750/MWh in the pricing run.[5]
2) The new priority class exists only in the IFM. In the Real Time Market (RTM), the IFM schedules of regulatory must-run pumping load are fixed values that are not a part of the RTM optimization.

[4] As noted above, the scheduling priority will provide pumping load with a similar protection against day-ahead schedule curtailment as enjoyed by load scheduled at the DLAP.

[5] The $750/MWh parameter value in the pricing run is set equal to the current value of the maximum energy bid price. It will be raised to $1000/MWh with the increase of the maximum energy bid price on April 1, 2011. Some of the existing and the proposed IFM parameter values are listed in Section 1 of the Appendix.

3) Regulatory must-run pumping load must submit self-schedule demand bids into the IFM. The schedules do not need to be balanced as ETC schedules do.

4) The portion of pumping load intended to provide non-spinning reserve in the IFM will not be protected under the new priority class.[6]

Also, regulatory must-run pumping load will have the same priority as other Load Serving Entities (LSEs) in Congestion Revenue Right (CRR) allocation. The transmission capacity associated with the expired ETCs will be made available for CRR allocation and auction. The regulatory must-run pumping load will be subject to the same resource adequacy requirements as other LSEs.

Revised tariff sections 31.4 and 34.10 will reflect the priority of such regulatory must-run pumping load in the IFM relative to other priorities and constraints. In addition, modifications to Section 6.6.5 of the Business Practice Manual for Market Operations, "Adjustments for non-priced quantities in IFM," will reflect the new priority class.

2.2 Regulatory must-run pumping load certification

The ISO will certify that a pumping facility qualifies for the regulatory must-run pumping load. A pumping facility seeking certification needs to provide the following documents:

- an application for certification from a Participating Load;
- documents demonstrating the facility's obligation to pump under federal or state law; and
- documents demonstrating any legal restrictions on pumping operations.

The ISO will grant regulatory must-run pumping load to an eligible pumping facility up to its nameplate capacity. However, the facility may choose to certify for a MW below the nameplate capacity. The portion of pumping capacity that is certified as regulatory must-run pumping load will not qualify as resource adequacy capacity.[7] The resource adequacy qualified capacity is determined annually. Therefore the ISO proposes to certify regulatory must-run pumping load annually.

For any given day or hour, the pumping facility may schedule less than the certified MW as regulatory must-run pumping load. At the same time the facility can participate in the ISO's markets as either regular self-schedule demand or as participating load through economic bids, which can also submit bids to provide non-spinning reserve.

For example, if a 200 MW pumping facility has 150 MW certified as regulatory must-run pumping load, the other 50 MW may qualify for resource adequacy capacity as participating load. For a given day, the facility may schedule 150 MW into the IFM as regulatory must-run pumping load and up to 50 MW as regular self-schedule or participating load, or a combination of the two. The facility also may schedule, say, 120 MW into the IFM as regulatory must-run pumping load and up to 80 MW as regular self-schedule and participating load.

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[6] This is because the IFM schedules of regulatory must-run pumping load are fixed in the RTM and cannot be curtailed to provide non-spinning reserve.

[7] The resource adequacy qualified capacity will be determined based on the historical pumping load above the MW certified as regulatory must-run pumping load.

3 Curtailment of Regulatory Must-Run Pumping Load

The proposed new scheduling priority will provide sufficient protection for regulatory must-run pumping load. The likelihood of curtailing the schedules of such pumping load should be very small.

The proposed scheduling run parameter value of the new priority class is higher than that of transmission constraints. When there is insufficient energy supply to serve regulatory must-run pumping load due to transmission congestion, the IFM will relax relevant transmission constraints before curtailing the regulatory must-run pumping load. Therefore curtailing regulatory must-run pumping load will happen only if there is a system contingency that actually limits energy being transferred to the pumping facilities or there is a severe system-wide energy supply shortage.

To curtail regulatory must-run pumping load in the IFM, the scheduling run LMPs at the locations of the pumping facilities must reach the proposed parameter value, $5100/MWh. An ISO review shows that since the implementation of the ISO's new markets on April 1, 2009, the IFM scheduling run LMPs at locations of the California Department of Water Resources (CDWR) pumping facilities have never reached $5100/MWh. In other words, the regulatory must-run pumping load at these locations would never have been curtailed if this priority class had existed since the implementation of the new ISO markets.

The regulatory must-run pumping load is price-taking self-schedule demand in the IFM. When relevant transmission constraints are relaxed to preserve the regulatory must-run pumping load schedules, the pumping load will be charged for the high congestion cost. The rest of the system will likely be unaffected.

For example, on April 19, 2010, at Hour-Ending 6, the IFM scheduling run LMP at CLAP_CDWR07_CDWR Custom Load Aggregation Point reached $1500.00/MWh. It is the highest IFM scheduling run LMP at all CDWR pump locations since April 1, 2009. The pricing run LMP was $750.00/MWh, of which the congestion component was $721.33/MWh. It is due to the fact that the transmission constraint leading to the node was tightly binding (not relaxed yet).[8] At the same hour, the LMP at PG&E DLAP, DLAP_PGAE-APND, was $32.00/MWh. The congestion component of it was only $2.57/MWh.[9] In this case the pumping load at CLAP_CDWR07_CDWR would be charged for the high congestion cost if it were regulatory must-run pumping load. The impact of the congestion on the rest of the ISO system was not obvious, as indicated by the LMP in the PG&E DLAP.

4 Next Steps

The following is a proposed schedule for this stakeholder process.

December 15, 2010	ISO posts the Straw Proposal
December 22, 2010	Stakeholder conference call
January 11, 2011	Stakeholder comments due
January 26, 2011	ISO posts Revised Straw Proposal

[8] The shadow price of the transmission constraint was $1493.73/MWh in the scheduling run and $732.31/MWh in the pricing run.

[9] See Section 2 of the Appendix for details.

February 2, 2011	Stakeholder conference call
February 10, 2011	Stakeholder comments due
February 22, 2011	ISO posts Draft Final Proposal
March 1, 2011	Stakeholder conference call
March 8, 2011	Stakeholder comments due
March 30, 2011	ISO Board of Governors meeting for decision

The ISO will discuss this draft final proposal with stakeholders on March 1, 2011. Stakeholders are welcome to submit written comments to sliu@caiso.com by close of business on March 8, 2011. The ISO will develop a final proposal based on the discussion and written comments and present it to the ISO Board of Governors for decision in March 2011.

Appendix:

1 Some of the Integrated Forward Market (IFM) Parameter Values[10]

Penalty Price Description	Scheduling Run Value	Pricing Run Value	Comment
Transmission Ownership Right (TOR) self schedule	5900, -5900	750, -30	A TOR Self-Schedule will be honored in the market scheduling in preference to enforcing transmission constraints.
Existing Transmission Contract (ETC) self schedule	5100 to 5900, -5100 to -5900	750, -30	An ETC Self-Schedule will be honored in the market scheduling in preference to enforcing transmission constraints. The typical value is set at $5500, but different values from $5100 to $5900 are possible if the instructions to the ISO establish differential priorities among ETC rights. For some ETC rights the ISO may use values below the stated scheduling run range if that is required for consistency with the instructions provided to the ISO by the PTO.
Converted Right (CVR) self schedule	5500, -5500	750, -30	A CVR Self-Schedule is assigned the same priority as the typical value for ETC Self-Schedules.
Regulatory Must-Run Pumping Load	5100	750	Such identified pumping load schedules that are required to operate to satisfy state and federal statutory obligations.
Transmission constraints: branch, corridor, nomogram (base case and contingency analysis)	5000	750	In the scheduling run, the market optimization enforces transmission constraints up to a point where the cost of enforcement (the "shadow price" of the constraint) reaches the parameter value, at which point the constraint is relaxed.

[10] "Business Practice Manual for Market Operations" v13

2 IFM LMPs of April 19, 2010, HE06

Location	Run	LMP ($/MWh)	Energy Component	Congestion Component	Loss Component
CLAP_CDWR07_CDWR	Scheduling Run	1500.00	28.69	1471.33	-0.02
CLAP_CDWR07_CDWR	Pricing Run	750. 00	28.69	721.33	-0.02
DLAP_PGAE-APND	Pricing Run	32.00	28.69	2.57	0.74