Draft Final Proposal

Changes to Bidding and Mitigation of Commitment Costs

June 14, 2010

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1 Introduction

The new market launched by the California Independent System Operator (ISO) in April 2009 committed generating units based on their Start-Up (SU) and Minimum Load (ML) cost elections that had to be in place for six months. Many market participants stated that this caused their resources to be committed more frequently than good utility practice would dictate, to be held at minimum operating levels and to be de-committed. Participants observe that this causes extra wear and tear on their generating units, used up fixed numbers of unit starts and emissions allocations, and made it difficult for unit owners to recoup their operating costs.[1]

To alleviate these issues, the ISO undertook a two-phased approach to changing SU and ML bidding restrictions. The first phase, which was implemented in July 2009, enables generation owners to modify their SU and ML elections and to switch between the registered and proxy cost options for SU and ML more frequently. The second phase initially considered SU and ML cost bidding and a mechanism for resources to capture opportunity costs for units that face use limitations.

In September 2009, the ISO proposed that the stakeholder process on the Phase 2 portion of the initiative be extended over a longer period of time than originally proposed. This reopening of the SU and ML stakeholder initiative allowed the ISO and stakeholders to re-evaluate the preliminary conclusions of the previous iteration of the *Straw Proposal*, and broaden the range of topics considered in light of the Multi-Stage Generating Resources (MSG) modeling design.

Multi-Stage Generating Resources are capable of operating in multiple output ranges due to their generating technology. The MSG modeling functionality, which is scheduled to be launched on October 1, 2010, will enable market participants with MSGs to bid in the

[1] There are instances in which additional cycling of resources may take place due to the fact that the ISO does not currently have multi-day unit commitment. Participants have expressed a need to manage and control their resources' frequency of cycling until the ISO has implemented this functionality. To this end, the ISO is considering a process enhancement that would allow a market participant to inform the ISO that it intends to self-commit its resource to bridge the resource across hour ending 24 (HE24) in cases it was not committed across HE24. With this information the ISO can flag the resource as being online for the next day-ahead market (DAM). This will avoid the situation in which the resource is cycled offline for minimum downtime in the case when it is economic to keep the resource online. The ISO anticipates that this enhancement will help address some of the observed cycling. The presentation for that discussion is posted at the following link: http://www.caiso.com/2756/27569a323ba80.pdf. The relevant discussion begins on slide 18.

various configurations of those units separately.[2] Associated with transitions between configurations are transition costs (TC). The mitigation of TC is now included in this initiative, which is renamed to indicate the inclusion these commitment costs with the familiar SU and ML commitment costs.

2 Criteria for Evaluating Potential Solutions

- Proposed changes should be mindful of the costs of implementation, both for stakeholders and for the ISO;
- The benefits and costs of market changes should be weighed along with other, competing enhancements to market systems; and
- The proposal for changing the way commitment costs are bid into the ISO markets, and how they are mitigated, should consider the need for flexibility along with the need for fair and reliable market function.

3 Updates to this Draft Final Proposal

This *Draft Final Proposal* includes the following refinements, all of which pertain to MSGs only, from the *Revised Straw Proposal* that was posted on May 6, 2010:

- Clarification that the proxy start-up values used for constraining costs within the transition matrix will be based on submitted heat input values rather than heat rates;
- Adaption to transition cost Rule 1 only in the case where an MSG has a configuration that is "start-able"; and
- Ability to submit fuel burn rates for downward transition costs

These changes are described in section 6 of this paper on the mitigation of MSG transition costs.

The remaining details of this proposal are unchanged from the *Revised Straw Proposal*.

4 Background

4.1 Start-Up and Minimum Load

The new market design bases the decision to commit a unit on that unit's Start-Up and Minimum Load costs. Market participants bidding in generating resources submit their SU and ML costs to the ISO Master File where those values are static for 30 days. The Start-Up curve can be up to three segments, the dollar values of which correspond to hot, warm, and cold starts of the generating unit. Minimum Load is single $/MWh value that is incurred for hours in which the ISO dispatches the unit to its PMin and the unit reaches that output level.

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[2] *See* Amendments to the ISO tariff to include Multi-Stage Generating Resources modeling approach, FERC Docket No. ER10-1360-000 (http://www.caiso.com/27a4/27a4c45073810.pdf)

Market participants can specify one of two options for the SU and ML values they have in the ISO Master File: either the proxy cost option or the registered cost option, which are described below.

Proxy Cost Option

The proxy cost option for start-up costs is comprised of two elements: an indexed value that changes daily depending on the natural gas price (or, for units for which that is not applicable, on the energy price), and a fixed natural gas transport adder[3]. The proxy cost option for minimum load costs is based on the same natural gas and gas transport component as is the proxy start-up calculation, and also includes a *per* MWh operations and maintenance (O&M) adder.

The O&M adder is a fixed $/MWh value that is added to the proxy cost value for Minimum Load. That value is $4/MWh for combustion turbine or reciprocating engine technology, and $2/MWh for all others. There is also the option to negotiate a *per* MWh value for minimum load with the Independent Entity[4]. It is important to note that none of the generating resources currently in the ISO Master File have negotiated O&M costs.

Registered Cost Option

As an alternative to the proxy cost option, market participants can elect the registered cost option which enables them to submit SU and ML values up to 200% of the proxy-cost calculated value. The advantage of this option is that it gives the market participant bidding that resource into the market the ability to specify costs for the unit that take into account their knowledge of and experience with that unit. The registered cost option does not, however, meet the needs of many market participants as they are averse to being exposed to fuel-price risk.

4.2 Multi-Stage Generating Unit Transition Costs

Multi-Stage Generating Resources are capable of operating in multiple configurations due to their generating technology. The MSG modeling functionality, which is scheduled to be launched on October 1, 2010, will enable market participants with MSGs to bid in the various configurations of those units separately. Thus, the market will determine the optimal configuration in which to have the unit operate, and will optimize the transitions between configurations. Associated with transitions between configurations are transition costs (TC).

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[3] Contrary to previous understanding, there is not currently a 10% adder on any of the components of the proxy cost calculations for start-up or minimum load costs. Confusion arose on this point because the variable cost option for calculating default energy bids (DEB) does include the gas, gas transport, and O&M values, and then provides a 10% adder on that whole sum.

[4] The Independent Entity is an entity "not affiliated with the CAISO or any Market Participant, that assists the CAISO in the determination of reference prices." (from CAISO Tariff, Attachment A)

The optimization will consider the costs of a transition when determining whether or not to move an MSG unit from one configuration to another. Just as high SU and ML costs could be used to economically withhold a generating unit from the market, an MSG unit owner could economically withhold one or more of the unit's configurations by specifying high costs for the transition from one configuration to another.

5 Proposal for Changes to Start-Up and Minimum Load

As noted in the previous section, the ISO currently offers market participants two options for providing the market with a resource's start-up and minimum load costs. The proxy cost option is tied to indexed natural gas prices and the level of the proxy cost option determines the upper limit of the registered cost option. The registered cost option enables a resource owner to submit start-up and minimum load costs up to 200% of the applicable proxy cost value.

The ISO proposes to enable generation resources to pick either the proxy cost or registered cost option for Start-Up or Minimum Load independently. For example, a generating unit may elect to have the registered cost option for Start-Up, and the proxy cost option for Minimum Load rather than having to pick the same option for both SU and ML. This is proposed to enable market participants to more closely represent their actual costs associated with SU and ML. Stakeholders have expressed unanimous support for this feature.

Prior to the implementation of this element of the proposal, an MSG resource will specify either proxy or registered for both SU and ML for all configurations. That is to say, whichever option is chosen applies to all the resource's configurations for both SU and ML. The ISO proposes that, upon implementation of the policy proposed in this Commitment Costs initiative, MSG resources will of course also be able to pick proxy or registered for SU and ML costs independently as is proposed for all other generating resources. However, whichever option is chosen – proxy or registered – applies to all configurations. For example, if the proxy option is elected for ML then that election applies to each of the resource's configurations. This is parallel to the policy for non-MSG resources. Note that the registered or proxy SU and ML costs may differ by configuration; but either the proxy cost option or the registered cost option must be elected at the configuration level and is thus applied to all configurations.

Additionally, the ISO proposes to allow market participants to submit daily bids for SU and/or ML for a resource provided that they have elected the proxy cost option and those daily bids are below the calculated proxy cost value. This functionality has been requested by stakeholders, and is consistent with the policy behind the design of the SU and ML costs mitigation. In written comments, some stakeholders questioned the need for this functionality, but no one was unsupportive of the availability of the feature to those who would like to use it. Indeed, some acknowledged that the ability to submit lower commitment costs benefits generators that want their units committed, and load which will ultimately pay lower uplift costs associated with unit commitment.

The floor for these bid-in SU and/or ML costs is $0. That is, if a resource has elected the proxy cost option for SU and/or ML and chooses to bid in a daily value for that parameter that is less than the calculated proxy cost option, the value must be greater than or equal to $0 *per* start for SU, and must be greater than or equal to $0 *per* MWh for ML.

The recommendation to limit the extent of daily bidding of Start-Up and Minimum Load only to the circumstances noted above is supported by the opinion[5] of the Market Surveillance Committee which states the following:

> We can only recommend daily bidding [of Start-Up and Minimum Load costs] if the cap on offers was very close to the proxy-based bid. Of course, that is in effect what the phase two revision of the proxy-bid option [i.e., the ability to bid below the proxy value is the proxy option is elected] would provide, in which the cap is the proxy itself. Generators can change bids daily, as long as they are nonnegative and no more than the proxy cost. Thus, we believe that the phase two proposal embodies an option of daily bidding that includes sufficient market safeguards, in the form of the ability to bid under the proxy cost.

The ISO does not propose any more frequent bidding scheme for commitment costs other than the proposal noted above. Other than the proposal described above, which will enable daily bidding between 0 and the calculated proxy cost value for proxy Start-Up or Minimum Load costs for which proxy cost option has been specified, the ISO does not propose daily bidding of commitment costs. The ISO comes to this proposal after much deliberation about the merits and drawbacks of daily SU and ML bidding. Participants opposed to frequent bidding cite concerns about the potential to abuse market power. Participants in favor of daily bidding cite the need to recoup legitimate SU and ML costs without locking into a registered cost value for a month and thus being exposed to fuel price risk.

The current structure holds SU and ML costs static for 30 days which acts as a deterrent to submitting high registered costs since participants could effectively price themselves out of the ISO markets for that time by doing so. Part of the concern about daily bidding of SU and ML costs is the need to then develop dynamic market power mitigation of those costs. Furthermore, with the implementation of convergence bidding in February of 2011, there is concern that physical supply displaced by virtual supply in the DA market would need to be procured in the Residual Unit Commitment (RUC) market in order to meet physical demand. In light of this, daily bidding of SU and ML costs would implicate the need to revamp the Residual Unit Commitment (RUC) algorithms to ensure that commitment costs were also mitigated in that market.

Given these complications and drawbacks associated with daily bidding of SU and ML values, and the lack of a compelling need for daily changes to SU and ML costs beyond natural gas price fluctuations, the ISO does not propose more frequent bidding of SU and ML, except in the case of daily bids for proxy SU and ML costs as long as those bids are below the calculated proxy values.

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[5] The MSC opinion on the Commitment Costs proposal is available at the following link: http://www.caiso.com/27ae/27aec32457d90.pdf

The ISO does not propose a modification that would enable the submission of a fixed component to the Start-Up proxy cost option. The current structure for SU bidding is designed with two options – one variable and tied to costs, and the other static. Although the ISO recognizes that there is some support for a fixed component of the proxy cost option, it is the ISO's position that the registered cost option is appropriate for start-up costs with significant non-fuel components. The justification that the ISO has seen for a fixed component of the proxy start-up value indicates that such a value would be to offset major O&M costs, and could be – for some resources – as high as the *per* start-up fuel costs.[6] The scheduling coordinator has the option to negotiate a higher *per* MWh O&M component for the proxy ML calculation. Alternatively, under this current proposal, the scheduling coordinator can elect the registered cost option for SU costs, and the proxy cost option can be chosen for ML. This would allow the scheduling coordinator to bid in a start-up cost that is up to 200% of the calculated proxy cost value for SU, but still retain the proxy cost option for ML so that they are not exposed to risk from changing natural gas prices for the ML component of commitment costs.

5.1 Proposal for Modifying the Proxy Cost Option

In order to better meet the needs of market participants, the ISO is proposing refinements to the existing components of the proxy cost calculation. The refinements, described below, address the fuel price index component and to the O&M component of the proxy cost calculation.

Bidding of Operations and Maintenance Costs

In the Straw Proposal on this initiative, the ISO proposed to offer Market Participants the option of either the O&M default adder or a submitted O&M value where the default O&M value would simply be the same adder that is used under the current design. The idea was that a resource-specific O&M cost could be developed and submitted for a generating resource in the same objective approach used by the PJM Interconnection. That proposal would have obviated the need for the current ability participants have to negotiate a higher *per* MWh O&M value for minimum load with the Independent Entity.

The ISO maintains its proposal that current market design be unchanged with respect to O&M costs. Further, the ISO commits to re-evaluating the default O&M values every three years. This proposal is made in light of the fact that stakeholder feedback on this element of the Straw Proposal was only somewhat supportive of the "submitted O&M cost" option, and was not in favor of eliminating the option to negotiate an O&M value. Since it is not anticipated that these costs change frequently, and since the adequacy of the current default values is evidenced by the fact that there are currently no generating resources that have opted to negotiate a higher O&M value, the ISO position is that the three year cycle for updating the default values is sufficient. Finally, the ISO

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6 On August 14, 2009, the ISO issued a market notice with a request for additional information from stakeholders on what was at the time described as "operations and maintenance costs." That market notice is available at the following link: http://www.caiso.com/240a/240ac48161f30.html

proposes that the option to negotiate a higher per MWh value of O&M with the Independent Entity be retained.

Refinement to the Proxy Cost Option Natural Gas Prices

Gas that is delivered to the state border must then be transported to the backbone natural gas distribution pipeline, and the expense of this is reflected in the higher price of natural gas at the CityGate delivery points. There are then additional transport costs to move natural gas from the backbone distribution pipeline to the generators themselves, and an approximation of these costs in included in the proxy cost option.

Currently the ISO uses prices for two gas delivery geographies: North of Path 15, and South of Path 15. In the North, the PG&E CityGate price is used, and in the South, the SoCal Border price is used. Therefore, generators to the North of Path 15 all receive the CityGate price, while generators to the South of Path 15 all receive the Border price. This results in the generators in SP15 consistently bearing the extra cost of moving natural gas from the border to the backbone natural gas distribution before it is then moved to the generating plant. **The ISO therefore proposes to replace the SoCal Border gas delivery point with the SoCal CityGate for SP15.**

Please note that the usage of different gas delivery points pertains only to the instances in which monthly gas prices are employed (1) to calculate the proxy cost option in the Master File on a monthly basis, and (2) to calculate the daily proxy cost value for units that have elected that option for SU and/or ML. The change to the gas delivery point for SP15 for purposes of the proxy cost option does not change the methodology of calculation for default energy bids (DEB), nor does it change the methodology for Reliability Must Run (RMR) start-up and minimum load costs. Changes to those calculations are outside the scope of this initiative.

The ISO does not propose to specifically modify the manner in which it accounts for the transport of natural gas in its proxy cost calculation. To do so would be administratively burdensome as these costs are essentially resource-specific. Rather, the ISO proposes to maintain its current methodology, which entails using three natural gas transport regions based on the service territories of PG&E, SCE and SDG&E.[7]

Two stakeholders provided feedback indicating that more granular measures of natural gas transport charges be used for cost compensation. While the ISO is not fundamentally opposed to this change, it would involve significant data submission and validation since intra-state natural gas transport charges are essentially resource-specific. Without broad support for such a change, we continue to favor the simpler method of accounting for natural gas transport charges which is to use the charges for the three service areas in California.

[7] Within the SDG&E and SCE fuel transport territories, there are tiered natural gas transport costs which are applied to generators depending on the quantity of natural gas they use.

Although some expressed that a 10% adder on the three natural gas transport adders would be helpful for generators trying to recoup their costs, we are not proposing an adder due to the inherent inefficiency of such a design.

One stakeholder submitted comments expressing a need to have the increased natural gas costs resulting from Operational Flow Orders (OFO) compensated. Again, the ISO is not opposed to such a change, but it is a significant undertaking due to the resource-specific evaluation of the generating resources impacted, the approximation of the actual cost increases incurred, and the timing of the OFO relative to the timing of the ISO markets. Again, an adder is not considered as an option for the reasons stated above.

Opportunity Cost Component for Use-Limited Resources

In the original *Straw Proposal* on this initiative, the ISO proposed to use a methodology currently in use by the Independent Entity to capture opportunity costs for environmentally use-limited resources.

Although two stakeholders encouraged the ISO to implement a methodology for capturing the opportunity costs associated with starting (and/or running) an environmentally use-limited resource, the ISO does not propose to implement such functionality at this time. This proposal is made due to lack of broad stakeholder support. It also reflects, the feedback provided by the Department of Market Monitoring and the Market Surveillance Committee.

6 Proposal for Mitigation of MSG Transition Costs

It is important to note that the mitigation of MSG transition costs will be implemented along with the implementation of MSG modeling functionality, on October 1, 2010. The timeline for changes to start-up and minimum load will be determined based on the complexity of the final policy adopted, and on the other market enhancements being implemented.

Transition Cost rules

The ISO's proposal is that upward transition costs be governed by two rules that bound the sum of transition costs.

This methodology constrains the costs in the transition matrix without dictating the specific nature or components of the transition costs. This is a "top down" approach to constraining costs within the transition matrix. An alternate methodology would be a "bottom up" approach which would involve specifying the costs associated with each individual transition. The rationale for the proposed "top down" design is twofold – it provides MSG operators the freedom to accurately describe their transition costs while enabling the ISO to avoid onerous validation of costs for each transition. Within the

boundaries provided by the rules, market participants can determine the distribution of costs across the various transitions associated with their specific MSGs.

Lumpiness of costs in the transition matrix could lead to the ISO not being able to reach a configuration, and/or not being able to transition out of a configuration. This is problematic, as the lumpiness could be used as a tool to economically force or withhold transitions. Also, lumpiness would prevent the smooth and efficient dispatch of MSGs, and this diminishes the benefits of MSG modeling. To avoid potential "lumpiness" of the costs in the transition matrix, while still providing flexibility, the ISO proposes to: (1) not apply the two bounding rules to downward transition costs, and (2) calculate the proxy start-up cost value for each configuration's start-up based on its submitted fuel input for that configuration, apply a 10% adder to that calculated value, and then constrain the sum of upward transition costs along each path to that configuration.

Note that the use of a submitted fuel input value rather than a fuel burn rate is a key clarification for the specification of the transition cost rules. Initially for MSG data submittal the ISO had requested fuel burn rate (also known as heat rate in MMBtu/MWh) for use of the determining Start-Up Costs. However, under the current rules, participants actually submit a **fuel input** in MMBtu – for each natural-gas fired generating unit. The fuel input is a quantity – in MMBtu – rather than a rate – in MMBtu/MWh as is the fuel burn rate (or heat rate). The fuel input value simply describes the total fuel consumption required to go from offline to the PMin – in this case, the PMin of a configuration – but does not express that requirement as a *per* MWh rate. This is the same methodology the ISO uses in the proxy Start-Up calculation for values used in unit commitment decisions in the case that the participant has elected the proxy cost option, and is used to determine the maximum value of the registered cost option if that option is chosen. The proxy SU values used in the context of bounding transition costs for MSG units is different. Again, this is a key clarification. The only purpose of the proxy SU that is is for MSG transition cost mitigation.

The importance of the difference between using a heat input value instead of a heat rate is subtle, and is best seen through an example. Suppose an MSG has two configurations such that configuration 1 has a PMin of 25 and a PMax of 300. Configuration 2 has a PMin of 300 and a PMax of 500. The heat rate of the resource, which is shared by both configurations, is 12,000 Btu/MWh. Given a gas price of $5/MMBtu, this yields proxy SU costs of $16,800 for configuration 1 and $12,000 for configuration 2. The problem is that in order to pass Rule 1 given these figures, the market participant would need to submit a negative transition cost from configuration 1 to configuration 2. On the other hand, if the heat input is used, the market participant can submit the MMBtu required for the resource to get to the PMin of the configuration. Using the same example, suppose the heat input for both configurations were actually 3,000 MMBtu. In that case, the proxy SU values used to constrain MSG transition costs would be $15,000 for both configuration 1 and configuration 2, and thus a transition cost for moving from configuration 1 to configuration 2 within the range of $0 to $5,625 could be specified, which is obviously much more sensible.

Similar odd situations can arise when a configuration's heat rate, instead of heat input is used for the proxy SU values used to constrain MSG transition costs. The rules could force the submission of positive transition costs, when the cost of the transition is in fact $0. Again,

the submission of the resource's heat input by configuration will mitigate against such odd situations.

Rule 1: The ISO proposes to constrain the transition costs along each of the feasible paths from offline to each configuration such that their sum is between 100% and 125% of the SU value (plus 10%) for the configuration. The rule will still be evaluated for configurations that are flagged as being "not start-able" and so resource owners will need to submit a fuel input associated with the starting of that configuration. As noted above, downward transitions will not be evaluated as part of this rule. Also, please assume that the SU(i) values in the following notation already include the 10% adder.

As an example, assume that we have an MSG with three configurations, and that the transitions among configurations 1, 2 and 3 are all feasible, and that starting the resource up directly to configuration 3 **is not** feasible. In this case, the paths from offline to configuration 3 would be constrained in the following manner:

- $SU(3) \leq SU(1) + TC(1 \text{ to } 2) + TC(2 \text{ to } 3) \leq (1.25)*SU(3)$
- $SU(3) \leq SU(1) + TC(1 \text{ to } 3) \leq (1.25)*SU(3)$
- $SU(3) \leq SU(2) + TC(2 \text{ to } 3) \leq (1.25)*SU(3)$

The ISO also proposes an adaptation of this rule as it was expressed in the *Revised Straw Proposal* and as it is described above. Specifically, in the case that an MSG has a configuration that **is** "start-able," the lower bound of 100% for transition paths up to that configuration will be $0. A configuration is deemed to be "start-able" if the resource can move directly from offline to that configuration. The rationale for this asymmetry is that it provides flexibility in the event that the transition cost up to the start-able configuration is too low to pass Rule 1 as described above. It is important to note that the transition cost "lumpiness" problem is not a concern in this case. This is because the market optimization has the alternative option of moving directly to the start-able configuration rather than utilizing the intermediate transitions. As a result, there is no avenue for market manipulation by submitting lumpy transition costs to the start-able configuration.

Using the same example as above, but assuming that starting the resource up directly to configuration 3 **is** feasible, the paths from offline to configuration 3 would be constrained in the following manner:

- $\mathbf{0} \leq SU(1) + TC(1 \text{ to } 2) + TC(2 \text{ to } 3) \leq (1.25)*SU(3)$
- $\mathbf{0} \leq SU(1) + TC(1 \text{ to } 3) \leq (1.25)*SU(3)$
- $\mathbf{0} \leq SU(2) + TC(2 \text{ to } 3) \leq (1.25)*SU(3)$

Rule 2: Rule 2 specifies that each of the feasible transitions is constrained such that the sum of nested transition costs is between 100% and 125% of the direct transition.

For any feasible transition from configuration (i) to configuration (j), the sum of the transition costs across any feasible, unidirectional transition path from configuration (i) to configuration (j) will be constrained to be between 100% and 125% of the transition cost from (i) to (j).

For example, suppose the transition from configuration 1 to configuration 4 is feasible and the transition cost is $8,000. Transition costs from configuration 1 to configuration 2 equal to $6,000 and from configuration 2 to configuration 4 equal to $7,000 would violate the rule. $6,000 + $7,000 = $13,000 which is greater than 125% of $8,000.

The ISO proposes to index Transition Costs to Natural Gas Prices.[8] The transition costs submitted by market participants are in the form of dollar values. Those submitted values will be validated using the proxy SU values calculated with the relevant monthly GPI at the time the MSG data are submitted to the ISO.

As a matter of implementation, once the ISO has validated the transition costs submitted for an MSG resource in its Resource Data Template (RDT), we will calculate the fuel burn rate implied by those costs. Then, on a daily basis, SIBR will take this fuel burn rate and multiply it by the daily GPI in order to obtain value for transition costs that have been scaled to reflect the change in the GPI. The purpose of this policy is to ensure that the transition costs still pass the two rules, and will make sure that MSGs are not exposed to fuel price risk relative to their transition costs.

Since these rules employ a new approach to constraining prices, the ISO will post, along with this *Draft Final Proposal*, a revised spreadsheet in which an example is provided. This will enable stakeholders to test and evaluate these rules based on their knowledge of their units' costs. In this revised spreadsheet, the same four-configuration MSG is used, but more detail is provided on what information is submitted by stakeholders, and on the calculations done internally by the ISO systems to yield transition costs that float with the daily gas price index (or energy price index, as appropriate).

In the *Straw Proposal* on this initiative, the ISO proposed that the transition matrix include downward transition costs and that the bounding rules apply to those costs as well. Further study of this proposal revealed that including downward transition costs, which are generally much smaller than the corresponding upward transitions made it infeasible to put bounding rules on the costs within the transition matrix while still guarding against "lumpiness." As noted above, this prompted the ISO to alter the proposal to consider all downward transitions to be costless. Following the posting of the *Revised Straw Proposal*, the ISO

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[8] Although this section discusses the policy in terms of the gas price index which is obviously the relevant figure for natural gas-fired units, the exact same policy is proposed for non-natural gas fired resources for which the energy price index would be employed instead of the GPI.

received feedback indicating that this change was problematic from the perspective of market participants trying to accurately represent their costs to the market.

The ISO proposes in this *Draft Final Proposal* to allow participants to submit fuel input for downward transitions. These values will not be subject to the bounding rules used to constrain upward transition costs but must, of course, accurately reflect the operating characteristics of the MSG. The revised transition cost spreadsheet posted along with this paper notes the option to submit fuel burn rates for downward transitions as applicable. The purpose of the MSG design is to ensure that these units can be dispatched efficiently in the market. Since these units do have downward transition costs the ISO believes those costs should be considered as the market optimizes the dispatch of MSG units. Otherwise, the market optimization could determine that it is easier to bring these units down than to bring them up which is not necessarily accurate.

Transition Costs and Bid Cost Recovery

Arising out of the MSG modeling stakeholder process, the ISO has already submitted to the Federal Energy Regulatory Commission proposed tariff amendments that include Transition Costs as commitment costs when an MSG resource's revenue and costs for the purpose of determining eligibility for Bid Cost Recovery (BCR), and when calculating the value of BCR for an MSG.[9] The ISO has also previously determined how the transition costs will apply within an eligible commitment period. However, because these elements of the overall MSG proposal are closely tied to the transition costs determination developed in this stakeholder process, the ISO will be including this detail in its proposed transitions costs tariff amendments. The rule is that within the eligible commitment period defined as the ISO commitment period related to the configuration into which the MSG is transitioning, the settlement intervals in which the resource reached the PMin of the target configuration will be eligible for BCR. For example, consider a one-hour commitment period with six 10-minute intervals. If the MSG resource transitioning from configuration 1 to configuration 2 does not reach the PMin of configuration 2 until the fourth 10-minute interval, then the TC are only considered for BCR for the fourth, fifth, and sixth intervals of that commitment period.

A three-percent (or 5 MW, whichever is greater) tolerance band will be applied around the resource's operating level when determining whether or not the resource has achieved the PMin of the target configuration. The tolerance band will be determined at the resource level, *i.e.*, it will be based on the resource's PMax. Without this tolerance band, a unit that transitions from one configuration up to the PMin of another configuration could otherwise end up not being paid at all for intervals in which it was running slightly under the target configuration's PMin. Note that energy not delivered will not be paid; the tolerance band merely ensures that MSGs are not unduly penalized for small variations in metered values on the edges of their configurations' operating ranges.

[9] See fn. 2

7 Process, Timetable & Conclusion

This Draft Final Proposal has enjoyed tremendous benefit from the feedback of stakeholders, the Department of Market Monitoring, and the Market Surveillance Committee. The table below summarizes the steps taken in this policy initiative, and notes that this Draft Final Proposal will be taken to the ISO Board of Governors for approval at the end of July, 2010.

March 16	*Straw Proposal* posted
March 19	Market Surveillance Committee Meeting
March 24	Conference call
April 14	Stakeholder comments due
May 5	*Revised Straw Proposal* posted
May 13	Conference call
May 21	Stakeholder comments due
June 15	*Draft Final Proposal* posted
June 24	Conference call
June 28	Final stakeholder comments due
July 26-27	CAISO Board of Governors
July 28 or 29	FERC filing of Transitions Costs proposal

As noted above, a conference call to discuss the *Draft Final Proposal* is planned for June 24, 2010. Although comments or questions on this proposal are welcome and encouraged at any time, formal written comments are due on June 28, 2010. With questions or concerns, please contact Gillian Biedler at (916) 608-7203 or *via* e-mail at gbiedler@caiso.com. Formal comments may be submitted to comcosts@caiso.com.