Pacific Gas and Electric Company

# Comments of Pacific Gas & Electric Company

| Submitted by | Company | Date Submitted |
|---|---|---|
| Jerry Henke (415) 973-4077 | Pacific Gas & Electric | December 19th, 2017 |

## Commitment Cost Enhancements Phase 3 – Revised Draft Tariff Language

Pacific Gas and Electric Company (PG&E) offers the below comments on the California Independent System Operator's (CAISO) Commitment Cost Enhancements Phase 3 (CCE) Revised Draft Tariff Language and looks forward to discussing during the stakeholder call on January 3rd.

1. PG&E supports CAISO's decision to make all tariff language (with the necessary exception of automating the validation of Flexible RA Capacity) effective on the same date, currently targeted for Fall 2018 as this puts market participants in a better position to manage the new resource characteristic requirements once opportunity costs have been finalized under the new paradigm rather than having separate Go-Live dates for different provisions. PG&E requests this change be coordinated with CAISO's Implementation team to ensure market participants are made aware of initiative deployment timeline implications (e.g., regarding Master File) in a timely manner.

2. PG&E continues to stress that Business Practice Manual language should be published as soon as possible given the level of detail (e.g., use limited resource registration documentation requirements, negotiated opportunity cost process/ documentation requirements, etc.) CAISO has deferred to this documentation for this initiative.

3. **Section 4.6.4 Identification of Generating Units**
   PG&E continues to stress CAISO should clarify what situations (e.g., Exceptional Dispatches, Emergency Events, etc.) qualify as deviating from "normal market operations" and allow for CAISO to utilize "design" Master File values rather than the alternative values CAISO will default to otherwise.

4. **Section 30.4.1.1.6.1.1 Use-Limited Resource Criteria**
   PG&E contends CAISO should re-examine language qualifying contractual limitations, specifically the lines: *"(ii)* ***were evaluated by the Local Regulatory Authority CPUC for the cost implications of the limitations on such resources' numbers of starts, number of run-hours, or Energy output****. Contracts limits that provide for higher payments when start-up, run-hour, or Energy output thresholds are exceeded are not qualifying contractual limitations."*

   This language suggests that the CPUC specifically evaluated the "cost implications *of the limitations*". In reality, the CPUC evaluated the cost implications of the contracts packaged in

their entireties, each of which reflected tradeoffs in terms of number of starts allowed and total cost. The Tariff language should reflect this distinction and use the original language from the Draft Final Proposal (p. 18):

*"Conventional resources that, as of January 1, 2015, are on an original long-term contract individually reviewed and approved through a comprehensive regulatory process as a new build* ***which evaluated cost implications on rate payers with a limitation on starts, run-hours, or output, will be eligible for an opportunity cost reflective of such limitation****, provided sufficient supporting documentation is provided, for up to three years following the effectiveness date of opportunity costs as determined through CCE3."*

5. **30.4.1.1.6.2.2 Methodology for Opportunity Cost Calculator**
   PG&E agrees with The Six Cities' comment on the initial draft Tariff language that CAISO's treatment of the reserve margin for use limitations seems inconsistent with that approved during the Policy phase. PG&E believes that, per Policy, the ten percent margin should apply for each limitation rather than only the one "most likely to be reached". PG&E also notes that the CAISO's Business Requirements Specification document suggests only applying the ten percent margin to starts specifically; PG&E likewise feels this approach is inconsistent with Policy.

   Maintaining the treatment from Policy is important since prices are based on incremental energy cost above Pmins, and not on total energy cost. This means a plant's profit maximizing dispatch (especially for a thermal resource with a higher Pmin) is likely to not match the CAISO's dispatch and will likely run more in reality (i.e., more startups, more run hours, more total energy) than it would if it only ran its profit-maximizing dispatch. If a plant's profit maximizing dispatch matched the CAISO's dispatch, there would be no need for bid cost recovery; however, as many plants do receive bid cost recovery, it is important to represent that the model's output for run hours/energy/starts may be less than actual. If opportunity costs are too low, that may mean the plant will burn through its limitations early on in the year as opposed to when it is needed more later on in the year.

For the sake of clarity, those comments above corresponding to specific Tariff sections have been added to the annotated revised draft language below by respective section. PG&E appreciates the opportunity to provide this feedback and looks forward to future discussions on this initiative.

#### 4.6.4 Identification of Generating Units

Each Participating Generator shall provide data identifying each of its Generating Units and such information regarding the capacity and the operating characteristics of the Generating Unit as may be reasonably requested from time to time by the CAISO. Each Participating Generator shall provide information on its governor setting and certify that it has not inhibited the real power response of any Generating Unit by any means that would override the governor response except as necessary to address physical operational constraints for reasons that include ambient temperature limitations, outages of mechanical equipment or regulatory considerations. In the event there is a need to inhibit the real power response of any Generating Unit, the Participating Generators shall provide a written description of this limitation with its certification. All information provided to the CAISO regarding the operational and technical constraints registered in the Master File shall be accurate, complete, responsive to the CAISO's requests, and actually based on the design capabilities of the resource and its constituent equipment, as reasonably adjusted to reflect resource performance over time. All information registered in the Master File shall be consistent with the offers and services provided by the resources in the CAISO Markets. The Pump Ramping Conversion Factor value is configurable and need not reflect a resource's design capabilities.

With respect to Maximum Daily Start-Ups, maximum daily number of MSG Transitions, Operational Ramp Rate values, Operating Reserve Ramp Rate values, and Regulation Ramp Rate values, Participating Generators shall also be permitted to register in the Master File alternative values that the CAISO will utilize during normal market operations, and which may be less than or equal to the values based on the resource's design capabilities, subject to the following limitations on such alternative Master File values:

(1) Maximum Daily Start-Ups must be at least two (2) Start-Ups per day unless the CAISO permits only one (1) Start-Up per day in the Master File due to the design capabilities or degradation in performance of a resource nearing the end of or operating beyond its useful life.

(2) Maximum daily number of MSG Transitions must be at least two (2) MSG Transitions per day unless the CAISO permits only one (1) MSG Transition per day in the Master File due to the design capabilities or degradation in performance of a resource nearing the end of or operating beyond its useful life.

(3) Operational Ramp Rate values must be sufficient to permit a resource to provide its Flexible RA Capacity obligation. If a Participating Generator registers alternative Operational Ramp Rate values in the Master File, the Master File values for Operating Reserve Ramp Rates and Regulation Ramp Rates must be values at which the resource is reasonably capable of operating.

The CAISO will reject a value registered in the Master File that is infeasible given the design capabilities of the resource or is inconsistent with a Participating Generator's commitment to provide Resource Adequacy Capacity. If the CAISO rejects a value, the default Master File value for the resource will be its design capability value

The CAISO will utilize alternative Master File values in the CAISO Markets and in automated Exceptional Dispatch tools. However, the CAISO may issue Exceptional Dispatch Instructions based on the design capabilities of a Generating Unit, regardless of whether the Participating Generator also provides an alternative value for use in the CAISO Markets.

* * * *

**30.4.1.1.6 Use-Limited Resources**

**Comment [HJ1]:** PG&E continues to stress CAISO should clarify what situations (e.g., Exceptional Dispatches, Emergency Events, etc.) qualify as deviating from "normal market operations" and allow for CAISO to utilize "design" Master File values rather than the alternative values CAISO will default to otherwise.

**30.4.1.1.6.1 Registration and Validation Process**

A Scheduling Coordinator seeking to obtain Use-Limited Resource status for resource(s) will follow the registration and validation process set forth in this CAISO Tariff and the Business Practice Manual. The registration and validation process requires each Scheduling Coordinator to demonstrate that the resources meet the Use-Limited Resource criteria as set forth in Section 30.4.1.1.6.1.1, and allows each Scheduling Coordinator to seek to recover Opportunity Costs for Use-Limited Resources by making the demonstration set forth in Section 30.4.1.1.6.1.2.

**30.4.1.1.6.1.1 Use-Limited Resource Criteria**

In order for a resource to be considered a Use-Limited Resource, a Scheduling Coordinator must provide sufficient documentation demonstrating that the resource meets all three of the following criteria:

(1) The resource has one or more limitations affecting its number of starts, its number of run-hours, or its Energy output due to (a) design considerations, (b) environmental restrictions, or (c) qualifying contractual limitations;

(2) The CAISO Market Process used to dispatch the resource cannot recognize the resource's limitation(s); and

(3) The resource's ability to select hours of operation is not dependent on an energy source outside of the resource's control being available during such hours.

Design considerations that satisfy the requirements of this Section are those resulting from physical equipment limitations. A non-exhaustive list of such physical equipment limitations includes restrictions documented in original equipment manufacturer recommendations or bulletins, or limiting equipment such as storage capability for hydroelectric generating resources. Other design considerations that satisfy the requirements of this Section are those resulting from performance criteria for Demand Response Resources established pursuant to programs or contracts approved by Local Regulatory Authorities. Environmental restrictions that satisfy the requirements of this Section are those imposed by regulatory bodies, legislation, or courts. A non-exhaustive list of such environmental restrictions includes limits on emissions, water use restrictions, run-hour limitations in operating permits or other environmental limits that directly or indirectly limit starts, run hours, or MWh limits, but excludes restrictions with soft caps that allow the resource to increase production above the soft caps through the purchase of additional compliance instruments. Qualifying contractual limitations that satisfy the requirements of this Section are those contained in long-term contracts that: (i) were reviewed and approved by a Local Regulatory Authority on or before January 1, 2015, or were pending approval by a Local Regulatory Authority on or before January 1, 2015 and were later approved; and (ii) were evaluated by the Local Regulatory Authority for the cost implications of the limitations on such resources' numbers of starts, number of run-hours, or Energy output. Contracts limits that provide for higher payments when start-up, run-hour, or Energy output thresholds are exceeded are not qualifying contractual limitations. Effective **[the date three years after these tariff revisions go into effect]**, no contractual limitations will constitute qualifying contractual limitations that satisfy the requirements of this Section.

Pursuant to a process set forth in the Business Practice Manual, the CAISO will review the limits and the supporting documentation provided by the Scheduling Coordinator as well as any translation of indirect limits to determine whether the Scheduling Coordinator has made the required showing under this Section. Any dispute regarding the CAISO's determination will be subject to the generally applicable CAISO ADR Procedures set forth in Section 13, which apply except where a CAISO Tariff provision expressly provides for a different means of resolving disputes.

**Comment [HJ2]:** PG&E contends CAISO should re-examine language qualifying contractual limitations, specifically the lines: *"(ii) **were evaluated by the Local Regulatory Authority CPUC for the cost implications of the limitations on such resources' numbers of starts, number of run-hours, or Energy output**. Contracts limits that provide for higher payments when start-up, run-hour, or Energy output thresholds are exceeded are not qualifying contractual limitations."*

This language suggests that the CPUC specifically evaluated the "cost implications *of the limitations*". In reality, the CPUC evaluated the cost implications of the contracts packaged in their entireties, each of which reflected tradeoffs in terms of number of starts allowed and total cost. The Tariff language should reflect this distinction and use the original language from the Draft Final Proposal (p. 18):

*"Conventional resources that, as of January 1, 2015, are on an original long-term contract individually reviewed and approved through a comprehensive regulatory process as a new build **which evaluated cost implications on rate payers with a limitation on starts, run-hours, or output, will be eligible for an opportunity cost reflective of such limitation**, provided sufficient supporting documentation is provided, for up to three years following the effectiveness date of opportunity costs as determined through CCE3."*

**30.4.1.1.6.1.2 Establishing Opportunity Cost Adders**

A Scheduling Coordinator for a Use-Limited Resource may seek to establish Opportunity Cost adders for any limitation(s) that meet all three of the following criteria:

(1) Satisfy the requirements of Section 30.4.1.1.6.1.1;

(2) Apply for period(s) longer than the time horizon considered in the applicable Day-Ahead Market process; and

(3) Can be reflected in a monthly, annual, and/or rolling twelve (12) month period.

The CAISO will review the documentation provided by the Scheduling Coordinator and determine whether the CAISO can calculate an Opportunity Cost pursuant to the methodology set forth in Section 30.4.1.1.6.2 using the Opportunity Cost calculator, or whether the Opportunity Cost for the limitation must instead be established pursuant to the negotiation process set forth in Section 30.4.1.1.6.3. Whenever possible, the CAISO will calculate the Opportunity Cost using the Opportunity Cost Calculator rather than negotiate it. The CAISO's determination of whether an Opportunity Cost will be calculated or negotiated, and the resulting mythology that is negotiated, if the Opportunity Cost must be negotiated, will remain in place unless and until: (1) the Scheduling Coordinator submits documentation, either to establish a new limitation or to modify an existing limitation,, in which case the Scheduling Coordinator can request reconsideration; or (2) the Scheduling Coordinator demonstrates that negotiation of an Opportunity Cost is required because the results of calculating an Opportunity Cost are inadequate as set forth in the Business Practice Manual.

The following types of Use-Limited Resource capacity are not eligible for an Opportunity Cost adder: the capacity of a Condition 2 RMR Unit, a Reliability Demand Response Resource, Regulatory Must-Take Capacity, and any other type of Use-Limited Resource to the extent it has a limitation that satisfies the requirements of Section 30.4.1.1.6.1 but applies for a period less than or equal to the time horizon considered in the Day-Ahead Market.

**30.4.1.1.6.2 Calculation of Opportunity Cost Adders**

**30.4.1.1.6.2.1 Calculation Schedule**

The CAISO will calculate, and will update the most recent calculations of, Start-Up Opportunity Costs for each validated limitation on a Use-Limited Resource's number of starts, Minimum Load Opportunity Costs for each validated limitation on a Use-Limited Resource's number of run-hours, and Variable Energy Opportunity Costs for each validated limitation on a Use-Limited Resource's Energy output for which the Scheduling Coordinator has made the required showing under Section 30.4.1.1.6.1.2. Such calculations or updated calculations will actually be used to set the adder for each validated limitation that can be reflected in a monthly or a rolling twelve (12) month period and will be advisory for each validated limitation that can be reflected in an annual period. The CAISO plans to perform the calculations and updated calculations once a month. It is possible that circumstances may prevent the CAISO from performing the calculations on a monthly basis, in which case the CAISO will prioritize the workload based on Opportunity Costs most likely to need updating. Similarly, circumstances may suggest there is a basis to update calculations more frequently, in which case the CAISO will also prioritize the workload based on Opportunity Costs most likely to need updating. The CAISO will provide the results of the calculations or updated calculations for a Use-Limited Resource to its Scheduling Coordinator.

In the event that the CAISO is unable to perform such calculations or updated calculations for all Use-Limited Resources, the CAISO will give priority to performing such calculations or updated calculations for those Use-Limited Resources that are currently on pace to reach their maximum allowed numbers of starts,

maximum allowed numbers of run-hours, or maximum allowed Energy output more quickly than the most recent calculations of Opportunity Costs indicated. To the extent that the CAISO is unable to perform such calculations or updated calculations for a Use-Limited Resource, the CAISO will utilize the most recently calculated or updated Opportunity Costs that have been set or are advisory for the Use-Limited Resource.

**30.4.1.1.6.2.2 Methodology for Opportunity Cost Calculator**

For the Opportunity Cost calculator developed by the CAISO, each calculation of Opportunity Costs will equal the estimated profits foregone if the Use-Limited Resource had one fewer unit of starts, run-hours, or Energy output, whichever is applicable, in the future time period of the validated limitation. The calculation will take into account a ten (10) percent margin with regard to the limitation of the Use-Limited Resource that is most likely to be reached. In the event of any doubt, the CAISO will assume this limitation most likely to be reached will be the limitation affecting Start-Up Opportunity Costs. The calculation will also take into account the effect of any validated limitation on a Use-Limited Resource's number of starts number of run-hours, or Energy output in the monthly and annual and/or rolling twelve month periods. For MSG Transitions, the Opportunity Cost for each transition will be derivative of the number of Start-Ups required for the MSG Resource to achieve a specific MSG Configuration.

The CAISO will calculate the estimated profits for each validated limitation over the future time period of the limitation based on the following estimated inputs: (a) the forecasted hourly average of fifteen-minute LMPs for Energy at the Use-Limited Resource's PNode or Aggregated PNode multiplied by (b) the optimal hourly dispatch of the Use-Limited Resource, minus (c) the estimated monthly Start-Up Cost of the Use-Limited Resource, minus (d) the estimated monthly Minimum Load Cost of the Use-Limited Resource, minus (e) the estimated monthly variable Energy cost of the Use-Limited Resource multiplied by the difference between (f) the optimal hourly commitment and dispatch of the Use-Limited Resource and (g) the PMin of the Use-Limited Resource, minus (h) the estimated monthly Transition Cost of the Use-Limited Resource. For a Use-Limited Resource that has twelve (12) or fewer months of LMP data at its PNode or Aggregated PNode, the CAISO will calculate input (a) listed above using LMP data from a comparable PNode or Aggregated PNode.

Any dispute regarding the calculation of Opportunity Costs will be subject to the CAISO ADR Procedures set forth in Section 13.

**30.4.1.1.6.3 Negotiation of Opportunity Costs**

If, after receipt of the documentation required pursuant to Section 30.4.1.1.6.1.2, the CAISO determines that it cannot rely on the Opportunity Cost calculator to calculate Opportunity Costs for an eligible limitation pursuant to Section 30.4.1.1.6.2, the CAISO will establish the Opportunity Costs for the limitation pursuant to this Section. Upon making this determination, the CAISO will notify the Scheduling Coordinator for the resource and request that the Scheduling Coordinator provide the CAISO with a proposed methodology for determining Start-Up Opportunity Costs, Minimum Load Opportunity Costs, and/or Variable Energy Opportunity Costs for the limitation along with documentation supporting the methodology, and a proposed schedule for updating such Opportunity Cost(s) under the methodology. The CAISO will either approve the submitted Opportunity Cost methodology or enter into good-faith negotiations with the Scheduling Coordinator to establish an agreed-upon Opportunity Cost methodology and the schedule for updating the Opportunity Costs under the methodology.

If the CAISO and the Scheduling Coordinator enter into good-faith negotiations, the negotiation period will be a minimum of sixty (60) days following the provision of all required documentation by the Scheduling Coordinator. Following the 60-day period, the parties can agree to continue good-faith negotiations or the Scheduling Coordinator can exercise its right to file with FERC as described below. In the event that the CAISO and the Scheduling Coordinator are unable to agree upon negotiated Opportunity Costs before the

**Comment [HJ3]:** PG&E agrees with The Six Cities' comment on the initial draft Tariff language that CAISO's treatment of the reserve margin for use limitations seems inconsistent with that approved during the Policy phase. PG&E believes that, per Policy, the ten percent margin should apply for each limitation rather than only the one "most likely to be reached". PG&E also notes that the CAISO's Business Requirements Specification document suggests only applying the ten percent margin to starts specifically; PG&E likewise feels this approach is inconsistent with Policy.

Maintaining the treatment from Policy is important since prices are based on incremental energy cost above Pmins, and not on total energy cost. This means a plant's profit maximizing dispatch (especially for a thermal resource with a higher Pmin) is likely to not match the CAISO's dispatch and will likely run more in reality (i.e., more startups, more run hours, more total energy) than it would if it only ran its profit-maximizing dispatch. If a plant's profit maximizing dispatch matched the CAISO's dispatch, there would be no need for bid cost recovery; however, as many plants do receive bid cost recovery, it is important to represent that the model's output for run hours/energy/starts may be less than actual. If opportunity costs are too low, that may mean the plant will burn through its limitations early on in the year as opposed to when it is needed more later on in the year.

negotiation period terminates, the CAISO may propose reasonable interim Opportunity Cost value(s) that will apply to the Use-Limited Resource until the CAISO and the Scheduling Coordinator agree upon negotiated Opportunity Costs. The Scheduling Coordinator may accept or reject the proposed interim Opportunity Cost value(s). If the Scheduling Coordinator rejects the proposed interim Opportunity Cost value(s), the Use-Limited Resource will not receive Opportunity Costs unless and until the CAISO and the Scheduling Coordinator agree upon negotiated Opportunity Costs, or such costs are established by an order issued by FERC. In the event that the negotiation period terminates without the CAISO and the Scheduling Coordinator reaching agreement upon negotiated Opportunity Costs, and the Scheduling Coordinator declines to continue negotiations, the Scheduling Coordinator may file proposed Opportunity Costs and supporting documentation with FERC pursuant to Section 205 of the Federal Power Act.

Any updates to the negotiated Opportunity Costs adders established pursuant to this Section will consist solely of updates to the Opportunity Cost values themselves, and shall not affect the methodology for establishing those values. Any change in methodology would require the Scheduling Coordinator to initiate a new request pursuant to Section 30.4.1.1.6.1.2.

**30.4.1.2 Registered Cost Methodology**

Under the Registered Cost methodology, the Scheduling Coordinator for a Use-Limited Resource that does not have at least twelve (12) consecutive months of fifteen-minute LMPs for Energy at the Use-Limited Resource's PNode or Aggregated PNode may register values of its choosing for Start-Up Costs and/or Minimum Load Costs in the Master File subject to the maximum limit specified in Section 39.6.1.6. A Scheduling Coordinator for a Multi-Stage Generating Resource that is a Use-Limited Resource registering a Start-Up Cost must also register Transition Costs for each feasible MSG Transition, subject to the maximum limit specified in Section 39.6.1.7. For a Use-Limited Resource to be eligible for the Registered Cost methodology there must be sufficient information in the Master File to calculate the value pursuant to the Proxy Cost methodology, which will be used to validate the specific value registered using the Registered Cost methodology. Any such values will be fixed for a minimum of 30 days in the Master File unless: (a) the resource's costs for any such value, as calculated pursuant to the Proxy Cost methodology, exceed the value registered using the Registered Cost methodology, in which case the Scheduling Coordinator may elect to switch to the Proxy Cost methodology for the balance of any 30-day period, except as set forth in Section 30.4.1.2(b); or (b) any cost registered in the Master File exceeds the maximum limit specified in Section 39.6.1.6 or Section 39.6.1.7 after this minimum 30-day period, in which case the value will be lowered to the maximum limit specified in Section 39.6.1.6 or Section 39.6.1.7. If a Multi-Stage Generating Resource elects to use the Registered Cost methodology, that election will apply to all the MSG Configurations for that resource. The cap for the Registered Cost values for each MSG Configuration will be based on the Proxy Cost values calculated for each MSG Configuration, including for each MSG Configuration that cannot be directly started, which are also subject to the maximum limits specified in Sections 39.6.1.6 and 39.6.1.7.

* * * *

**30.5.2.2 Supply Bids for Participating Generators**

In addition to the common elements listed in Section 30.5.2.1, Supply Bids for Participating Generators shall contain the following components as applicable: Start-Up Bid, Minimum Load Bid, Minimum and Maximum Operating Limits; Energy Limit, Regulatory Must-Take/Must-Run Generation; Contingency Flag; and Contract Reference Number (if any). Scheduling Coordinators submitting these Bid components for a Multi-Stage Generating Resource must do so for the submitted MSG Configuration. Scheduling quantities that a Scheduling Coordinator schedules as Regulatory Must-Take Generation for a CHP Resource shall be limited to the quantity necessary in any hour to meet the reasonably anticipated industrial host's thermal requirements and shall not exceed any established RMTMax values. The CHP Resource owner or operator shall provide its Scheduling Coordinator with the Regulatory Must-Take Generation values and is solely

responsible for the accuracy of the information. The Scheduling Coordinator for the CHP Resource will schedule the quantities consistent with information provided subject to any contract rights between the CHP Resource Generating Unit owner or operator and its counter-party to any power purchase agreement regarding curtailment or dispatchability of the CHP Resource. If the CHP Resource Generating Unit has a power purchase agreement and its counter-party is not the Scheduling Coordinator for the resource, the parties to the agreement share the responsibility for ensuring that the Scheduling Coordinator schedules the resource consistent with contractual rights of the counter-parties. A Scheduling Coordinator for a Physical Scheduling Plant or a System Unit may include Generation Distribution Factors as part of its Supply Bid. If the Scheduling Coordinator has not submitted the Generation Distribution Factors applicable for the Bid, the CAISO will use default Generation Distribution Factors stored in the Master File. All Generation Distribution Factors used by the CAISO will be normalized based on Outage data that is available to the automated market systems. A Multi-Stage Generating Resource and its MSG Configurations are registered under a single Resource ID and Scheduling Coordinator for the Multi-Stage Generating Resource must submit all Bids for the resource's MSG Configurations under the same Resource ID. For a Multi-Stage Generating Resources Scheduling Coordinators may submit bid curves for up to ten individual MSG Configurations of their Multi-Stage Generating Resources into the Day-Ahead Market and up to three individual MSG Configurations into the Real-Time Market. For Multi-Stage Generating Resources the Scheduling Coordinator may submit the Transition Times, which cannot be greater than the maximum Transition Time registered in the Master File. To the extent the Scheduling Coordinator does not submit the Transition Time that is a registered feasible transition the CAISO will use the registered maximum Transition Time for that MSG Transition for the specific Multi-Stage Generating Resource.

#### 30.5.2.3 Supply Bids for Participating Loads, Including Pumped-Storage Hydro Units and Aggregated Participating Loads

In addition to the common elements listed in Section 30.5.2.1, Scheduling Coordinators submitting Supply Bids for Participating Loads, which includes Pumping Load or Pumped-Storage Hydro Units, may include the following components: Pumping Level (MW), Minimum Load Bid (Generation mode only of a Pumped-Storage Hydro Unit), Load Distribution Factor, Energy Limit, Pumping Cost, and Pump Shut-Down Costs. If no values for Pumping Cost or Pump Shut-Down Costs are submitted, the CAISO will generate these Bid components based on values in the Master File. Scheduling Coordinators may only submit Supply Bids for Aggregated Participating Loads by using a Generating Unit or Physical Scheduling Plant Resource ID for the Demand reduction capacity represented by the Aggregated Participating Load as set forth in a Business Practice Manual. The CAISO will use Generation Distribution Factors provided by the Scheduling Coordinator for the Aggregated Participating Load.

#### 30.5.2.4 Supply Bids for System Resources

In addition to the common elements listed in Section 30.5.2.1, Supply Bids for System Resources shall also contain: Start-Up Costs; and Minimum Load Costs. Resource-Specific System Resources are subject to the Proxy Cost methodology or the Registered Cost methodology for Start-Up Costs and Minimum Load Costs as provided in Section 30.4, and Transaction ID as created by the CAISO. Other System Resources are not eligible to recover Start-Up Costs and Minimum Load Costs. Resource-Specific System Resources are eligible to participate in the Day-Ahead Market on an equivalent basis as Generating Units and are not obligated to participate in RUC or the RTM if the resource did not receive a Day-Ahead Schedule unless the resource is a Resource Adequacy Resource. If the Resource-Specific System Resource is a Resource Adequacy Resource, the Scheduling Coordinator for the resource is obligated to make it available to the CAISO Market as prescribed by Section 40.6. Dynamic Resource-Specific System Resources are also eligible to participate in the HASP and RTM on an equivalent basis as Generating Units. The quantity (in MWh) of Energy categorized as Interruptible Imports (non-firm imports) can only be submitted through Self-

Schedules in the Day-Ahead Market and cannot be incrementally increased in the HASP or RTM. Bids submitted to the Day-Ahead Market for ELS Resources will be applicable for two days after they have been submitted and cannot be changed the day after they have been submitted.

* * * *

**30.5.2.6 Supply Bids for Distributed Energy Resource Aggregations**

In addition to the common elements listed in Section 30.5.2.1, Supply Bids for Distributed Energy Resource Aggregations will contain the following components as applicable: Generation Distribution Factors, Minimum and Maximum Operating Limits; Energy Limit, and Contingency Flag. If the Scheduling Coordinator does not submit the Generation Distribution Factors for the Bid, the CAISO will use default Generation Distribution Factors registered in Master File.

**30.5.2.7 Ancillary Services Bids**

There are four distinct Ancillary Services: Regulation Up, Regulation Down, Spinning Reserve and Non-Spinning Reserve. A resource shall be eligible to provide Ancillary Service if it has complied with the CAISO's certification and testing requirements as contained in Appendix K and the CAISO's Operating Procedures. Scheduling Coordinators may use Dynamic System Resources to Self-Provide Ancillary Services as specified in Section 8. All System Resources, including Dynamic System Resources and Non-Dynamic System Resources, will be charged the Shadow Price as prescribed in Section 11.10, for any awarded Ancillary Services. A Scheduling Coordinator may submit Ancillary Services Bids for Regulation Up, Regulation Down, Spinning Reserve, and Non-Spinning Reserve for the same capacity by providing a separate price in $/MW per hour as desired for each Ancillary Service. The Bid for each Ancillary Services is a single Bid segment. Only resources certified by the CAISO as capable of providing Ancillary Services are eligible to provide Ancillary Services and submit Ancillary Services Bids. In addition to the common elements listed in Section 30.5.2.1, all Ancillary Services Bid components of a Supply Bid must contain the following: (1) the type of Ancillary Service for which a Bid is being submitted;; and (2) Distribution Curve for Physical Scheduling Plant or System Unit. A Scheduling Coordinator may only submit an Ancillary Services Bid or Submission to Self-Provide an Ancillary Service for Multi-Stage Generating Resources for the Ancillary Service for which the specific MSG Configurations are certified. An Ancillary Services Bid submitted to the Day-Ahead Market when submitted to the Day-Ahead Market may be, but is not required to be, accompanied by an Energy Bid that covers the capacity offered for the Ancillary Service. Submissions to Self-Provide an Ancillary Services submitted to the Day-Ahead Market when submitted to the Day-Ahead Market may be, but are not required to be, accompanied by an Energy Bid that covers the capacity to be self-provided. If a Scheduling Coordinator's Submission to Self-Provide an Ancillary Service is qualified as specified in Section 8.6, the Scheduling Coordinator must submit an Energy Bid that covers the self-provided capacity prior to the close of the Real-Time Market for the day immediately following the Day-Ahead Market in which the Ancillary Service Bid was submitted. Except as provided below, the Self-Schedule for Energy need not include a Self-Schedule for Energy from the resource that will be self-providing the Ancillary Service. If a Scheduling Coordinator is self-providing an Ancillary Service from a Fast Start Unit, no Self-Schedule for Energy for that resource is required. If a Scheduling Coordinator proposes to self-provide Spinning Reserve, the Scheduling Coordinator is obligated to submit a Self-Schedule for Energy for that particular resource, unless as discussed above the particular resource is a Fast Start Unit. When submitting Ancillary Service Bids in the Real-Time Market, Scheduling Coordinators for resources that either have been awarded or self-provide Spinning Reserve or Non-Spinning Reserve capacity in the Day-Ahead Market must submit an Energy Bid for at least the awarded or self-provided Spinning Reserve or Non-Spinning Reserve capacity, otherwise the CAISO will apply the Bid validation rules described in Section 30.7.6.1.

As provided in Section 30.5.2.6.4, a Submission to Self-Provide an Ancillary Service shall contain all of the

requirements of a Bid for Ancillary Services with the exception of Ancillary Service Bid price information. In addition, Scheduling Coordinators must comply with the Ancillary Services requirements of Section 8. Scheduling Coordinators submitting Self-Schedule Hourly Blocks for Ancillary Services Bids for the Real-Time Market must also submit an Energy Bid for the associated Ancillary Services Bid under the same Resource ID, otherwise the bid validation rules in Section 30.7.6.1 will apply to cover any portion of the Ancillary Services Bid not accompanied by an Energy Bid. As described in Section 34.2.3, if the resource submits a Self-Scheduled Hourly Block, the CAISO will only use the Ancillary Services Bid in the RTM optimization and will not use the associated Energy Bid for the same Resource ID to schedule Energy from the Non-Dynamic System Resource in the RTM. Scheduling Coordinators must also comply with the bidding rules associated with the must offer requirements for Ancillary Services specified in Section 40.6.