Flexible Ramping Product Bidding Rules

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TOPICS

- Flexiramp Design
- Real-time capacity bids
- Inconsistencies and unintended consequences
- Spinning reserves and flexiramp

FLEXI RAMP DESIGN

The initial flexiramp design will not schedule flexiramp or establish any financial obligation in the day-ahead market.

- Hence, there will be no offer prices, or clearing prices, for flexiramp in the day-ahead market.

- The California ISO has proposed that there will be no offer prices for capacity able to provide flexiramp in real-time.

What are the consequences of a design with no real-time offer prices from the standpoint of market efficiency and performance?

REAL-TIME CAPACITY BIDS

Would real-time offer prices improve market efficiency by enabling suppliers to better reflect the cost of providing ramp capability in real-time?

- Would such real-time offer prices be used to reflect incremental O&M costs?
  - -- No. Units will be dispatched up or down for energy without regard to these bids.
- Would such real-time offer prices be used to reflect the opportunity cost of energy limited resource?
  - -- No. Resources will be dispatched up or down for energy without regard to their flexiramp capacity bids.
  - -- Energy limits and opportunity costs need to be reflected in energy offer prices.

REAL-TIME CAPACITY BIDS

- Would such real-time offer prices enable resources to recover investments in ramp capability?
  - -- No. Absent market power, the higher the offer price, the lower the returns to ramp capability.
- Would such real-time offer prices enable resources to reflect energy market opportunity costs in non-California ISO markets?
  - -- No. Market participants can purchase energy to support exports to non-California ISO markets in the California ISO FMM without regard to how their generation is dispatched.

REAL-TIME CAPACITY BIDS

- Would such real-time offer prices enable resources to reflect the opportunity cost of providing ancillary services in real-time in markets external to the California ISO?
  - -- No. These opportunity costs are forgone when a resource is made available for dispatch in the California ISO real-time market.
  - -- No additional opportunity costs of providing ancillary services in other markets are foregone when a resource is scheduled to provide flexiramp.
- Would such real-time offer prices enable resources to reflect a preference to be dispatched for energy rather than being backed down out of merit to provide upward ramp when the resource is near its upper limit?
  - -- No, if a resource wants to be dispatched higher it needs to reduce its energy offer price in that range.

REAL-TIME CAPACITY BIDS

What costs would a positive real-time offer price for downward ramp capability reflect?

- The only situation in which the offer price would impact the dispatch of the resource would be when the resource might be dispatched above its minimum load to provide downward ramp.
- There are no costs that need to be reflected in an offer price in this situation as long as the resource is paid a flexiramp clearing price which covers the out of merit cost.
- If the resource were made whole through uplift payments instead of being paid a clearing price, and if the cost of being dispatched out of merit were offset against profits in other intervals in calculating uplift payments, then there could be a cost to being designated to provide flexiramp down. This is not the proposed California ISO design which is based on paying the clearing price for ramp capability.

REAL-TIME CAPACITY BIDS

If there are no costs that could be reflected in real-time offer prices, what reason would a resource have to submit non-zero offer prices?

- Particular suppliers might have market power in providing ramp capability in real-time.
- There might be bidding strategies that would interact with uplift rules to create additional profits.
- If the flexiramp design allowed the California ISO to manipulate the commitment or dispatch so that the clearing price of flexiramp was less than the incremental cost, this would create pay as bid incentives that could incent the submission of non-zero prices. This is not the current design.

REAL-TIME CAPACITY BIDS

If there are no costs that could be reflected in real-time offer prices, are there any downsides to providing that flexibility?

- Particular suppliers might have market power in providing ramp capability in real-time.
- There might be bidding strategies that would interact with uplift rules to create additional profits.
- If offer prices do not reflect actual costs, their presence will reduce the efficiency of the real-time dispatch. Moreover, in this design non-zero offer prices will lead to inconsistencies between schedules, prices and the physical dispatch that will invite unintended consequences.

INCONSISTENCIES AND UNINTENDED CONSEQUENCES

If resources were permitted to submit flexiramp bids, and resources with positive offer prices for flexiramp did not clear in RTUC/RTPD to provide upward flexiramp, but had upward ramp capability, would the CAISO:

- Not count the upward ramp capability that is available on the resources that did not clear, and potentially commit additional generation or schedule imports to provide ramp, even though adequate ramp was available?
  - -- Even if the RTUC and RTPD were programmed to do this, would operators be expected to confirm commitments that were inconsistent with the actual physical state of the system?
  - -- How would operators determine which commitments that were inconsistent with the actual physical state of the system they should allow or not allow?
- Count the upward ramp capability that is available on the resources that did not clear for commitment and scheduling but not pay the resources?

INCONSISTENCIES AND UNINTENDED CONSEQUENCES

If resources were permitted to submit flexiramp bids and resources with a positive offer price for flexiramp did not clear in RTUC/RTPD to provide downward flexiramp but had downward ramp capability, would the CAISO:

- Not count the downward ramp capability that is available on the resources that did not clear, and potentially decommit generation or schedule exports to provide downward ramp, even though adequate ramp was available?
  - -- Even if the RTUC and RTPD were programmed to do this, would operators be expected to confirm commitments that were inconsistent with the actual physical state of the system?
  - -- How would operators determine which commitments that were inconsistent with the actual physical state of the system they should allow or not allow?
- Count the downward ramp capability that is available on the resources that did not clear for commitment and scheduling but not pay the resources?

INCONSISTENCIES AND UNINTENDED CONSEQUENCES

If resources were permitted to submit flexiramp bids, and resources with positive offer prices for flexiramp did not clear to provide flexiramp in RTD, but had upward ramp capability, would the CAISO:

- Not count the upward ramp capability that is available on the resources that did not clear, and not pay the resources for the ramp capability they actually provided when they were dispatched up to meet load?
  - -- This could potentially result in dispatching other resources down out of merit to provide upward ramp,
- Count the ramp capability that is available on the resources that did not clear but not pay the resource?
  - -- This would make the bid meaningless as submitting a bid would simply entail not getting paid for the flexi-ramp provided

INCONSISTENCIES AND UNINTENDED CONSEQUENCES

- Not count the upward ramp capability that is available on the resources that did not clear but pay the resources for the ramp capability they provided?
  - -- With this approach resources would have a strong incentive to submit high offer prices that would inflate the flexiramp price as they would be paid for their ramp capability even if the high price caused the offer not to clear.
  - -- These incentives would make the flexiramp design completely unworkable.

INCONSISTENCIES AND UNINTENDED CONSEQUENCES

If resources were permitted to submit flexiramp bids and a resource with a positive offer price for flexiramp does not clear to provide downward flexiramp in RTD, but has downward ramp capability, would the CAISO:

- Not count the downward ramp capability that is available on the resource that did not clear, and not pay the resource for the ramp capability it actually provides?
  - -- This could potentially result in dispatching other resources up out of merit to provide downward ramp that is not needed.
- Count the downward ramp capability that is available on the resource that did not clear but not pay the resource?
- Not count the downward ramp capability that is available on the resource that did not clear but pay the resource for the ramp capability?

SPINNING RESERVES AND FLEXIRAMP

Resources can submit real-time bids to provide spinning reserves in the current California ISO design, yet it is not clear whether these bids reflect any costs.

- If a resource submits a positive offer price for spinning reserves, but it is not permitted to submit an offer price for flexiramp, will this lead to any inefficiencies or inconsistencies?
- There should not be any change relative to the current market:
  - -- Resources submitting a positive offer price for spin in the current design are not scheduled to provide spin if there is surplus capacity to provide spin at a zero price.
  - -- Resources that are not scheduled to provide spinning reserves in the current design are in effect scheduled to provide ramp, i.e. to be available for dispatch.

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