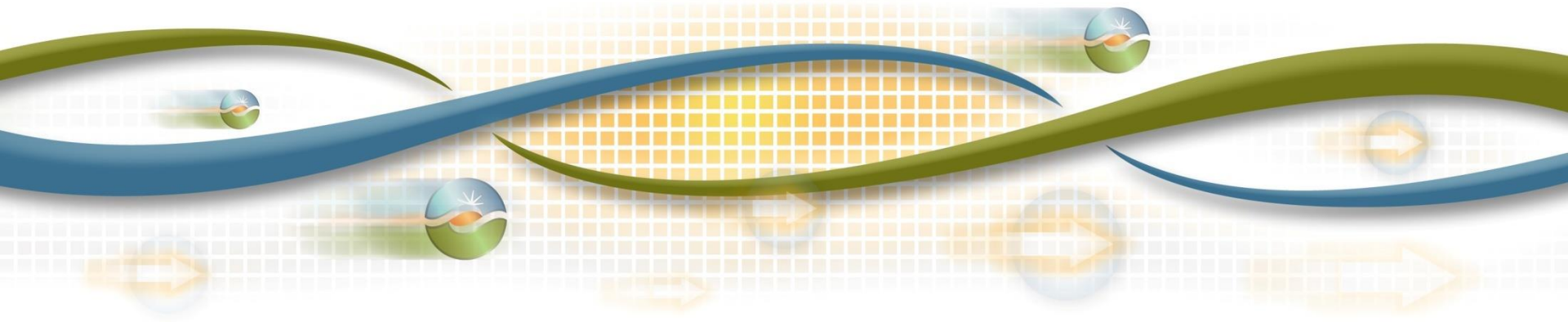# Convergence bidding

Participating in the markets

Credit policy implications

Module objectives

By the end of this section, you will be able to:

- Describe how the "last-in / first-out" methodology applies to a convergence bidding entity (CBE)

- Describe the purpose of a reference price

- Describe how frequently the reference price is calculated

California ISO

Bidding in the ISO markets – understanding credit policy

- Each market participant required to maintain an aggregate credit limit (unsecured credit and/or posted financial security)

- Virtual bid submission triggers credit check to compare if total value of all submitted convergence bids exceed scheduling coordinator's available credit limit

- Available credit limit = (aggregate credit limit) – (estimated aggregated liability)

- Total value of submitted virtual bids is sum of products of (absolute value of MW) * (applicable reference price for virtual bid)

Bidding in the ISO markets – understanding credit policy

- Andrew the CBE has his scheduling coordinator SCID1 submit a virtual demand bid of 200MW at the default LAP and a virtual supply bid of 100MW at a generator Pnode

- Reference price at the DLAP = $1.00

- Reference price at the generator Pnode = $0.50

- Credit exposure   = ABS(200) * 1 = $200

    = ABS(100) * 0.50 = $50

Total credit exposure to market = $250

Bidding in the ISO markets – understanding credit policy

- For virtual <u>supply</u> bids, reference price is the 95th percentile value of the difference between real-time LMP and day-ahead LMP at a given eligible Pnode

- For virtual <u>demand</u> bids, reference price is the 95th percentile value of the difference between day-ahead LMP and real-time LMP at a given eligible Pnode

- Reference prices calculated quarterly for each node using hourly actual LMPs for the same period of the previous year

- References prices will be posted on OASIS

California ISO

Bidding in the ISO markets – understanding credit policy

- If bids pass the credit check, then included in the market clearing process
  - Estimated aggregate liability is increased to include ISO' s estimate of the total value of the submitted virtual bids
- If bids fail the credit check, then bids are "disapproved" on a "last-in / first-out" basis pursuant to the time stamp the ISO assigns to the convergence bids
- Bids are submitted in "batches" and may be submitted all at one time or incrementally

Understanding batches - Last in / first out

- Every bid submission or "batch" of convergence bids (CB) submitted will be evaluated for sufficient credit.

- If a bid or batch of CB's exceed the limit, the bid (or batch of bids) will be disapproved based on last in / first out basis and a notice will be sent to the SC.

- In the example below, SC5 would be disapproved as it was the last bid to be submitted.

Parent SCID 100k Credit	SC1 – 20k	SC2 – 30k	SC3 – 15k	SC4 – 35k	SC5 – 20k
	06:00	08:43	07:45	05:06	09:35

California ISO

Posting collateral

- Participants are notified in SIBR when insufficient collateral exists to support the virtual bids

- Credit checks will occur for virtual bids

- As today, if estimated aggregate liability is greater than 90% of their aggregate credit limit, collateral notification sent

- As today, if estimated aggregate liability is greater than 100% of aggregate credit limit, then collateral must be posted within 3 business days

- Virtual bids may be resubmitted within the market timelines if collateral requirements are met

Adjustment of estimated aggregate liability

- After the day-ahead market closes (but before the real-time market closes) ISO will recalculate the estimated aggregate liability based on absolute value of the cleared DA MW value * virtual bid reference price
- After the close of the real-time market, ISO will recalculate the total liability and adjust the estimated aggregate liability accordingly

Module summary

- Bids are submitted in "batches" and may be submitted at one time or incrementally

- Dynamic credit checks will occur for virtual bids

- If bids fail the credit check, then bids are "disapproved" on a last-in, first-out basis pursuant to the time stamp the ISO assigns to the convergence bids

- Bids may be resubmitted within the market timelines if collateral requirements are met