

## CHAPTER 25. SUBSTANTIVE RULES APPLICABLE TO ELECTRIC SERVICE PROVIDERS.

### Subchapter S. WHOLESALE MARKETS.

#### §25.501. Wholesale Market Design for the Electric Reliability Council of Texas.

- (a) **General.** The protocols and other rules and requirements of the Electric Reliability Council of Texas (ERCOT) that implement this section shall be developed with consideration of microeconomic principles and shall promote economic efficiency in the production and consumption of electricity; support wholesale and retail competition; support the reliability of electric service; and reflect the physical realities of the ERCOT electric system. Except as otherwise directed by the commission, ERCOT shall determine the market clearing prices of energy and other ancillary services that it procures through auctions and the congestion rents that it charges or credits, using economic concepts and principles such as: shadow price of a constraint, marginal cost pricing, and maximizing the sum of consumer and producer surplus.
- (b) **Bilateral markets and default provision of energy and ancillary capacity services.** ERCOT shall permit market participants to self-arrange (self-schedule or bilaterally contract for) energy and ancillary capacity services, except to the extent that doing so would adversely impact ERCOT's ability to maintain reliability. To the extent that a market participant does not self-arrange the energy and ancillary capacity services necessary to meet its obligations or to the extent that ERCOT determines that the market participant's self-arranged ancillary services will not be delivered, ERCOT shall procure energy and ancillary capacity services on behalf of the market participant to cover the shortfall and charge the market participant for the services provided.
- (c) **Day-ahead energy market.** ERCOT shall operate a voluntary day-ahead energy market, either directly or through contract.
- (d) **Adequacy of operational information.** ERCOT shall require resource-specific bid curves for energy and ancillary capacity services that it competitively procures in the day-ahead or operating day, and ERCOT shall use these bid curves or ex-ante mitigated bid curves to address market failure, as appropriate, in its operational decisions and financial settlements.
- (e) **Congestion pricing.**
  - (1) ERCOT shall directly assign all congestion rents to those resources that caused the congestion.
  - (2) ERCOT shall be considered to have complied with paragraph (1) of this subsection if it complies with this paragraph. ERCOT shall settle each resource imbalance at its nodal locational marginal price (LMP) calculated pursuant to subsection (f) of this section; each load imbalance at its zonal price calculated pursuant to subsection (h) of this section; and congestion rents on each scheduled transaction for a resource and load pair at the difference between the nodal LMP at the resource injection location calculated pursuant to subsection (f) of this section and the zonal price at the load withdrawal location calculated pursuant to subsection (h) of this section.
- (f) **Nodal energy prices for resources.** ERCOT shall use nodal energy prices for resources. Nodal energy prices for resources shall be the locational marginal prices, consistent with subsection (e) of this section, resulting from security-constrained, economic dispatch.
- (g) **Energy trading hubs.** ERCOT shall provide information for energy trading hubs by aggregating nodes and calculating an average price for each aggregation, for each financial settlement interval.
- (h) **Zonal energy prices for loads.** ERCOT shall use zonal energy prices for loads that consist of an aggregation of either the individual load node energy prices within each zone or the individual

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resource node energy prices within each zone. Individual load node or resource node energy prices shall be the locational marginal prices, consistent with subsection (e) of this section, resulting from security-constrained, economic dispatch. ERCOT shall maintain stable zones and shall notify market participants in advance of zonal boundary changes in order that the market participants will have an appropriate amount of time to adjust to the changes.

- (i) **Congestion rights.** ERCOT shall provide congestion revenue rights (CRRs), but shall not provide physical transmission rights. ERCOT shall auction all CRRs, using a simultaneous combinatorial auction, except as otherwise ordered by the commission for any preassigned CRRs approved by the commission. CRRs shall not be subject to “use-it-or-lose-it” or “schedule-it-or-lose-it” restrictions and shall be tradable.
- (j) **Pricing safeguards.** ERCOT shall apply pricing safeguards to protect against market failure, including market power abuse, consistent with direction provided by the commission.
- (k) **Simultaneous optimization of ancillary capacity services.** For ancillary capacity services that it competitively procures in the day-ahead or operating day, ERCOT shall use simultaneous optimization and shall set prices for each service to the corresponding shadow price.
- (l) **Multi-settlement system for procuring energy and ancillary capacity services.** For any energy and ancillary capacity services that it competitively procures in the day-ahead or operating day, ERCOT shall set a separate market clearing price for each procurement of a particular service.
- (m) **Energy Storage.**
  - (1) For a storage facility that has more than one delivery point, ERCOT shall net the impact of those delivery points on the ERCOT system for settlement purposes.
  - (2) Wholesale storage occurs when electricity is used to charge a storage facility; the storage facility is separately metered from all other facilities including auxiliary facilities; and energy from the electricity is stored in the storage facility and subsequently re-generated and sold at wholesale as energy or ancillary services. Wholesale storage is wholesale load and ERCOT shall settle it accordingly, except that ERCOT shall settle wholesale storage using the nodal energy price at the electrical bus that connects the storage facility to the transmission system, or if the storage facility is connected at distribution voltage, the nodal price of the nearest electrical bus that connects to the transmission system. Wholesale storage is not subject to retail tariffs, rates, and charges or fees assessed in conjunction with the retail purchase of electricity. Wholesale storage shall not be subject to ERCOT charges and credits associated with ancillary service obligations, or other load ratio share or per megawatt-hour based charges and allocations. The owner or operator of electric storage equipment or facilities shall not make purchases of electricity for storage during a system emergency declared by ERCOT unless ERCOT directs that such purchases occur.