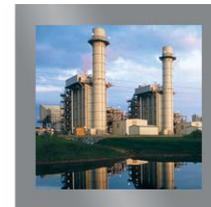




NPRR 595 Discussion

ERCOT WMS 3/5/2014



How is Online Capacity Being Calculated in ORDC?

- › $RTOLCAP\ q = (RTOLHSL\ q, - RTMG\ q, r, p) + RTNCLRRRS\ q$
- › For generation resources, capacity is determined by telemetered HSL minus actual output.
- › For load resources, capacity is determined by the telemetered AS Schedule.
- › Why is there a difference?
- › NPRR 595 seeks to correct this discrepancy. This change will better represent Load Resource available capacity, whether over or underproviding the actual AS Responsibility.

Current Formula

$$RTASIAMT_q = (-1)^* (RTASOLIMB_q * RTRSVPOR) + (RTASOFFIMB_q * RTRSVPOFF)$$

Where:

$$RTASOLIMB_q = RTOLCAP_q - [(RTASRESP_q * 1/4) - RTASOFF_q - RTOLNSRS_q]$$

$$RTOLCAP_q = (RTOLHSL_q - \sum_r \sum_p RTMG_{q,r,p}) + RTCLRCAP_q + RTNCLRRRS_q + RTOFF10_q - RTOLNSRS_q$$

$$RTCLRCAP_q = RTCLRREG_q + RTCLRRRS_q$$

$$RTRSVPOR = \sum_y (RNWF_y * RTORPA_y)$$

$$RTASOFFIMB_q = RTOFFCAP_q - ((RTASOFF_q + RTOLNSRS_q + ((RTNCLRNSRESP_q + RTCLRNSRESP_q) * 1/4))$$

$$RTOFFCAP_q = RTOFF30_q + RTNCLRNS_q + RTCLRNS_q + RTOLNSRS_q$$

$$RTRSVPOFF = \sum_y (RNWF_y * RTOFFPA_y)$$

$$RNWF_y = TLMP_y / \sum_y TLMP_y$$

Consider Only RTASOLIMB

$$RTASIAMT_q = (-1)^* (RTASOLIMB_q * RTRSVPOR) + (RTASOFFIMB_q * RTRSVPOFF)$$

Where:

$$RTASOLIMB_q = RTOLCAP_q - [(RTASRESP_q * 1/4) - RTASOFF_q - RTOLNSRS_q]$$

$$RTOLCAP_q = (RTOLHSL_q - \sum_r \sum_p RTMG_{q,r,p}) + RTCLRCAP_q + RTNCLRRRS_q + RTOFF10_q - RTOLNSRS_q$$

$$RTCLRCAP_q = RTCLRREG_q + RTCLRRRS_q$$

$$RTRSVPOR = \sum_y (RNWF_y * RTORPA_y)$$

$$RTASOFFIMB_q = \frac{RTOFFCAP_q - ((RTASOFF_q + RTOLNSRS_q + ((RTNCLRNSRESP_q + RTCLRNSRESP_q) * 1/4))}{1}$$

$$RTOFFCAP_q = \frac{RTOFF30_q + RTNCLRNS_q + RTCLRNS_q + RTOLNSRS_q}{1}$$

$$RTRSVPOFF = \sum_y (RNWF_y * RTOFFPA_y)$$

$$RNWF_y = \frac{TLMP_y}{\sum_y TLMP_y}$$

Reduces To

$$\text{RTASIAMT}_q = (-1)^* (\text{RTASOLIMB}_q * \text{RTRSVPOR})$$

Where:

$$\text{RTASOLIMB}_q = \text{RTOLCAP}_q - [(\text{RTASRESP}_q * 1/4) - \text{RTASOFF}_q - \text{RTOLNSRS}_q]$$

$$\text{RTOLCAP}_q = (\text{RTOLHSL}_q - \sum_r \sum_p \text{RTMG}_{q,r,p}) + \text{RTCLRCAP}_q + \text{RTNCLRRRS}_q + \text{RTOFF10}_q - \text{RTOLNSRS}_q$$

$$\text{RTCLRCAP}_q = \text{RTCLRREG}_q + \text{RTCLRRRS}_q$$

$$\text{RTRSVPOR} = \sum_y (\text{RNWF}_y * \text{RTORPA}_y)$$

Assume No NSRS or Controllable Load

$$RTASIAMT_q = (-1) * (RTASOLIMB_q * RTRSVPOR)$$

Where:

$$RTASOLIMB_q = RTOLCAP_q - [(RTASRESP_q * 1/4) - RTASOFF_q - RTOLNSRS_q]$$

$$RTOLCAP_q = (RTOLHSL_q - \sum_r \sum_p RTMG_{q,r,p}) + RTCLRCAP_q + RTNCLRRRS_q + RTOFF10_q - RTOLNSRS_q$$

$$RTCLRCAP_q = RTCLRREG_q + RTCLRRRS_q$$

$$RTRSVPOR = \sum_y (RNWF_y * RTORPA_y)$$

Reduces To

$$\text{RTASIAMT}_q = (-1)^* (\text{RTASOLIMB}_q * \text{RTRSVPOR})$$

Where:

$$\text{RTASOLIMB}_q = \text{RTOLCAP}_q - [(\text{RTASRESP}_q * 1/4)]$$

$$\text{RTOLCAP}_q = (\text{RTOLHSL}_q - \sum_r \sum_p \text{RTMG}_{q,r,p}) + \text{RTNCLRRRS}_q$$

$$\text{RTRSVPOR} = \sum_y (\text{RNWF}_{y} * \text{RTORPA}_y)$$

Solution

- › $RTOLCAP\ q = (RTOLHSL\ q, - RTMG\ q, r, p) + RTNCLRRRS\ q$
- › By replacing RTNCLRRRS (AS Schedule) with RTNCLRTELEM (Telemetered Consumption), Generation and Load Resources are treated equally.
- › RTNCLRTELEM is a value already captured by ERCOT. No additional system changes are necessary.

Concerns Addressed

Q: Do all Load Resources get calculated all of the time?

A: No. Protocol 6.7.4 (2)(b) states that the capacity is from *Load Resources controlled by high-set under-frequency relay*.

Q: Can Load Resources arm as much excess as desired in order to create additional capacity payments?

A: No. Protocol 8.1.1.4.2 (b) states that Load Resource response shall not exceed 150% of the requested MW (Schedule).