**Sample Calculation for treatment of Undeliverable Ancillary Service**

**By ERCOT**

**For August QMWG**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   |   | **HR 1: QSE1 trade with QSE2** |   |   |
| QSE | LRS | DARUO *q* | DASARUQ *q* | DARUQ *q* | Award | Payment | Price | DARUAMT *q* |
| 1 | 0.025 | 5 | 5 | 0 |   | 0 |   | 0 |
| 2 | 0 | 0 | 0 | 0 |   | 0 |   | 0 |
| 3 | 0.025 | 5 | 0 | 5 |   | 0 |   | 24.375 |
| 4 | 0.228 | 45.6 | 0 | 45.6 |   | 0 |   | 222.3 |
| 5 | 0.035 | 7 | 0 | 7 |   | 0 |   | 34.125 |
| 6 | 0.023 | 4.6 | 0 | 4.6 |   | 0 |   | 22.425 |
| 7 | 0.031 | 6.2 | 0 | 6.2 |   | 0 |   | 30.225 |
| 8 | 0 | 0 | 0 | 0 | 195 | -975 |   | 0 |
| 9 | 0.078 | 15.6 | 0 | 15.6 |   | 0 |   | 76.05 |
| 10 | 0.555 | 111 | 0 | 111 |   | 0 |   | 541.125 |
|  Total | 1 | 200 | 5 | 195 | 195 | -975 | 4.875 | 950.625 |

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| --- | --- | --- | --- | --- |
|   |   | **HR 2: QSE1 trade with QSE2** |   |   |
| QSE | LRS | DARUO *q* | DASARUQ *q* | DARUQ *q* | Award | Payment | Price | DARUAMT *q* |
| 1 | 0.025 | 5 | 5 | 0 |   | 0 |   | 0 |
| 2 | 0 | 0 | 0 | 0 |   | 0 |   | 0 |
| 3 | 0.025 | 5 | 0 | 5 |   | 0 |   | 24.375 |
| 4 | 0.228 | 45.6 | 0 | 45.6 |   | 0 |   | 222.3 |
| 5 | 0.035 | 7 | 0 | 7 |   | 0 |   | 34.125 |
| 6 | 0.023 | 4.6 | 0 | 4.6 |   | 0 |   | 22.425 |
| 7 | 0.031 | 6.2 | 0 | 6.2 |   | 0 |   | 30.225 |
| 8 | 0 | 0 | 0 | 0 | 195 | -975 |   | 0 |
| 9 | 0.078 | 15.6 | 0 | 15.6 |   | 0 |   | 76.05 |
| 10 | 0.555 | 111 | 0 | 111 |   | 0 |   | 541.125 |
|  Total | 1 | 200 | 5 | 195 | 195 | -975 | 4.875 | 950.625 |

**Real-Time**

|  |  |  |
| --- | --- | --- |
| **Awards** | 1 | 2 |
| RTPCRU\_9\_SASM1 | 3 | 3 |
| RTPCRU\_10\_SASM1 | 2 | 2 |
| Total | 5 | 5 |
| Clearing Price by Market |  |  |
| MCPCRU\_SASM1 | 40 | 40 |
| MCPCRU\_DAM | 5 | 5 |
|   |  |  |
| Service Payment |  |  |
| RTPCRUAMT = (-1) \* MCPCRUm \* RTPCRU |  |  |
| RTPCRUAMT\_9\_SASM1 | -120 | -120 |
| RTPCRUAMT\_10\_SASM1 | -80 | -80 |
| Total | -200 | -200 |
|   |  |  |
| RUCOSTTOT (Reg-Up total cost) | 1175 | 1175 |
| RTPCRUAMTTOTm (Procured capacity for Reg-Up amount by market SASM) | -200 | -200 |
| PCRUAMTTOT (total procured capacity in the DAM) | -975 | -975 |
| RUFQAMTTOT (Total Reg-Up failure quantity) | 0 | 0 |
| **Undeployed Amount** | 0 | 0 |
|   |  |  |
| Reg-Up Price |  |  |
| RUPR = RUCOSTTOT / RUQTOT |  |  |
| RUPR (Reg-Up Price) | 6.025641 | 5.875 |
|   |  |  |
| Reg-Up Quantity  |  |  |
| RUQq = RUOq - SARUQq |  |  |
| **RUOq = Sum[SARUQq + SUMm (RTPCRUq,m) + PCRUq - RURPq - RUFQq]) \* HLRSq + RURPq** |  |  |
| RUQTOT (Reg-Up quantity total not self-arranged in DAM or SASMS) | 195 | 200 |

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| --- | --- | --- |
| **DASARUQ** |  | **RTPCRU** |
| QSE | 1 | 2 |  | QSE | 1 | 2 |
| 1 | 5 | 5 |  | 1 | 0 | 0 |
| 2 | 0 | 0 |  | 2 | 0 | 0 |
| 3 | 0 | 0 |  | 3 | 0 | 0 |
| 4 | 0 | 0 |  | 4 | 0 | 0 |
| 5 | 0 | 0 |  | 5 | 0 | 0 |
| 6 | 0 | 0 |  | 6 | 0 | 0 |
| 7 | 0 | 0 |  | 7 | 0 | 0 |
| 8 | 0 | 0 |  | 8 | 0 | 0 |
| 9 | 0 | 0 |  | 9 | 3 | 3 |
| 10 | 0 | 0 |  | 10 | 2 | 2 |
| Total | 5 | 5 |  | Total | 5 | 5 |

|  |  |  |
| --- | --- | --- |
| **PCRU** |  | **RURP** |
| QSE | 1 | 2 |  | QSE | 1 | 2 |
| 1 | 0 | 0 |  | 1 | 0 | 0 |
| 2 | 0 | 0 |  | 2 | 5 | 5 |
| 3 | 0 | 0 |  | 3 | 0 | 0 |
| 4 | 0 | 0 |  | 4 | 0 | 0 |
| 5 | 0 | 0 |  | 5 | 0 | 0 |
| 6 | 0 | 0 |  | 6 | 0 | 0 |
| 7 | 0 | 0 |  | 7 | 0 | 0 |
| 8 | 195 | 195 |  | 8 | 0 | 0 |
| 9 | 0 | 0 |  | 9 | 0 | 0 |
| 10 | 0 | 0 |  | 10 | 0 | 0 |
| Total | 195 | 195 |  | Total  | 5 | 5 |

RUQq = RUOq - SARUQq

RUOq = Sum[SARUQq + SUMm (RTPCRUq,m) + PCRUq - RURPq - RUFQq]) \* HLRSq + RURPq

|  |  |  |
| --- | --- | --- |
| **RUO** |  | RUQ |
| QSE | 1 | 2 |  | QSE | 1 | 2 |
| 1 | 5.00 | 5.00 |  | 1 | 0.00 | 5.00 |
|  2 | 0.00 | 0.00 |  | 2 | 0.00 | 0.00 |
| 3 | 5.00 | 5.00 |  | 3 | 5.00 | 5.00 |
| 4 | 45.60 | 45.60 |  | 4 | 45.60 | 45.60 |
| 5 | 7.00 | 7.00 |  | 5 | 7.00 | 7.00 |
| 6 | 4.60 | 4.60 |  | 6 | 4.60 | 4.60 |
| 7 | 6.20 | 6.20 |  | 7 | 6.20 | 6.20 |
| 8 | 0.00 | 0.00 |  | 8 | 0.00 | 0.00 |
| 9 | 15.60 | 15.60 |  | 9 | 15.60 | 15.60 |
| 10 | 111.00 | 111.00 |  | 10 | 111.00 | 111.00 |
| Total | 200 | 200 |  | Total | 195 | 200 |

|  |  |  |  |
| --- | --- | --- | --- |
| RUQ |  |  |  |
| Hour 1: RUQ= RUO-DASARUQ- RTSARUQ |
| Hour 2: RUQ= RUO- RTSARUQ |  |

|  |  |  |
| --- | --- | --- |
| **RUCOST** |  | **RTRUAMT** |
| QSE | 1 | 2 |  | QSE | 1 | 2 |
| 1 | 0.00 | 29.38 |  | 1 | 0.00 | 29.38 |
| 2 | 0.00 | 0.00 |  | 2 | 0.00 | 0.00 |
| 3 | 30.13 | 29.38 |  | 3 | 5.75 | 5.00 |
| 4 | 274.77 | 267.90 |  | 4 | 52.47 | 45.60 |
| 5 | 42.18 | 41.13 |  | 5 | 8.05 | 7.00 |
| 6 | 27.72 | 27.03 |  | 6 | 5.29 | 4.60 |
| 7 | 37.36 | 36.43 |  | 7 | 7.13 | 6.20 |
| 8 | 0.00 | 0.00 |  | 8 | 0.00 | 0.00 |
| 9 | 94.00 | 91.65 |  | 9 | 17.95 | 15.60 |
| 10 | 668.85 | 652.13 |  | 10 | 127.72 | 111.00 |
| Total | 1175 | 1175 |  | Total | 224.375 | 224.375 |