

# Price Reservations and Corrections

Billing and Price Correction Task Force  
July 29, 2005

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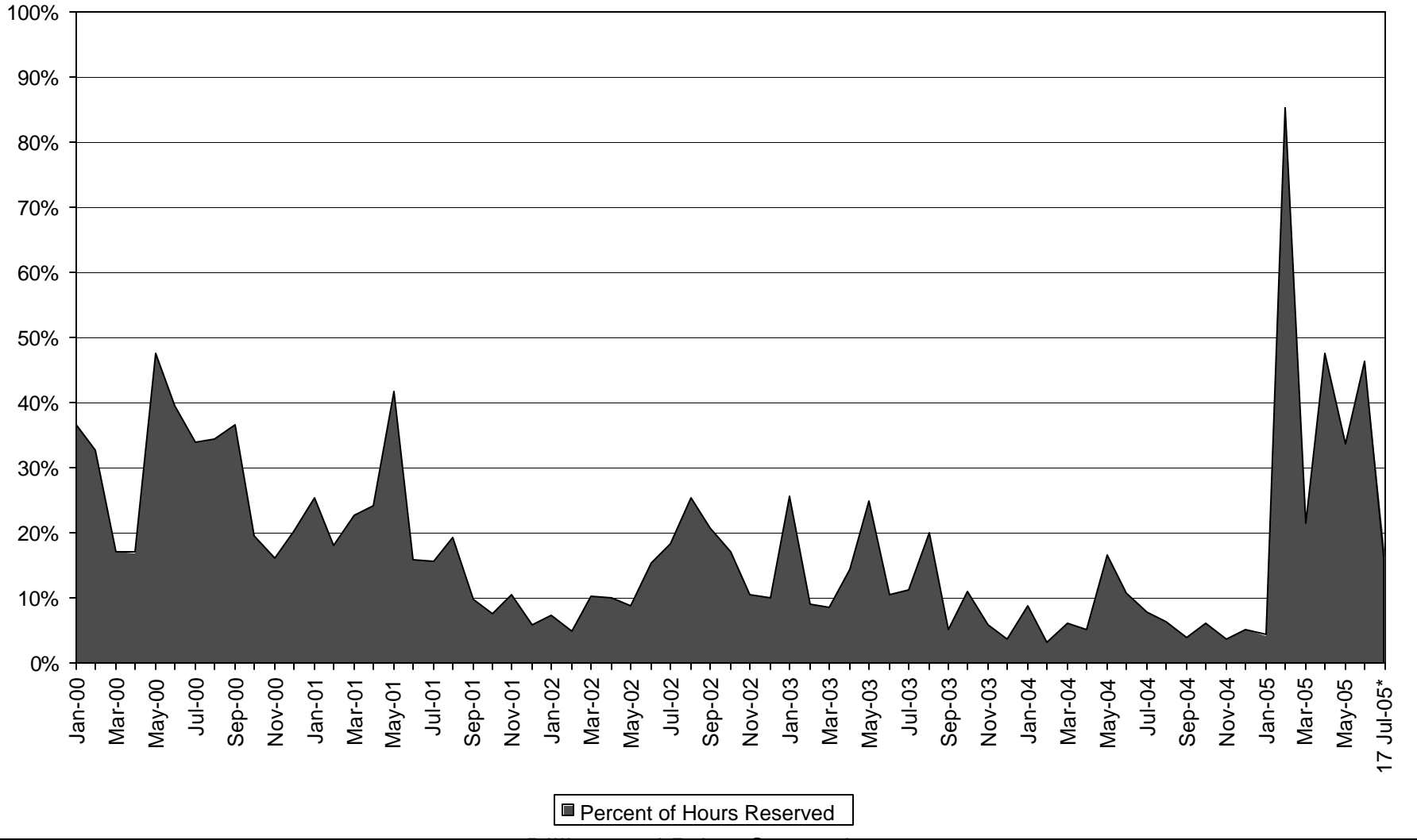
*Draft – for discussion purposes only*

# Outline

- Price reservations and corrections since 2000
- Reservations and corrections since February 1 2005
- Reasons for corrections since February 1 2005
  - Software Related
  - Non-software related
- How we reserve and correct prices

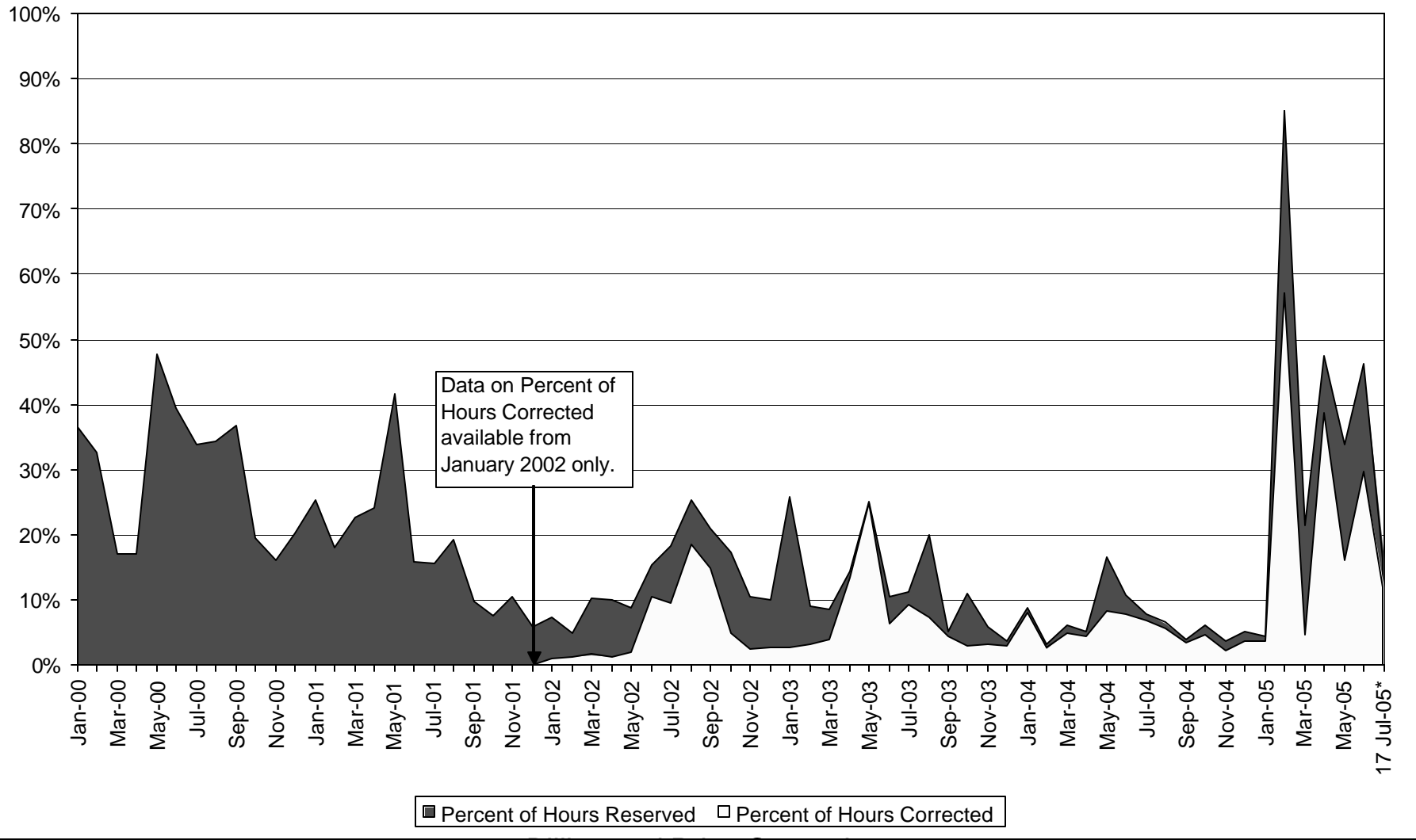
# Monthly Price Reservation and Correction Statistics January 2000-July 2005

**Real Time Price Corrections:  
Percent of Hours Reserved**  
January 2000 - July 2005 (through July 17, 2005 only)



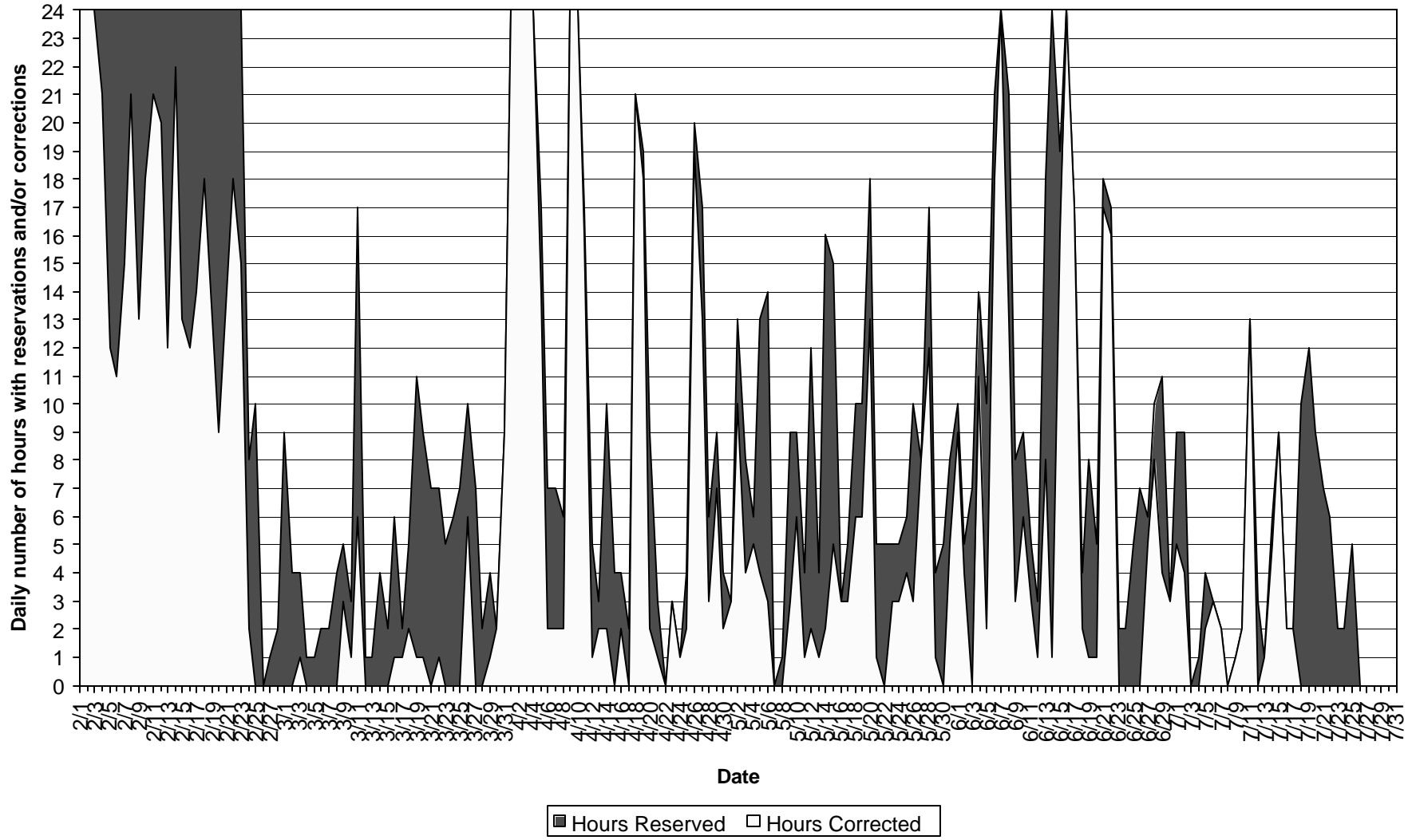
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**Real Time Price Corrections:  
Percent of Hours Reserved and Corrected  
January 2000 - July 2005 (through July 17, 2005 only)**



# Daily Price Corrections and Reservations since SMD2 (February 1, 2005)

**Daily Number of Hours with Reservations and Corrections**  
**February 1 2005- July 25 2005**  
**(Corrections through July 17 only)**



# Reasons for price corrections and reservations

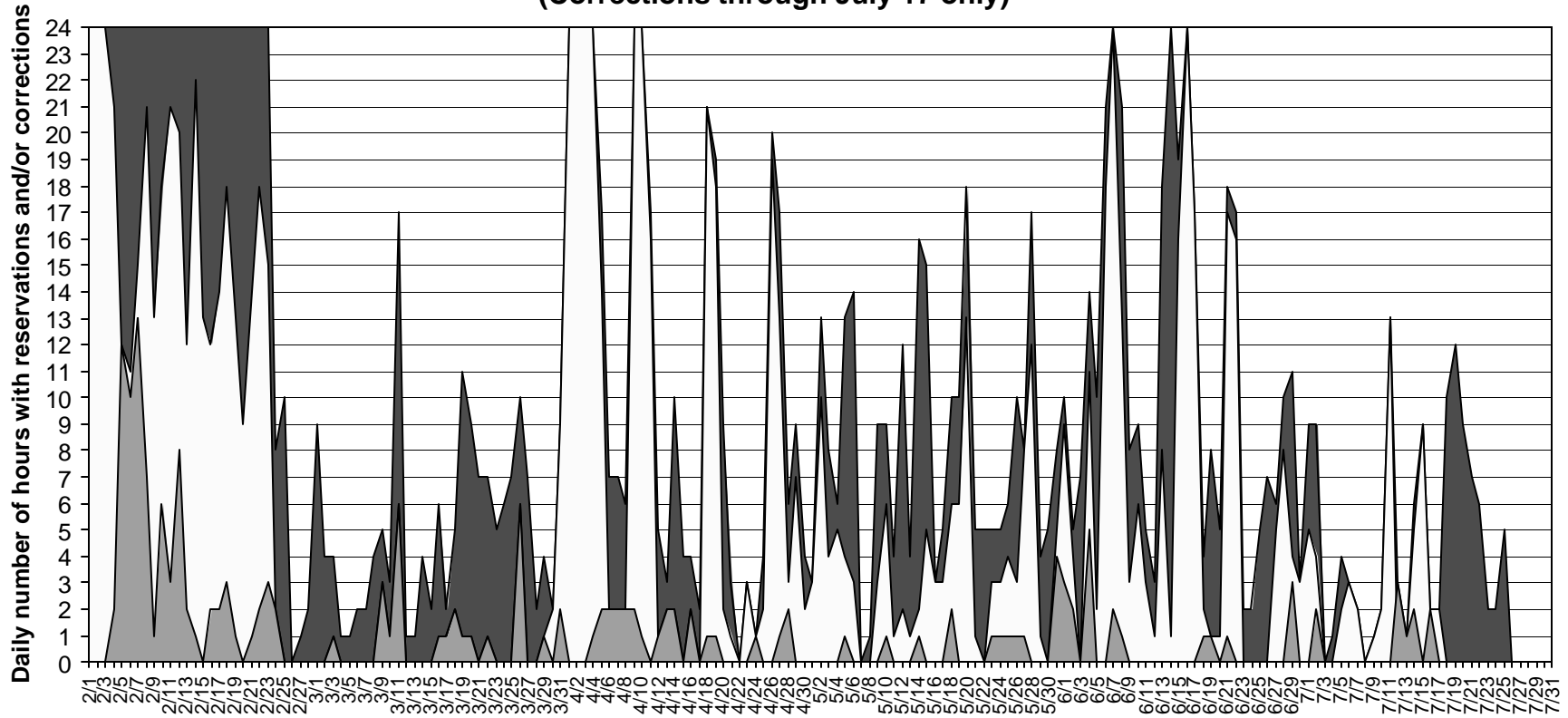
- Software issues
  - A number of different software issues have impacted prices.
    - covered in the FERC filings.
- Other issues
  - Posting problems, bad input data including metering errors, loss of the state estimator, modeling issues, and unexplained model solutions



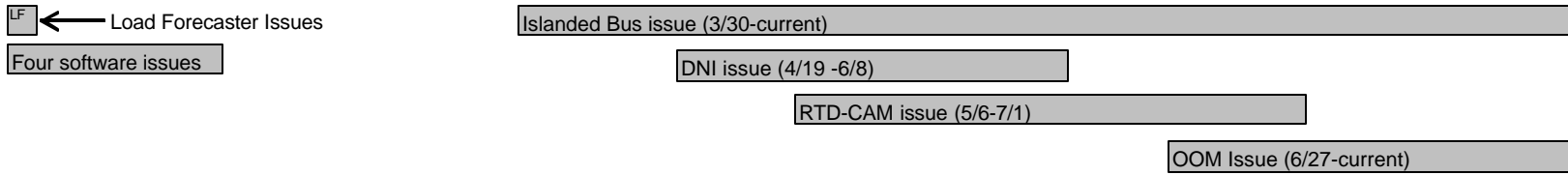
# Chart of price corrections without nine major software issues

- Hours Reserved and hours Corrected from February through July (July data is available through July 17 only) and the daily number of hours Corrected, excluding nine major (known) software issues.
- The software issues excluded are in the FERC filings:
  - Load forecaster issues, Fixed 2/3
  - Four software issues Fixed 2/23 (this includes the Gilboa units and Self Scheduling base point issues, the Steam Ramping issue and the Uninstructed Generation issue)
  - The statewide DNI issue, Fixed 6/9
  - The RTD-CAM Pricing anomaly, Fixed 7/1
  - The Islanded Bus issue – No date yet for the fix.
  - The OOM issue – Scheduled to be fixed next week

**Daily Hours with Corrections Excluding Major Known Software Issues  
February 1 2005- July 19 2005  
(Corrections through July 17 only)**



**Periods when corrections occurred for major software Issues:**



■ Hours Reserved   □ Hours Corrected   ▒ Hours corrected excluding 9 software issues

# Reasons for corrections – Broad categories

Number of days with corrections by correction reason  
(general categories)

<b>Type of correction</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul*</b>	<b>Total</b>
Bad input data	4	7	4	2	0	0	17
Process Failure/Missing Data/System Outage	5	5	6	5	2	0	23
Modeling	7	0	0	0	0	0	7
Operational	1	2	5	0	2	0	10
Software	24	3	22	27	24	11	111
Unexplainable model solution/Non Convergence	1	0	1	9	7	1	19
<b>Total Days with Corrections</b>	<b>24</b>	<b>14</b>	<b>28</b>	<b>27</b>	<b>25</b>	<b>13</b>	<b>131</b>

\* July through July 17 only.

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# Broad categories

- **Bad Input Data**
  - These types of issues include:
    - Incorrect meter readings
      - Metering errors can make it appear that a generator has tripped when in fact it had not (or the opposite, a unit that had tripped appears to be generating)
    - RTD prices were calculated as if a large generator would be shutting off when it was not.
    - Anomalous schedule change (one period)
    - Load forecaster malfunction
- **Process Failure/ Missing Data/ System Outage**
  - These types of issues include:
    - ICCP link failures
    - Web posting issues (RTC and RTD)
    - Data transfer issues
    - MIS and OIS&R issues
  - These primarily occurred in the first few months of SMD2 operation.
- **Modeling Issues**
  - In February there was an issue with the representation of the transmission system so that the constraints that were binding in RT were inappropriate.

# Broad categories (cont.)

- Operational Issues
  - Types of issues
    - Erroneous interface limit
    - OOM instructions incorrectly modeled in RTD
    - Incorrect DNI change
    - TLR Protocols (when notified after RTC closing)
      - Neighboring control areas TLRs do not reflect NY system conditions and should not lead to high LBMPs.
- Software Issues
  - These are the issues covered in the FERC filings.
- Unexplainable Model Solution Issues and Non-Convergence
  - These are when we are unable to verify that the marginal units are correctly setting price or when there is the model does not converge.
    - Sometimes there are very complicated tradeoffs which make it difficult to identify the price setting unit. We have invested in a new linear programming tool to help us with these cases.

# How do we determine what hours need to be reserved?

- Currently price validation functions are performed by LECG.
- We are in the process of bringing these functions in-house and have begun to shadow the LECG reservations
  - Currently the PV group is shadowing LECG
  - This price validation process is planned to be transferred in-house by year-end with some ongoing support from LECG into the early part of 2006.
- What do we evaluate?
  - SCUC, RTC and RTD,
  - All energy and ancillary prices used for settlements.

# Price Reservation Procedures

- SCUC
  - Recompute prices
  - Validate Dispatch Consistency
  - Evaluate the Efficiency of the Unit Commitment
  - General Review
  - Validate Posted Prices
- RTC
  - Recompute prices
  - Validate Dispatch Consistency
  - Evaluate the Efficiency of the Unit Commitment
  - General Review
  - Validate Posted Prices
- RTD
  - Recompute prices
  - Validate Dispatch Consistency
  - General Review
  - Validate Posted Prices

# How we correct prices

- Replace intervals with surrounding intervals that best approximate system conditions.
- Recalculate equilibrium prices:  
In some circumstance we are able to recalculate the prices after correcting for the source of the error. This is time consuming and not always possible or desirable depending on the source of the problem.
  - Example: The Out of Merit software issue- we are currently manually recalculating the prices to correct for this issue.