

# Regional Dialogue Implementation Framework:

## The Slice/Block Product

Slice Delivery Limit Refinements  
Rest of System Details

October 24, 2007



## Objectives and Goals

- This presentation provides a follow-up to the October 11, 2007 workshop regarding Slice delivery limit refinements and FCRPS operations.
- The focus of this presentation is on the Rest of System delivery limits.
- The Rest of System concept outlined herein represents BPA's view of the simplest approach for meeting the objective of reflecting, within Slice delivery limits, all operating constraints and limitations placed on the Snake and lower Columbia projects.
- Share results of an analysis BPA has prepared on the potential impacts this concept might have had on current Slice limits.

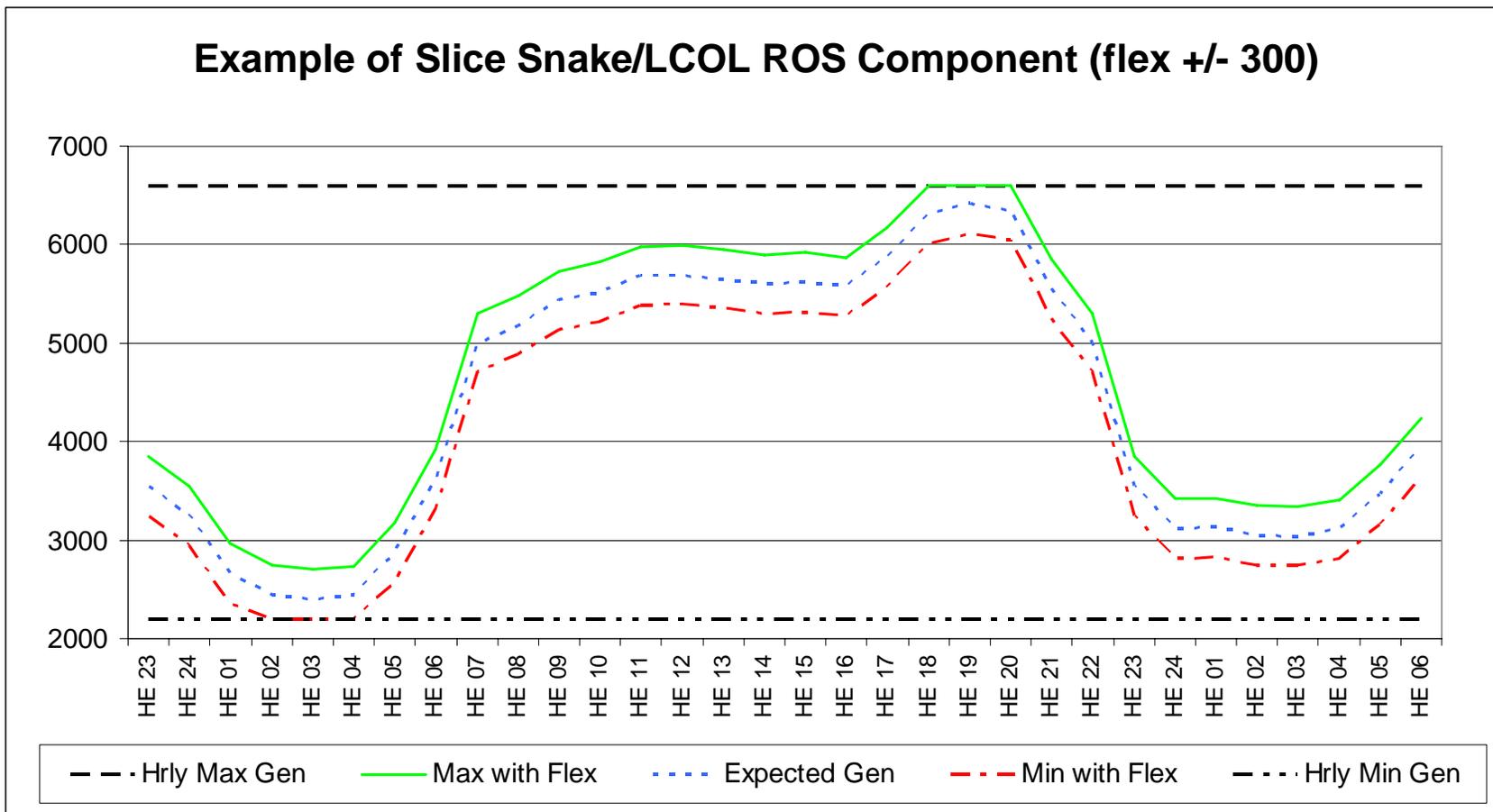


# Review of Overall ROS Concept

- Incorporate the Snake and lower Columbia projects into the determination of Rest of System limits (all projects except Coulee and Chief), as adjusted for System Obligations.
  - All other ROS projects are “non-dispatchable”
- To reflect the impact of all applicable operating constraints and limitations in effect at the Snake and lower Columbia projects, the ROS delivery limits should reflect values very close to their expected operation.
  - These projects are highly constrained due to numerous operating constraints combined with their operating characteristics
  - This is not a proposal to characterize the Snake and lower Columbia projects “non-dispatchable”
- Since flexibility exists to operate these projects differently than the expected operation, allow Slice customers some ability to vary from the expected values (ROS Flex concept).



This graph illustrates the simplest approach for determining the Snake and LCOL component of the Rest of System delivery limits. The idea is to start with the expected hourly generation shape and allow a margin of hourly flexibility up and down, limited to the overall Min and Max capability.



## Process Possibilities

- An ROS volume and hourly shape would be determined prior to pre-schedule.
  - Customers would pre-schedule their ROS energy within the hourly shape +/- Flex
- An updated ROS volume and hourly shape would be determined prior to the start of each day.
  - Customers would adjust pre-scheduled ROS energy within the updated shape +/- Flex
- The ROS volume and hourly shape would be updated on an hourly basis in real-time
  - This update would lock-in the hourly value for one particular hour, leaving time for customers to conform their schedules prior to the close of the scheduling window



## Customer Concern

- At the October 11 session customers suggested that having Slicers schedule in tandem with the expected operation on an hourly basis may reduce the benefit of customer diversity, and may exacerbate ramping problems (for example) for the system.
- Customer diversity may, at times, assist BPA in ramping or other operations. However, by providing the Slice customers with system capability not typically attainable within operating constraints, the opposite affect is also possible.
- BPA believes customers will be able to use the Coulee/Chief flexibility to counterbalance effects of being pulled along with the expected ROS operation.
- This concept is in line with BPA's operation of the FCRPS with regard to using Coulee as the flex project to balance the delta between loads and the ROS generation.



## ROS Analysis

- BPA analyzed 4-years of hourly data (FY03 – FY06) to determine the impact this ROS concept might have on Hourly Min and Hourly Max delivery limits.
- Using the Total System Min and Max hourly limits published for Slice as a basis, BPA removed the Snake and lower Columbia Min and Max components and replaced them with their actual hourly generation values (including e-spill). BPA then added 300 MW (Flex up) to determine an adjusted Hourly Max, and subtracted 300 MW (Flex down) to determine an adjusted Hourly Min.
- For 85.7% of the Light Load Hours (LLH – F6, L2) the Hourly Min increased. The median increase was 722 MW. The maximum increase was 3792 MW (Friday Jan 31, 2003, HE23 – aggregate Slice schedules were 178 MW above 22.6% of the increased minimum).
- For 97.0% of the Heavy Load Hours (HLH – 07-22) the Hourly Max decreased. The median decrease was 1856 MW. The maximum decrease was 5631 MW (Saturday Oct 5, 2002, HE07 – aggregate Slice schedules were 1130 MW below 22.6% of the decreased maximum).



## ROS Analysis

- For the same 4-year period, BPA compared the aggregate Slice customer schedules (including self-supply) to 22.6% of the adjusted hourly Min and Max limits to determine how the customers' schedules might have been impacted.
- The Slice customer aggregate schedules were within 22.6% of the adjusted Hourly Min limits on 98.9% of the LLH, and were within 22.6% of the adjusted Hourly Max limits on 88.2% of the HLH.
- When outside 22.6% of the adjusted LLH Hourly Min limits, the aggregate schedules were below by 49 median MW. The maximum amount was 276 MW (Sunday Feb 1, 2003, HE02).
- When outside 22.6% of the adjusted HLH Hourly Max limits, the aggregate schedules were above by 96 median MW. The maximum amount was 480 MW (Thursday December 29, 2005, HE10).

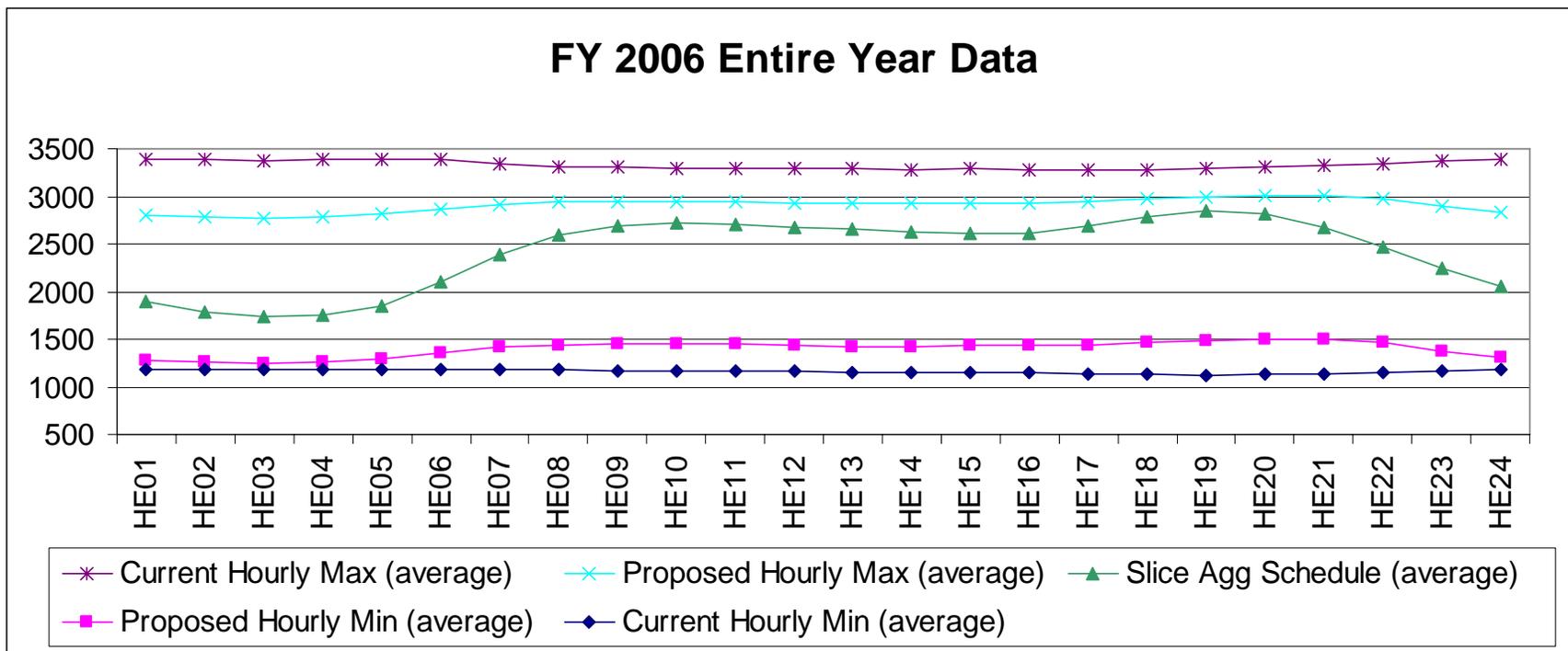


## ROS Comparisons – Annually and Monthly

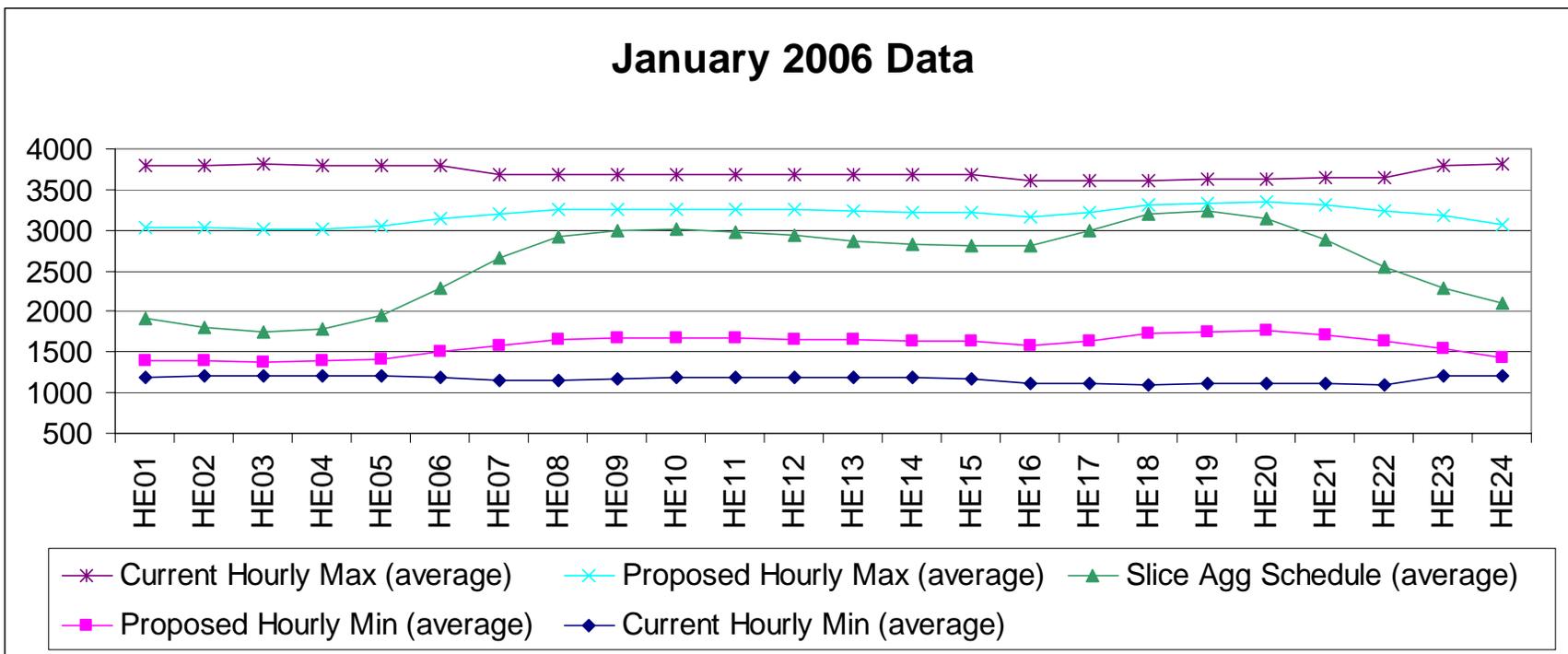
- The following slides provide graphic comparisons of the originally-established hourly Min and Max delivery limits (\*.226), the adjusted hourly Min and Max delivery limits (\*.226), and the aggregate Slice customer schedules.
- The data represents the average value for each hour of each period (average of 365 values for each hour on the yearly graph, and average of 31 values for each hour on the monthly graphs).



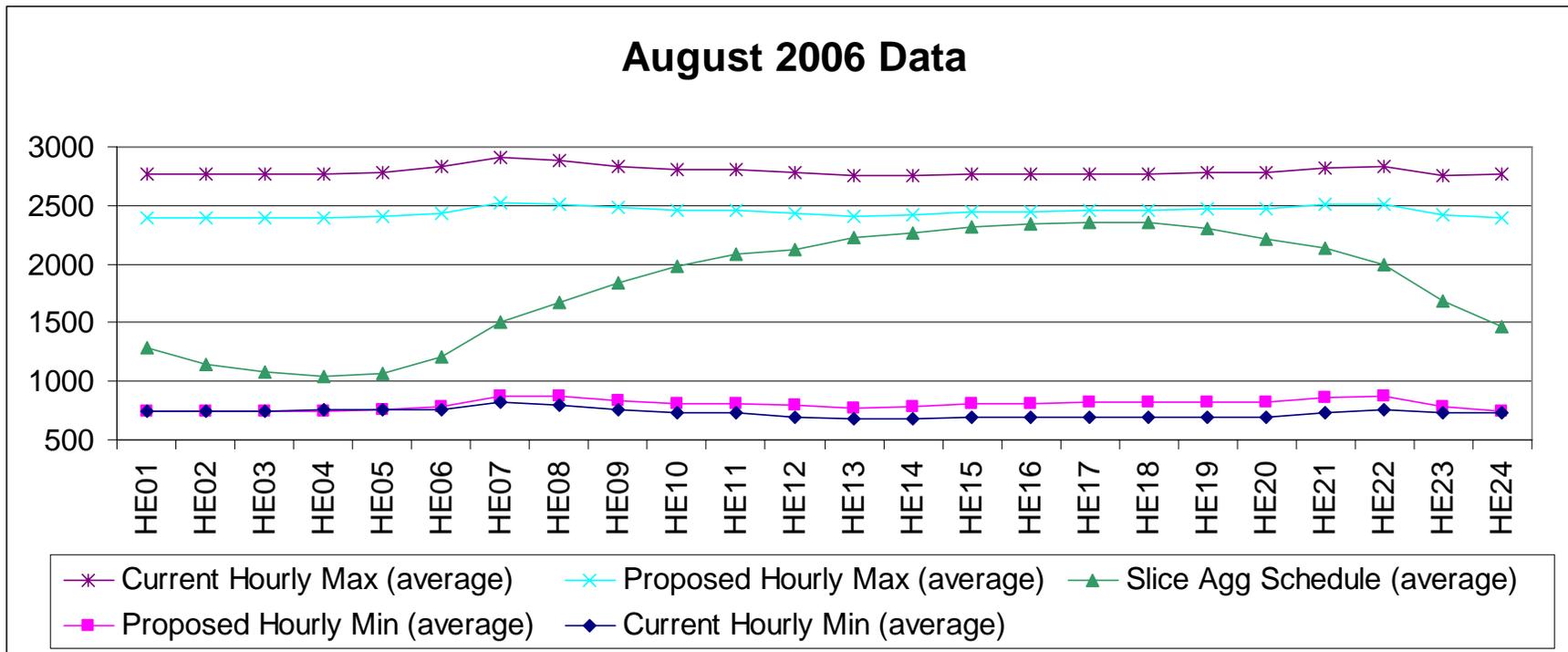
## FY 2006 Average Aggregate Slice Schedules against 22.6% of Current and Proposed Min and Max Limits



# January 2006 Average Aggregate Slice Schedules against 22.6% of Current and Proposed Min and Max Limits



## August 2006 Average Aggregate Slice Schedules against 22.6% of Current and Proposed Min and Max Limits



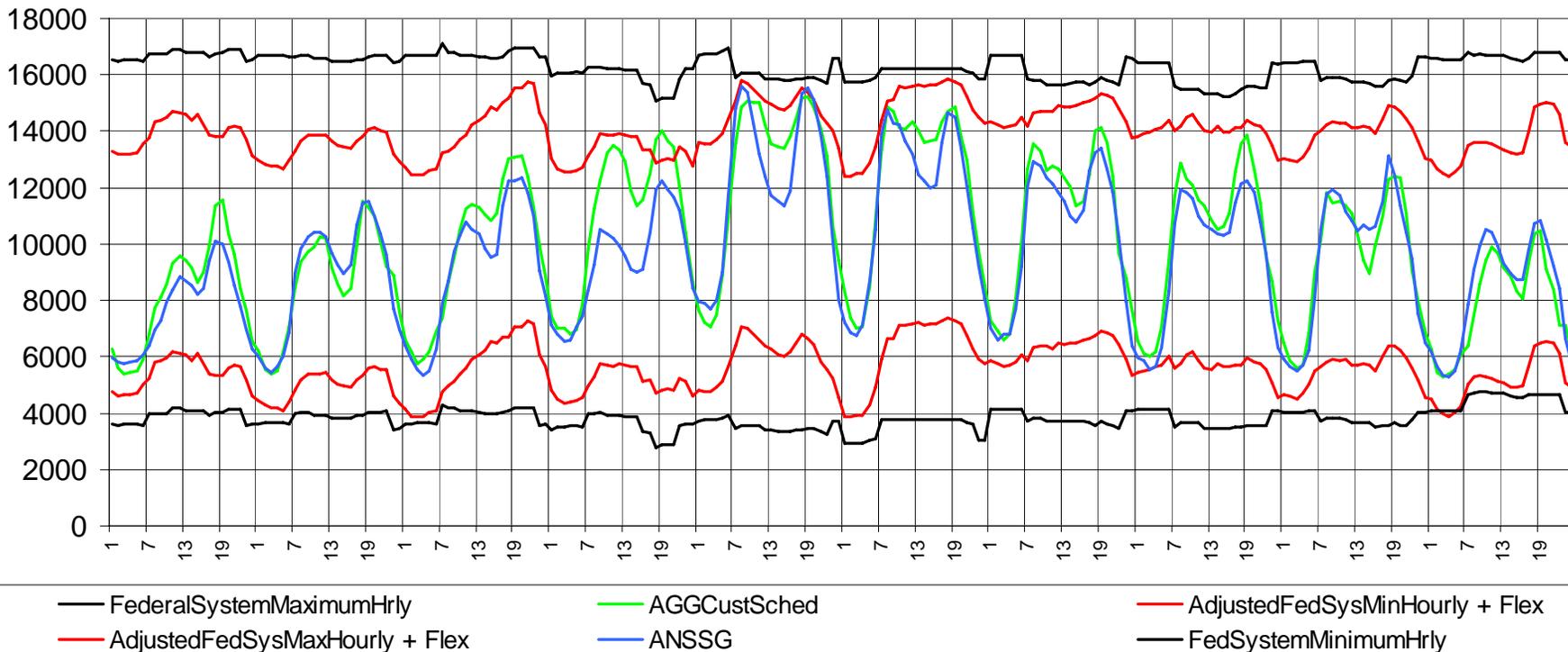
## ROS Comparisons - Hourly

- The following slides provide graphic comparisons of the originally-submitted hourly Min and Max delivery limits, the adjusted hourly Min and Max delivery limits, the aggregate Slice customer schedules (divide by .226), and the hourly ANSSG during instances when the system was stressed.



This graph represents the Min and Max Hourly delivery limits that were published for Slice during the first 10 days of January, 2004 (cold-snap), along with a set of hourly data representing the ROS concept, +/- 300 MW of flex. The middle lines represent the aggregate Slice schedules including self-supply amounts (normalized), and the hourly ANSSG

### Current VS Adjusted Slice Limits (Thur Jan 1 - Sat Jan 10, 2004)



This graph represents the Min and Max Hourly delivery limits that were published for Slice during the heat wave of July, 2006, along with a set of hourly data representing the ROS concept, +/- 300 MW of flex. The middle lines represent the aggregate Slice schedules including self-supply amounts (normalized), and the hourly ANSSG

