GENESYS Model Enhancements

RAAC Technical Committee Meeting
February 12, 2015
John Fazio
Enhancements

- 14-Periods (split April and August)
- Revised window length (7 days)
- Revised purchase-ahead logic
- Revised hydro pricing?
- Potential Future Improvements
GENESYS
Dispatch Overview & Purchase-Ahead Logic

For each Period
- Get hydro block sizes
- Build resource stack
- Build load stack
- Dispatch – get hydro energy for month
  *If deficit, allow purchase-ahead for the month*

For each Window (Sun-Mon)
- Window hydro energy = period energy times (historical average week load/period load)
  *If deficit, allow purchase-ahead for the window*

For each Day
- Daily hydro energy = window energy times (daily load/window load)
  *If deficit, allow purchase-ahead day*

For each Hour
- Available hourly hydro energy is derived from shaping the daily energy into the hourly shapes constrained by the peak vs. energy curves
- Dispatch hydro dynamically with thermal resources
  *If deficit, will use SW spot market first then borrowed hydro*
Purchase Ahead Logic

- **Period** – if deficit, set amount of purchase-ahead energy for every off-peak hour to the monthly deficit divided by the number of off-peak hours (i.e. spread out the purchases)

- **Window** – if deficit, spread the amount of purchase-ahead energy over all window off-peak hours and add to any existing purchase ahead amount

- **Day** – if deficit, spread the amount of purchase-ahead energy over all daily off-peak hours and add to any existing purchase ahead amount

- **Hour** – spot market purchases only, during hour of shortfall
Purchase Ahead Resources

- Total amount of purchase in any hour, including spot market, is limited by the South-to-North intertie transfer capability (currently using 3400 MW)

- Off-peak hours are defined to be:
  1am to 6am and
  11pm to 12am
Potential Future Enhancements

- 3-Node analysis (logic complete but need better data)
- Redevelop hourly hydro shaping
- Improved hydro pricing (for dispatch)
- Adding a SW demand market
- Uncertainty in SW import availability
- Uncertainty in intertie capability