

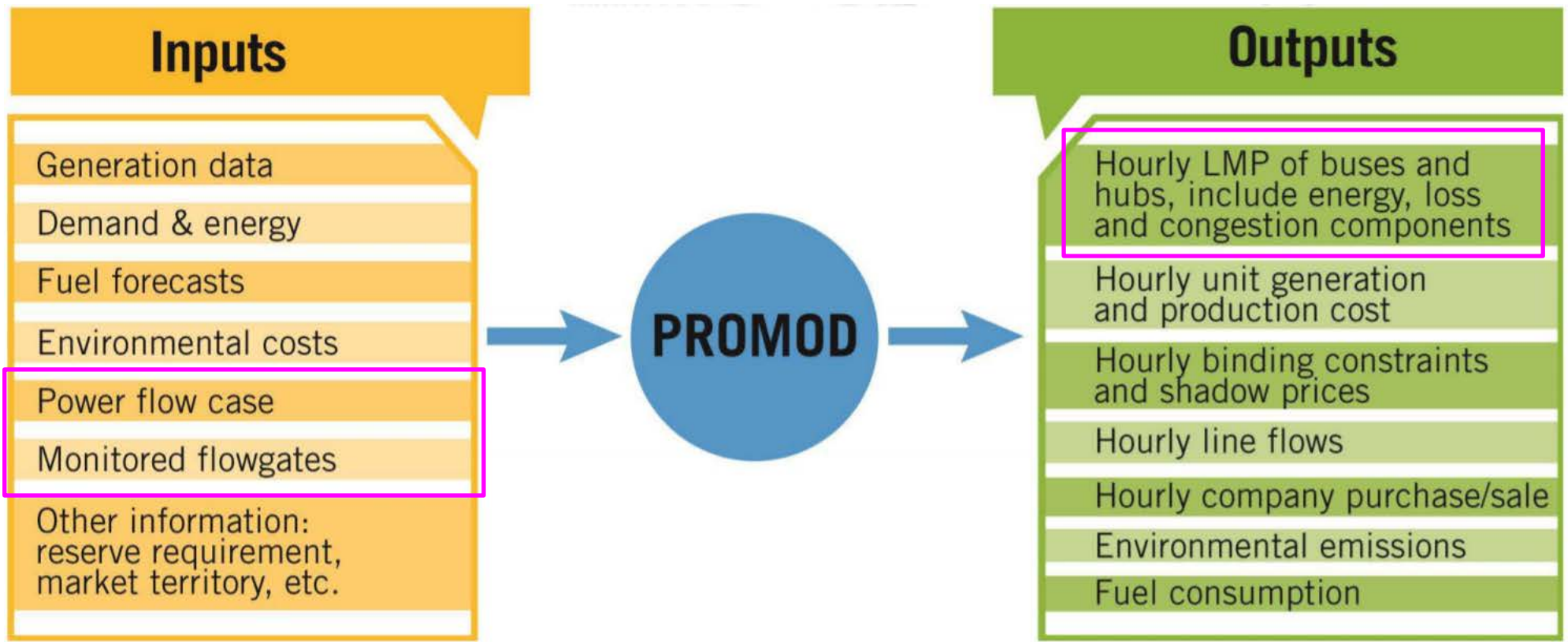


# FTR Credit

Brian Chmielewski  
Sr. Consultant, Market Simulation  
Credit Subcommittee  
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- Effective for the 18/19 planning period and beyond the FTR credit calculation will use the higher of requirement with either a historical revenue offset or an adjusted historical revenue offset to account for simulated changes in future congestion patterns caused by impactful transmission upgrades.
- This presentation describes the inputs and procedures used to determine the future model topology and the corresponding adjusted congestion LMPs used in the new FTR credit calculations.

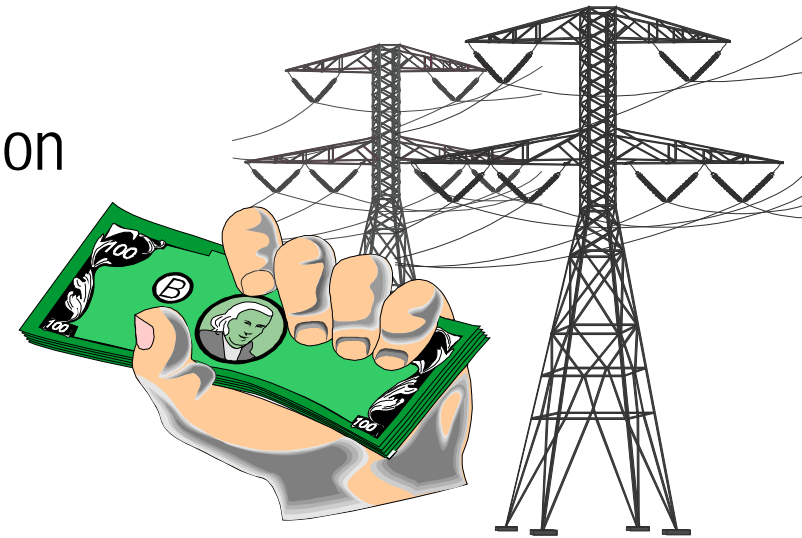
- PROMOD software used to calculate before and after bus congestion LMPs



- Transmission Adequacy and Reliability Assessment (TARA) software used to monitor ARR impact across any DA market constraint that contributed +/- \$5M to Day-ahead congestion revenues over the last year.

Monitored Constraints	
122 BELV138 KV 15623 2	CONASTON230 KV CNS-OTT
156 CHER345 KV TR82CT-P	CONASTON500 KV CNS-PEA
20 BRAID345 KV 2003	EMILIE 138 KV EMI-FAL
5004/05 Interface	ETOWANDA115 KV ETO-NME
AEP-DOM Interface	GARDNERS115 KV GAR-TEX
ALBIONIM138 KV ALB-NOR1	GRACETON230 KV GRA-SAF
AP SOUTH Interface	GREENTO2765 KV . 1
BATESVIL138 KV BAT-HUB1	HAVANA 3138 KV 30712324
BEDINGTO500 KV BED-BLA	KENNEY 69 KV KEN-STO
BROKAW 138 KV 1592 6	LAKEGEOR138 KV LAK-17A1
BRUNNERI230 KV BRU-MID6	LAKVIEW 138 KV LAK-GRE1
BRUNNERI230 KV BRU-YOR	LORETTO 138 KV LOR-VIE
BUTLAPS138 KV BUT-SHA	NOTTINGH230 KV 2-3
CAPITOLH138 KV CAP-CHE1	PERSON4 230 KV 296B
CARSON4 500 KV 511	PLEASNTV230 KV 274D
CEDARGRO230 KV CED-CLIB	TANNERSC345 KV TAN-MIA1
CLOVERD2765 KV . 10	TMI 500 KV 1 BANK
CONASTON230 KV CNS-NOR2	WESTWOOD345 KV 1

- Transmission enhancements include any approved RTEP project that impacts a monitored constraint by +/-10% or more and is planned to be in service by June 30<sup>th</sup> of the relevant planning period
  - Based on Line Outage Distribution Factors (LODF) reported by TARA
  - In service by June 30, 2018 for 18/19 Annual Auction
  - In service by June 30, 2019 for 19/22 Long Term Auction





## 18/19 PROMOD Case: (together, the "Bergen-Linden Corridor Project")

Upgrade Type	Upgrade Number	Region	TO	Status	Description
Baseline	b2436.21	PJM MA	PSEG	UC	Convert the Marion - Bayonne "L" 138 kV circuit to 345 kV and any associated substation upgrades
Baseline	b2436.33	PJM MA	PSEG	UC	Construct a new Bayway - Bayonne 345 kV circuit and any associated substation upgrades
Baseline	b2436.34	PJM MA	PSEG	UC	Construct a new North Ave - Bayonne 345 kV circuit and any associated substation upgrades
Baseline	b2436.50	PJM MA	PSEG	UC	Construct a new North Ave - Airport 345 kV circuit and any associated substation upgrades
Baseline	b2436.60	PJM MA	PSEG	UC	Relocate the underground portion of North Ave - Linden "T" 138 kV circuit to Bayway, convert it to 345 kV, and any associated substation upgrades
Baseline	b2436.70	PJM MA	PSEG	UC	Construct a new Airport - Bayway 345 kV circuit and any associated substation upgrades
Baseline	b2437.33	PJM MA	PSEG	UC	New Bayonne 345/69 kV transformer and any associated substation upgrades

## 19/20 PROMOD Case: (applied only to LTFTRs)

Upgrade Type	Upgrade Number	Region	TO	Status	Description
Baseline	b1905.1	PJM SOUTH	Dominion	UC	Surry to Skiffes Creek 500 kV Line (7 miles overhead)
Baseline	b2744	PJM SOUTH	Dominion	EP	Rebuild the Carson - Rogers Rd 500 kV circuit

- Previously-identified 17/18 upgrades will also be applied
  - BGE Zone: Graceton-Bagley-Raphael Rd. 230kV single -> double circuit
  - ComEd Zone: new Byron-Wayne 345kV circuit
- The first implementation will be to LTFTRs when historical values are recalculated
  - Implementation will involve two steps (see next slide)
  - Members with increased FTR credit requirements in excess of allocated FTR credit must cure the shortfall or will have restrictions placed on all market activity
    - FTR bids will be allowed only if the credit requirement is reduced
    - All other screened market activity will be frozen (virtuals, exports, RPM)
- All historical, simulated annual, and simulated long term 50/30/20 cLMPs are posted in the FTR credit calculator, available here by 4/6/18:

<http://www.pjm.com/markets-and-operations/ftcr.aspx>

- The 2018 Historical value update will be a two-step process
- Step 1
  - Update actual 50/30/20 historical values (from 14-15-16 to 15-16-17)
  - Create adjusted historical values using 17/18 and 18/19 modeled upgrades
    - Graceton-Bagley-Raphael Rd., Byron-Wayne, Bergen-Linden Corridor
  - Apply new FTR rules (using both actual and adjusted values) to existing LTFTRs
    - Apply collateral requirements; freeze activity if collateral not provided
  - Use new FTR rules (using both actual and adjusted values) in 18/19 annual & monthly auctions
- Step 2
  - Model 19/20 upgrades and apply to adjusted historical values
  - Apply updated adjusted historical values to existing LTFTRs
    - Apply collateral requirements; freeze activity if collateral not provided
  - Use new FTR rules (with both actual and updated adjusted values) for all 19/22 LTFTR auctions