

DOCKETED	
Docket Number:	22-OII-02
Project Title:	Gas Decarbonization
TN #:	259763
Document Title:	Presentation 5 Aspen Winter Reliability Stochastic Modeling
Description:	N/A
Filer:	Jann Mitchell
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	10/30/2024 8:24:16 AM
Docketed Date:	10/30/2024

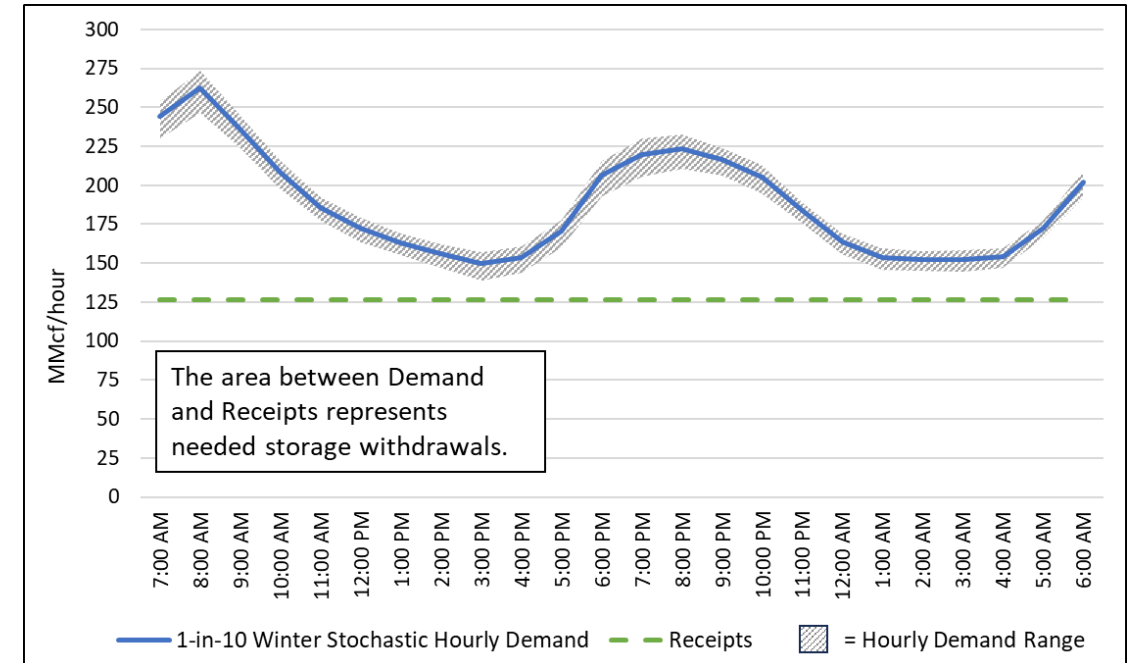
Winter Assessment 2024-2025 Hourly Stochastic Gas Balance Analysis

Joe Long, Energy Economist
Aspen Environmental Group
Energy Policy And Market Analysis
October 30, 2024

Defining the Hourly Stochastic Model

- Same methodology as previous seasonal assessments
- Simulates winter peak load from historical hourly demand distributions
- Applies stochastic range to the 1-in-10 forecast and extreme peak day plus forecast
- Variation is highest in peak hours
- Produced for SoCalGas. Need hourly data to extend analysis to PG&E

1-in-10 Winter Peak Demand by Hour



Presenting the Hourly Gas Balance Results

- Creates hourly supply-demand balance using the stochastic load profile
- Shows required withdrawals when receipts don't meet demand
- Shows zero curtailments in both cases assuming sufficient storage withdrawals
- Aligns with the hydraulic and peak day results

Stochastic Hourly Gas Balance Results for the Winter 1-in-10 Peak Day

Units in MMcf	Simulated 1-in-10 Winter Peak Day Hourly Gas Balance																								Total
Hour	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	
Demand	244	262	236	208	186	173	163	156	150	154	171	206	220	223	216	205	184	164	154	153	152	154	172	202	4508
Receipts	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	3035
Required Withdrawals	118	136	109	82	60	46	37	29	23	27	44	80	93	97	90	79	57	37	27	26	26	28	46	75	1473
Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

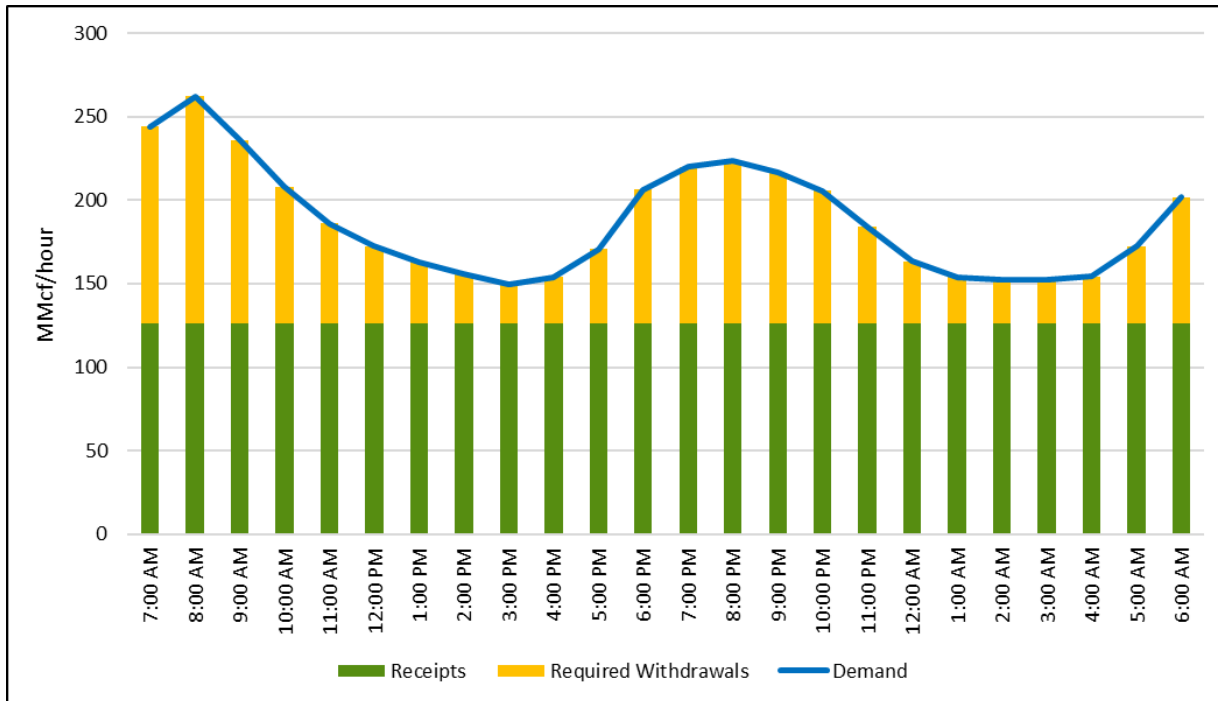
Stochastic Hourly Gas Balance Results for the Extreme Peak Day Plus

Units in MMcf	Simulated 1-in-35 plus 1-in-10 Noncore Winter Peak Day Hourly Gas Balance																								Total
Hour	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	
Demand	253	272	243	215	192	178	168	162	157	160	177	215	229	231	223	212	189	168	159	157	158	159	177	208	4662
Receipts	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	3035
Required Withdrawals	127	146	117	88	65	52	42	35	30	34	51	88	103	105	97	86	62	42	32	31	31	32	50	82	1627
Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Graphical Depiction of Hourly Results

- Graphics below show the winter 1-in-10 and extreme peak day plus cases
- Extreme peak day plus case requires slightly higher withdrawals
- Shows zero curtailment in both cases assuming sufficient hourly withdrawals

Winter 1-in-10 Peak Day: 4,508 MMcf



Extreme Peak Day Plus: 4,662 MMcf

