

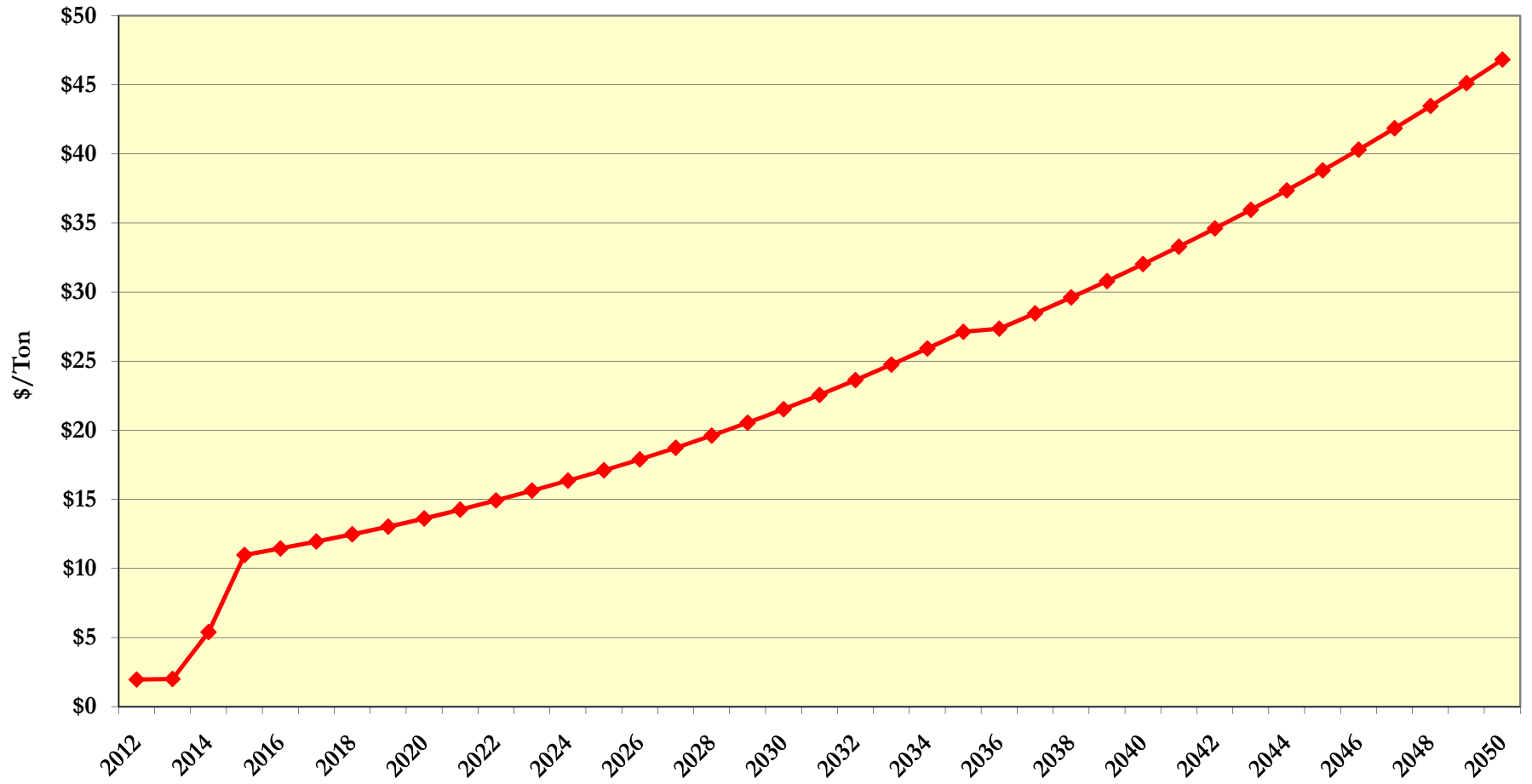
- Black Start capability to support local Reliability needs
- Additional revenues from Voltage Support Service
- As the development of new wind farms continue to come on line, they will have an impact on the NYISO operations, if the wind generation operates when it is not needed or changes in the wind generation occur rapidly.

Create an opportunity for wind farm owners to enter into bilateral contracts with the CAES plant to provide off peak energy at a low price, thus improving the economics of the CAES plant as well as providing additional revenue opportunity to the Wind Generator and improve use of renewable resources. Create an opportunity with Base Load Generators to enter into a bilateral contract with the CAES Plant to provide off peak energy to avoid frequent shutdowns

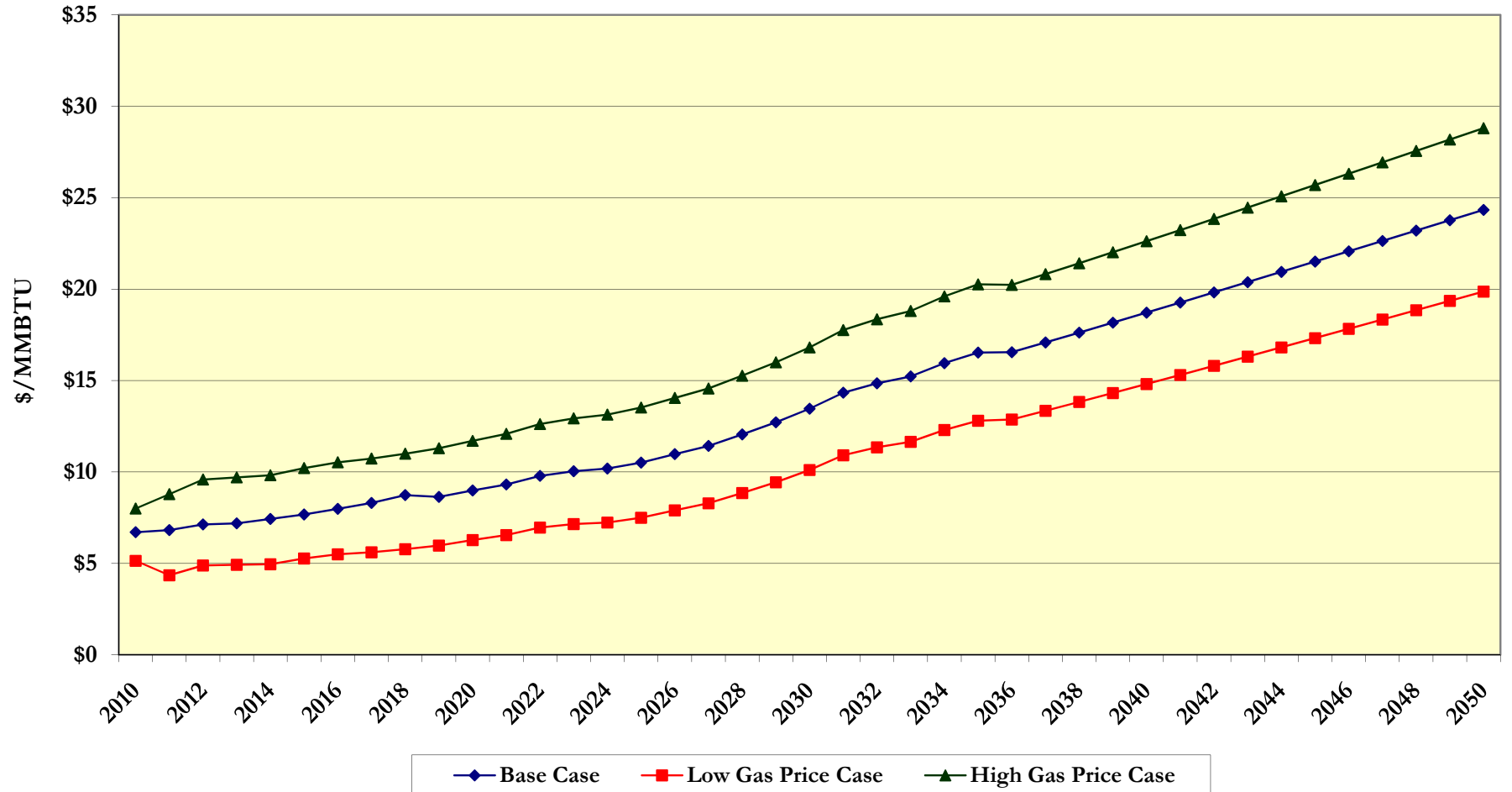
An extension of the model design has the capability to optimized the operation of a CAES facility given 3 of the 4 major variables in the CAES design, i.e., given the transmission limits and/or the Cavern storage limits, and/or the CAES, and/or the Compressor Size, and/or the Generation output capability

No Environmental credits were included in the evaluation while the EPA is still evaluating the CSAPR requirements or REC credits.

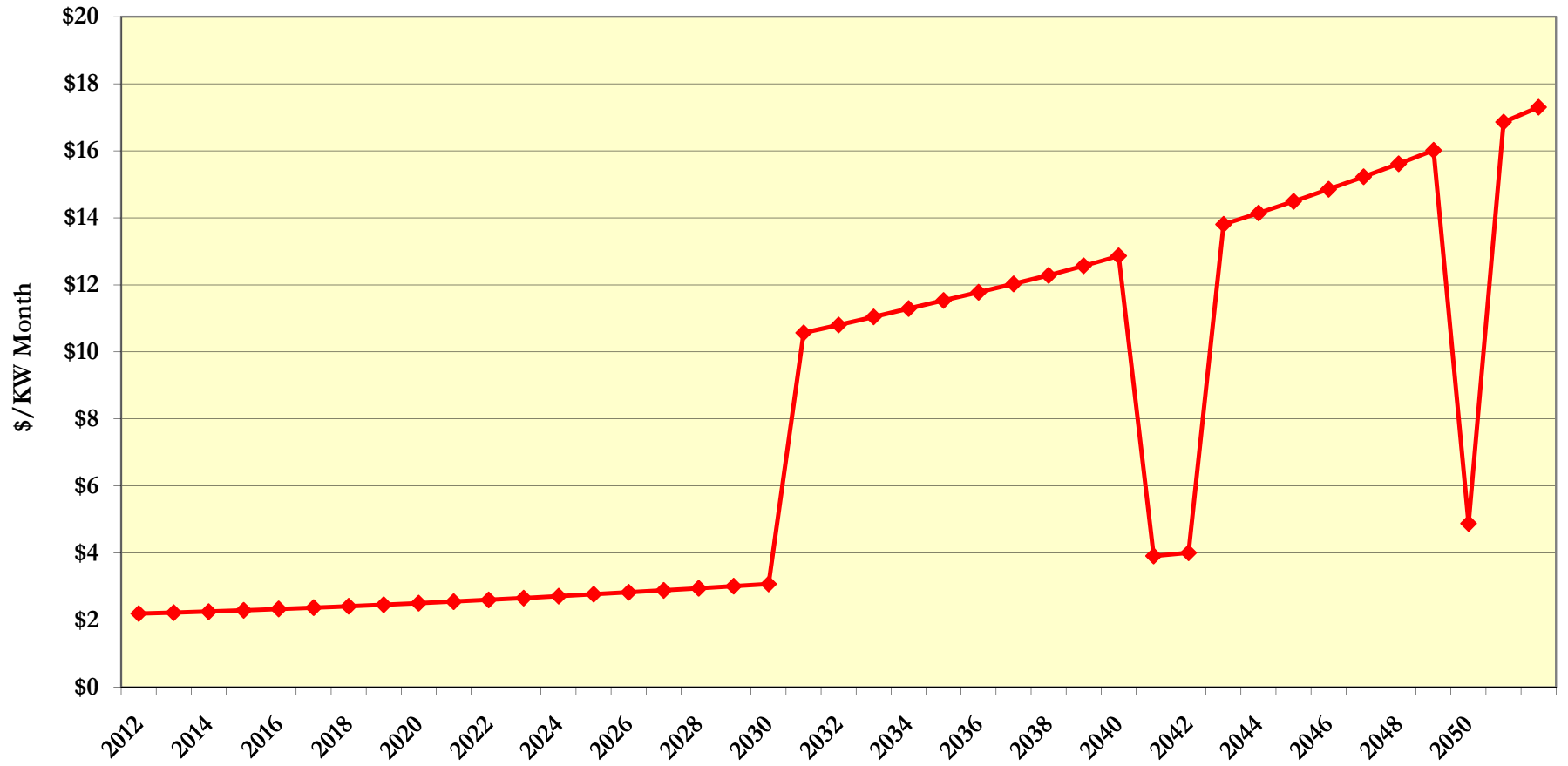
## CO<sub>2</sub> Allowance Prices



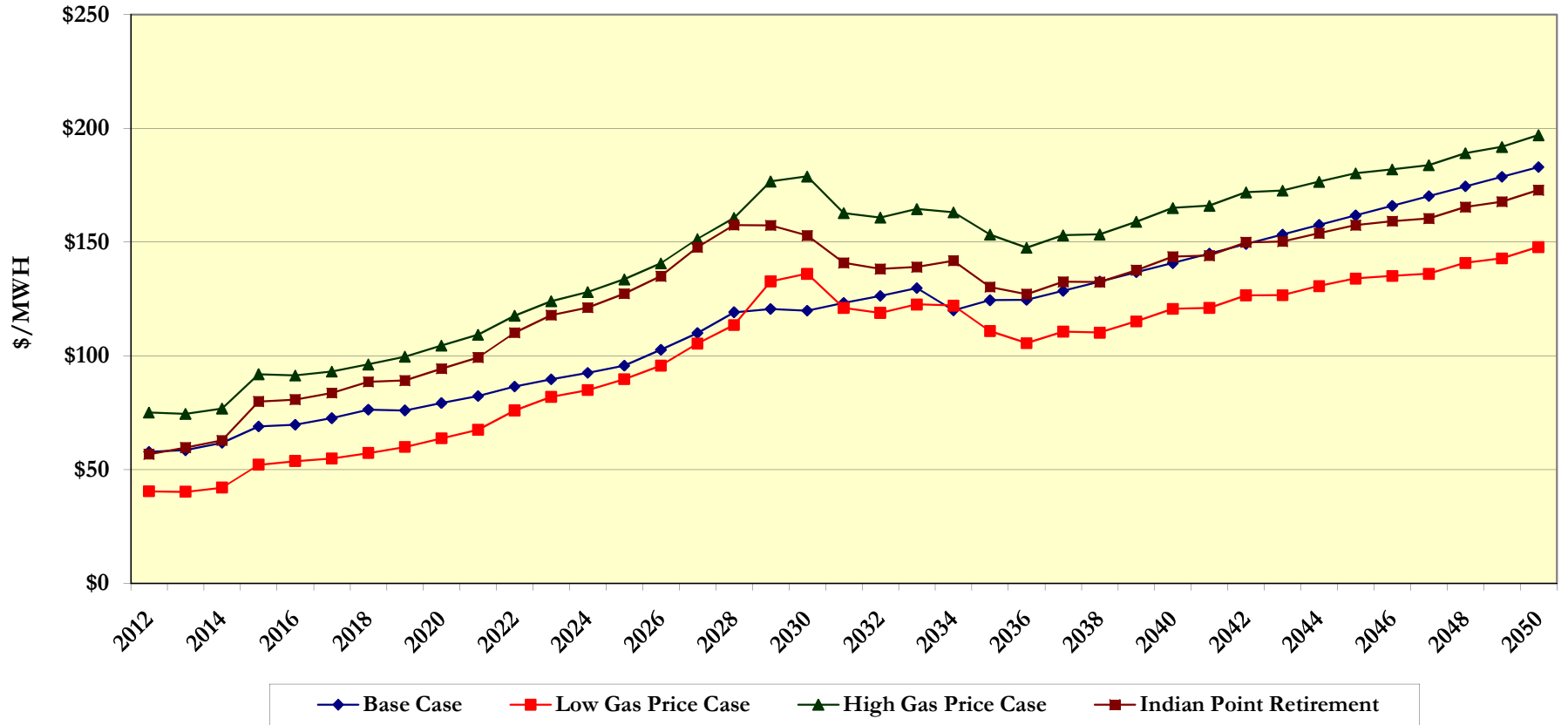
## Natural Gas Prices



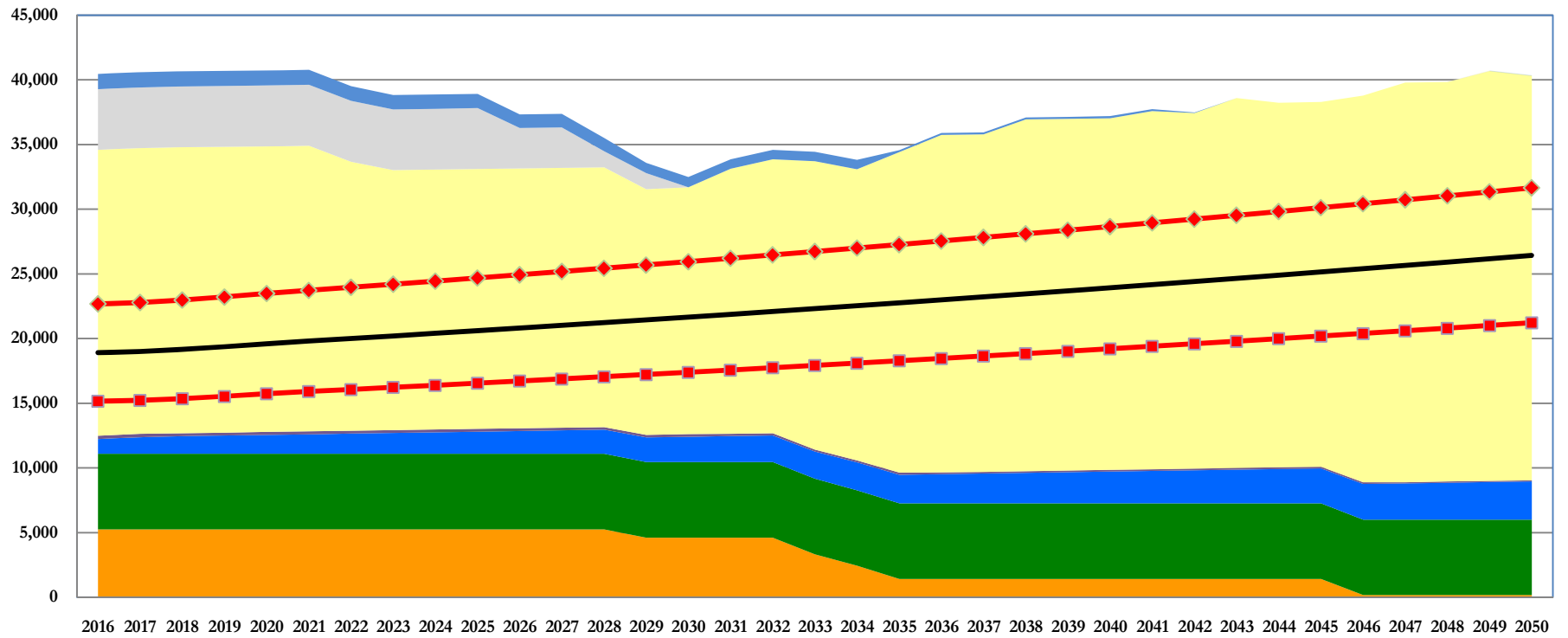
Capacity Prices  
Base Case



### Average Annual Zone C LBMP



### NYISO Load & Capacity Profile



- Nuclear
- Hydro
- Wind Adjusted for Availability
- Other Renewables
- Natural Gas
- Residual Oil
- Old CT
- Mean Load
- Mean Load Plus One Standard Deviation
- Mean Load Minus One Standard Deviation

**Base Case Capacity Market Forecast**  
**(\$-KW-Month)**

Years\Month	1	2	3	4	5	6	7	8	9	10	11	12
2016	\$3.05	\$3.03	\$1.12	\$0.86	\$3.33	\$3.48	\$3.52	\$3.13	\$2.59	\$2.30	\$1.02	\$1.52
2017	\$3.11	\$3.09	\$1.14	\$0.87	\$3.40	\$3.54	\$3.58	\$3.19	\$2.64	\$2.34	\$1.03	\$1.55
2018	\$3.17	\$3.15	\$1.16	\$0.89	\$3.46	\$3.61	\$3.65	\$3.25	\$2.69	\$2.39	\$1.05	\$1.58
2019	\$3.22	\$3.21	\$1.18	\$0.91	\$3.52	\$3.67	\$3.72	\$3.31	\$2.74	\$2.43	\$1.07	\$1.61
2020	\$3.29	\$3.27	\$1.21	\$0.92	\$3.59	\$3.75	\$3.79	\$3.38	\$2.80	\$2.48	\$1.09	\$1.64
2021	\$3.36	\$3.34	\$1.23	\$0.94	\$3.67	\$3.83	\$3.87	\$3.45	\$2.85	\$2.53	\$1.12	\$1.67
2022	\$3.43	\$3.41	\$1.26	\$0.96	\$3.75	\$3.91	\$3.96	\$3.52	\$2.92	\$2.59	\$1.14	\$1.71
2023	\$3.51	\$3.49	\$1.28	\$0.98	\$3.83	\$3.99	\$4.04	\$3.60	\$2.98	\$2.64	\$1.17	\$1.75
2024	\$3.58	\$3.56	\$1.31	\$1.00	\$3.91	\$4.08	\$4.13	\$3.67	\$3.04	\$2.70	\$1.19	\$1.78
2025	\$3.65	\$3.63	\$1.34	\$1.02	\$3.99	\$4.16	\$4.21	\$3.75	\$3.10	\$2.75	\$1.21	\$1.82
2026	\$3.73	\$3.71	\$1.37	\$1.05	\$4.07	\$4.25	\$4.30	\$3.83	\$3.17	\$2.81	\$1.24	\$1.86
2027	\$3.81	\$3.78	\$1.40	\$1.07	\$4.16	\$4.34	\$4.39	\$3.91	\$3.24	\$2.87	\$1.27	\$1.89
2028	\$3.89	\$3.87	\$1.43	\$1.09	\$4.25	\$4.43	\$4.48	\$3.99	\$3.31	\$2.93	\$1.29	\$1.94
2029	\$6.45	\$7.80	\$6.01	\$5.70	\$15.25	\$15.27	\$15.27	\$15.20	\$14.78	\$14.82	\$5.35	\$4.95
2030	\$6.59	\$7.97	\$6.14	\$5.83	\$15.59	\$15.61	\$15.61	\$15.54	\$15.11	\$15.14	\$5.46	\$5.06
2031	\$6.74	\$8.15	\$6.28	\$5.96	\$15.94	\$15.95	\$15.96	\$15.88	\$15.44	\$15.48	\$5.59	\$5.18
2032	\$6.89	\$8.33	\$6.42	\$6.09	\$16.30	\$16.31	\$16.32	\$16.24	\$15.79	\$15.83	\$5.71	\$5.29
2033	\$7.04	\$8.51	\$6.55	\$6.22	\$16.65	\$16.66	\$16.67	\$16.59	\$16.13	\$16.17	\$5.83	\$5.41
2034	\$7.19	\$8.69	\$6.69	\$6.36	\$17.00	\$17.02	\$17.02	\$16.94	\$16.47	\$16.51	\$5.96	\$5.52
2035	\$7.34	\$8.87	\$6.84	\$6.49	\$17.36	\$17.38	\$17.38	\$17.30	\$16.82	\$16.86	\$6.08	\$5.64
2036	\$7.49	\$9.06	\$6.98	\$6.63	\$17.73	\$17.74	\$17.75	\$17.66	\$17.18	\$17.22	\$6.21	\$5.76
2037	\$7.67	\$9.27	\$7.14	\$6.78	\$18.14	\$18.15	\$18.16	\$18.07	\$17.58	\$17.62	\$6.36	\$5.89
2038	\$7.85	\$9.49	\$7.31	\$6.94	\$18.56	\$18.58	\$18.59	\$18.50	\$17.99	\$18.03	\$6.51	\$6.03
2039	\$4.95	\$4.92	\$1.81	\$1.39	\$5.41	\$5.64	\$5.71	\$5.08	\$4.21	\$3.73	\$1.65	\$2.46
2040	\$5.07	\$5.04	\$1.86	\$1.42	\$5.54	\$5.77	\$5.84	\$5.20	\$4.31	\$3.82	\$1.69	\$2.52
2041	\$8.42	\$10.19	\$7.84	\$7.45	\$19.92	\$19.94	\$19.95	\$19.85	\$19.31	\$19.35	\$6.98	\$6.47
2042	\$8.63	\$10.43	\$8.04	\$7.63	\$20.41	\$20.43	\$20.44	\$20.34	\$19.78	\$19.82	\$7.15	\$6.63
2043	\$8.84	\$10.69	\$8.23	\$7.82	\$20.91	\$20.93	\$20.94	\$20.84	\$20.27	\$20.31	\$7.33	\$6.79
2044	\$9.06	\$10.96	\$8.44	\$8.01	\$21.43	\$21.46	\$21.46	\$21.36	\$20.77	\$20.82	\$7.51	\$6.96
2045	\$9.29	\$11.23	\$8.65	\$8.21	\$21.97	\$21.99	\$22.00	\$21.90	\$21.29	\$21.34	\$7.70	\$7.14
2046	\$9.52	\$11.52	\$8.87	\$8.42	\$22.53	\$22.55	\$22.56	\$22.45	\$21.83	\$21.88	\$7.90	\$7.32
2047	\$9.77	\$11.81	\$9.10	\$8.64	\$23.11	\$23.13	\$23.14	\$23.03	\$22.39	\$22.45	\$8.10	\$7.51
2048	\$6.18	\$6.14	\$2.26	\$1.73	\$6.75	\$7.04	\$7.12	\$6.34	\$5.25	\$4.65	\$2.05	\$3.07
2049	\$10.28	\$12.44	\$9.58	\$9.09	\$24.33	\$24.35	\$24.36	\$24.24	\$23.57	\$23.63	\$8.53	\$7.90
2050	\$10.55	\$12.76	\$9.83	\$9.33	\$24.97	\$24.99	\$25.00	\$24.88	\$24.20	\$24.25	\$8.75	\$8.11

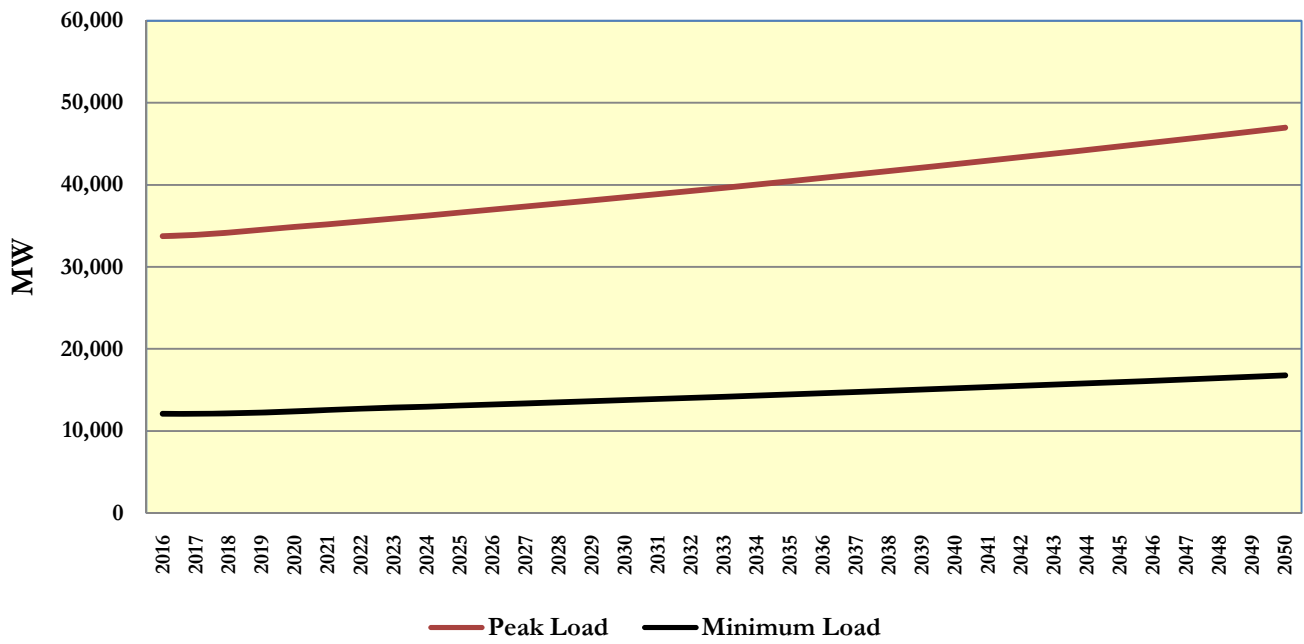
**Base Case Natural Gas Price**

**(\$/MMBTU)**

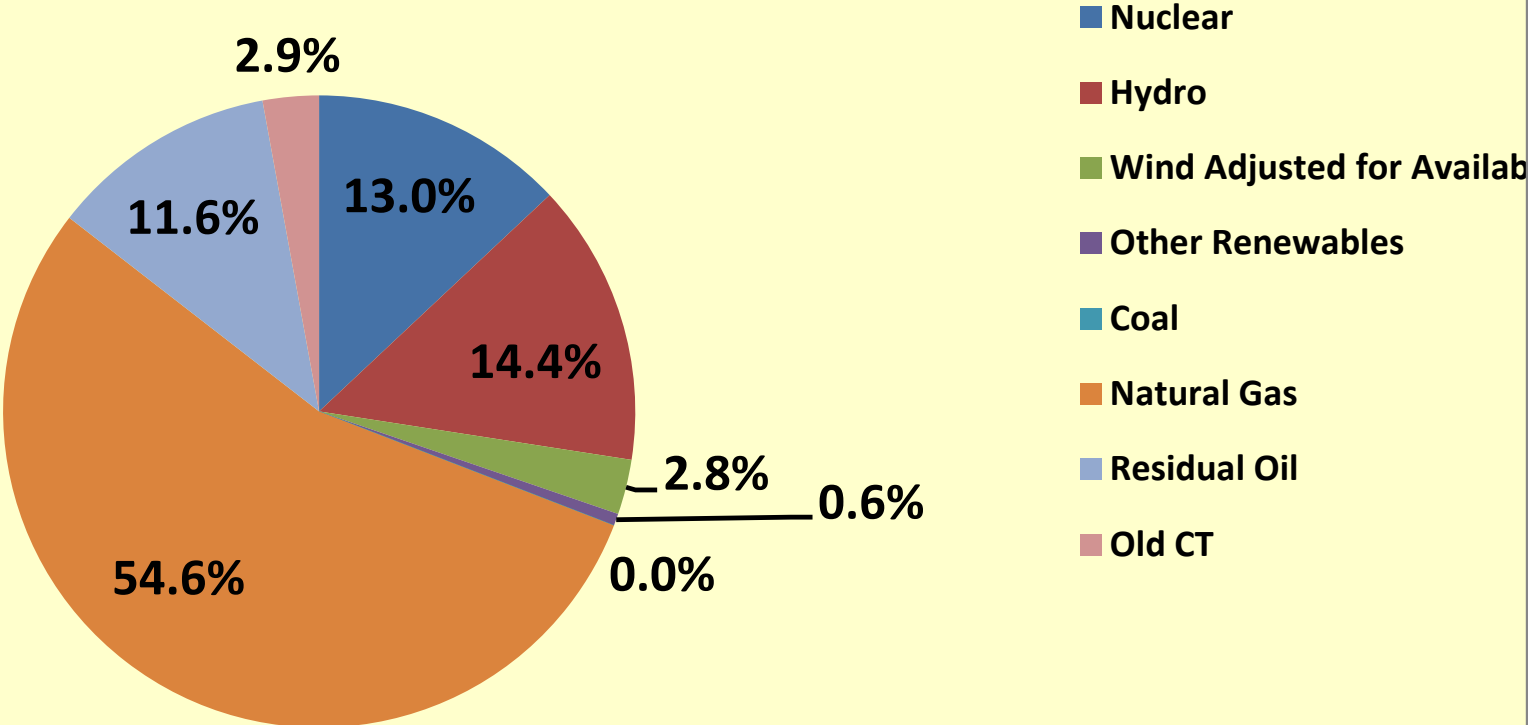
<u>Year\Month</u>	1	2	3	4	5	6	7	8	9	10	11	12
2016	\$9.76	\$8.71	\$8.27	\$8.14	\$8.09	\$7.97	\$7.74	\$7.40	\$7.07	\$6.94	\$7.28	\$8.43
2017	\$10.16	\$9.06	\$8.61	\$8.47	\$8.41	\$8.29	\$8.05	\$7.70	\$7.36	\$7.22	\$7.57	\$8.77
2018	\$10.68	\$9.53	\$9.05	\$8.91	\$8.85	\$8.72	\$8.47	\$8.10	\$7.74	\$7.60	\$7.96	\$9.22
2019	\$10.56	\$9.42	\$8.95	\$8.81	\$8.75	\$8.63	\$8.37	\$8.01	\$7.65	\$7.51	\$7.87	\$9.12
2020	\$10.99	\$9.81	\$9.31	\$9.16	\$9.11	\$8.98	\$8.71	\$8.33	\$7.97	\$7.82	\$8.19	\$9.49
2021	\$11.39	\$10.17	\$9.66	\$9.50	\$9.44	\$9.30	\$9.03	\$8.64	\$8.26	\$8.10	\$8.49	\$9.84
2022	\$11.97	\$10.68	\$10.14	\$9.98	\$9.92	\$9.78	\$9.49	\$9.08	\$8.67	\$8.51	\$8.92	\$10.33
2023	\$12.28	\$10.96	\$10.40	\$10.24	\$10.17	\$10.03	\$9.73	\$9.31	\$8.90	\$8.73	\$9.15	\$10.60
2024	\$12.46	\$11.12	\$10.56	\$10.39	\$10.32	\$10.17	\$9.87	\$9.45	\$9.03	\$8.86	\$9.28	\$10.75
2025	\$12.85	\$11.47	\$10.89	\$10.72	\$10.65	\$10.50	\$10.19	\$9.75	\$9.31	\$9.14	\$9.58	\$11.10
2026	\$13.42	\$11.98	\$11.37	\$11.19	\$11.12	\$10.96	\$10.64	\$10.18	\$9.73	\$9.54	\$10.00	\$11.59
2027	\$13.97	\$12.47	\$11.84	\$11.65	\$11.57	\$11.41	\$11.07	\$10.59	\$10.13	\$9.94	\$10.41	\$12.06
2028	\$14.74	\$13.15	\$12.49	\$12.29	\$12.21	\$12.04	\$11.68	\$11.18	\$10.68	\$10.48	\$10.99	\$12.73
2029	\$15.55	\$13.88	\$13.18	\$12.97	\$12.88	\$12.70	\$12.32	\$11.79	\$11.27	\$11.06	\$11.59	\$13.42
2030	\$16.46	\$14.69	\$13.95	\$13.72	\$13.63	\$13.44	\$13.04	\$12.48	\$11.93	\$11.70	\$12.27	\$14.21
2031	\$17.53	\$15.64	\$14.86	\$14.62	\$14.52	\$14.32	\$13.89	\$13.29	\$12.71	\$12.47	\$13.07	\$15.13
2032	\$18.16	\$16.20	\$15.39	\$15.14	\$15.04	\$14.83	\$14.39	\$13.77	\$13.16	\$12.91	\$13.53	\$15.67
2033	\$18.62	\$16.61	\$15.78	\$15.52	\$15.42	\$15.20	\$14.75	\$14.12	\$13.49	\$13.24	\$13.88	\$16.07
2034	\$19.50	\$17.40	\$16.53	\$16.26	\$16.16	\$15.93	\$15.46	\$14.79	\$14.13	\$13.87	\$14.54	\$16.84
2035	\$20.21	\$18.04	\$17.13	\$16.85	\$16.74	\$16.51	\$16.02	\$15.33	\$14.65	\$14.38	\$15.06	\$17.45
2036	\$20.24	\$18.06	\$17.15	\$16.87	\$16.76	\$16.53	\$16.04	\$15.35	\$14.67	\$14.39	\$15.08	\$17.47
2037	\$20.89	\$18.64	\$17.70	\$17.42	\$17.30	\$17.06	\$16.56	\$15.84	\$15.14	\$14.86	\$15.57	\$18.03
2038	\$21.55	\$19.23	\$18.26	\$17.97	\$17.85	\$17.60	\$17.08	\$16.34	\$15.62	\$15.32	\$16.06	\$18.60
2039	\$22.21	\$19.82	\$18.82	\$18.52	\$18.40	\$18.14	\$17.60	\$16.84	\$16.10	\$15.80	\$16.56	\$19.18
2040	\$22.88	\$20.42	\$19.39	\$19.08	\$18.96	\$18.69	\$18.14	\$17.35	\$16.58	\$16.27	\$17.05	\$19.75
2041	\$23.56	\$21.02	\$19.96	\$19.64	\$19.52	\$19.24	\$18.67	\$17.86	\$17.07	\$16.75	\$17.56	\$20.34
2042	\$24.24	\$21.63	\$20.54	\$20.21	\$20.08	\$19.79	\$19.21	\$18.38	\$17.57	\$17.24	\$18.06	\$20.92
2043	\$24.92	\$22.24	\$21.12	\$20.78	\$20.64	\$20.35	\$19.75	\$18.90	\$18.06	\$17.72	\$18.57	\$21.51
2044	\$25.61	\$22.85	\$21.70	\$21.35	\$21.21	\$20.91	\$20.29	\$19.42	\$18.56	\$18.21	\$19.09	\$22.11
2045	\$26.30	\$23.47	\$22.28	\$21.93	\$21.78	\$21.48	\$20.84	\$19.94	\$19.06	\$18.70	\$19.60	\$22.70
2046	\$26.99	\$24.08	\$22.87	\$22.50	\$22.36	\$22.04	\$21.39	\$20.46	\$19.56	\$19.19	\$20.11	\$23.30
2047	\$27.68	\$24.70	\$23.46	\$23.08	\$22.93	\$22.60	\$21.94	\$20.99	\$20.06	\$19.69	\$20.63	\$23.89
2048	\$28.37	\$25.32	\$24.04	\$23.66	\$23.50	\$23.17	\$22.49	\$21.51	\$20.56	\$20.18	\$21.15	\$24.49
2049	\$29.06	\$25.94	\$24.63	\$24.23	\$24.08	\$23.74	\$23.03	\$22.04	\$21.06	\$20.67	\$21.66	\$25.09
2050	\$29.76	\$26.55	\$25.22	\$24.81	\$24.65	\$24.30	\$23.58	\$22.56	\$21.56	\$21.16	\$22.18	\$25.69



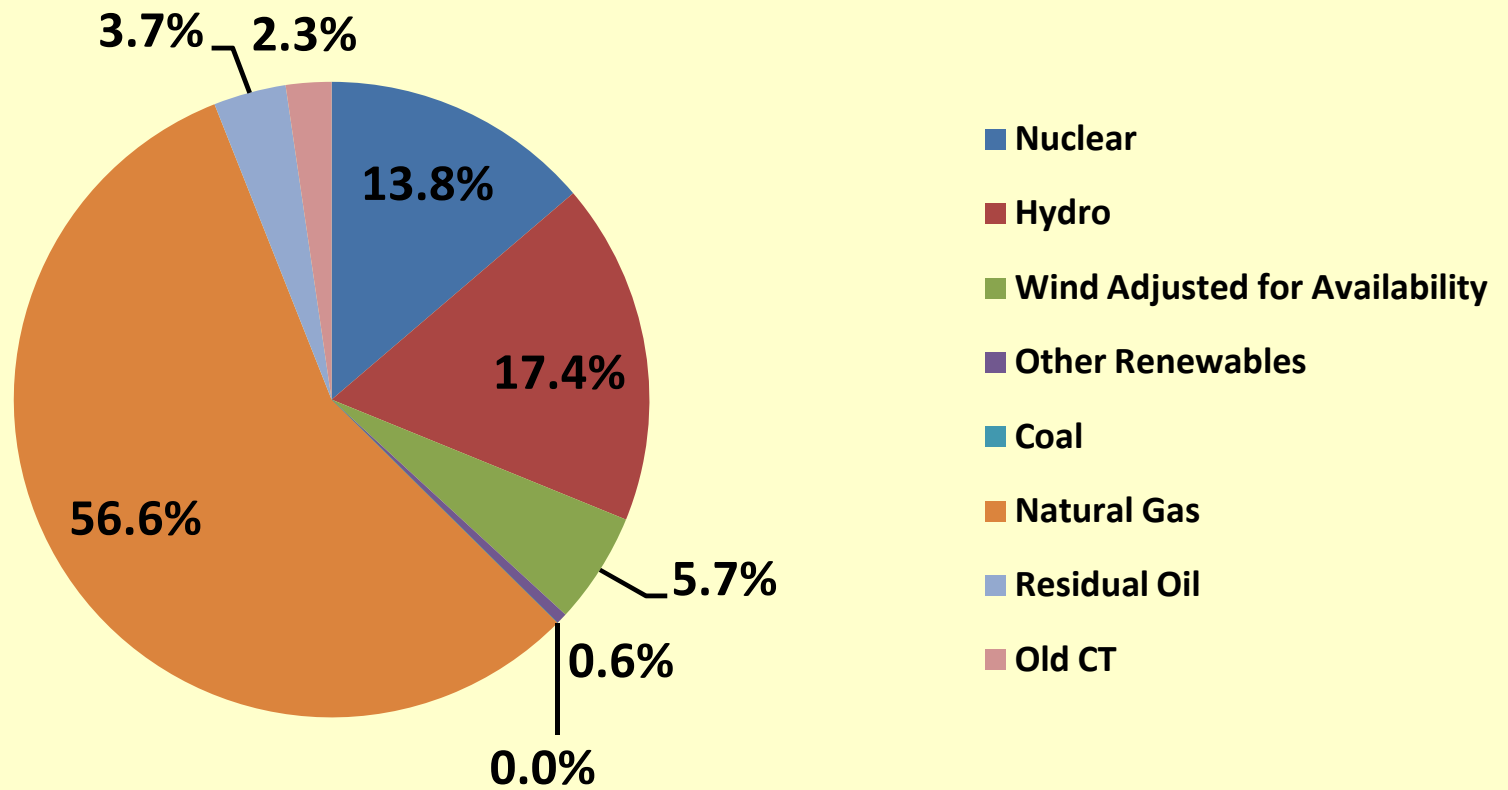
### NYISO Load



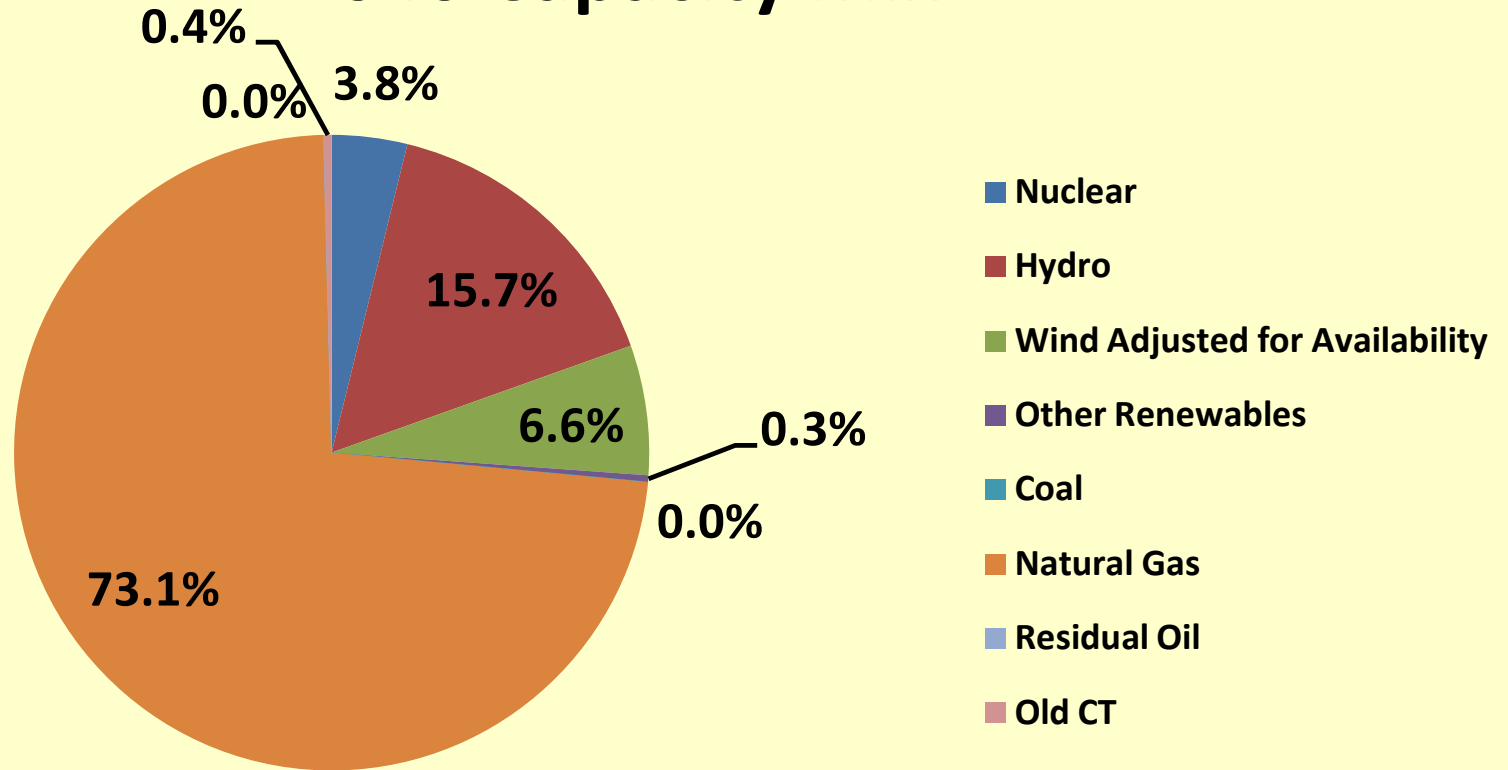
# 2016 Capacity Mix



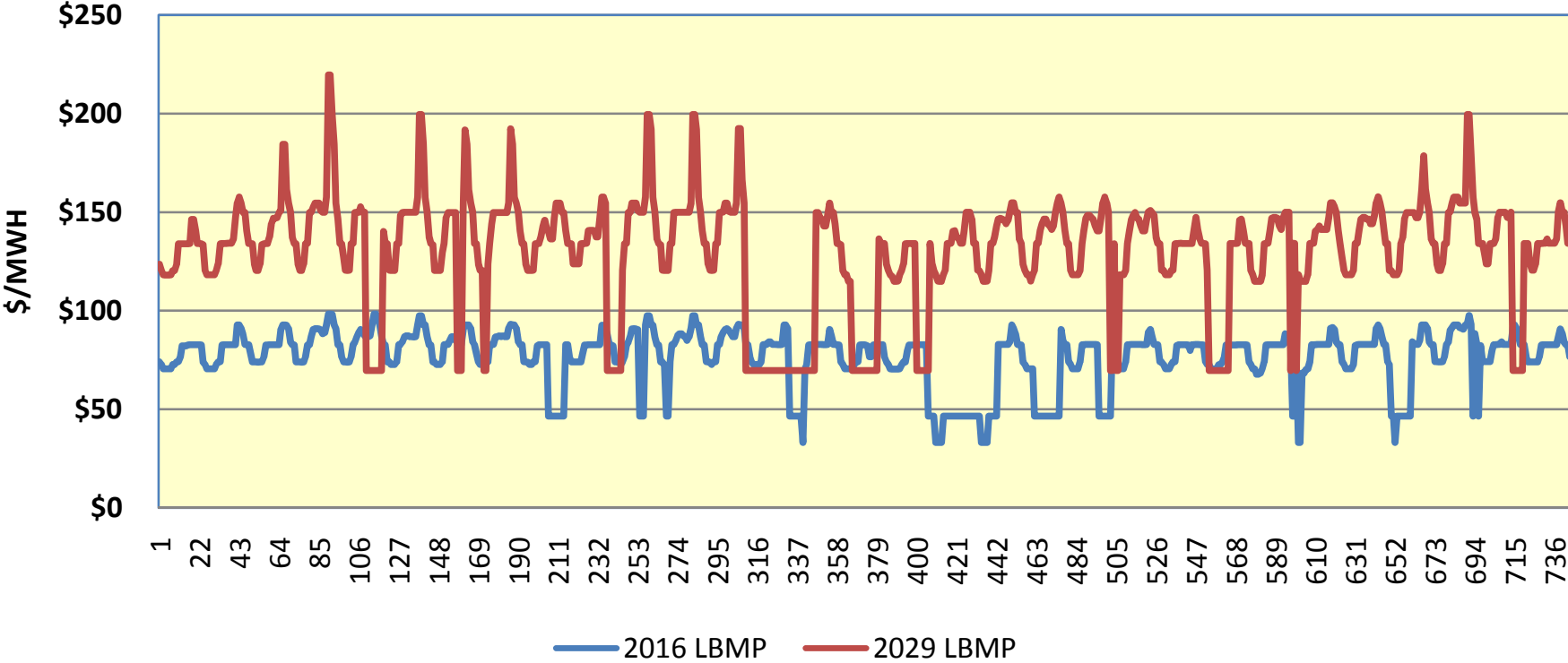
# 2029 Capacity Mix



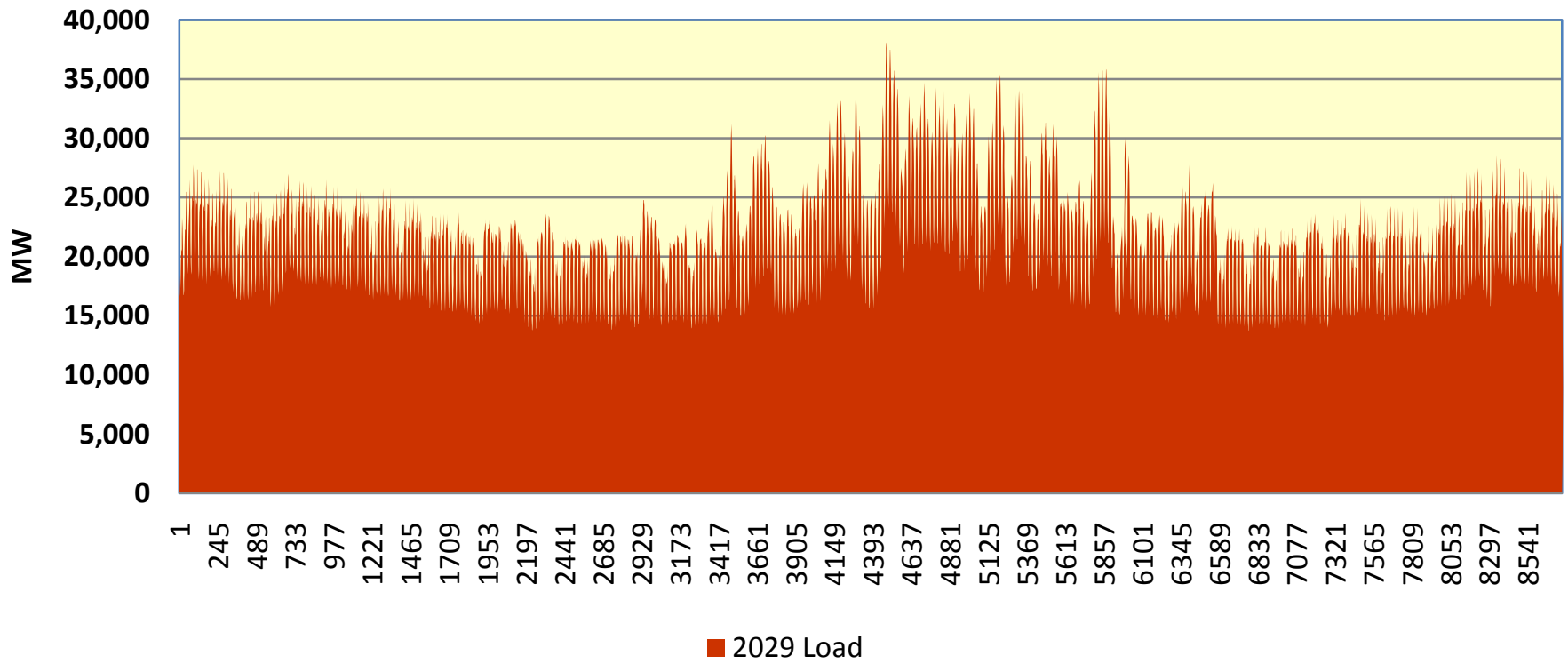
# 2040 Capacity Mix



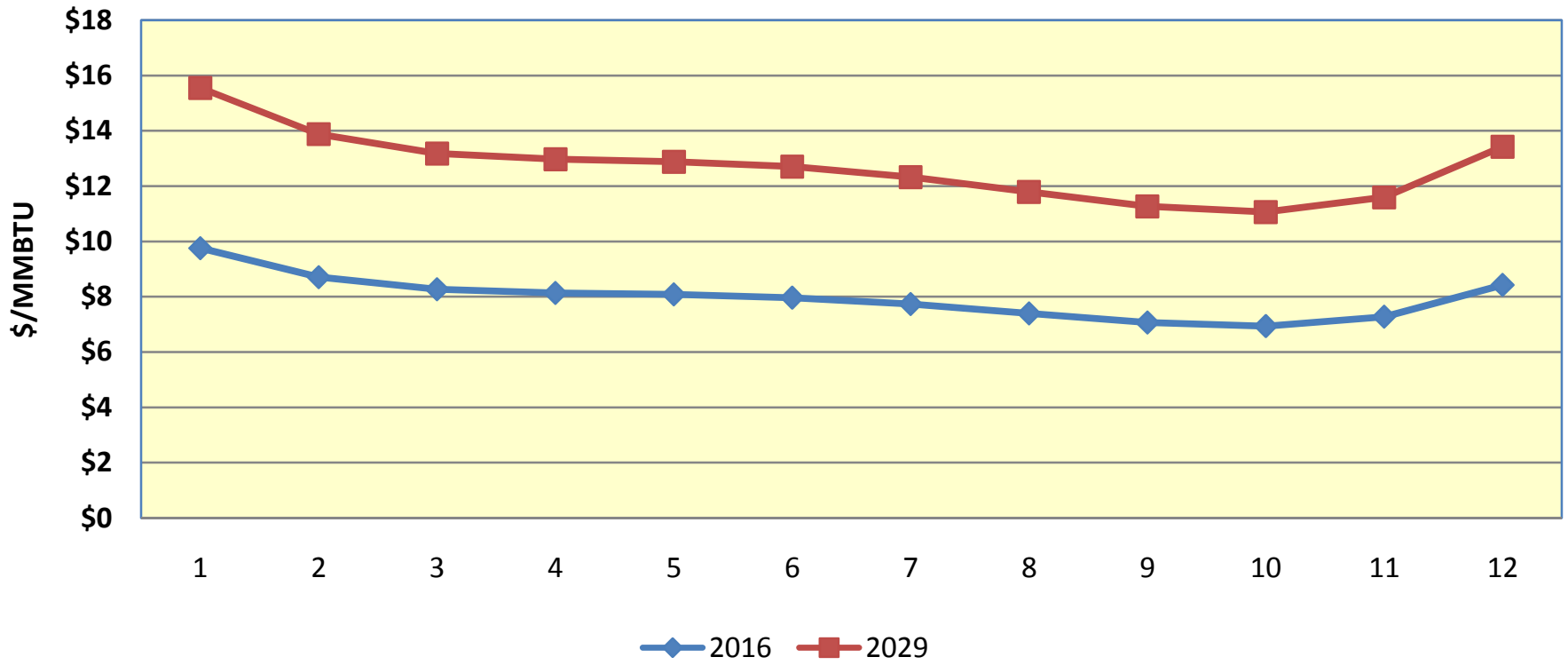
### January LBMP's



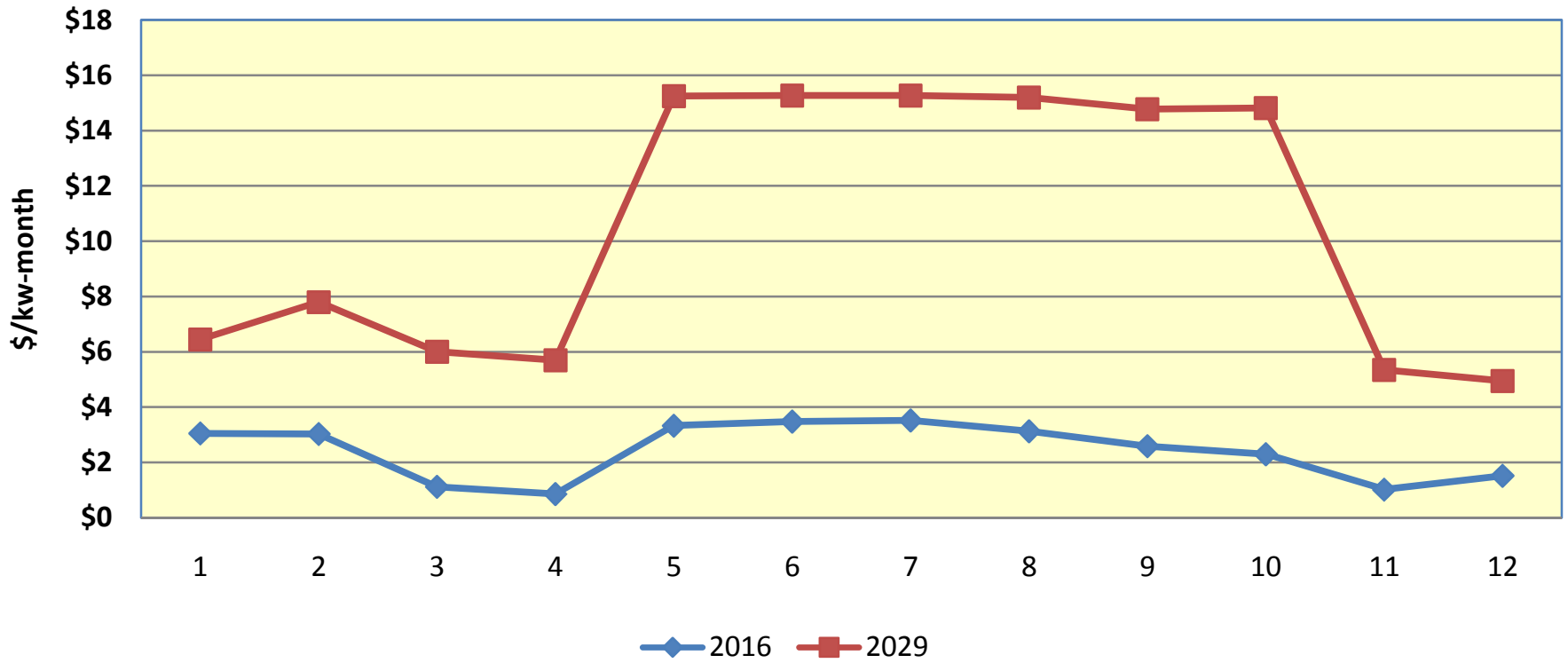
## 2029 Load Profile



## Natural Gas Prices

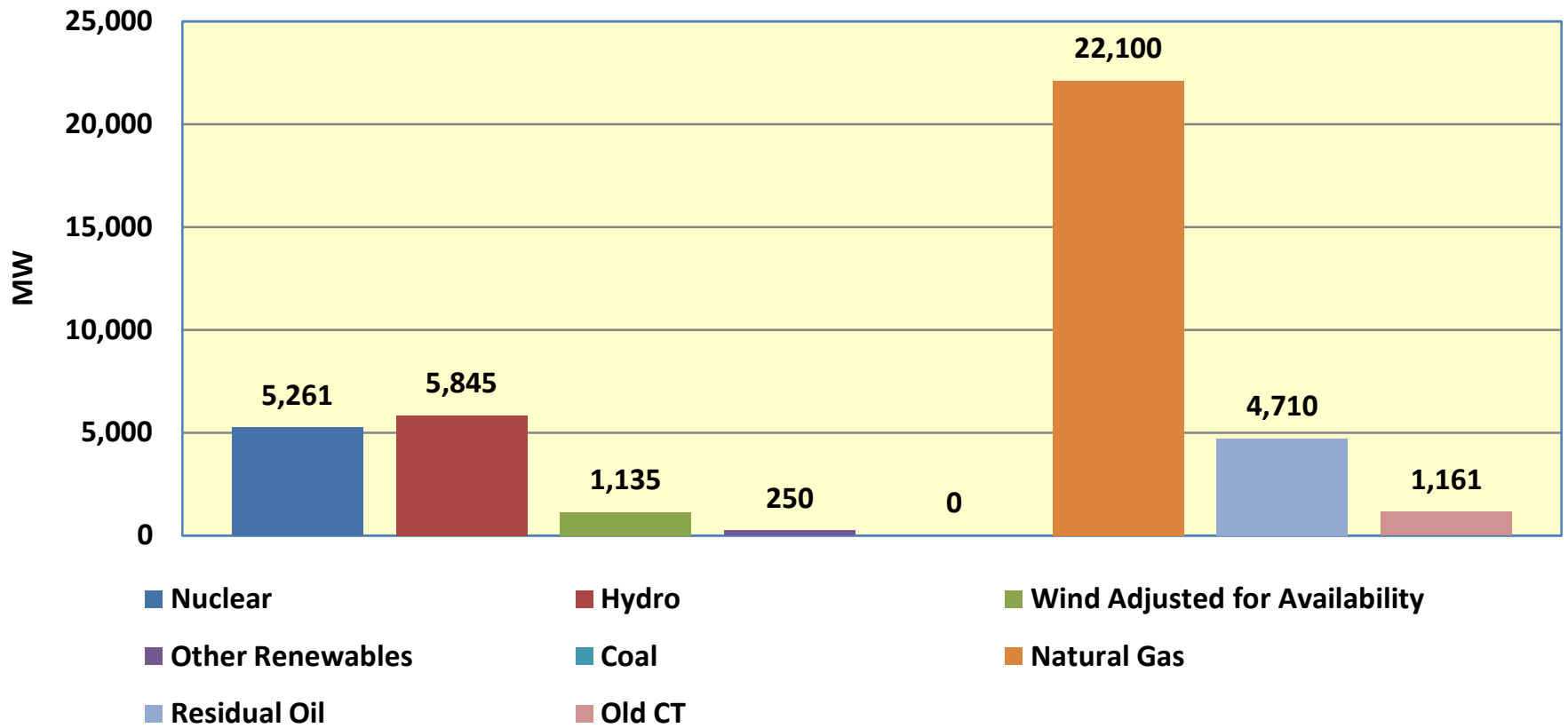


### Capacity Prices

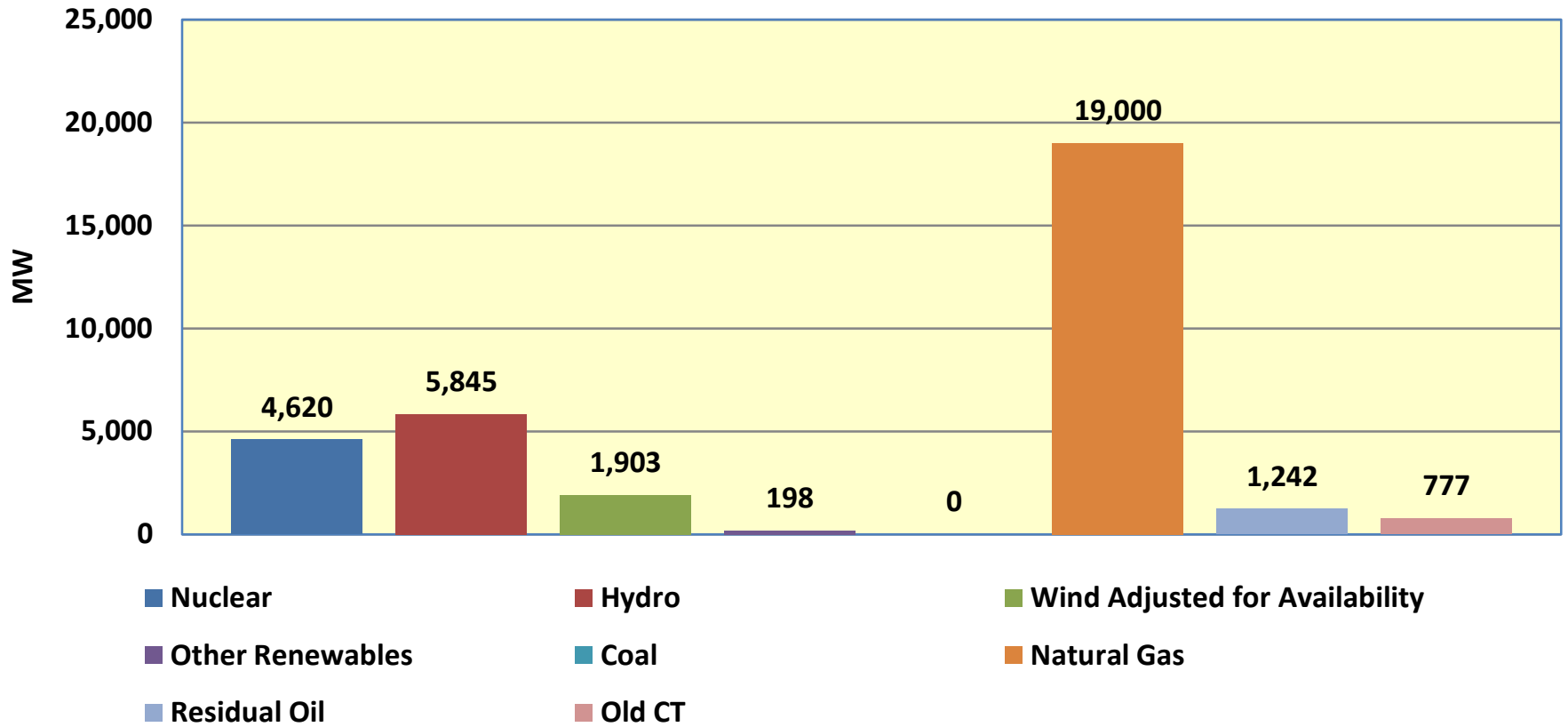




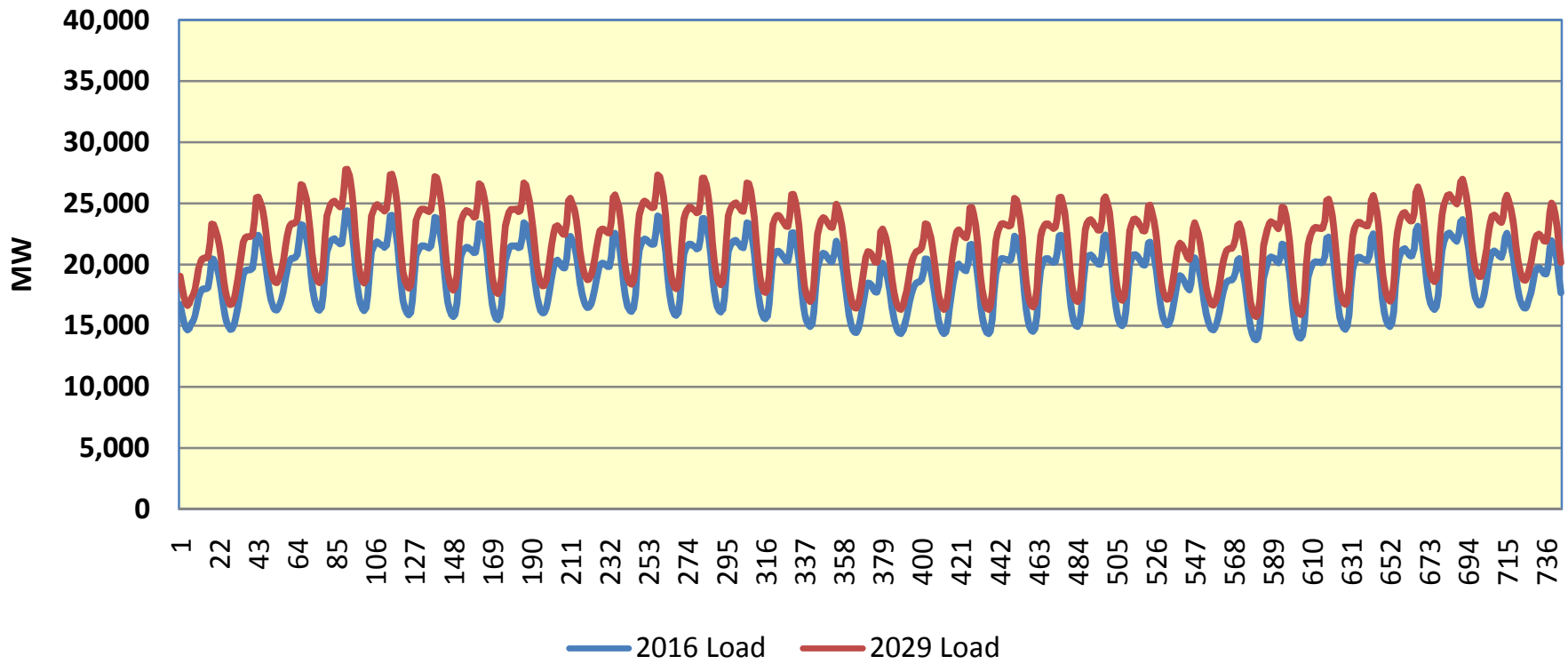
## 2016 Generating Capacity Mix



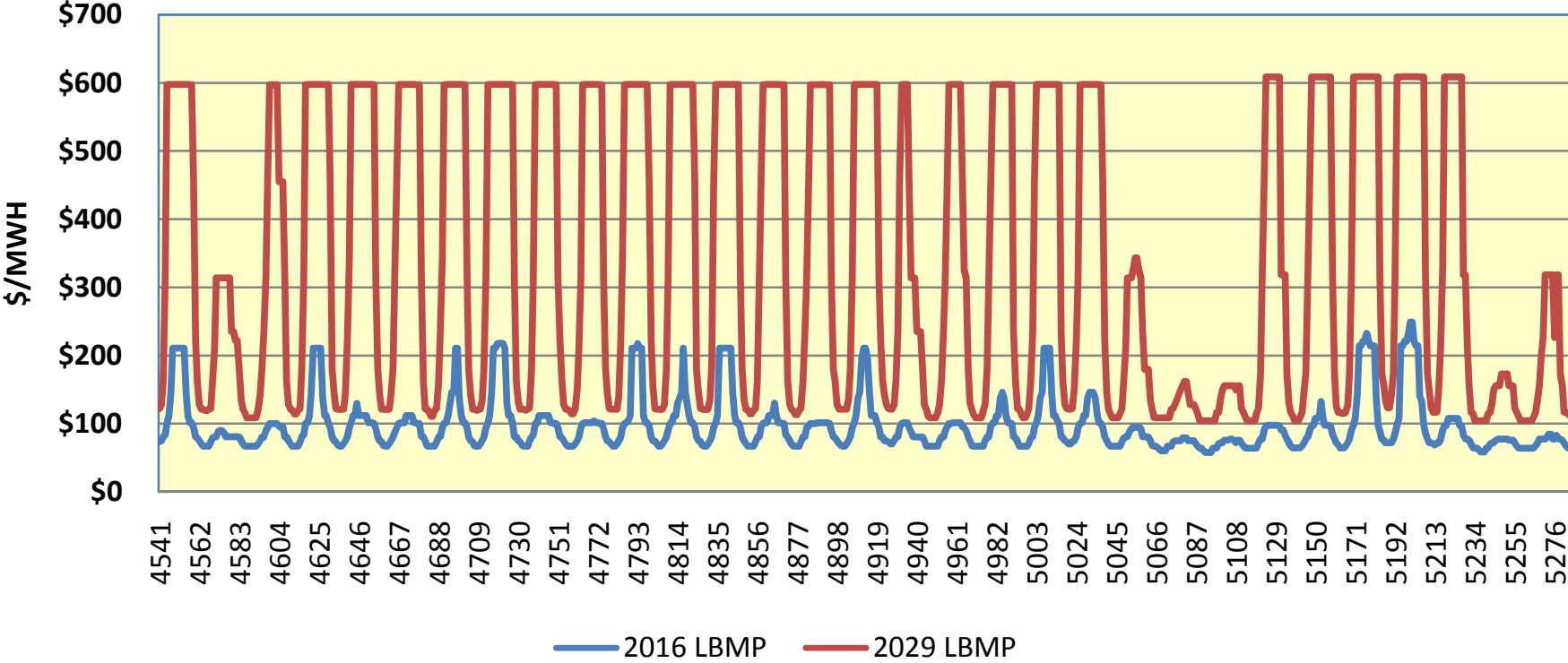
## 2029 Generating Capacity Mix



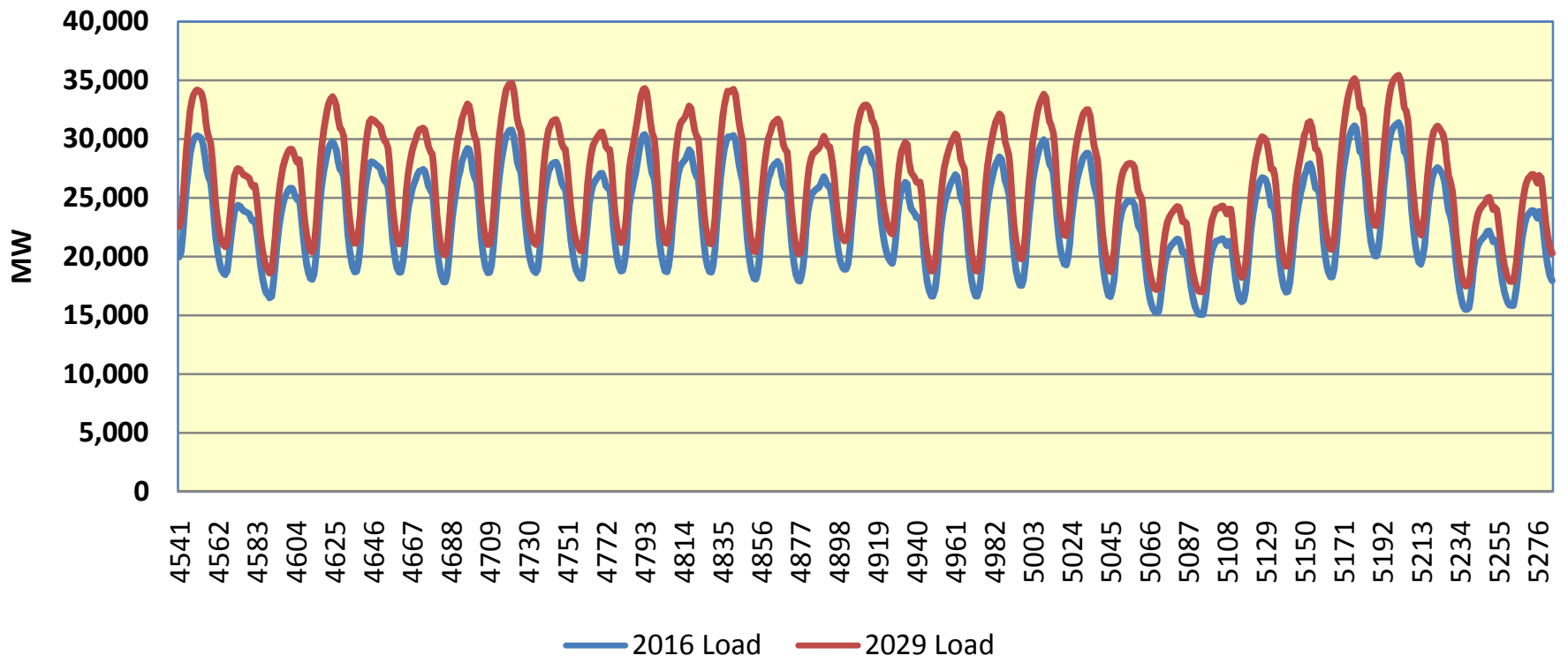
## January Load Profile



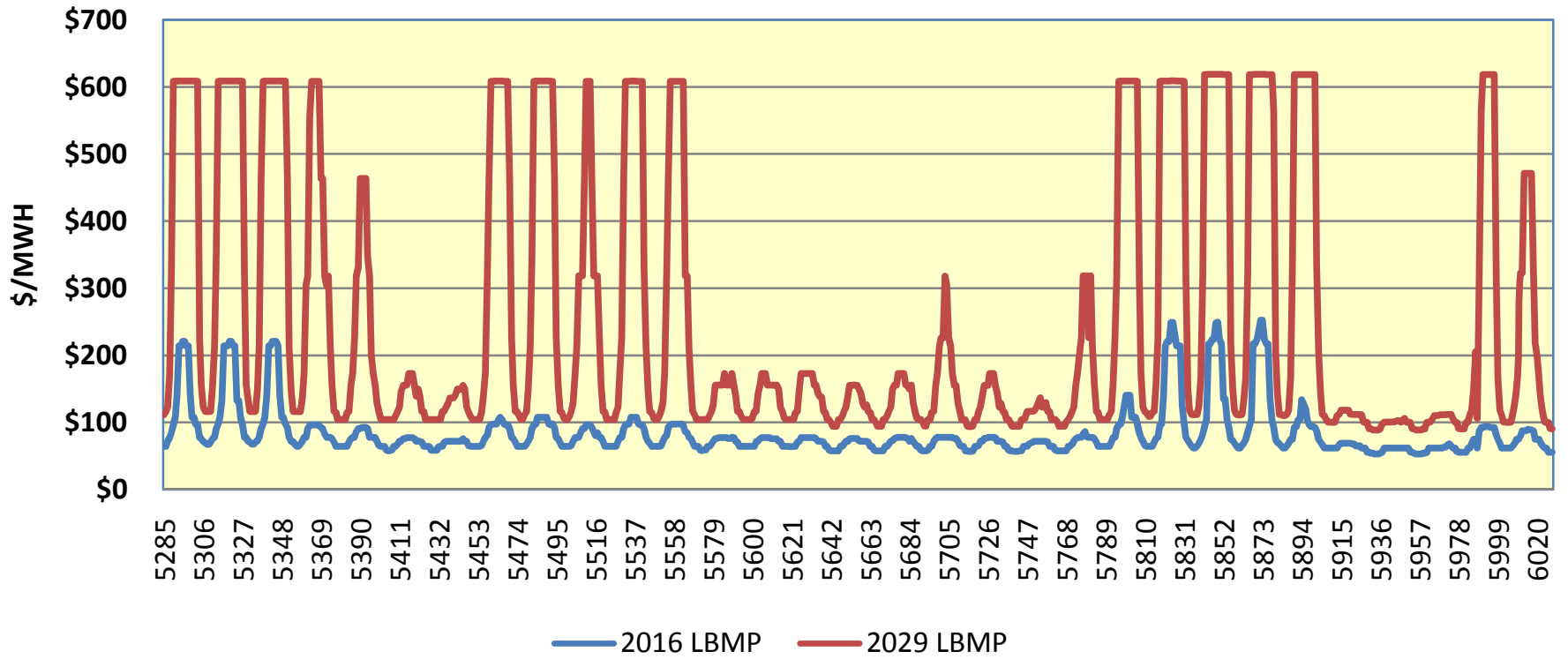
### July LBMP's



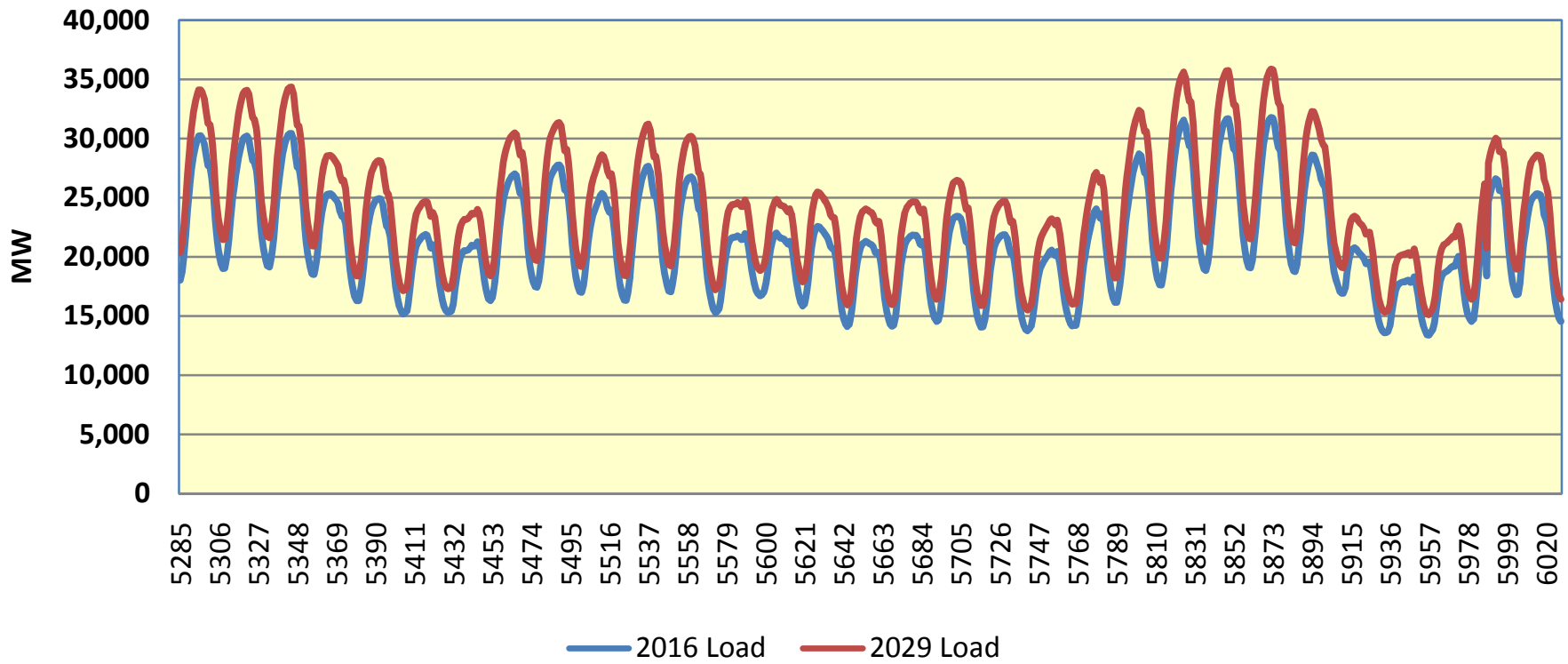
## July Load Profile



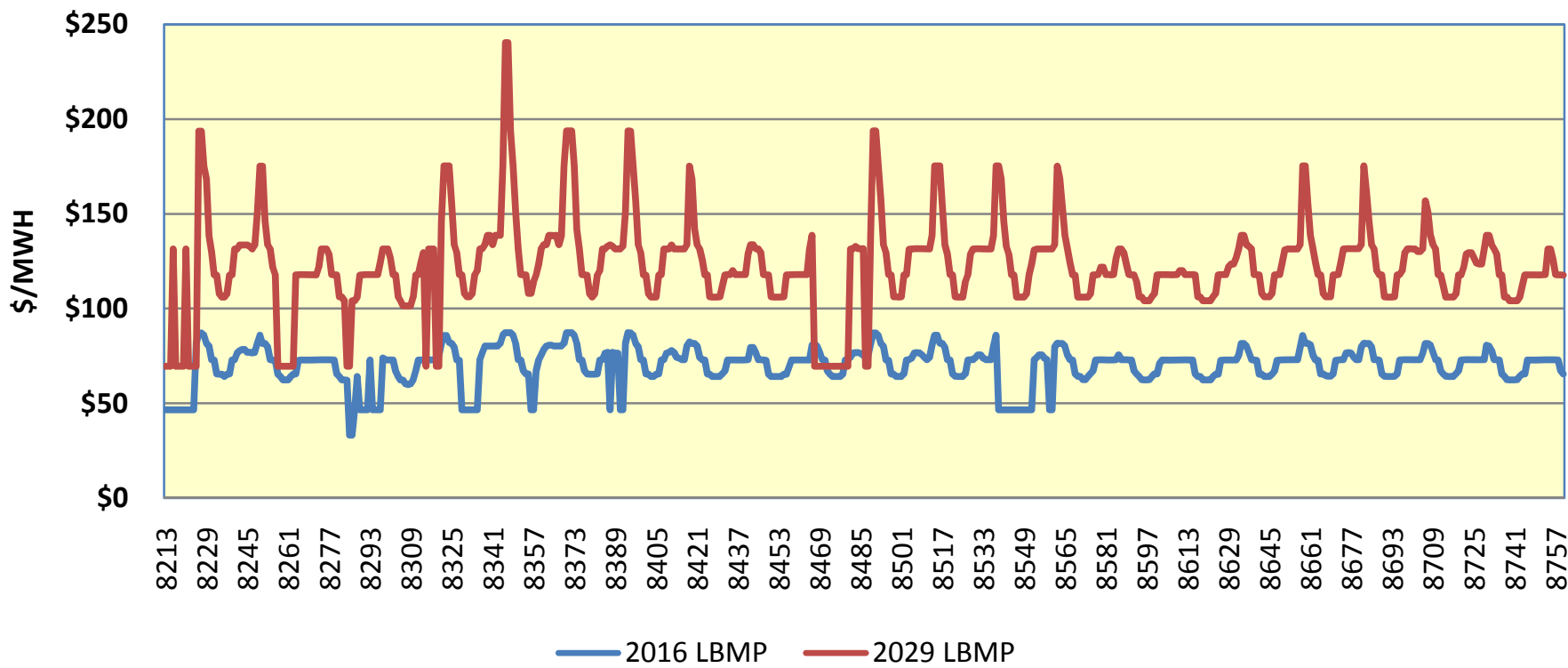
### August LBMP's



### August Load Profile

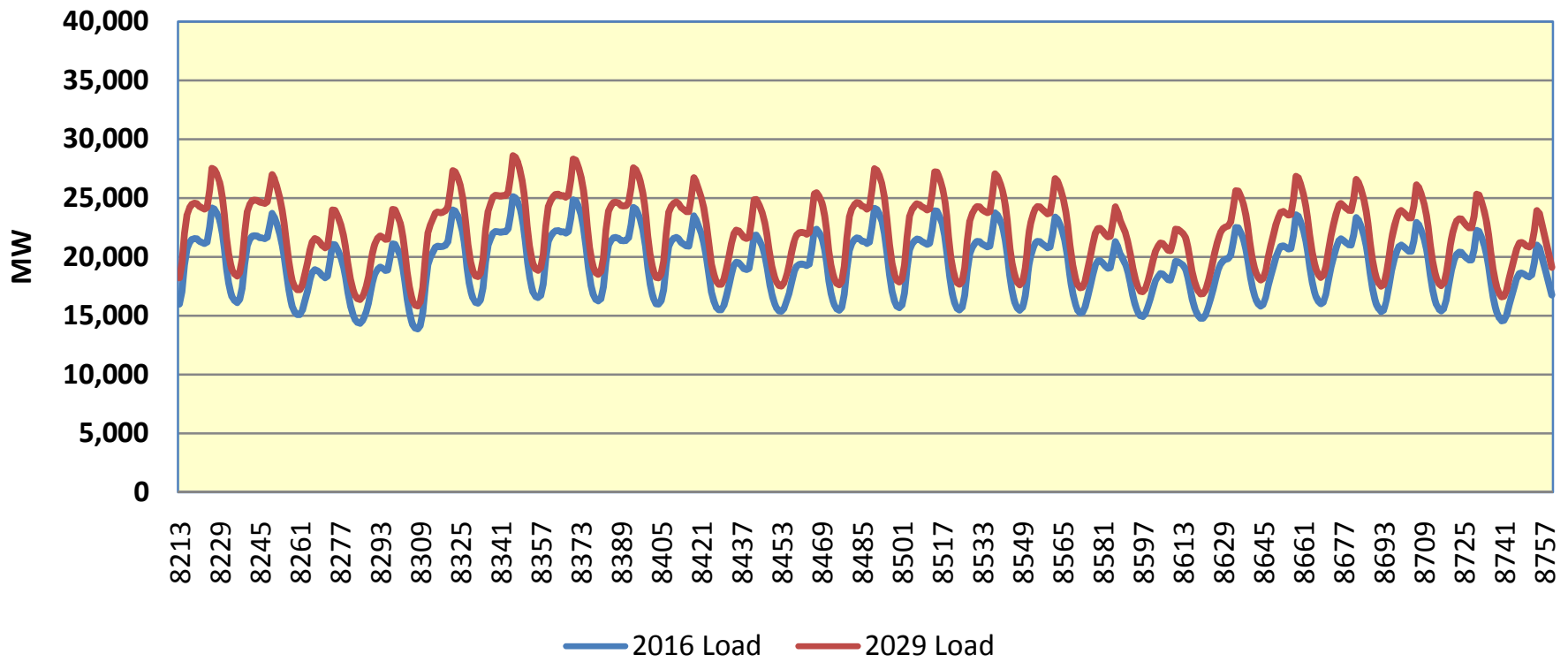


### December LBMP's





## December Load Profile



## 2016 Load Profile

