The Ability to Meet Future Gas Demands from Electricity Generation in New York State

The Roundtable
June 13, 2003

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Key Findings and Conclusions

- New York has sufficient gas delivery capacity to supply the amounts of gas required for generation under all 2005 generation and pipeline expansion scenarios -- even if pipeline expansions are limited to those currently under construction.
- Pipeline capacity is sufficient to meet the maximum potential gas demands of generators under our base case scenario – i.e., pipeline capacity equivalent to the FERC provisionally approved pipeline expansions into downstate (785 mmdth/d), and 4,495 MW of new generating capacity additions.

Key Findings and Conclusions

- Under scenarios with less pipeline expansion capacity and/or less additional generating capacity, a substantial portion of the maximum potential gas demands for generation can be met. Some oil does need to be burned in each of these cases, but the total annual 2005 NYCA oil burn -- in all cases analyzed -- is less than the historical amount actually burned in either 2000 or 2001.
- Oil storage in the NYCA has been, and can continue to be, an effective substitute for pipeline capacity.
  - Residual oil at dual-fuel steam units
  - Distillate oil at new CCs

  However, volumes must remain at historical scale.

Key Findings and Conclusions

1. New York has sufficient gas delivery capacity to supply the minimum amount of gas required for generation under all 2005 generation and pipeline expansion scenarios analyzed.

Year	Electric Case/ New Capacity	Fuel	Actual Fuel Consumption				
			No Post 2003 Pipeline Expansions	300 Million/d Expansion to Downstate Region	400 Million/d Expansion to Downstate Region	500 Million/d Expansion to Downstate Region	800 Million/d Expansion to Downstate Region
2002	Base Case	Gas	453,010	N/A	N/A	N/A	N/A
		Oil	18,010	N/A	N/A	N/A	N/A
2005	Case 1 (Base) 4495 MW	Gas	439,414	484,370	490,823	494,239	**497,802**
		Oil	18,438	11,371	6,420	3,574	-
	Case 2 1840 MW	Gas	468,241	487,173	489,355	**496,489**	**496,489**
		Oil	22,069	8,005	6,116	-	-
	Case 3 1090 MW	Gas	478,423	494,615	**502,656**	**502,656**	**502,656**
		Oil	24,439	8,051	-	-	-
2010	Base Case 5075 MW	Gas	517,009	569,503	576,346	580,276	**587,817**
		Oil	95,274	21,524	11,870	6,257	-

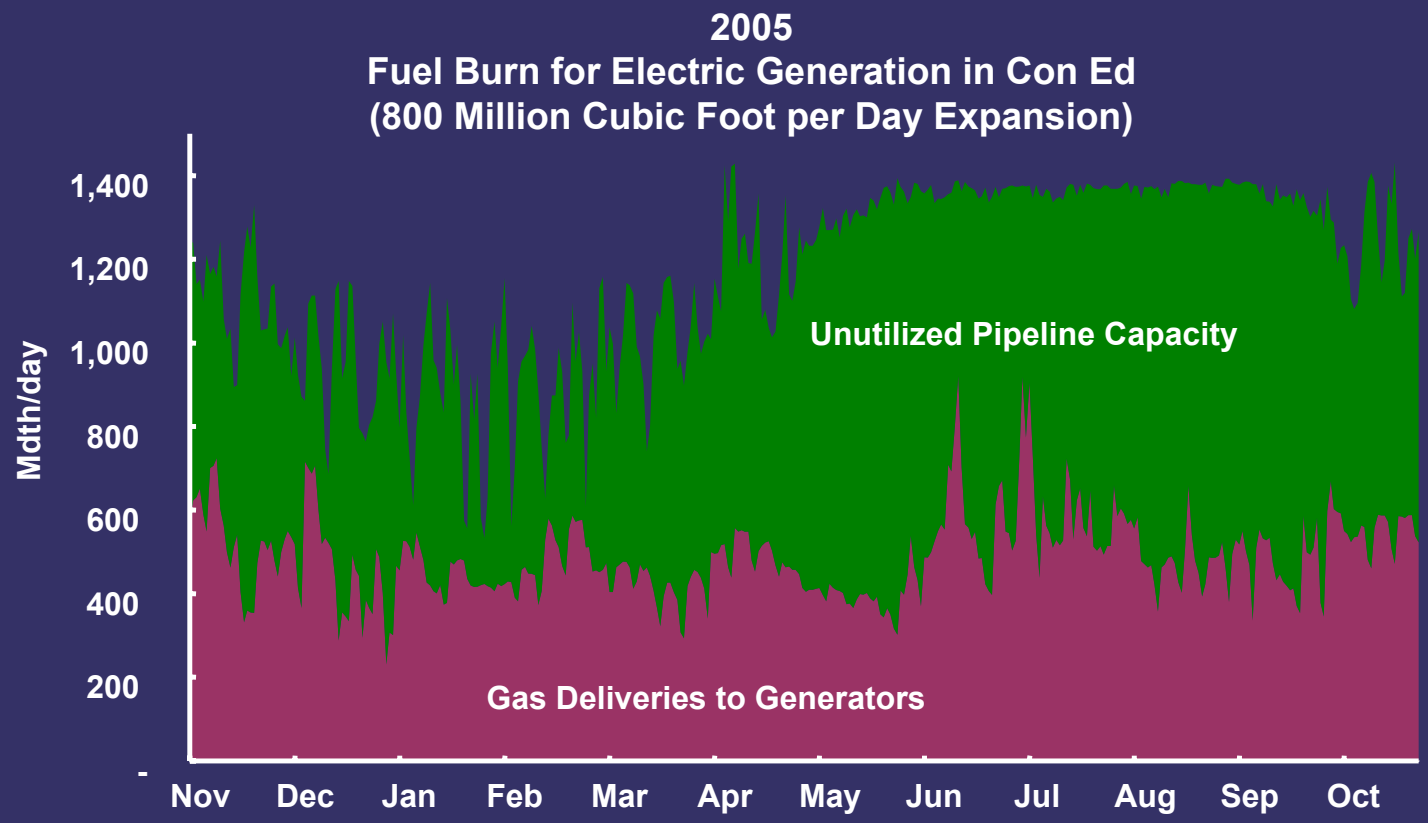
Relationship Between New Power Plants and Pipeline Expansions

Power plants should only be added if gas supply is adequate.

Pipeline additions require firm capacity subscribers

Key Findings and Conclusions

2. Pipeline capacity is sufficient to meet the 2005 maximum potential gas demands of generators on all days under our base case scenario -- with pipeline expansions of 800 mmdth/d and 4,495 MW of new generating capacity additions.



What do we mean by a gas deliverability "shortfall?"

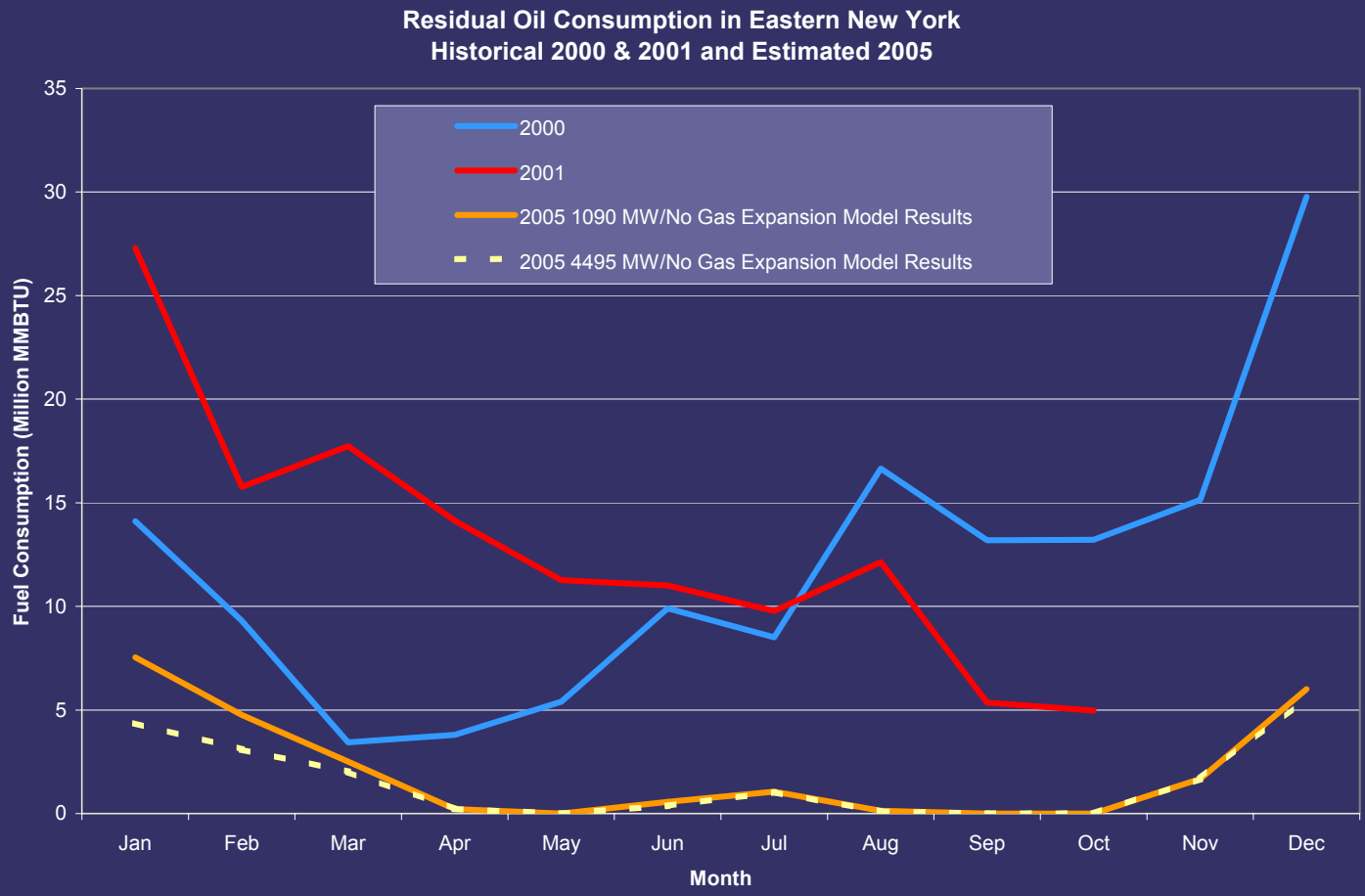
Shortfalls can be defined in terms of supply/demand balance.

- Inability to meet the maximum potential demand for gas – irrespective of the relative price of gas versus other fuels and/or available generating alternatives
- Inability to meet the economic demands for gas -- at market prices -- that result from the likely mix of electric generation, given electricity and gas market structure and rules
- Inability to support alternative economic and environmental policy objectives (e.g., reduce emissions from electric generation, lower electricity prices by increasing competition)

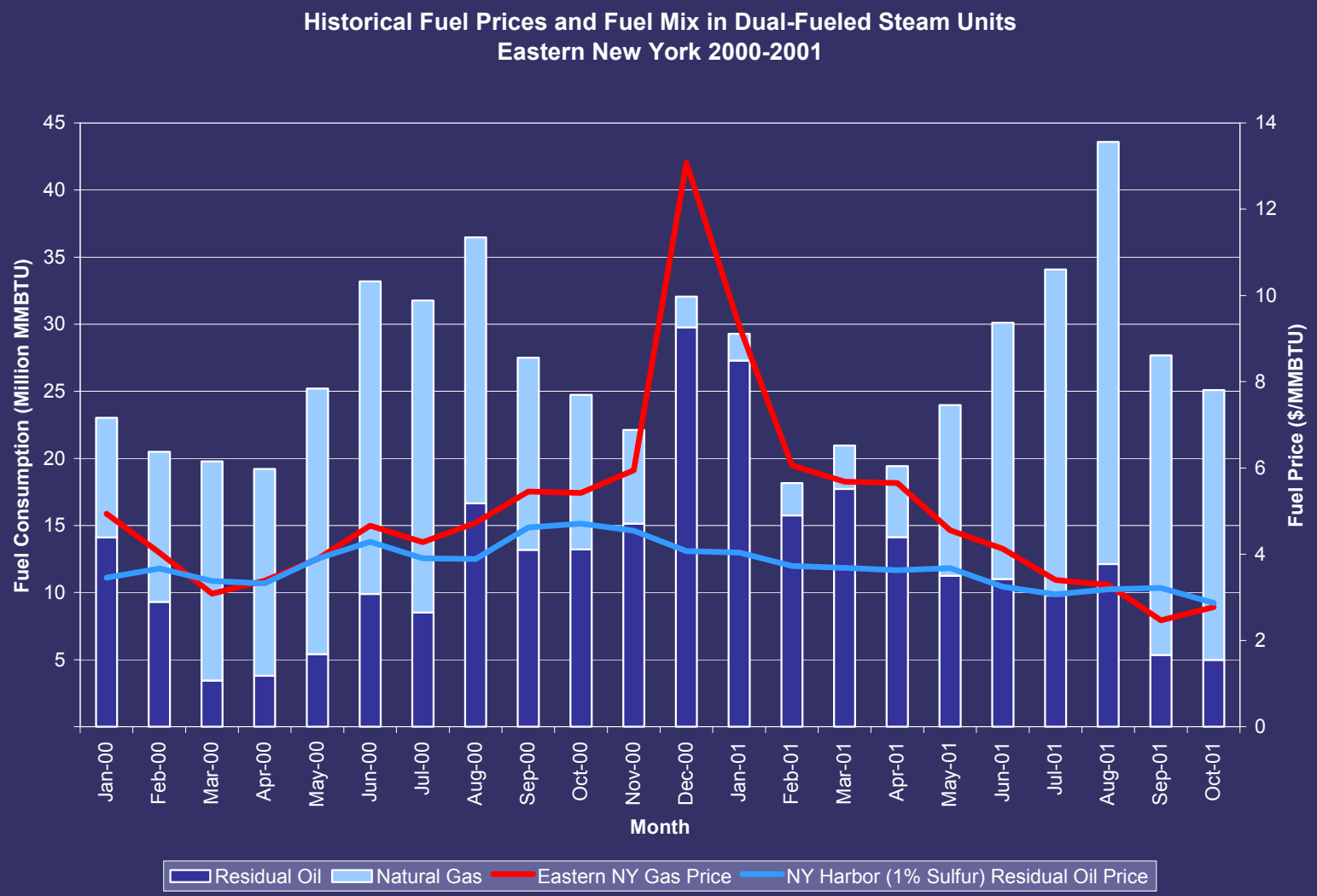
However, assumptions about market behavior should be made explicit, so that analytical results can be placed in their proper context.

Key Findings and Conclusions

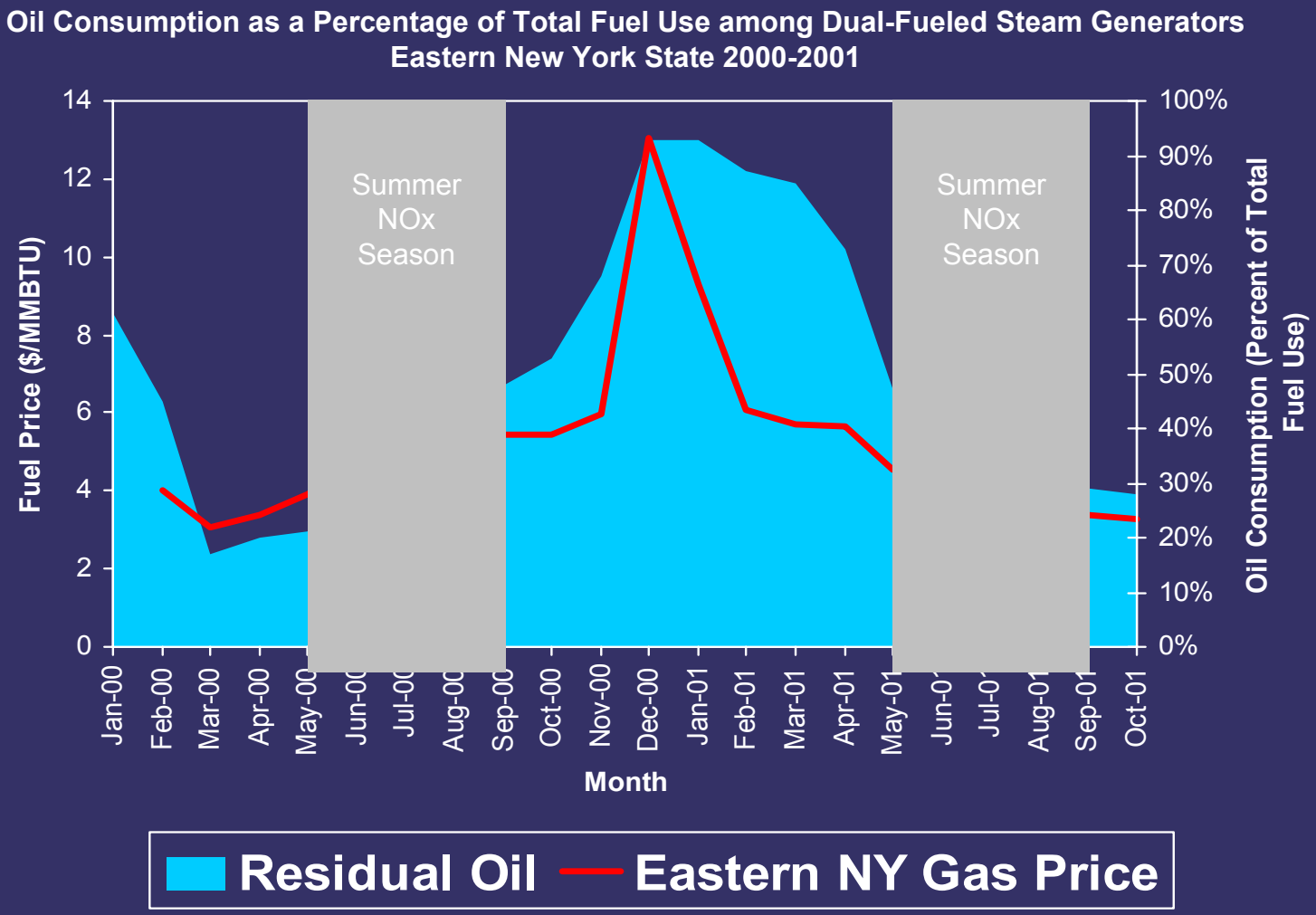
4. In each of these cases, the total annual 2005 NYCA oil burn is less than the historical amount actually burned in 2000 and 2001.



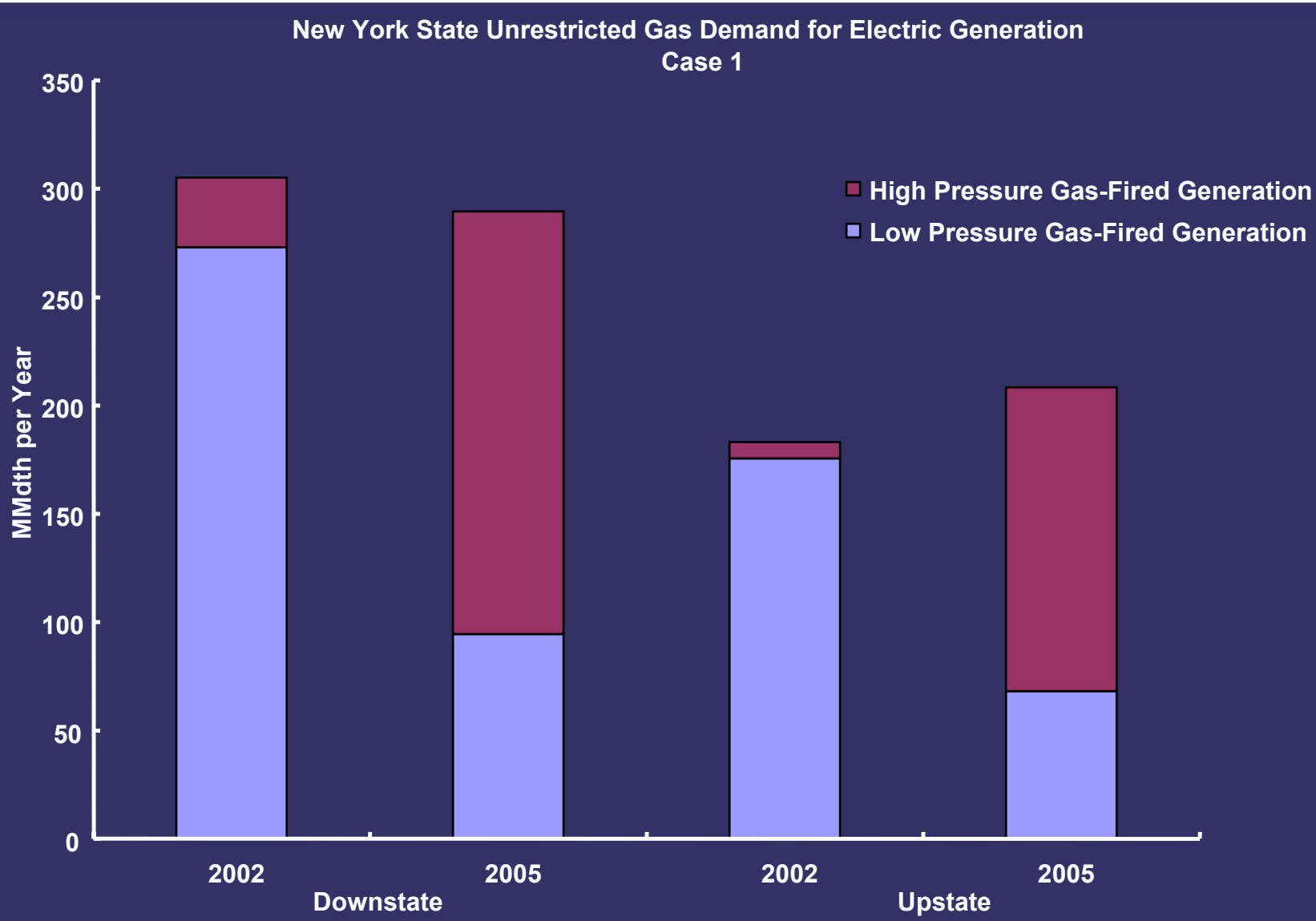
New York Generators Have Burned a Mix of Gas and Oil Historically



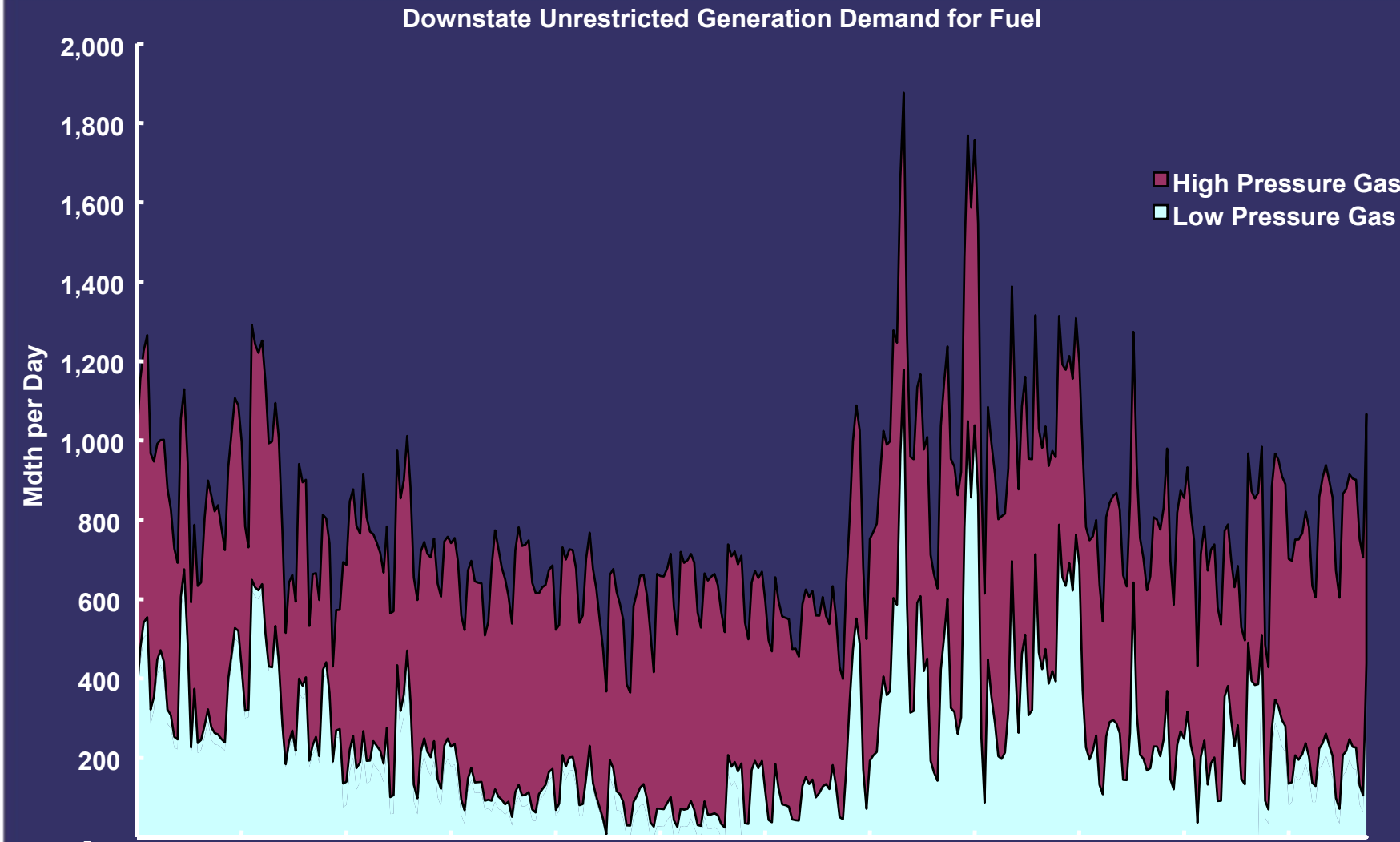
When Gas Prices Have Been Relatively High, Oil Has Been Burned Even During the Summer



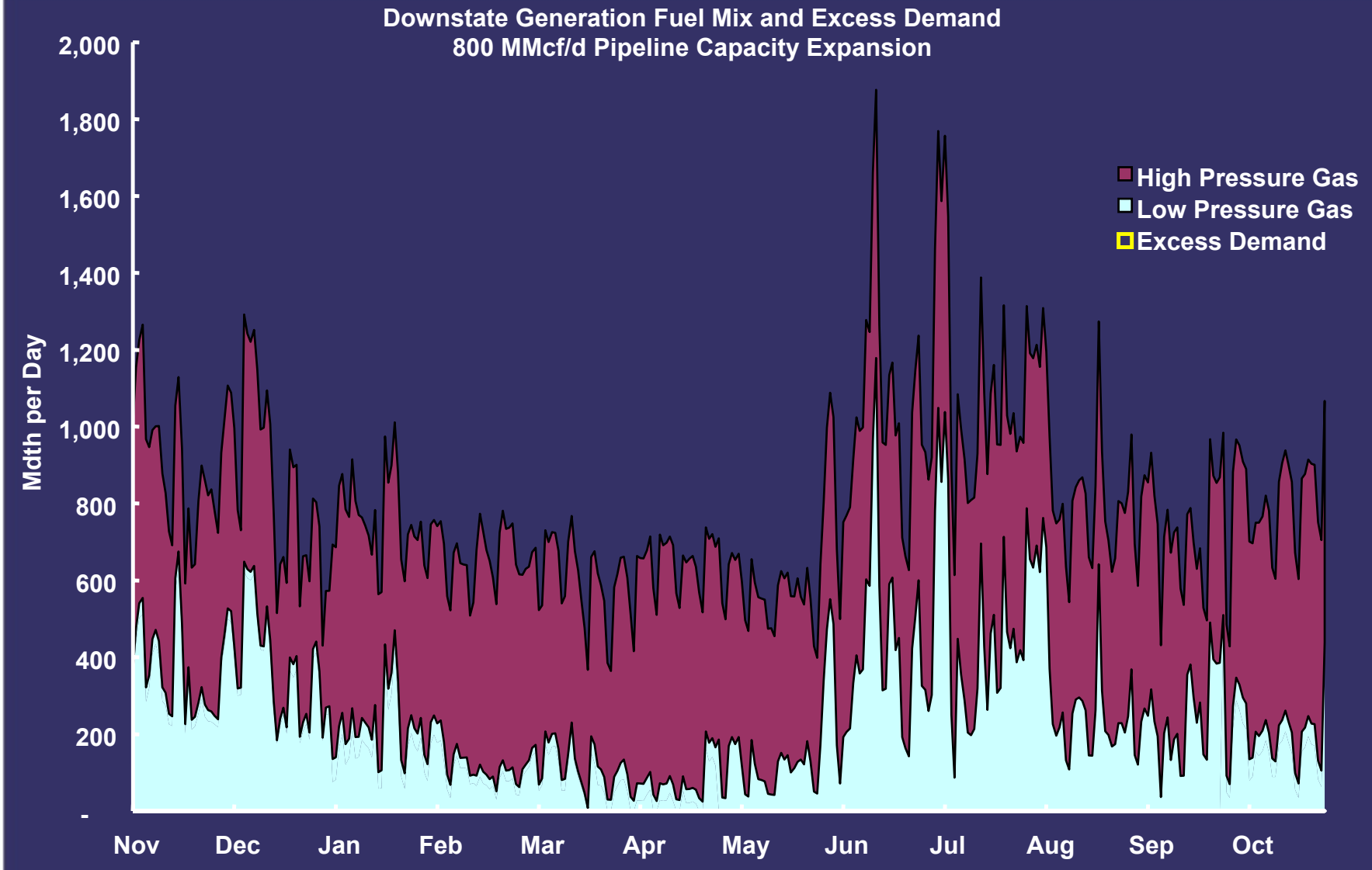
Gas Demands Shift from Steam Units to Combined Cycles



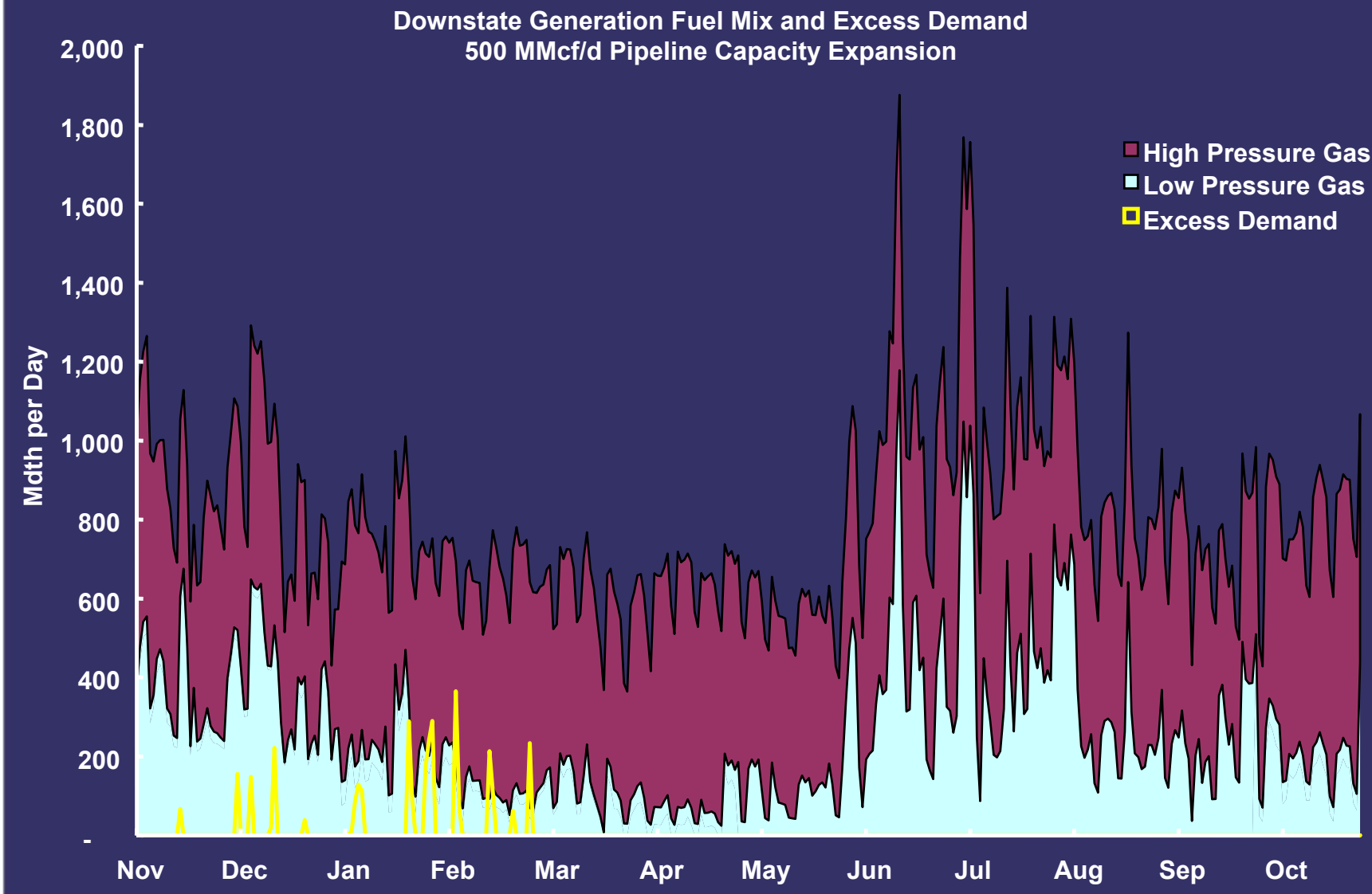
Downstate Electric Generation Demand Shifts To Combined Cycle Units



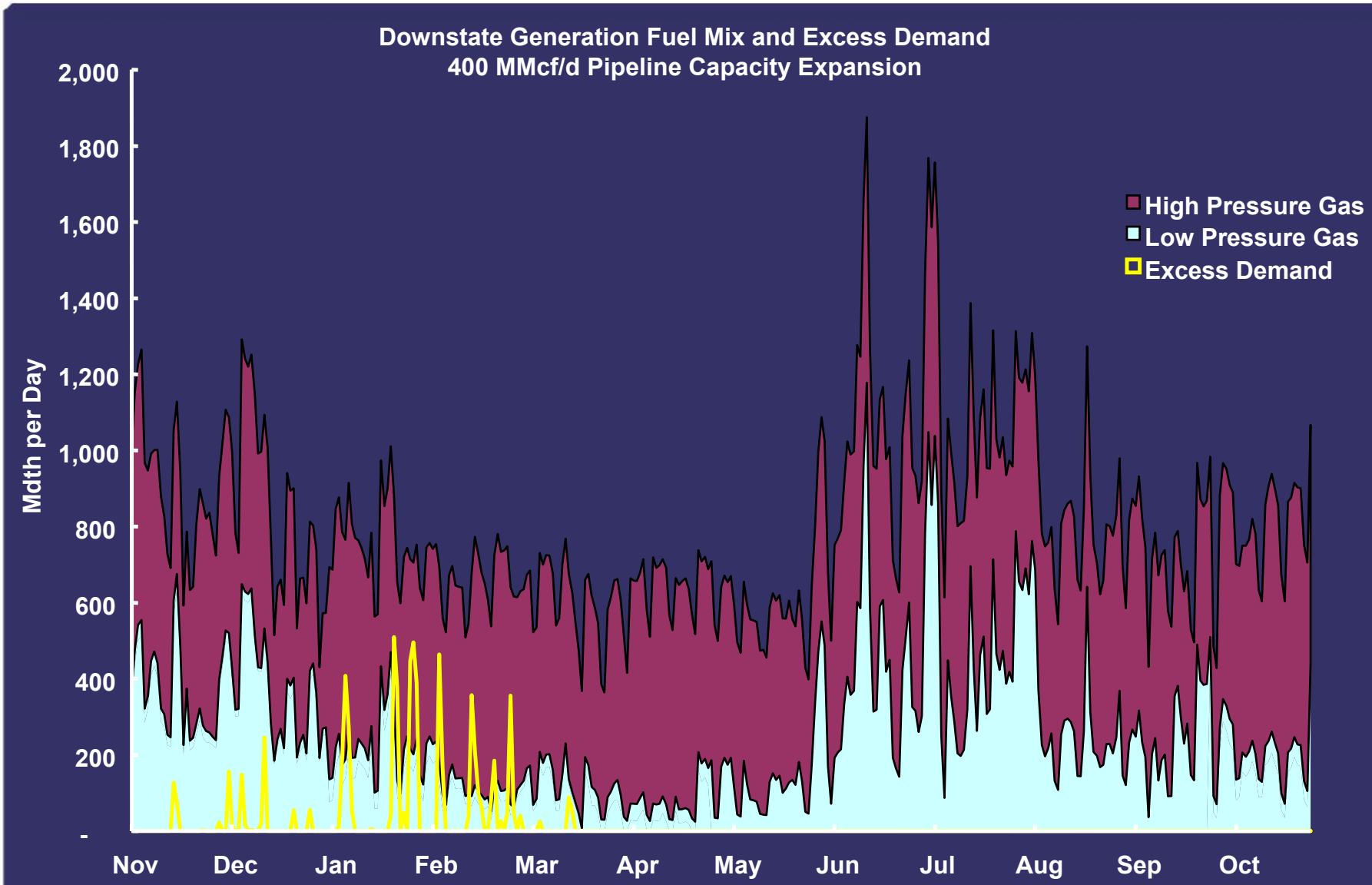
With Full Planned Pipeline Expansion, All Potential Power Generation Demands Are Met



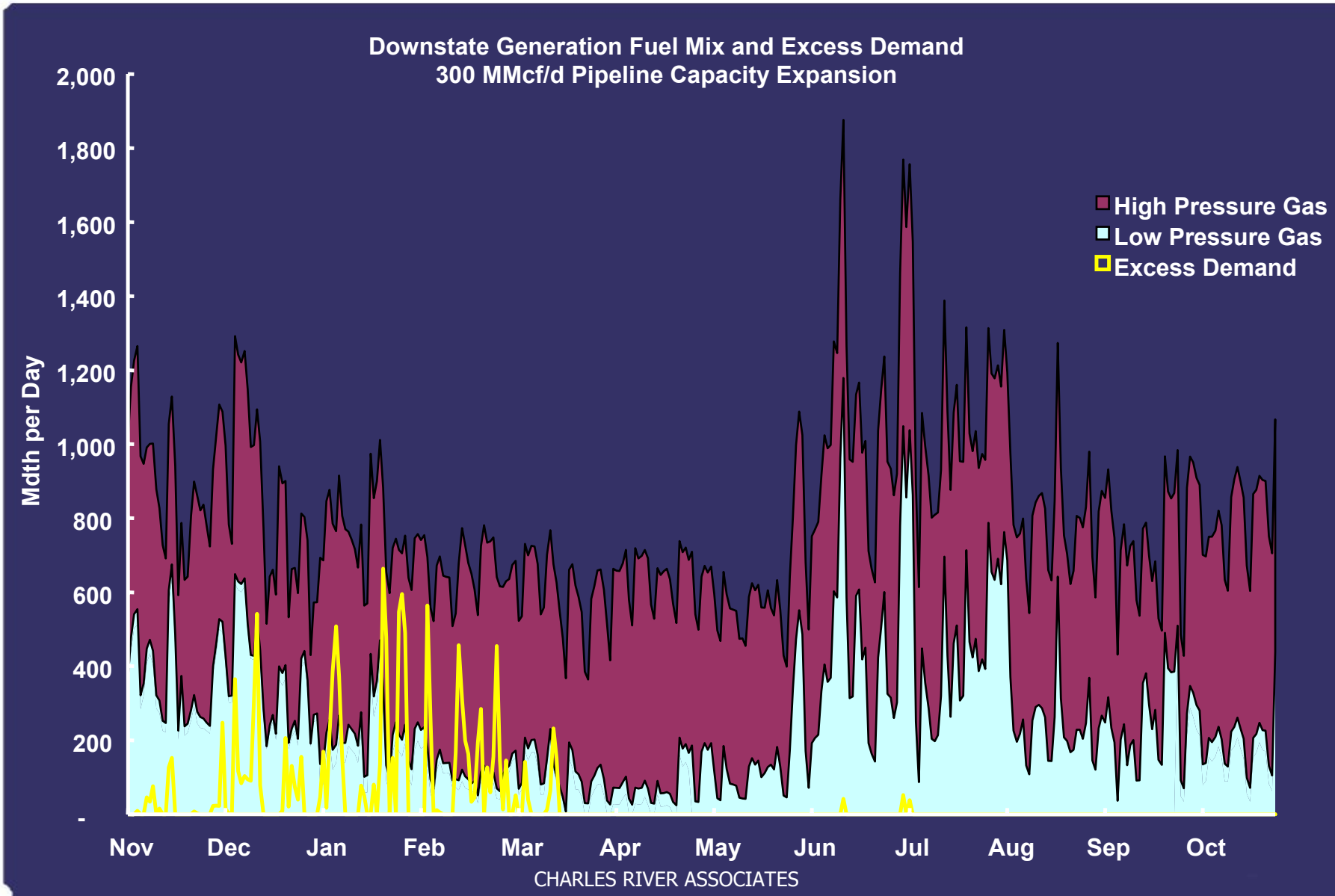
As Fewer Pipeline Expansions Are Built, Power Generation Gas Deliveries Decline



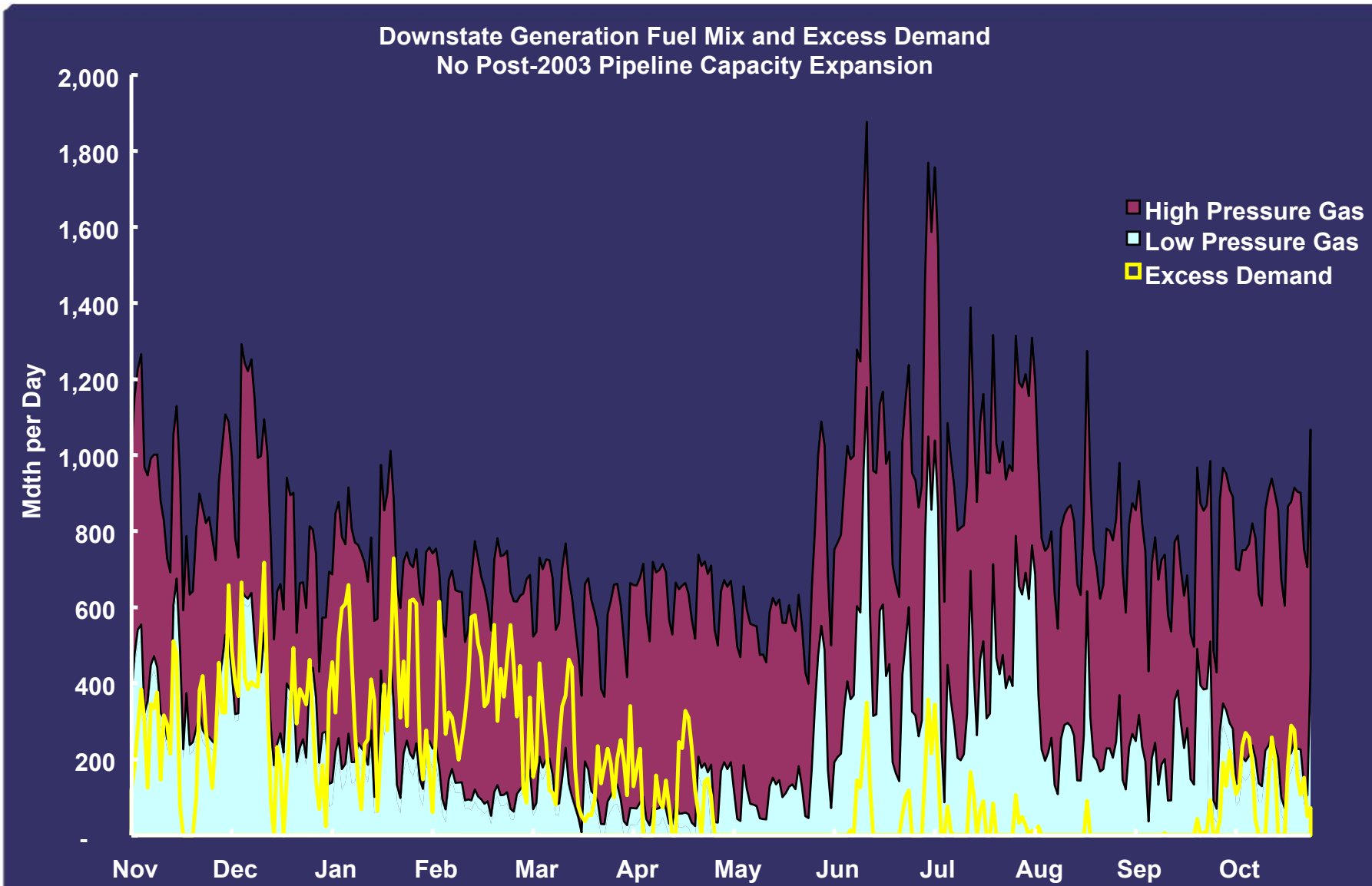
Excess Demand is Relatively Small



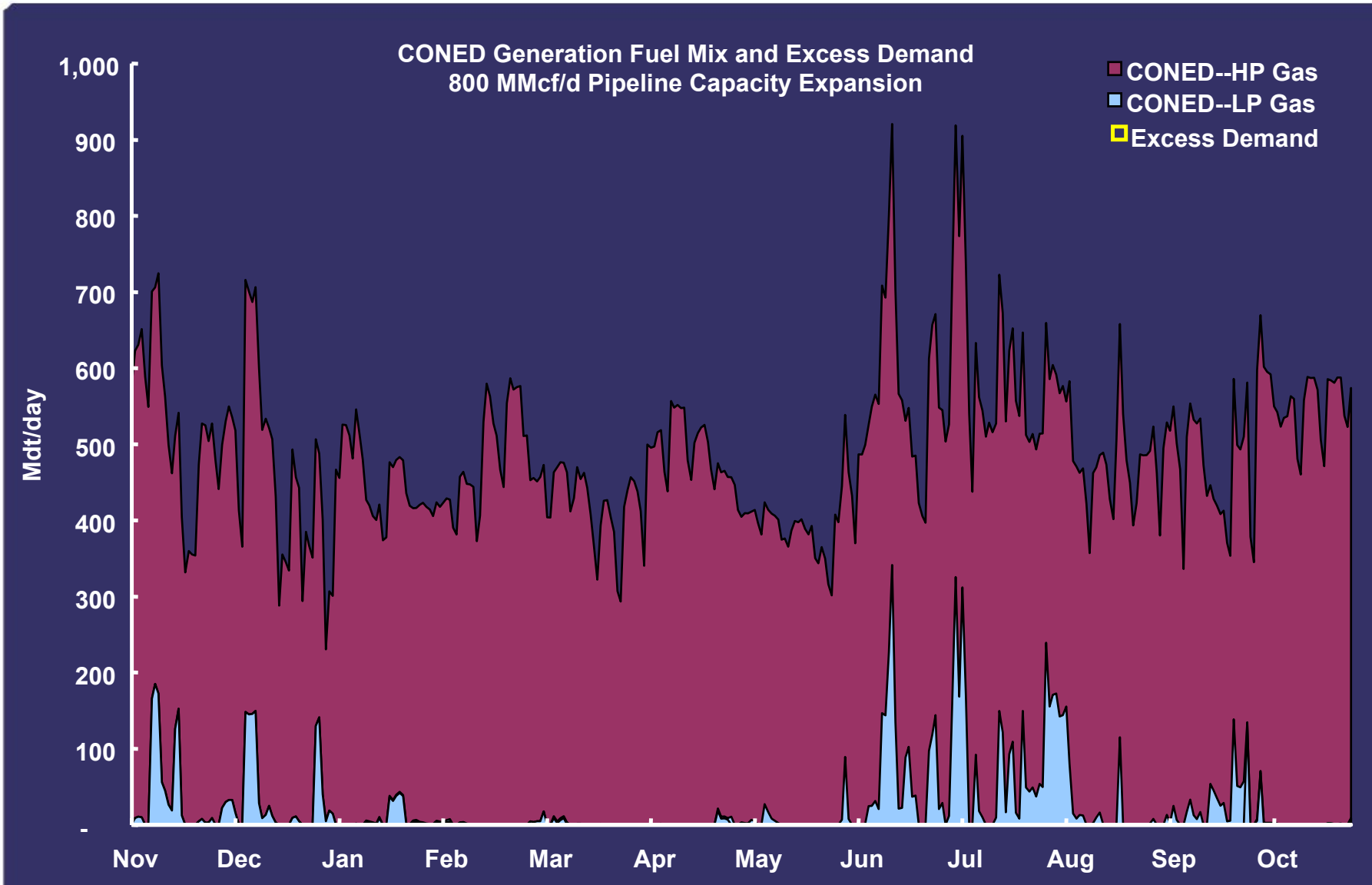
At 300 MMcf/d, The Winter Pipeline Load Factors Approach Historical Levels



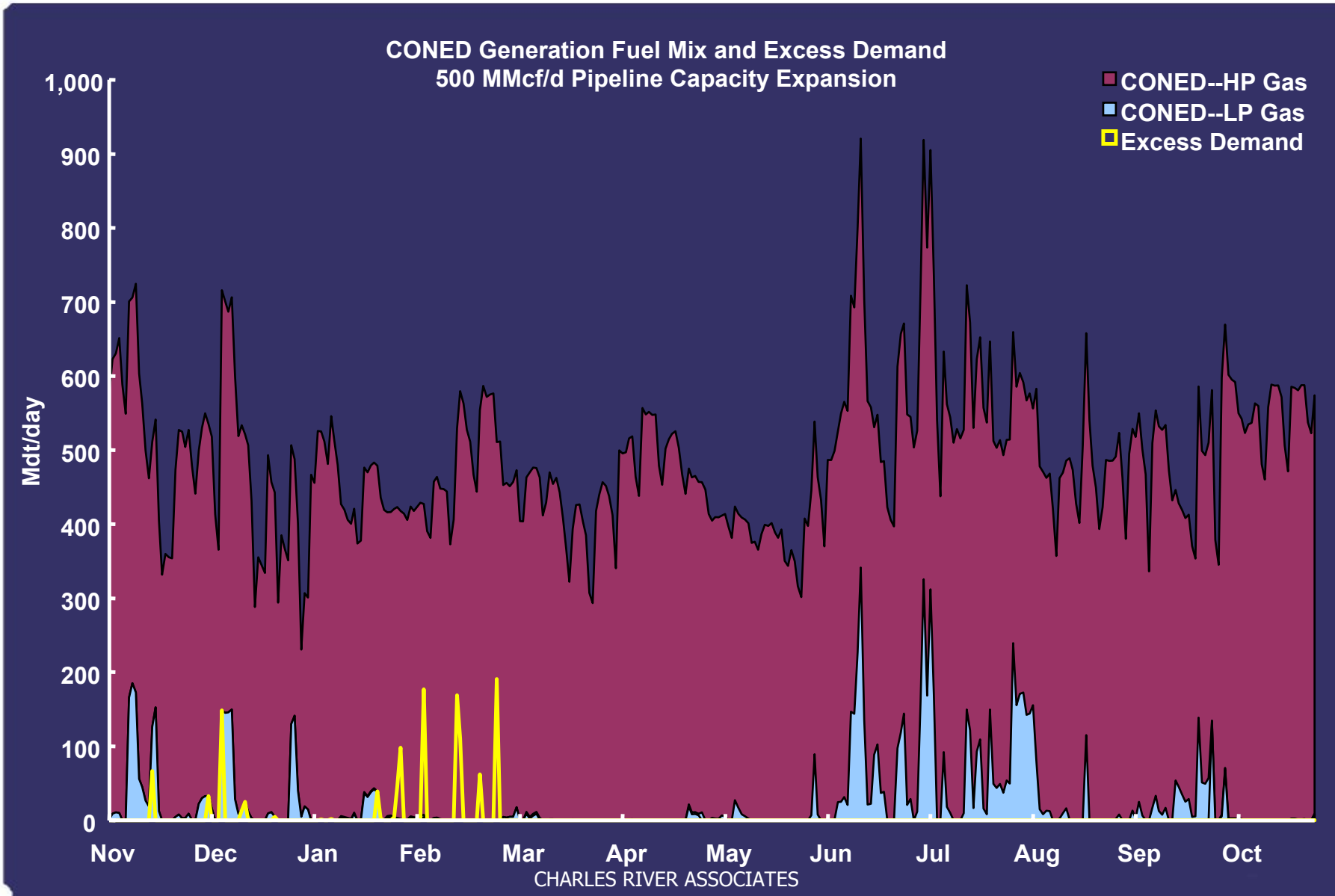
With No Post 2003 Pipeline Capacity Addition Winter Combined Cycle Utilization is Limited



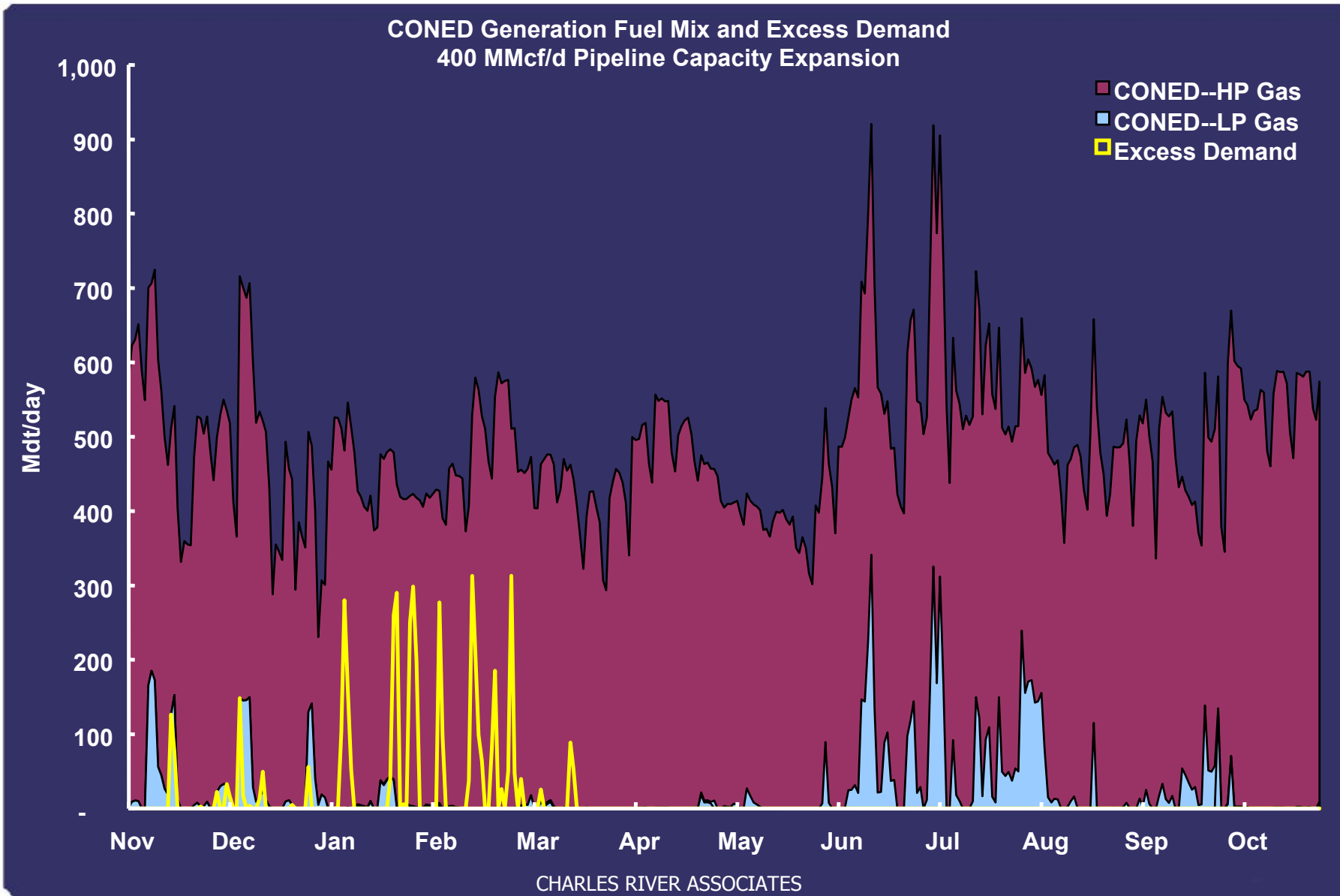
With All Of The Pipeline Expansions, The Combined Cycles Always Run



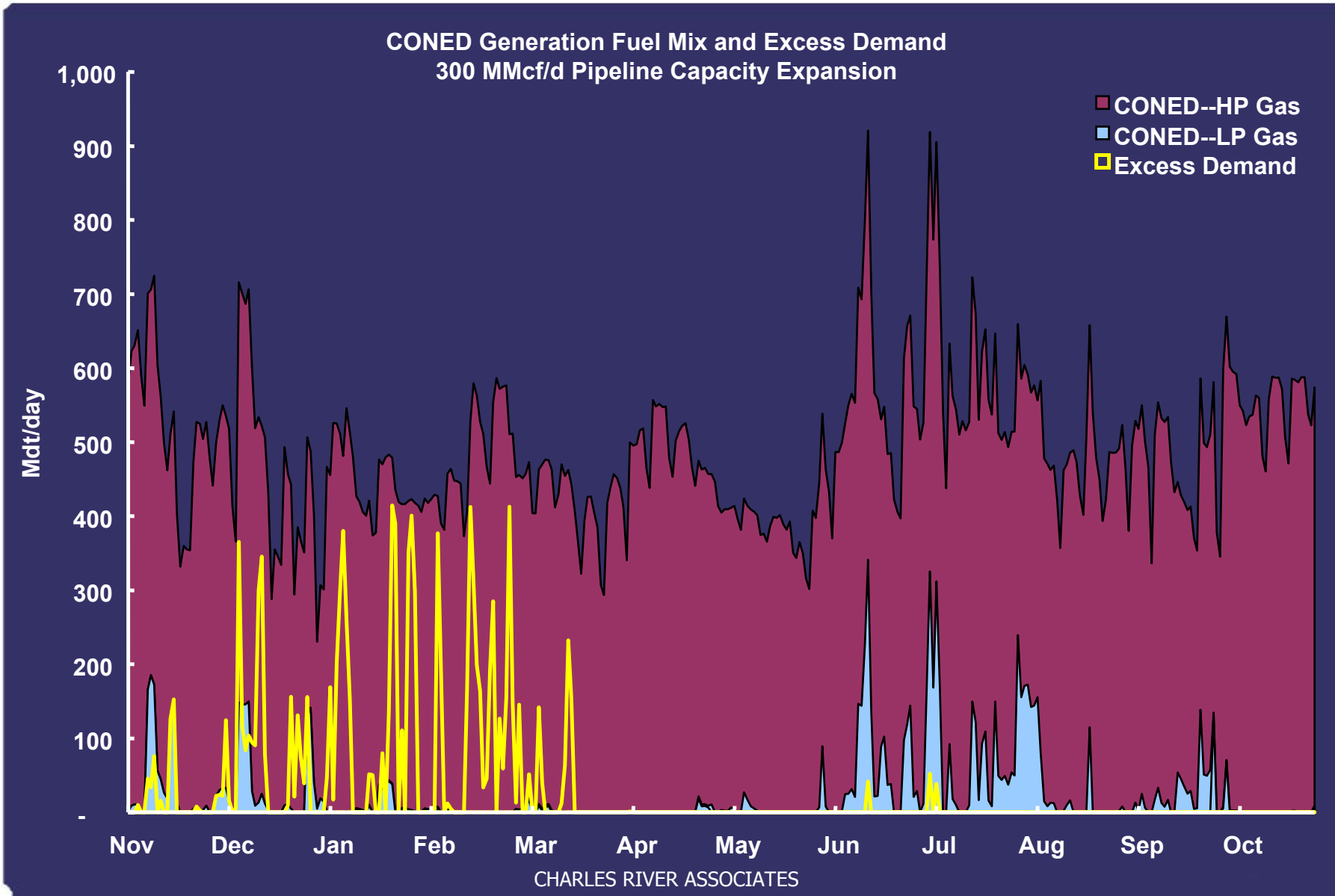
Some Small Delivery Constrains Emerge As The Pipeline Expansions are Reduced



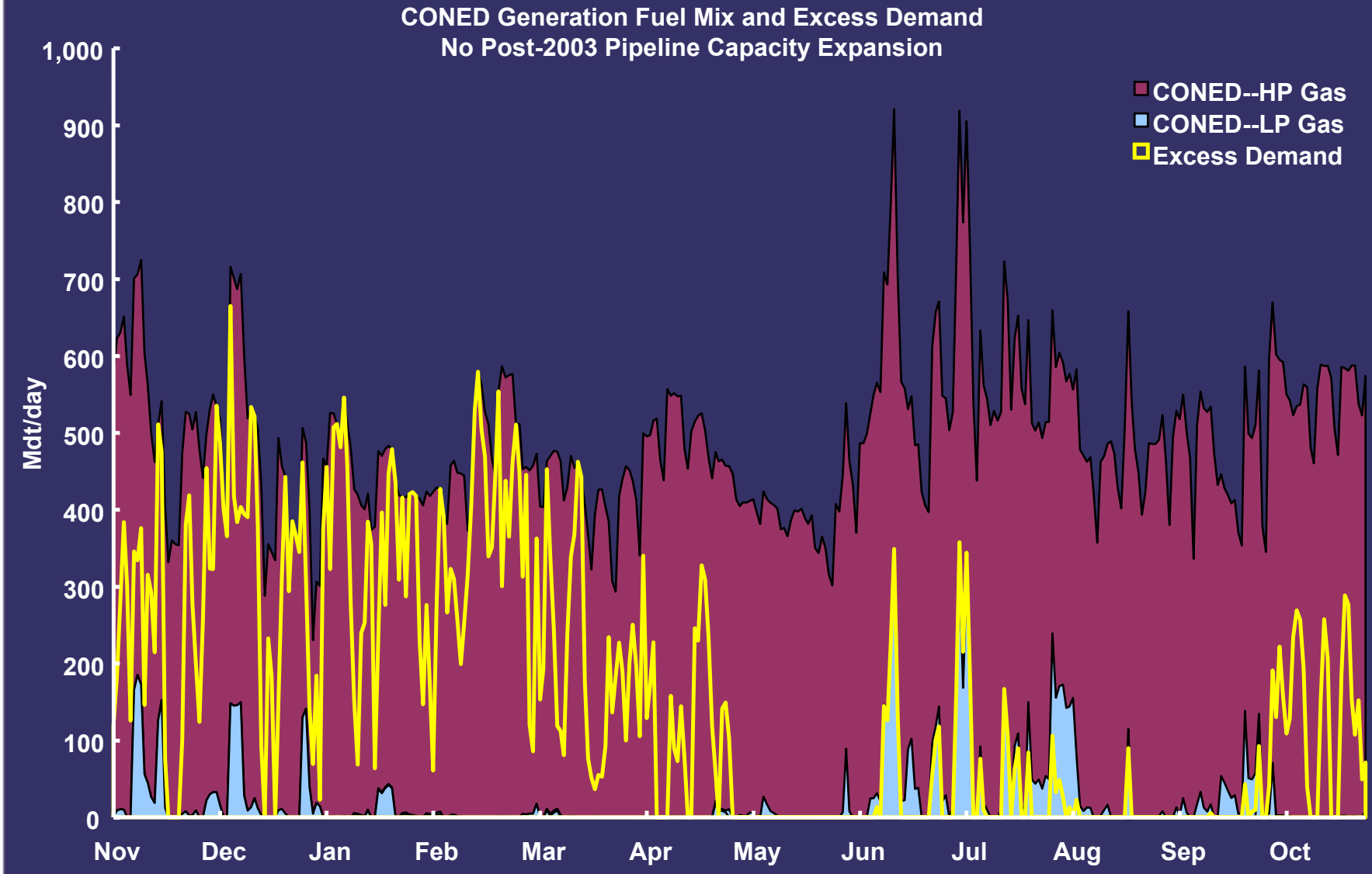
Pipeline Excess Capacity Remains High



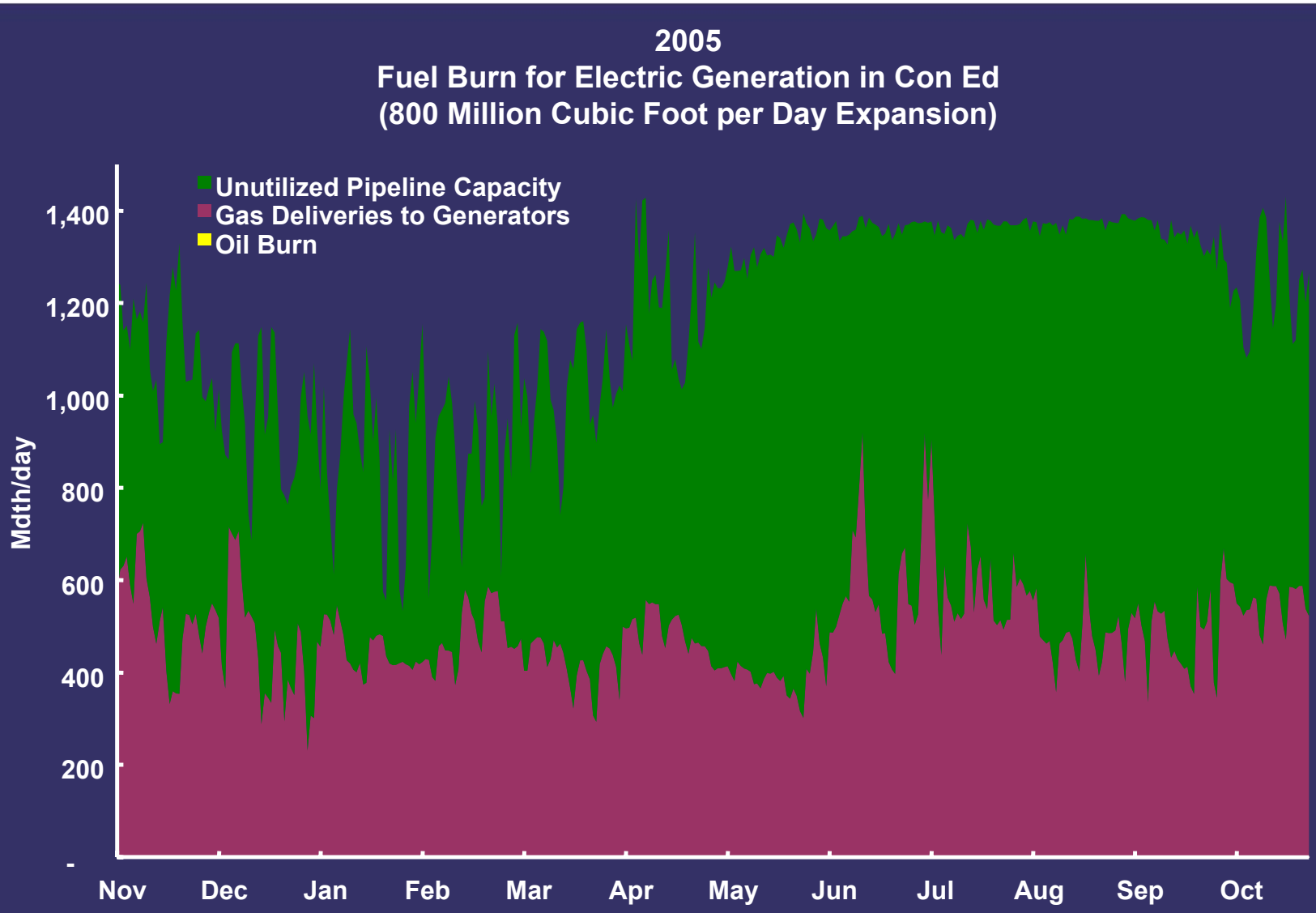
Winter Delivery Interruptions Occur At 300 mmcf/d But Are Not Excessive



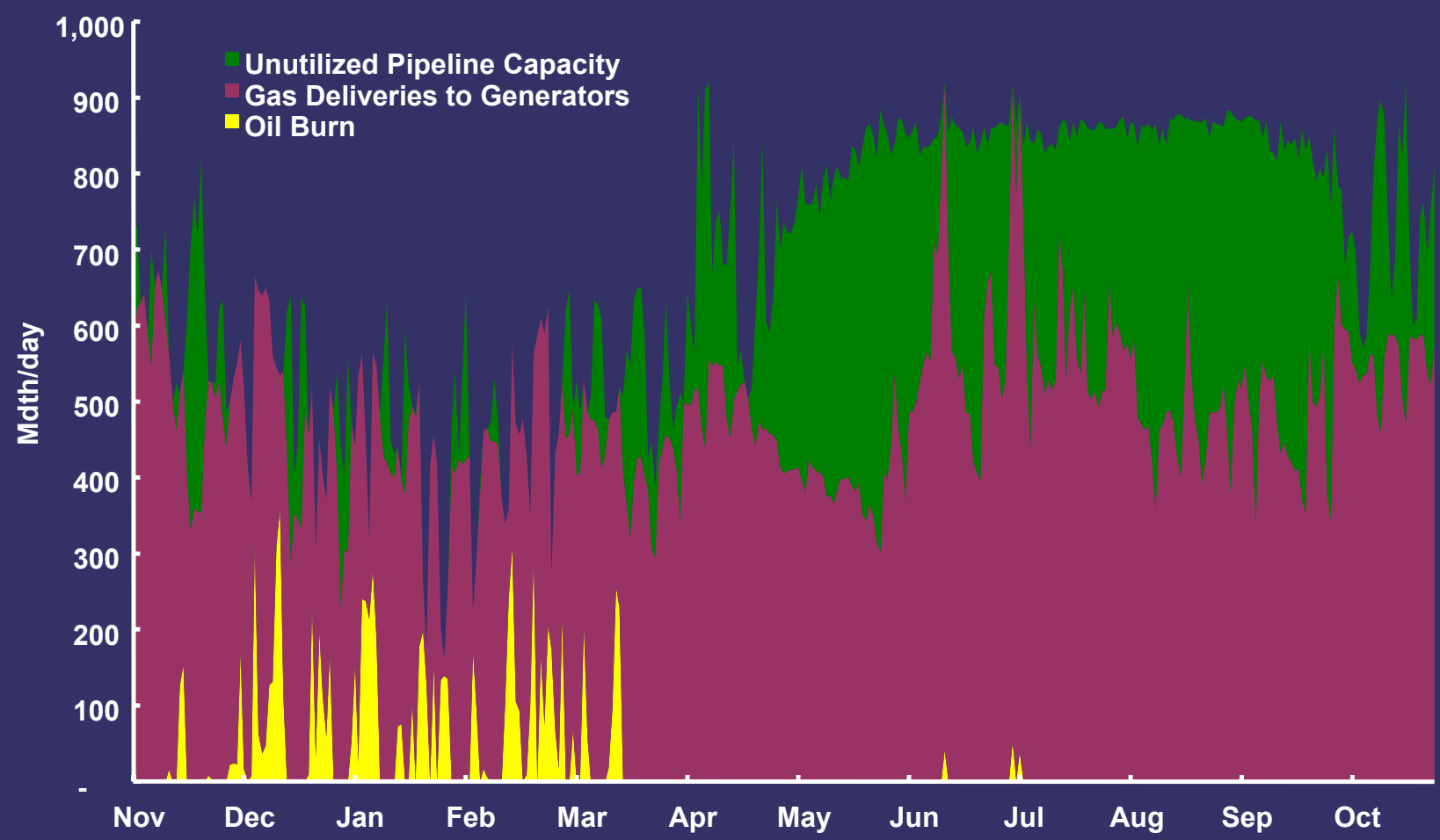
Without Any Pipeline Expansion, The Economics Of Combined Cycles Are Weak



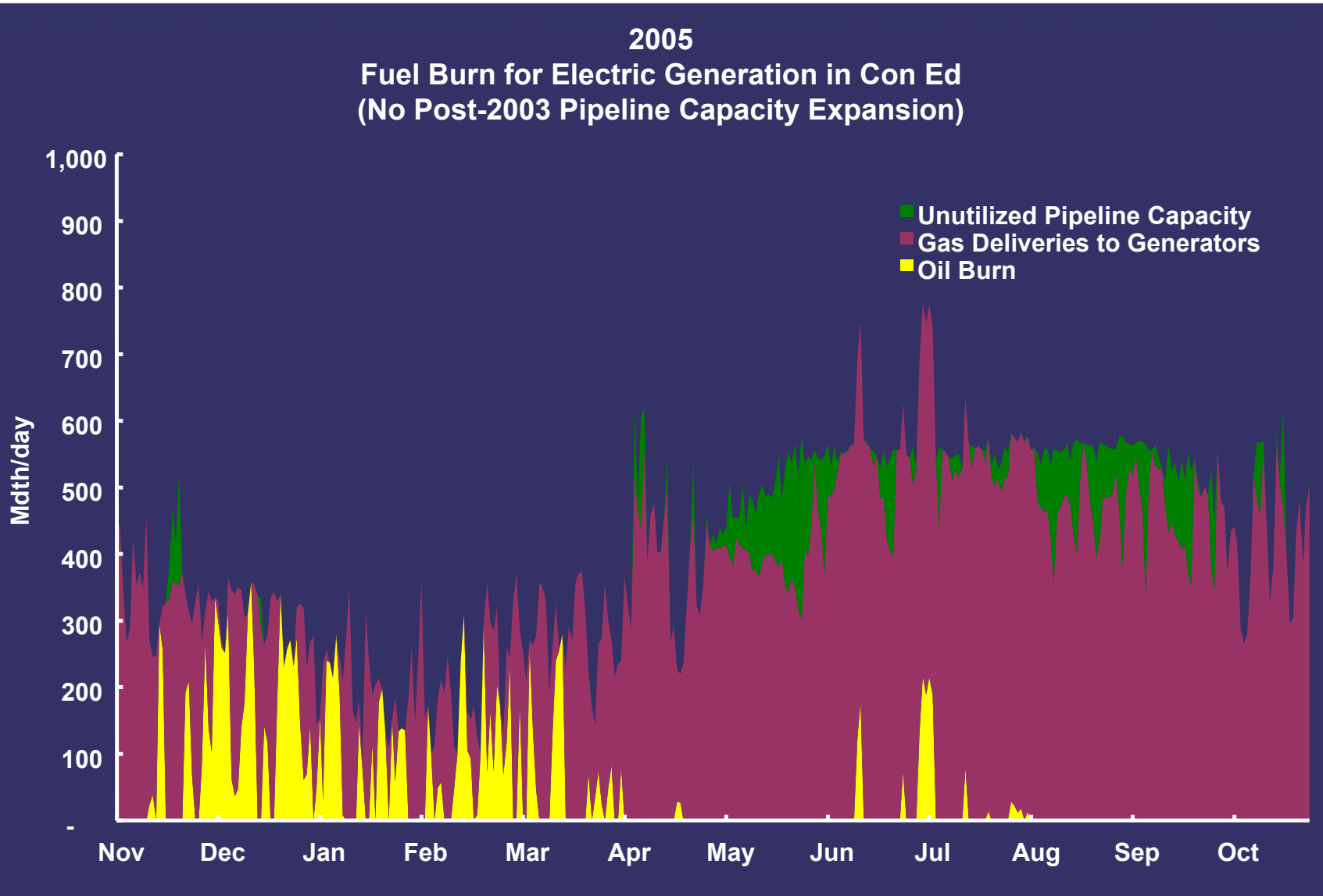
Pipeline Utilization: 800 MMcf/d Expansion



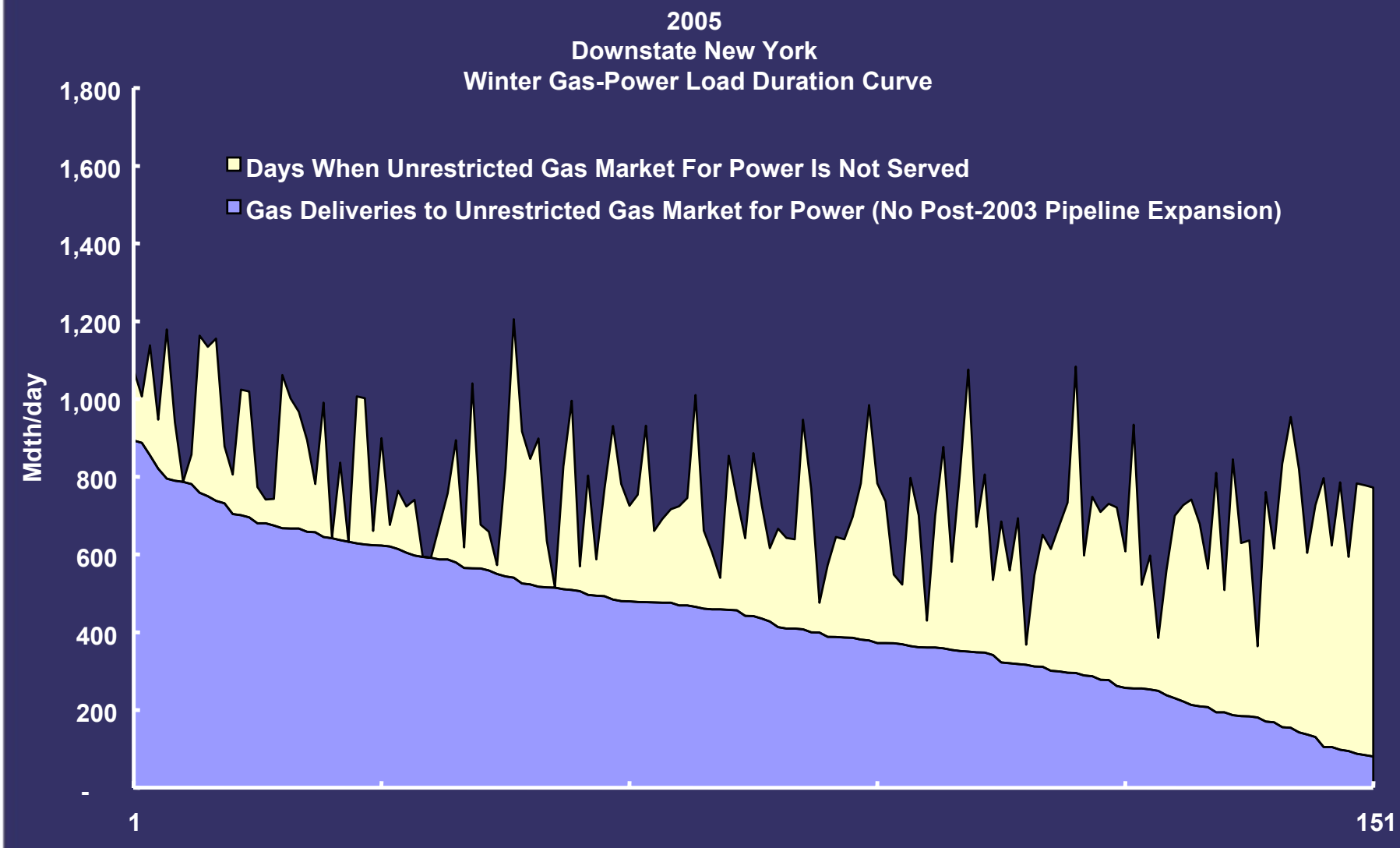
Pipeline Utilization: 300 MMcf/d Expansion



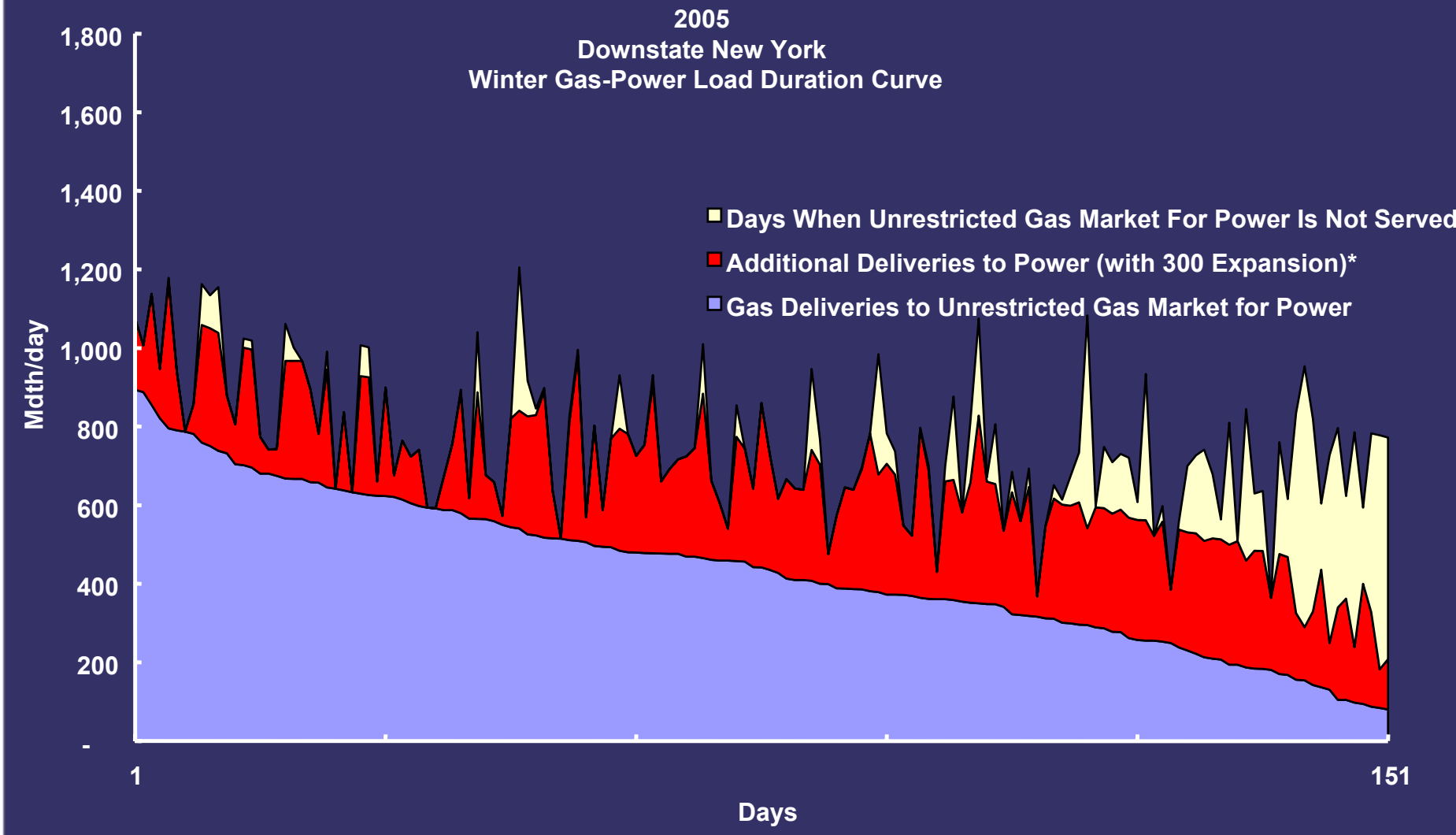
Pipeline Utilization:
No Post-2003 Pipeline Capacity Expansion



Incremental Demands For Pipeline Expansions Are Not Constant

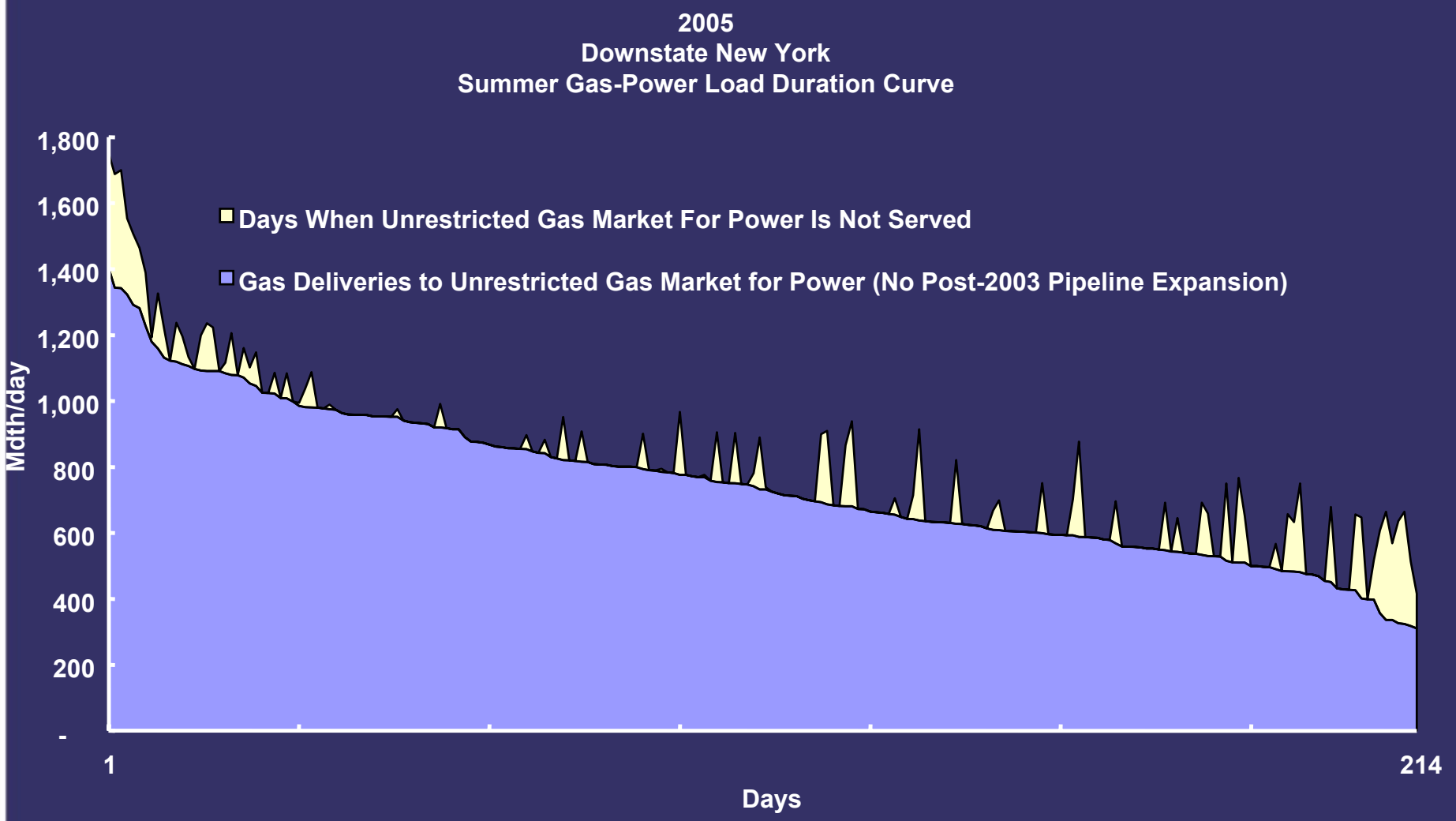


At 300 mmcf/d, Winter Pipeline Load Factor Approaches Historical Levels

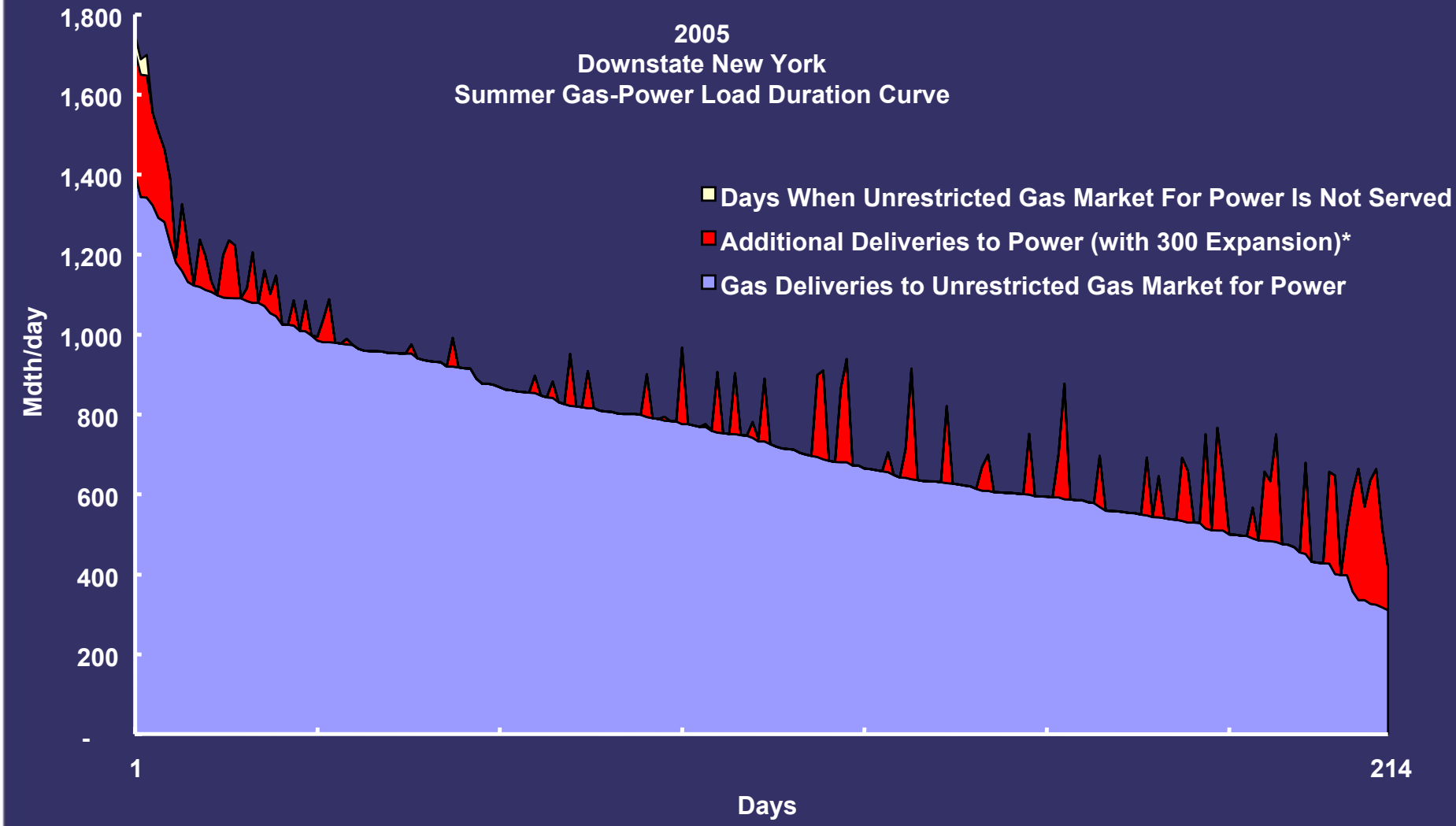


* Represents additional deliveries to the power markets from a 300 MMcf/d pipeline capacity expansion into the downstate region.

The Summer Incremental Market Is Small



Pipeline Load Factors Here Are Very Weak



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Seasonal Competition for Pipeline Capacity