E.H. Pechan & Associates, Inc.

Analysis of HEDD Unit Operation in the OTC in 2002

Maureen Mullen

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HEDD Data

- HEDD unit definition for analysis: EGU that operated < 720 hours during 2002 ozone season (May through September)
- Based on EPA's CAMD published hourly emissions data for OTC States from 2002

HEDD Data Analysis

- Totaled number of hours of operation for each unit in data set during ozone season
- Units in OTC operating <720 hours in ozone season were identified as peakers
- Data from peakers were compared for 2 days:
  - August 7, 2002—typical summer day
  - August 12, 2002—HEDD
- Examined NOx emissions, NOx emission rate, hours of operation, and generation

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OTC Ozone Season Peaking Units

State	No. of Peakers	Avg. Ozone Season Capacity Factor	Avg. OSD NOx Rate (lb/MMBtu)
CT	39	4.8%	0.16
DC	18	7.5%	0.44
DE	12	5.1%	0.20
MA	37	4.5%	0.28
MD	37	6.6%	0.32
ME	5	5.9%	0.33
NH	5	2.9%	0.68
NJ	102	7.1%	0.33
NY	155	8.3%	0.40
PA	110	5.1%	0.23
RI	1	16.5%	0.04
OTC	***521***	***6.6%***	***0.32***

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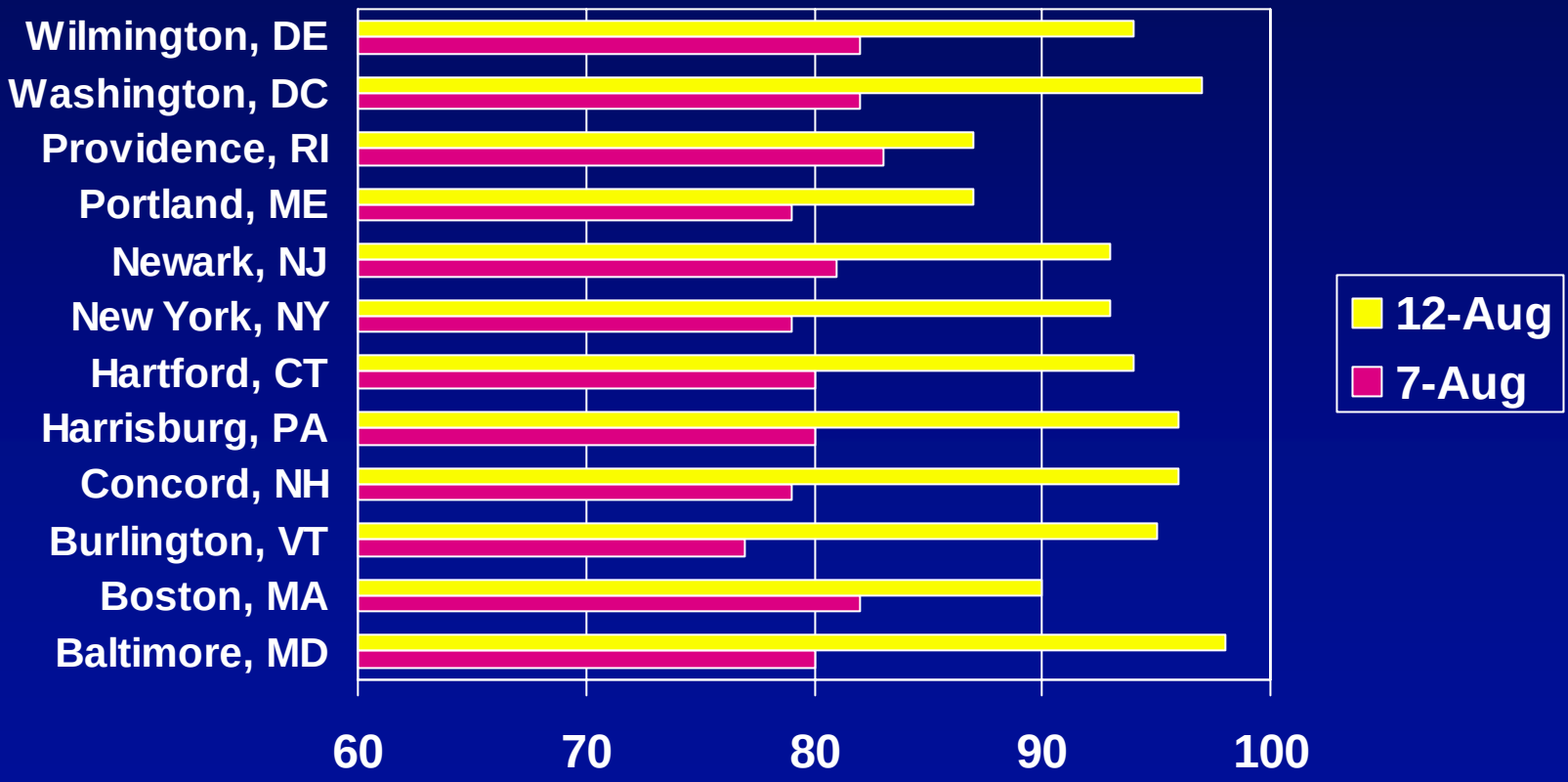
Maximum Daily Temperatures on August 7 and 12, 2002



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Data Summary

Units	Date	NOx Emissions (tpd)	Heat Input (1,000 MMBtu)	Generation (MW-hr)
All	7-Aug-02	1,189	9,960	3,183,042
	12-Aug-02	1,907	15,509	3,689,688
Peakers	7-Aug-02	19	113	5,897
	12-Aug-02	229	1,330	98,654
Base	7-Aug-02	1,170	9,846	3,177,145
	12-Aug-02	1,678	14,179	3,591,034

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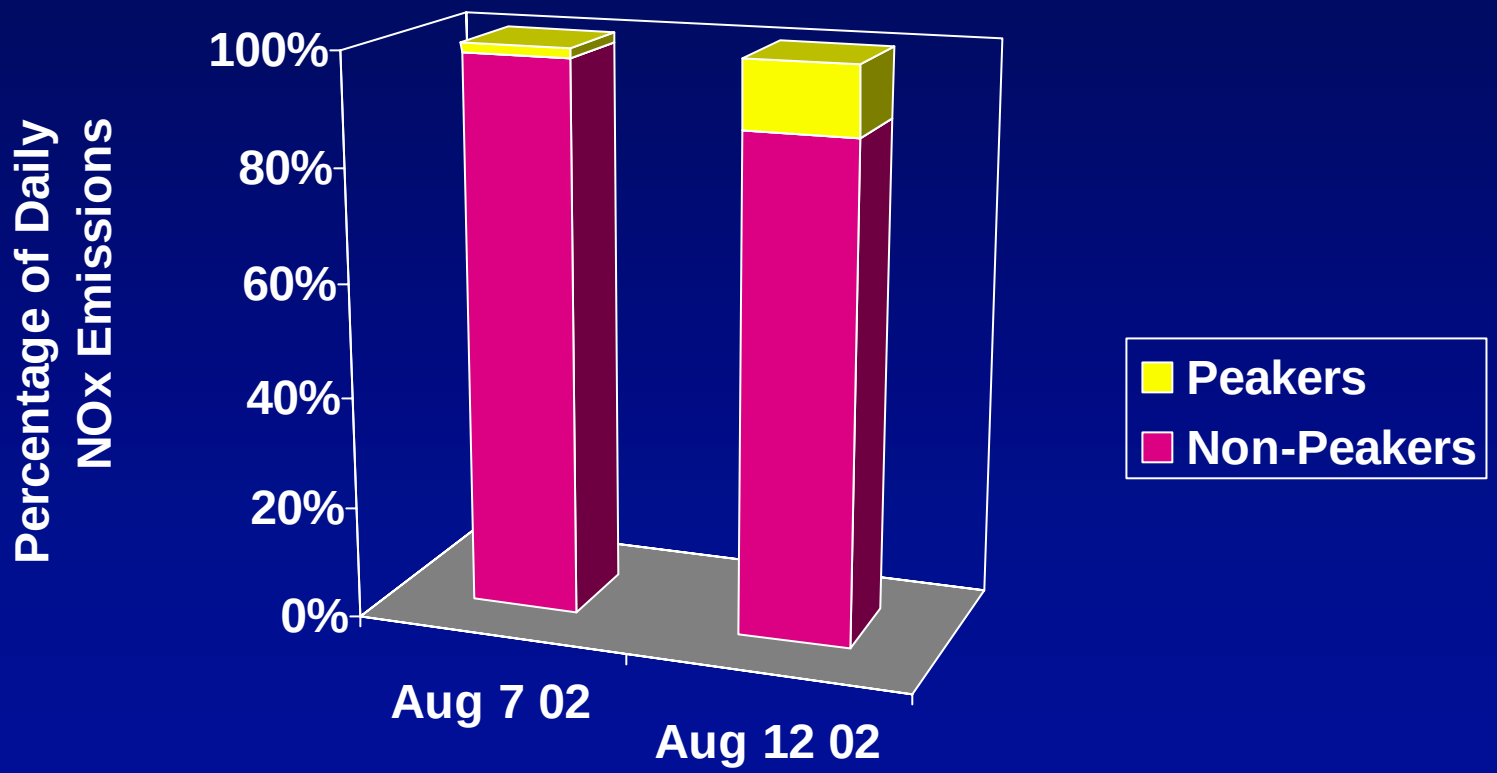
Percentage of NOx Emissions from Peakers



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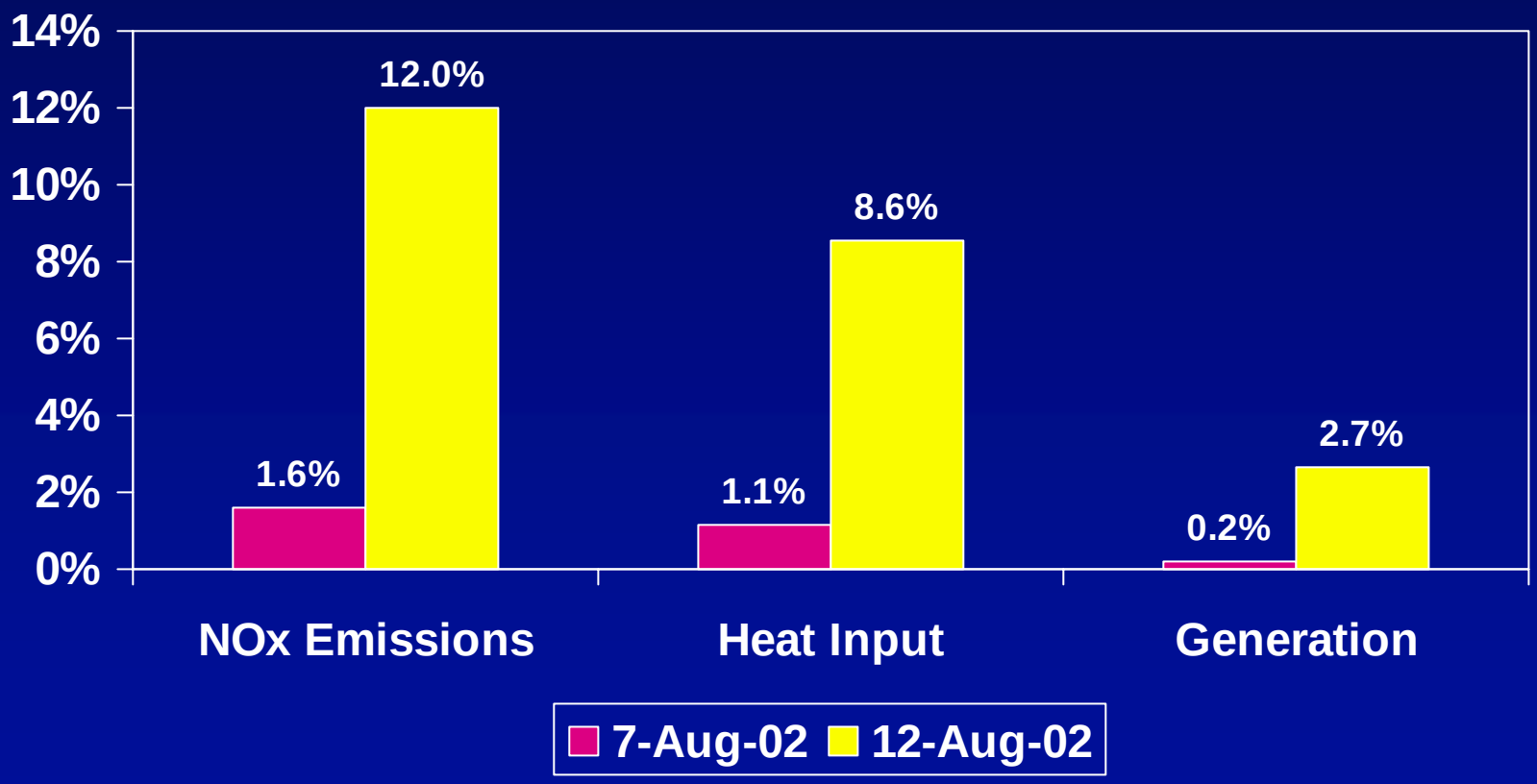
OTC Peaking Unit Percent of Total OTC EGUs



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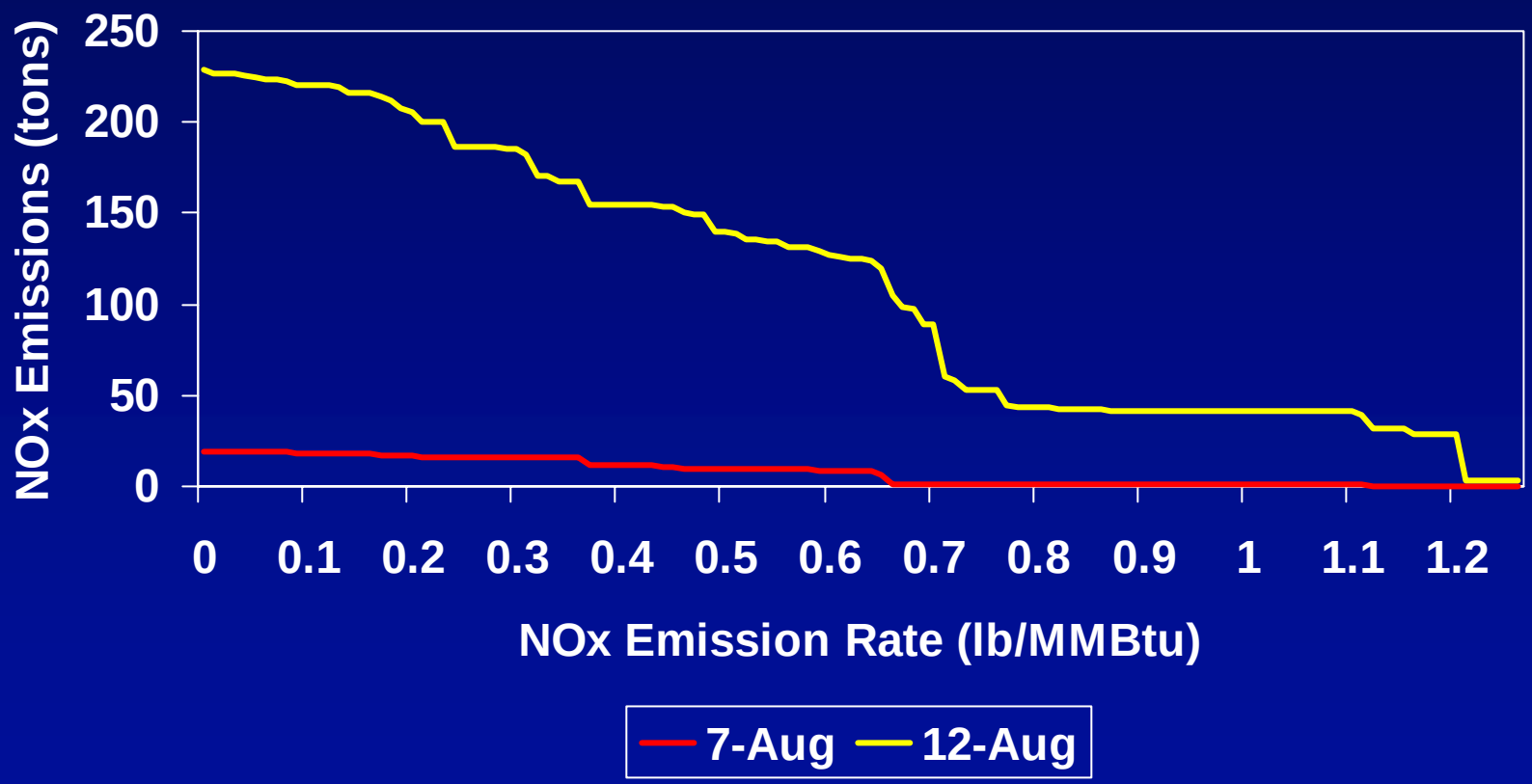
Cumulative NOx Emissions from OTC Peaking Units



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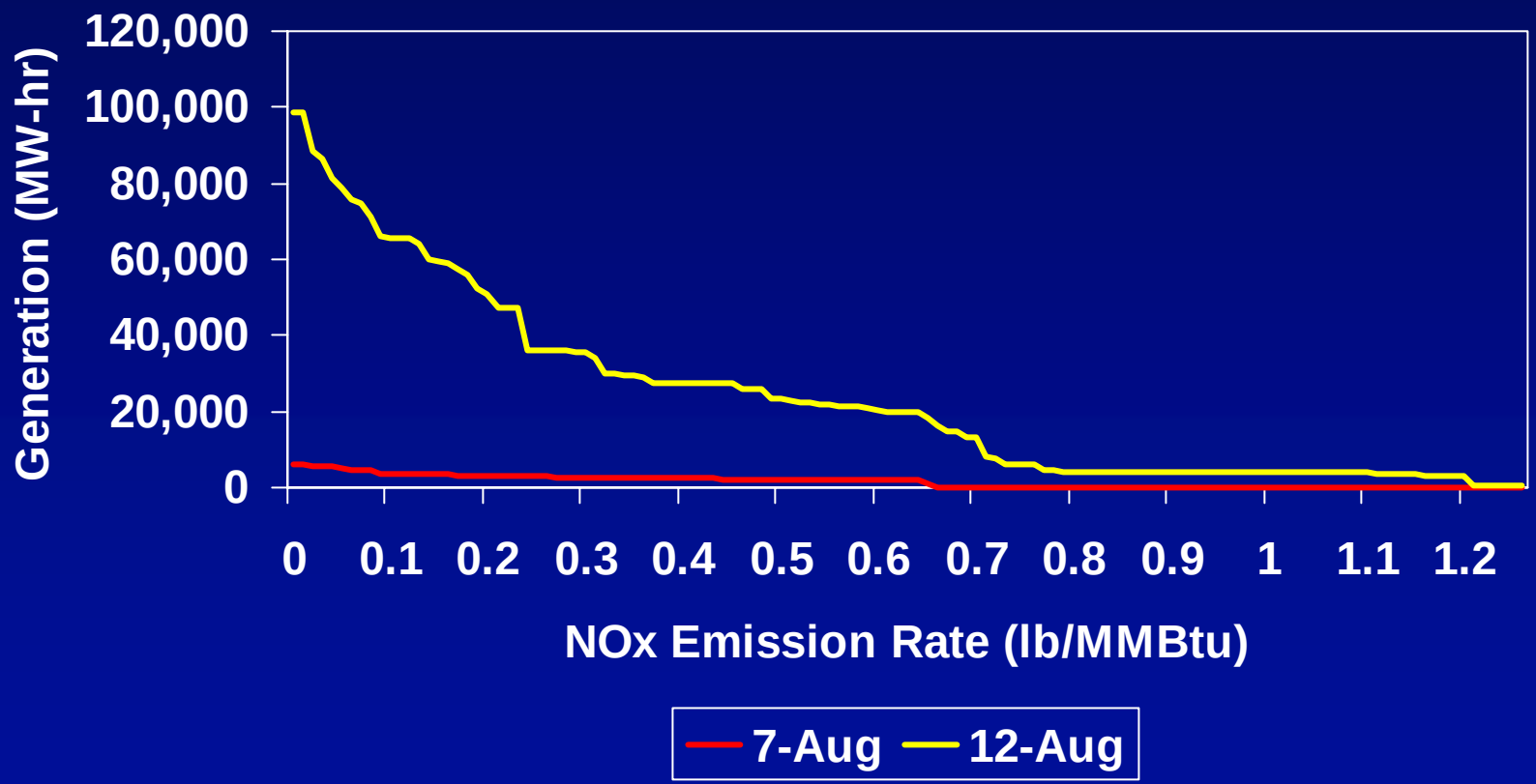
Cumulative Generation from OTC Peaking Units



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Interpreting Data

- Strategies that either reduce the NOx emission rate of the HEDD units or reduce demand from units with highest emission rates could provide significant NOx reductions
  - For example, reducing about 20,000 MW-hr demand from highest-emitting units could reduce 125 daily tons of NOx with highest emitters at 0.6 lb/MMBtu (equivalent to reducing about 7% of total EGU emissions on Aug 12)

Summary

- Peakers can be identified based on usage patterns
- Peakers account for a more than proportional share of increased NOx in comparison to the additional generation provided
- Strategies to reduce overall demand and/or control emission rates from peakers on HEDDs can significantly reduce NOx emissions on these days