

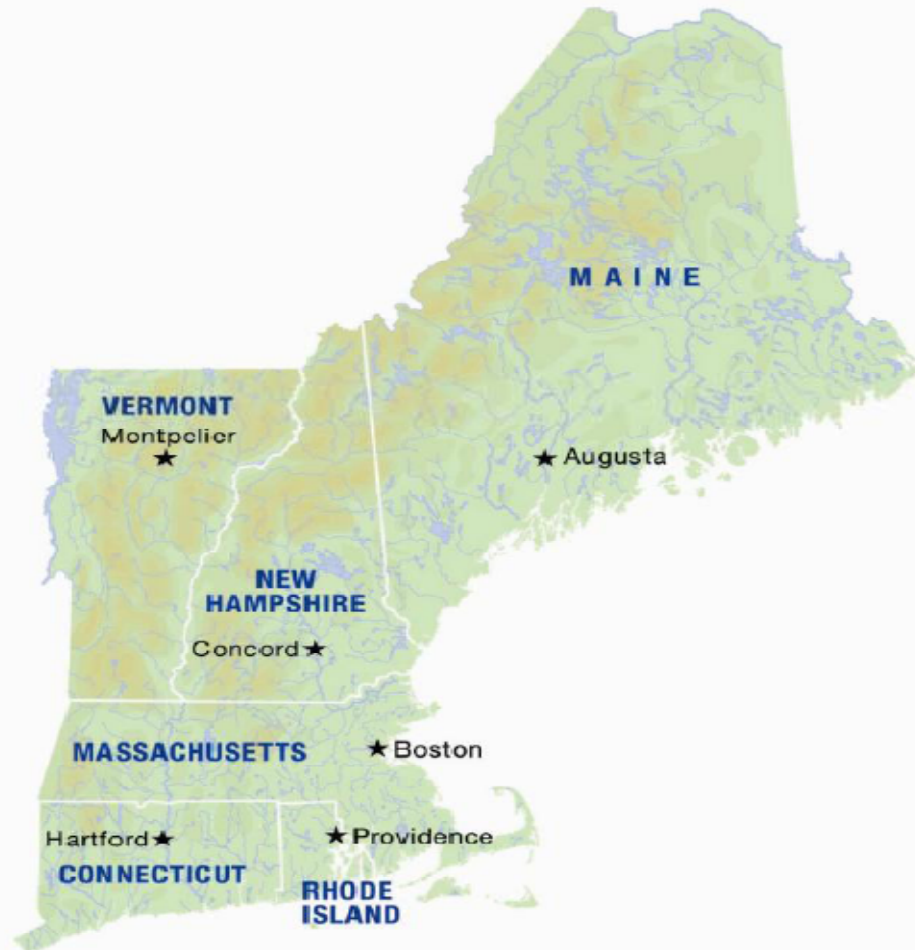


Synapse
Energy Economics, Inc.

Updating the ISO Mission Statement

Paul Peterson and Doug Hurley
RTO Governance Working Group
February 5, 2009

New England Bulk Power System



- 6.5 million households and businesses; population 14 million
- Over 8,000 miles of high-voltage transmission lines
- 13 interconnections to electricity systems in New York and Canada
- More than 32,000 megawatts (MW) of total supply (includes 1,693 MW of demand-resource capacity)
- All-time peak demand of 28,130 MW, set on August 2, 2006
- More than 300 participants in the marketplace (those who generate, buy, sell, transport, and use wholesale electricity)
- \$10 billion annual total energy market value (2007)
- More than \$1.0 billion in transmission investment made for reliability since 2002; another \$4.0 to \$7.0 billion planned over the next 10 years
- Approximately \$1.0 to \$2.0 billion of economic transmission investment to enable renewable resources under study
- Five major 345-kilovolt projects already in various stages of construction and operation

Figure 1-1: Key facts about New England's bulk electric power system and wholesale electricity markets.

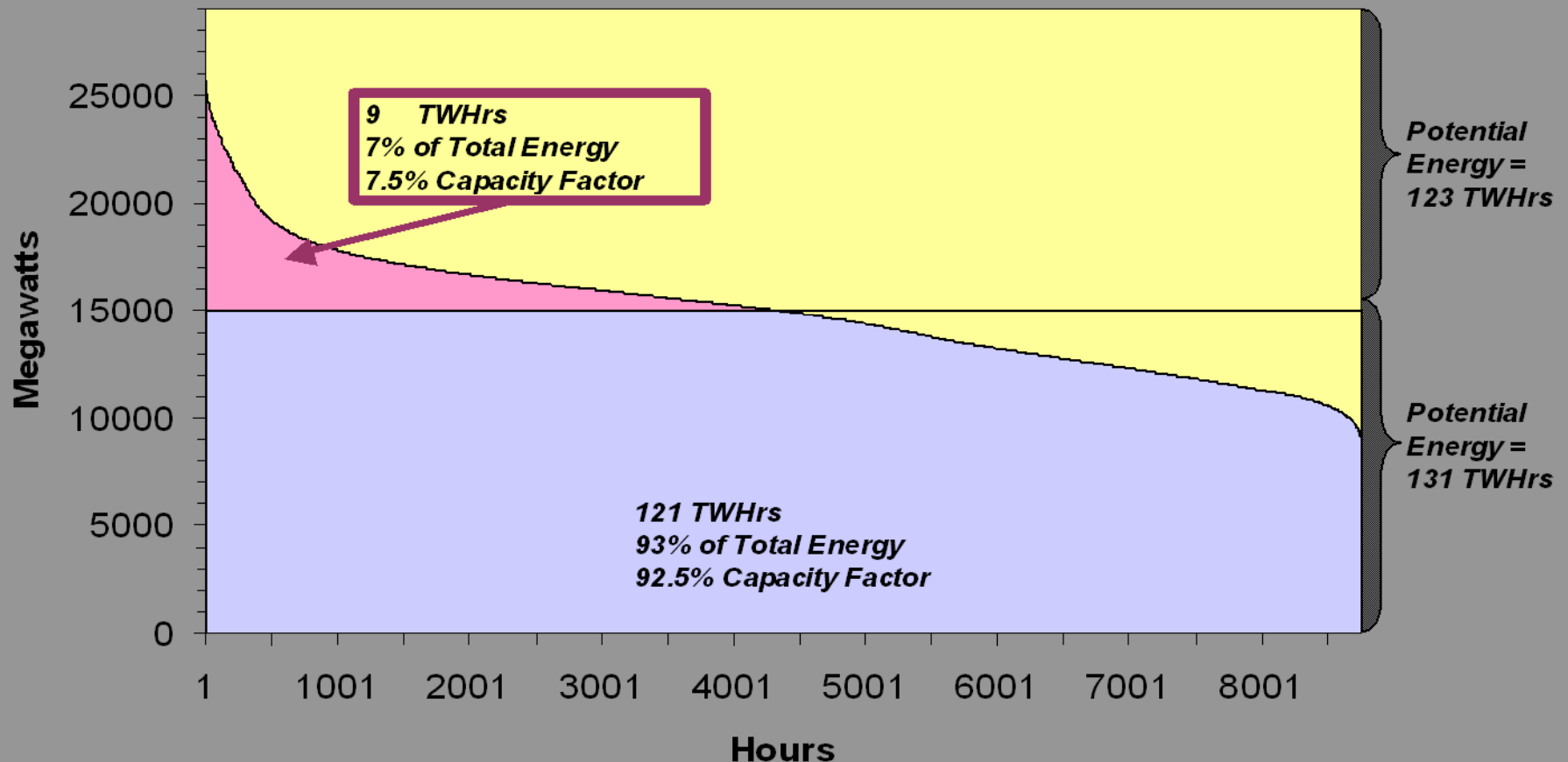
2007 ISO Annual Markets Report

ISO-NE Statement of the Problem

- “Over-consumption during peak-load periods requir[es] extra investment in generation and transmission capacity, under-utilization of idle capacity during off-peak periods, and ultimately, higher retail electricity prices and bills.”
[Presentation to MC, Feb 3, 2009]
- Resolution of this problem while maintaining reliability standards will make New England’s bulk power system more efficient. ISO-NE has a critical role to play.

Historical Problem

New England 2002 Load Duration Curve



Recent Load Duration Curves

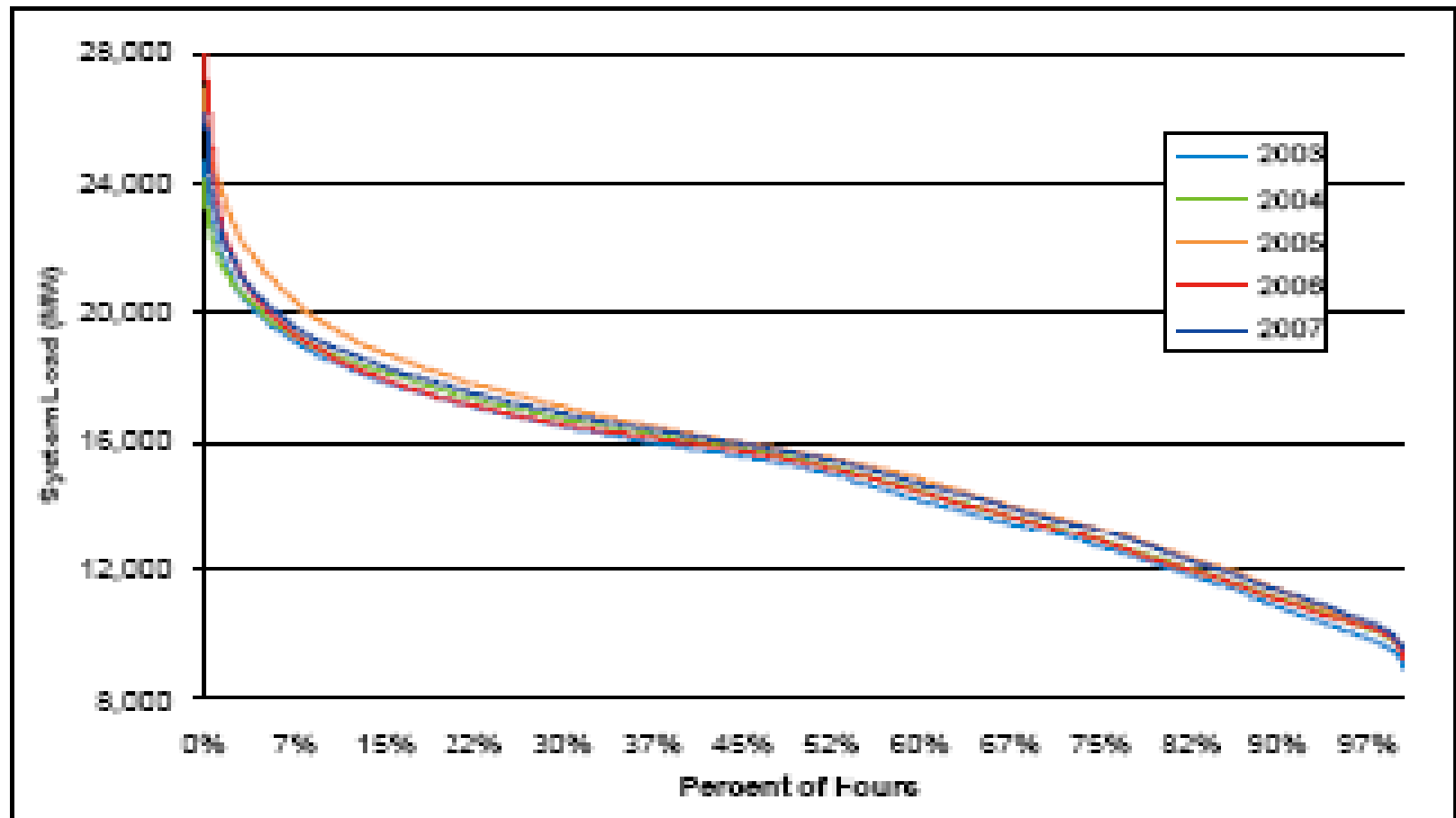


Figure 2-3: New England hourly load-duration curves, 2003 to 2007.

2007 ISO Annual Markets Report

Top 5% of Hours

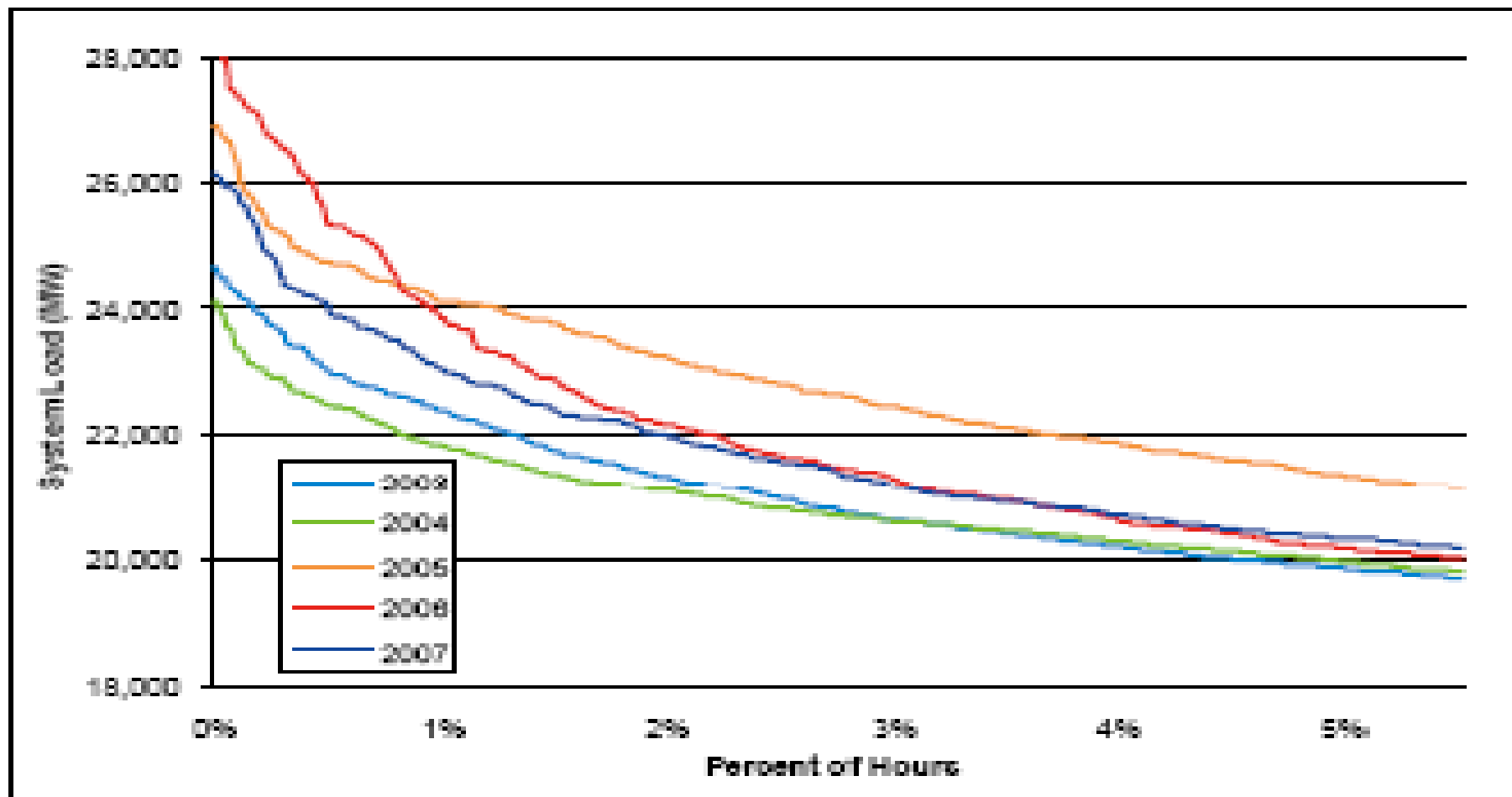


Figure 2-4: New England hourly load-duration curves, top 5% of hours, 2003 to 2007.

Annual Energy Prices

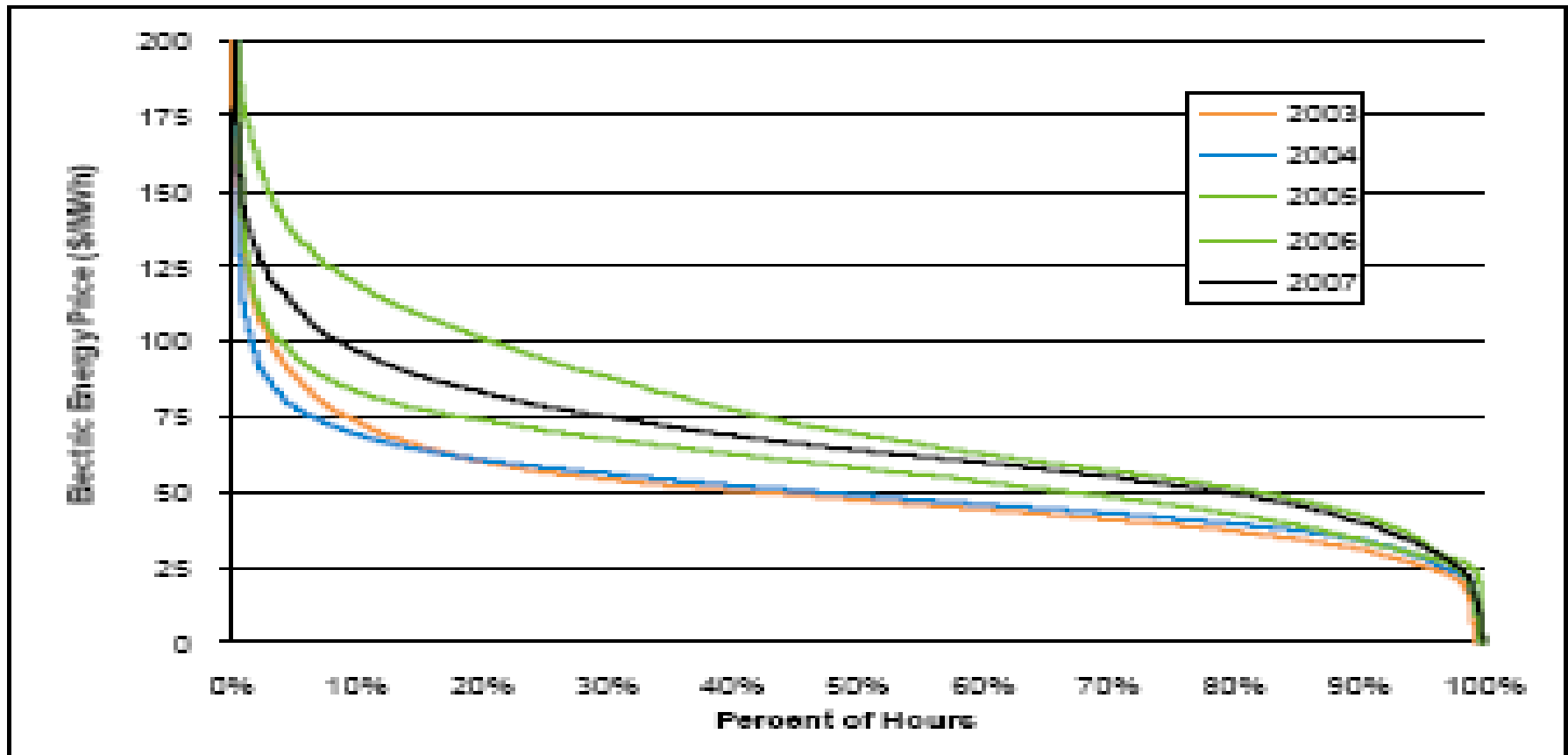


Figure 2-16: System real-time price-duration curves, prices less than \$200/MWh, 2003 to 2007.

Note: System price is the single energy-clearing price (ECP) for the Interim Market period ending February 28, 2003, and load-weighted Real-Time Energy Market LMPs for March 2003 to December 2006.

2007 ISO Annual Markets Report

Top 5% of Hours

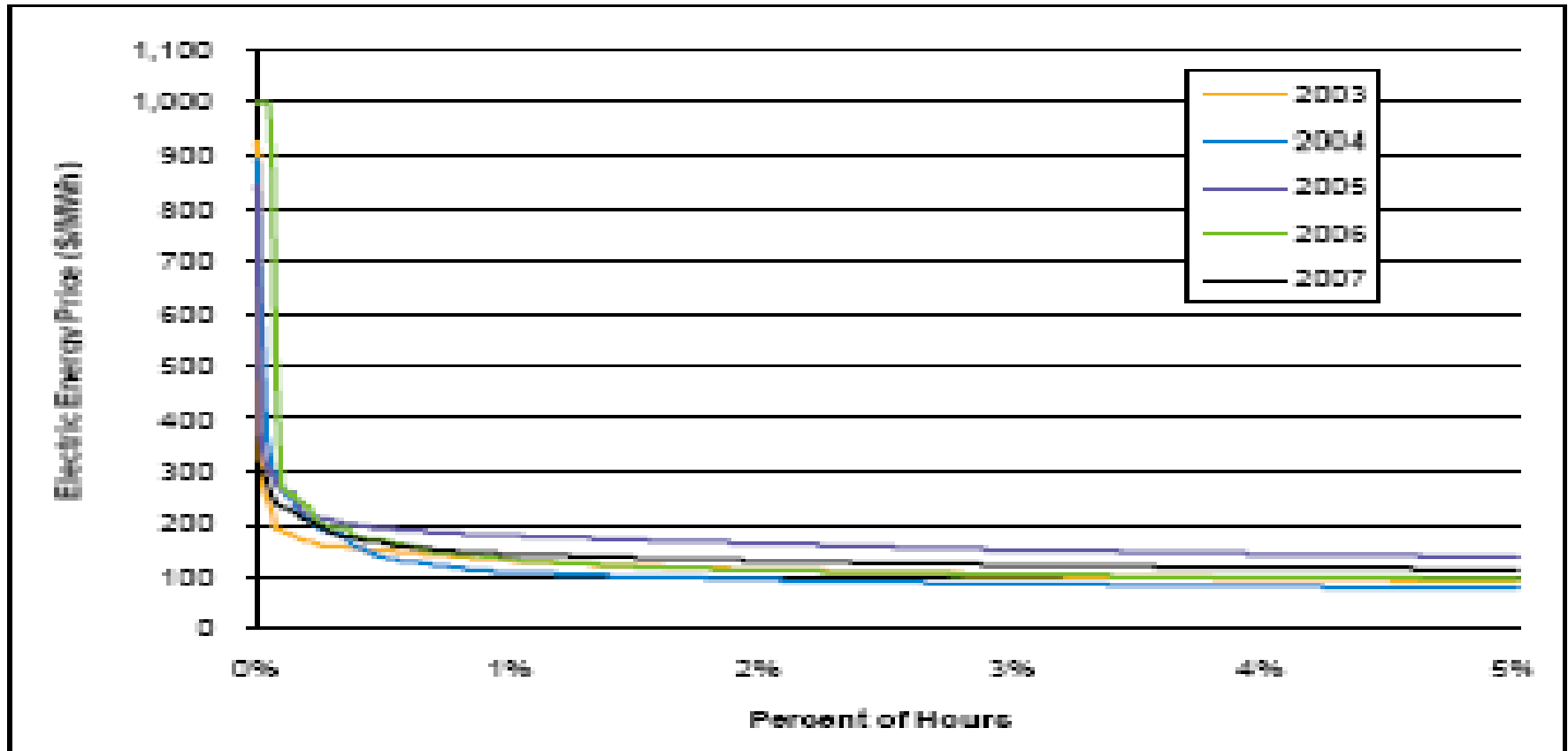


Figure 2-17: System real-time price-duration curves, prices in most expensive 5% of hours, 2003 to 2007.

Note: System price is the single ECP for the Interim Market period ending February 28, 2003, and load-weighted Real-Time Energy Market LMPs for March 2003 to September 2007.

Lack of Effective Progress

- Reliability Improvements:
 - Development of Regional System Planning
 - Expansion of Transmission System
 - Limited consideration of non-transmission alternatives
- Market Improvements
 - Standard Market Design
 - Forward Reserve market
 - Forward Capacity Market
- Cost Issues
 - Increasing retail costs
 - Increasing wholesale costs
 - Economic transmission expansion
 - Natural Gas dependence and volatility

Studies and Sources

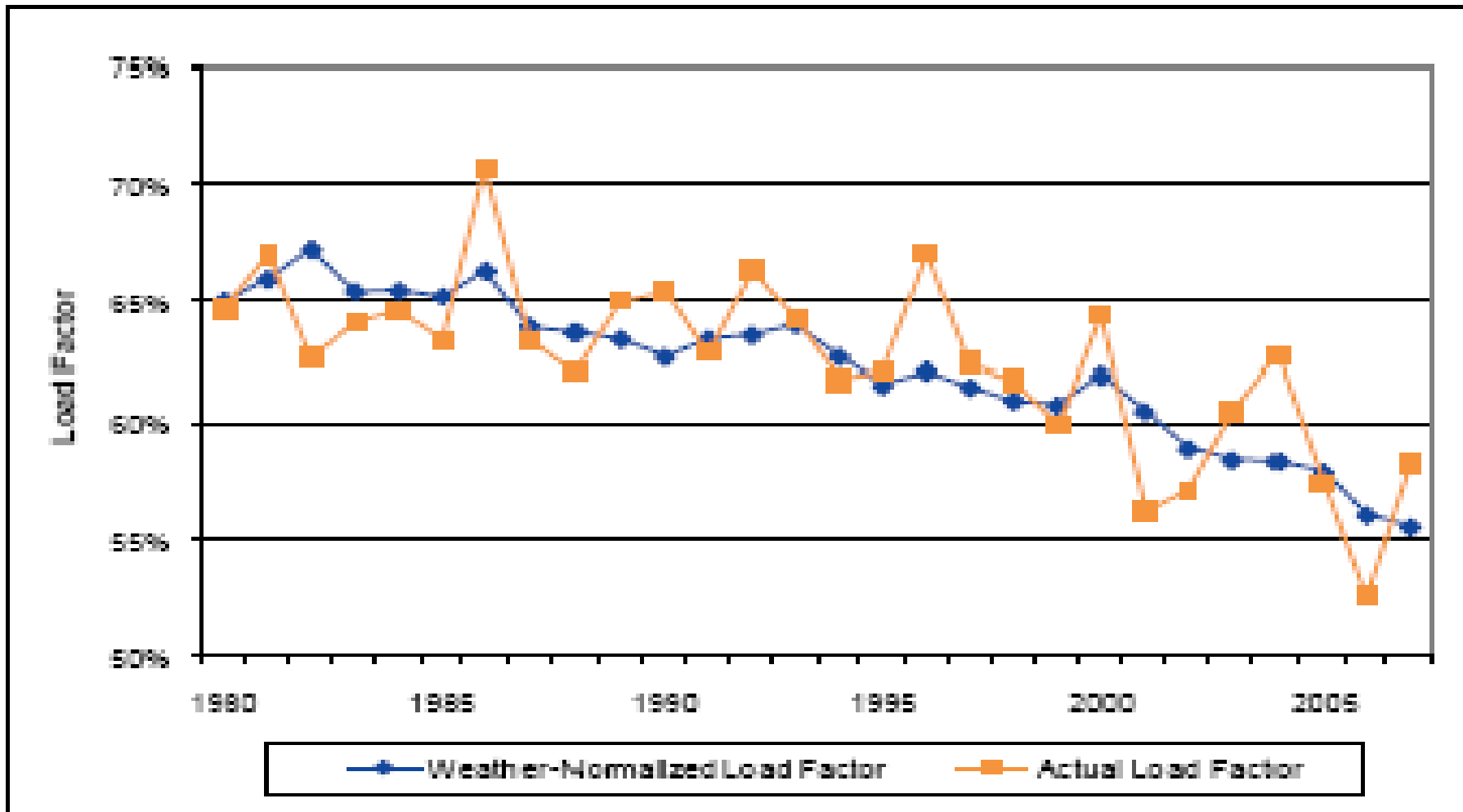


Figure 2-5: New England summer-peak load factors, 1980 to 2007.

2007 ISO Annual Markets Report

Studies and Sources

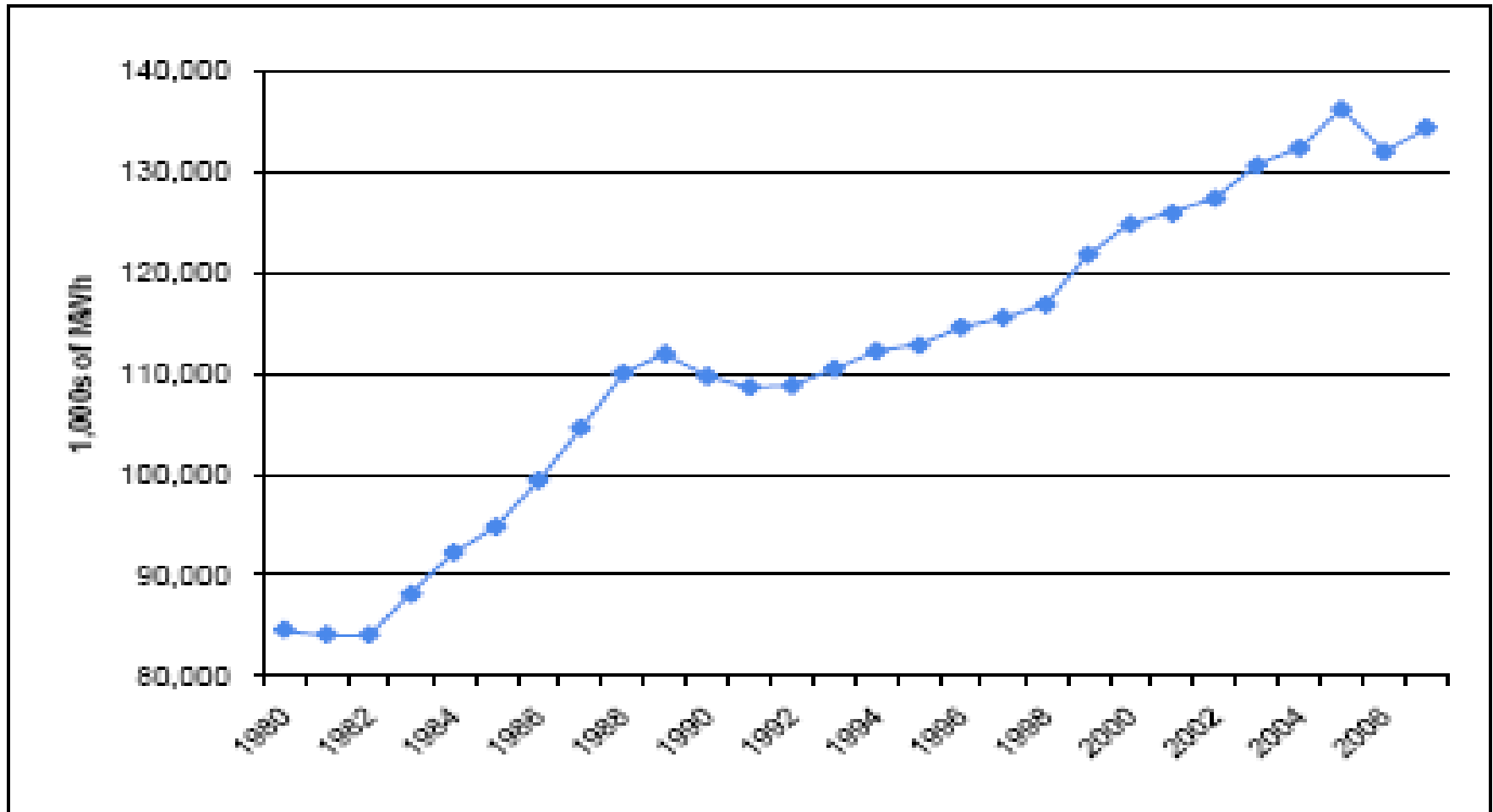


Figure 1-6: New England actual net energy for load, 1980 to 2007.

2007 ISO Annual Markets Report

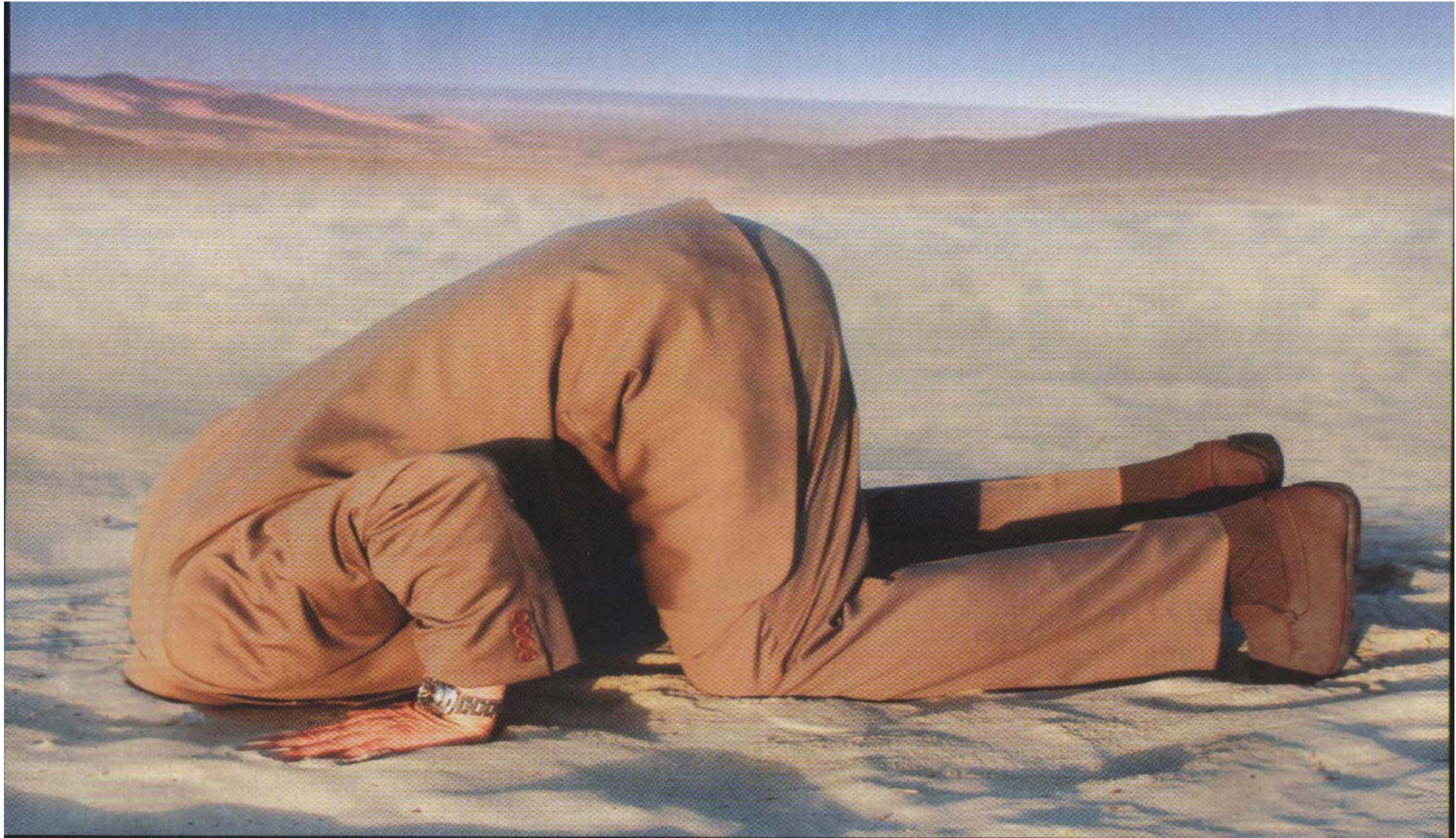
Non-Bulk Power System Issues

- Economic recession: Federal stimulus legislation
- Inefficiency of energy use: high energy intensity (residential, commercial, industrial)
- Carbon legislation: RGGI; Federal Legislation
- Renewable resources: state RPS; Federal RPS
- Resource consumption issues: four to six earths
- Technological innovations: a smarter grid

Market solutions and Policy solutions

- Market design provides short-term signals and direction
 - Market signal today is consume more over the short term
- Policy provides long-term signals and direction
 - Policy signal today is consume less over the long term
- Oil market volatility example
- ISO-NE Scenario Analysis reports
- Need to coordinate Market and Policy signals to solve the “problem”:
 - how to meet regional electric needs at the lowest societal cost
- Helpful to first reach agreement on the problem

One Alternative (not recommended)



Change the ISO Mission Statement

- We will work tirelessly. . . to roll back the specter of a warming planet;
- We must pick ourselves up, dust ourselves off, and begin again;
- Without a watchful eye the market can spin out of control;
- Nor can we consume the world's resources without regard to effect; for the world has changed and we must change with it.

January 20, 2009 Inaugural Address

Questions?

Paul Peterson

ppeterson@synapse-energy.com

Doug Hurley

dhurley@synapse-energy.com