Indian Electricity Sector Reforms

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April 23, 2008

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Electricity Market in India

- November 10, 1897: Sidrapong 600 KW (3x200KW) the first major HEP in Darjeeling commissioned
- Installed capacity reached 1574 MW in 1947, the year of Indian independence
- Power generation and supply remained an individual initiative till 1910

Major legislations

- Indian Electricity Act 1910 - first step to regulate electricity business in the country
- Private power utilities: CESC, AEC, Surat Electricity Company, Tata Power emerged after the introduction of Indian Electricity Act 1910
- Power Departments in the State governments managed the electricity business
- Electricity (Supply) Act 1948 laid the foundation for the aggregation of small electricity utilities in to SEBs
- Electricity business nationalized (but Major private licensees retained distribution of electricity in urban areas)
- Electricity is a concurrent subject under the Constitution (Both Central and State governments legislate on electricity matters)

Electricity Supply Act 1948

- ES Act 1948 encouraged running of electricity business on commercial principles
- SEBs were set up in most of the states baring a few small ones
- Initially all investment requirements were met by governments through budgetary support
- Resource constraints at State level lead to setting up of Central Power utilities (BBMB, DVC, NTPC, NHPC, REC, NEPCO, NPC, etc.,)
- SEBs initially performed well but performance deteriorated in subsequent years hence unable to meet the demand

Need for Reform

- SEBs earned negative returns against statutory requirement of 3 % ROR on Net Fixed Assets as per ESA 1948
- Irrational tariff lead to large gap in average cost of supply and average tariff
- Large subsidy requirements resulted in State governments defaulting in subsidy payments
- Unsatisfactory Capital structure with poor financial management worsened the situation
- Poor operational performance lead to high T&D Losses and loss of revenue
- Highly subsidized tariff to domestic consumers and agriculture sector (in some cases free power to agriculture)

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Need for Reform

- Heavily debt oriented capital structure resulted in sharp increase in the cost of interest payments in the total cost of supply
- Lack of funds resulted in poor maintenance of the power systems
- As a result PLF and availability declined sharp
- Non availability of finances delayed project execution and resulted in time and cost overruns
- Receivables rose to high levels resulting in SEBs defaulting in payments to CPSUs, Coal utilities
- Frequency of tariff revisions became very low
- Transmission and distribution losses exceeded 50% in several states

Key Reform Initiatives Over Past Decades

- Private Power Initiative of GOI opened power generation to private sector in March 1991
- The CERC Act of 1998 laid the basis for creation of an independent regulatory regime in the country
- Central Electricity Regulatory Commission at the national level and SERCs in several states were created
- Unbundling of the SEBs initiated through Sate legislations
- Transmission segment opened to private participation in 1998

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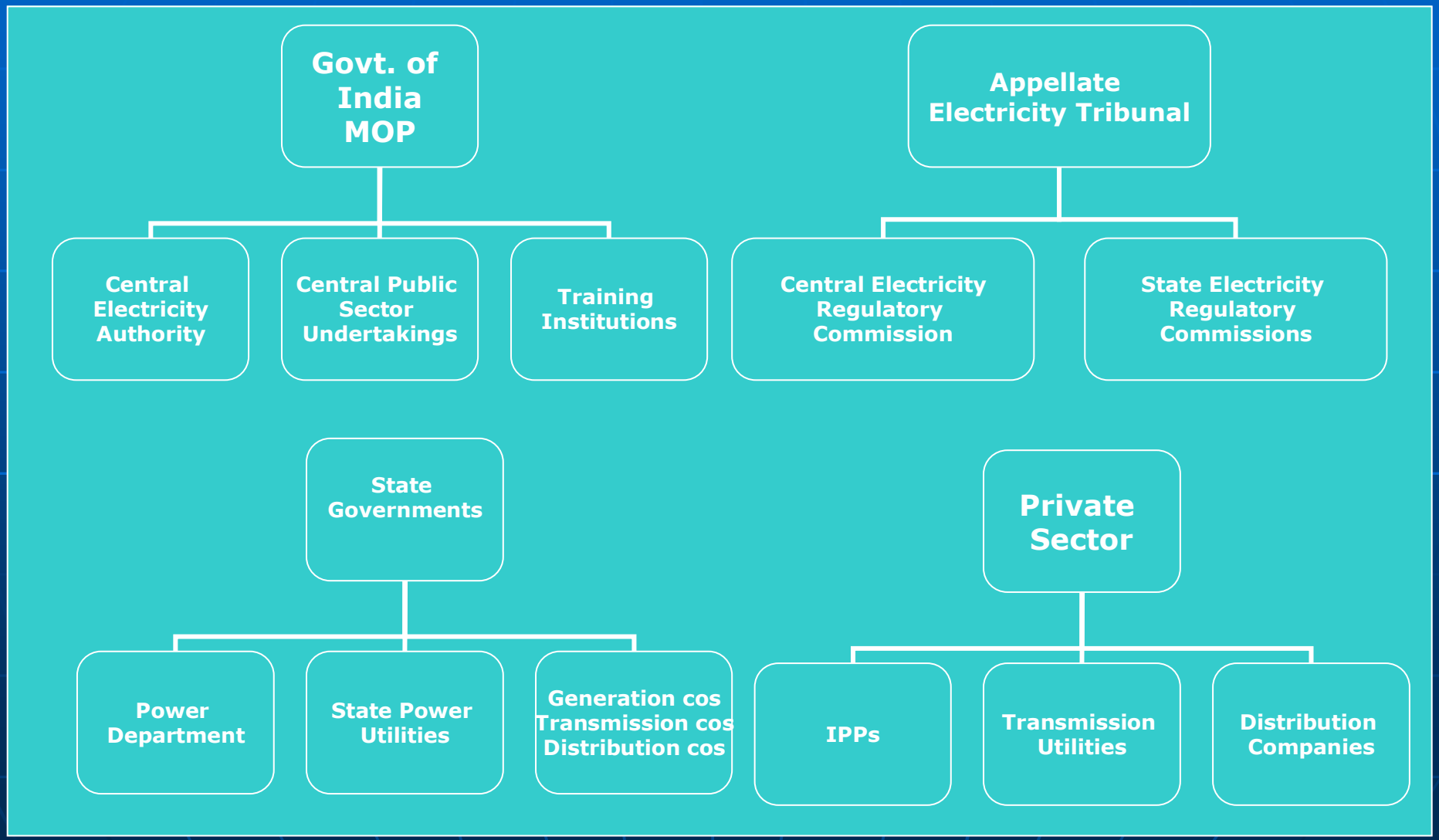
Key Reform Initiatives Over Past Decade

- Open Access on transmission systems provided for
- Comprehensive Reform Act covering all the major aspect of electricity business passed under the name - Electricity Act 2003
- Hydropower Initiative to exploit 50,000 MW potential initiated
- Ultra Mega Power Projects Policy initiated recently
- GOI encouraged states to reform power sector with liberal incentives under the APDRP and other centrally sponsored schemes
- Fiscal incentives through tax concessions/slashing of duties
- SEB dues securitized through issue of power bonds

Objective of Reform Initiatives

- Downsize utilities to manageable levels to enhance efficiency
- Increase availability through private sector participation
- Bring competition through multiplicity of players
- Independent regulation to ensure fair play
- Remove transmission bottlenecks by facilitating open access
- Encourage power trading in the country
- Privatize utilities where ever feasible

Structure of Indian Power Market



Current Status

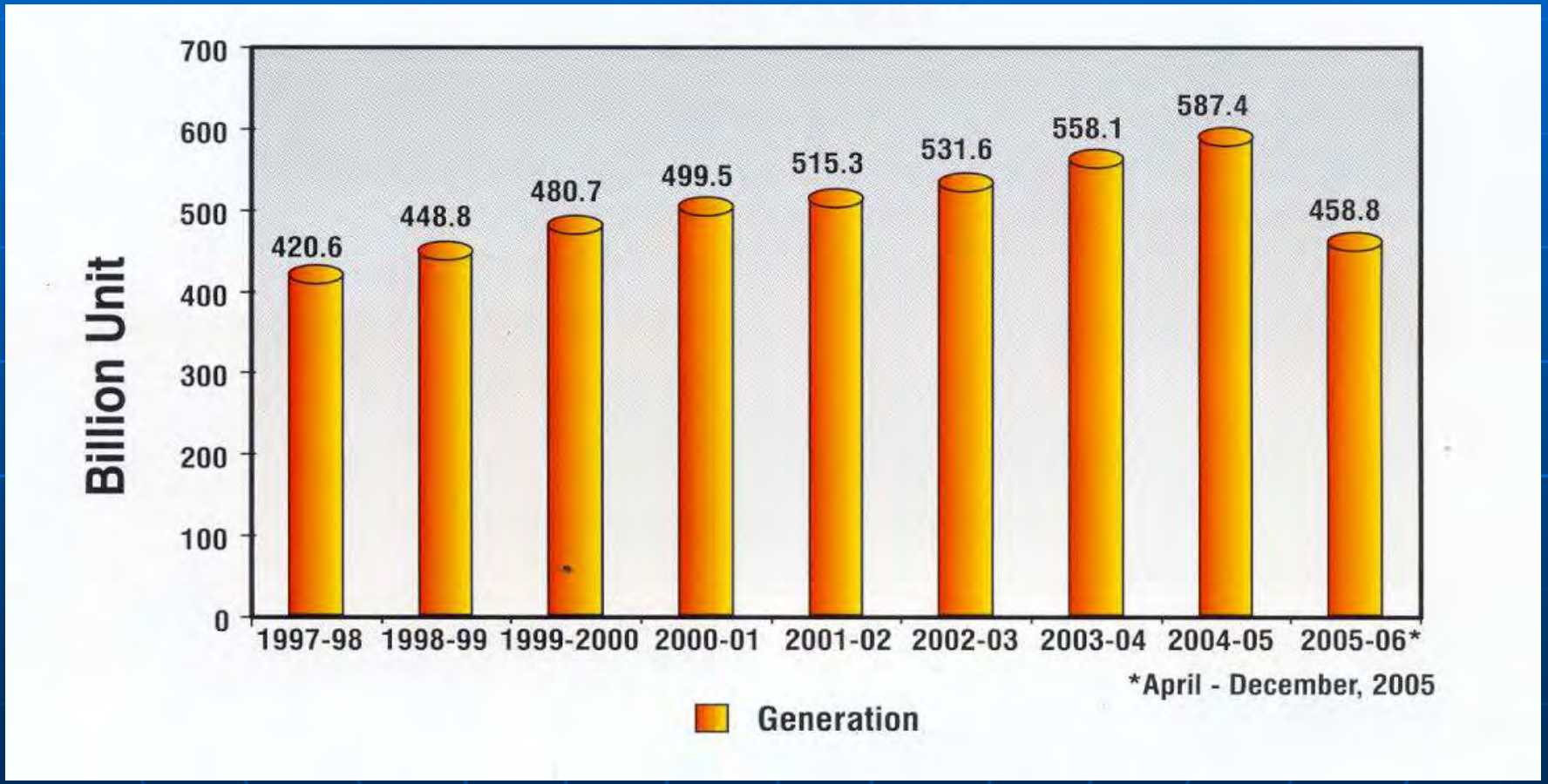
- Installed capacity:
  - utilities : 141,080 MW (as on 31.01.08)
  - Captive : + 60,000 MW (31.1. 2008)
- Overall generation touched 662.52 billion units (2006-07)
- Overall PLF reached 77.7% (2007-08)
- Energy shortages have gone up from 8.1% in 1997-98 to 9.6 % in 2007-08
- Peak shortage increased from 11.3% in 1997-98 to 15.2% in 2007-08

Demand Supply Scenario

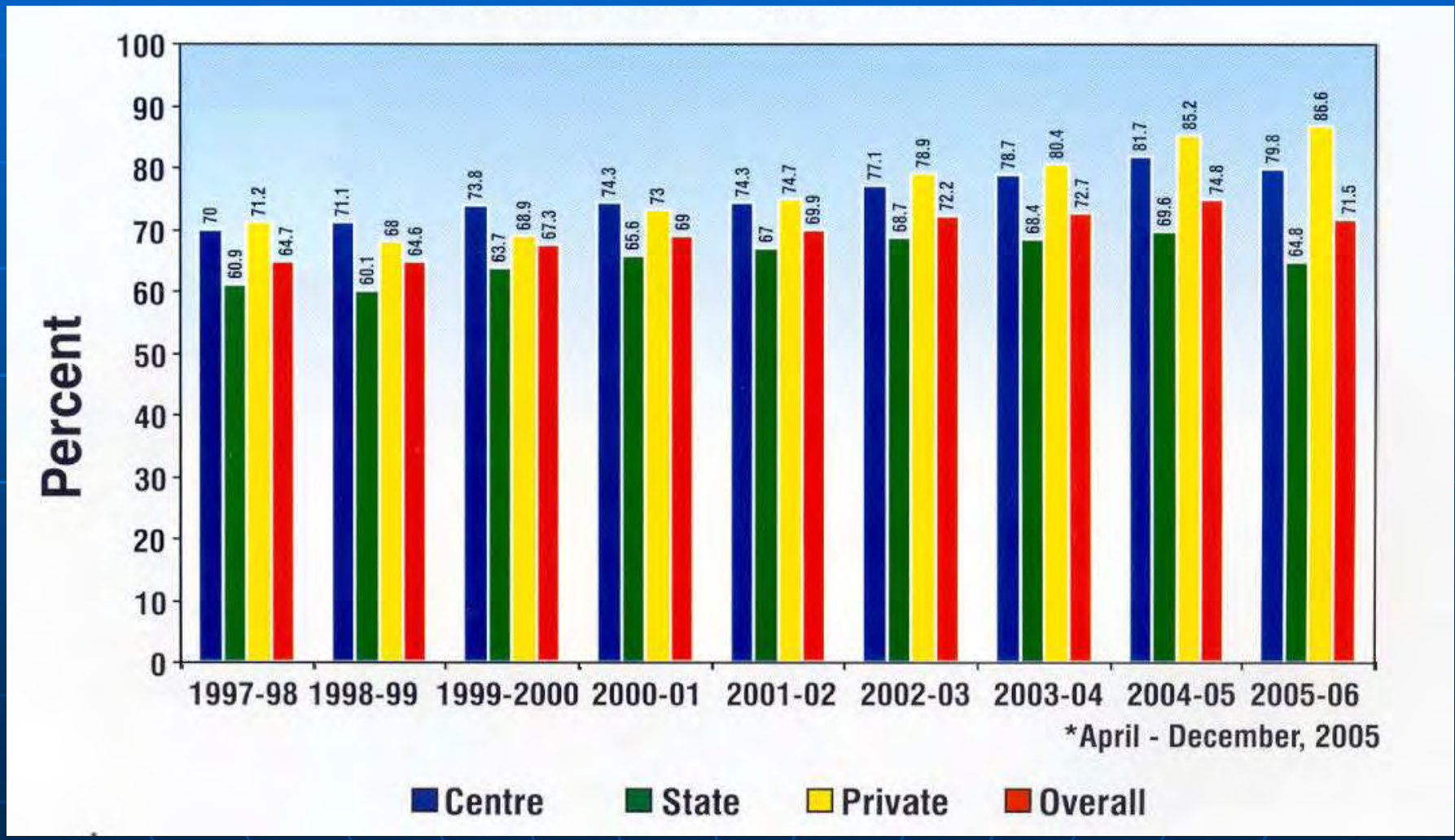
Year	Generation (Bu)	Energy Requirement (MU)	Energy Availability (MU)	Energy Shortages (MU)	Energy Shortages (%)
2000-01	499.5	507216	467400	39816	7.8
2001-02	515.2	522537	483350	39187	7.5
2002-03	531.6	545983	497890	48093	8.8
2003-04	558.3	559264	519398	39866	7.1
2004-05	587.4	591373	548115	43258	7.3
2005-06	617.5	631554	578819	52735	8.4
2006-07	**662.52**	690587	624495	66092	9.6
2007-08*	586.00	60884	554248	54556	9

* up to January 2008

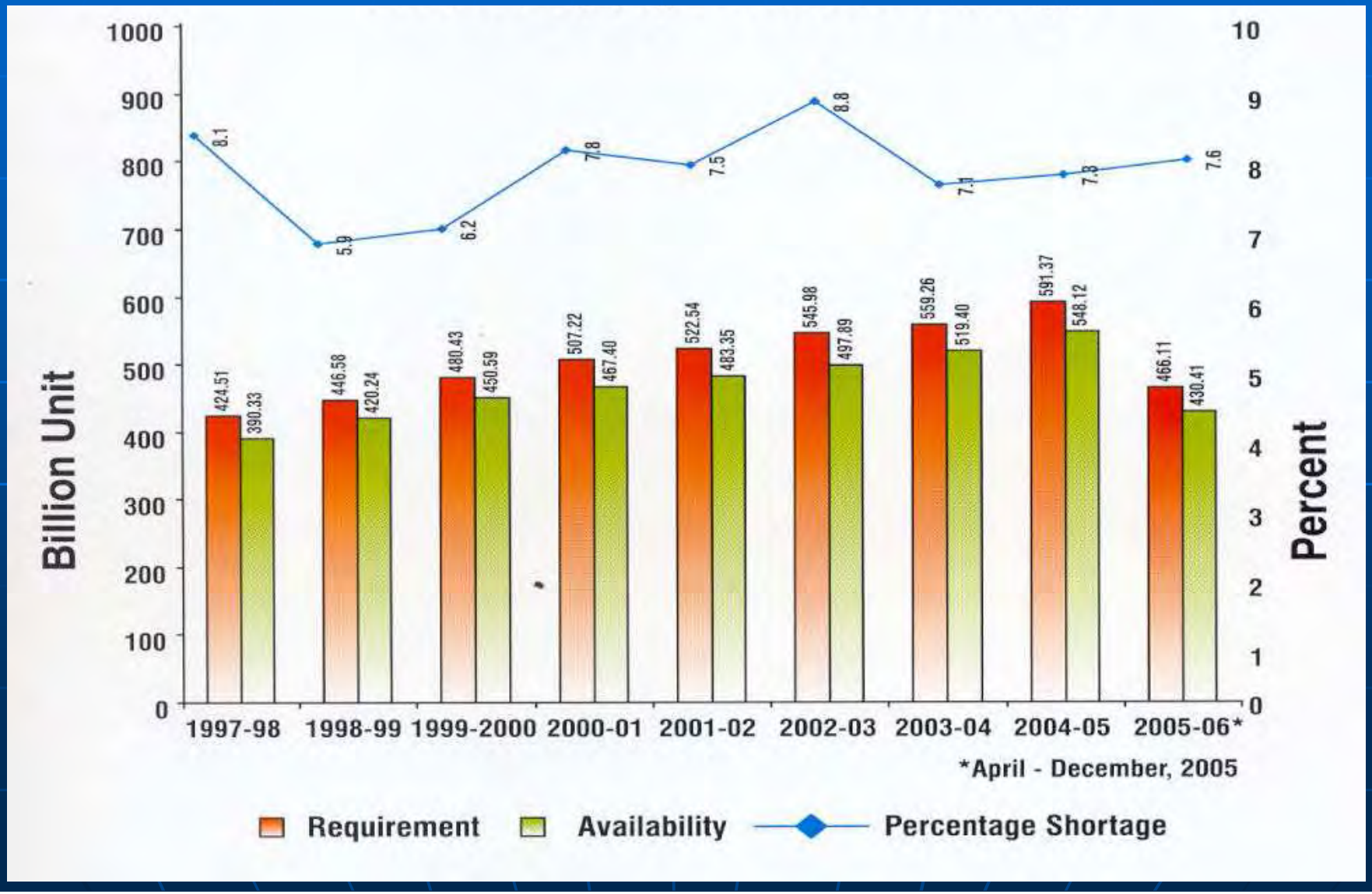
Generation


Billion Unit
700
600
500
400
300
200
100
0
420.6
448.8
480.7
499.5
515.3
531.6
558.1
587.4
458.8
1997-98
1998-99
1999-2000
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06*
*April - December, 2005
Generation

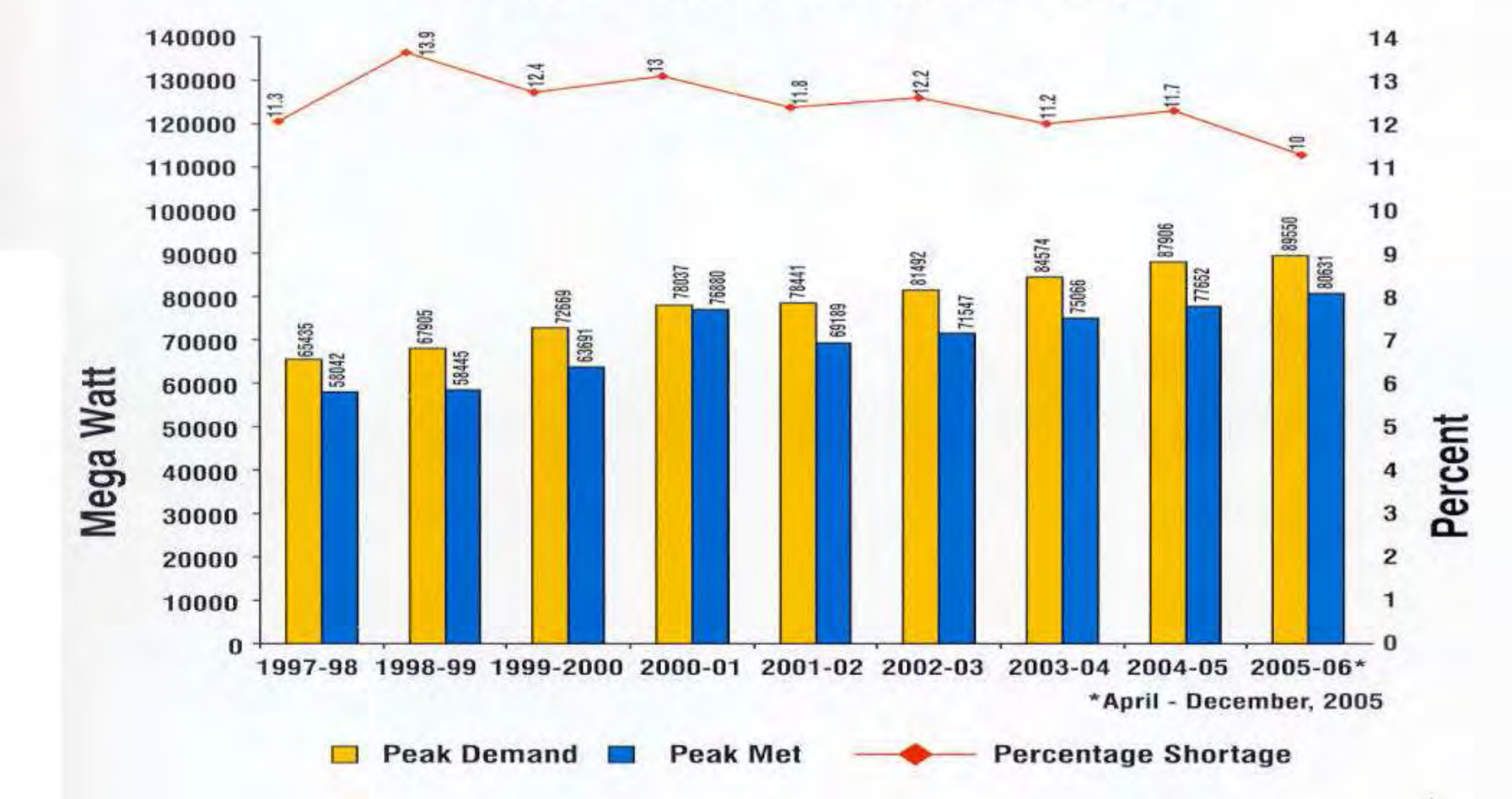
Sector-Wise Plant Load Factor



Power Supply Position – Energy



Power Supply Position – Peak



Thank You !