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# **New York's Electric Reliability**

## **Monitoring Utility Performance**





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# ***Overview of Presentation***

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-  **New York's Electric Structure**
-  **Monitoring Reliability of the Distribution and Transmission Systems**
-  **Reliability Performance Plans**
-  **Monitoring Extreme Events**

# ***Basics of the New York Electric System***

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## **Service Providers:**

- 6 Major Investor-Owned Utilities
- 2 Large Power Authorities
- 47 Small Municipalities
- 4 Small Rural Electric Co-ops



**Load: 32,000 MW at peak**

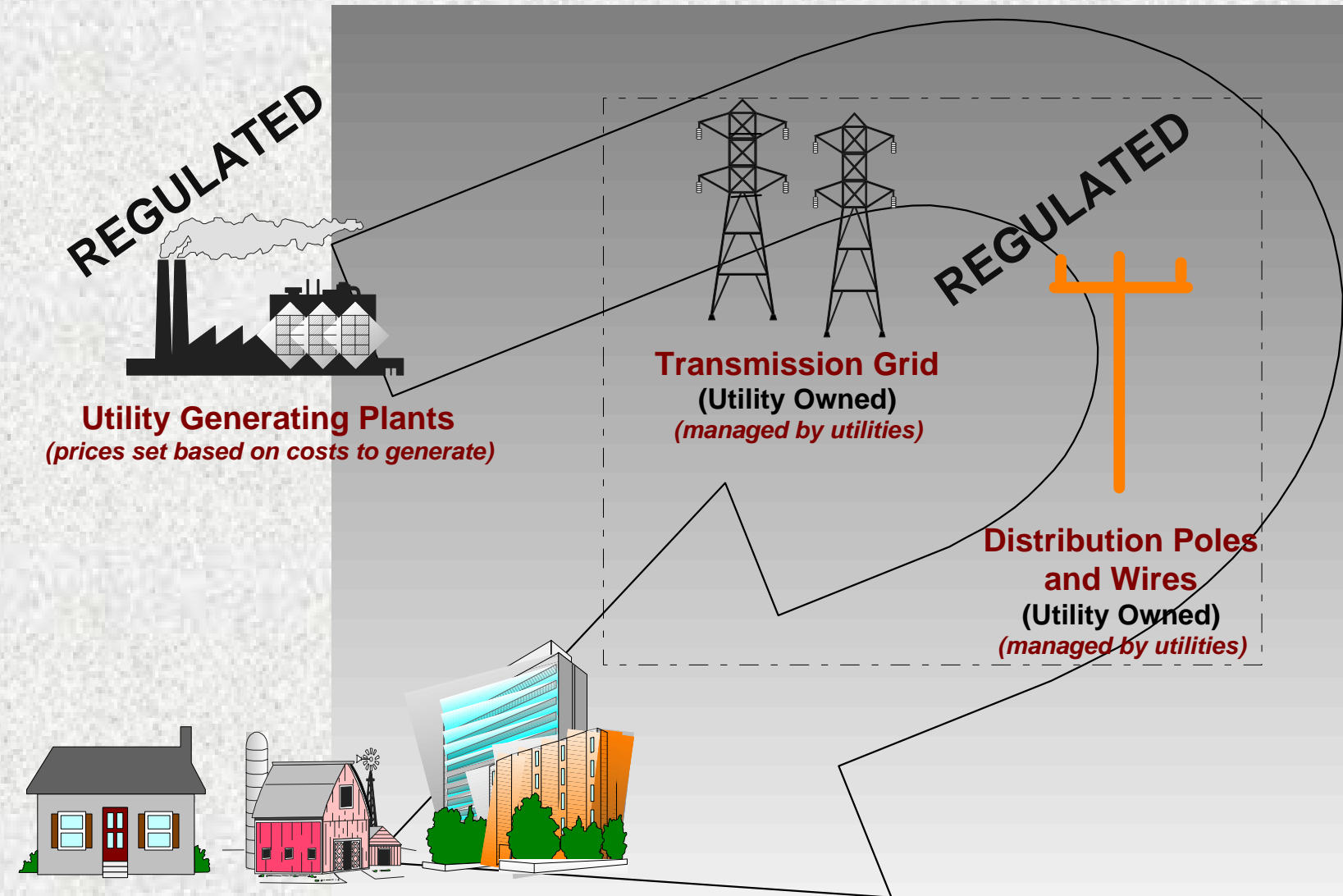
**16,000 MW in New York City and Long Island**

☞ ***Extreme electric transmission congestion downstate***



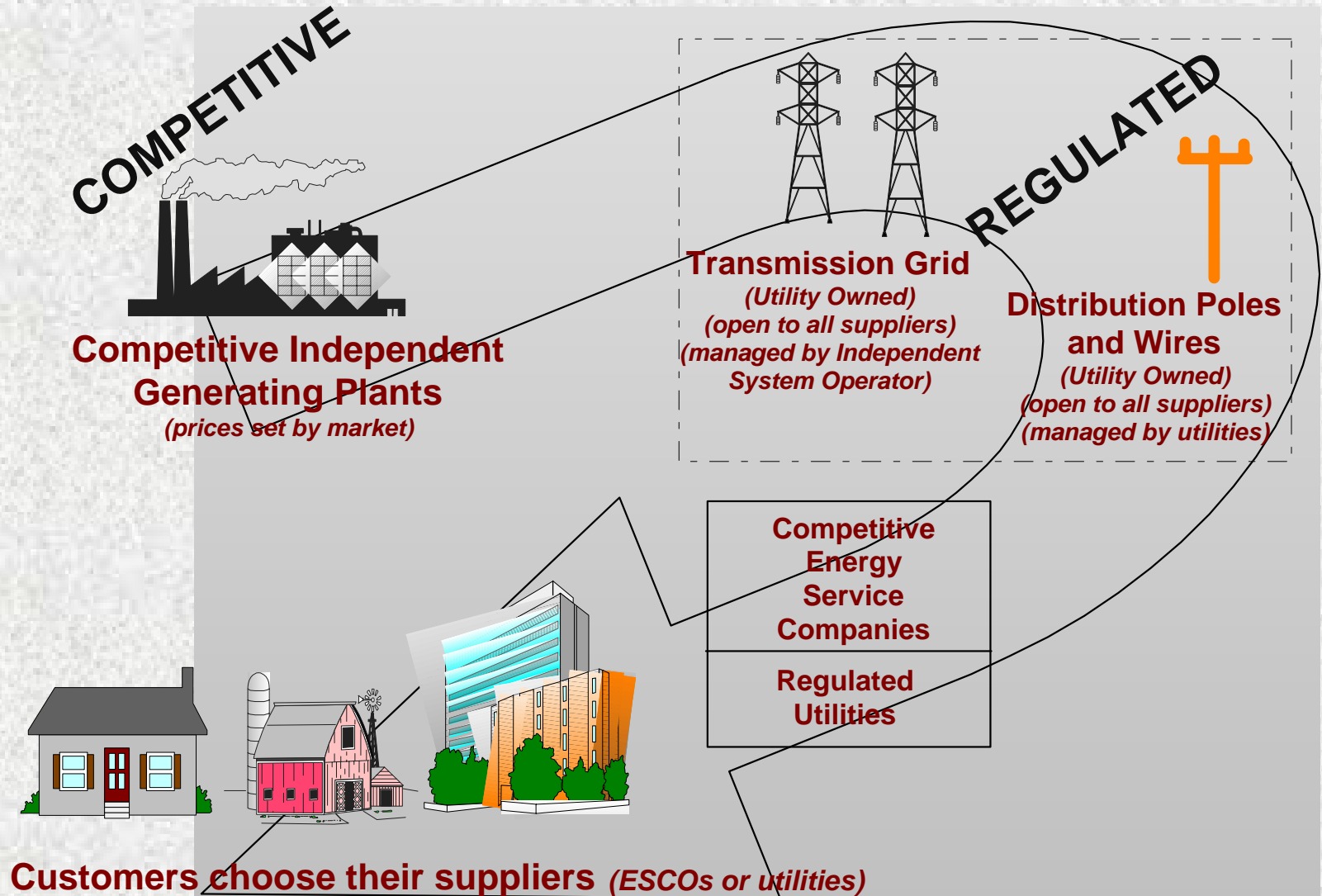
**Generating capacity: 39,000 MW**

# Old Structure



**Customers generally served by regulated utility**

# New Structure (Post-Divestiture)



# ***Electric Reliability***

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*What we know about the reliability of New York's transmission and distribution systems*

- ⌚ **Transmission & Distribution (T&D) systems are very reliable**
  - New York City's reliability is the best in the nation
- ⌚ **Industry adherence to reliability standards**
- ⌚ **Weather can cause major disruptions**
  - January 1998 - Ice storm hits Northern New York
  - July 1999 - Heat wave in NYC
  - September 1999 - Hurricane Floyd

# ***Electric Reliability Concerns***

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## **Impacts of industry restructuring**

- Focus on transmission & distribution (T&D) business
- Federal legislative and regulatory activity
- Mergers and acquisitions

## **Demand for electricity is rising**

## **Increasing customer expectations**

## **Aging Infrastructure**



# ***Reliability – Recent Trends***

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- ⌚ **Capital and Operation & Maintenance spending on Transmission & Distribution**
  - Decreased in late 1990s/early 2000s
  - Rebounding now with utilities looking to upgrade infrastructure
- ⌚ **Increased productivity and asset maximization**
  - Automated switching and sectionalizing
  - Advanced system monitoring
  - Improved equipment
  - Reliability centered maintenance
  - Outage management systems/crew utilization
- ⌚ **Workforce**
  - Age/Retirements affecting overall levels and knowledge base
  - Aggressive training and recruiting programs



# ***Service Standards***

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- ⌚ **Adopted in 1991 (updated in 2004)**
- ⌚ **Establishes expected levels of service under typical operating conditions in regions**
  - Measure for Frequency of interruptions (System Average Interruption Frequency Index – SAIDI)
  - Measure for Duration of interruptions (Customer Average Interruption Duration Index - CAIDI)
  - Excludes “Major Storms” (10%+ customers out or >24 hrs) to normalize data for year to year comparisons

# ***Service Standards***

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## **Setting appropriate targets**

- Primarily based on historic performance and trends
- Geographic and technology conditions
- Demographics and customer expectations
- Allow more room for yearly variability in smaller regions
- Set like targets in similar regions for benchmarking

## **Statutory requirement for interruption data monthly and by cause** *(equipment failure, lightning, tree contacts, accident, etc.)*

# ***Service Standards***

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## **Power quality requirements**

- Voltage supply levels (American National Standards Institute (ANSI) C84.1-1995)
- Momentary interruptions and other power quality events by cause

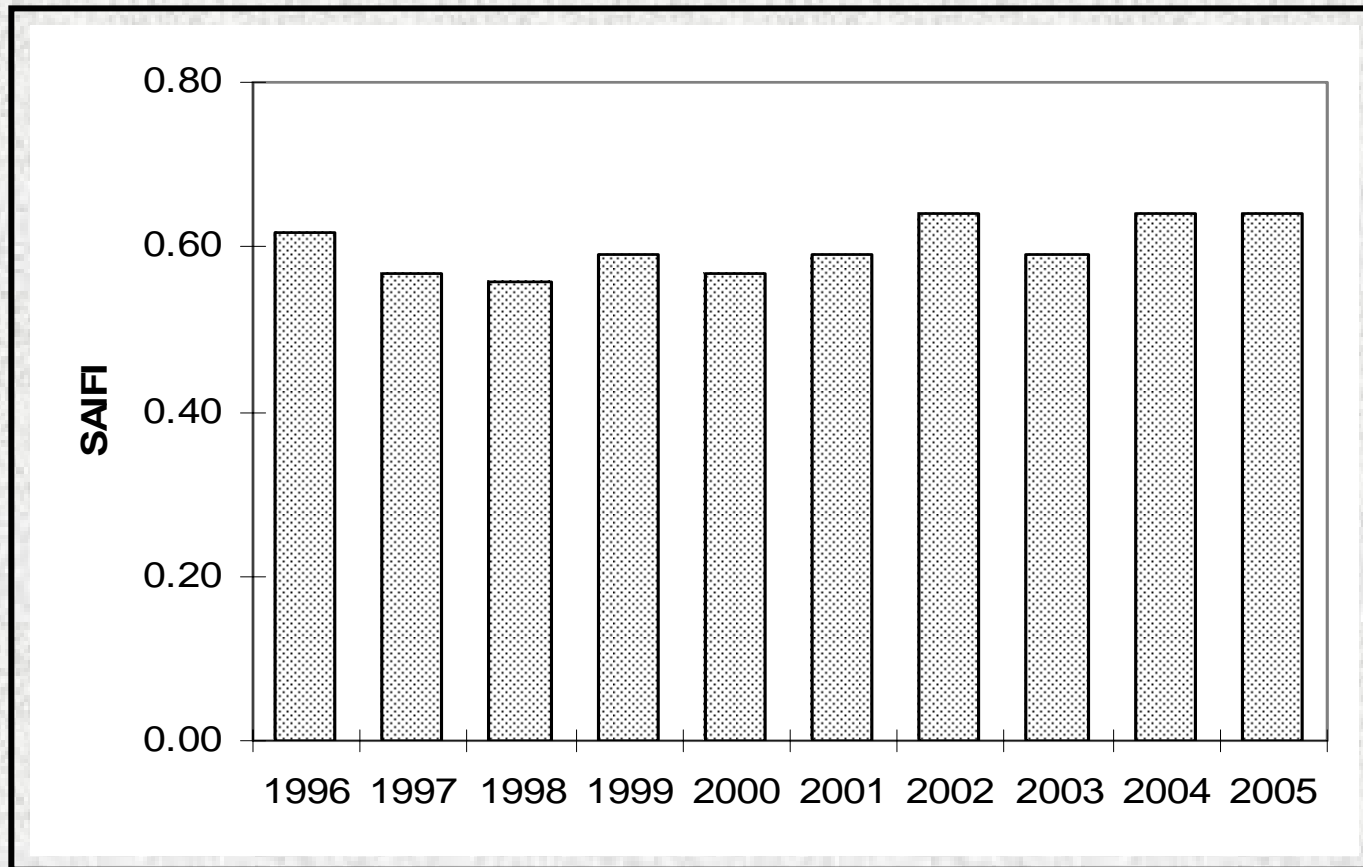
## **Annual report by utilities**

- Analysis of interruption data
- Identify worst performing circuits
- Future plans and corrective actions based on performance

# Statewide Historical Performance

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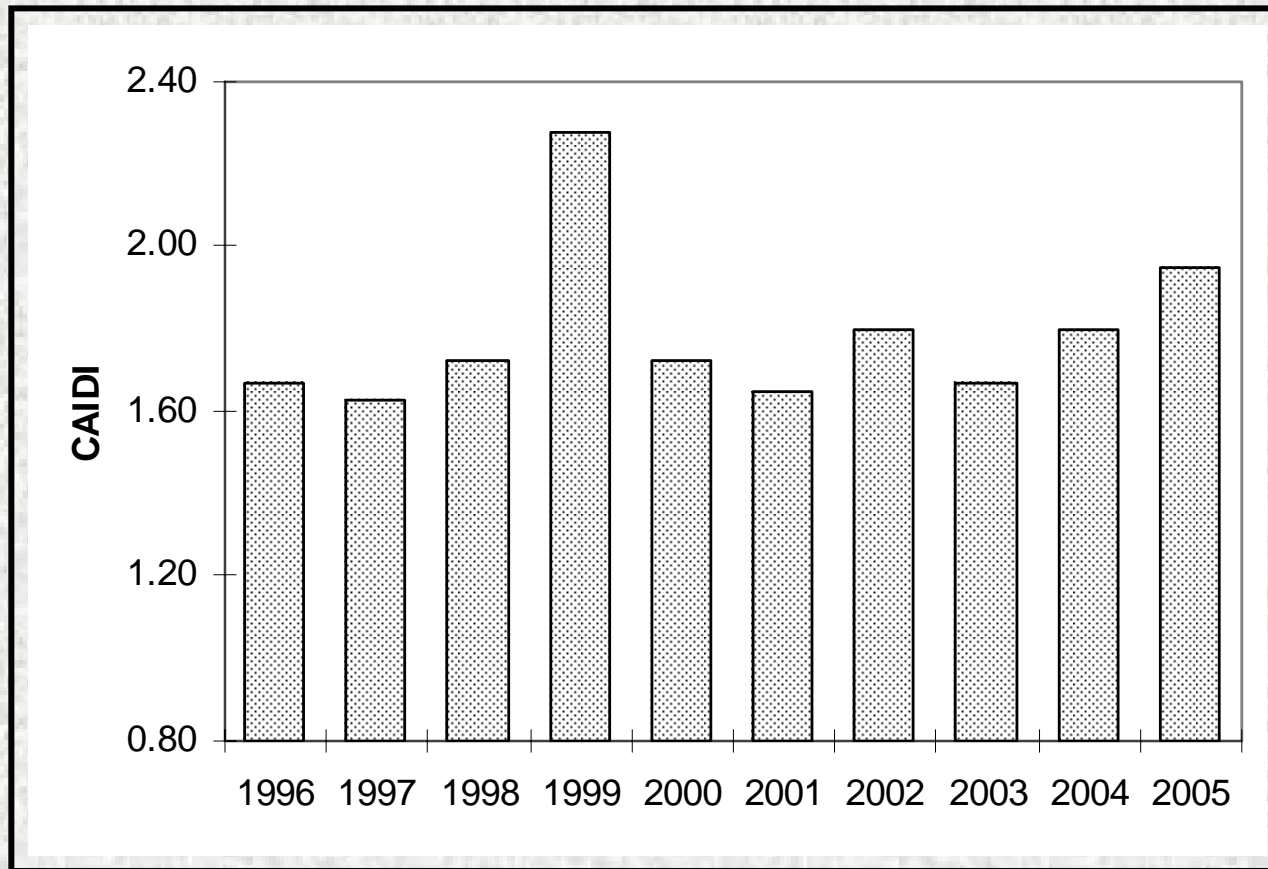
## *Outage Frequency*



# Statewide Historical Performance




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## *Duration of Outages*



# ***Reliability Performance Plans***

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-  **The 6 major investor-owned utilities in New York have performance based incentive plans**
-  **The plans are independent and designed to prevent deterioration in reliability**
-  **Reliability targets are based on frequency and duration measures on a company-wide basis**

# ***Reliability Performance Plans***

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 **Plans may target certain areas for improvements**

 **Examples:**

- Momentary interruptions by voltage class  
(*distribution, sub-transmission, transmission*)
- Circuit breaker replacement goals
- Enhanced tree trimming



# ***Reliability Performance Plans***

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- ⌚ **Failing to meet targets results in negative revenue adjustments (total exposure ranges from \$360K to \$60M based on company's plan)**
- ⌚ **Summary of recent actions:**
  - 4 utilities missed targets between 2001 and 2004
  - Approximately \$21 million in negative revenue adjustments
- ⌚ **Plans may contain language to increase dollar exposure if a target is missed on a continued basis**

# ***Extreme Events***

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- ⌚ **Utilities must file emergency plans detailing mitigation and restoration activities**
- ⌚ **Track interruptions using an emergency outage reporting system**
  - Geographic Information Systems (GIS) based
  - Tied to utility outage management systems
  - Basis for allocating state resources
  - Prepare maps, reports, and charts
- ⌚ **Open communication during an event**

# Extreme Events

