





Benchmarking as a Regulatory Management System

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Webster & Somes

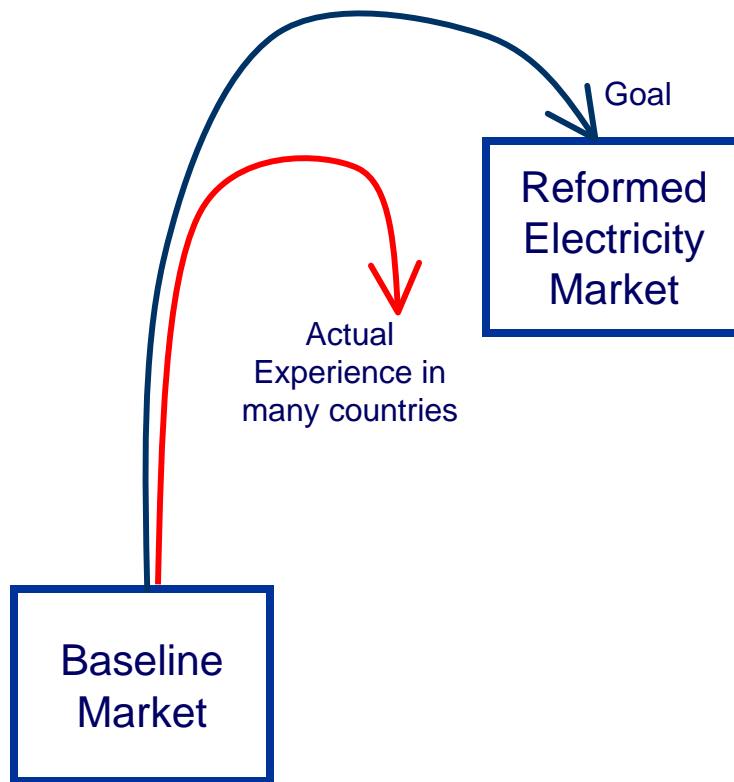
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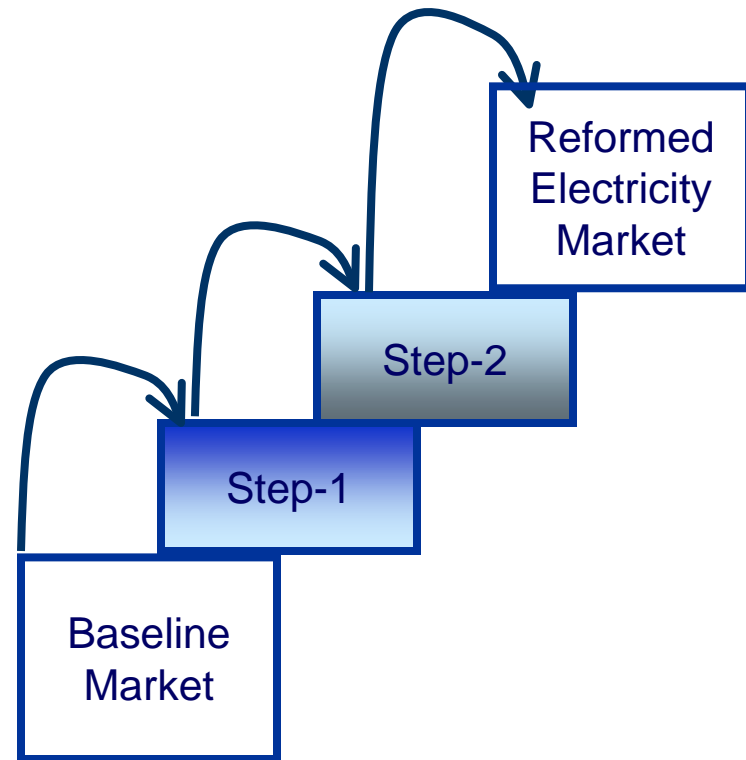


Conceptual Approach

Revolutionary Approach

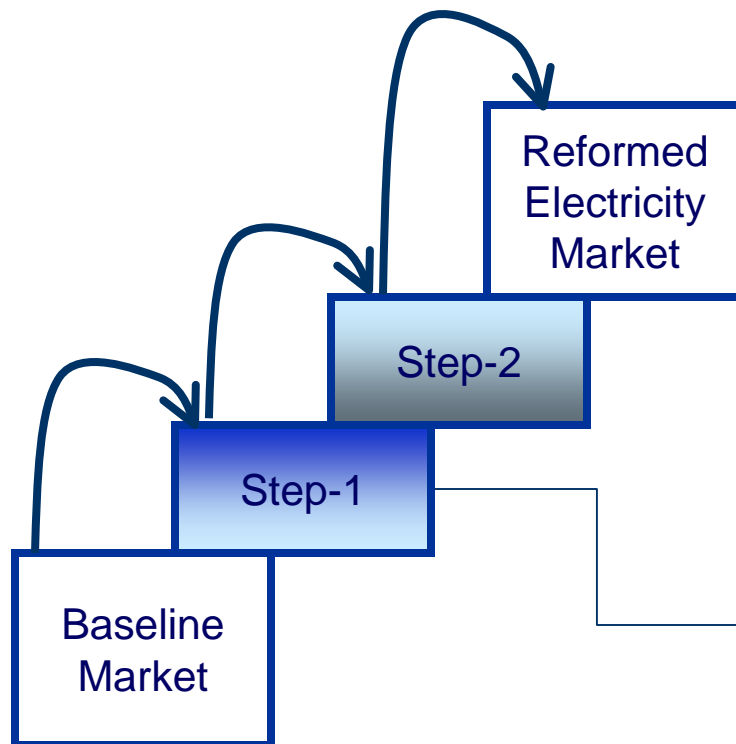


Evolutionary Approach



Conceptual Framework

Alternative Approach



- Get data in order and operationalise license management system
- Understand performance of companies through national and international benchmarking
- Build relationship with companies by providing them performance report regularly, motivate through information and recognition, and create readiness for tariff reform

Definition

- Benchmarking is a system of comparative performance grading
- It is an Information-based approach for creating performance incentives
- Can empower regulators against politics of inefficiency
- Properly designed benchmarking program can create incentive for continual improvement like the competitive forces of efficient markets

Benchmarking

- ◆ If: Regulation is imperfect and likely to remain so for long time
- ◆ Then: Benchmarking is able to give the Regulator the tools necessary to develop
 - Efficiency, fairness, reliability
 - Transparency; visibility of economic practices
 - Sustainable regulatory regime

Regulatory management through benchmarking

- Organizes financial, legal and operational data within a unified framework and a single database
- Applies data for analyzing compliance with licenses, generating performance reports for companies and electricity sector, and estimating tariffs and conducting other market analysis

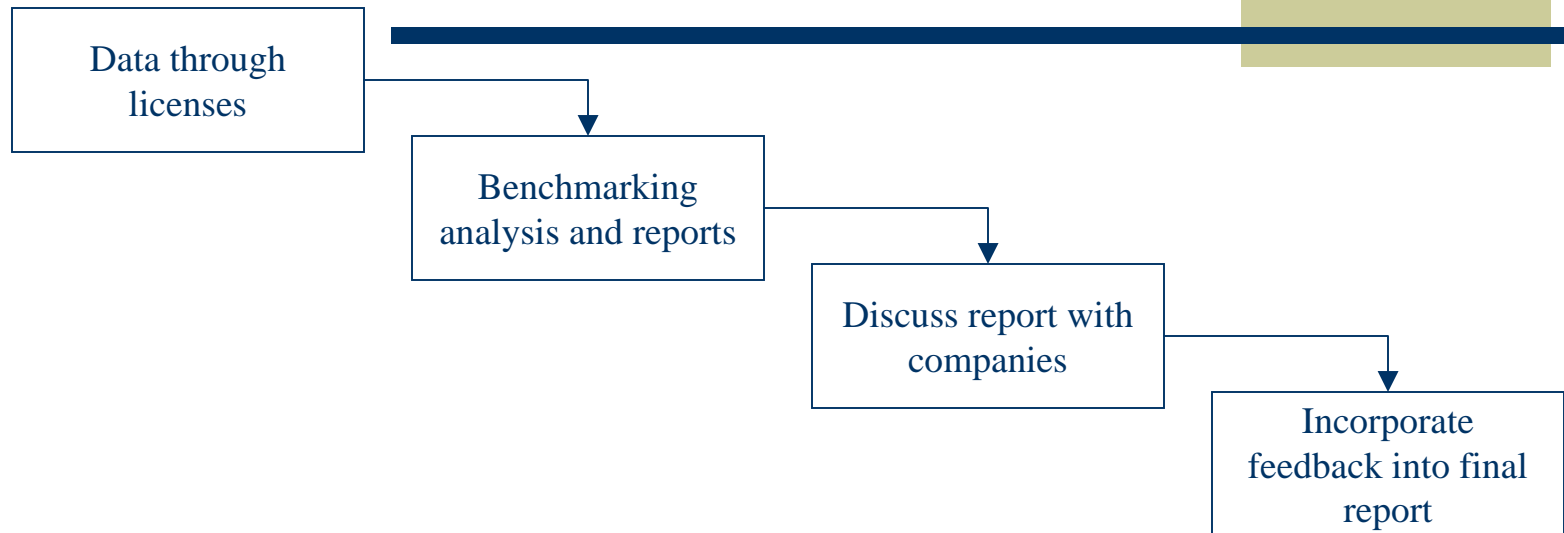
Final Result

- Generate performance reports at unit, station, company and sector levels using a standardized format and on a regular basis
- Contributes to efficiency gains in regulated companies, thereby leading to
 - Availability of more power
 - Sustainable regulatory regime
 - Enhanced environment for investment

Key Tasks

- Training (data organization, root cause analysis, report preparation, communication strategies)
- Provide computer tools and databases
- Institute processes and procedures that would ensure continuity of the program

Benchmarking Process



- ❖ Phase 1: Produce annual benchmarking report
- ❖ Phase 2: Generate report on bi-annual basis
- ❖ Phase 3: Generate quarterly reports

Financial Performance Indicators: Applies to Generation, Transmission and Distribution Companies

Financial Performance

- 1 Fixed Assets per Sent Energy
- 2 Inventory per sent energy (LE/Mwh)
- 3 Total assets per sent energy
- 4 Wages & salaries per sent energy
- 5 Total expenses per sent energy
- 6 Cost of fuel per sent energy
- 7 Total production cost per sent energy
- 8 Net Profit Margin
- 9 Profit Margin
- 10 Accounts receivable per sent energy
- 11 Coverage Ratio
- 12 Average sale price
- 13 Net profit per sent energy
- 14 Total Owners Equity to Assets (%)
- 15 Return on Equity (%)
- 16 Current Ratio (#)
- 17 Quick Ratio (#)
- 18 Return on Assets (%)
- 19 Debt to Total Asset Ratio (%)

Performance Indicators: Generation Companies

Operational/Technical Efficiency

- 1 Forced outage rate for unit (%)
- 2 Forced outage rate for group of units (%)
- 3 Equivalent Forced outage rate for unit (%)
- 4 Equivalent Forced outage rate for group of units (%)
- 5 Scheduled outage factor for unit (%)
- 6 Scheduled outage factor for group of units (%)
- 7 Forced outage factor for unit (%)
- 8 Forced outage factor for group of units (%)
- 9 Equivalent Forced Outage Rate Demand (%)
- 10 Average Run Time (hr)
- 11 Gross Capacity Factor (%)
- 12 Net capacity factor (%)
- 13 Gross output factor (%)
- 14 Net output factor (%)
- 15 Service factor for unit (%)
- 16 Service factor for group of units (%)
- 17 Fuel Consumption Rate(Thermal Plants) (gm/kWh)
- 18 Water Consumption Rate (Hydro Plants) (m³/kWh)
- 19 Quality (%)
- 20 Self Consumption (%)

Power Availability

- 1 Availability (%)
- 2 Availability factor for unit (%)
- 3 Availability factor for group of units (%)
- 4 Equivalent Availability factor for unit (%)
- 5 Equivalent Availability factor for group of units (%)

Reliability

- 1 Starting reliability (%)
- 2 Load Factor (%)
- 3 Capacity Factor (%)
- 4 Utilization Factor (%)

Performance Indicators: Distribution Companies

Operational/Technical Efficiency

- 1 Distribution Losses Percentage (%)
- 2 Customer per Distribution Circuit (Cus/km)
- 3 System Average Interruption Frequency Index (SAIFI) ((No)/1000 Cus)
- 4 Customer Average Interruption Duration Index (CAIDI) (Min/1000 Cus.)
- 5 System Average Interruption Duration Index (SAIDI) (Min/1000 Cus)
- 6 Energy Sales per Circuits (MWh/km)

Transmission Performance Indicators

Operational/Technical Efficiency

- 1 Transmission Losses (%)
- 2 Load/customer (MVA/Customer)
- 3 Load/Labor (MVA/Labor)
- 4 Transmission Labor Productivity (MWh/Labor)

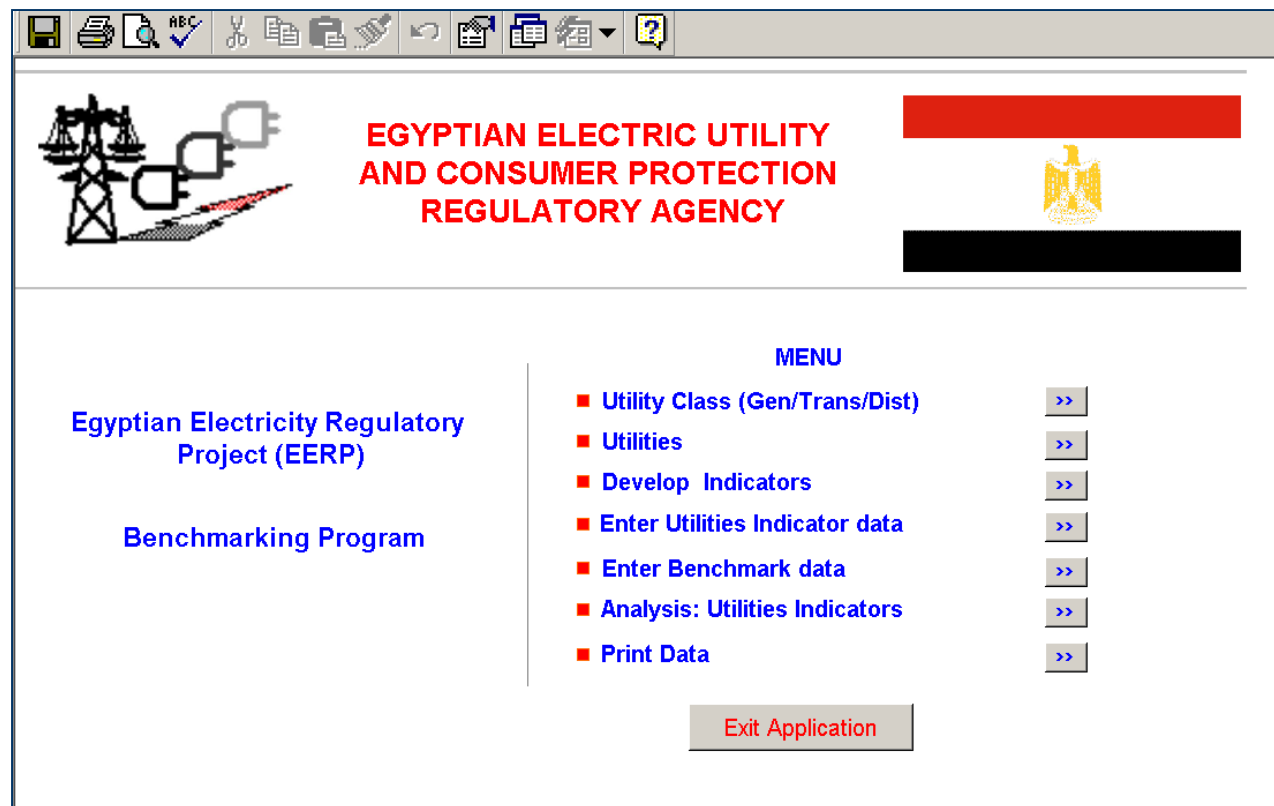
Reliability

- 1 Capacity Factor (transmission) (%)
- 2 Load Factor (transmission) (%)

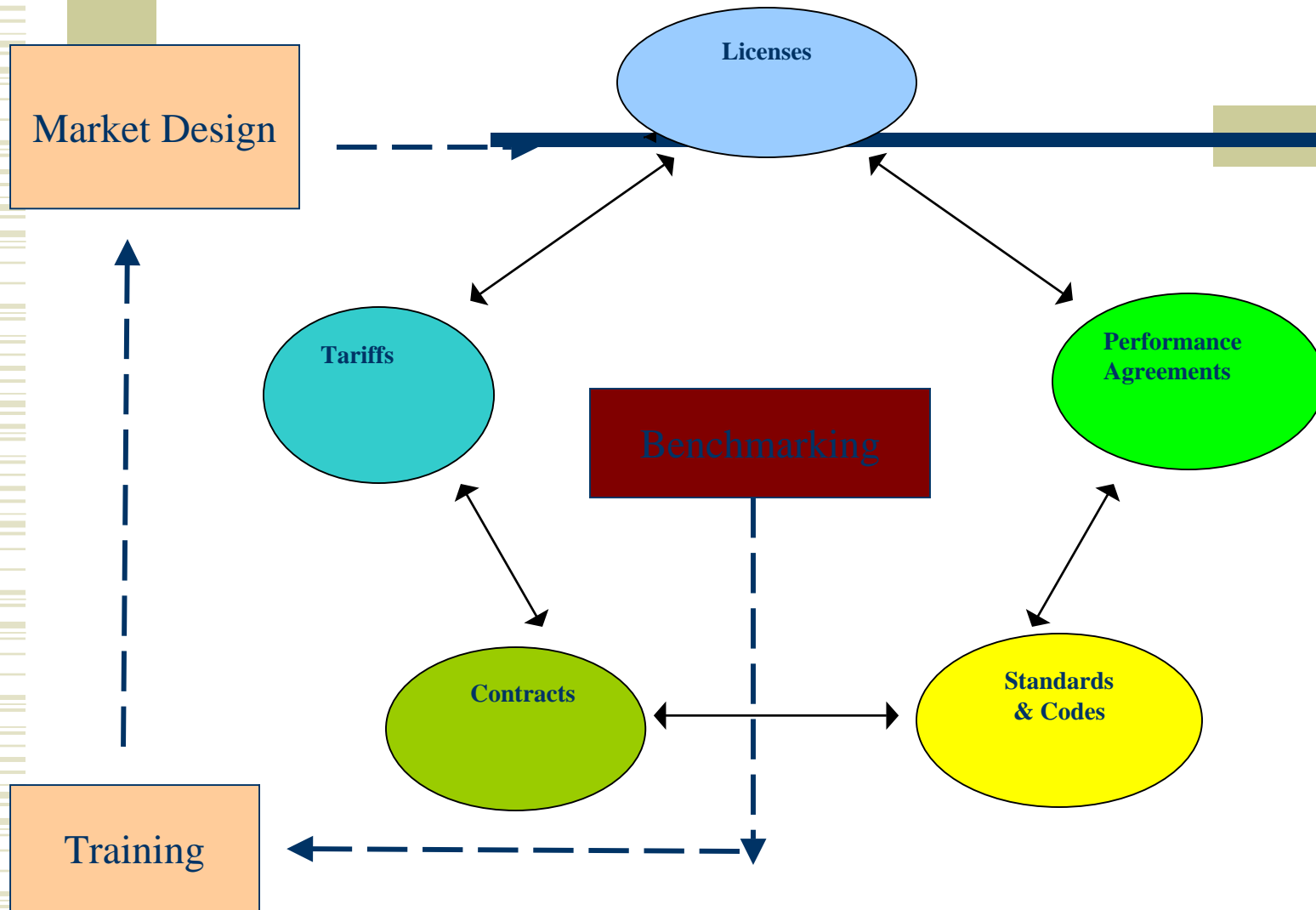
Analysis of Performance

1. Explanation of indicator and its purpose
2. Comparative charts
3. Basic statistics
4. Narrative on performance
5. Financial implications analysis
6. Data quality issues
7. Root cause analysis
8. Identification of further information needs
9. Company's feedback
10. Identification of best practices
11. Discussion of future target and actions by company

Egyptian Electricity Sector: Regulatory Management System

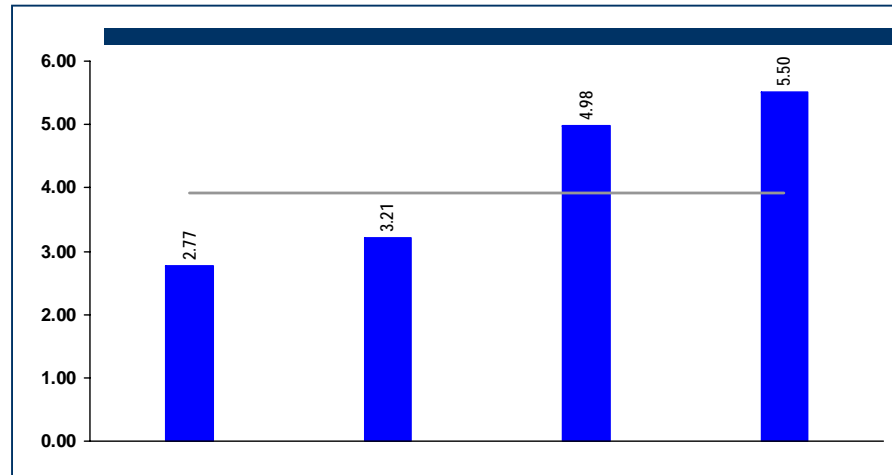


REGULATORY MECHANISMS FOR OVERSIGHT OF GOVERNMENT-OWNED POWER SECTOR

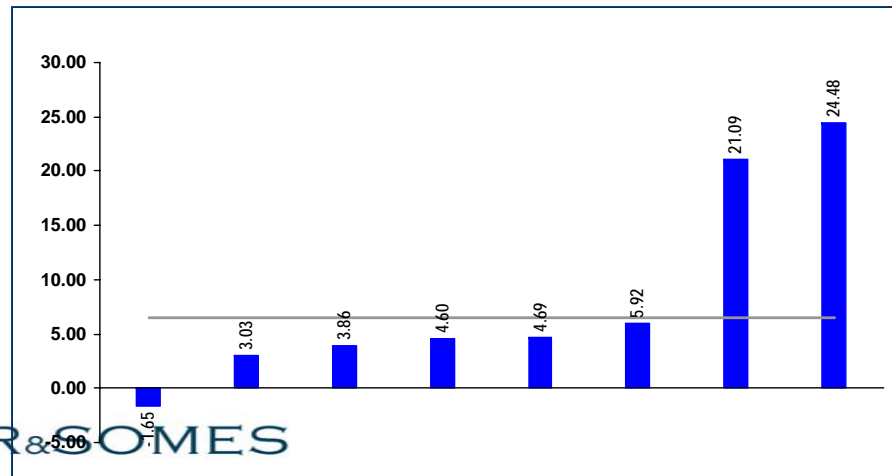


Comparative Analysis: Company Level

Return to Equity (%): Generation Companies



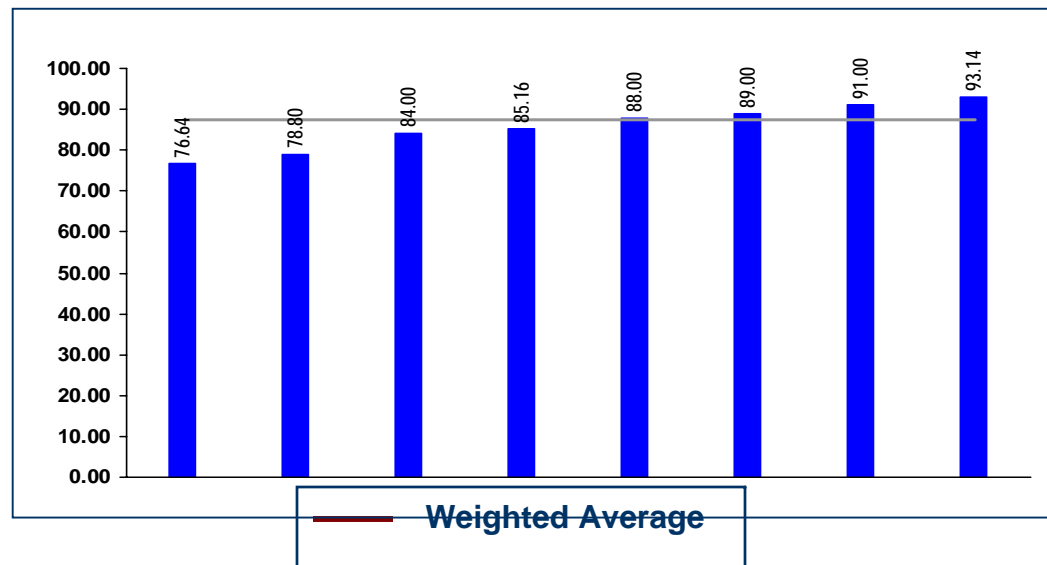
Return to Equity (%): Distribution Companies



Weighted Average

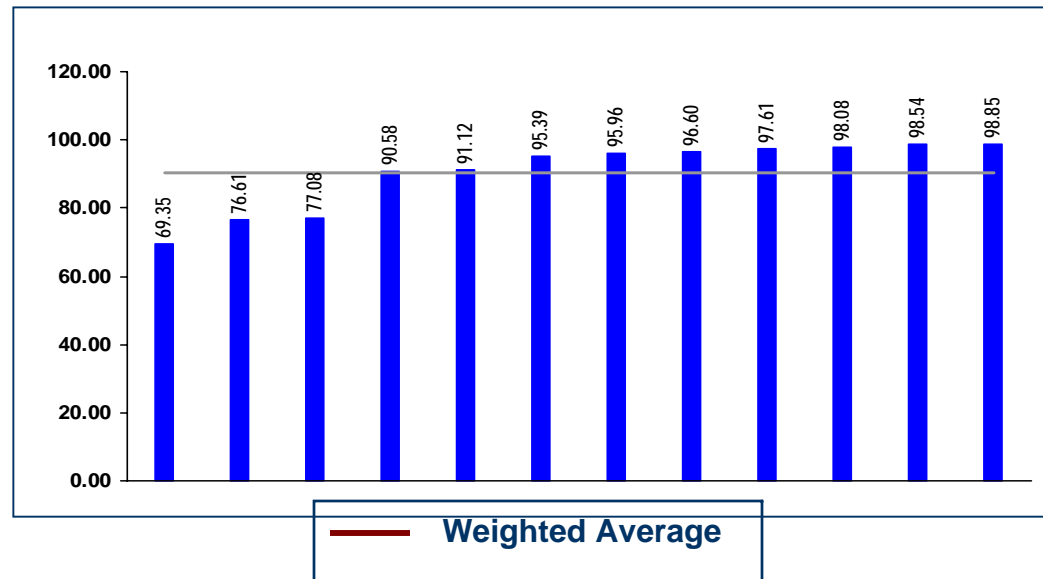
Comparative Analysis at Station Level

Availability (%): Stations in a Generation Company

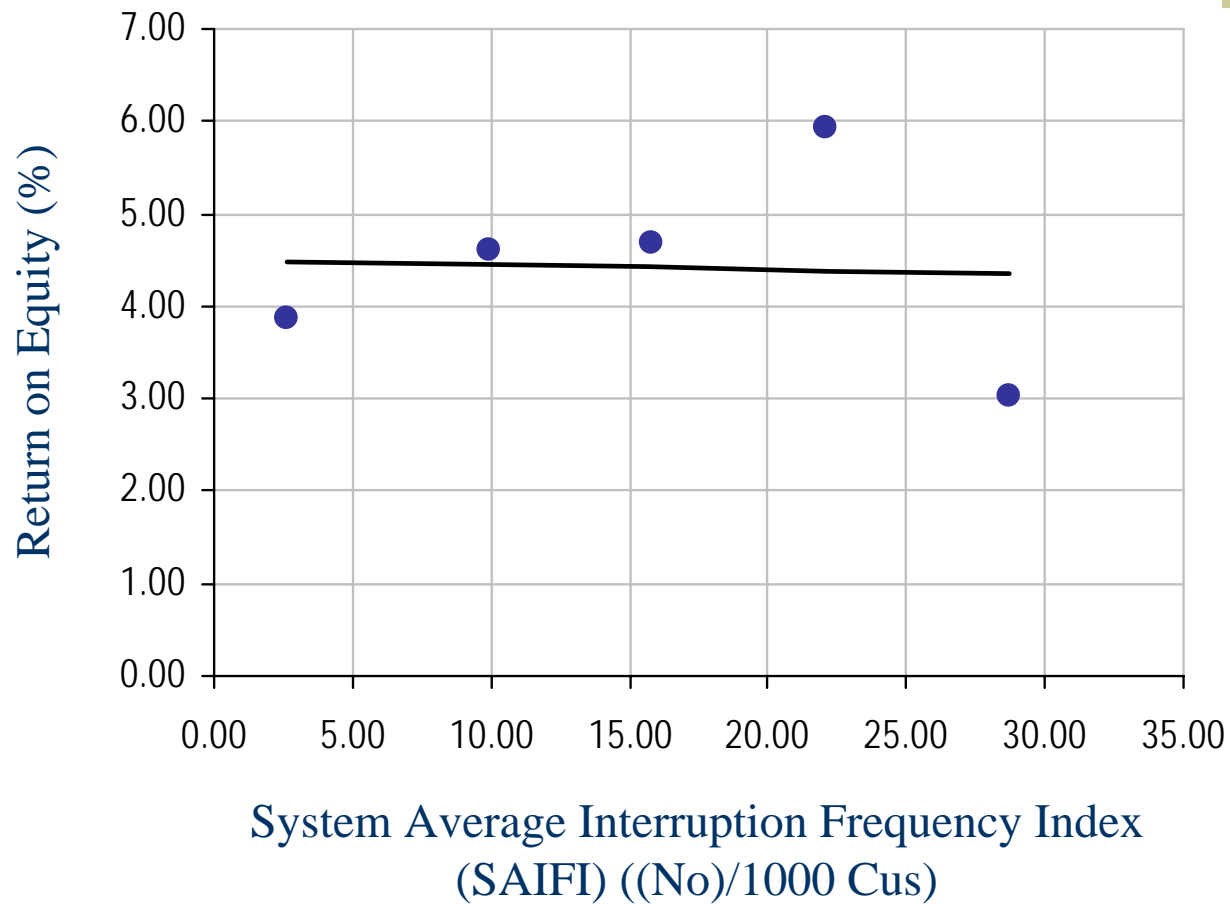


Comparative Analysis at Unit Level

Availability (%): Units in a Generation Company



Example of Operational Efficiency and Financial Performance Relationship





Key Findings

- Considerable variation in performance at company level
- Considerable variation in performance within a company
- Weak relationship between technical performance and financial indicators



Copies available

- ◆ Information available on web site after June 30, 2003 www.webstersomes.com

Thank you.