

Eskom presentation to SADC Parliamentary Forum

Lusaka - Zambia

28 May 2008



Presentation Overview

- What led to current situation?
- Consequences of an inadequate reserve margin
- Conclusions



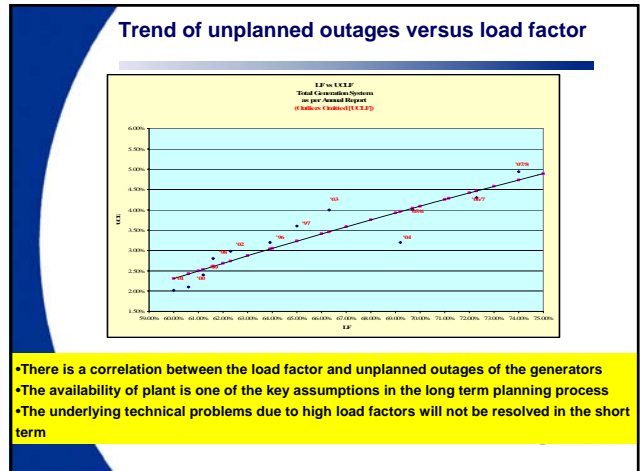
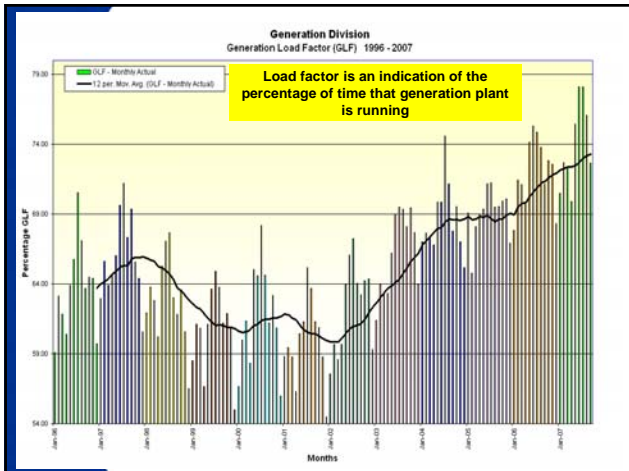
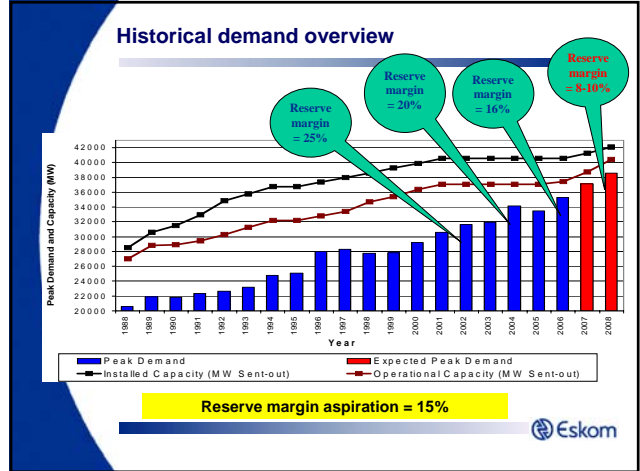
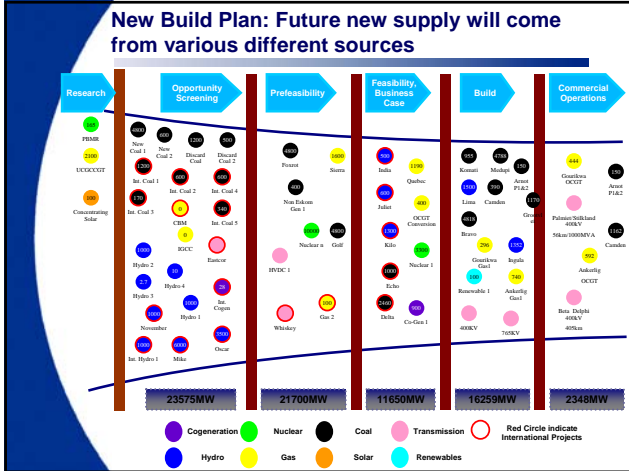
What led to current situation?



What led to current situation?

- Delayed start of the New Build Programme
 - Additionally, the lead time to build has substantially increased due to environmental issues and international pressure on supply chains
- Demand growth – 50% increase from 1994 to 2007
- Result is a reduced reserve margin

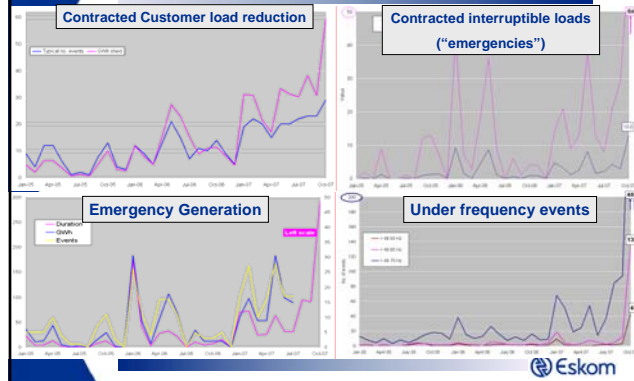




Consequences of a reduced reserve margin



Consequences of reducing reserve margin



Ability to meet the demand and energy required

- Due to reduced reserve margin, there is a strong reliance on demand side options to balance the power system
- Contracts were put in place with customers to reduce load, particularly over peak period
- Non-firm sales to SAPP trading partners were reduced
- Higher energy requirements results in additional use of extremely expensive, peaking plant, not planned to run at such high load factors
 - The planning and procurement process to ensure sufficient liquid fuels is a challenge and puts pressure on other energy supply chains in the country



What has to be done to ensure that energy shortage doesn't result in system blackout

- The power system is extremely complex and not all risks can be modelled and mitigations
- The impact of failures can be significant to catastrophic (i.e. blackout). There are various global examples of where this has occurred.
- Buffers in the system allow the Operator to deal with multiple events in real time while enabling sustainable medium to long term performance
- By continuously operating "on the edge", you will not need many things to go wrong before defence systems are tested.
- Hence sufficient buffers must be created to allow the operational flexibility to ensure system security
- When no other options exist, load reduction is the only remaining option to maintain the balance between supply and demand.

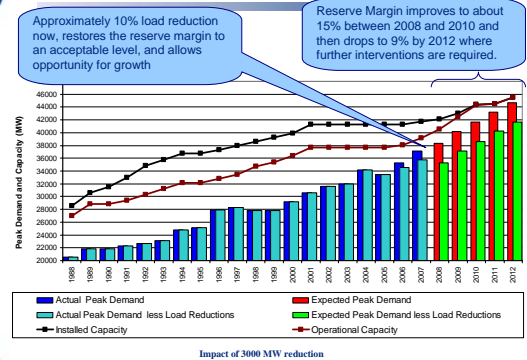


Immediate consequences

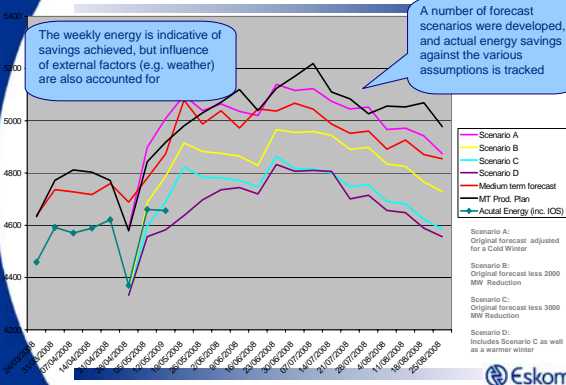
- Every small technical problem has the potential to have a large impact
 - E.g Coal handling problems experienced due to unusual precipitation, resulted in an inability to burn power stations to their full potential
- Load has to be taken off the system immediately to reduce the risk of a system blackout
 - Key industrial customers and Trading Partners have reduced load
 - All categories of customers are being encouraged to become energy efficient with strong focus on DSM
 - If insufficient load reduction occurs, load shedding is used a last resort with devastating economic and social impacts
- If load is not reduced, there is no opportunity for growth over the next few years, which is not an acceptable option



Impact of load reduction on net reserve margin



Indicative Scenarios for Energy Savings



15



Conclusions

- Operating a power system with insufficient reserve margin significantly increases the risk of a major disturbance occurring
- The inability to supply customer load is detrimental to the economy and development of a country
- Although new capacity is planned and the build plan is in progress, the commissioning of the plant will only relieve the situation beyond 2013
- Hence the only way to overcome this constraint in the coming years, is a sustainable reduction of demand and energy off the system

