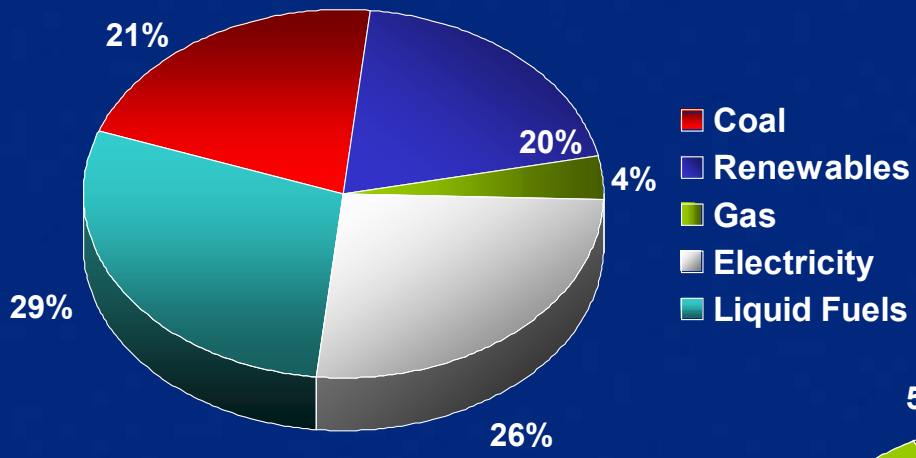
OVERVIEW OF ELECTRICITY DEMAND AND SUPPLY SITUATION

Public meeting 29 November 2004
Braamhoek Road EIA

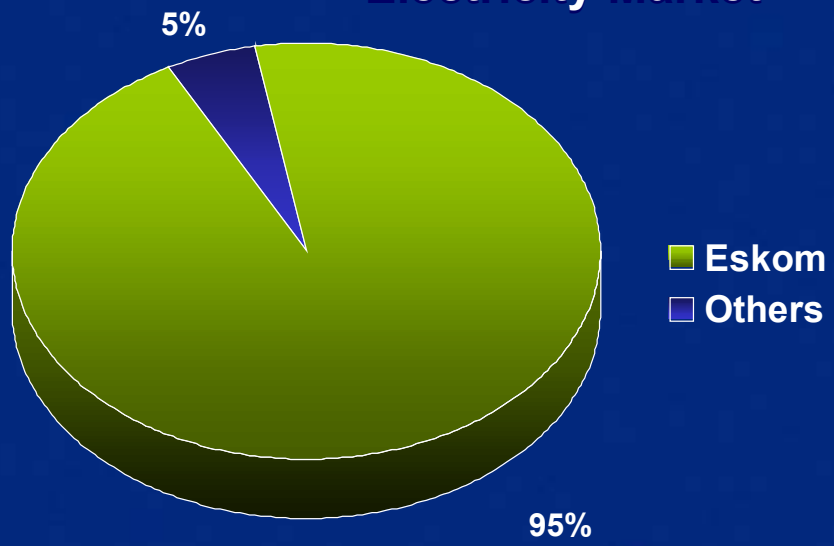
Eskom

Energy & Electricity supply in SA

Energy Market



Electricity Market



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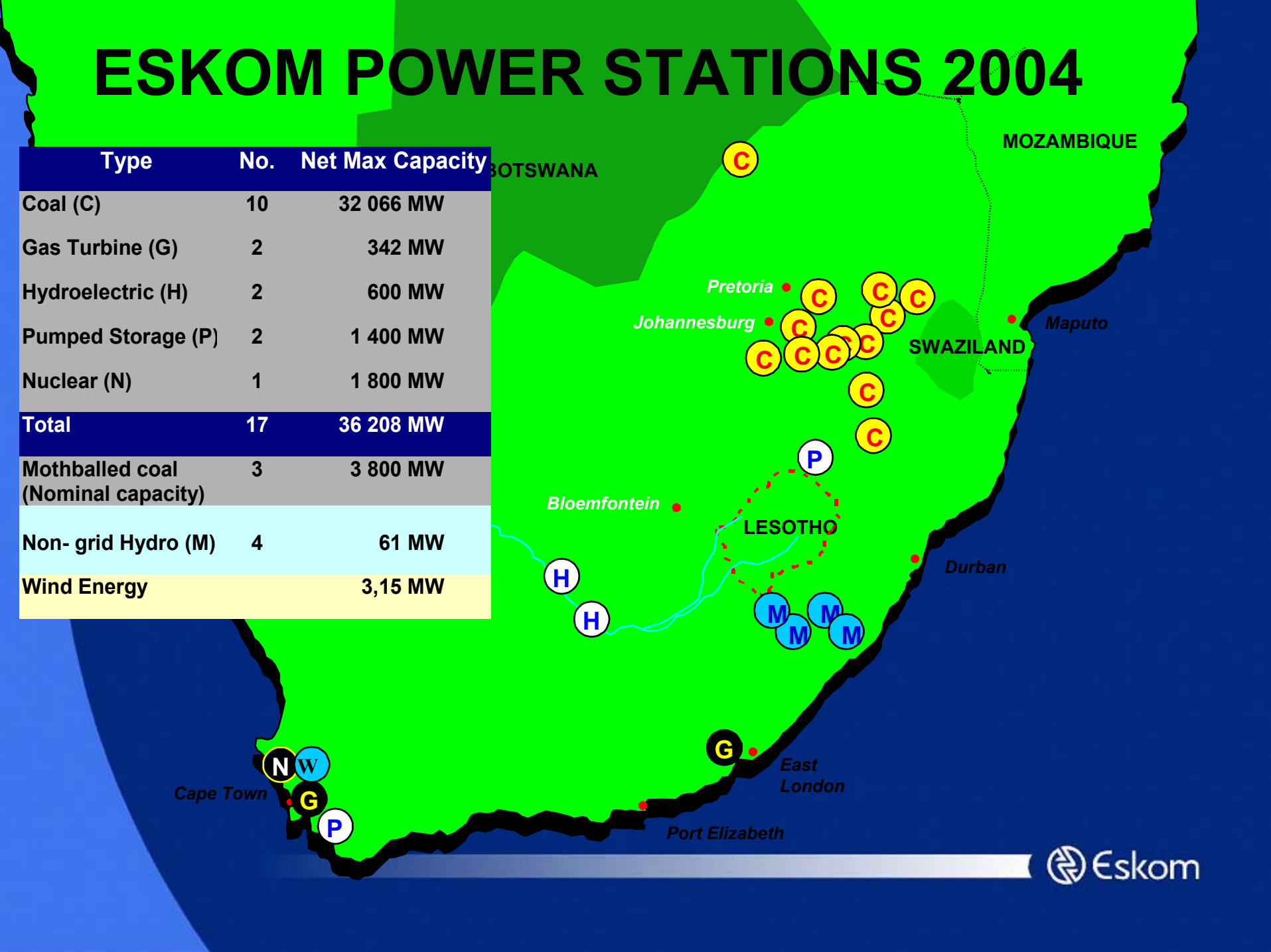
ESKOM POWER STATIONS 2004

Type	No.	Net Max Capacity
Coal (C)	10	32 066 MW
Gas Turbine (G)	2	342 MW
Hydroelectric (H)	2	600 MW
Pumped Storage (P)	2	1 400 MW
Nuclear (N)	1	1 800 MW
Total	**17**	**36 208 MW**
Mothballed coal (Nominal capacity)	3	3 800 MW
Non- grid Hydro (M)	4	61 MW
Wind Energy		3,15 MW

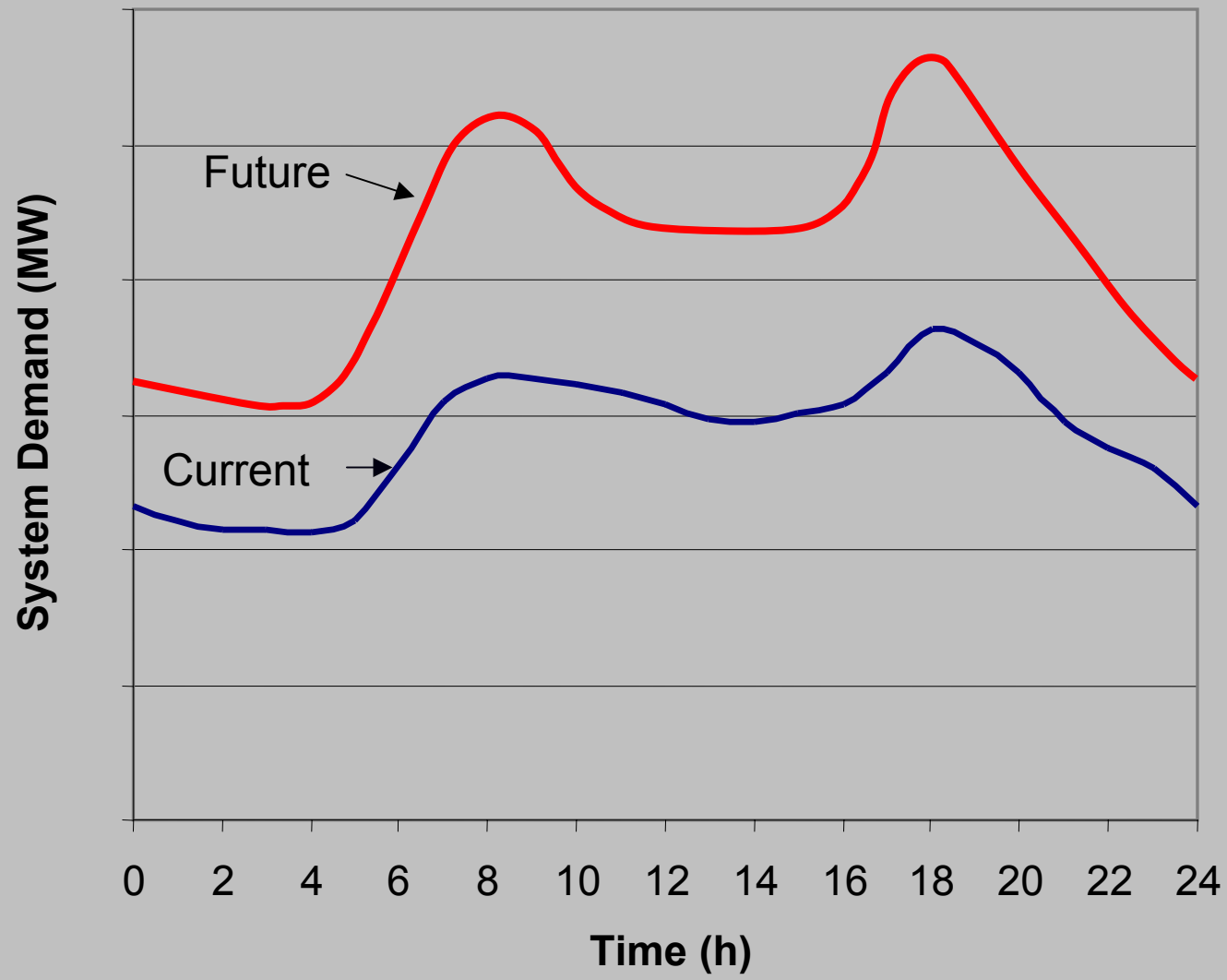


The nature of electricity

Electricity cannot easily be stored in large quantities and generally must be used as it is generated.

Therefore, electricity must be generated in accordance with demand and supply requirements

Electricity Demand



Plant Mix (Base load)

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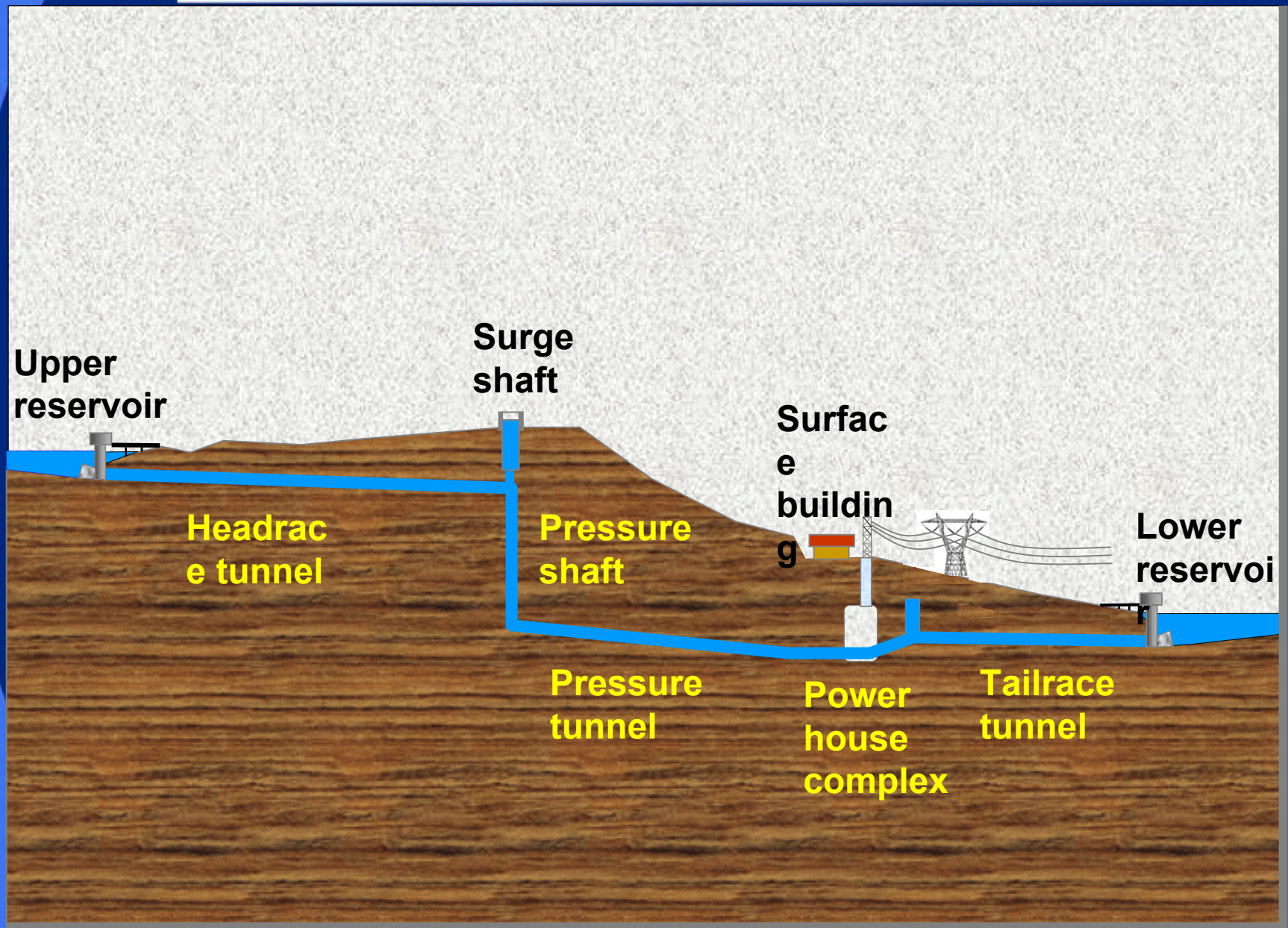
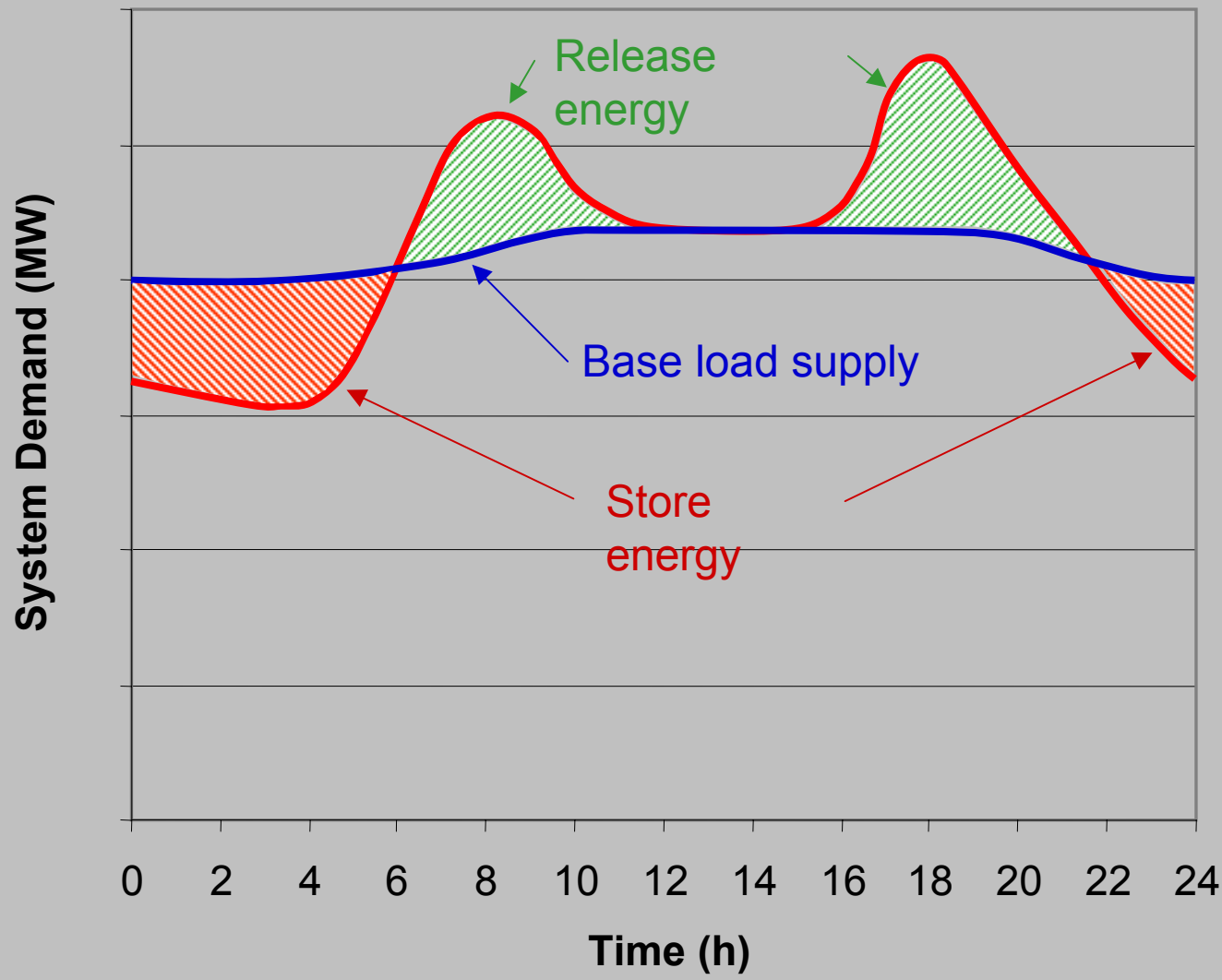
Schematic Layout of Pumped Storage



Electricity Demand & Supply

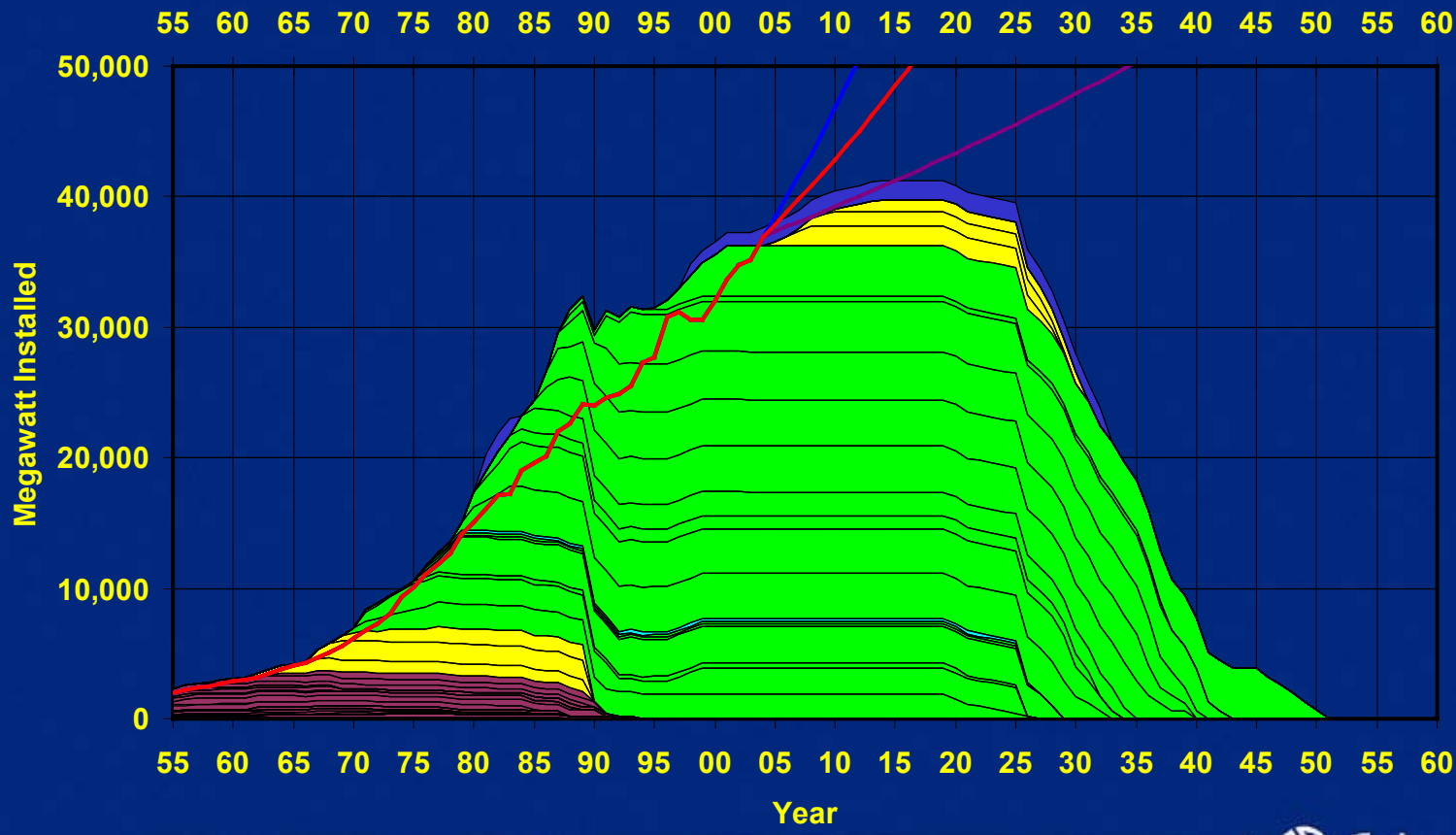


Eskom's Installed Generating Capacity

Red Solid Line until 2004 = Actual peak demand PLUS 10% RESERVE MARGIN,

thereafter @ 2.5 % growth in peak demand PLUS 10% RESERVE MARGIN.

Fifty year assumed plant life. Demand Side Management initiatives NOT included



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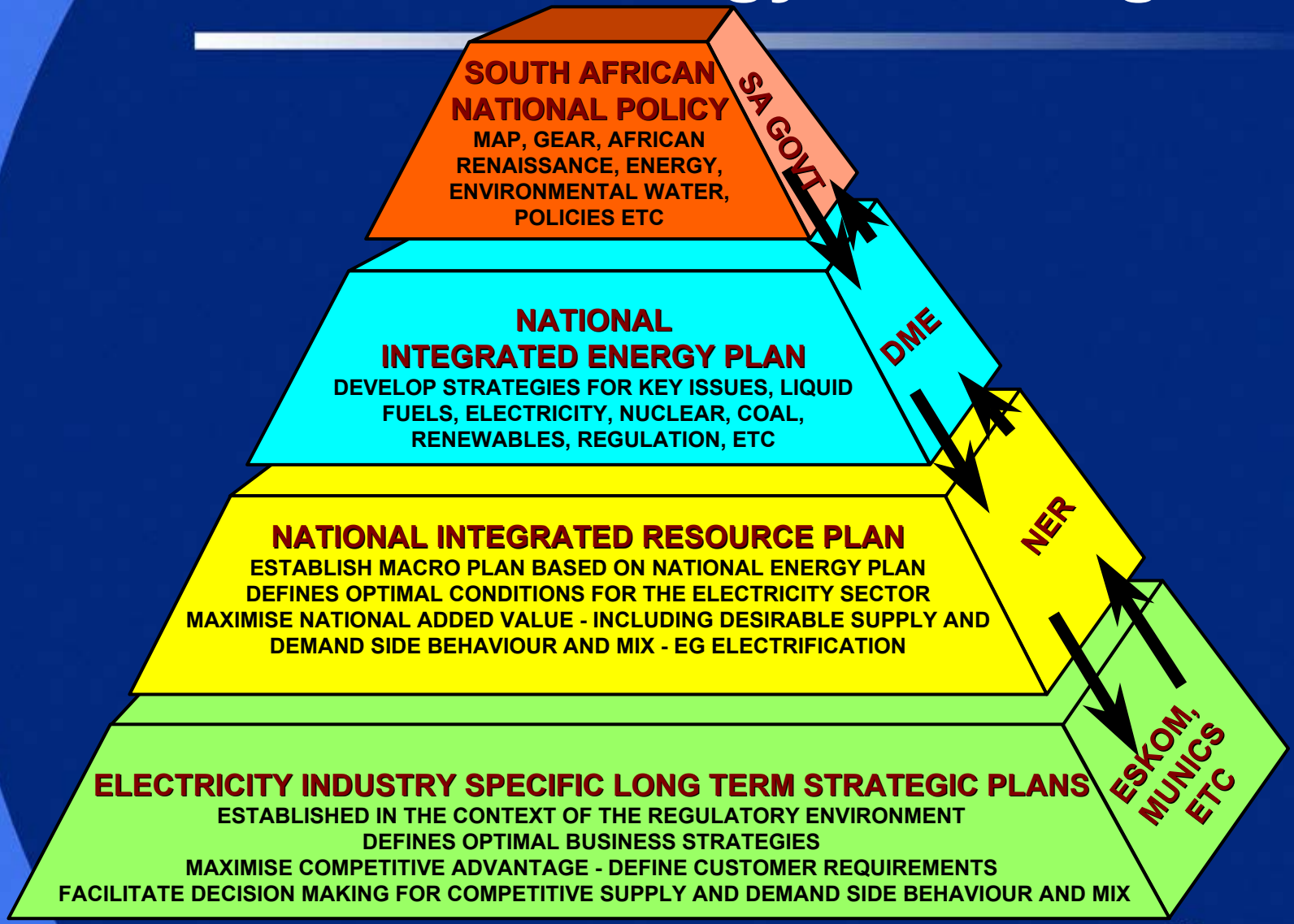
Context for Energy Planning in SA



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PLANNING

- The Integrated Energy Plan is developed and published under the auspices of the Government: Department of Mineral Affairs and Energy (DME)
- The National Integrated Resource Plan (NIRP) is developed and published under the auspices of the National Electricity Regulator (NER)
- The Eskom study of electricity demand and supply is called the Integrated Strategic Electricity Plan (ISEP)

Electricity Demand & Supply Planning

- Numerous actions have been initiated regarding the future of power generation in South Africa:
- Government:
  - Restructuring of Electricity Supply Industry, including introduction of competition
  - Energy Efficiency Strategy
- Eskom:
  - Demand Side Management activities (enhancing the efficient use of electricity, shifting some of the demand from peak to off-peak periods, interruptible load agreements)
  - Return to service of moth-balled plants (Simunye stations)

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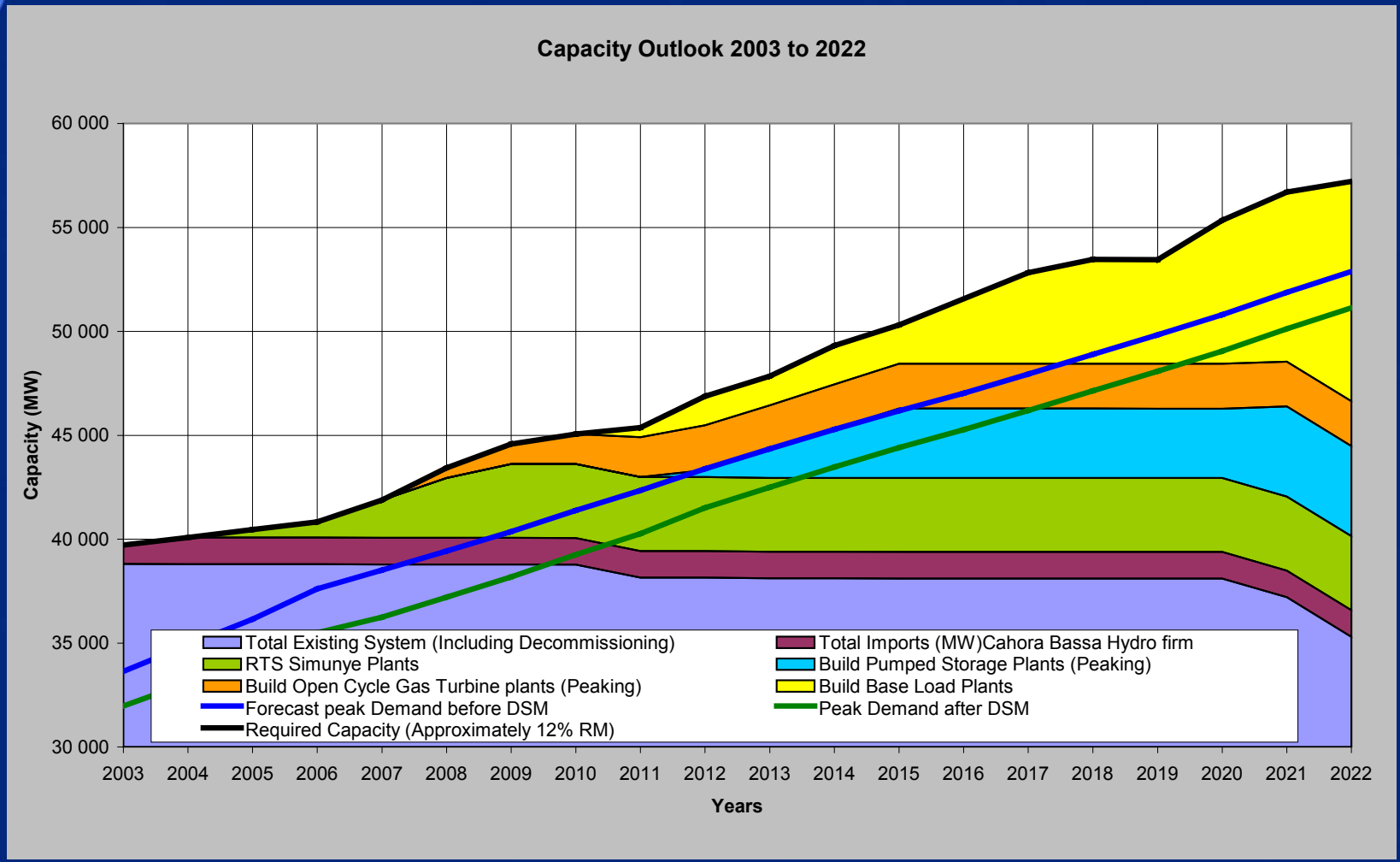
Electricity Demand & Supply Planning

- Eskom (continued):
  - Improving efficiency and reliability at existing stations – currently world class
  - Ensuring existing power stations utilised to their maximum potential:
    base-load power stations (except Majuba and Tutuka) currently operate with average load factors > 70% (with half of them > 80%), and in some months >90%

Electricity Demand & Supply Planning

- Eskom (continued):
  - Investigation into supply options:
    - Renewable energy (Wind energy; Solar energy – "Dish-Stirling" facility, large solar thermal plant; Biomass plants
    - Nuclear (Pebble Bed Modular Reactor)
    - Pumped storage schemes
    - Imported hydro
    - Gas turbines
    - Future coal-fired power stations

Need for new capacity



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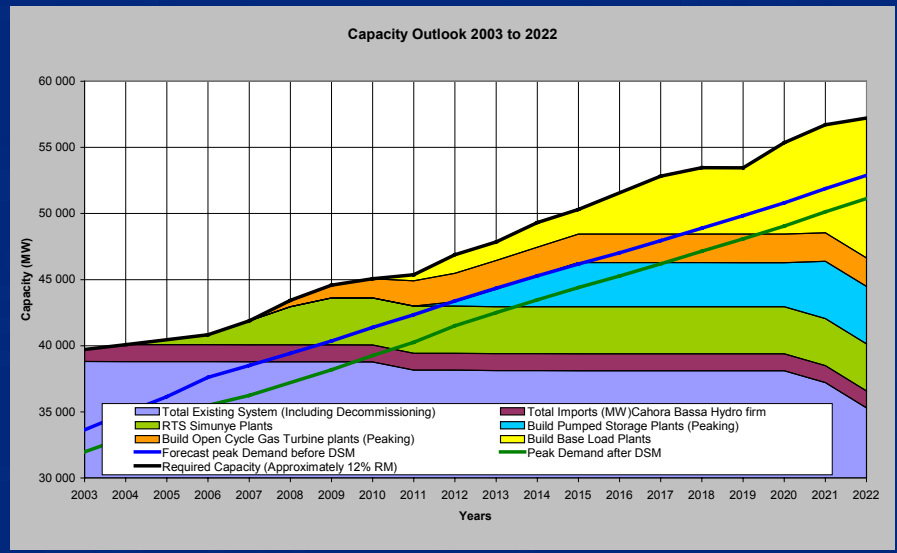
Need for new capacity

Peak demand (year)		MW	Y on Y Growth
2004	04/07/12	34210	7.1%
2003		31928	1.0%
2002		31621	3.3%
2001		30599	4.8%
2000		29188	4.9%



Annual electricity generated (Eskom) growth:

- 4.9% (2003)
- 4.3% (2002)
- 0.1% (2001)
- 4.1% (2000)

Future peak demand growth scenarios:

- 4.0% implies ~ 1500 MW per year
- 2.5% implies ~ 800 MW per year
- 1.0% implies ~ 350 MW per year

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Braamhoek Pumped Storage

Environmental Managment

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Record of Decision

- Record of Decision was very prescriptive approved on the basis of;
  - Ability to mitigate the impacts – Wetland and endangered species
  - Requirement to purchase additional land
  - Conditions and recommendations are legally binding
  - Recommendations in reports prepared by Dr M Mentis and Prof Partridge **shall** be implemented
  - Research to a value of no less than R 500 000 each year for ten years
  - Environmental Management Plan approved by DEAT prior to construction, operation and decommissioning

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Environmental Programmes

- EIA for Roads
- Baseline studies
- Environmental Management Programme
  - Project
  - Geotechnical investigation
  - Roads
- Partnership with Birdlife South Africa and Middelpunt Wetland Trust.
- Close interaction with relevant Government Departments to decide on the way forward

THANK YOU