

GFSE-7

Energy Efficiency for Developing Countries

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Demand Side Management in the Power Sector of South Africa

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DSM in South Africa

- Eskom supplies 92% of the national electricity
- Over-build in the 1980s – excess supply capacity
- High economic growth rate now (but below target)
- Failure to anticipate increased demand
- Lack of comprehensive and thorough maintenance at power stations and on transmission & distribution systems
- Supply shortages in recent years – forced outages, rolling ‘blackouts’

DSM in South Africa

- Eskom first began to consider DSM as part of their planning in the latter half of the 1990s
- 'planning and implementation of utility activities designed to influence the time, pattern and/or amount of electricity demand in ways that would increase customer satisfaction, and co-incidentally produce desired changes in the utility's load-shape'

DSM in South Africa

- Small implementation projects followed a year or two later
- Demand profile has peaks in the morning and evening
- Initial emphasis was on peak reduction – shifting, lopping
- Attention also given to energy efficiency
- 100% funding for peak reduction, 50% to energy efficiency
- Initial targets in the upper 200MW per annum
- Recent targets of the order of 150MW pa

DSM in South Africa

- DSM regulated by the National Energy Regulator of South Africa
- NERSA allows Eskom to use a defined fraction of the tariff to fund DSM interventions
- Eskom encouraged development of Energy Services Companies
- ESCos find DSM opportunities and present to Eskom for technical and financial approval
- Intervention costs capped at a fraction of the cost to build a new power station
- All projects have to be independently Measured & Verified – universities

DSM in South Africa

- Retro-fits only to date
- Interventions included
 - residential hot water load control
 - Replacement of incandescent lamps with compact fluorescent lamps
 - Sales campaigns
 - Exchange campaigns
 - Door-to-door installations
 - Variable speed drives to motors
 - Mine and municipal pumping
 - Compressed air
 - Electro-magnetic ballasts replaced with electronic ones
 - Street lighting
- Mainly driven by product suppliers

DSM in South Africa

- M & V skills developed
- Draw on the International Measurement & Verification Protocol
- Local Guides and Case Studies
- ESCo training
- Strong skills base – useful for energy auditing

DSM in South Africa

- Future target 3000MW over 5 years
- Many ESCos disillusioned – project approval takes too long
- Eskom considering a programmatic approach – CFLs, motors

DSM in South Africa

- A final thought: should the poacher also be the gamekeeper?

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