IRP 2010
Comments and Inputs

Presented to Department of Energy
IRP2010 Hearings

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Introductory comments

- Mainstream SA welcomes the opportunity to further comment on the draft IRP2010
- A welcomed first step toward a low carbon future & to embracing the Green Economy fully
- Public participation process a significant departure from previous planning processes – more consultative
- Solar and wind industry participation - inaccuracies and assumptions in the modelling better addressed if industry were able to participate as part of the TTT
- Recognise that these scenarios will inform final plan, *thus need for more robust work around renewable energy to challenge the skewed assumptions*
  - contribution to economic development, employment, rural development, poverty alleviation, industrial development, agricultural development not recognised, valued properly
  - Skewed focus on cost and not on value/benefit to SA i.e. de-risking of the economy and increasing GDP

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RE Targets/allocation

- Allocation to RE a first step - but we need much more to stimulate localisation, macro-economic benefit
  - Industry ability to rapidly deploy at scale by 2012 not recognised (EIA's, no cranes, lead times for projects etc – red herrings to delay uptake)
  - Advanced stages of EIA's for large portfolio not recognised
  - Solar PV – limited inclusion does not recognise the potential to deploy rapidly e.g. Germany installed 4.9GW in 1st half of 2010 & SA has manufacturing/build capability
- MTRM
  - Recognises there is a severe short/medium term problem yet limited deployment of RE technologies
- Overall analysis of the plan
  - Coal remains dominant in the country mix by 2030 – implication for fines, cross border trade penalties (DTI figures on trade risk)
  - Renewables remains less that 10% of the mix
  - By 2028 coal programme increases – cannot meet the objectives of transitioning to low carbon economy. Is RE being taken seriously or gap filler?

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Technology Assumptions 1 (wind & solar)

- A number of flawed assumptions still seem to drive limited inclusion of solar/wind
  - Capacity factor vs plant availability : used interchangeably and must be corrected
  - Capacity factor of wind: incorrect assumptions around 29%. Proper data must be used i.e. there are monitoring results that show upward of 35% will be possible.
  - Bring forward RE MWs proposed from 2016 onwards - aim for 500, 800 and 800 for each of these years, adding 1400 MW to the proposed 700MW to deliver 2100 MW of RE over the next three years

- Cost of generation - too high for a lot of renewable technologies on annualised level.
  - For example, in Emission 3.0 scenario, the CSP build out is not until 2017 and by then its technology would be much more advanced and therefore has lower cost.

- Adequacy definition unclear
  - Predictability is not a constraint : technologies can work together & cheaper to have wind on the system (displace expensive OCGT/CCGT)

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Technology Assumptions 2 (wind & solar)

- PV / CSP swap out (p16)
  - If all metrics same, except water, Revised Balanced Score even higher
  - ..."at a lower level initially considering the fact that this technology is relatively new and still evolving" – certainly not the case for PV
  - Page 22 – 'Note' under table – solar capacity supported by a solar concept... : PV can be built up beside load centres
  - Solar fleet (p 23) – sounds like this a challenging issue when it isn't – let the private sector go ahead and build PV and deliver at scale. No major planning required. Tariff adjustment is the key, as seen in Europe.
  - solar :2016 start, therefore 5 year planning. Timing much less. Revise.

- Wind assumptions
  - 'wind after REFIT': what is meant by full procurement path?
  - Wind lead times are too long
  - 'increasing penetration reduces the capacity credit' – only where penetration typically exceeds 10-15%.
  - Using Germany is worst example; why not use appropriate examples e.g. Finland
  - Back-up/storage: assumption must be challenged as inaccurate

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Technology Assumptions 3 (wind & solar)

- Wind assumptions cont.
  - Table 5: Impact on supply security – should be high given roll-out capacity & ability to contribute to risk mitigation
- Practicality of the nuclear programme
  - Much higher uncertainties that other technologies; re-prioritise wind/solar
  - nuclear – who bears the capex/opex/decommissioning/scheduling risk – want to make sure RE gets the equal treatment.
  - Waste storage costs not indicated
  - Complete life-cycle costs for nuclear and coal not indicated
  - Cost of water not included specifically in coal
- Location of generation capacity
  - Need to account for transmission losses properly – not evident
  - Examine the value of distributed portfolio in the IRP – not clear in terms of accounting for full benefits of technology choice/mix

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Parameter - Risk and Uncertainty

- Risk and Uncertainty
  - Included in this version (very positive) but methodology questioned
  - The risk and uncertainty factor (UF) does not take into account either fuel price projections nor price volatility-both factors are indispensible in analysing risks and uncertainties in build out
  - The risk and uncertainty parameter seems highly subjective, not correctly informed
- External/regional risks
  - fuel uncertainty, transmission network abroad, adverse fluctuations of exchange rates are augmented under this criterion.
  - energy mix that is independent of external risks is crucial.
- MTRM Plan
  - Sketches a sever problem that RE can help address
  - Motivate for a greater/more rapid uptake of RE technologies given the scale of shortages we are to experience

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Parameter - Pricing

- Real discount rate of 8% for wind
  - is the same used across all technologies, and accepted. How have generation technologies with more uncertain Opex been taken into account?.
  - Investors with fixed fuel cost, no risk, require less returns
  - Assumes risks/uncertainties across all technologies are the same
- Price path levels (fig 9.)
  - These are just below wind – therefore wind not as expensive as people make out
  - Need to know how each price path is derived
- General
  - No fuel escalation cost has been assumed - this unfairly disadvantage renewable technologies.
  - Cost on an annualized level for a lot of renewable technologies with wind and solar included is a higher than the level of support for REFIT
  - CCGT's equivalent cost of generation lower than IEA
  - Solar PV's equivalent cost of generation is too high - inconsistent with a REFIT levels
  - CSP has the same problem, and must be corrected.

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Parameter – Finance, Emissions,Water

- Pricing
  - Cost of unserved energy: impact not quantified properly
- Cost over-runs and scheduling
  - Eskom fleet performance overestimated
  - Cost and likelihood of over-runs not accounted for accurately (significant impact on overnight costs
- Emissions
  - Is the 2c/kwh included in modelling – funding for future REFIT / RE roll-out
  - emission from import coal should be excluded from domestic emissions accounting?
  - LTMS carbon tax scenarios : Taxes collected over period of the IRP will fund RE roll-out
  - Carbon credits not dealt with – financing mechanism
- Water
  - Base case and Emissions 2.0 use nearly same amount of water???
  - Water usage/costs in the modelling not properly valued/costed
  - Weighting should be higher

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