South African Wind Energy Association

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IRP 2010 Comments
2nd December 2010

Presentation outline

- SAWEA general comments
- Specific Parameters and Comments
  - Detailed Wind Energy Targets
  - Technology Assumptions
  - Capital costs
  - Carbon Taxes and Emissions
  - Key risks
- Conclusions

General comments (1)

- **SAWEA welcomes the publishing of the draft IRP2010**
  - Significant departure from previous process which is welcomed and appreciated
  - Electricity investment plan – must give confidence to a range of stakeholders, must deliver
  - A first step in the right direction, though we would like to see more ambitious plan for wind & other RE in light of country commitment to address emissions, economic development imperatives
- **MTRM should provide a strong rationale for rapid deployment of RE given impending crisis**
  - projects and technologies that can be quickly built
  - immediate de-risking of the economy to receive greater emphasis

General comments (2)

- **Overall purpose**
  - IRP 2010 are scenarios meant to inform a final plan
  - Scenarios make assumptions that we argue must be revised i.e. low carbon route will cost too much

- **Analysis & implications of plan by 2030**
  - Base load coal will still be 63% of total mix
  - Renewables will be 7,5%
  - Plan does not highlight the real mix
  - Misrepresents the true relevant important of coal and nuclear and renewables
  - **Plant availability** vs **capacity factor** in EPRI report is confused. Must be corrected as this has a significant impact on modelling and contribution of technologies, specifically wind

General comments (3)

- **The IRP2010** itself states that it **"envisages a dramatic transition from a traditional coal-based electricity industry toward a low carbon environment."**
  - Limited early uptake of RE does not reflect this, given the strong potential for RE
  - RFI highlighted early potential for larger scale uptake
  - The return to coal in 2028, or tapering off of wind & RE does not support the above objectives of IRP2010
- **The cost parity** over time should signal a greater uptake of RE given economic value – this is not evident & flaw in the plan
- **Macro-economic benefits of wind** (manufacturing, localisation, job creation, rural development, agricultural stimulus) can't be realised unless there is a substantive target to attract manufacturing – current targets insufficient

Detailed Wind Energy Targets

- **Key issues regarding overall targets**
  - Build rate 2011 to 2015 averages 260MW; from 2016 to 2020 increases to 800MW/pa
  - Much lower than what is desirable to stimulate industry long term, deal with climate change commitments & deliver energy security

- **Industry capacity to deliver**
  - 200MW in 2011/12 ***IF*** procurement process initiated asap
  - Wind industry can deliver far in excess of 700MW in next 3 years
  - Up to 600MW already have EIA's
  - More than 2000MW in advanced stages of EIA – FC/delivery in 18 months, not 3 years
  - These incorrect assumptions disadvantage wind energy unjustifiably

Technology assumptions

- Key issues
  - 700MW for IRP: is REFIT 1 the cost basis i.e. R1,25c/kwh?
  - Overnight capital cost too high on annualised basis. How do we account accurately for predicted reductions?
  - If all costs included, and annualised, they are higher than the REFIT. This does not make sense. Must be revised.
  - No fuel escalation costs – disadvantages free fuel options
  - Lower, more realistic costs = higher wind allocation given ability to quickly deploy
  - 29,8% capacity factor assumption flawed - needs proper validation before it can be used as the basis for projections
  - Report discriminates against wind: assumes zero portfolio availability as contribution to reserve margin
  - Water savings – swing weighting too low; must be at least 15, given importance of the resource and that it be properly costed

Capital Costs

- **Capital costs, overnight costs**
  - Underestimated for coal: Kusile/Medupi experience is case in point
  - EPRI costing does not properly reflect costs of localisation
  - Pre tax IDC is too low, not capitalised but Eskom allowed to capitalise Work Under Construction – playing field not level
  - No proper details on debt/equity ratio, which in some areas are too low - 70/30 for IPP's, thus must reflect cost
  - 8% discount rate too low for IPP's/developers – even Eskom needs 10% to meet its financial obligations (parliamentary presentation)

- **Unserved Energy Costs**
  - Costs too low
  - Impact of insufficient energy to serve economic growth severely underestimated
  - Reliance on EEDSM initiatives to alleviate the immediate problems unrealistic, though EEDSM very important
  - MTRM plan highlights need for rapid deployment and risk of non-delivery

Carbon taxes, emissions

- **Emissions Limit 3**
  - Real cost of coal is not reflected
  - Water consumption mentioned, but not properly costed
- **Carbon tax impacts**
  - 2c/kwh levy – escalation over time not clear?
  - Carbon tax sensitivity analysis in model
    - Impact on tariff path, not overall desired allocation
    - Impact of carbon tax on optimal allocation must be modelled
    - 2c/kwh must be allocated to next round financing of RE/wind
- **Two possible carbon tax scenarios to fund RE**
  - the LTMS-proposed escalating tax rate which starts at ZAR 100/t CO2-eq, and reaches ZAR 750/t CO2-eq in 2040, and
  - an alternative tax rate which starts at ZAR 150/t CO2-eq and escalates with the rate of inflation following IRP projections at 6%
  - NPV of tax receipts collected over the period 2010-2030 would amount to ZAR 780-900 billion

Key risks

- Build rate
  - The assumption re cranes: unjustified in context of WC2010
  - Suppliers will bring in cranes a part of agreed build programme with developers – contract obligations/terms
- Stability
  - Germany as an example for capacity credit/firm capacity is not realistic for the SA environment given the resource availability and actual results from site level monitoring
  - 30% is a more accurate figure
- Mitigation options
  - Incorrect assumption: given the impact of de-risking the economy, financial and development impact is high. This must be reviewed
  - 6.3: Time frames: as per the RFI, this plan does not take into account the advanced stages of a large number of wind farms, even if these do not make it in round 1

Conclusions

- **Eskom Fleet Performance**
  - Eskom plant capacity factor is over estimated
  - Given current fleet, lower availability is likely, with serious implications for energy security despite Medupi / Kusile roll-out
  - Uncertainty reflected in MTRM

- IRP should make **larger <u>SHORT TERM</u> provision** for wind & renewables i.e. greater than the assumed 400MW (IRP1) or 700MW (REFIT 1 allocation) in the next 3 years

- **An enabling regulatory, tariff & competitive environment** is essential to the introduction of non-Eskom generation

- **Eskoms current role will need to be clarified** (single buyer, system ops, competitor) so that the right signals are sent out re the immediate and longer term role of developers/IPP's