

SWOT Reports

The following is a compilation of the SWOT analyses undertaken at the end of each of the four sessions. Strengths, Weaknesses, Opportunities and Threats are listed under the topics for each of the sessions.

Separate files contain the concluding statements by Morgan Williams, and a hypothesis of a vision that comes out of the SWOT analysis which was proposed subsequent to the Conference.

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Resources / Future Supply

Strengths

- Relatively low cost energy
- Low carbon hydro electric base
- Historically internationally competitive
- Economic value from Maui gas
- Stable well educated population
- Low agriculture energy intensity
- Local population is low

Weaknesses

- Currently 56% Hydro based
- Low dry year security
- Loss of Maui gas "flexibility"
- High hydro inflow variability
- Low hydro storage % of annual demand
- NZ's exports are energy intensive
- Long "thin" network - exposed
- HVDC exposure
- No interconnection potential (countries)
- Dependence on oil imports
- Low energy price doesn't encourage energy investment
- Low offshore exploration
- Most of our natural exports are energy intensive

Opportunities

- New smelting start-ups possible
- More dairy & forestry processing
- More value added/activity on-shore
- Distributed generation reduces losses
- NZ has low cost coal reserves
- Potential to accelerate renewables use
- Many good wind sites
- More demand-side response is possible
- New technologies for thermal generation (higher efficiencies + co-firing)
- Cogen & process heat
- Kyoto opportunities:
- Forest sinks
- Technology
- Hydrogen economy (coal)
- More geothermal & hydro

Threats

- High energy prices stifle growth
- Carbon tax uncertainty delays projects
- Loss of international competitiveness
- Future gas reserves are expensive
- Supply shortfall due to RMA delays

- Gas dominated by one player
- Lack of R&D partnerships
- Slow movement to new technologies
- Wrong direction without a strategy

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New Technologies

Strengths

- New energy technologies have proven to provide the ultimate solutions, provided you are patient!
- Technology provides both step-change and incremental development opportunities, often within the same environment.
- Global energy technologies are easily adopted, provided local markets are able and willing to implement them.

Weaknesses

- The technology investment cycle in the energy supply industry can last as long as 15 to 25 years.
 - Venture Capital “attraction gap” because of these timeframes, compared to other industry new investment opportunities
 - Global economies of scale in technology costs required. Therefore you need large backers to last the distance.
- Because the learning curves and cost economies are quite steep (positively), early technology development and demonstration must be subsidised during early adoption, well ahead of commercialisation.
- Requires Government support/buy-in/use of emerging technologies

Opportunities

- Education and involvement of major infrastructure providers in the early adoption phase of new technology:
- Co-ordinated approach to resolving barrier issues e.g.
 - CAE Distributed Generation Study
 - Renewable Energy New Zealand Action Plans
- Consumer research programmes, to identify what people really want in future from energy sector
- Building new businesses
- Requires effective modelling of role of new technologies under different scenarios

Threats

- Small size of NZ market (but this paradoxically is also an opportunity for effecting rapid change)
- Lack of technology experience and fragmentation of energy industries - limited knowledge resource.
- Lack of Regulatory Framework, that appears to drive demonstration of new technologies in other markets.
- Political pressure to keep energy “cheap”

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End Use / Demand Response

Strengths

- Metering capability –
 - Technology leadership
 - World class
- Provides a sound base of data to enable analysis & demand response. For example, renewable energy capability
 - Biomass for electricity and transport
 - Hydro
- Price signals in transport sector between transport options
- Self sufficiency as in electricity (however questioned if a strength in total energy)

Weaknesses

- Analysis of demand response capability
 - Mixed views on this
 - Lack of overall Big Picture view
- Segregated energy industry
- No forward price markets
 - No day ahead prices
 - No consumer property rights to trade
- Lack of co-ordination in electricity industry
 - Fragmentation of consumer agents
- Very susceptible to international crisis events
 - Oil availability

Opportunities

- Understanding consumer needs
- Provide incentives via price signals
- Demand participation through energy saving auctions
- All the weaknesses – make them strengths
- The remoteness of NZ and its regions

Threats

- International events

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Markets and Governance

Strengths

- Intellectual capability
- Increased information disclosure
- Contractual approach gives flexibility
- Industry willingness to tackle problems
- GPS
- Minimal governance and industry buy-in
- Centralised supply fragility requires small scale solutions
- Good base for renewable energy (RE)
- No cord to Australia
- Competition where possible, regulation where necessary
- Natural evolution of markets
- Extensive consultation
- Property rights
- Maui running out

Weaknesses

- Speed of Transpower response
- Lack of regulation on lines companies
- Lack of strategic planning esp renewables mechanisms
- Transmission pricing delayed to 2004?
- Isolated system
- Small number of large players – vulnerable
- Market designs still young
- Vulnerability with hydro storage system
- Sustainability not given due emphasis
- No clear strategic goal
- Market comfort with past distortions, eg Maui
- Market designed by major market participants not consumers
- Disparity of funding for wholesale vs retail participants
- Lack of investment
- Lack of energy security and policy certainty for long-term investment
- Blocks out DG (distributed generation)
- Lack of understanding of r.e by bankers and insurance companies
- Limited knowledge management
- Hard to start cultural revolution
- Asymmetry of information
- Electricity market too complex
- Lack of retail customer pricing signals
- No emissions market, limited understanding
- Lagging behind experience in carbon trading
- Geographical features

Opportunities

- Biomass/co-gen ready to go, eg REC
- Project fund (climate change)
- Possibility to get design right
- Platform for change

- Retail sector service providers
- Clear pricing signals
- Energy efficiency
- Price responsive load
- DG
- Quick on our feet due to small size
- Can build in lots of technology
- First country to be 100% renewable
- Customer involvement in market
- Public/private investment partnerships
- Rotten houses and inefficient commercial buildings
- JI and CDM projects
- Joint initiatives between Govts
- Can meet Kyoto commitment
- Can learn from others
- Educational opportunities
- Geothermal CO₂ capture internationally

Threats

- EGB lack of independence
- Vertical integration
- Possibility of crown EGB
- Self interest
- Small number of large players
- Perverse Incentives
- Myopic short term thinking
- Exhaustion of political appetite
- High compliance costs
- Excessive governance ruling out supply options
- Abuse of market power
- Supply side dominated
- Poorly designed govt policy
- Lack of coordination between regional and central policy initiatives
- Public ignorance, danger of public backlash
- Delays create shortfalls
- Over response to actual situation
- Limited resources
- 85% of customers have fixed price, variable quantity contract
- Jargon
- Public don't care
- Poor understanding of Kyoto leads to missed opportunities
- Expectations that reforms lead to price reductions
- NZ no longer seen as clean and green
- Economic damage balance with climate change damage
- Unclear property rights for emissions trading
- No back up plan if Kyoto does not come into force

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