31 August 2016

Scott Hamilton
Executive Director – Renewable Energy
DELWP
8 Nicholson St
East Melbourne Vic 3002

Our ref: 31/010302/5 254047

Your ref:

Dear Scott

Victorian Renewable Energy Auction Scheme Consultation Paper – Response

GHD is pleased to provide feedback in relation to the Victorian Renewable Energy Auction Scheme Consultation Paper.

The proposal to further develop the renewable energy industry in Victoria given local, national and international commitments is warmly welcomed. As has been demonstrated for other similarly significant large scale initiatives, the proposed timing and mechanics for implementing such a strategy will require an holistic approach to achieve success in meeting or exceeding the program objectives.

The proposed government-led and market based approach will require careful oversight. Some key areas identified could be developed further as plans are firmed up as a result of this discussion paper. The schedule does appear to be ambitious and in some respects has potential risks associated with such tight timing and ramp-up. Simplification of the price structure, and clarity around the LGC's is needed. A possible range of grid price volatility scenarios may be needed for assessment, much like banks have a stress test applied to check for economic stability.

The following points are hereby provided in the interests of providing constructive feedback.

1. A sound assessment process of the reverse auction tenders is required. The ACT FiT process appeared to have too much weighting on cost with insufficient emphasis on build quality, community impact and other aspects. Based on learnings from the ACT reverse auction process, it is recommended to utilize a different assessment approach, and associated criteria contained within that assessment, on a simpler price/value basis, as was suggested at the 23rd August (morning) workshop. A risk based assessment is required. The assessment should provide clear criteria and require proponents to provide certainty values (P50, P90 and P95) for specified criteria. Given that two governments are providing funding, a more open book approach is recommended. Criteria could include elements such as $/MWh project value, Capacity Factor for the proposed installation, Strike Price $/MWh, equipment technology tier level, schedule and lead time items, social effects, environmental effect, local content and project workforce, price and volatility projections. The aim is to provide a more level playing field and enable submissions of a higher standard. Weighting criteria will need to be derived, so that there is clear guidance for proponents, and there is also a viable and reasonable basis of comparison with which to make selections of successful tenderers.
2. The assessment should then be done on a risk based multi-criteria basis, over a wider range of criteria, with robustness testing of the various proposals to provide for minimal risk of default. This

would then achieve a more balanced basis rather than a high dependence on a penalty basis for project defaults.

3. It is likely that State-based safety and environmental regulations and standards will need to be updated, and the work scope of State authorities examined. The scale of the projects required to achieve the proposed energy targets, will likely require energy storage and generation systems of a larger scale than has previously been developed in this country. Of the size range needed, safety case styled thinking and regulatory oversight is needed. It is recommended that a formal review of electrical, process and workplace health, safety and environmental regulations be undertaken. Regulatory remits of State departments should be reviewed for the range of likely project sizes of generation and storage that could be developed. Some scenario based thinking may aid in this process. Safety targets need to be established, and compliance processes in place to achieve success. The approach should be new technology agnostic. Examples of regulatory short-comings include the Dreamliner battery issues, hoverboard safety, and the home insulation scheme. Social license for safety and the environment are critical.
4. There is an opportunity for the energy generation capacity / baseload replacement strategy to be better articulated. The Victorian strategy needs to have enough guidance surrounding it to enable the initiative to be achieved on a State basis, without causing undue disadvantage to other states and their grid stability, their baseload suppliers, and future plans. South Australia is now heavily dependent on the national grid, in part due to its strategies for renewable energy generation, but without suitable storage or baseload to achieve acceptable baseload equivalent power. The level of energy storage required alongside the renewable (primarily wind and solar) generation capacity proposed needs to be better articulated. California recognizes this in its current renewable energy plan, and has mandated energy storage as a component.
5. Due to the nature and size of such projects, significant land space will be required in unique locations. Urban, rural and remote community planning needs to be wisely considered and included in this strategy. Energy storage and generation both need land, and also need to be in strategic locations for best / optimum value to the grid, efficiency of energy collection, and stability for demand profiles. Support and guidance is needed to avoid costly development activities being thwarted in their latter stages through poorly managed or insufficient social and community inclusion.
6. This effort needs to be examined in conjunction with other Victorian and national initiatives. Some of these are outlined in the abstract of an internal GHD paper (attached)[1]. This can be elaborated on suitably if required.
7. Current economics and electricity pricing strategies will need to be altered to help facilitate the right energy storage projects. Peak to off-peak pricing goes part of the way. Some price support for waveform control would also be worthwhile, as battery storage systems could play a vital role in this area. The Victorian government will need to actively lobby for this update of pricing to reflect the transition to renewable energy.

[1] M. Erskine, Possible Scenarios of Energy Sources and Demand for the next 20 Years, 2016.

GHD is grateful for the opportunity to provide input to this important initiative.

Regards

Sincerely
GHD Pty Ltd

Mike Erskine
Executive Advisor, Risk Management

Dave Clark
Victorian Market Leader, Energy & Resources

Attachments:

1. *Possible Scenarios of Energy Sources and Demand for the Next 20 Years.*

Possible Scenarios of Energy Sources and Demand for the next 20 years.

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Abstract

This paper outlines possible events that could change the way Australia uses and supplies its energy. Also, some unique windows of opportunities also appear if we plan this transition properly. The changing dynamics due to our response to climate change, our increased air conditioning, ageing population, increasing technology in transportation, and improvements in house energy efficiency could all bring about profound shifts in our daily weekly, monthly and yearly energy usage patterns.

Rather than simple trend line analysis, fundamental drivers of solar and wind power costs are examined, in conjunction with developing battery and associated technology, along with the likely transition to autonomous and electric powered vehicles.

There is likely to be at least about 10-15 GW of installed capacity of PV solar cells on our grids by 2025, with economics of western facing roof space becoming more viable in the near future. Wind power looks likely to continue its growth adding at least about 8-10 GW of installed capacity. The renewables capacity factors will likely remain at their current values, but energy storage economics looks to be improving significantly over the next 10 year period. Coal seam gas can play a very good flexible interim power role with lower carbon dioxide output, achieving a mixture of base load and second tier dynamic load.

If not managed properly, there are risks of people and organisations being tempted to go “off the grid”. This situation may occur just when we will need the diversity from individuals and organisations being connected on the grid to provide power for a new age characterized by technology development. Our urban development will be affected by the way in which governments take the lead in this future.

Given the increasing trend in dynamics of supply and demand on our energy grid, it is time for governments and companies to come together to examine and plan for three key areas. The first is a cohesive set of policies for renewables power levels, reliability, and reactive energy equivalent levels for our grid system. The second is for development of a grid capacity suitable for renewables for the next fifty years. The third is to form a modern, virtual equivalent of the dynamic capability of the Snowy Hydro project. It would need to able to add power in seconds, and be able to recharge more dynamically at different times using battery storage in homes, vehicles and dedicated locations. This can be done without flooding valleys and at the same time being greenhouse emissions friendly. As before with SnowyHydro, it will take international cooperation to achieve the basis of technology that will serve this vision.

This paper outlines converging technologies that will help make this a reality. Social and urban planning strategies are outlined as well. Governments need to provide a suitable policy framework for society to be technologically responsive to the fullest degree in order to maintain our competitiveness as a nation.