



# **Response to the Energy Security Board Post 2025 Market Design Issues Paper**

## **NEW ENERGY SOLAR (ASX:NEW)**

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## Key Points of the New Energy Solar Submission

- **New Energy Solar (ASX:NEW) and its co-managed fund US Solar Fund (LSE:USF) are largely invested in the US because of that market's relative investment certainty**
- **International investor appetite for investment in the Australian renewable energy market is low to non-existent**
- **Lack of clear goal or vision in the Issues Paper, together with breadth and timetable of ESB consultation process is unsatisfactory and will prolong current investment stasis**
- **Features of the US markets in which NEW and USF are invested which promote investment certainty include:**
  - **clearly articulated state renewable energy portfolio standards;**
  - **federal subsidy scheme that has broadened the project finance market for renewables;**
  - **degree of regulation enables long-term planning;**
  - **less reliance on extreme price volatility to signal investment/divestment;**
  - **common distribution/retail ownership structures obviate congestion/MLF risk; and**
  - **low-priced gas to firm renewable generation.**
- **A successful electricity market should ensure supply meets demand over the closure/retirement of generation and transition to low or zero emissions technology, investment is competitive and efficient, government actions/policies have predictable and commercially-driven outcomes, competition and capital are not hampered, innovation is possible, regulated services are defined and ring-fenced, and consumers can engage productively with the market**
- **Issues currently diminishing investor appetite in the Australian energy sector include:**
  - **market signals are being diluted/distorted by government intervention;**
  - **existing generation asset owners are able to entrench status quo;**
  - **poorly coordinated policy across government; and**
  - **integration of renewable generation complicated by multiple/mixed motives.**
- **Consultation process based on limited number of suggested market designs with clear analytical foundation would greatly improve output of ESB process and industry confidence of potential outcome for purposes of planning and investment**



## 1. Who is New Energy Solar?

### Australian listed solar investor – invested primarily in the US

New Energy Solar (NEW) was established in Australia in November 2015 to invest in a diversified portfolio of renewable assets across the globe. The business' current portfolio comprises 16 utility-scale solar plants with a total capacity of 772MWDC. While investors are largely Australian, 14 of the assets are in the United States (California, North Carolina, Oregon, Nevada) and two are in New South Wales, Australia. NEW is managed by a subsidiary of Australian financial services group, Evans Dixon Ltd.

### Asset investments underpinned by strong US PPA market

NEW's investment in its large-scale solar power plants is underpinned by long-term contracted power purchase agreements (PPAs). The PPA counterparties are highly credible off takers such as Stanford University, Duke Energy, and Berkshire Hathaway subsidiaries, NV Energy and PacifiCorp, in the US and Sydney Metro and EnergyAustralia, in Australia.

### Little appetite amongst global investors for Australian market exposure

In April 2019, NEW's manager launched another investment vehicle which is listed on the London Stock Exchange – US Solar Fund (USF). The geographical investment mandate for this fund is the Americas. There was NO appetite for investment in solar generation assets in Australia from the European-based institutional investors supporting this fund. When fully invested this fund is likely to represent an additional 400MWDC of utility scale solar capacity in the US.

### NEW's focus is United States but would like to see improved investment conditions in the Australian market

NEW's preferred renewable energy investment market is the United States where investment signals and regulation are clearer, transactions are numerous, and investment appetite is significant. While we originated in Australia, our team and focus are increasingly American.

We have developed this submission to the Energy Security Board (ESB) Post 2025 Market Design Issues Paper (Issues Paper) to reflect our growing concern at the deteriorating investment conditions in the Australian electricity market. While the Renewable Energy Target (RET) is delivering record installation of new renewables capacity as we approach the legislated 2020 deadline, this short-term activity masks deeper and more significant problems with the current electricity markets in Australia. Specifically, how the market efficiently signals the continued transition to new zero emissions generation, as well as the storage and firming generation needed to decarbonize Australia's electricity system through the first half of the 21<sup>st</sup> century.

## 2. Scope of the Consultation

There is active global debate about how to redesign electricity markets to optimise systems with high levels of variable renewable energy. This debate is complex and, as yet, inconclusive. It is important for Australia to be exploring different market design options



given our relative isolation and relatively high levels of renewable integration. This is a matter of national importance.

This consultation process effectively commences the debate in Australia and is intended to implement any revised market design by 2025. NEW would make the following observations on this approach.

### **Consultation process lacks a goal or vision**

In keeping with Australia's political approach to the energy sector, this consultation process has no determining goal or vision around which the changes to market design should be oriented. The NEO is a simply-expressed base operational case. It does not provide guiding principles or clear targets, and the ISP reflects a range of possible future outcomes which participants find difficult to assess given that the current market does not operate in a purely commercial, unregulated fashion. The range of government intervention initiatives distorts the operation and development of the market.

Finally, to not incorporate any aim to address climate change, while asking submissions to recognize the very high levels of retail consumer uptake of behind the meter renewable energy, mirrors the political mismanagement of this issue. As we will point out later in our submission, the other jurisdictions in which we operate all have clear renewable energy targets for their electricity markets. While some may argue that these targets force the market to develop in a specific way, the targets are endorsed by constituents and their clear and simple expression leaves scope for business to design and manage its compliance. The absence of this top-down principle is likely to detract significantly from the value of this consultation process.

### **Consultation process is too broad for meaningful input**

The ESB Issues Paper outlines various work programs and the broad scope of the challenge of market design. By definition a revised market will need to perform the same, multiple tasks as the existing system: to provide adequate capacity for demand peaks and flexibility for times of low or even zero demand, power quality, system strength, low or near zero emissions and efficient prices.

Most stakeholders in this sector only relate/provide a small number of these services and investments. Many are likely to be unaware about the potential interaction of these as the market changes. It may have been more useful to have scoped out the transformation and these relationships in more detail before consulting with stakeholders. Consultation this early in the process risks overwhelming stakeholders trying to understand the consequences of such a process and overwhelming the Board with so many and varied suggestions, ideas, concerns, threats and opportunities, so as to render the consultation process ineffectual and therefore tokenistic.

The Issues Paper skims many technical issues, like the integration of distributed generation, which straddle operational and market reforms. Clearly it is not possible to include these sources of generation and storage in a market design unless they are equipped with the requisite communications and control systems to enable them to be both measured and managed.



Given the market design expertise within the electricity market operator/regulator framework, we would have hoped to see a more specifically focused and productive consultation process.

### **The current system cannot wait until 2025 for new investment**

Respecting the importance and complexity of this process, NEW supports a considered, expert and robust review of the current market design and possible amendments or replacements. However, such a process should not ignore interim measures needed to secure investment (and closures) until a replacement or reform can be agreed.

NEW has long been an advocate for expedient market reform to ensure a smooth path for the inevitable transition from retiring coal-fired generation to new energy technology. This certainty is required now.

Currently, we are seeing a marked slowing of investment in utility-scale distributed energy, negligible levels of investment in peaking capacity and storage without significant government underwriting, and no clear path to investment in firming technology. These conditions will persist. Rectifying them after 2025 will be too late to avoid a costly and inconvenient transition to new generation technology.

### **3. The Effective Features of US Markets for Delivering New Energy Infrastructure**

The attractive and effective features of the US markets in which NEW and USF operate which have prompted the very significant levels of investment in those markets are as follows:

- Market structures and regulations are clearly defined and stable (even though they can differ significantly by state)

Each market in which we operate has a clearly stated Renewable Portfolio Standard (RPS). While some RPS progress over time, the timetable for their step-up is clearly stated and well-understood. Compliance with the RPS is a matter for each energy retailer and their lack of prescription enables business to meet the thresholds through a number of different means.

- Federal subsidy regime that has led to very effective financing market for renewable projects

The US income tax credit (ITC) for solar and production tax credit (PTC) for wind have been in place for a number of years. The ITC is legislated to reduce from next year while the PTC ceases this year.

The structure of the ITC and PTC have very successfully and very quickly underpinned the development of renewable energy infrastructure, to the point where the commerciality of both sectors is well-established. Further and possibly more importantly, the subsidy has very effectively broadened the financing market for the sector. The range of financing partners for both equity and debt for renewable energy projects is large. Each project typically attracts project debt providers such as banks and infrastructure capital investors, while the subsidy schemes have prompted the participation of a broader range of banks, as well as private equity investors, corporations, and family office investors. The credit market for projects has depth, as



well as tenor. Financing structures are considerably harder to bring together in Australia, particularly for longer tenors.

- The degree of regulation in US markets facilitates long-term planning and underpins the US long term power purchase agreement (PPA) market

Energy retailers in the US markets in which we operate are vertically integrated or are required by regulators/operators to set out long-term energy supply profiles. This requirement, in turn, enables the retailers to enter into long-term PPAs with energy asset owners or to develop their own energy assets. This underpins the development of energy infrastructure and has also led to the development of a PPA market in which commercial and industrial (C&I) customers also participate, in de-regulated C&I markets. In 2018, US PPA market activity for clean energy was more than twice the PPA market activity in Asia Pacific and Europe combined. US energy market participants have significant expertise and experience in the changing global energy markets.

- In terms of market design, renewable projects in the US do not face the extreme price volatility seen in the NEM

The US markets in which NEW and USF operate are capacity or day ahead trading markets that don't facilitate the extreme price volatility seen in the Australian electricity market. The range of price outcomes tolerated in the Australian market can lead to very significant financial consequences for participants which increases investment risk premiums. Arguably the price extremes in the NEM are over and above the signals required for the market to operate efficiently.

- US market structure and population density avoids the significant transmission congestion and marginal loss factor risks experienced in the Australian market

In the US, our obligation as an energy producer is to get electricity to the farm gate. Typically, we do not take responsibility for the volume or format of the electricity from asset to customer, which is what the Australian MLF factors attempt to reflect. The market structure in many of the US markets in which we operate is such that the utilities are typically also the owners of the distribution and transmission networks. The outcome of this structure is that the responsibility for energy is assumed by one entity at our farm gate. Accordingly, the motivation to move power to the load is consistent from energy source to customer. This is not the case in Australia where separate ownership of energy asset, transmission, distribution and retail utility results in a combination of commercial imperatives that are not always consistent. The financial difficulty experience by RCR Tomlinson has been partially attributed to these circumstances.

- Access to low cost gas facilitates the integration of renewables and reduces electricity prices

In our discussions with US utilities, most indicate that they will replace aging coal and nuclear power plants with bundles of renewable energy and gas fired generation. While this obviously helps to achieve CO2 reduction targets, in most states this bundle of renewables and gas is significantly cheaper than building a new coal fired or nuclear power plant. While gas is more expensive in Australia than the US, many Australian utilities have said it is still cheaper to build a bundle of renewables (without subsidies) and gas, than a new coal fired power station.



There is also considerable evidence to suggest that lower gas prices lead to lower electricity prices. We believe this would be the case in Australia. Given the very low middle of the day pricing experienced in electricity markets in Australia currently and persistently high wholesale electricity prices, it appears that the cost of peaking generation, which is primarily gas-fired power, is setting electricity prices. Lower gas prices and an understanding as to why additional peaking generation capacity is not being built in response to the pricing signals, are likely to have a material impact in reducing retail electricity prices in Australia.

#### **4. What Does a Successful Electricity Market Look Like?**

The deliverables of a successful 21<sup>st</sup> century National Electricity Market design are easy to scope out. Not all of these will necessarily be delivered by a market design. It is likely some of these features will be delivered by specific policy measures and regulation and be delivered by regulated assets or other non-market entities. Given the increased complexity of 21<sup>st</sup> century market design, a key output from this process should be what is included in a market, and what is more efficiently dealt with outside the market.

Taking the fully suite of market and non-market measures as a single entity, the reformed National Electricity Market will ensure:

- Adequate supply of generation, storage, transmission, demand response and all technical services to ensure the electricity system operates within prescribed reliability standards at the most efficient cost meeting the agreed trajectory to very low/zero emissions by the middle of the century.
- Investment in new infrastructure (generation, storage, services) is competitive, efficient, transparent, repeatable and timely, and is able to secure financing at rates that reflect appropriate risk levels.
- Government activity in this market is limited to broad review of agencies and governance. Government owned corporations are operated at arms-length from policy and their actions are commercially driven and therefore predictable by other agents in the market (reducing risk).
- Barriers to entry and exit in the market are low, demonstrated by new entrants being able to compete on like-for-like terms with incumbents. Capital is able to flow easily into and out of the market.
- Innovation is able to disrupt and improve the performance of the market.
- Regulated services are clearly defined, ringfenced from competitive markets and the cost of those services is set at an efficient price and incentivized to encourage continuous improvement in the delivery of that service.
- Closure and/or exit of existing generation and other assets is sufficiently organized and timely to maintain adequate supply through the transition and provide room in the market for replacement capacity in a timely fashion.
- Consumers are able to engage with the market to the extent they require, and exploit competition between retailers to obtain competitive prices and levels of service.

#### **5. Specific Features of the Australian Market Hampering Investment for NEW**

##### **Market signals are diluted by government intervention**

Theoretically, Australia operates an energy-only market. However, a series of government policy interventions has resulted in a market that has evolved to become a hybrid of energy-



only, capacity, regulated and unregulated. The Issues Paper articulates this clearly. The political narrative of electricity as an essential service is inconsistent with untrammelled market responses, particularly if they manifest as sustained high prices. Similarly, Snowy 2.0, the Underwriting of New Generation Investment Initiative and the Default Market Offer, all introduce an element of market distortion that is difficult to quantify or manage. The clearest example of this distortion which concerns NEW because it will, in time, hamper the transition of the electricity market to a low carbon future, is the current lack of investment in peaking capacity, despite strong market pricing signals.

### **Example - firming investment gridlock**

There has been significant under-investment in firm peak generation since the mid-2000s. This is despite relatively high swap and cap prices in regions like Victoria, and high peak pricing in New South Wales. Ordinarily, this pricing would be interpreted as the existing market signaling demand for new firm peak capacity, but the required investment is not happening. Other market participants have indicated to us that this lack of investment in flexible, peaking capacity is largely due to concerns regarding the impact on future peak prices of large, government funded pump storage projects in the next decade.

The lack of peak<sup>1</sup> capacity impacts on the ability of renewable generators to “firm-up” production at reasonable cost: caps and batteries are expensive.

The inability to firm will constrain the growth of renewables significantly because, while we can get customers to sign percentage of meter contracts now, it is likely that over time they will want a known MW electricity supply and force the weather risk back on producers.

So, these persistently high prices in peak periods hold back the transition to low CO<sub>2</sub> generation, and also entrench the existing electricity retail oligopoly. The energy-only market is not working as it should to solve this supply/demand issue.

Understanding specifically what is discouraging this type of investment is critical to enabling peak generation investment as a matter of urgency. NEW suggests the ESB commission a series of confidential, one-on-one interviews with key investors and capital providers to diagnose this problem immediately.

It may well be that some of the influencers are current government policies and programs. It is imperative that, if this is the case, the relevant governments hear first-hand what their policies are doing, how much it is costing consumers and whether they can modify their interventions to deliver their objectives.

### **Existing asset owners are able to entrench the status quo**

The large electricity retailers in Australia (gentailers) are vertically integrated, which means they own or contract generation assets which largely match their retail book and comply with their renewable energy obligations. In a near zero growth market where they have met their renewable obligation, they have little incentive to invest in new generation because scarcity will only improve the returns on their existing generation assets. This condition will only evolve slowly as retail competition gradually spreads customers and demand to more market participants. Recent interventions to regulate retail markets will only benefit major retailers

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<sup>1</sup> It is worth noting that the concept of “the peak” is changing - it is no-longer just periods of high gross customer demand (e.g. hot summer days) but also periods of relatively high net customer demand when rooftop solar and utility scale solar production is low (eg. wet, low wind days in winter).



by reversing this trend, ceding control over the timetable of new generation investment mostly in their hands. In a quasi-unregulated market, the future energy requirements of the population are hostage to the investment horizons of the existing asset owners.

### **Poorly coordinated government policy across all levels of government**

There is a marked mismatch evident between policy which facilitates retail consumers world-beating rates of adoption of renewable energy and the lack of direction, policy and co-ordination to facilitate investment in the transmission and distribution network to manage this accelerating de-centralisation or to encourage the same rate of development of utility-scale renewable energy.

Apart from the inconsistent policy rationale, rooftop distributed generation assets are now a significant part of generation, particularly under conditions of high sunshine and low demand. These loads are also uncontrolled and mostly unmeasured. The physical lack of regulation on these sources of solar generation poses a growing risk to new large-scale solar investors. It is increasingly risky to invest in markets where there is material competition from unseen and uncontrollable sources of coincident generation.

### **Integration of renewable generation complicated by multiple/mixed motives**

For developers and asset owners, the distinction between the large offtakers in the form of the 'gentailer' utilities, the distribution and transmission owners, and the market operator means that there are mixed motivations and signals at play in terms of developing, connecting and utilizing new generation assets:

- Gentailers own assets for which they do not want competition;
- Transmission and distribution owners view new generation as likely to involve a cost/investment on which they may not gain an adequate return; and
- The market operator needs time to assess the impact of new generation in light of current and future co-located generation and must also understand the production pattern and metrics of performance in light of inertia, voltage, frequency and system performance events, like storms.

The uncertainties inherent in the position of each of these participants accumulate and are hard to manage for new generation developers.

## **6. Conclusion - Consultation Could be More Productive and Expedient**

The prospect of market reform suggested by this consultation process has the potential to materially impact the value of all assets in the NEM, existing and potential. Accordingly, this consultation process may create its own inertia meaning that the current stasis in the energy investment climate will remain, at least until the product of this consultation process is final.

We urge the ESB to progress its thinking on market design before seeking comment. For investors, the lack of specificity or framework as to the likely outcomes suggests that the process could, at one end of the scale, jeopardise all aspects of the current market design or, at the other end of the scale, ignore all input from stakeholders because it is more expedient. Neither of these outcomes is desirable or likely to improve the investment climate for the Australian energy sector.



