

# NT Solar Futures

Department of Treasury and Finance  
Utilities Reform unit  
By email

6<sup>th</sup> March 2019

## **Response to the Northern Territory Electricity Market: Draft Functional Specification**

Northern Territory Solar Futures Developments Limited (NTSFDL) welcomes the opportunity to provide comment on the proposed Northern Territory Electricity Market (NTEM) Draft Functional Specification. NSTF are proposing a 50MW Livingstone Solar Farm near Berry Springs and has other renewable projects in the pipeline. Our input is therefore from the perspective of a Renewable Energy Developer.

The NT government is committed to a 50% renewable energy target by 2030. The NTEM design needs to provide a market that supports and facilitates the achievement of this target. The Draft NTEM Functional Specification has been reviewed in this light. We note that the Expert Panel's Roadmap to Renewables report, prepared for Government, recommends a reverse auction process for long term Power Purchase Agreements (PPAs) to underpin the NTEM market structure. Such a competitive, open, transparent, reverse auction process would satisfy Governments need for competition and assist the downward pressure of wholesale electricity costs. PPA contracts are essential to permit debt funding of renewable energy projects. A proposal for this market element is included below.

Our constructive input on the NTEM draft Functional Specification is provided below. It is noted that the draft Functional Specification was issued for consultation with only a short period of time to respond (3 weeks) and without public information and consultation sessions. NTSF looks forward to such sessions being held and a further chance for input prior to the conclusion of consultation on the Functional Specification.

It is also appreciated that this is a Functional Specification only and it is assumed that a more detailed NTEM rules (or similar) document will be produced. NTSF therefore looks forward to further consultation on the NTEM rules before the market is implemented.

### **General comment - Strategic System Planning**

At present there are mechanisms for individual players in the NTEM to undertake system planning within their own areas of influence. However, there is no apparent mechanism to facilitate strategic system planning on a system-wide basis.

Power systems require precise and comprehensive system planning and are unlikely to operate efficiently without such planning. It is therefore necessary that measures be put in place to facilitate this system-wide strategic planning. An independent body to achieve this was recommended by the Expert Panel in their report and it was suggested that this body could also undertake the required reverse auction process.

An example of the need for such strategic system planning is the likely requirement for future augmentation of the Darwin-Katherine Transmission Line. A planning mechanism that can deal with this contingency must be in place within the Technical Codes and/or NTEM before such a need arises.

**Our sun. Your profit.**

2/8 Caryota Place  
Coconut Grove NT  
Phone: 0409 092 766

## NTEM Functional Specification, DRAFT, 4 Feb 2019

### Contract Support, Dispatch and the Reverse Auction Process

Most large scale power generation projects funded by the private sector require project finance (debt). Project finance providers require certainty of return, and hence projects are typically underpinned by a 10+ year power purchase agreement (PPA). Without such agreements, the risk margin for project finance will be high, debt to equity ratio will be low and/or project finance will not be able to be obtained. New projects will not happen, or the price of electricity will be high. This is particular to the case for a new, small and thinly traded NTEM where there is little price certainty, and hence the risk is seen as high.

In terms of support for contracts, section 4.7.5 of the Functional Specification states “The bulk of energy transactions are expected to be on the basis of bilateral contracts agreed between buyers and sellers. An Out of Balance arrangement will operate to settle occasions when generation of a contracted party differs from the contract and also when consumption differs from the contract.” This statement tends to support our concept of contracted volumes but is at odds with the dispatch structure elsewhere in the document. It also begs the question of how such contracts might be reached given that there is no market mechanism for competitive contracting in the document. In addition, we argue against bilateral contracts reached outside the market in favour of openly tendered, competitively bid PPAs in a Single Buyer market (see details below). The Wholesale Electricity Market (WA) is an example of a small market where contracted volumes work but in section 4.2 of the consultation paper (Unit commitment and dispatch) there is no mention of recognising contracted positions. Generators need to be dispatched according to their contractual position first unless there is System Security issue. This is a key missing component of the market specification at present and needs to be included in section 4.2.

Further, where there is a system security issue, Generators need to be kept financially whole, (where the Generator was available but unable to meet its obligations due to factors outside its control). The WEM can be looked to as example). This needs to be a feature of the NTEM.

There is no mention of a **reverse auction process** for long term PPAs being run by the NT government within the Department of Treasury and finance (DTF) consultation paper or the NTEM Functional Specification. This was a prime recommendation of the NT Roadmap to Renewables, 50% by 2030, Sept 2017. NTSF sees the Reverse Auction process as the only mechanism to:

1. Help ensure that the energy mix desired by NT government is achieved (50% RE by energy).
2. Achieve least cost electricity pricing due to the competitive nature of the process.
3. Achieve price transparency as mentioned in section 2.3 of the Consultation Notes

Reverse auctions have been highly successful in other jurisdictions such as the ACT. NTSF strongly supports the implementation of a Reverse Auction process for the NT.

The draft consultation NTEM proposal is for a technology agnostic, dispatch on price. This may work where all generators are synchronous and fossil fuel fired, however, to achieve the anticipated mixed generation market, and a 50% renewable energy contribution by 2030, a different approach is needed.

Debt financed renewable energy generation projects require financial certainty. This is achieved through PPA contracts.

A mixed market model where contracted volumes can be competitively bid, and dispatched first, with top up supply dispatched on daily/hourly price is completely achievable.

## **Single Buyer Model**

The market element missing from the consultation papers is called a **single buyer model**. Multiple generators sell to a single buyer under PPA contracts that are competitively bid for – reverse auction.

The single buyer, in the NT, could aggregate multiple small demand requests for “green energy” and issue bulk contracts for supply. The aggregation of demand requests is anticipated in the NT as there are few single large users. Consumers such as shopping centres, Councils, Dept of Housing, Dept of Education etc. could request the single buyer to contract on their behalf.

The single buyer is not a retailer. Generators would be under PPA contract and would be dispatched according to the terms of their contract. Competition is at the time of contract, not in terms of dispatch. This makes the entire dispatch model much simpler to manage. Retailers could still entertain bilateral contracts and achieve competitive choice of supplier, should they wish to avoid the single buyer offer.

Both externally sourced bilateral and market run contracts, achieved by the single buyer would be dispatched first by system control. Top up would be on daily/hourly dispatch price. As it is unlikely that gas fired generation is going to be offered against the existing T-Gen supply (the market would allow this if it was offered), top up will be a simple continuance of the current dispatch arrangements.

A significant advantage of the single buyer reverse auction model is that all ancillary services, and any special conditions necessary for system stability and reliability, can be built into the PPA contract at the time of competitive bidding. In this way the competitive process remains open and transparent but achieves a level of rigor currently missing in the opaque bilateral contracts so far completed.

A proposal in the draft NTEM consultation papers that investment in renewable energy may be achieved through a capacity mechanism is unachievable and the suggestion that accredited capacity would be 5% of name plate is insulting to the industry.

## **Semi-scheduled and non-scheduled generation**

At present the draft NTEM is all based on scheduled generation. A key item proposed to be removed from the NTC is the semi-scheduled generator and non-scheduled generator classification. NTSF strongly considers both classifications should be reinstated (subject of a separate submission). The removal of the semi-scheduled classification would make the NT more onerous than the NEM and WEM and will stifle investment in the NT.

The draft NTEM needs to address semi-scheduled and non-scheduled generation. This will be a significant change to the draft NTEM but an important one to facilitate renewables.

## **Forecasting**

There is currently a disconnect between the requirement for generator forecasting under the Network Technical Code (NTC), System Control Technical Code (SCTC), and the draft NTEM. These documents need to align in terms of their generator forecasting requirements.

The strong preference would be a NEM type forecasting arrangement, whereby System Control takes overall day ahead forecasting responsibility for solar (and wind) semi-scheduled generators. System Control is best placed to provide this service, particularly when it needs to manage a system with substantial distributed ‘roof top’ uncontrolled solar that it needs to forecast.

Semi-schedule generators would provide a day ahead forecast for each trading interval of availability, etc. as per Table 2 of the draft NTEM. Semi-schedule generators would operate based on the energy resource (e.g. solar), and the Energy and Capacity Out of Balance market would deal with top up and spill.

## **Capacity Mechanism**

The inclusion of a capacity mechanism is welcomed by NTSF, as it will ensure that both capacity and energy is available for the NT. The intent of section 4.1.3 Accredited Capacity is supported by NTSF but there needs to be more details on how the Accredited Capacity will be determined, particularly for renewable generators. A figure of 5% of nameplate, as proposed, is completely unacceptable for renewable energy generators. In addition, more detail needs to be provided on how the capacity price is set (section 4.7.2). Guidance on typical capacity prices is welcomed but how the capacity price will be determined longer term needs to be detailed.

The above requirements are important to NTSF to determine its business case/s, and hence is needed now.

## **Reliability Manager and Market Operator**

NTSF welcomes both the appoint of an independent Reliability Manager to determine capacity requirements and the fact that the Reliability Manager is to work with Government to ensure the right capacity to meet the Renewable Energy Strategy.

NTSF does not support System Control being the Market Operator. The Market Operator needs to focus on the operation of the NTEM. The Market Operator must be seen to be independent and free of any perceived bias, particularly in a disaggregate industry. This separation of functions has worked well in other jurisdictions such as the WEM. In addition, NTSF considers that the Reliability Manager and the Market Operator be the same entity. Thus enabling, the Reliability Manager will be informed, through firsthand knowledge, how the market has been operating.

System Control should be left to focus on its key area of competency being operation of the power system. This is particularly the case when Power and Water Corporation (PWC) currently manages both the Network and System Control.

In fact, both Network Operation and System Control need to be independent and should be separated from PWC. This was recommended by the Expert Panel in the Roadmap to Renewables report. Only in this way will confidence in the integrity of the NT system be achieved.

## **Start date**

The intended start date of 1 July, 2019 is viewed by NTSF as very rushed and premature. Given it has taken until February 2019 for a draft functional specification to be released, there is not sufficient time to have real consultation on the market design and to commence the NTEM.

## **Contingency FCAS**

It is stated in section 3.6.2: "In respect of Contingency Services provided by other parties, in particular batteries, as noted earlier, GPS requirements will obligate solar PV facilities to provide contingency FCAS as part of their connection agreement at no charge. This requirement will apply while the facility is generating - that is, during daylight hours." The last sentence states C-FCAS is only to be provided during daylight hours for solar facilities which is welcomed but not presently stated under the NTC and should be. A review should be undertaken of the NTC, SCTC, and draft NTEM to make sure these documents are consistent.

## **Spinning Reserve and Inertia**

In section 3.7.2 it is incorrectly stated that "batteries take time to respond after a disturbance". Battery inverters can provide a primary response to a disturbance that is equivalent to physical inertia depending on how the battery inverters are configured. Battery inverters can then provide a control secondary

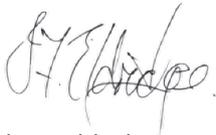
response to a disturbance as well. One of the benefits of battery inverters is the ability to configure their inertia response to the grid requirements.

### **Dispatch Support Service**

The inclusion of an innovative Dispatch Support Service is welcomed by NTSF. It is recognised that there will be constraints on the Channel Island to Katherine 132kV line and the Dispatch Support Service will help address this.

More generally, there needs to be a focus on the economic operation the system as a whole if 50% RE by 2030 is to be achieved. This will include the investment by the NT government (or the private sector) in areas such as transmission infrastructure to enable renewables as well as mechanisms to generate revenue from these assets.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ilana Eldridge', written in a cursive style.

Ilana Eldridge  
Director