

**Brookfield**



**Brookfield Renewable Energy Group**

**Response to  
SEM Committee Consultation on  
DS3  
System Services  
Procurement Design**

**Submission Date: 5<sup>th</sup> September 2014**

## Summary

Brookfield Renewable Energy Group (BREG) owns and operates one of the largest publicly-traded, purely renewable power platforms in the world, totalling nearly 6,700 MW of hydroelectric and wind generation across the United States, Canada Brazil and Ireland. Following our recent acquisition of the wind generation assets of Bord Gáis Éireann, BREG now owns and operates 321 MW of wind generation across the island, with an additional 137 MW in construction and a development pipeline totalling 300 MW of wind and 100 MW of tidal generation. We welcome the opportunity to comment on the procurement design of DS3 System Services, whose delivery is extremely important to our business.

We support the work done to date by the Transmission System Operators (TSOs) firstly in identifying the system operation challenges that come with operating an island system with high levels of non-synchronous generation and secondly, along with the Regulatory Authorities (RAs) in initiating the DS3 Programme to overcome those challenges. We strongly encourage the RAs and the TSOs to complete the programme as quickly as possible so that system non-synchronous levels can be increased beyond the current limit of 50%, and submit that the TSO must implement iterative increases as they become technically possible.

However, we are increasingly concerned that there will be further delays in implementing the RoCoF Code Modification due to the as-yet unproven capability of conventional generators to meet the higher standard and the System Services work stream due to its growing complexity. These delays have a real and material impact on wind curtailment levels which will be further exacerbated by the REFIT 2 deadline of achieving connection by the end of 2017. Ultimately, if delivery of the DS3 programme is not expedited it will increase wind curtailment to levels that will prevent wind projects being financed, endangering achievement of renewables targets, and threatening the viability of existing wind farms.

The TSOs have flagged that investment is required to deliver the quantity and types of System Services they need to manage a system with high levels of non-synchronous, intermittent generation. While we welcome their analysis of the benefit of delivering DS3, we still are unclear as to the volumes of the System Services required by the TSOs. This makes it more difficult for investors make a bankable case for new or incremental

investment. Investors need clear signals. This can be provided by firstly; the TSO providing information on the volume of the different System Services required and secondly; the RAs providing a procurement solution that will give investors some certainty that their investment can be adequately remunerated.

When deciding on the best procurement option, we believe that the SEMC must consider complexity and deliverability. Highly complex procurement and payment solutions increase the delivery risk. The SEMC must prioritise the need to deliver the benefit to consumers when deciding on the optimal procurement option and in our view Options 2, 3 and 4 have high levels of complexity and a far greater delivery risk than Options 1 and 5.

In our view the proposed procurement options are at one end less flexible and efficient but with investor certainty and low delivery risks (Option 1: Regulated Tariffs) and at the opposite end more flexible and efficient but with less investor certainty and higher delivery risks (Option 5: Competitive Multiple Bid Auctions). Options 2 (System Services Pot), 3 (Regulated Competition) and 4 (Competitive Split Auction) could be seen to sit somewhere in between, with varying levels of efficiency, flexibility but with higher levels of complexity.

Option 1 (Regulated Tariffs) does deliver investor certainty but may not deliver that investment, given ambiguity around the payment basis proposed. Questions also remain around how the tariffs would be set using the Best New Entrant methodology given the range of services required and the differing technologies that can provide those services.

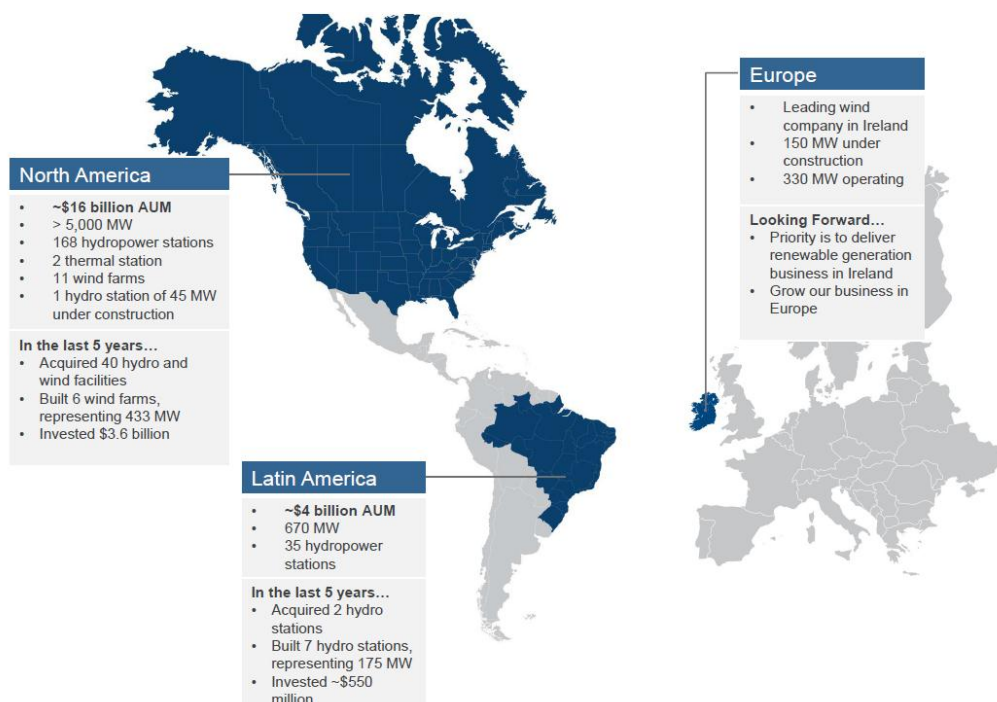
On the other hand Option 5 (Competitive Multiple Bid Auctions) delivers the most flexibility by allowing participants to include the price and term of contract needed to provide the System Services but has a number of delivery risks namely; mitigating market power, the process of selecting bids, the proposal to backstop failed auctions with regulated tariffs and its interactions with the ISEM market design project.

Overall we believe that the optimal solution is a modified version of Option 1 (Regulated Tariffs). The payment terms should be set using the value to the system as proposed by the TSO instead of the BNE approach and payment basis should be based on capability to provide investor certainty. This solution would deliver the required investment in the short timeframe required.

## 1. About Brookfield and Brookfield Renewable Energy Partners

Brookfield Asset Management Inc. (Brookfield) is a global asset management company focused on property, power and other infrastructure assets with over \$175 billion in assets under management in North and South America, Europe and Australasia. Brookfield Renewable Power Inc., through Brookfield Renewable Energy Partners L.P. and its subsidiaries (collectively BREG), owns and operates Brookfield’s power facilities and has over 100 years of experience as a power generation facility owner, operator and developer. With approximately \$19 billion of assets, BREG operates one of the largest publicly-traded, purely renewable power platforms in the world. Our renewable power portfolio includes 234 facilities totalling nearly 6,700 MW of hydroelectric and wind generation is diversified across 13 power markets in the United States, Canada and Brazil and, most recently, Ireland and Northern Ireland. Our power operating platform generates enough electricity to power three million homes on average each year, and employs over 1,000 people globally, including full operating, development, construction oversight, and wholesale power marketing capabilities.

Brookfield is publicly listed on the NYSE, TSX and Euronext Amsterdam and Brookfield Renewable Energy Partners is listed on the Toronto and New York stock exchanges. More information about BREG is available at [www.brookfieldrenewable.com](http://www.brookfieldrenewable.com) and about Brookfield at [www.brookfield.com](http://www.brookfield.com).



## 2. Introduction

Following the completion of the recent acquisition of the wind generation assets of Bord Gáis Éireann, Brookfield Renewable Energy Group (BREG) now owns and operates 321 MW of wind capacity across 17 wind projects in 8 counties in Ireland and Northern Ireland. BREG have an additional 137 MW of wind generation in construction and a development pipeline of approximately 300 MW of wind and a 100 MW tidal generation project across Ireland and Northern Ireland.

BREG welcomes the opportunity to respond to the DS3 System Services Procurement Options consultation. We are pleased to bring our unique global perspective to the challenges of delivering the DS3 Programme and in particular the System Services element.

This response addresses the need to deliver DS3 before commenting on the Supply and Demand analysis, the Procurement Designs and Options and the SEMC's Proposed Position included in this consultation paper.

## 3. The Necessity for DS3 to be delivered

To facilitate renewable investment and the achievement of 2020 targets, the DS3 Programme must be delivered. High levels of curtailment damage the bankability of wind projects and the ability of existing wind generators to meet their debt obligations.

Delivery of the DS3 Programme is essential for Ireland and Northern Ireland's renewable energy policy goals to be met. Analysis by the TSO has clearly demonstrated the benefit to customers of high levels of wind generation in terms of reduced energy production costs. This benefit is complemented by wind generation's other benefits; increased security of supply and reduced dependence on imported fossil fuels and economic development and jobs from supporting a local industry. The wider benefits of higher levels of wind generation underline the imperative that this abundant renewable resource is maximised through delivery of the DS3 Programme.

However, for these benefits to be realised the two biggest work streams in the DS3 Programme, System Services and RoCoF, must be completed on time. When considered alongside the REFIT2 deadline of 2017, any delay to existing timelines would result in a large increase in curtailment levels until RoCoF and System Services are delivered. This

curtailment crunch would feed directly into the financeability of projects needed to meet 2020 targets. It would also affect the viability of existing wind farms, where reduced revenues from higher levels of curtailment impairs their ability to meet debt obligations.

Waiting for the ISEM design to be finalised before completing the design of System Services procurement will put further pressure on the DS3 timelines and we would be of the view that where possible interactions with the energy market should be avoided. This can be achieved by payment on a Capability basis for the non-reserve services.

While the Rate of Change of Frequency (RoCoF) Code Modification is outside the scope of this consultation, we believe that it should be considered by the SEMC in the context of its non-delivery. If generators are technically unable to comply with a higher RoCoF limit it will impact on the volume of inertia and other System Services required by the TSO. To this end, we believe that the SEMC should seek to develop optionality around the outcome of the RoCoF Code Mod. When deciding on the procurement solution for System Services the SEMC should consider the need for this flexibility.

#### 4. Supply and Demand Analysis

We support the analysis completed by the TSO estimating the value of delivering the DS3 Programme but caution against assuming that the RoCoF Code Modification will be delivered. Doubts remain about accuracy of the capital cost range of €70m to €84m suggested by the consultants. A flexible approach to the payment terms is supported to ensure investment is delivered.

##### Demand Analysis

BREG supports the work done to date in calculating the benefits to consumers of delivering the DS3 program. The most contentious change in assumptions in the analysis presented by the TSO is the inclusion in the base case counterfactual the assumption that the RoCoF Code Mode has been implemented. As already stated above, we believe that this assumption is by no means a guarantee and it is essential when the SEMC are considering the most appropriate procurement solution that sufficient flexibility is built in to allow for adjustment if the System Services must make up the shortfall if RoCoF isn't delivered. However, even if it is not delivered additional volumes of System Services can solve the problem, making the TSO's consumer benefit conclusions valid in our opinion.

The TSOs analysis looks at the consumers' savings in 2020 when the full DS3 Programme has been delivered. We would like to once more highlight that SNSP levels should be increased as soon as possible as DS3 work streams are even partially delivered. Because consumers will begin benefitting as soon as SNSP levels increase every effort should be made to increase them even on an incremental basis. Delays cost consumers money.

### **Supply Analysis**

Recognising the difficulty in accurately quantifying the costs of providing the required System Services, we would caution the SEMC against taking the capital cost range of €70m-€84m provided by KEMA and IPA as definitive. In reality some of the proposed System Services require enhancements to new or existing plant that have not been done before and hence the difficulty in accurately forecasting costs. For this reason we believe that a flexible approach is needed to allocating the payment needed to ensure that the necessary investment is realised. Instead of a cost plus approach the value as calculated by the TSOs should define the payment terms for the System Services.

## **5. Procurement Designs and Options**

Investor certainty and deliverability risk must be prioritised when assessing the procurement options proposed so that the benefit to consumers is realised. Option 1 delivers investor certainty with a low delivery risk provided payment terms are adequate to drive investment. Option 5 provides flexibility to allow prospective investors to include their terms in multiple bids but significant concerns remain about the deliverability of this option due to market power and implementation issues. Options 2, 3 and 4 are complex solutions that do not deliver certainty and have a high delivery risk.

### **5.1. Procurement Options**

In our view, the procurement options proposed in the consultation run from one end of a continuum that is fully regulated (Option 1: Regulated Tariffs) to the other that is fully competitive (Option 5: Competitive Multiple Bid Auctions). In between sit Options 2, 3 and 4 who have varying degrees of regulation and competition.

When deciding on the best procurement option, we believe that the SEMC must also consider their complexity and ability to deliver as well as the assessment criteria proposed in the consultation. Solutions with lots of complexity increase the delivery risk. The SEMC must prioritise the need to deliver the benefit to consumers when deciding on the optimal procurement option and in our view the solutions with added complexity such as Options 2, 3 and 4 have a far greater delivery risk than simpler solutions like Options 1 and 5.

On balance, we believe an adapted version of Option 1 (Regulated Tariffs) addresses investor concerns and offers a clear, transparent solution that can be implemented within the challenging timelines needed to mitigate curtailment levels. Options 2, 3 and 4 are discounted from further consideration in our view on the basis of increased levels of complexity and high delivery risk and varying degrees of investor certainty.

### **Option 1 (Regulated Tariffs)**

The Regulated Tariff procurement option does deliver investor certainty and has low delivery risk but, given ambiguity around the costs of investments needed, may not deliver that investment if the tariffs are set too low. It also does not reflect the flexibility where investment cases may be built around the capability to provide a number of System Services. Questions remain around how the Regulated Tariffs would be set using the Best New Entrant methodology, particularly given the range of services required and the differing technologies that can provide those services. If the Regulated Tariffs are set too low (with a contract length that is too short) and no investment takes place, consumers will not receive the benefits of DS3. On the other hand if the Regulated Tariffs are set too high, investment will be ensured and the benefits of DS3 delivered but the price paid by consumers may not as efficient as it otherwise could be. Without knowing what the outturn Regulated Tariffs would be with this option it is difficult to comment on whether the option would ultimately deliver the investment needed.

However, an advantage of Option 2 (System Services Pot) is that it provides a transparent method for allocating value to the different System Services based on their respective value to the system. It is preferred to use this element to set the value of the regulated tariffs under an adapted version of the proposed Option 1.



## **Option 5 (Competitive Multiple Bid Auction)**

The two primary advantages of a fully competitive Multiple Bid Auction procurement solution are that the most cost efficient solution for consumers is achieved and the multiple bid nature of the auction offers prospective providers of the System Services flexibility to tailor their bids to reflect uncertainties in terms of the complex interrelation between the System Services and the costs of investments needed to provide those System Services.

However, questions remain about some of the proposals in the consultation under Option 5 despite the publication of the clarification paper on the operation of the Multiple Bid Auction. In our view, the bid selection process requires a high level of transparency and clarity. The market power issue has been highlighted by IPA and is likely to be exacerbated by the proposals to set the payment basis on availability and dispatch that will, in our view, lead to complex interactions with the energy market. Furthermore the proposal to include a backstop of Regulated Tariffs when an auction 'fails to produce a viable result' requires clarification both in terms of what constitutes a failed auction and also how the regulated tariffs would outturn using the model of a Best New Entrant, an issue highlighted earlier in this response.

### **5.2. Payment Basis**

Dynamic pricing of System Services does incentivise their provision, with high prices reflected in times of scarcity. However, it does introduce substantial added complexity both in terms of providing stable investment signals and in its implementation. For this reason fixed pricing of System Services is preferred where prices should be fixed for a minimum of one year for existing capabilities and sufficiently long (5-10 years) where additional investment is needed.

BREG agrees with the SEMC that a locational market-based approach is not viable at this time and that System Services should be procured on a system-wide basis given the size of the market and the market power considerations.

There are complex interdependencies between the System Services that must be considered in choosing the optimal procurement option that provides investor clarity and cost efficiency. A key element of the procurement solution is whether providers receive payments based on Capability, Availability or Dispatch. The choice of payment basis also

impacts on how the System Services interact with the energy market and the capacity mechanism. In our view clarity, certainty and deliverability should be the priorities when assessing the appropriate payment basis.

In our view **Capability Payments** (that pay based solely on the ability to provide a service and not on how much is actually provided) has the advantages that it provides the certainty around expected revenues needed for incremental investment to provide additional volumes of System Services to take place. Furthermore Capability Payments have less of a direct impact on the energy market.

On the other hand, **Payment based on Availability** (where a unit is paid when it is capable of delivering a service) has increased complexity, particularly where the price is set using the results of an annual auction. The increased complexity makes it more difficult to predict revenues, reducing the stability needed to build viable investment cases.

**Payment based on dispatch** has been proposed for Reserve System Services in both the Regulated Tariff and Multiple Bid Auction options. Notwithstanding our belief that the proposal has considerable added complexity over the current Reserve ancillary services, we agree that the proposals will provide a more cost efficient, competitive solution.

## 6. SEMCs Proposal: Option 5 (Competitive Multiple Bid Auction )

We believe that the risks to the successful delivery of Option 5 are high and do not support the SEMC's proposed position supporting it. We believe Option 1 (Regulated Tariffs) should be adapted to incorporate the value analysis completed by the TSOs and provide payments based on capability (aside from reserve services). In our view by providing investors with certainty and clarity this proposal will deliver the required investment in the short timeframe required and ensure consumers benefit from the value of higher levels of renewables.

In theory, Option 5 (Competitive Multiple Bid Auction) should deliver cost efficiency and flexibility. However, we have a number of concerns with the proposed option that leads to the conclusion that its deliverability risk is high. For this reason and adapted version of Option 1 (Regulated Tariffs) is preferred.

As already discussed, the Competitive Multiple Bid Auction offers the most flexibility for prospective service providers to include the payment and contract terms they need to make an investment case to deliver the System Services needed by the TSOs. In turn, these bids should ensure the most efficient solution is found in terms of costs to consumers. However, there are a number of challenges that increase the complexity of this solution, namely; delivering a legally defensible transparent bid selection process, mitigating market power concerns and how a regulated tariff backstop would work in the even of a failed auction.

We believe that conducting a transparent bid selection process that fairly assesses multiple bids of differing quantity, price and length represents significant challenges. This challenge is further compounded by the interactions between System Services, where an investment case may require successful bids across a number of System Services.

Market power has been recognised as an issue that must be addressed both in the SEMCs consultation and also by IPA, the external consultants that provided an economic appraisal of DS3 System Services for the RAs. Requiring all existing generators to submit a bid reflecting their existing capability will ensure capability cannot be withheld and the auction results manipulated. A BCOP-type rule set for bids and limiting the number of long-term contracts has been proposed to mitigate market power concerns. While this approach is necessary, it increases the complexity of the auction process, reducing investor certainty and makes it more difficult to deliver this procurement solution.

The proposal to include Regulated Tariffs as a backstop if the auction fails to produce a viable result also raises a number of questions. As mentioned earlier, it is unclear how a Best New Entrant model could be used to set regulated prices for a wide range of system services. It is also unclear what would constitute a failed auction and more clarity is needed around this.

For the reasons discussed above, we believe that the risks to the successful delivery of Option 5 are high. Therefore, we do not support the SEMC's proposed position supporting Option 5. In our view Option 1 (Regulated Tariffs) adapted to incorporate the value analysis completed by the TSOs in the setting of the tariffs and with the capability based payments (aside from reserve services) would deliver the required investment in the short timeframe required.