RAB response – Connecting the Islands of Scotland

Introduction

This is the response from the Renewables Advisory Board to Ofgem's letter to interested parties on the subject of connecting the islands of Scotland dated 5th June 2007.

The Renewables Advisory Board provides constructive, evidence based, advice to Government on the effective delivery of its renewable energy objectives.

The board is an independent, non-departmental public body sponsored by the BERR that brings together government departments, the renewables industry and the unions.

The board is chaired by the BERR Energy Minister. Eleven members, including the Chair, come from government departments. The other members have been selected from all sectors of the renewables industry.

Further information on the Renewables Advisory Board may be found at:
http://www.dti.gov.uk/energy/sources/renewables/policy/renewables-advisory-board/page16101.html

Objective of regulation

Ofgem is consulting on potential regulatory arrangements for new Scottish island connections. These connections are needed to allow proposed large scale renewable generation on the islands to send electricity to the main interconnected transmission system, for onward transmission to customers throughout Great Britain.

Any proposed regulation should be judged on its benefits to customers including in this case its impact on the timely connection of renewable generation. It is important that Ofgem set out its objectives for Scottish island connections, demonstrate that the benefits outweigh the costs and why any new regulation is therefore necessary to meet them.

Only 3 Scottish island connections to the mainland are envisaged. Connection applications for at least two of them have already been made and are progressing under existing arrangements. If these connections raise unique issues between price reviews it would be possible for Ofgem to treat them as one off cases as was done for RETS.

If Ofgem chooses to create a specific and enduring regulatory regime just for Scottish island connections, the benefits need to be clearly identified and outweigh the costs of creating and operating that regime in perpetuity.

Additional regulation should only be considered if it is necessary for the protection of customers or for the efficient working of the sector being regulated. It is inefficient to

create regulatory regimes that are otherwise unnecessary, but as a bi-product support a wider objective.

Under BETTA, 73% of transmission costs are paid by connected customers rather than generators. Customers in Northern Scotland already benefit from capped charges. This 'socialisation' of the cost should not be the main driver for regulation of island connections.

There is a wider national objective to increase the proportion of renewable generation and transfer the power from high resource areas like Scottish islands to meet demand further South or in mainland Europe. The government and regional stakeholders should take a strategic approach to this objective. If government decides that a subsidy is justified to connect Scottish islands it should make it available directly. This would also be a more efficient use of public money than by an indirect regulatory mechanism where some of the funds would 'leak'. Ofgem should resist pressure to introduce regulation as a form of subsidy.

Competition in the transmission market

Transmission (and distribution) networks are important in facilitating competitive markets for generation and supply. The overall cost to customers is the sum of these four elements plus the small regulatory overhead. In some cases the earlier connection of new generation can be more beneficial to customers than a delayed but slightly lower cost connection.

For example on the Scottish mainland the rate at which new overhead lines can be consented and built is constraining the rate of new renewable projects. More expensive cable or GIL alternatives would not be subject to such lengthy planning delays and could bring the benefits of renewables earlier.

The regulatory regime needs to be sophisticated enough to promote the best overall outcome which may not be the lowest cost transmission option. It also needs to recognise the value of speed to developers of renewables and to meeting Government renewables targets.

Competition in the supply chain

Further down the supply chain the monopoly transmission owner (TO) relies upon competition between contractors. It is not necessary for regulation to extend to this already competitive level. The impact of TO regulation on perception by suppliers of risks and rewards will affect the availability of resource and the returns expected and hence the cost.

Effective Competition

Ofgem's primary duty is to protect customers, where possible by encouraging *effective* competition. Any competitive process needs to be carefully designed to ensure that it sends the right messages to competitors and is therefore beneficial rather than being implemented for its own sake. In particular the timing of any competition can be critical. If competition is too early there will be significant unknowns and risks. The bidders must factor these in, resulting in a high or variable price. If competition comes at a later stage there is no opportunity to offer innovative solutions.

Impact of regulation on cost

Ofgem's aim is to deliver fit for purpose Scottish island connections at lowest possible cost.

The main cost drivers are:

- Route selection
- Technical and contractual innovation

The potential for regulation to impact on each of these is discussed below.

Route selection

The chosen route for any interconnector is the main cost driver. The route includes on land sections at each end, the landfall and sub sea sections and the location of HVDC converter stations and AC substation connections.

Route selection involves balancing a mixture of constraints and potential benefits. Constraints are physical and technical, but also legal and commercial, e.g. gaining planning consents and negotiating easements with land owners.

Some of these are known at the start of the design process and some only become apparent once detailed and expensive surveys are carried out. It is not cost effective to survey all possible routes to the highest level of detail, so early choices have to be made. The final route results from a series of choices made as the design develops, each based on the best information available at the time. It will never be known whether the optimum route was selected at the end of the process.

For example the cost of a sea bed survey could range from hundreds of thousands to millions of pounds. This level of expenditure is only realistic for confirming the detail of a chosen route.

The only influence regulation can have over this route selection process is defining who should do it and at what stage of the project. Any element of competition in the process will either have to happen before or after route selection. If competition comes before route selection it allows the successful competitor the opportunity to bring their expertise and potential innovation to the process, but means that the price cannot be fixed under competitive pressure. Alternatively if the route is chosen first price competition is possible, but a major cost driver is already fixed and innovation constrained.

Technical Innovation

The high level technical choices that drive outturn cost include:

- HVDC vs AC or mixed solutions.
- If HVDC whether Current or Voltage source conversion is used.
- The operating voltage and design of cable systems

The expertise in each of these areas lies mainly with cable and converter station contractors.

Regulation and licensing have two main influences over technical innovation

- Technical codes and standards that must be adhered to – e.g. Grid Code
- Constraints over the procurement process adopted by a TO.

Contractual Innovation

Since each connection is unique it is likely that better solutions will be found faster if a design team comprises expertise from the whole supply chain. Under option a) the TO would be constrained to hold traditional competitive bidding procurement to demonstrate it had chosen the lowest cost contractor. This option would limit the potential to involve contractor expertise at the design stage.

Comparisons with other regulated sectors

Onshore transmission

There are no essential differences between Scottish island connections and the connection of new renewable generation close to remote onshore communities. They only differ in the relative cost of making the connection and the technology used.

Two of the three islands already have links to the mainland grid. The additional connections are reinforcement to accommodate new generation.

It is critical in this process that resources are not allocated away from ensuring that the Offshore regime is clarified and implemented as quickly as possible.

Offshore transmission

Ofgem is developing the regulatory regime for offshore renewable connections. 'offshore transmission'. Initial thoughts were set out in a scoping document in March 2007 and Ofgem's latest proposals will be published in July 2007, as this consultation closes.

In the Ofgem letter of 5th June on Scottish Island Connections, "many similarities" are suggested with offshore transmission. Whilst there are some similarities, there are three fundamental differences, given below which mean that offshore renewable regulation should not be used as a precedent for island connections.

- Scottish islands are inhabited by existing demand customers whose interests need to be protected by regulation. There will be no customers other than the generators themselves on offshore transmission connections.
- The design lifetime of offshore transmission assets is driven by the economics of the connected generation. The islands are likely to remain populated in perpetuity, so their connections will need to be renewed at intervals indefinitely.
- Offshore transmission licensing is based on the assumption that connections linking one or more generators to the mainland will be radial in nature. (see assumptions list in offshore GBSQSS and Grid Code reports.) It benefits generators that these radial circuits can be operated more flexibly than interconnected systems. e.g. by setting higher voltage ranges on a wind farm 33kV cable array to reduce I^2R losses and maximise power exports. The Orkney and Western Isles are already connected to the mainland. New connections would run in parallel with the existing ones and must continue to be operated in line with existing standards for the benefit of all connectees.

If a similar option to that chosen for offshore transmission is the most appropriate for islands it should be justified on its own merit and not because of any 'consistency' argument with offshore transmission.

International Interconnectors

Interconnectors between countries allow electricity to be traded in bulk between supply markets. They are built on a competitive, merchant basis. This do not make a good precedent for island connections as the economics and charging models are different, e.g. the same TO and DNO is present at both ends of an island connection.

Options proposed

The three options outlined by Ofgem are compared below

a) Status quo

Under the status quo SHETL, the incumbent TO, would procure the construction of the link on a competitive basis from converter station contractors, cable suppliers and installers. The RAB agrees with the list of advantages of this approach stated in the Ofgem letter. It would also allow design and planning for the link to start sooner compared with c, as there would be no delay to competitively appoint a TO.

Under models a) and c) the price regulated nature of the TO would make it risk averse (as only a regulated return is available whatever risk is taken) and therefore potentially unable to offer flexibility of timing to suit the interests of the generator.

Under BETTA, developers pay cost reflective charges, but not the whole costs. The TO therefore has a duty to seek the least cost solution in the interests of all customers. This might result in lengthy planning delays associated with overhead lines and taking the shortest sea cable route.

Thus under both price regulated models the generator who triggers the construction of the island connection enjoys the benefit of sharing the cost with others, but suffers the inflexibility of not being able to influence route, technology or timing.

We recognise that SHETL retaining a monopoly prevents the exposure of its internal costs to competition, but the main cost driver is the cost of the link itself. There is no reason to suggest that SHETL should be less efficient at delivering island connections than other parts of its regulated activities.

b) Merchant

Several options for a merchant approach are possible. The one described in the Ofgem letter implies that there would be no interconnection with the existing island network until the point of connection on the mainland. This would make a merchant connection a bilateral issue between the generator and the merchant TO and the merchant TO would in effect be the party connecting to the SHETL network.

If the developer were paying the full cost of the connection there might be a cost benefit trade off involving an alternative route or more undergrounding that would deliver an earlier connection.

This option has advantages for the generator in that it has control over the design of its connection, the level of redundancy and any cost vs. planning-delay trade-offs. It does however require it to meet the full cost of the connection.

It is difficult to see this approach providing additional benefits to demand customers on the island either from a more robust connection or by exposure to the competitive supply market.

As an alternative a merchant island connection owner could potentially derive its income by providing an island connection asset to SHETL, embedded within the SHETL network. This would allow SHETL to connect both the generator and demand customers on the island. This would be complex from a regulatory viewpoint as SHETL's income would be price regulated with part of its cost incurred from a merchant connection owner. This is analogous to toll roads or the situation in the telecommunications industry, but would be new to electricity regulation.

The merchant options allow the greatest innovation in the supply chain and therefore potentially on base cost. Merchant connections could be financed and built by a range of companies or consortia. Contracts could include value engineering, risk and benefit sharing with customers. If there is a connection to demand customers on the islands their interests would need to be safeguarded through some regulatory oversight. If this regulation is significant option b) would tend towards option c).

Merchant risk would require a higher rate of return than a price regulated regime.

c) Tendering for the right to be the TO / to build and receive revenue

This option would require the most complex form of regulation. Practical considerations will result in a high fixed cost of implementation and hence reduce the potential benefits of a competitive process to identify the lowest cost connection.

Conclusions

Island connections are high value one off assets and it is therefore right that Ofgem consult on possible forms of regulation. The RAB is grateful for the opportunity to comment.

Only three island connections are envisaged and it is already possible to deliver them under existing regulatory arrangements.

A clear statement of the aims of new regulation and a demonstration that it would deliver benefits outweighing the costs is needed for anything other than the status quo. Given the need to progress asset development this approach is unlikely to be appropriate.

The impact of regulation on timing of renewable connections should be a significant factor in the choice of regulation.

The three options outlined by Ofgem are all workable, each has some disadvantages.

Any competitive process would need to be very carefully designed to send the right messages to deliver effective competition.