# Ofgem: Consultation on the cost of the energy solution for Shetland
# Shetland Islands Council written response
# August 2017

## Introduction

Shetland Islands Council welcomes the opportunity to respond to Ofgem's consultation on the SNES (Shetland New Energy Solution). The importance to the Shetland community of securing an optimal energy supply solution cannot be over emphasised. However, any solution must allow Shetland to achieve its ambition in developing its own renewable power generation for supply and export, reduce Shetland's reliance on imported energy and fossil fuels, whilst delivering a secure, reliable and affordable electricity supply for Shetland consumers.

Shetland Islands Council has considered the preferred option for the SNES and does not consider this to be the most cost effective, innovative or optimal solution for providing the electricity supply to Shetland. It falls short in a number of areas where wider economic benefits could be achieved for the Shetland economy and also fails to address important consumer issues such as reducing fuel poverty in the islands. The emphasis of the proposed SNES is on the import of energy to Shetland from Caithness. The proposed SNES has wider implications in that it could be detrimental to Shetland achieving its ambitions of developing a renewable energy sector and the proposed 600MW interconnector to export electricity from Shetland's exceptional wind, wave and tidal resources.

The significance of the SNES investment decision has broader socio economic impacts for Shetland beyond this proposed 60MW supply driven solution. We feel it would be remiss of Ofgem to act without addressing the important issues laid out in this consultation response.

Shetland Islands Council understand that as a backdrop to the SNES tendering exercise in 2016 there was a level of uncertainty created by Remote Island Onshore Wind being excluded from bidding in the last CfD round. The current UK Government has indicated in their 2017 election manifesto pledge, clear support for the development of wind generation in remote Scottish islands, where there is community benefit. Any decision on SNES appears premature whilst the UK Government is actively considering the issue of a route to market for Remote Island Onshore Wind and when decisions on this appear to be imminent.

Shetland Islands Council request, that at the very least Ofgem delay the decision on the SNES, until they attain clarity from the UK Government on its policy approach to provide support for Remote Island Onshore Wind. It is expected that these deliberations should result in the prospect of developing the renewable energy sector in Shetland, and a route to market for Remote Island Onshore Wind. A joined up approach to the energy supply option and export potential of renewables from Shetland would provide a more cost efficient solution in any cable option and not only save the UK consumer money but stimulate economic growth in Shetland and the North of Scotland.

Shetland Islands Council suggest a break point clause be included in the SNES contract with NGSLL, to be implemented once the SNES has reached the stage where all planning consents are in place and the project is at the stage of being shovel ready. This would not hold up the SNES process and allow for Ofgem to take account of changes in UK Government policy relating to Remote Island Onshore Wind during this time. If the UK Government declare a CfD round that is to include Remote Island Onshore Wind, the decision on committing to a £278m capital spend on the 60 MW SNES cable can be put on hold until the results of the CfD auction are known, and whether there is a successful Shetland bid.

If the more cost efficient 600 MW transmission link is to go ahead, the benefit of a break point clause is that it allows parties to exit from the SNES contract and the requirement to build the 60 MW link. NGSLL can be covered for costs incurred up to the contract break point, removing risk to them as the contactor. The Aggreko back-up solution is unaffected and will provide security of supply to Shetland consumers along with the existing power station until the larger 600MW cable or optimal cable infrastructure is in place. This type of approach is in line with that used in progressing large transmission infrastructure projects, following Ofgem's SWW (Strategic Wider Works) process. Although the SNES is at distribution level, in terms of cost it is well within the scope of SWW and a similar scale to transmission projects.

If the outcome from the UK Government results in no further prospect of the larger transmission interconnector, it is imperative that the capacity on the proposed 80kV link and its landfall in Caithness are reviewed as a matter of priority to maximise the potential for export of Shetland renewables. There should be as a minimum, an opportunity to increase the capacity of the proposed cable link from 60 MW up to 200 MW, within the scalability of the proposed 80 kV cable technology. Selecting a landfall further along the coast at Gills Bay, would allow for onward export of electricity into the UK national grid via the Caithness/ Moray link. The proposed SNES landfall is designed around relieving grid constraints for Caithness windfarms and little or no consideration appears to have been made for renewable generation from Shetland. Rather the 60 MW link appears primarily designed for power to flow north to Shetland, rather than making any attempt to harness the world-class potential of Shetland to generate from renewables.

Examples of existing interconnectors to Orkney and the Western Isles, designed primarily for energy supply, have proven to be wholly inadequate and restrictive to developing their renewable energy sectors. These island grids are at capacity and both Orkney and the Western Isles are seeking further grid connections to allow for the export of renewables and greater self sufficiency in local renewable energy generation. It would be regrettable to impose on Shetland a similar scenario of wholly inadequate capacity, particularly considering the scale of the financial investment proposed for SNES. Orkney and the Western Isles have a smaller base load than that required in Shetland with its more energy intensive industries of fish processing, oil and gas.

We do not consider the proposed SNES to be the optimal solution for Shetland and the selected bid deprives Shetland of being able to maximise the benefits and significant long term economic development opportunities that an optimal, "joined-up" and more considered Shetland New Energy Solution should provide the Shetland Community. We would appreciate it if Ofgem would take time to carefully consider our response and address the very serious issues raised.

## Shetland Islands Council response to Ofgem Consultation on Shetland New Energy Solution

It should be understood that an interconnector between Shetland and the UK mainland is supported by both Shetland Islands Council policy and the Shetland Partnership.

**Shetland Partnership - Our Community Plan 2013-2020**
Support the Shetland community to lobby National Grid to install 650MW (or larger) interconnector by 2018.

**Shetland Islands Council**
Economic Development Policy Statement
4.2 Support local efforts to establish an interconnector between Shetland and the UK mainland.

Reduce the dependence on imported fossil fuels through increasing local installed renewable energy capacity.

**Question 1. Do you have any views on the costs of the preferred SNES (Shetland New Energy Solution)?**

The consultation paper provides a cost of £303.2m for capex costs of the preferred SNES, £278.6m of the quoted costs is for a 60MW interconnector cable. Ofgem has had consultants look over this costing and they considered that it aligns with the overall costs for such a technical solution.

These costs may seem reasonable to the technical solution provided but when the cost per MW installed of the 60MW link is at £4.64m/MW, compared to that of a larger cable, it looks like an expensive option. The proposed 600MW interconnector from Shetland to Caithness is coming in at circa. £600m, or £1.17m/MW installed. The larger cable could incorporate the solution for energy supply to Shetland and allow the export of renewable energy generated locally in Shetland, reducing the import of fossil fuels and in line with Shetland Partnership and Shetland Islands Council policy.

The cost of the SNES is based on an ambitious timeline for delivery, it should be noted that the project has still to go through the planning process, consents for a subsea cable and planning consent for convertor stations, to be considered by the Shetland Islands Council. This is a major infrastructure project on Shetland and any delays could generate increased project costs, increasing the already high cost per MW installed of a 60MW cable for energy supply.

Considering the significant financial investment required for this project, similar to a transmission level connection, it is suggested that a break clause is introduced in the contract after all consents are in place. This would be in line with the methodology used in Ofgem's process for Strategic Wider Works. The contract would cover NGSLL for costs committed to this point, removing the risk to the contractor. This would allow time for Ofgem to gain clarity on UK Government policy regarding the CfD process and Remote Island Onshore Wind and whether the 600 MW transmission project will go ahead between Caithness and Shetland. In the result of a successful bid in the CfD round of Shetland onshore wind generation and the 600 MW transmission link going ahead, the cable element of the SNES may no longer be required, saving UK consumer money.

If the outcome is that there is no prospect of the 600 MW cable, then the 60 MW capacity should be reviewed to ensure the optimal SNES solution is implemented, maximising export potential on the cable technology. This approach should not hold up progress on the SNES, protect the UK consumer from unnecessary cost, whilst ensuring the optimal solution is implemented for Shetland.

**Question 2. Do you have any views on whether the recommended solution represents the optimal level of cost efficiency currently available?**

Ofgem is clearly committed to sanctioning a new energy solution for Shetland and the capital cost of a subsea interconnector as part of the preferred option is quoted as being £278.6m.

This preferred SNES supply option and its focus on importing power to Shetland does not appear to take account of the huge potential for renewable energy generation in Shetland. There is 457 MW of onshore wind already consented in Shetland, on some of the best high energy sites for wind in the UK. The consented generation in Shetland has a community stake of 45% ownership in the project via Shetland Charitable Trust.

As previously mentioned, integration of both the 600MW export link and the supply project would be the optimal solution and route connecting to the Caithness/ Moray interconnector where capacity is already allocated for onward transmission of renewable energy from Shetland into the UK grid.

For this consultation, it is recognised that in making a bid for the SNES, National Grid were bound to the scope of a 60MW supply for Shetland. Simply scaling up a cable based on supply alone would have increased overall costs such that they may not have been successful in winning the competitive tender. A larger capacity cable would have allowed for a greater level of renewable energy export from Shetland, including the increased export capacity in the business case for the interconnector could lower the installed cost per MW for the supply solution, and develop the renewable energy sector in Shetland. The 600MW Viking Energy link aside, this proposed 60 MW cable solution does not maximise the potential of the proposed 80kV distribution cable technology in allowing export of Shetland generated renewable energy. It appears to be designed around alleviating an existing grid constraint in Caithness by sending power flows north to Shetland, the reverse of Shetland's export requirements.

Ofgem has explained that with a background of uncertainty created by the UK Government's decision to exclude onshore remote island wind from the last CfD round, it had no option other than to push on with the SNES. The Conservative Government's 2017 manifesto pledge clearly supports the development of onshore wind on remote Scottish Islands, where there is community benefit. Before committing to this significant investment for the SNES, at around half the cost of the proposed 600 MW Viking Energy transmission link, delivering one tenth of the capacity, we ask Ofgem to seek clarity from the UK Government on the prospect of developing the renewable energy sector on Shetland and a route to market for renewable generation developed on Shetland. A joined up approach between the two projects/ policy levers should prove to be a more economic solution for both supply and export routes.

It has been suggested that it is necessary to push on with this preferred SNES as there is doubt that the UK Government will come true on their manifesto pledge regarding remote island onshore wind and that there may not be a future CfD mechanism in place to allow for transmission access to the UK Grid for Shetland renewable energy projects. If this proves to be the case, it makes it all the more imperative that a business case to maximise export

capacity on this 80KV interconnector is worked out to allow for substantial export capacity in the cable. The Shetland Islands Council can clearly see the potential for developing renewable energy in Shetland, and making a significant contribution to sustaining a vibrant economy in the islands, based on clean energy over at least the next 40 years and the lifespan of any interconnector.

National Grid previously informed Shetland stakeholders that it is possible to scale the capacity of this 80kV interconnector up to 200 MW, based on the proposed technology. In the event that the Government does not deliver on its pledge to support island onshore wind, this expanded capacity would allow Shetland to bring forward significant development in a renewable sector, incorporating a first phase of consented onshore wind, as well as other community renewables along with the development of marine renewables. Shetland could potentially supply all its own generation from renewable energy and become a net exporter of clean energy. This is a sector that Shetland has been trying to develop for over 20 years, given the world class resource the islands has proven to have. The Shetland Islands Council and local developers have consistently pushed for the necessary infrastructure investment to be made and market mechanisms to be put in place. The sector could be a significant means of diversifying the island's fragile economy, primarily based on fisheries, aquaculture, and Oil & Gas.

If Ofgem were to consider the business model for the SNES incorporating the export of renewables, a 60MW capacity cable is nowhere near the optimal cable size and is not the most cost effective option for consumers when looking at the cost per MW installed.

Examples of existing interconnectors to Orkney and the Western Isles, designed primarily for energy supply, have proven to be wholly inadequate and restrictive to developing their renewable energy sectors. These island grids are at capacity and both Orkney and the Western Isles are seeking further grid connections to allow for the export of renewables and greater self sufficiency in local renewable energy generation. It would be regrettable to impose on Shetland a similar scenario of wholly inadequate capacity, particularly considering the scale of the financial investment proposed for SNES. Orkney and the Western Isles have a smaller base load than that required in Shetland with its more energy intensive industries of fish processing, oil and gas.

Before committing to a capacity of 60 MW on the 80kV cable, we would ask Ofgem to pause things until the Government clarifies its position on support for remote island onshore wind. If this support does not materialise, then we would ask Ofgem to look at utilising the full potential of the 80 kV technology and substantially increase capacity on the interconnector – for discussion with developers with consented projects, who are currently seeking connection to the UK National Grid, to achieve a mechanism to finance the additional capacity outside of the SNES bid and connection to this distribution circuit. In undertaking the consenting process this higher capacity option could be considered out with the project scope so as not to create any delay in the SNES project. The additional capacity would be above the 60MW tendered. There is significant headroom in the NPV of the winning bid, being £188m lower cost than the next tender, to consider applying some of that saving towards creating meaningful export potential on the 80 kV circuit.

Considering the significant level of investment to be made on the proposed SNES, and the loss to the Shetland economy of power station jobs and associated skills, it would not appear unreasonable to consider an option with significant export capacity and delivering the economic impacts a renewable energy sector would bring to Shetland in terms of jobs, supply chain, reducing fuel poverty, financial returns on community investments in generation projects and retaining money in the Shetland economy from reducing fuel imports. It is not clear from the consultation paper what the wider economic impacts of the preferred SNES would be. This approach could be taken whilst maintaining the best value

for UK consumer. It is best practice in Government procurement to not only consider the financial costs of an option but the socio-economic costs and benefits.

Another argument is the urgency of replacing the Lerwick Power Station due to its aging plant and emissions, ensuring the security of supply for Shetland, that there should be no delay in issuing the contract for the SNES. The Aggreko back-up solution is still required with whatever cable scenario is to be installed. It is the capacity issue of the cable that should be examined, this should not delay survey work that is underway to survey routes. A contract is in place for the Lerwick power station to generate until 2021. If the SNES is pending, interim arrangements with the Aggreko back-up in place and derogation on emissions for a period at the Lerwick power station could be implemented to bridge the gap until an optimal cable solution is put in place, against a backdrop of obtaining clarity in overall Government policy.

As well as not being the optimal size of cable, the route chosen has limited capacity for export of renewable energy, once ashore on Caithness. It would seem that this route is designed to alleviate grid constraint for renewable energy project in Caithness by sending power north to Shetland and not considering renewable generation on Shetland as a priority. An alternative would be to follow the proposed 600MW interconnector route to Gills Bay, a short distance further along the coast of Caithness, or consider a joined up approach to accessing that onward connection to the Caithness/ Moray subsea interconnector, allowing power to be transmitted further south into the UK National Grid.

For Shetland, the stakes are high with the outcome of this interconnector project and SNES. It is not only a lifeline provision in electricity supply but could also deliver a rare economic development opportunity for Shetland to harness the UK's most productive renewable energy resources and become a net exporter of clean energy. The Shetland Islands Council feel it is important that this opportunity is not passed by with a blinkered approach to process and the focus solely on a local supply contract for local electricity demand on Shetland, based on imports from Caithness.

The Shetland Islands Council has been active in the local development of infrastructure for energy related projects since the arrival of North Sea oil and Gas. For the last 20 years, the Council has along with renewable energy developers, actively supported the development of a renewable energy sector and transition from fossil fuels to clean renewable energy, abundant in the islands. It draws comparison with the era of oil and gas development that there are significant benefits to be gained locally as well as for the wider UK in the supply of indigenous energy resources.

Shetland has a 457MW consented onshore wind project with a 45% community stake, there have been numerous proposals to further develop tidal stream and wave generation in Shetland but this marine sector is restricted by grid constraints. The economic development opportunities in developing renewables in Shetland, are valid reasons to consider the case for including increased and meaningful export capacity in any interconnector and onward route to the UK National Grid, particularly with the high levels of infrastructure investment required for the islands electricity supply alone. This is infrastructure that is likely to serve the Shetland community for the next 40 years.

**Question 3. Do you have any views on whether the proposed incentive arrangements are sufficient to maximise the availability of the service, and to minimise increases in costs to consumers on an ongoing basis?**

While an incentive arrangement to maximise the availability of the service is to be welcomed, however it is difficult to comment on the proposed arrangement without detail on what the specification of the contract is and what tolerances the contract works to. With an

export capability in the cable, in the scenario that there is an outage, are on island generators compensated? What are the response times for the contractor to reinstate and what is considered a reasonable response time before the penalties start to accumulate, to prevent prolonged outage on the cable? It is also difficult to know what level of these costs are built into the contract for operating the Aggreko back up and at what stage penalties start to accumulate, or are these picked up by the consumer and built into the £581.7 NPV cost of the SNES?

**Other Comments related to the SNES Consultation**

**Shetland local grid issues and addressing fuel poverty in Shetland**

The Shetland Islands Council's Carbon Management Service is in charge of implementing the Council's Carbon Management Plan and below highlight a number of important considerations for the SNES once in place, how it impacts the Shetland customers in terms of addressing the high levels of fuel poverty experienced in Shetland and dealing with the issue of allowing the connection of local renewable generation to the island grid once an interconnector cable is operative. The Council has concerns that these issues are not sufficiently addressed by the preferred SNES bid or highlighted in the consultation document as to how the SNES will work for the Shetland community.

It is the stated aim of this 60 MW development that it secures Shetland's future energy demand by delivering "**secure, reliable and affordable energy** in a cleaner way compared to what currently exists".

**Community considerations**

Any new energy solution to be developed to best serve Shetland's communities requires to recognise certain issues.

1 Shetland has a current fuel poverty level of 53% with an Extreme Poverty level of 22%. This means that more than half of all Shetland homes require to spend more than 10% of their income on heating their home, with one in five needing to spend 20% of their income to do so. The national average is 9% for Extreme Fuel Poverty and 36% for general fuel poverty. In the north isles of Yell, Unst and Fetlar, the fuel poverty figure rises to 63% (2 out of every 3) of all Shetland homes.

2 Shetland has the highest % of homes in SAP rating E, F and G (the lowest possible energy efficiency bandings) of any local authority. SSEPD already recognises that to heat a home in Shetland requires twice the energy of one on Scottish mainland.

3 The geographical position and weather patterns of Shetland means that heating is required most of the year so energy use per property is high. This is a constant and may well get worse with the extreme weather variations expected through climate change.

4 Currently the island grid is subject to stability constraints, caused by an imbalance between generation and demand. This severely limits the amount of renewable generation that can connect to the grid despite the vast renewable resources available.

**Costs for the community**

Whatever solution is best developed for Shetland requires it to tackle these high cost and fuel poverty problems by providing energy at a beneficial cost for householders.

It is accepted that the cable costs will be spread over all of the United Kingdom thus limiting cost rises locally. However, in similar terms any national infrastructure being developed e.g.

Hinkley Point Power Station will correspondingly increase energy costs to Shetland by Shetland being part of the UK having to take on that increase. The costs of any cable and its potential impact on household bills is a clear major consideration.

Shetland is surrounded by some of the best renewable energy assets in Europe. Cost reductions could be gained for Shetland properties if these resources could be brought on stream for local benefit throughout the isles with clear localised community benefits being recognised for every property holder.

However, the existing ageing Shetland grid into which the cable is to feed is not being considered for improvement as part of the package. The chief beneficiaries of a Dounreay based cable, as mentioned in the introduction, will be those small scale community owned wind farms in Caithness and Sutherland who will be able to market their wind to Shetland and receive considerable benefit for their Highland communities with corresponding little benefit for Shetland and its communities due to the constraints of our local grid.

The marketing points mentioned under the "Affordable" section of the consultation suggest Shetland consumers will gain access "to the GB wholesale market which offers lower costs compared to what is currently in operation on the islands." Competition and tariffs are a very confusing area with some providers not recognising the THTC tariff common in Shetland. Transfers may require a change of meter which is a cost to the consumer. It may be a consideration of assisting this "affordability" that a fund is established for people on low incomes to assist such transfers in order to take advantage of this "affordability" offer/aspect.

Currently grid balance issues limit the connection of renewables to 3.68 KW per phase. These are permitted under G83 grid connections which is a connect and notify scheme. G50 connections which are the firm grid connections required for larger renewables are not permitted on Shetland's grid due to frequency balancing issues. Therefore, Shetland's considerable community scale renewable potential is currently not supported.

Requests to connect to the grid for renewables (e.g. thermal stores for low carbon school heating) proposed for public buildings have already been refused by SSE. Projects would have had to be included at the beginning of NINES to be accommodated. Therefore, there are no mechanisms currently to assist in new community scale projects.

This cable will not substantially address this and may simply replace frequency issues with voltage problems. It would be a critical element of cost reduction locally to be able to open up the use of community small scale renewables throughout the isles, aimed purely at small local benefit schemes – similar to the benefits that will be brought to Caithness and Sutherland by this development. There is nothing in this development that would support that benefit to Shetland. The proposal in its current form is only half an answer.

The Council is committed to harnessing the benefits from renewable energy for the good of the community at large as stated in its Local Development Plan and Carbon Management Plan. "Appropriately targeted renewable energy development has the potential to reduce Shetland's reliance on fossil fuels, thus offering protection against oil and gas prices" (LDP). This development merely offers a low carbon supply to an already recognised constrained pinch point. There will be little follow on benefit to communities unless the existing island grid is strengthened or active measures are put in place to offer the community flexible connection agreements. None of this is currently on the table.

As a starting point it would be valuable if SSEN's reports which will doubtless be required on its analysis of how the cable will operate at the nodal points of our root and branch Shetland grid were to be shared with the community and the Council and some consideration be

given in these reports to strengthening the existing grid to take on more community small scale renewables. It should be considered that these small scale renewable developments could provide a sustainable opportunity for diversification of the Shetland economy. Currently there is no potential for communities and small businesses to invest in ownership of small scale renewable energy projects which would immediately benefit local communities.

**Cable Sizing - Transport**

Whilst the 60MW cable provides some leeway in terms of future additional load it may not take into full consideration the potential for electric or hybrid vehicles which Shetland may require within 20 years. Is the capacity of a 60MW link adequate for future supply, considering that the UK Government now intends to stop production of new diesel and petrol cars by 2040? It states in the consultation paper that the growth in the number of electric vehicles has been considered in the design but it is not clear if this accounted for recent UK Government proposals to ban petrol and diesel cars, and the potential of an accelerated transition to the electrification of transport.

Shetland is a very high vehicle operating area with many homes having at least 2 cars, if much of this fuelling of vehicles is to be carried out at home this will increase the demand levels of households. This high increased level of demand may not have been fully factored in deciding on the cable size. Other transport consideration over the lifespan of a SNES, may be the potential for consideration of electric ferries to replace diesel.