

To: Transmission licensees,
generators, suppliers, consumer
groups and any other interested
party

Date: 16 April 2014

Dear colleague

Decision on the proposed Beauly Mossford reinforcement under the RIIO-T1 Strategic Wider Works arrangements

This letter sets out our decision on the proposed Beauly Mossford reinforcement of the transmission system to the northwest of Inverness. The project, submitted by Scottish Hydro Electric Transmission plc (SHE Transmission), is expected to cost £53.2 million (in 2013/14 prices) and will deliver 252MW of additional transmission capacity by the end of Q3 2015/16.

Our decision on the Beauly Mossford reinforcement project follows our decision on the need for the project (published in January 2011),¹ and our consultation on the Project Assessment published on 19 December 2013.² Taking into account all the evidence following our December 2013 consultation, we have decided:

- To approve an increase in SHE Transmission's Allowed Expenditure and a new Strategic Wider Works (SWW) Output for the Beauly Mossford transmission project. Our decision is subject to a licence modification proposal which will specify:
 - a SWW Output of 252MW additional transmission capacity at sub-boundary 10 to the northwest of Inverness by the end of Q3 2015/16; and
 - an increase to SHE Transmission's Allowed Expenditure in the RIIO-T1 price control³ of £53.2 million (in 2013/14 prices).
- The approved Allowed Expenditure for the Beauly Mossford project is £1.6 million less than the most recent cost estimate from SHE Transmission of February 2014. Our reasons for this reduction are due to our alternative treatment of risk and uncertainty to that proposed by SHE Transmission.

We set out further detail of our decision in this letter, as follows:

- First, we summarise the background on the proposed reinforcement, the SWW arrangements, and our consultation on the Project Assessment.
- Next, we summarise our assessment of the project, including the SWW Output and Allowed Expenditure adjustment, and our reasons for treating risk and uncertainty differently to SHE Transmission's submission.
- We then outline our decision and reasons.
- Finally, we set out the next steps in the process to implement this decision.

¹ <https://www.ofgem.gov.uk/publications-and-updates/transmission-investment-incentives-decision-requests-funding-201112>

² <https://www.ofgem.gov.uk/ofgem-publications/85338/consultationonthebeaulymossfordswwprojectassessment.pdf>

³ The RIIO-T1 price control sets out the outputs that the electricity and gas transmission network companies need to deliver for their consumers, and the associated revenues they are allowed to collect, for the eight-year period from 1 April 2013 until 31 March 2021.

Background

SHE Transmission first submitted the Beauly Mossford transmission project in January 2010 for assessment under the Transmission Investment Incentives (TII) framework.⁴ The project involves a two-stage transmission upgrade comprising:

- **Stage 1:** the construction of a 33/132kV substation at Corriemoillie.
- **Stage 2:** the replacement of the existing 132kV overhead lines (OHL) and tower infrastructure with a double circuit 132kV overhead line between Dunmore and the Corriemoillie substation, the construction of a new sealing end compound at Dunmore, and the installation of 3.5km 132kV double circuit underground cable route to Beauly.

In its 2010 submission, SHE Transmission requested construction funding for Stage 1 of the project (the construction of the substation at Corriemoillie).

In 2010/11 we assessed and consulted on the need for the overall Beauly Mossford reinforcement, and the funding request by SHE Transmission for the Stage 1 substation component of the project under the TII framework.⁵ On the basis of the information provided by SHE Transmission, and our assessment of it, we were satisfied that the overall project was required, and supported SHE Transmission's proposal to take forward the substation works ahead of the overhead line works.

In January 2011 we published our decision ("January 2011 Decision") to provide interim funding for the substation component of the Beauly Mossford project under the TII framework.⁶ During the RIIO-T1 price control review it was agreed that future funding arrangements from 2013/14 onwards for the remaining Stage 2 components of this project would be addressed through the SWW mechanism.⁷

On 13 May 2013, SHE Transmission submitted a Project Assessment submission on the second and final stage of the Beauly Mossford reinforcement project, the upgrade to the overhead line between Beauly and Mossford. The Project Assessment submission details works and project costs to construct 94 new double circuit towers over a length of 26km, the dismantling of 177 existing towers and the installation of 3.5km of underground cable.

The installation of 3.5km of underground cable was originally planned to be carried out under a related reinforcement project, known as Beauly Denny. This work is required to fulfil a planning consent condition, known as the Balblair Wirescape Rationalisation, to replace part of the existing Beauly Mossford transmission line. However, the Beauly Mossford project will increase the capacity and cost of this cable. As a result, SHE Transmission requested that the underground cable works are included as part of the Beauly Mossford project, and the related funding (£4.027m) in the Beauly Denny project be transferred as a contribution to the works under Beauly Mossford. Further information on this issue can be found in Annex 2 to this letter.

We appointed consultants TNEI Services Ltd to assist us with our Project Assessment of Stage 2 of the Beauly Mossford reinforcement. TNEI's assessment focused on the technical aspects of our Project Assessment (equipment unit costs, technical design efficiency, and the readiness of the construction programme). TNEI provided recommendations on the appropriateness of SHE Transmission's cost proposals and its report and conclusions helped inform our views on the efficient level of Allowed Expenditure for the proposed project.⁸ We also assessed the procurement processes, risk management and overall project costs of SHE Transmission's proposed project.

⁴ The Transmission Investment Incentives framework was introduced in 2010 as interim arrangements during the previous price control, TPCR4, for setting and monitoring funding arrangements for critical investments in transmission infrastructure to help facilitate the transition to a low carbon economy.

⁵ <https://www.ofgem.gov.uk/publications-and-updates/transmission-investment-incentives-funding-requests-and-extension-funding-framework-201213>

⁶ <https://www.ofgem.gov.uk/publications-and-updates/transmission-investment-incentives-decision-requests-funding-201112>

⁷ More information on the Strategic Wider Works arrangements can be found at: <https://www.ofgem.gov.uk/publications-and-updates/guidance-strategic-wider-works-arrangements-electricity-transmission-price-control-riio-t1-0>

⁸ TNEI's assessment report was published alongside our consultation letter in December.

On 19 December 2013 we consulted on our Project Assessment which focused on the forecast construction and ongoing operational costs associated with the proposed output. This consultation outlined our initial views on the proposed SWW Output and Allowed Expenditure for Stage 2 of the Beaully Mossford project.

We received two responses to our December consultation, from SHE Transmission and Scottish Power Energy Networks.⁹ Both respondents were generally supportive of our proposals and for the proposed reinforcement to go ahead. Specific issues raised by respondents are discussed in the next section and a summary of responses is provided in Annex 1.

Our Project Assessment and decision

In this section we outline:

- Our initial views from our December consultation
- Issues raised in response to the consultation
- Our assessment since the consultation
- Our final decision on the SWW Output and the RIIO-T1 Allowed Expenditure adjustment

SWW Output

SHE Transmission's proposed reinforcement is designed to increase transmission capacity to the northwest of Inverness for new and existing renewable generation in accordance with the National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS). The project will increase transmission capacity by 252MW by the end of Q3 2015/16.

Our consultants noted that the construction programme appeared to be well thought out. Our initial view was that the programme and delivery dates proposed by SHE Transmission were appropriate. Respondents to our consultation did not raise any concerns on the proposed SWW Output. Accordingly, we have decided to specify SHE Transmission a new SWW Output as set out below in Table 1 for the Beaully Mossford project.

Table 1: SWW Output

Area	Existing capacity¹⁰ (MW)	SWW Output to be delivered by the end of Q3 2015/16 (MW)	Post reinforcement capacity (MW)
Corriemoille substation to Beaully substation (sub-boundary 10)	86	252	338

Project costs

On procurement we thought SHE Transmission had followed a robust process. However, we said that if the process had started earlier there was possible scope for increased efficiencies in the proposed project costs. We discuss this issue further in the risk section below.

TNEI considered that the overall project costs were reasonable based on benchmarking of the construction costs (with the exception of the Provisional Sums¹¹ which we cover in our

⁹ We published the responses to our December consultation on our website: <https://www.ofgem.gov.uk/publications-and-updates/consultation-our-project-assessment-proposed-beaully-mossford-reinforcement-under-riio-t1-strategic-wider-works-arrangements>

¹⁰ Pre-fault summer rating of the overhead line.

¹¹ Provisional Sums are effectively a contingency allowance to cover the additional costs for events that have a high likelihood of occurring, but for which the associated costs of managing these events are uncertain.

risk discussion).

We said that that the construction costs proposed by SHE Transmission appeared to be appropriate with the exception of the proposed costs for risk and uncertain cost elements.

The only concerns respondents raised to our consultation on project costs were on the risk and uncertain costs elements (also covered in the risk discussion). Scottish Power Energy Networks said there could be circumstances when a transmission company may have little choice but to tender early to meet critical delivery timescales required to minimise system/constraint costs and/or ensure that there is not a knock-on effect on other critical transmission works. Scottish Power said another reason might be to overcome a setback in the project programme that arises from a delay in obtaining planning consents.

We consider that site investigation works should normally be carried out prior to tendering to allow contractors to provide efficient quotes for the final scope of works required. This allows competitive pressures to apply to the entire scope of contracted works. Any deviations from this approach should be necessary and well justified. In this case we do not consider the approach has been suitably justified by SHE Transmission and we think more could have been done earlier in the procurement process to scope the contracted works required. This could have resulted in a lower contingency requirement for Provisional Sums overall. Based on the evidence provided, we also don't consider the decision to delay site investigations created option value in this case, as SHE Transmission has argued (in the event that planning permission was not granted). Unless there is strong evidence to do otherwise, we hope that more detailed site investigations are obtained prior to tendering future investment projects.

Since December, SHE Transmission has awarded the remaining contracts with its suppliers. We have reviewed these final contracts for the purposes of the Project Assessment. There have been some minor changes from the previous estimates provided by SHE Transmission earlier in the contract negotiation process, and which we consulted on in December. As a result, total costs¹² excluding Provisional Sums and the risk allowance have increased from £44.5m in May 2013 to £45.1m. We consider the 1.3% increase is well justified and that the contracts have been finalised through a competitive process.

Approach to risk and uncertain costs

In this section we summarise the risk sharing arrangements for the Beaulieu Mossford project SHE Transmission's proposed in May 2013, our initial views on the proposed approach, SHE Transmission's response to our consultation and our final position.

SHE Transmission's May 2013 proposal

In its May submission SHE Transmission said it has allocated risk to contractors where possible, retaining only those risks that are best borne by it, or could not be transferred or efficiently insured against. To cover the risks and uncertainties not included in its contract costs SHE Transmission requested:

- A risk allowance for further costs which may arise in relation to residual risks not borne by SHE Transmission's suppliers. SHE Transmission proposed that the risk allowance is calculated from a Monte Carlo simulation model of the residual risks (the risk model). It proposed the level of risk protection be set at the 70th percentile, which means that 70 percent of the time the risk allowance would be greater than costs of managing the identified risks.
- An additional amount of contingency costs to be included in its proposed construction costs as Provisional Sums to cover uncertain cost impacts from potential changes in the scope of some works required for the project, eg the building of access tracks, type of tower foundations required, and delay and disruption.

¹²These costs include a number of construction elements, for example Project Management Costs, Consent Costs, Engineering Costs, Enabling Works Costs and Construction Costs (these include contract costs).

Our initial views in our December 2013 consultation

1. Risk allowance

We considered that due to the risks of the project it would be more appropriate to set the risk allowance so that the potential costs associated with residual risks are evenly shared between SHE Transmission and consumers. We proposed that this is done by setting the risk allowance at the point where it is equally likely that costs will be above or below the allowance, ie the mid-point value (P50) in the distribution of potential costs estimated by the risk model.

This position was also supported by two further arguments:

- The risk allowance only captures residual risks not included in the contract prices. Consumers are already protecting SHE Transmission against other risks covered by insurance, and in the contracts it has with its suppliers.
- We consider that the sharing factor and re-opener provisions set out in RIIO-T1 provide protection to SHE Transmission for a range of material risks, such as extreme weather events that might interfere with the construction programme.

2. Provisional Sums

We said that instead of including an additional contingency in the construction costs, SHE Transmission should include these in the modelled risk allowance. We think this is a more appropriate approach because although there is a relatively high likelihood of some changes in the scope of works, the frequency and cost impact of these events is not known for certain (meaning that SHE Transmission would not need allowances to cover the total potential costs of these events).

We also thought it was appropriate because we do not consider the requested sums to be efficient. The requirement for Provisional Sums has arisen because SHE Transmission carried out only a small number of site investigations (which are undertaken to determine ground conditions) before initiating the supplier tender process. SHE Transmission stated that it undertook only a minimal amount of site investigations early in the process due to the risk of not obtaining consent for the project, under section 37 of the Electricity Act 1989. SHE Transmission did not think it was efficient to incur these costs in the event it did not obtain the necessary planning consents. SHE Transmission asked suppliers to tender for works with only a limited amount of information on the ground conditions, and therefore the final scope of work required. We consider SHE Transmission has not demonstrated why this timeline and approach to site investigation works has led to the most efficient costs for this project. In our view this approach led to a higher requested risk premium through Provisional Sums, and does not accurately reflect the likely efficient costs of the final works.

To manage the potential change in the scope of some works, SHE Transmission contracted with suppliers using contracts based on the principle of re-measurement once site investigations have taken place and ahead of construction, to refine the scope and efficient costs for each contract.¹³ SHE Transmission considered that this approach was a better option than passing the risks onto the contractor when they did not have sufficient information to accurately price the risk in the initial bid. SHE Transmission considered that the latter approach could result in higher costs for consumers to cover a risk that may or may not occur. Accordingly, SHE Transmission proposed to manage the risks itself, and proposed Provisional Sums in each area to provide a cost contingency to cover the uncertain cost impact of potential changes.

We agree that this contracting approach is likely to be more efficient than tendering out works with uncertain scope. However, we think it is inefficient compared to carrying out further site investigation work earlier in the project development and prior to tendering, unless there is a necessary and demonstrable need to do otherwise. We think the latter

¹³ These contracts are known as Design and Build NEC3 Option B contracts - a standard form of construction contract.

would likely result in a more efficient overall project cost than an approach that revises the cost once a contractor has been appointed.

In our December consultation we said that our proposed reductions are appropriate because it gives SHE Transmission sufficient allowance for the risks and uncertainties identified, whilst protecting consumers from paying too much for those that may not materialise or turn out to have a relatively minor impact.

SHE Transmission's consultation response

SHE Transmission accepted our approach to the treatment of risk and uncertain costs outlined above. However, it highlighted that our estimated reduction of £4.2m overstated the values calculated by its risk model. We recognised in our consultation that our approximation was illustrative and that we would need to work with SHE Transmission to finalise the revised value in its risk model using the latest available information.

SHE Transmission also argued that several of the events included in the Provisional Sum estimates (relating to overhead line access tracks, underground cable delay and disruption, overhead line slope stability, and overhead line tower foundations) have a 100 percent probability of occurring and should not be treated in the same way as other risks.

Our final position

Usually a Project Assessment under the SWW arrangements will precede the start of construction activity on a project. However, this project is different, in that construction started in July 2013 and we have taken into consideration information provided since then on the associated changes in project costs. However, we were not persuaded by the evidence provided by SHE Transmission to justify incorporating certain Provisional Sum events into the risk model with 100 percent probability (essentially treating these as certain events). In our view it would have been more efficient if SHE Transmission had done more early in the procurement process to scope the items of work required, and estimate the efficient construction costs. As a result we have decided to set the final risk allowance in this area by incorporating the Provisional Sums into the risk model with 70 percent probabilities. In our view, treating Provisional Sums in the same way as risk items is appropriate, as the severity of the event and therefore the impact on the costs associated with the events are uncertain. In our view the final risk allowance we have set is therefore likely to be closer to the efficient costs consumers would bear if SHE Transmission had fully scoped the works before initiating its tender process.

As discussed in the background section, and outlined in further detail in Annex 2, we consider it appropriate to transfer £4.027 million (2013/14 prices) of allowances from the Beaulieu Denny project to this project to cover the Balblair Wirescape Rationalisation. We will continue to work with SHE Transmission to ensure any revenues already recovered, or future revenues due to be recovered, for this work under the Transmission Investment for Renewable Generation (TIRG) mechanism will be clawed back on a Net Present Value neutral basis, to ensure no double recovery of revenue for this area of works. If the revenues have not yet been recovered for these works then the revenue will be solely allocated under the SWW mechanism. We will shortly be publishing a statutory consultation to make the necessary changes.

Based on the principles we consulted on in December, we have decided to adjust the risk and uncertainty allowance SHE Transmission requested updated for the latest available information. The adjustment amounts to a £1.6m reduction from its latest requested allowance of February 2014.

Adjustments to SHE Transmission's RIIO-T1 Allowed Expenditure

The table below summarises our decision on the adjustment to be made to SHE Transmission's RIIO-T1 Allowed Expenditure for the delivery of the SWW Output from the Beaulieu Mossford reinforcement project. The table compares this to the most recent (February 2014) project cost estimates SHE Transmission has provided information on, as well as our assessment of the efficient forecast costs included in our December consultation. The annual Allowed Expenditure is set out in Annex 3. The adjustment to

Allowed Expenditure will also be subject to the statutory licence modification process (to insert these into SHE Transmission’s licence).

Table 2: Adjustment to SHE Transmission’s RIIO-T1 Allowed Expenditure

2013/14 prices	Ofgem Consultation initial view (December)	Ofgem Decision (April)
SHE-T’s requested allowance	£54.6m	£54.9m
Allowed Expenditure	£50.5m	£53.2m
Difference	-£4.2m (-7.7%)	-£1.6m (-2.9%)

The main difference between our proposed Allowed Expenditure of £50.5m in the December consultation and our final decision on Allowed Expenditure of £53.2m is due to the fact the proposed reductions in our consultation were approximated. In our consultation we highlighted that these were illustrative and that we would work with SHE Transmission to apply the principles we proposed in its risk model to calculate the actual reductions in Allowed Expenditure using the latest information.

Our decision

Taking into account the evidence submitted by SHE Transmission, our analysis of both the Project Assessment, our consultants’ views, points raised in response to our December consultation, and the latest information available we have decided:

- To make an Allowed Expenditure adjustment and introduce a SWW Output specified in Special Condition 6I of SHE Transmission’s electricity transmission licence for the Beaulieu Mossford project.
- To require SHE Transmission to deliver a SWW Output from the project of 252MW additional transmission capacity at sub-boundary 10 to the northwest of Inverness, by the end of Q3 2015/16.
- To transfer £4.027 million (2013/14 prices) of allowances from the Beaulieu Denny project to this project to cover the Balblair Wirescape Rationalisation.
- To increase SHE Transmission’s Allowed Expenditure in the price control, RIIO-T1, by £53.2 million (in 2013/14 prices).

The above decision is subject to a licence modification proposal (to insert these into Special Condition 6I of SHE Transmission’s electricity transmission licence) and statutory consultation process.

Next steps

Following this decision, our next step will be to propose modifications to SHE Transmission’s electricity transmission licence to reflect a new SWW Output and associated Allowed Expenditure, which will include a statutory consultation on the proposed modification.

Further to such a licence modification SHE Transmission would be required to deliver the specified increase in transmission capacity and meet the necessary outputs.

Any questions about the content of this letter should be addressed to Peter Russell in the first instance (SWW@ofgem.gov.uk).

Yours faithfully,

Kersti Berge

Partner – Electricity Transmission

Annex 1: Summary of responses to our consultation on the project assessment

Respondent	Supportive?	Summary of comments
Scottish Hydro Electric Transmission ¹⁴	Generally comfortable with our initial views.	<ul style="list-style-type: none"> • Welcomed the consultation and generally comfortable with the assessment. • Accepted that the risk allowance should be calculated using P50, but do not agree with our estimation of the reduction as a result of moving from a P70 risk allowance to P50. • On Ofgem’s view that Provisional Sums should be moved from construction costs to the risk register, SHE are comfortable in principle, but believe some Provisional Sums should be added with 100 percent probabilities. SHE also disagreed with Ofgem’s estimation of the reduction which would come about as a result of moving provision sums to the risk register.
Scottish Power Transmission ¹⁵	Disagreed with our view of tendering early as a “weakness” in the procurement process.	<ul style="list-style-type: none"> • Highlighted that in some circumstances the transmission company may have no choice but to tender early to meet critical delivery timescales required to minimise system/constraint costs and/or ensure that there is not a knock-on effect on other critical transmission works. • Another example may be when there is a delay in obtaining government consents or local consents.

¹⁴ <https://www.ofgem.gov.uk/ofgem-publications/86927/shetransmissionresponsetotheconsultation.pdf>

¹⁵ <https://www.ofgem.gov.uk/ofgem-publications/86928/scottishpowerenergynetworksresponsetotheconsultation.pdf>

Annex 2: Transfer of funding between the Beauly Denny project and Beauly Mossford project

Although this project mainly involves replacing an existing OHL, the final 3.5km of the OHL is being replaced by an underground cable. This section of cable is known as the Beauly Dunmore cable. The installation of the Beauly Dunmore cable allows for the existing Beauly Mossford 132kV OHL to be dismantled in the local area to the north of Beauly substation. This dismantling forms part of a planning condition for another reinforcement project known as Beauly Denny.

Beauly Denny is the upgrade of a 132kV transmission line to a 400kV transmission line, running from Beauly to Denny. The funding for the Beauly Denny project was given in 2004 under the TIRG mechanism, which was part of the previous price control. Significant planning obligations were made conditions of the planning consent to reduce the visual impact of the transmission line. The planning obligation in respect of the undergrounding of the Beauly Dunmore cable, known as the Balblair Wirescape Rationalisation, has to be discharged before the new Beauly Denny line is commissioned.

The installation of the Beauly Dunmore cable was originally planned to be undertaken as part of the Beauly Denny project. However, as the Beauly Mossford project is increasing the capacity of the required cable beyond that required for the Beauly Denny project - SHE Transmission has requested that the work to install the cable and dismantle the associated towers should form part of Stage 2 of the Beauly Mossford project under the SWW mechanism. During our December 2013 consultation we set out our initial views on the treatment of this transfer between the two projects. Our view was that we agreed the work should now be undertaken under the Beauly Mossford project, as it is increasing the original planned capacity, and the allowance for the cable and associated tower works within the Beauly Denny construction costs should be transferred to this project as a contribution to the increased cost of this element of the works.

Annex 3: Detailed Allowed Expenditure and SWW output decision

Description of SWW Output	Delivery date	2012/13	Annual expenditure profile - £m (2013/14 prices)								
			2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total
Sub-boundary = b10 Transfer capability before Output = 86MW Output to be delivered = 252MW Transfer capability after Output = 338MW Note – the sub-boundary b10 transfer capabilities are based on Summer pre-fault ratings	End Q3 2015/16	£0.689	£14.272	£23.389	£12.337	£2.406	£0.038	£0.038	£0.038	£0.038	£53.245

Note: Subject to the statutory licence modification process, allowances will be entered into the licence condition and the price control financial model to determine allowed revenues in 2009/10 prices as per RIIO-T1 policy.