Supporting Document 06

Reporting on our
environmental impact

Reporting on our environmental impact

Overview

This document sets out Scottish Hydro Electric Transmission Limited's (SHETL) approach to managing and, where appropriate, mitigating its environmental impact during the RIIO-T1 price control period (1 April 2013 to 31 March 2021).

We recognise the impact that our activities can have on both the immediate and wider environment, and the increasing importance that stakeholders and consumers place on these activities, along with the actions that we take to mitigate any such impact.

In terms of our **carbon footprint**, by far the largest contributor is **electrical losses**. This accounts for c.98% of SHETL's carbon emissions. However, it is worth putting this in context: in terms of the UK electricity industry as a whole, electrical losses account for less than 2%. Electricity generation is the biggest contributor accounting for some 98%.

Notwithstanding this, we are extremely conscious of the methods and approaches that we can take to reduce the impact from the transportation of electricity, and these are set out in this document. However, in general, it will take time to deliver real carbon savings through reduced losses, not least because of the cost of the assets involved. Generally, it is only economically viable to replace existing assets where there is a case on age grounds or changing requirements, at which point losses are taken into account. We do not believe that there is a positive cost-benefit for Transmission Owners (TOs) to do more in this area at this point in time. However, we will continue to explore this through ongoing work to identify better and more innovative solutions to existing issues.

In the short-term, carbon savings can and are delivered through careful operation of the network to ensure that the system is optimally loaded. National Grid is already suitably incentivised to ensure that it takes all reasonable steps to this end.

Aside from losses, the other activities that contribute from a TO's perspective to our environmental footprint are **sulphur hexafluoride (SF_6)** and **oil** leakage, and the emissions resulting from our vehicle fleet and buildings' energy usage. These account for less than 0.2% of the UK's electricity industry carbon footprint.

Again, we are extremely conscious of our environmental impact in these areas. At a group level, sustainability was introduced as a core value in November 2006. This value states that we will operate ethically, taking the long-term view to achieve growth while safeguarding the environment.

Reporting on our environmental impact

Sustainability was also included as one of our 2016 goals, where we have set ourselves the target of becoming the leading global utility in the field of sustainability and environmental impact.

It therefore follows that we take any leakage of SF_6 or oil seriously and have detailed policies and procedures in place to manage our associated assets. This is an area where we are actively exploring the possibility of new, less hazardous insulation materials. Although this work is considered to be some way from achieving a viable alternative.

In terms of our vehicle emissions, our transport fleet is run on diesel and we are currently looking at the possibilities for increasing our use of biodiesel. Innovation in this area holds a lot of promise and we continue to monitor this as the technology develops and becomes more aligned with the demands of our fleet.

Similarly, on emissions from our buildings, this is an area that we are actively involved in. We are currently working through a programme to install low energy lighting with motion sensors in all of our buildings and car parks. Separately, we have installed solar panels on building roofs and invested in other heat recovery projects. This is in keeping with our group objective and demonstrates our commitment to sustainability, not just at a network level but right across the group.

As part of the RIIO-T1 settlement, we are committed to providing an increased level of information in relation to our performance in this area. This information will be made available and updated on an annual basis and will appear on our website as well as being provided direct to Ofgem.

Also included in this section is our position in relation to flood defence over the RIIO-T1 period. We have identified and named three sites that will target for improvements over this period, but acknowledge that other (or different) sites may come forward during the period should circumstances or requirements change.

However, perhaps the area where we have the largest environmental impact on most stakeholders is **visual amenity**. We are very aware of this and it plays a key part in everything we do.

A lot of what we do in this area is governed by legislative requirements. However, on top of this, and on the strength of stakeholders' views, we are confident that the right approach to mitigating the visual impact of our future assets is through preplanning consultation. It is at this time that we can

Reporting on our environmental impact

best identify any concerns and work with affected parties to address them.

We are not proposing to invest in the forthcoming period to specifically improve the visual impact of existing assets. The cost of such measures would be extremely high and we do not believe that the case can be made for customers to pay for this. Thus it is our intention to address stakeholders' concerns when we build new, or refurbish existing, assets. Our focus will be on continuing to engage relevant stakeholders on a project-by-project basis to ensure that we minimise the visual impact of our activities, both through our site selection process and the identification of appropriate mitigation.

The following sections discuss the specifics of our activities in each of these areas.

Contents

Losses

To ensure that our transmission system is compliant with the National Electricity Transmission System Security and Quality of Supply Standard (as required under Standard Licence Condition D3), all investment planning studies and power flow analysis work carried out by SHETL takes account of transmission system losses.

SHETL's planning studies are carried out against GB generation and demand backgrounds provided to SHETL by National Grid as the system operator. Generation backgrounds are based on the likelihood of generator running at system peak demand. Demand figures are based on the Grid Code 'week 24' submissions from the local Distribution Network Owner (Scottish Hydro Electric Power Distribution) and any directly connected transmission users. The subsequent system power flow analysis studies used for transmission investment planning and for the assessment of new connections allows for transmission losses.

The assessment of future infrastructure reinforcements takes into account demand growth and the volume of new generation connections. The power flow analysis incorporates the value of losses and takes this into account in optimising the selection of the most appropriate reinforcements to satisfy SHETL's duty under Section 9 of the Electricity Act 1989 to develop and maintain an efficient, co-ordinated and economical system. Cost-benefit analysis undertaken on network reinforcements is based upon comparing network capital and operational costs over time, both with and without any given network reinforcement and also taking account of the lifetime costs, including losses when deciding between transmission equipment, using classical project evaluation discounted cash flow techniques. These assessments highlight whether it is in the long term interests of consumers for SHETL to invest in a higher cost, but lower loss investment option.

The procurement of power transformers and other equipment (for example, static VAr compensators and High Voltage Direct Current links) takes account of whole lifetime costs including transmission losses. Suppliers are provided with a capitalised loss value in £/kW to enable the optimum design to be established. When replacing overhead conductors, an assessment of suitable replacements consistent with the capability of the existing tower structures is undertaken. Where appropriate, this can include a review of the conductor size versus cost and replacing conventional aluminium steel reinforced conductors (ACSRs) with all aluminium alloy conductors (AAACs) or new technology conductors, both of which have lower resistivity.

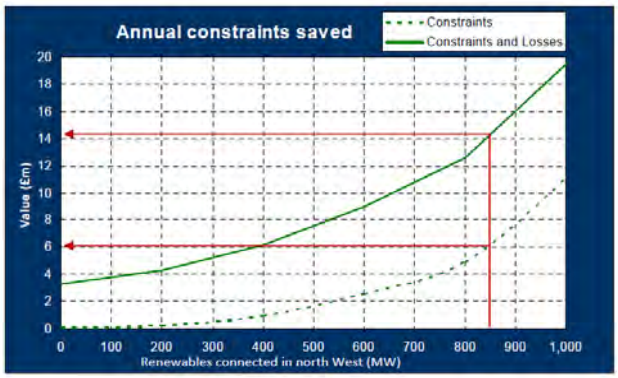
Losses

The economic assessment of transmission reinforcements associated with renewable connections, and wind generation in particular, is broadly based on comparing the annualised cost of network reinforcements against the reduction in losses and expected generation constraint energy costs.

The following figure (**Figure 1**) represents the modelled losses and the expected generation constraint energy costs saved relative to the original system as a result of the Knocknagael reinforcement project. The figure shows the difference in constrained energy and losses between the original system and the system with the proposed Knocknagael reinforcement. Using the maximum capacity of 850 MW as a comparison, it can be seen that when considering only constraints the annual savings are £6 million and if constraints and losses are considered the savings rise to around £14 million a year.

In addition to Knocknagael, in the past two years, SHETL has started construction on major transmission investment projects: Beauly-Denny; Beauly-Blackhillock-Kintore; and Beauly-Dounreay. All of these reinforcements will result in a reduction in transmission losses.

Figure 1 Improvement in constraints and losses at Knocknagael



SHETL plan to make significant investment in our network over the coming decade. As we plan for that investment, we are taking into account the impact on electrical losses, as demonstrated in the Knocknagael example above.

As a Transmission Owner (TO) we do not measure actual losses on the system; that is a function of how the system is operated and, hence, is monitored by National Grid as system operator. Our focus is on modelled losses which are assessed against a pre-defined generation and demand background.

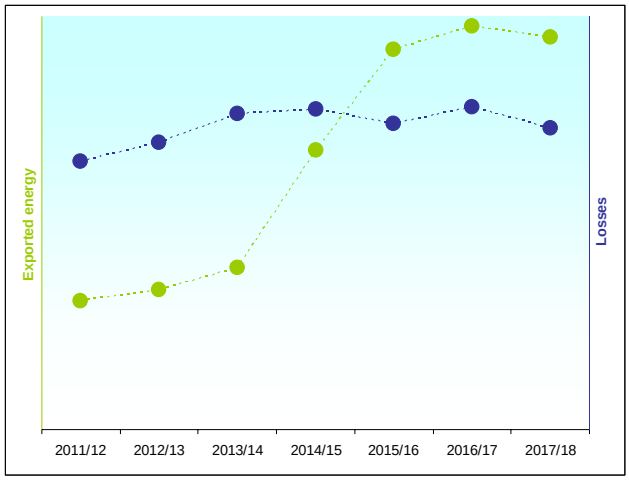
It is very difficult to come to a best view of our future modelled losses given the uncertainty over connections to our network and the capital investment that will be required to facilitate those

Losses

connections. It is for this reason that we are not proposing a fixed capital expenditure programme in our Business Plan. Without a fixed capital expenditure plan we do not have a baseline against which to model future losses. It is also difficult at this time to model the losses associated with the new technologies we propose to deploy on our network given that we do not have good information on expected loss levels.

However, for the purposes of the Seven Year Statement, we have modelled scenarios of network development and reinforcement out to 2017 (**Figure 2**). This modelling demonstrates that even though net north-south exports increase because reinforcement is happening in parallel, the volume of modelled losses stays broadly constant at 100 MW. We believe this is a good general representation of our future modelled losses, whilst noting that the detail will be determined as and when we progress individual network reinforcements.

Figure 2 Scenario-based modelled losses



Insulating gases and fluids

Sulphur hexafluoride

SF_6 is one of the four greenhouse gases (GHGs) captured under the Kyoto Protocol. It is a colourless, odourless, non-toxic and non-flammable GHG. However, with a global warming potential of c.23,000 times that of carbon dioxide, it is one of the more potent GHGs.

Recording and reporting

The management of SF_6 is controlled by the Fluorinated Greenhouse Gases Regulations 2009. Under these regulations there are legal requirements that apply to the use of SF_6 in high voltage equipment, such as the reporting of annual holdings of SF_6 and the recording of SF_6 emitted into the atmosphere. There are also requirements around the training of staff for the recovery of SF_6; its recovery and disposal; the handling of SF_6 cylinders; its containment; and repair of leaks.

In terms of recording, SHETL follows the Energy Networks Association Engineering Recommendation S38. This details the methodology of recording SF_6 holdings within an SF_6 databank and emissions over the lifecycle of the equipment, which looks at installation, service life and end of life emissions.

The information is held on our asset management systems.

There are a number of internal SHETL documents which ensure the adherence to the above approach:

- PO-PS-109: Strategy for SF_6 use in SHETL;
- PR-PS-544: Requirements for the Recovery and Management of SF_6 Filled Plant;
- PR-PS-548 Requirements for Reporting SF_6 Emissions from Installation to Decommissioning; and
- WI-PS-698 Work Instruction for Recording SF_6 Emissions and Pumping Details on PLACAR [our internal database].

Overall strategy

SF_6 is a superior arc quenching and insulating medium for high voltage switchgear. Economic and functional / operational reasons make SF_6 the only practical choice at present. In any case, SF_6 does have environmental benefits over current alternatives as it reduces carbon emissions by:

- reducing losses;
- reducing raw materials required to manufacture switchgear; and
- reducing civil works associated with substation construction.

Importantly, SF_6 only impacts the environment if it is released to the atmosphere.

Insulating gases and fluids

In the absence of a viable alternative to SF_6 we anticipate that the use of SF_6 within the transmission network will increase; our commitment therefore is to reduce the overall leakage rate of our SF_6 holdings. This will be achieved by:

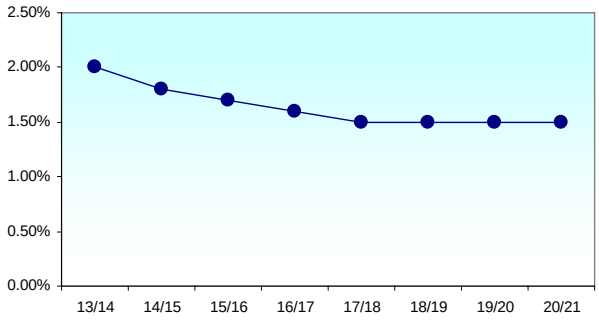
- Where practicable, procuring plant that provides the lowest leakage rates to lower our average leakage rate;
- Adopting best practice with regards to topping up, managing SF_6 leaks and accounting for losses; and
- Continuing to pursue innovative alternatives, including SF_6 partial substitution, enhanced leak detection, etc.

Our current SF_6 leakage rate is 2%. Through the measures set out above, which will include the replacement of older equipment with SF_6 equipment that meets the best practice leakage rates, we forecast to reduce this as a percentage of mass installed to 1.5% by 2017/18.

We recognise the position in Ofgem's March strategy document for TOs to seek to converge to a best practice level of <1% leakage. Whilst this is a longer-term aim of ours, we will not replace all legacy SF_6 equipment within the RIIO-T1 period. As such, this is not a realistic target for us in the RIIO-T1 period.

Forecast figures of SF_6 leakage are shown in the figure below.

Figure 3 Forecast SF_6 leakage as % of mass installed



Oil-filled cables

The use of oil as a cable insulator is an expired practice. During the last 15 years, the use of oil to insulate cables has been superseded with a move to solid cables. As a consequence, the length of oil-filled cables installed on our network is low at only 30 kms. The leakage of oil is therefore a reducing problem; nevertheless, we recognise the detrimental environmental impact that oil can have, particularly should it enter water courses.

To this end, as with SF_6, any leakages of oil are tightly monitored and we have a number of internal policy documents that set out our procedures. These

Insulating gases and fluids

documents are indexed in MA-PS-015: Management of Fluid Filled Cables Manual and include PR-PS-154, which covers our environmental considerations.

As part of our commitment to increase transparency in this area, we will report and publish on an annual basis our environmental performance in relation to lost oil from our remaining oil-filled cables. We are not proposing to replace these cables during the RIIO-T1 period.

Business carbon footprint and broad environmental measure

Business carbon footprint and broad environmental measure

We already record and monitor the emissions resulting from all our business functions and, through the Carbon Reduction Commitment (CRC) process, we already report on many of these at a group level. For completeness, we have attached our **CRC report**.

In RIIO-T1, we will build on this level of reporting and publish, on an annual basis, emissions resulting from not only our energy use within buildings and operational sites, but also emissions as a result of our operational and business transport, fuel combustion, SF_6 equipment, oil-filled cables and network losses.

With the exception of network losses, the resulting emissions from these network activities is small in comparison to the industry as a whole (less than 0.2%). It is therefore important that any reporting requirements reflect this. To this end, it is not practical to measure these emissions at an activity or business level. Instead, much of this reporting will be based on calculation using documented methods. For example, some of our buildings have shared functions. Where this is the case, we will calculate the emissions resulting from energy use at that site according to the transmission-related head count.

We understand the importance of our performance in this area on our business reputation. Indeed, not allowing for growth, we have targeted a 2% reduction year-on-year across our building energy usage and transport functions. This assumes that our 2010/11 objective at group level is rolled-out across the RIIO-T1 period. The forecast rise in our emissions over this period is therefore as a result of business growth, not a deterioration in emissions performance and it is key that any reputational incentive recognises and reflects this, i.e. it should refer back to the size of the business.

We would be concerned about the introduction of a 'regulatory' broad environmental output and the detailed reporting requirements that go with this if it was to be at odds with our group-wide approach. We do not believe this is helpful or indeed necessary given the external pressures from Government targets and growing stakeholder awareness of the value attributed to environmentally astute companies.

We are aware that **RenewableUK**, in response to Ofgem's December consultation, put forward a proposal for a financially-backed Low Carbon

Business carbon footprint and broad environmental measure

Economy Incentive in order to better deliver the country's 2020 renewables targets.

We also want to see these targets delivered. However, there are already a wide range of mechanisms across the sector designed to specifically deliver this generation, such as connect and manage, the Renewables Obligation and feed-in-tariffs. In addition, initiatives such as the Low Carbon Network fund in electricity distribution have already helped to identify and trial new and smarter ways to facilitate the connection of renewable generation and the expectation is that Ofgem's proposed "Network Innovation Competition" in RIIO-T1 will do the same.

Therefore, we do not believe it is prudent or worthwhile to introduce a further financial incentive to deliver environmental targets, unless this incentive is clearly targeted at an area which is not already being addressed. This is particularly important given the cost to electricity consumers of an additional £320 million over the RIIO-T1 period.

Similarly, we do not believe it is prudent to concentrate efforts on certain technologies. Instead, we believe a more sensible approach is to fully utilise initiatives such as the Low Carbon Network fund and Network Innovation Competition mechanism to drive a much broader approach to delivering environmental benefits.

Flood defence

Following a series of recent flood events in the Midlands and North of England, the electricity industry has become only too aware of the serious impact that sudden changes in river and coastal water levels can result in major disruption to the network.

As a result of this awareness, all electricity network operators, both transmission and distribution, have carried out reviews within their areas to identify high risk sites and the impact of any incident on the communities that they serve. This has resulted in plans being designed and implemented to minimise the risk where the investment in protecting the infrastructure merits it.

As part of RIIO-T1, SHETL has revisited the data currently available to assess the areas of risk, the probability of any significant event occurring, and what preventative measures could be deployed to prevent the impact of loss of supplies in the area.

Review of information

During our **Green Paper consultation** we asked for views on what extent we should protect our substations from floods and stated that we have been working with the Energy Networks Association (ENA) to produce a document that describes the positioning of the industry with respect to substations affected by flooding and an understanding of the impacts.

Water ingress into our substations and equipment is a serious issue for us with over ninety major transmission substations on our network. We have taken a balanced judgement on the likelihood of flooding against the importance of the equipment being protected. In the context of our overall investment it is a relatively small amount, but it is of significant importance in securing electricity supplies in both the north of Scotland and the UK as a whole.

During our assessment and review in relation to this ENA document, we have identified potentially twenty transmission sites at significant risk based upon the Scottish Environment Protection Agency's (SEPA) data where there is a 1-in-200-year flood risk from fluvial or costal conditions. We have also reviewed all historical events during the analysis of flooding to our key sites to verify the validity of the initial assessment.

We are aware that a number of our installations have an additional flood risk as a result of their location near or adjacent to hydro electric generation installations. However, these installations are generally for the sole purpose of the generators and are unlikely to impact anyone other than the local

Flood defence

generation site. Therefore, in the event of significant failure of their associated water systems, it will only be the generation site that is affected and, as such, we have reduced the relative priority of flood protection measures at some of these sites on this basis.

Assessment of areas of risk

Although we have focused our expenditure on substation installations, it is important that we look at all our asset types in relation to areas of risk. The following is an overview of the current risk assessments and planning in place to deal with the various risks associated with the potential flooding of our assets.

Overhead power lines

- Overhead power lines are generally resilient to flooding damage. However, there are two concerns from flooding. Firstly, if erosion of the ground takes place as a consequence, an overhead line support (normally a wood pole as steel towers have substantial foundations) may be swept away and a repair is unlikely to be achievable until the flood water drops and access to the pole is achievable. The second concern is where the clearance under overhead lines is substantially reduced owing to the rise of water levels and the line may have to be taken out of service to ensure that there is no danger to boats operating in the vicinity.

Underground power cables

- Underground power cables are generally resilient to flood damage and are designed to be installed in water-laden ground. However, again, there are two concerns from flooding. Firstly, if a cable develops a fault in an area subject to flooding, then a repair is unlikely to be achievable until the flood water drops and access to the cable is feasible. The second concern is where erosion of a river bank occurs as a result of a sudden flood and this erosion may expose and damage cables laid underground.

Substations

- Transmission substations supply a significant amount of customers (up to 175,000) and generally only have limited ability to supply these customers from an alternative source.
- Historically, there have been no significant flooding incidents at any of our transmission substations.
- In our evaluation, three transmission sites have been identified from the SEPA flood data as potential high risk, with a further seventeen requiring further on-site assessments and investigations. The first three are detailed over.

Flood defence

- The impact of severe flooding at a grid substation would be significant as restoration of supplies could take many days if substantial damage occurred.

Conclusions

A desktop study has been carried out to produce the final selection of twenty substation sites, which have been identified through SEPA's 1-in-200-year flood risk data coupled with additional local knowledge. Three of these are due to have flood mitigation work completed during the RIIO-T1 period; the remaining seventeen sites will have further on-site assessments carried out during this period in preparation for installation during future price control reviews.

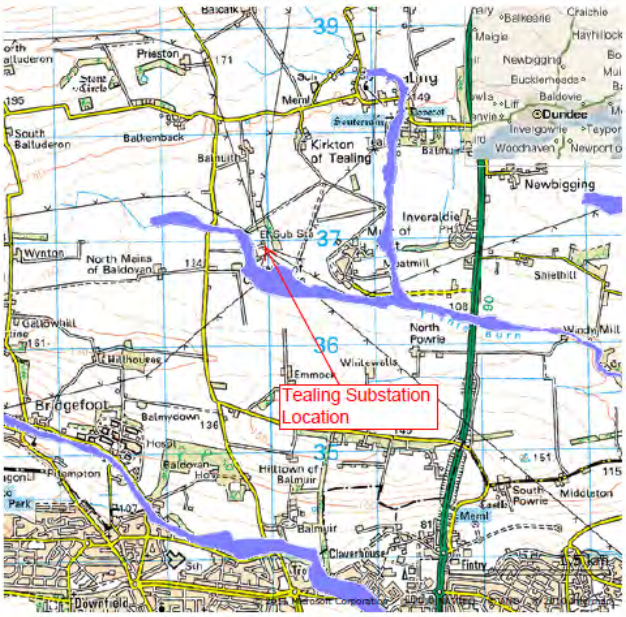
The sites identified as priority sites for RIIO-T1 are:

- Tealing 275 & 132kV substation – proposal to install canal-type flood defence trench around two sides of the site to improve storm drainage past the location;
- Coupar Angus 132kV substation - a full bunding operation is required to secure the site; and
- Carradale 132kV substation – the small river at the rear of this site needs to be controlled by bunding and banking to reduce erosion risk and divert flood waters away / around the location.

However, if during the period the on-site assessments identify any site with a greater need, then a review of the priority will be undertaken and any substitution carried out to minimise the risk to the security of the network.

The following images are produced from the SEPA data set for these specific sites. We plan to spend £2.5m on flood defence measures at these locations with £500k being spent prior to RIIO-T1 to carry out full assessments on the other seventeen sites as well as finalising design and consents for the three planned sites.

Flood defence



Our approach to visual amenity

In our **Green Paper consultation** published in February, we discussed the measures that we have taken in the delivery of our projects to achieve an appropriate balance between the benefits brought about by schemes and the impact of these schemes on the environment.

We set out how each scheme is subject to rigorous environmental analysis. We also discussed our commitment to proportionate stakeholder engagement during each individual project's development in respect of environmental considerations.

Importantly, the environmental impact of our activities and the steps that we can reasonably take to mitigate this are an integral part of everything we do. This is an area that is heavily legislated. The environmental impact of projects is assessed under the statutory framework provided by the Environmental Impact Assessment (Scotland) Regulations 1999 (as amended) and the Electricity Works (Environmental Impact Assessment) Regulations (Scotland) 2000. Additionally, overhead transmission assets require consent under section 37 of the Electricity Act 1989 prior to their installation and build; assets such as substations generally require to be consented under the Town and Country Planning Act 1997 (as amended). Additionally, certain aspects of construction activities may require consents under other environmental protection legislation such as the Water Environment (Controlled Activities) Regulations 2005.

As part of this **Green Paper consultation**, we sought views on our approach and whether there was anything further that stakeholders felt that we should be doing in this area. Our stakeholders provided useful feedback and, in a handful of cases, suggestions for ways in which we could further limit our environmental impact, for example, in relation to site selection and infrastructure design. We appreciate this feedback and, where appropriate, will act on it.

We recognise that our activities will almost inevitably have an environmental impact. In the case of facilitating the connection of renewable generation, the less favourable visual impact brought about by the necessary transmission assets can be outweighed by the overall environmental benefit of the resulting lower carbon generation. At the planning stage, proportionate to the scale of the activity, we make every effort to understand how the natural environment can be used to screen and lessen its visual impact. Where possible, we utilise natural contours, gullies and ridges. For our larger projects, we generate graphic representations and use these

Our approach to visual amenity

to assess the visual impact from a range of different aspects. This helps to inform us of the optimum site selection and to understand where additional screening may be required. Where existing features are inadequate, we work with land owners and / or local authorities to establish reasonable and appropriate additional measures. However, this does highlight the range of options that are available to us and we believe it is important that our stakeholders understand that undergrounding is not the only solution. Indeed, not only is the undergrounding of lines expensive (and sometimes prohibitively so) the undergrounding of lines can have its own environmental impact.

In our **White Paper consultation** published in June, we introduced the concept of an **Environmental Improvement Fund**: a ring-fenced sum of money that could be called upon by affected parties to address specific environmental impacts. Whilst this would require subjectivity in terms of its allocation, we invited views on whether this was something that stakeholders would welcome and be prepared to fund.

We have not received any support for this suggestion. Indeed, only one stakeholder made specific reference to this, stating:

"If SHETL is willing to devote resources to improvements over-and-above requirements placed on it through the planning process, why not volunteer these through the planning process – which is an opportunity to engage with the stakeholders wanting such improvements, who will themselves be engaging with the planning process to try and achieve their aims."

As such, we have not pursued the concept of an Environmental Improvement Fund at this stage.

Instead, and consistent with the overriding message from stakeholders in response to both our **Green** and **White Paper consultations** that they want to be involved on an ongoing basis, we will continue to engage with stakeholders in much the same way as we have throughout the development of this Business Plan, focusing our efforts on preplanning consultation. Stakeholders, like us, see themselves as playing a lead role in joint-working to minimise the environmental impacts of our activities.

"SHETL are well known to [us] as exemplars of good practice of early engagement in preplanning discussions."

"We had some recent concerns regarding grid infrastructure works planned to cross our [site] but

Our approach to visual amenity

engagement with SHETL has been productive and we are optimistic that any issues can be resolved successfully."

"It is essential that the correct messages are conveyed from the beginning that site selection will be based on a robust and transparent assessment of the merits and constraints and impacts of a range of options. This is the process which is currently being undertaken very effectively by SHETL."

The lack of any strong steer from stakeholders to change our approach in this area is encouraging; it suggests that stakeholders are largely comfortable with the steps that we have and continue to take to mitigate the impacts of our business.

However, we also believe that this is reflective of the fact that stakeholders see there being other priorities and challenges for the RIIO-T1 period. In light of this, we believe it would be inappropriate to ask future consumers to fund actions to mitigate the impact of **existing assets**, particularly given the scale of our capex programme during the RIIO-T1 period.

The cost of retrospective measures to mitigate the environmental impact of our activities at transmission voltages is very expensive, most notably undergrounding. This is why it is more common to see indirect measures being taken, such as community-based projects and steps at distribution voltages.

However, for **future projects and schemes**, we will continue to engage fully with stakeholders in order to ensure that all environmental issues, community and local businesses' concerns and impacts on other stakeholders are properly accounted for in the routing, site selection, design, construction and operation of each new development. The costs associated with much of this work will fall within business as usual.

For our large capital projects that come forward in the period and are subject to the within period determination mechanism, we would expect to include, as part of our funding submission, the costs, where justified, of any work to mitigate the visual amenity of the project. This would be subject to full and proper review as part of Ofgem's within period determination process.

If there are instances where additional funding is required for projects that fall outside of the within period determination mechanism, then we are able to apply for specific funding through a 'logging up' cost recovery mechanism. We expect this to be the exception rather than the rule.

CRC report

Annual report summary	
Date Created	19 July 2011

Your details
Phase: 1
Reporting Year: 2010/2011
CRC reference number: CRC6964696
Addressee: Ms Michelle Hynd Scottish & Southern Energy plc

Renewable energy data		
Type	**Kilowatt Hours**	**Tonnes of CO2**
Total FITs:	105,456	57
EGCs relating to renewables:	63,233	34

Core supplies (this excludes core supplies of gas to an EU ETS installation and CCA facility and core supplies of electricity to a CCA facility)

Fuel source	Actual supply	Estimated supply	Measurement unit	Calculated emissions (tonnes of CO2)
Core electricity not covered by a CCA	154,390,316	5,620,329	kWh	86,869
Core gas not covered by EU ETS or by a CCA	9,927,658	5,533,837	kWh	2,939

Residual measurement list fuels				
Fuel source	**Actual supply**	**Estimated supply**	**Measurement unit**	**Calculated emissions (tonnes of CO2)**

Electricity Generating Credits

	Kilowatt Hours	Tonnes of CO2
Electricity Generating Credits	63,233	34

Emissions for annual reporting year 2010/2011
Total CRC Emissions (tonnes of CO2): 89,774

SGU emissions	
SGU name	**SGU emissions (tonnes of CO2)**
SCOTTISH AND SOUTHERN ENERGY PLC	89,774

Early action metrics	
Emissions covered by carbon trust standard or equivalent	
Emissions (tonnes of CO2)	**Scheme**
89,774	Certified Emissions Measurement and Reduction Scheme (CEMARS)
Emissions covered by voluntary AMR - percentage: 29	

Turnover/ expenditure for report year: £ 29,261,000,000

Corporate responsibility responses	
Type	**Answer**
Discloses long term reduction targets	Yes
Discloses performance against long term reduction targets	Yes
Names director responsible for energy use	Yes
Engages employees in reduction of energy use	Yes
Report comments:	

CRC ENERGY EFFICIENCY SCHEME