

## Submarine Electricity Cable Consultation Frequently Asked Questions and Answers

### Section 1: Questions relating to engineering

**Q. The consultation explains that 112 km of cable will be replaced during RIIO-ED1. Which cables does this relate to?**

A. SHEPD has taken a profile of our cable life expectancy, based on a 24 year average. This suggests that a third of its network should be replaced every 8 years. However, SHEPD will not replace a cable due to age; it will be assessed on its known condition through visual inspections and previous fault history. The condition of the full range of cables has not yet been determined.

**Q. Why is only one of your existing submarine electricity cables protected? Which method did you use?**

A. It had a history of being damaged by third parties which resulted in numerous faults, however, no deaths/injuries/capsizing of vessels were recorded. Due to these occurrences it was deemed necessary to protect the cable and burial, through jetting, was used as a solution.

**Q. How does your asset replacement programme work?**

A. SHEPD have a comprehensive inspection programme that utilises Dive and Remotely Operated Vehicle visual survey information to assess our asset condition. The information gathered from this exercise combined with the known history of the asset allows SHEPD to determine which cables are in need of replacement and/or remedial repair.

**Q. Will protection extend the life and reliability of cables?**

A. Protection has the potential to increase the life and reliability of the cable. However, other industry sectors have shown that applying additional protection can have an impact on reliability of cables in the initial years due to poor installation practices. Protecting a cable rather than laying it on the seabed costs more and we believe this decision should be based on a robust cost benefit analysis.

**Q. Are there any benefits in terms of supply reliability of protecting cables?**

A. Not in the initial 25 years. SHEPD expects all new cables to have a minimum life expectancy of 25, years based on current historical data. Other installation methods which protect the cable from the marine environment may potentially extend the life of the cable beyond 25 years. However, other industries have indicated a higher initial fault rate on submarine cables which have been protected during installation.

**Q. To what depth are distribution submarine electricity cables buried?**

A. Burial of submarine cables is wholly dependent on what the cable requires protection from and can vary from as little as 0.3m to 1.5m. Burial depth will always be determined on a case by case basis should there be a requirement to protect the cable. It should also be noted that due to tidal effects burial depths are likely to vary over time.

**Q. Will the submarine electricity cable replacement programmes increase the capacities of the cables?**

A. SHEPD consider the demand need on all connections when proposing a replacement and would determine the most suitable cable size for any given circuit.

**Q. Are you aware of instances of damage to your cables by other marine users?**

A. Yes, since the 1950's there have been instances where our cables have been damaged due to third party interaction. It should be noted that as our submarine electricity cable assets have a long standing history in their respective areas, the instances of damage due to third parties is low and cable failures, in the majority, tend to be caused by electrical failure and/or abrasion.

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The introduction of GPS system, in recent years, has also helped marine users to accurately locate the positions of our cables and avoid damage to our cables.

### **Q. What happens if marine user snags an electricity submarine cable**

If the marine user is aware that they have snagged a submarine cable they must call our emergency line 0800 300 999 on arrival in port. Comprehensive details of the incident should be recorded in the official log particularly the date, the exact time, the vessels position at the time of the incident, the depth of water and a description of the cable, if sighted.

If weights are excessive, and it is suspected that the vessel is fast to a cable, do not endanger the vessel and crew by attempting to recover the gear. For safety reasons the crew should jettison the gear that has been snagged.

### **Q. Renewables and Transmission companies protect cables, so why aren't you doing the same?**

A. Other industries and/or businesses have other drivers that impact their decision to protect their assets and we are not in a position to comment on their practices.

As a regulated business we are committed to delivering the most cost effective solution which delivers a reliable service to our customers, and our current practice achieves this. We have been installing submarine electricity cables since the 1950's and the practice has always been to surface lay. Over the years we have built up significant knowledge of the locations that our assets are installed in and we have a good understanding of the anticipated life expectancy of our cables along existing routes. In addition, we have seen no evidence of safety incidents that would justify a change in our engineering practice.

### **Q. Will this consultation affect the way that SHE Transmission Ltd. Protect submarine electricity cables?**

A. This consultation is for the Distribution business only. The Distribution network of cables and overhead lines delivers electricity to homes and business and typically up to 33kV. Transmission lines take electricity from sources of generation at a voltage of 132kV and greater. SHE Transmission are also a separate business and on a different regulatory agreement. As such we cannot comment on the way that they undertake their works.

### **Q. The oil and gas industry use directional drilling feeding pipes to protect their cables. Would this be a consideration for submarine electricity cables?**

A. Directional drilling is only a feasible option for short lengths up to around three km.

### **Q. What's happening with the Jura Cable?**

A. SHEPD has submitted its cable protection plan based on the survey data information gathered in December 2014. SHEPD has yet to be given consent by Marine Scotland to undertake the proposed protection works. Due to the time of year, and no confirmation of consent, it is proposed the works takes place in April 2016 to avoid inclement weather conditions and to ensure that all consultees in the process have been given sufficient time to respond to the proposal.

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### Section 2: Questions relating to marine planning and licensing

**Q. Will proposed Marine Protection Areas impact on existing cable routes. How? Are you responding to consultations around them?**

A. We will respond to consultations on Marine Protection Areas but this has to be taken on a case by case basis. A cable was recently permitted to be installed within a Marine Protection Area as the marine life and/or geological structures being protected in the area were not impacted by the installation of the submarine electricity cable.

**Q. Why have there been changes in policies relating to the protection of submarine electricity cables?**

A. Scotland's National Marine Plan policies are in accordance with the UK Marine Policy Statement that has been in place since 2011.

**Q. Licensing of new cable routes and replacement of old cables will require an Environmental Impact Assessment. How does this consultation affect this?**

A. This consultation will not impact on the need for an environmental assessment to be undertaken as this is a standard industry practice.

**Q. Were SHEPD consulted during the development of the National Marine Plan?**

A. Yes our response can be found at <http://www.gov.scot/Resource/0044/00440798.pdf>. In addition to this, SHEPD provided evidence to Rural Affairs, Climate Change and Environment Committee.

**Section 3: Questions relating to paying for the distribution network**

**Q. How do I pay for the distribution network?**

- A. SHEPD agreed with Ofgem an amount that is fair to charge you for the eight years starting 1 April 2015 until 31 March 2023. The cost of what we do in maintaining your electricity distribution network involves us making an upfront investment of hundreds of millions of pounds each year. When you get your bill, our costs are included in the final amount charged by your supplier.

Each year our charges will automatically change if variable elements outside of our control change – like inflation and taxes. From a user perspective, our charges are the cost equivalent to the line rental of a telecoms company. Our agreed costs are spread across all the customers in our areas using an industry model.

**Q. What are the average charges for the distribution elements of electricity bills in SHEPD?**

- A. SHEPD's Average Annual Charge for domestic customers in 2014/15 was £169.43 (compared to £184.90 in 2013/14). Distribution charges make up approximately 16 percent of an average electricity bill.

**Q. Why do I hear people in SHEPD pay more for the distribution network than other areas?**

- A. The difference is because proportionately there are fewer customers in the islands and north of Scotland spread across a larger area – 25% of the country's landmass.

**Q. How much will electricity bills increase by due to the policies detailed in Chapter 14 of Scotland's National Marine Plan?**

- A. Based on our initial assessment we may need to increase expenditure by around £260 million, over the next 8 years, to meet the policy requirements detailed in Chapter 14 of Scotland's National Marine Plan.

Compared to our current projected spend based on surface laying the cables, the distribution element of electricity bills may therefore:

- see a one-off increase by approximately 23% (excluding inflationary increases) in 2017/18
- be around 10% higher each year from 2018/19 - 2022/23

**Q. Why will cost for any works be paid for by consumers?**

- A. Any investment in the distribution network is paid for by consumers in the distribution area as part of the regulatory framework set by Ofgem. Ofgem conduct a comprehensive review of all distribution companies business plans as part of a two year process called a price control.

The objective of a price control is to ensure distribution companies operate and invest efficiently to the benefit of consumers using the distribution system and charges are appropriately set for the investment being delivered.

Since protecting submarine cables will increase the cost of the distribution system to consumers, we are undertaking a cost benefit analysis to ensure any investment decision taken represent best value.

**Section 4: Questions about the consultation**

**Q. Can you give me an example of an impact pathway for your Cost Benefit Analysis?**

A. This is an impact pathway for how we could quantify a Health and Safety impact of submarine cables.



**Q. How many submarine cables are there?**

A. We have 111 submarine electricity cables connecting fifty-nine Scottish islands to the network that serves mainland Great Britain by Scottish Hydro Electric Power Distribution.

**Q. When will the consultation process close?**

A. The consultation closes on the 13 October 2015.

**Q. When will the cost benefit analysis be published?**

A. The final cost benefit analysis will be published in March 2016.

**Q. Why are you doing a cost benefit analysis?**

A. The cost benefit analysis will be used to demonstrate to ourselves, Ofgem, Marine Scotland and users of the marine environment as to whether or not the additional cost of protecting submarine electricity cables represents value to Scottish Hydro Electric Power Distribution electricity consumers and wider stakeholders.

**Q. Why has health and safety been included as a separate impact category?**

A. During pre-consultation discussions with mariners, health and safety was their overriding consideration in relation to submarine electricity cables. This is also one of SHEPD's core values and takes pride in considering Health & Safety impacts on all projects being undertaken.

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However, it is important to note that SHEPD has seen no evidence of death or serious injury from marine users from the presence of our existing submarine electricity cables. There is some potential to introduce new safety risks through the process of cable burial/protection. This will be considered as part of our cost benefit analysis.

### **Q. How will the outcome of this consultation affect accepted connection quotations?**

- A. It has the potential to increase connection costs should protection become a requirement. For connection dates SHEPD will make every effort to meet the agreed dates, however, depending on the feedback from Statutory Consultees for any given installation application, there is a possibility that the Marine consent may delay installation works.