

# Contracts for Difference Sustainable Industry Rewards - Final Stage Impact Assessment

Title: Contracts for Difference Sustainable Industry Rewards – Final Stage Impact Assessment

Type of measure: Secondary legislation

Department or agency: Department for Energy Security and Net Zero (DESNZ)

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## 1. Summary of proposal

Contracts for Difference Sustainable Industry Rewards (CfD SIRs) will help to address recent supply chain challenges that could otherwise hinder the deployment of offshore wind (OFW) and floating offshore wind (FOW). They will do so by providing additional revenue support to OFW and FOW developers, through a series of lump-sum payments in addition to their regular CfD payments, should they invest in the economic, social, and environmental sustainability of their supply chains. This includes supporting the creation of cleaner manufacturing capacity, while, where possible, bringing such investments to the communities that need it most. The intention is for this to apply to allocation rounds 7, 8 and 9. Noting the uncertainty around precise policy design and the potential implementation of additional criteria from AR8 onwards, this Impact Assessment seeks to monetise costs and benefits arising from AR7 only.

Specifically, CfD SIRs will provide additional CfD revenue to applicants based on the fulfilment of three sustainability criteria: **‘investment in shorter supply chains’**, **‘investment in more sustainable means of production’** and **‘investment in shorter supply chains that use more sustainable means of production’** (a combination of the first two criteria).

In practice, this means the CfD SIR will cover the additional cost of developers investing in:

- **new or existing manufacturing facilities situated in UK deprived areas**, helping to shorten supply chains closer to deployment zones, reducing carbon intensity of projects

while giving rise to economic and social sustainability benefits, including bringing high-skilled jobs and opportunities for businesses in the areas that need them most.

- **more environmentally sustainable manufacturing facilities** that adopt less carbon-intensive practices in offshore wind and floating offshore wind supply chains.

CfD SIRs will be awarded through a competitive auction. Developers will put forward proposals that deliver on the sustainability criteria the Government is offering support for and will compete against each other on the quality and cost of their proposals. The intention of a competitive process is that CfD SIRs will fund proposals representing the best value for money.

## 2. Strategic case for proposed regulation

The CfD scheme is the Government's main mechanism for supporting new low-carbon electricity generation projects in Great Britain, including both OFW and FOW technologies. As part of plans to meet legislated Net Zero commitments, the Government has committed to a fully decarbonised electricity system by 2035, subject to security of supply considerations, with an ambition to deploy up to 50GW of OFW by 2030, including up to 5GW of FOW.

Whilst the UK boasts a mature offshore wind sector with an attractive market for investment, both offshore wind and floating offshore wind technologies have experienced supply chain pressures in large part due to the current macroeconomic and geopolitical environment.

Challenges within the supply chain have primarily manifested in pronounced input costs for developers. In a competitive market, developers are incentivised to seek out the cheapest options available to fulfil their input requirements. Overall, this has led to more expensive, sustainable suppliers and manufacturers appearing commercially less attractive to developers. Simultaneously, in seeking the cheapest option, developers are disincentivised to make procurement choices with reference to over-arching socio-economic, environmental and supply chain capacity-building benefits. In short, the offshore wind sector faces ongoing supply chain pressures impacting its economic, environmental and social sustainability, which the SIRs scheme seeks to address.

Due to the high upfront costs of investments in the supply chain, developers are increasingly having to rely on legacy manufacturing capability whereby production capacity is not expanding quickly enough to meet demand. Rapidly increasing global demand for renewables, combined with a reliance on less sustainable means of production mean that the OFW and FOW supply chains are facing significant constraints that contribute to delays, further inflation and difficulties in executing current contracts. These challenges have coalesced, particularly in recent years, thus increasing the risk of falling short of the Government's decarbonisation targets and renewable deployment ambitions. SIRs has been developed to address these supply chain pressures by providing financial support to more sustainable new and existing manufacturing capacity in addition to incentivising shorter supply chains.

The Government views the SIRs scheme as a critical and complementary lever to existing policy frameworks aimed at incentivising investment in new and more sustainable supply chain capacity. Currently, GIGA and the Offshore Wind and Floating Offshore Wind Manufacturing & Investment Schemes (OWMIS and FLOWMIS) work as policy levers on the manufacturing side of the supply chain through the provision of grant funding. The SIRs scheme is a direct recognition that grant funding alone is insufficient to incentivise investment

in manufacturing capacity at the scale desired. The UK's overarching strategy, therefore, should not only consist of grant funding, but also should seek to incentivise a typical CfD OFW/FOW project to invest in sustainable manufacturing capacity by targeting developer behaviour. As such, the proposal considers the existing policy environment and seeks to address current gaps in Government intervention.

Furthermore, additional rationale for Government intervention via the SIRs scheme includes:

- **Social and economic sustainability:** The SIRs scheme offers the potential for creating new, high-skilled jobs in deprived areas whilst also creating opportunities for businesses in those areas to become part of the offshore wind supply chain. Whilst supporting deprived communities, this could also address the manufacturing-capacity gap, which is emerging and, so, keep medium-term costs down.
- **Environmental sustainability:** Current market dynamics have given rise to market failures such as higher carbon supply chains for offshore wind due to the reliance on legacy manufacturing, often in less regulated markets in terms of environmental standards. This scheme could help to address the slow-down in rollout of cleaner manufacturing capacity by incentivising investments in manufacturing facilities owned or operated by Tier 1 suppliers that have set and are pursuing 'Science-Based Targets' (SBTs). SBTs can be viewed as company-specific decarbonisation pathways.
- **Capturing positive externalities:** The scheme offers the potential of wide-reaching benefits to the UK economy, generating positive externalities which would not otherwise be considered by developers or manufacturers, such as innovation and agglomeration benefits, logistical efficiencies, carbon saving and improvements in the overall risk profile of the UK's energy system.

The Government recognises that in designing this intervention it is important that the introduction of the SIRs scheme represents best value for money for the consumer. Consideration has therefore been given to providing subsidy payments at the minimum level required via a competitive allocation process. All offshore and floating offshore wind applicants in the main CfD auction are compelled to meet minimum standards as prescribed in the SIR Allocation Framework as a condition of entry to the CfD. This mitigates some gaming risk, and further work is planned to ensure the scoring mechanism is sufficiently robust to deliver envisioned outcomes and mitigate risk of unintended consequences, ahead of publication of the final Allocation Framework.

### 3. Objectives for intervention

There are two key policy objectives underpinning the Government's proposal to introduce SIRs ahead of Allocation Round 7 of the CfD scheme:

- **Supporting deprived areas and increasing acceptance of Net Zero policies:** Through encouraging investment into socio-economically deprived communities, the SIRs scheme aims to foster support for the Government's CfD scheme and wider Net Zero policies. Additionally, by incentivising the inclusion of these communities within the supply chain, the policy seeks to create high-skilled jobs and industry in these areas.
- **Increasing the sustainability and resilience of the supply chain:** The Government aims to facilitate supply chain resilience by incentivising investment into more sustainable manufacturing capacity to promote both decarbonisation of the supply chain and address supply chain constraints which may otherwise lead to delays to offshore and floating offshore wind deployment ambitions.

## 4. Description of options considered

The following options are considered in this Impact Assessment.

**Option 0: Do nothing.** Under this option developers of OFW and FOW continue to receive support under the CfD scheme, but with no additional payments made for the successful implementation of SIR proposals. This would likely lead to a continuation of current developer practices, whereby there are limited incentives to invest in new or cleaner means of production, or shorter supply chains.

**Option 1: Introduce additional payments for Offshore Wind (OFW) and Floating Offshore Wind (FOW) CfD projects via the Sustainable Industry Rewards (SIRs) scheme.** The introduction of SIRs aims to incentivise offshore and floating offshore wind developers to invest in both newer and more sustainable parts of the supply chain in addition to shorter supply chains. Payments would be awarded in addition to the strike price determined in the main CfD Allocation Round. These additional payments would be awarded through a competitive allocation process in exchange for the delivery of more economically, environmentally and socially sustainable projects.

## 5. Business impact of preferred option

Offshore Wind (OFW) and Floating Offshore Wind (FOW) facilities are owned, broadly speaking, by large multinational corporations. However, the SIRs scheme may have an indirect impact on FOW Tier 1 manufacturers, some of whom are classified as medium-sized corporations. It is not expected that the proposed policy will significantly impact the administrative costs of these businesses. Whilst the proposal requires developers to submit supply chain documentation, this is unlikely to impact their supply chain counterparts as information sought from Tier 1 supply chain agents should not be beyond the scope of the BAU procurement process (e.g. information gathering on financing needs, benefits of investment, technical specifications). Therefore, additional burden to medium-sized business is expected to be negligible. Principally, as the policy is designed to benefit businesses, there are likely positive, indirect impacts for medium-sized business within OFW and FOW supply chains.

## 6. Regulatory scorecard for preferred option

### Part A: Overall and stakeholder impacts

(1) Overall impacts on total welfare		Directional rating
<b>Description of overall impact</b>	The overall impact associated with the introduction of Sustainable Industry Rewards is estimated to be positive. SIR payments will be made to developers for the delivery of supply chain enhancements which induce benefits associated with economic, social and environmental sustainability. The analysis contained	<b>Positive</b>

	within this assessment considers impacts principally at the societal level.	
<b>Monetised impacts</b>	Net Present Social Value is estimated to be between <b>£20m - £105m</b> . This means that the estimated benefits (primarily supply chain resilience, carbon abatement, employment and innovation spillovers) outweigh the estimated costs (the costs of investing in supply chain enhancements) by an estimated £20m - £105m. This monetised analysis is presented with a level of uncertainty, which is addressed through the application of a scenario-based approach resulting in a wide estimated range. The monetised analysis is applicable to offshore wind only, noting the relatively small amount of floating offshore wind capacity expected in AR7. Uncertainty remains around the pipeline capacity that could seek to participate during the SIRs period, but for the purposes of analysis, an illustrative 5GW figure is assumed. The evidence base presented at the end of this document provides further details about the analysis undertaken, including the underlying methodology.	<b>Positive</b>
<b>Non-monetised impacts</b>	There are likely to be positive non-monetised impacts associated with the deployment of additional floating offshore wind capacity. Given the relative nascency of the technology, the UK stands to benefit from early-mover advantages in the sector. This could manifest in the form of increased attractiveness of the UK's floating offshore wind sector, generating additional export opportunities for businesses and leading to wider economic spillovers for society.	<b>Positive</b>
<b>Any significant or adverse distributional impacts?</b>	Significant positive regional impacts expected. The SIR scheme incentivises among other things investments into deprived areas of the UK, creating beneficial regional impacts which would give rise to wider regional economic benefits. This is principally reflected in the monetised analysis through the capture of wage premia, as described in the evidence base at the end of this document.	<b>Positive</b>

## (2) Expected impacts on businesses

<b>Description of overall impact</b>	Businesses affected both directly and indirectly by the SIR scheme are overwhelmingly likely to be net beneficiaries. Developers, who would be direct recipients of SIR funding, are incentivised to invest in more sustainable supply chains. As a result, the longer-term pressure on supply chains is likely to be reduced which provides greater confidence and certainty to developers.	<b>Positive</b>
<b>Monetised impacts</b>	Monetised impacts are captured at a societal level, as described in the table above.	<b>Positive</b>
<b>Non-monetised impacts</b>	Benefits associated with early-mover advantages in floating offshore wind as described at a societal level above apply similarly to businesses. Businesses could stand to benefit from increased export opportunities as a result of a strengthening of the UK's floating offshore wind sector.	<b>Positive</b>
<b>Any significant or adverse distributional impacts?</b>	Distributional impacts are considered at a societal level in the table above.	<b>Positive</b>

### (3) Expected impacts on households

<b>Description of overall impact</b>	Whilst the implementation of SIRs does introduce very small additional consumer bill impacts (as described below), households stand to benefit in the long run from a more sustainable and diverse energy mix. Decarbonisation gives rise to non-monetisable benefits from a household and consumer perspective and also reduces bill payer exposure to long term gas prices over time.	<b>Positive</b>
<b>Monetised impacts</b>	Aggregate consumer bill impacts are estimated to be in the region of <b>£1 per year, for two years</b> (giving rise to a total bill impact of around £2 for AR7). This cost will be borne by both domestic and non-domestic consumers, and so household bill impacts are likely to be substantially lower than this. At present, the	<b>Negative</b>

	majority of CfD policy costs are borne by non-domestic consumers.	
<b>Non-monetised impacts</b>	Non-monetised impacts are likely to include the benefits associated with a more sustainable energy mix, decarbonisation and reduced exposure to long-term gas prices.	<b>Positive</b>
<b>Any significant or adverse distributional impacts?</b>	Distributional impacts are considered at a societal level in table 1 above.  The impact of consumer bill increases could disproportionately affect households of lower socio-economic background, but this impact is negligible noting the small magnitude of estimated bill increases above.	<b>Neutral</b>

## Part B: Impacts on wider Government priorities

Category	Description of impact	Directional rating
<b>Business environment:</b>  <b>Does the measure impact on the ease of doing business in the UK?</b>	<p>Whilst estimated to be small, the introduction of SIRs creates an additional administrative burden for offshore wind and floating offshore wind developers. In aggregate, the Government anticipates that the proposed policy will ease doing business in the UK. Foremost, the SIRs scheme addresses the current barriers faced by developers, who, due to high upfront costs of investments, continue to rely on legacy manufacturing where production capacity is not expanding quickly enough to meet demand. By addressing this barrier, the policy makes investment into new and more sustainable supply chain capacity more attractive for developers.</p> <p>Simultaneously, investment in the sustainability of the offshore wind supply chain may lead to a competitive advantage globally. In strengthening each link in the supply chain through incentivising developers to invest in manufacturers and suppliers, the SIRs scheme may lead to the UK's offshore wind sector becoming more attractive to international investors.</p>	<b>Positive</b>

<p><b>International Considerations:</b></p> <p>Does the measure support international trade and investment?</p>	<p>The net impact of the introduction of SIRs on international trade is a product of several competing factors. Overall, it is reasonable to conclude it will be broadly neutral. The scheme brings the UK in line with comparator schemes and international best practice, including in France, the Netherlands, Denmark and Germany.</p> <p>The scheme encourages investment in supply chains, whether in cleaner firms across the globe or in shorter supply chains based in the UK. The scheme focuses on investments made in a more sustainable supply chain, and it is not a procurement mechanism. There may be indirect procurement effects, as UK firms get more business because of the investments made, but we would also expect firms around the world to get more business through the criteria encouraging cleaner supply chains. As a result, it is plausible that the impact of the scheme is to facilitate a net increase in global offshore wind supply chain investment and resilience.</p>	<p><b>Neutral</b></p>
<p><b>Natural capital and Decarbonisation:</b></p> <p>Does the measure support commitments to improve the environment and decarbonise?</p>	<p>The Government considers the proposal to have a positive impact on decarbonisation of the UK economy. Current market dynamics have led the offshore wind and floating offshore wind supply chain to have a substantial carbon footprint, in part due to the supply chain's reliance on cheaper manufacturers and suppliers whose competitive advantage in price comes at the cost of more unsustainable means of production.</p> <p>By offering subsidies directly to developers investing in shortened and more sustainable elements of the supply chain, the scheme could aid in decarbonising the sector. This impact is specifically targeted within the SIRs criteria, which will in part assign funding based on bidders' use of Tier 1 suppliers who have adopted Science-Based Targets (i.e. firm-specific decarbonisation plans).</p>	<p><b>Positive</b></p>

## 7. Monitoring and evaluation of preferred option

The monitoring and evaluation (M&E) of SIRs fits into a wider portfolio of monitoring and evaluation within the CfD and offshore wind sector (including a thorough evaluation of the core CfD scheme between 2018 and 2021). Under regulations, SIRs is a temporary



intervention spanning from AR7-AR9 inclusive. Any extension of SIRs beyond these constraints would require a decision to make further changes to legislation, which would be based on the performance of the scheme.

Given the range of activity in the offshore (and floating) wind sector any evaluation of SIRs will be developed to maximise synergies between wider evaluation activity in this space. Given the novel nature of the SIRs and the opportunity to learn from its implementation at AR7 to inform future allocation rounds we believe that bespoke M&E activity would be beneficial.

The proposed M&E objectives and plan for SIRs are:

**M&E Objective 1: To provide timely learnings about the implementation of SIRs at AR7 to inform for AR8/AR9 SIRs design.**

A process evaluation carried out immediately following the launch of AR7 could provide timely insights into the SIRs process. This evaluation would aim to provide direct insights and recommendations to feed into the development of AR8/AR9.

The process evaluation could consist of:

- Interviews / workshops with DESNZ colleagues involved in the design and launch of AR7 to provide learnings about how internal processes could be improved.
- Interviews with AR7 applicants (successful and unsuccessful) to understand experiences of participating in the SIRs auction, and wider AR7 auction. This would provide learnings about how scheme design could be improved.
- Interviews with offshore wind and floating offshore wind projects which could have participated in AR7 but chose not to. This would help us understand whether SIRs design acted as a barrier to participation.

**M&E Objective 2: To monitor short and long-term benefits from SIRs, enabling course-correction as needed.**

A robust monitoring and benefits realisation plan will be designed and implemented at AR7 to monitor progress and outcome metrics. Specific metrics to be monitored will need to be developed, with the intention that these will provide valuable insights to allow deeper investigation or course-correction as needed (e.g. linked to a non-delivery disincentive process).

**M&E Objective 3: To evaluate the impact of SIRs, and the extent to which SIRs objectives have been realised.**

Five years following the implementation of SIRs there will be a post-implementation review. This review will look to answer the following questions:

1. To what extent is the existing regulation working?
2. Is the existing form of Government regulation still the most appropriate approach?
3. Is Government intervention still required?
  - a. If this regulation is still required what refinements could be made? (What scope is there for simplification, improvements?)
  - b. If this regulation is not required, but Government intervention in some form is, what other regulation or alternatives to regulation would be appropriate?

Evidence from the process evaluation, monitoring and wider evaluation activities and analysis in this space will be used to inform this review.

## 8. Administrative and compliance costs for preferred option

The introduction of the SIRs scheme proposed in this Impact Assessment is not expected to significantly increase administrative burdens faced by OFW and FOW developers. Principally, the information needed for developers to bid for SIRs funding is not anticipated to be materially different from information gathering performed in a business-as-usual procurement process and it should be noted that SIRs replaces the information requirements mandated under existing Supply Chain Plans. In practice, additional administrative costs are most likely to reflect the work required to prepare SIRs proposals using a developer’s knowledge base. As such, much of the administrative procedure necessitated by the SIRs scheme should already be captured in a developer’s ordinary administrative cost. Therefore, an understanding of the administrative costs of the proposal is only intended to capture the marginal additional cost of this administrative and strategic work beyond what already takes place within supply chain planning. Overall, therefore, the administrative cost of this policy is expected to be negligible.

To estimate these marginal administrative costs of SIRs, we consider key individuals in organisations who would contribute to this labour, such as business managers, high-level business professionals and administrative support staff. The Government takes the view that the majority of this work is performed by business managers due to necessary strategic input, which is reflected in the estimation of labour costs.

**Table 1: assumptions used to calculate administrative burden**

<b>Hourly labour cost</b>	
Weighted mean hourly wage cost* (£)	28.69
Weighted mean hourly wage + 20% non-waged costs (£)	34.43
<b>Labour hours per firm to prepare SIRs proposals</b> (Hours, Full-Time Equivalent)	
Low value	40 (5)
Central value	80 (10)
High value	120 (15)

\*Weighted by assumed labour time across the hourly wage of business managers (30%), high-level business professionals (60%) and administrative staff (10%) based on ASHE Gross Hourly Pay 2023 figures<sup>1</sup>.

The administrative cost burden of preparing SIRs proposals for each firm is estimated by multiplying the weighted average of hourly labour cost (+20% non-waged costs, in line with government appraisal guidance) by an estimated range of labour hours required for each firm to prepare proposals. Internal departmental pipeline intelligence is then used to generate an estimate for the number of firms expected to prepare SIR proposals in AR7, which is then multiplied by the per-firm administrative cost to reach an aggregated estimate for AR7.

In total for Allocation Round 7, the additional administrative costs created by the introduction of the SIRs scheme (in 2024 present day terms) are estimated at between **£17,000 and £50,000** for the entire offshore wind and floating offshore wind sector.

<sup>1</sup> Earnings and hours worked, region by occupation by two-digit SOC: ASHE Table 3

Acknowledging a wide degree of uncertainty around this estimate, it should be noted that due to their small scale, even an order of magnitude increase in these costs (for example, ten times) versus those estimated would not materially influence the net position of the policy.

## Declaration

Department:

Department for Energy Security and Net Zero (DESNZ)

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Minister responsible:

Sarah Redwood (Director, Renewable Electricity), on behalf of the Secretary of State for Energy Security and Net Zero, The Rt Hon Claire Coutinho MP

I have read the Impact Assessment, and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits, and impact of the preferred option.

Signed:



Date:

15 March 2024

## Evidence base

### NPSV: monetised costs and benefits of preferred option

The costs and benefits associated with the introduction of SIRs are largely contingent on the outcome of the competitive auction process and the nature of the bids received. Noting the inherent uncertainties surrounding a competitive auction process, it has not been possible to calculate precise estimates for wider societal impacts. Nonetheless, illustrative scenarios have been developed to provide a range of likely outcomes and impacts. This scenario analysis is naturally non-exhaustive but represents a plausible suite of SIR proposals and resulting societal impacts. A combination of external technical expertise, stakeholder interviews and supplementary research and market intelligence has been used to produce detailed cost-benefit analyses, as described below.

Two core scenarios, **Scenario A** and **Scenario B**, have been developed which represent different combinations and types of SIR proposals across different component types and SIR criteria ('investment in shorter supply chains' and 'investment in more sustainable means of production'). The number of projects that can be funded under each modelled scenario have been calculated by dividing the assumed budget available (£200m in both scenarios) by an estimate for the SIR payments required to fund a single project.

The scenarios developed for the purposes of this analysis differ principally in the composition and magnitude of sustainability enhancements, such that:

**Table 2: description of scenarios developed for the purposes of illustrative analysis**

	<b>Scenario A</b>	<b>Scenario B</b>
Representative budget available	£200m	£200m
Number of representative projects funded for the purposes of scenario analysis	c.4 projects	c.8 projects
Assumed manufacturing of components in deprived areas	Foundations, export cables, inter-array cables, towers and blades	Foundations, export cables, inter-array cables
Assumed uptake of Science-Based Targets	20% additional uptake vs. the counterfactual	10% additional uptake vs. the counterfactual

The quantitative analysis described in this section is applicable to offshore wind only, noting the relatively small amount of floating offshore wind capacity expected in AR7. Uncertainty remains around the pipeline capacity that could seek to participate during the SIRs period, but for the purposes of analysis, an illustrative 5GW figure is assumed. In line with Green Book guidance, this assessment appraises impacts occurring within the UK only. The scenarios presented should be treated as representative for the purposes of analysis, however in practice, the range and scope of permitted proposals is more flexible. Analysis is presented on the assumption that an upper limit of £200 million will be available to fund SIR proposals in Allocation Round 7. A suite of costs and benefits are modelled for each of the SIR criteria, such that:

**Table 3: summary of costs and benefits captured under each SIR criterion**

	<b>SIR criterion 1: Investment in shorter supply chains</b>	<b>SIR criterion 2: Investment in more sustainable means of production</b>
Costs	<ul style="list-style-type: none"> <li>The costs of investing in supply chain enhancements such as new foundations, tower and blade factories in addition to export and array cable manufacturers.</li> </ul>	<ul style="list-style-type: none"> <li>The costs associated with an increase in the adoption of Science-Based Targets by Tier 1 firms.</li> </ul>
Benefits	<ul style="list-style-type: none"> <li>A wage premium approach is taken to measure employment benefits associated with investments in deprived areas. This is measured by calculating the additional value of new and higher paid jobs in comparison to an assumed counterfactual wage.</li> <li>Supply chain resilience benefits are also quantified, which captures the benefits of displacing carbon-intensive and more costly generation in comparison to the counterfactual generation profile. Further, potential pipeline delay mitigation induced by supply chain enhancements is estimated.</li> </ul>	<ul style="list-style-type: none"> <li>Additional carbon abatement induced through the increased adoption of Science-Based Targets is quantified.</li> <li>Innovation spillovers are quantified.</li> </ul>

Further details of the benefits quantification methodology are provided below.

### **SIR criterion 1: Investment in shorter supply chains**

#### **Employment benefits:**

At a high level, aggregate employment benefits are estimated by multiplying job estimates together with wage estimates. For the purposes of analysis, it is assumed that the economy is at full employment and so any new jobs created by the SIRs scheme displaces employment elsewhere in the economy. Therefore, to capture the additional benefits associated with higher-skilled jobs created through SIRs, wage premia are applied. This is calculated by taking the difference between a counterfactual wage (assumed to be the average wage earned based on the relevant region and sector) and a modelled higher wage associated with the employment created by SIRs. New and higher paid jobs created by SIRs are calculated by using input-output methods, employment shares (published by ONS<sup>2</sup>) and employment multipliers as specified in the Green Book<sup>3</sup>. For construction jobs, direct multipliers taken from ONS input-output tables are multiplied by CapEx estimates. For factory operation, OpEx is

<sup>2</sup> ONS, UK input-output analytical tables, product by product (2019 edition of the dataset)

<sup>3</sup> Green Book (2022), Box 26.

estimated based on reported job numbers. Indirect jobs are then estimated using Green Book multipliers.

### **Supply chain resilience:**

At a high level, supply chain resilience benefits can be broken down into two core subsets; decarbonisation and reduced generation costs. Firstly, the potential OFW pipeline delay mitigation induced by supply chain enhancements in deprived areas is estimated by:

- i) using Green Book optimism bias estimates<sup>4</sup> to calculate the potential project delay reduction on construction time;
- ii) applying this to the components supported under SIR criterion 1;
- iii) applying estimated annual OFW construction capacity to an assessment of the throughput of new SIR-supported manufacturing (this is based on a 40% scale factor, which has been calculated based on the average GW-adjusted throughput of new factories that are supported by SIR criterion 1);
- iv) applying total OFW construction costs to a supply chain resilience factor (modelled as 31%, based on the value of components that have new manufacturing facilities supported by SIR criterion 1).

These two scale factors together imply that the SIRs reduce average delays to OFW roll-out by approximately 1 month. Using a 1.5 GW reference project, this is equivalent to bringing c.120 MW of OFW capacity forward by a year.

Once the pipeline delay mitigation has been calculated, this is then used to estimate the two core subsets (decarbonisation and reduced generation costs). Reduced pipeline delay means that a) more carbon-intensive generation is displaced relative to the counterfactual, which gives rise to decarbonisation benefits and b) more costly generation is displaced relative to the counterfactual, giving rise to reduced generation costs.

Using Green Book supplementary guidance on valuing reductions in greenhouse gas emissions<sup>5</sup>, the following calculation is made to estimate **decarbonisation benefits**.

$$\text{Value of avoided carbon} = \text{CO}_2\text{e emissions} \times \text{value of carbon}$$

The reduction in CO<sub>2</sub>e emissions is calculated by working out the total reduction in generation from other generation sources (wind generation is calculated using the DESNZ assumed wind load factor<sup>6</sup>) and multiplying this by long run marginal electricity emissions factors<sup>7</sup>. The value of carbon is taken from Green Book guidance<sup>8</sup>.

The benefits associated with **reduced electricity generation costs** are estimated using the following calculation:

$$\text{Reduced generation costs} = \text{Energy generated} \times \text{marginal wholesale price of electricity}$$

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<sup>4</sup> HM Treasury (April 2013), Supplementary Green Book Guidance: Optimism Bias.

<sup>5</sup> BEIS (January 2023), Valuation of energy use and greenhouse gas (GHG) emissions.

<sup>6</sup> DESNZ (November 2023), Electricity Generation Costs 2023, Table 5.

<sup>7</sup> DESNZ (April 2023), "Data tables 1 to 19: supporting the toolkit and the guidance", Table 1.

<sup>8</sup> Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal, Table 3. Central scenario, 2035.

Internal estimates for the marginal wholesale price of electricity are used in this calculation.

## **SIR criterion 2: Investment in more sustainable means of production**

- **Carbon abatement:**

So as not to overstate the benefits associated with increased uptake of Science-Based Targets, only a subset of the societal benefits generated by SBTs are attributed to SIRs. A top-down approach is taken to assess the benefits of suppliers signing up to SBTs.

First, a counterfactual emissions pathway is developed based on the International Energy Agency's (IEA) 'Announced Pledges' scenario in the 2023 World Energy Outlook<sup>9</sup>. It is assumed that OFW emissions follow the same trajectory as a weighted average of the IEA's projected steel, aluminium and general industrial emissions under the 'Announced Pledges' scenario. This weighting is based on the current breakdown of construction emissions for OFW. Next, a new emissions pathway is modelled which reflects new SBT uptake induced by SIRs. This is based on existing pathways out to 2050 for suppliers who have already signed up to SBTs. The modelled emission reduction pathways are applied to a reference case study for existing OFW construction emissions.

Estimated annual emissions are then applied to internal departmental intelligence on the OFW construction pipeline out to 2050. Using this pipeline, and Green Book carbon appraisal values, the value of emissions savings are levelized across the entire UK OFW construction pipeline to derive a £/MW decarbonisation benefit of achieving SBTs. This value is then scaled by an assumed additional SBT uptake (20% in Scenario A and 10% in Scenario B) to derive the benefits attributable to SIRs.

- **Innovation spillovers:**

Innovation spillover benefits associated with investments in more sustainable means of production are calculated using a combination of additional R&D spend (based on UK manufacturing R&D intensity) and estimates for additional social returns to R&D (depreciated over time). Firstly, the costs of achieving additional SBT uptake are estimated and then multiplied by an assumed 5.2% R&D intensity<sup>10</sup> to calculate additional R&D spending. This R&D spending is then multiplied by an estimate of the social returns to R&D (estimated to be 40% based on Frontier (2023)<sup>11</sup>). As such, the initial return from innovation spillovers (IR) is determined by:

$$\text{Initial return} = \text{SBT spend} \times \text{R\&D intensity} \times \text{societal returns to R\&D}$$

Social returns to R&D are assumed to exhibit a 20% annual depreciation rate.

High additionality of the intervention is assumed as a starting point, noting that in the absence of SIRs, developers would not be exposed to the necessary incentive structures to promote shorter and more sustainable supply chains. There is an expectation that SIRs will generate new benefits, but it should also be acknowledged that SIRs would act as a complementary policy tool alongside grant funding programmes such as GIGA and FLOWMIS/OWMIS. On this basis, a conservative downward additionality adjustment of 25% is applied to account for

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<sup>9</sup> IEA (2023), World Energy Outlook 2023.

<sup>10</sup> The UK's manufacturing industry R&D intensity. Frontier (2023), Rate of Return to Investment in R&D.

<sup>11</sup> The UK's manufacturing industry R&D intensity. Frontier (2023), Rate of Return to Investment in R&D.

the potential double counting of benefits that have previously been or will be claimed under such schemes. Additionality is therefore assumed to be 75% in the baseline case.

## Summary of NPSV Analysis

**Table 4: Breakdown of NPSV assessment by component**

		<b>Scenario A</b>	<b>Scenario B</b>
<b>Present Value of Costs (PVC, £m)</b>		<b>(155)</b>	<b>(155)</b>
<i>Of which: SIR criterion 1 (shorter supply chains)</i>		(135)	(130)
<i>Of which: SIR criterion 2 (sustainable means of production)</i>		(20)	(25)
<b>Present Value of Benefits (PVB, £m)</b>		<b>175</b>	<b>255</b>
<i>Of which: SIR criterion 1</i>	<i>Employment (wage premia)</i>	85	90
	<i>Supply chain resilience</i>	60	140
<i>Of which: SIR criterion 2</i>	<i>Carbon abatement</i>	25	30
	<i>Innovation spillovers</i>	<5	<5
<b>Net Present Social Value (PVB-PVC, £m)</b>		<b>20</b>	<b>105</b>

*(Price base year = 2022, PV base year = 2024, discount rate = 3.5%).*

*Figures are rounded to the nearest £5m and so may not sum to the whole.*

Rounding to the nearest £5m to reflect uncertainty, the Net Present Social Value of the intervention is therefore estimated to be between **£20m - £105m**.

Referencing the key differences between Scenarios A and B as described in Table 2 above, a direct inference of the results might be that a combination of narrowing the scope of components eligible for support and funding a larger number of “smaller” projects could increase the overall societal return. To some extent this is intuitive – by supporting a greater number of offshore wind projects, SIRs funding is ‘de-risking’ a greater proportion of the offshore wind pipeline (reflected in greater estimated supply chain resilience benefits), and/or enabling a greater number of supply chain investments.

However, this is associated with material uncertainty and should not be overinterpreted. In practice the modelling is based on Government’s best view of illustrative investments that could be funded through SIRs, estimated based on assumptions derived from industry and commercial expertise. A lack of full information means individual modelled projects may not wholly reflect real world investments that could take place, and the modelled supply chain resilience benefits are estimated as equal for every project supported. In other words, the modelling does not explicitly monetise the potential that providing greater funding to a smaller number of projects may be more likely to de-risk deployment and so could deliver greater benefits than estimated in Scenario A.

## Impact on small and micro businesses

The Government does not anticipate the SIRs scheme to have a negative impact on small and micro businesses (SMBs). In general, OFW and FOW facilities are owned by large multinational corporations. Instead, the impact of the proposed policy on SMBs will likely be indirect, due to their presence, although limited, in the supply chain as Tier 1 manufacturers



and suppliers. As the policy is designed to foster investment into the supply chain, it is a likely outcome that SMBs will be positively impacted by the proposal.

Equally, the Government considers it to be unlikely that the policy will be administratively burdensome for SMBs. The policy will require developers to submit supply chain documentation for their bid into SIRs to be assessed, which will include items such as information gathering on financing needs, benefits of the investment and technical specifications. Whilst this represents additional information for developers to document and submit, it is not expected that this information is substantively outside of the scope of a BAU procurement process and it should be noted that SIRs replaces the information requirements mandated under existing Supply Chain Plans for OFW and FOW. Therefore, additional burden and costs to SMBs is expected to be negligible, especially when weighed against proposed benefits.

### **Business environment**

The Government anticipates that the intervention proposed in this Impact Assessment will encourage investment into the UK by creating a more attractive business environment. The SIRs scheme has been proposed in response to the ongoing cost pressures facing the OFW and FOW supply chain. By utilising competitively allocated subsidies, the proposal aims to foster investment into more sustainable parts of the supply chain by dampening the cost differential between these manufacturers and suppliers, and their distanced and more polluting counterparts.

### **Trade implications**

The Government anticipates a neutral impact on the international and trade implications of the proposal. Overall, the policy is broadly in line with the developing best practice, internationally, on including non-price factors in determining OFW and FOW subsidies. In strengthening the business environment of the UK's OFW and FOW supply chain, this could lead to a competitive advantage, globally, whereby relevant firms appear more attractive to international investors.

### **Environment: Natural capital impact and decarbonisation**

The Government considers the proposal to have a positive impact on decarbonisation of the UK economy. Presently, the OFW and FOW supply chain has a substantial carbon footprint due to the reliance on legacy manufacturing which is more polluting. The SIRs scheme tackles this by incentivising developers of OFW and FOW to invest in more sustainable manufactures and suppliers which would shorten the supply chain and reduce transport miles (note that a reduction in transport mileage has not been captured quantitatively in this assessment but could be considered as part of a wider suite of non-monetisable benefits). This impact is furthered by the SIRs criteria used during competitive allocation whereby bidders will, in part, be assessed on their use of Tier 1 suppliers and manufacturers who have adopted Science-Based Targets (i.e. firm-specific decarbonisation plans).

### **Other wider impacts**

**Consumer bill impacts:** SIRs payments will be made via the Supplier Obligation Levy, and as such will generate impacts on consumer electricity bills. This does not form part of the principal cost-benefit analysis as it represents a transfer between consumers and developers,

but the illustrative magnitude of the impact on annual household bills has been estimated to be **in the region of £1 per year, across an assumed 2 years (giving a total bill impact for AR7 of around £2)**. This estimate is presented on the assumption that an upper limit of £200 million will be available to fund SIR proposals in Allocation Round 7.

### **Non-monetisable benefits:**

The SIRs scheme incentivises developers of OFW and FOW to invest in more sustainable manufacturers and suppliers which would give rise to shortened supply chains. Whilst a reduction in transport mileage has not been quantitatively captured as part of this assessment, it is likely that the switching to more sustainable suppliers based in the UK would lead to a reduction in a renewable project's logistical carbon emissions.

Furthermore, SIRs has the opportunity to strengthen the UK's position as an early mover and key player in the Floating Offshore Wind sector, although it has not been possible to quantify this. The FOW industry, whilst growing at pace, is still in its nascent stages of development. This presents an opportunity for the UK to develop its manufacturing base, provide strong market signals to encourage investment, foster innovation in an infant technology and ultimately develop its competitive advantage in FOW on the global stage. Relatively small increases in FOW deployment in its early stages could generate knock-on compounding effects in the long run. If the UK could become a market leader in this space, there would likely be significant goods and services export opportunities.

### **Equalities assessment**

The proposed intervention is expected to have a small impact on consumer bills, as described above. Whilst those with some protected characteristics are disproportionately represented in lower income brackets, and thus disproportionately affected by increases to consumer bills, the overall impact of the intervention on these protected groups is judged to be small.

### **Risks, assumptions and mitigations**

Noting the high degree of uncertainty associated with the outcome of a competitive auction process, a degree of risk and uncertainty remains. Specifically, there is inherent uncertainty surrounding the composition and value of SIR proposals to be received. This assessment has been produced based on representative scenarios and plausible applicant behaviour, but it is possible that actual proposals submitted by prospective applicants could deviate outside of these profiles. To a large extent, this risk has been mitigated against in the analysis through the modelling of two different scenarios, which aims to take a representative cross-section of possible proposals.