

Promoting and enhancing biodiversity and sustainability in the pursuit of Net Zero

SC C3 – Hayley Tripp

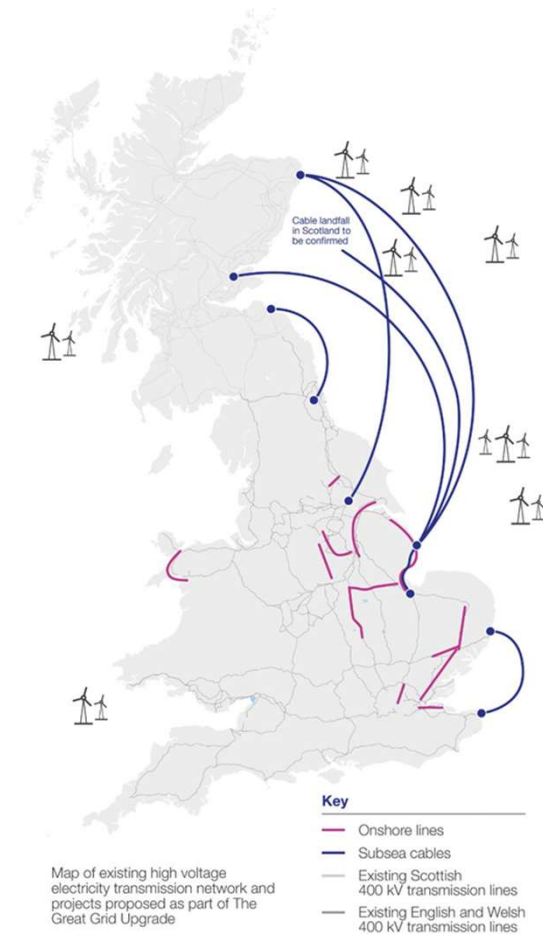


cigre

For power system expertise

Why is C3 important to us?

- Clean power 2030 means we are facing biggest overhaul electricity generation, transmission and distribution in a lifetime
- Scale and pace of change means significant construction will take place in the next decade to meet these Government targets
- Backdrop of new Environmental legislation that requires developers build in a responsible way.
- UK is one of the most nature depleted country in the World with 41% of its species declining since 1970's.



C3- Main Areas of Attention

Sustainability

- Anticipating new trends and challenges in this area.
- It addresses the impacts of emerging technologies like renewables, storage systems, hydrogen, and new materials.
- Climate change mitigation (decarbonization and Net Zero) and adaptation (risks and opportunities).
- New sustainability approaches such as eco-design, eco-efficiency, circularity, and supply chain management are explored.

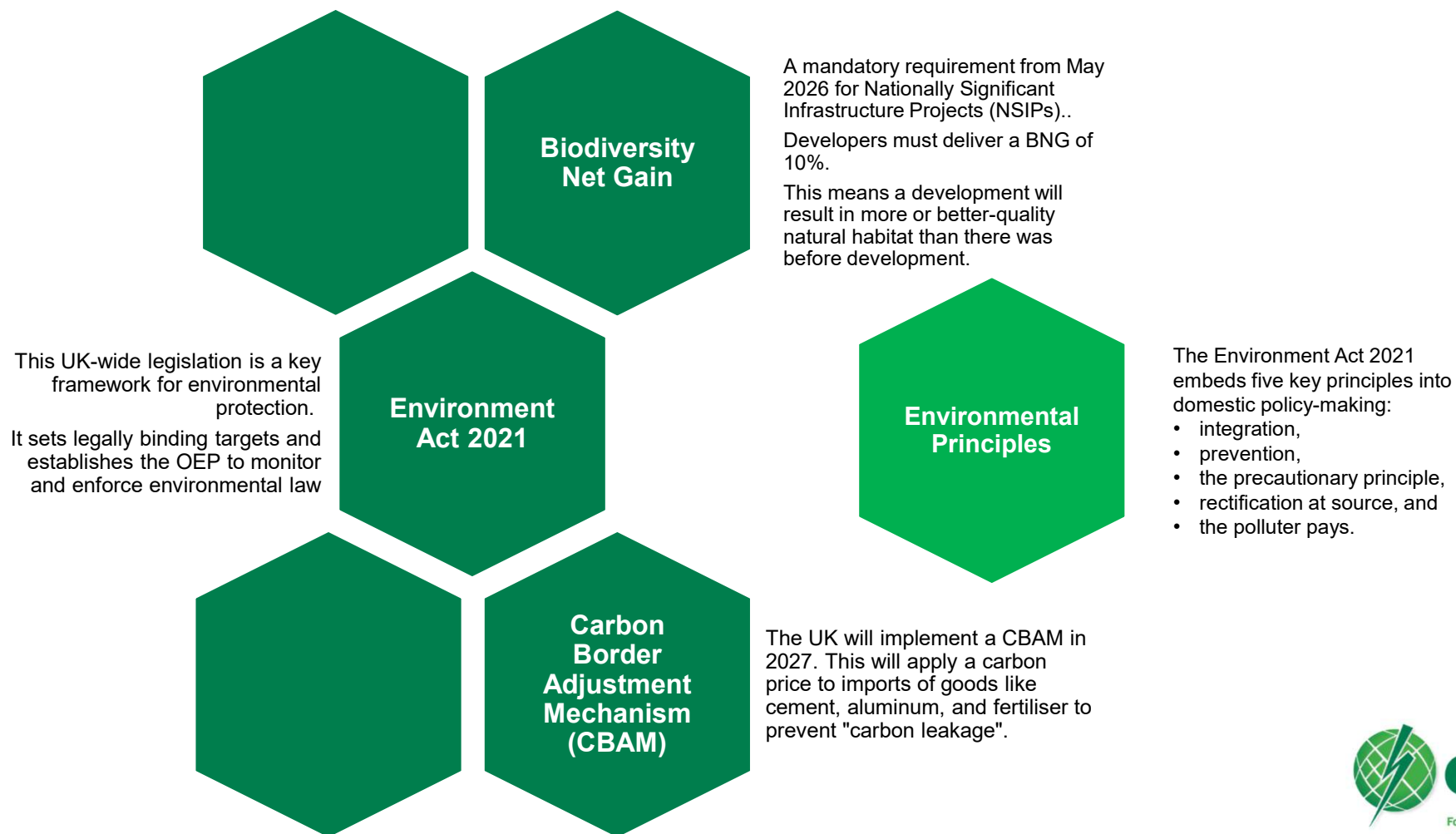
Environmental Impacts with life cycle approach

- From planning to decommissioning assets.
- Involves identifying, assessing, monitoring, and managing impacts, as well as implementing mitigation and offsetting measures.
- Procedures and tools such as life-cycle assessment (LCA), environmental product declarations (EPD), and global benchmarking are used to quantify, control, and mitigate environmental impacts.

Stakeholders' Engagement and Public Acceptance

- This area emphasizes effective communication and cooperation with the public and regulatory authorities to improve public acceptance of power system infrastructure and decision-making processes.
- It includes tools and engagement strategies to facilitate this process.

New Environmental legislation



Biodiversity Net Gain

Requirements are complex, 10% BNG is required

Specifically concerns habitats and impacts calculated using 'biodiversity metric' developed by Defra and NE

A habitat will contain a number of biodiversity units, depending on things like size, quality, location and type.

Net gain can be achieved by onsite, offsite or statutory biodiversity credits

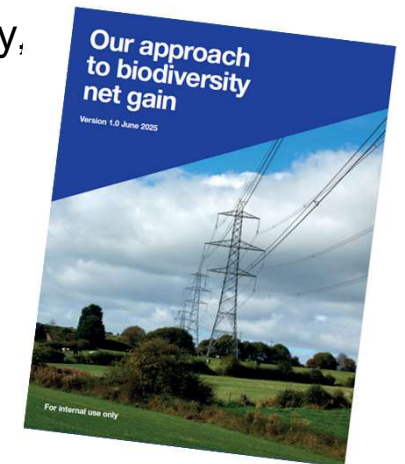
Considerations:

Any areas used for BNG must be managed and maintained for at least 30-years.

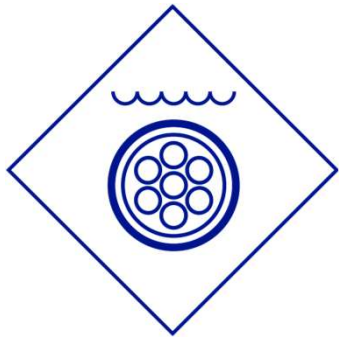
Any on-site BNG should not adversely affect future site expansion needs or customer connections into the site. – may limit extent of onsite BNG

Biodiversity Metric tool evaluates BNG and different weights given to distinct habitats

Habitat avoidance will become more important in optioneering studies, avoiding those with high biodiversity value.

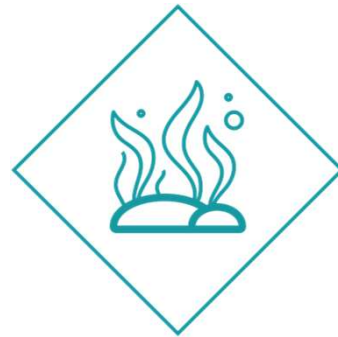


Focus on marine restoration



We are impacting the marine environment by installing 2400+ km of subsea HVDC cables as part of the Great Grid Upgrade.

Our RIIO-T3 plan committed to delivering marine restoration to mitigate these impacts.



We may have legal obligations for marine restoration for future projects or have to deliver Marine Net Gain once legislated.

Voluntary marine restoration builds relationships with environmental NGO delivery partners in advance of future obligations.



Delivering voluntary marine restoration may provide additional weight in the DCO decision-making process for our offshore ASTI projects.



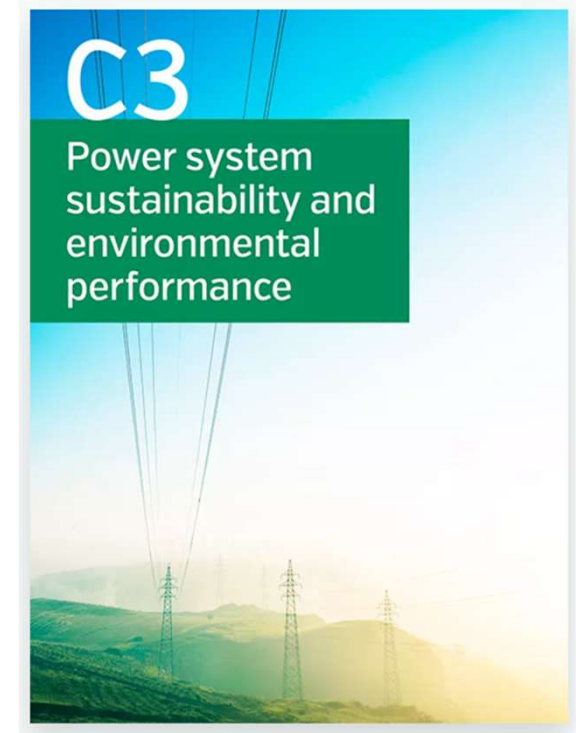
Examples of Marine restoration may include eco-friendly cable protection to enhance flora and fauna and new habitat creation, such as seagrass and saltmarshes

Sustainability– C3 WG

- **WG C3-20 “Sustainable Development Goals in the electric power sector”.**
 - The general aim of the WG is to develop recommendations on how the electric power sector should implement SDGs within their business strategies to reach a maximum contribution to the achievement of these goals. The work is not progressing as fast as expected and, unfortunately, the topic is not as trending anymore. SC3 aim is to publish any result as soon as possible.
- **WG C3.25 “Eco-design methods for the power system”**
 - The purpose of the group is to activate and harmonize the eco-design potential for TSOs/DSOs to reduce environmental impact, given that the implementation of a systemic eco-design approach will be a key success factor to achieve our sustainable goals. The TOR was approved in June 2024, and the first meeting took place during Paris 2024 session. The work is in progress.

Participation in relevant WG leaded by other SCs:

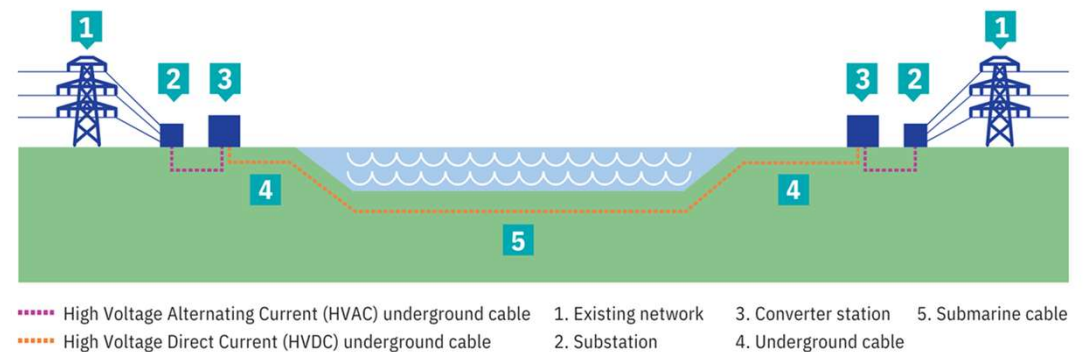
- **JWG B3/A2/A3/C3/D1.66 “Guidelines for Life Cycle Assessment in Substations considering the carbon footprint evaluation”.**
- **JWG A2/C3.70 “Life Cycle Assessment (LCA) of Transformers”**



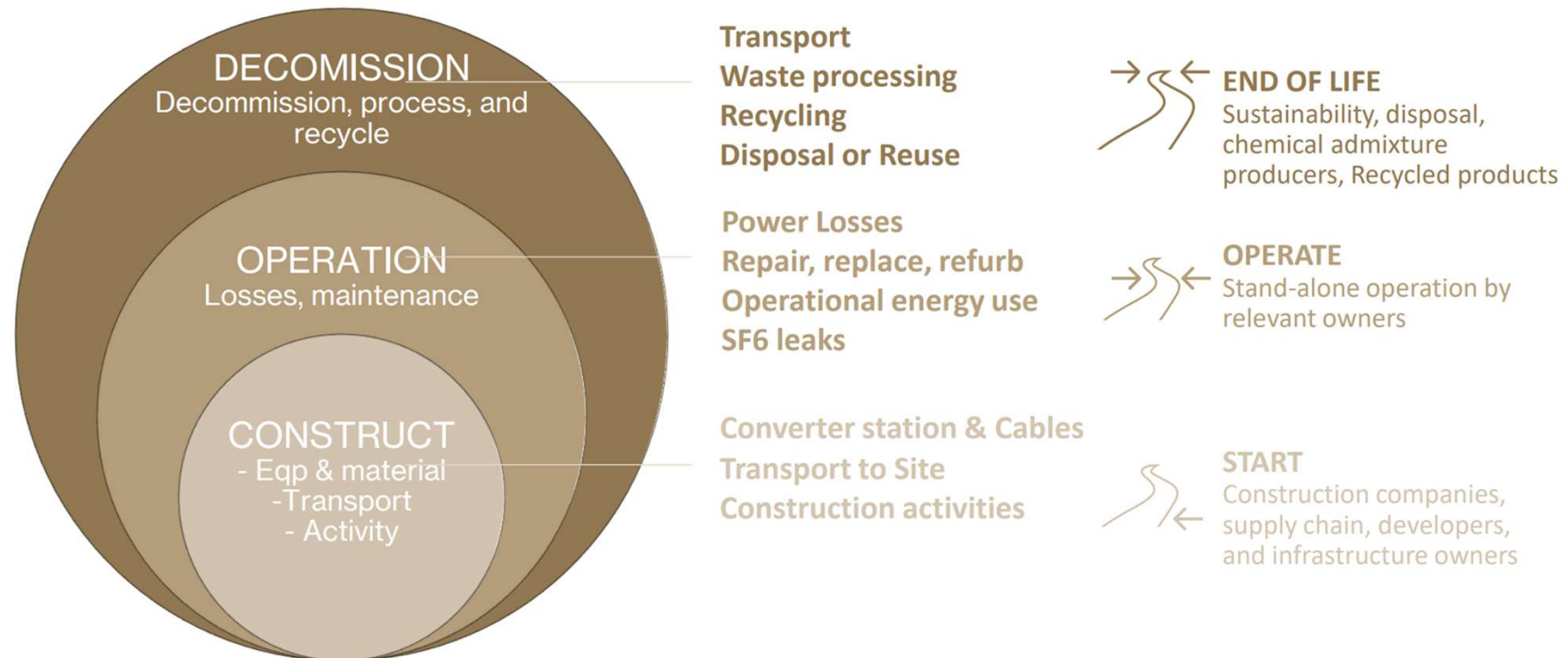
HVDC-Life Cycle Assessment

We did not have a good understanding of the carbon footprint of HVDC projects

A good understanding of each project's carbon footprint will help focus decarbonisation efforts

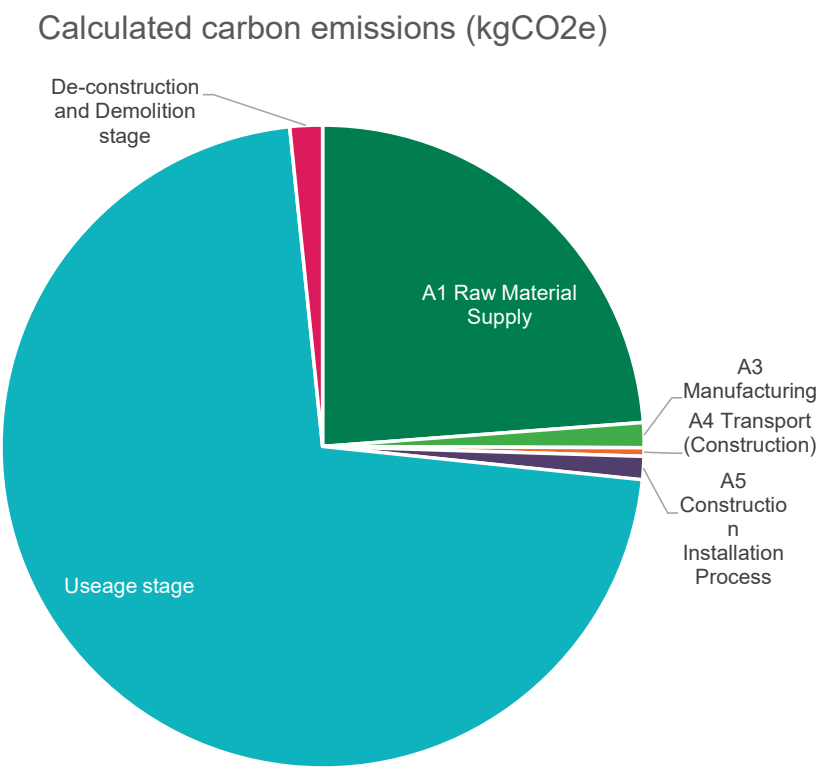


LCA assessment

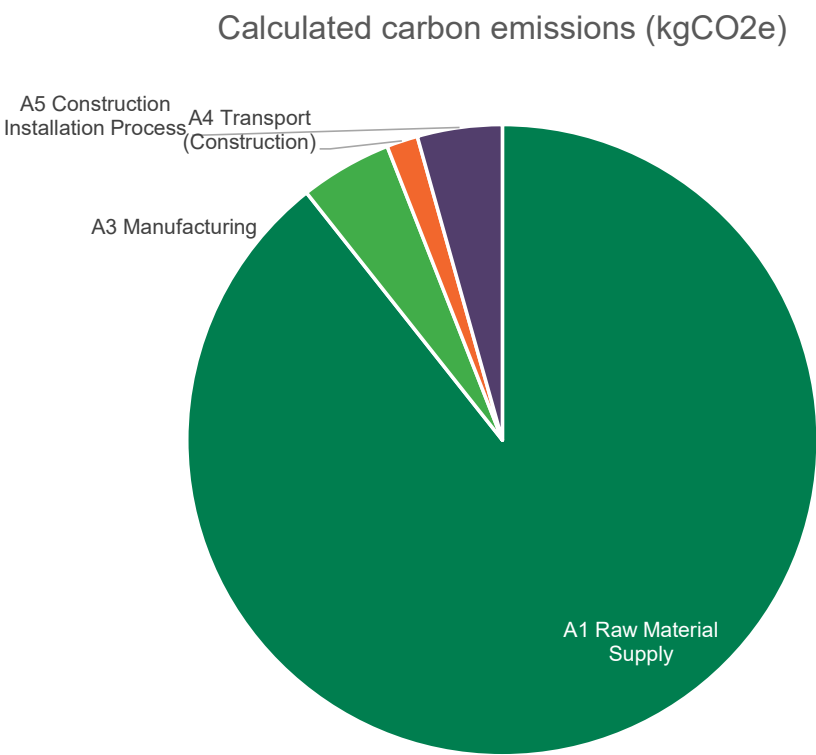


HVDC-LCA

Whole project



Construction stage only



HVDC-LCA



HVDC LCA
**Carbon Reduction Potential of
High Voltage Direct Current
(HVDC) Assets**
National Grid Electricity Transmission

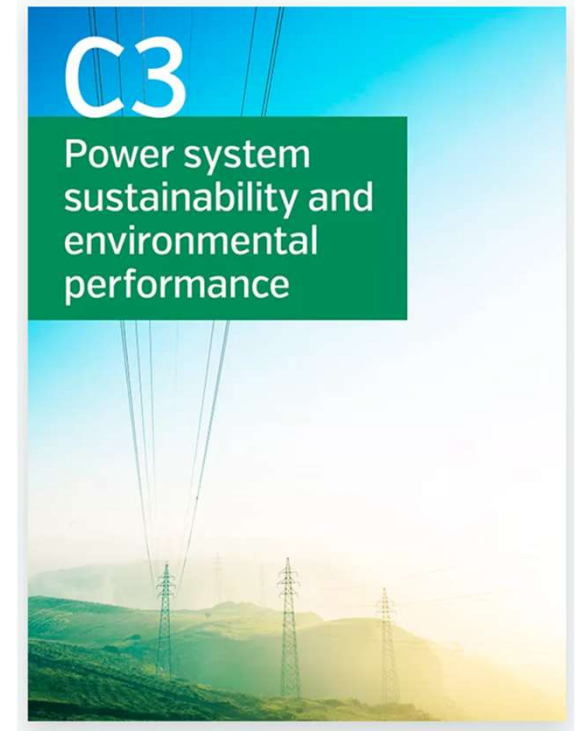
Report no.: 10506053-3, Rev. 1
Date: 2nd December 2024



Carbon Reduction Option	Carbon Emissions Avoided (kgCO2e)	Construction (A1-A5) Emissions Avoided (%)	Total Emissions Avoided (%)
MMC VSC	61,786,453	-	8.2
SF6-free GIS (air insulated)	2,601,597	-0.03	0.35
Replacing diesel with HVO during construction	5,192,190	1.41	0.69
Eco- rock armour	25,794,358	6.99	3.44
Local rock armour	1,033,183	0.28	0.14
30% PFA cement	8,114,400	2.2	1.08
Replacing marine fuel oil with HVO	1,927,978	0.52	0.26
Low carbon copper (cables only)	6,532,753	1.77	0.87
Solar PV	- (195,000)	-	-0.01
Aggregate (reused)	87,774	0.02	0.01

Environmental Impacts – C3 WG

- **C3-09 A: “Sustainably corridor management”**
 - The WG collected information and compared regulation, procedures, methods, and best practices from different countries that apply to relations with landowners and environmental aspects of corridor management
- **WG C3.22 “Vegetation management in substations”.**
 - The main intention of the work is to identify experiences and knowledge regarding the alternatives to the use of herbicides, but the scope also includes the collection of best practices regarding types of surfaces and vegetation control in substations. The work is in progress.
- **JWG B1/C3 85 “Environmental impact of decommissioning of underground and submarine cables”.**
 - It focuses on old and new cables and is investigating the decommissioning strategy (leave it in or dig it up) and impact on environment.
- **JWG C3.B2/24 “Methods of reducing electrocution of birds from power lines”.**



Summary

- Study committee C3 aims are to ensure that biodiversity, sustainability and stakeholder concerns are embedded within the policies and decision-making processes whilst delivering the essential infrastructure required.
- There is a need for sustainability to run through the heart of the challenges faced when delivering electricity infrastructure
- Great to hear areas where Cigre could help UK goals and objectives
- Interested in collaborating and engaging in this area - Technical Liaison committee meeting 20th January 2026

