Cyfoeth Naturiol Cymru
Natural Resources Wales

Carbon Positive Project

NRW becoming an exemplar in carbon management and sharing best practice for use across the Welsh public sector

Demonstration Project Case Study

Project Title: Trialling a carbon planning tool to reduce contractor emissions in flood defence construction projects

Description

Emissions arising from work carried out by contractors for NRW are a significant element of the organisation's greenhouse gas inventory. They are a key challenge to reducing emissions. The Environment Agency have developed a carbon planning tool (ERIC) which they require contractors to complete when building flood defences; capturing contractor energy, transport and material use for construction. The tool allows the sustainability of different designs to be compared and highlights where carbon savings can be made on a project by project basis. We have worked collaboratively to trial the use of the tool within NRW and put in place the governance and procedures needed to support its future roll out to all flood defence construction projects commissioned by NRW.

Method

We have been working with our Projects Delivery and Procurement teams to introduce the use of the Environment Agency's carbon planning tool (ERIC) into NRW for flood defence construction projects.

The tool consists of two components: a carbon modelling tool (CMT) which is a simple spreadsheet providing high-level estimates of the carbon impacts of different asset design options, to inform design selection; and a carbon calculator (CC) which is a detailed bottom-up spreadsheet recording the energy, transport and material carbon impacts of the construction process, used to drive reductions against the selected design.

Several supporting actions needed for full implementation have been delivered or are underway, including:

- training for Projects Delivery managers in the use of the tool enabling them in turn to train contractors,
- training for procurement staff to help understand their role in requiring consultants and contractors to use the tool,
- ensuring procurement documents support the requirement for design consultants and build contractors to use the tool. NRW's civil engineering framework includes a requirement that contractors complete the CC,
- developing a governance structure for the use of the tool, including how we encourage consideration of CMT results in design selection as part of the business case for each scheme,
- determining who is responsible for ensuring effective use of the CC by contractors.

The use of the tool is overseen by project managers within our Projects Delivery team and contractors are required to demonstrate emission savings against the baseline project design in each scheme.

Carbon planning tool being trialled before wider use

Emissions savings of over 40% per flood defence scheme possible

Total project cost: £1350 for staff training to date plus staff time

Long-term low costs per tonne of CO_2e saved

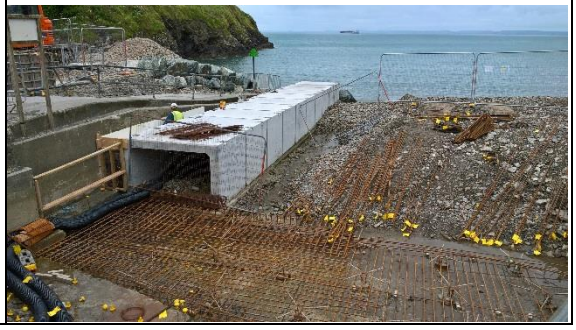
Proven and established tool developed by the Environment Agency

Staff involved

NRW Projects Delivery team

NRW Procurement team

Training and support from EA staff



Outcomes

The Environment Agency and their contractors are achieving over 40% emission reductions against baseline designs using the tool for major flood defence schemes, and it is anticipated that NRW may realise similar savings as the tool is increasingly used. The CC element of the tool has been trialled on a scheme in St Asaph, indicating steel and concrete as the major sources of embodied carbon, and focal points for emission reduction efforts as construction progresses. The use of the tool is now being written into project scope documents for new reservoir and flood defence projects, for use at both the design and build stages.

Beyond the current trial of the tool our ambition is to require its use on all flood defence construction work contracted by NRW through our Projects Delivery team. In the long term, we also aim to trial the tool in our forestry engineering framework where appropriate, and the simplified version of the tool in our asset maintenance framework for engineering related maintenance work. It may also be possible to expand the use of the tool to other contracts requiring the use of materials, or to develop a similar tool for use on other contract types.

Wider Benefits

- This type of tool could be replicated to influence emissions within other areas of NRW contractor spend, transferring learning from its implementation.
- Requiring contractors to complete the tool for NRW work may also encourage more sustainable practices in the work they carry out for others.
- Working to introduce the tool to NRW has fostered collaborative working between teams internally.
- Measures taken to reduce emissions may also provide cost savings and air quality benefits.

Learning

- Introducing this type of tool is a long-term process. We have accelerated its introduction by trialling its use on some projects on the ground, whilst simultaneously working to put in place governance structures and procedures needed for its wider use.
- The data needed to complete the tool is typically already collected by contractors in a different format, meaning that including this requirement in procurement documents should not prove too challenging for contractors.
- For carbon to be a decision-making factor alongside cost in design selection at the planning stage, organisational buy-in and commitment is needed to allow consideration of carbon impacts as part of the business case.
- Introducing this type of tool requires collaboration between teams and buy in from senior procurement and project management staff.
- The learning from the introduction of this tool should be transferable to other supply chain emissions management measures.

Evidence & information

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/571707/LIT_7067.pdf
http://www.circularecology.com/carbon-footprint-calculators-for-construction.html#.WowTCE1LGUk