Electricity Distribution

Approach for Long-Term Planning Accounting for Carbon Assessment (ALPACA)

Dissemination webinar

March 23, 2023

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Agenda

1 Project background

2 Whole Life Carbon Management Process

3 Carbon database and capital delivery

4 Whole Life Carbon measuring tool

5 Follow on work and wider industry perspective

6 Q&A

ALPACA – Project Information

ALPACA aim was to develop a framework and supporting tools to allow DNOs to:

- Establish a better understanding of carbon impact of our capital schemes
- Identify opportunities to reduce carbon footprint of capital delivery
- Develop carbon database(s) to allow robust carbon reporting

Delivery timeframe: January 2022 – March 2023

Funding mechanism: Network Innovation Allowance

Total budget: £240,473

In partnership with: AECOM SP ENERGY NETWORKS

Project Structure

Task 1: Literature Review

Desk-based review of external requirements for carbon reporting and best practice (e.g. PAS2080).

Task 2: Stakeholder Engagement

Discussions with key NEGD teams and industry stakeholders to understand project design process and requirements for a reporting tool.

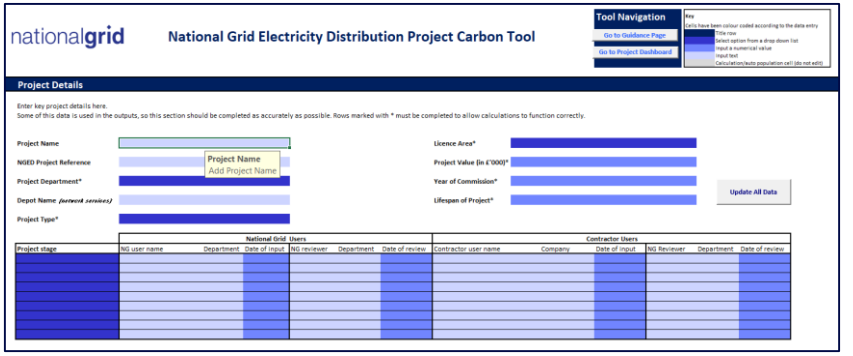
Task 3: WLCM Guidance

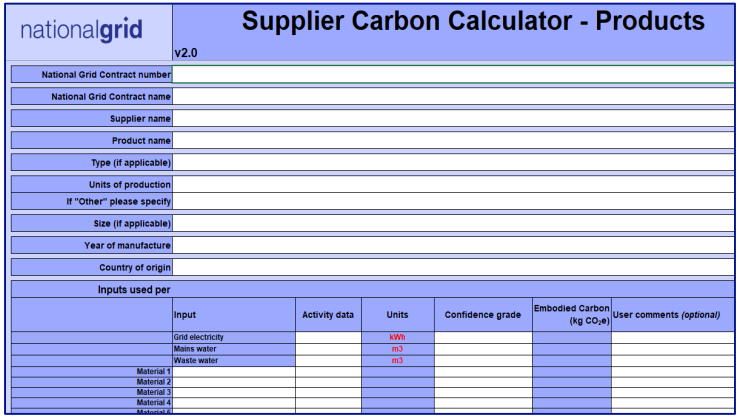
Whole life carbon methodology to be incorporated into the reporting tool and NGED project processes.

Task 4: Tool Development

Excel based tool, providing project level outputs at baseline, detailed design and as built project phases. PowerBi dashboard for collective project reporting.

ALPACA - Deliverables

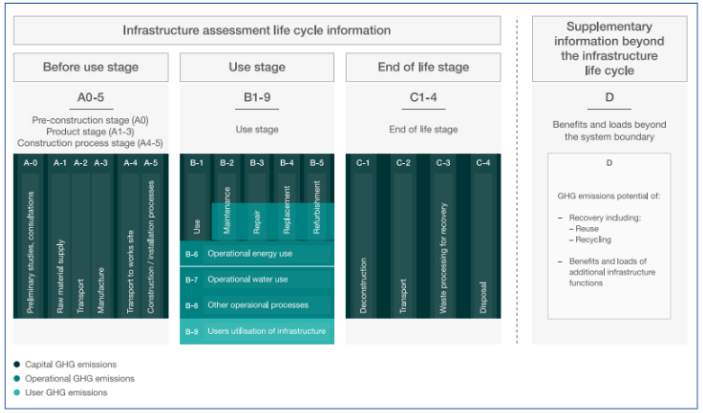


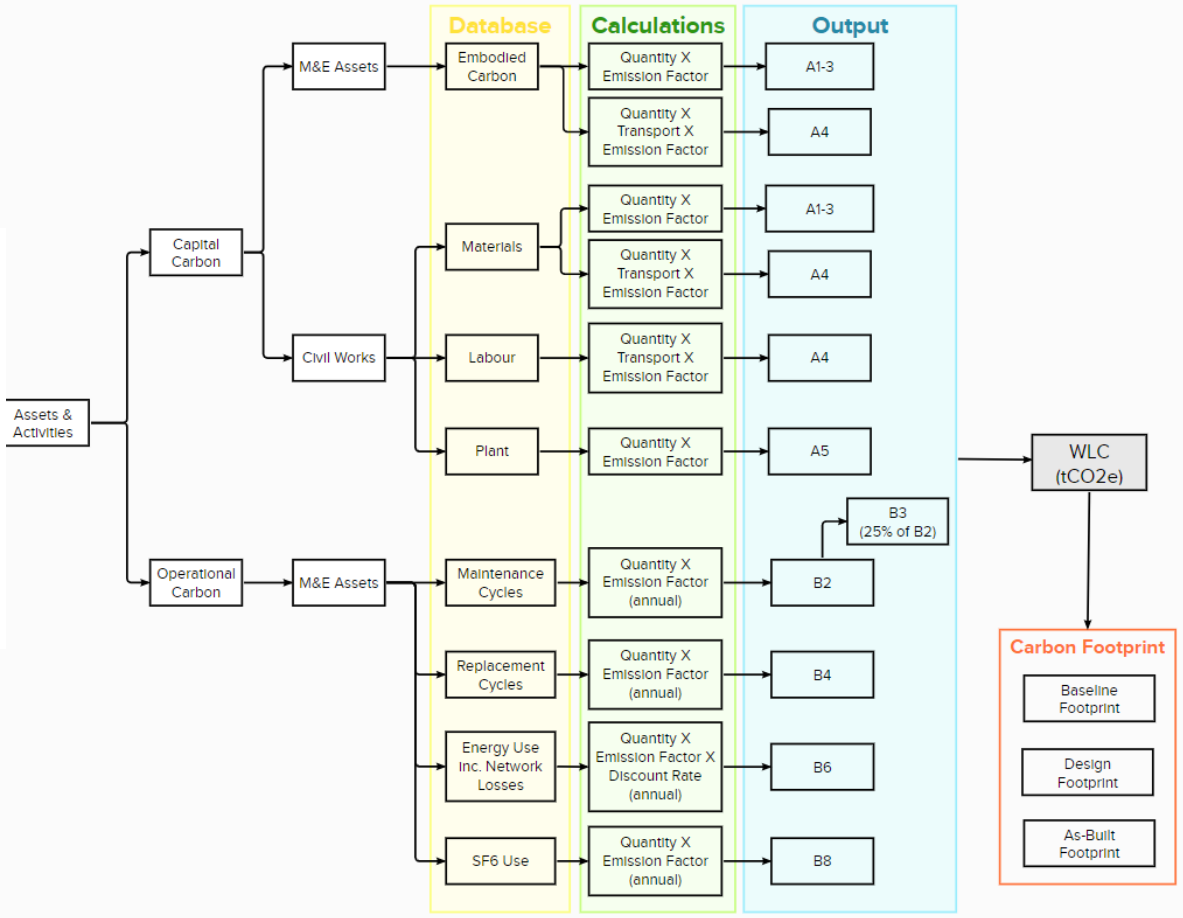


Available at the project webpage:

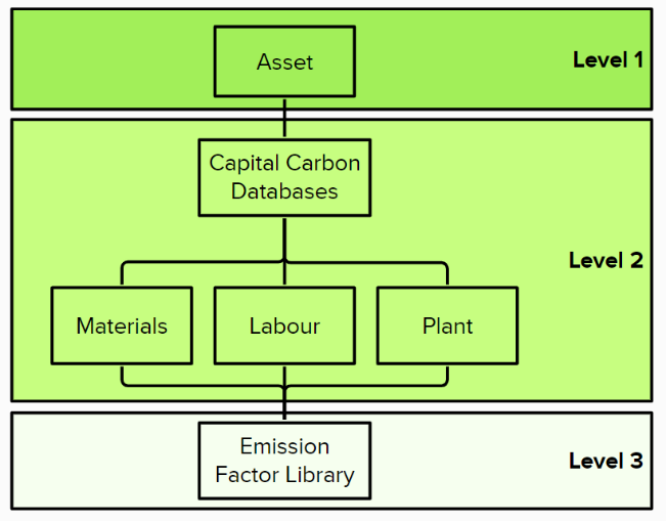
[National Grid - Approach for Long-term Planning accounting for Carbon Assessment (ALPACA)]

Whole Life Carbon Management Process





Developing the database – capital delivery



Material

- **Activity Data –** type of product/material, weight
- **Emission factors** - Environmental Product Declarations (EPDs), Inventory of Carbon and Energy (ICE) database v3.0, Government conversion factors

Labour

- **Activity Data –** number of trips to site, mode of transport, distance
- **Emission factors** - Government conversion factors for company reporting of greenhouse gas emissions

Plant

- **Activity Data –** fuel quantity
- **Emission factors** - Government conversion factors for company reporting of greenhouse gas emissions

Developing the database – through-life activity

Electricity Consumption and Network Loss

- Annual kWh consumption / loss converted to kgCO2e using the UK Government grid projection factors

SF6 Loss

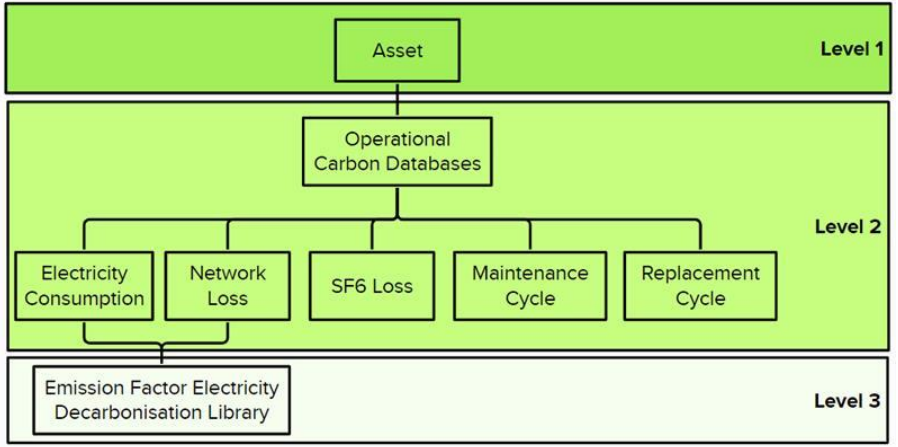
- Kg SF6 lost per year multiplied by GWP

Maintenance Cycle

- Frequency of maintenance schedules
- kgCO2e estimated based on % of capital delivery - routine (0.1%), minor (1%), major (5%)

Replacement Cycle

- kgCO2e estimated based on capital delivery for the asset being replaced

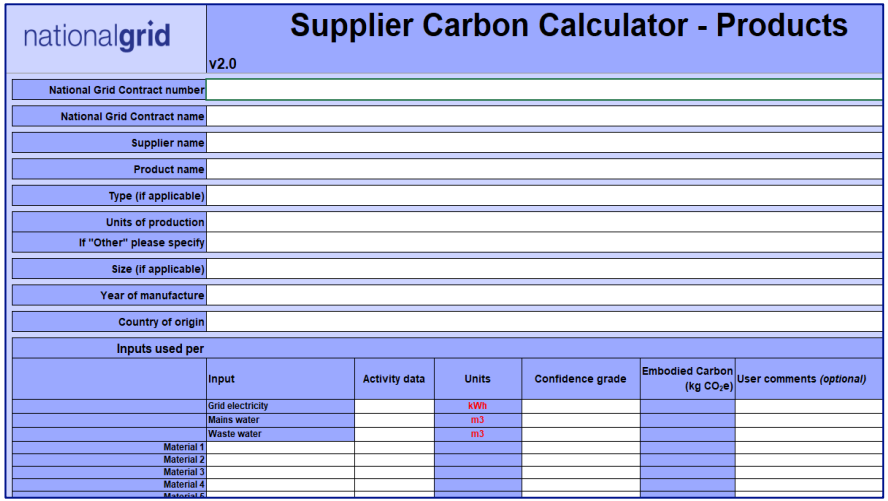


Sustainable Procurement

Supplier Carbon Calculator - a basic tool to allow suppliers to calculate carbon footprint of their product/service and provide figure to NGED.

-> Improve data quality overtime

-> Accurate reporting



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Supplier Carbon Calculator - Products

v2.0

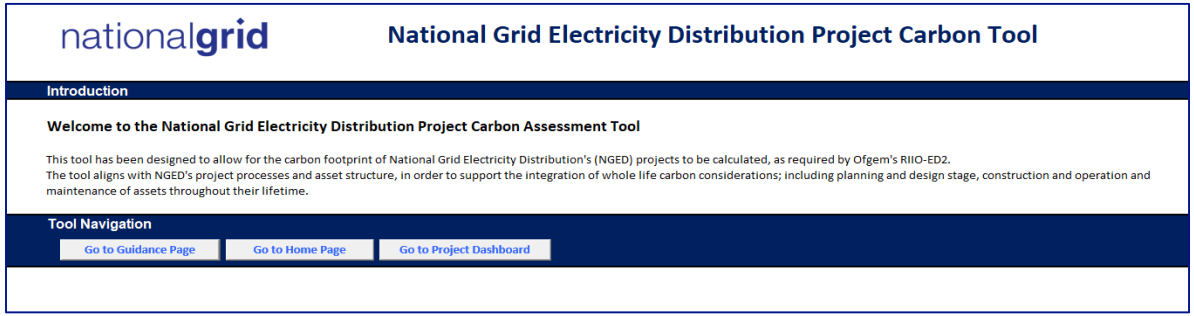
National Grid Contract number	
National Grid Contract name	
Supplier name	
Product name	
Type (if applicable)	
Units of production	
If "Other" please specify	
Size (if applicable)	
Year of manufacture	
Country of origin	

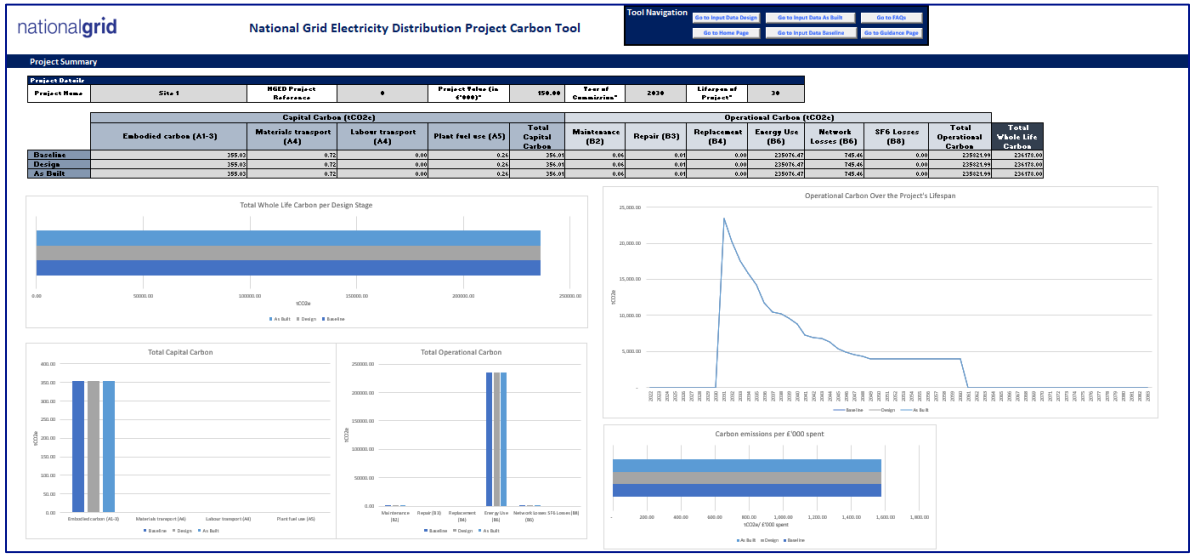
Inputs used per

	Input	Activity data	Units	Confidence grade	Embodied Carbon (kg CO_2e)	User comments *(optional)*
	Grid electricity		kWh			
	Mains water		m3			
	Waste water		m3			
Material 1						
Material 2						
Material 3						
Material 4						

Carbon Impact Questionnaire – a series of questions to assess the current and future ability of our suppliers actively support us on our journey to net zero

Whole Life Carbon Measuring Tool





Tool Features

- Offline and Excel based for ease of access and usability
- Marco-enabled for sleek design and function
- 3 data input tabs for each design stage (baseline, design, as built)
- Reporting dashboard
- Bespoke carbon datasets aligned with NGED asset management system

Follow on and implementation

ALPACA tool will be used to

Help NGED identify most relevant Scope 3 emissions and work internally and with our supplies on carbon reduction

Establish a better understanding of a whole life carbon impact for our capital delivery

Ongoing improvement of Scope 3 data quality and coverage

Assist with Annual Carbon Reporting

- Further testing of the ALPACA tool will be performed over 2023 before full integration with NGED internal systems
- Ongoing work through ENA to align carbon reporting across the industry

Wider Industry View – Whole Life Carbon Management

Drivers

- Annual Environmental Reporting (embodied carbon)
- Science Based Targets and Net Zero Ambitions
- Effective Carbon Management
- Net Zero infrastructure paradox

Challenges

- Lack of carbon data – particularly electrical industry specific
- The ‘coastline paradox’
- Align approach
- Setting the right scope
- Consistent methodology
- Drive meaningful change

Approach

- Agree common ‘baseline’ carbon factors *(ALPACA)*
- Apply to existing infrastructure development data *(RRP)*
- Common approach - information from supply chain *(BEAMA Collaboration)*
- Collaborate & improve through RIIO-2 *(ENA Carbon WG & ROCCIT)*

Q&A

Thank you!

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