

# Calculator: Embodied and Operational Carbon Modeller

<http://www.anglianwater.co.uk/>

## Summary

The Anglian Water carbon modeller is an optioneering tool that allows the user to calculate the embodied and operational carbon impact of a design for an infrastructure asset. The embodied carbon emissions of around 1300 water and wastewater treatment and distribution assets have been modelled and are included within the tool. The models are listed under a SAP hierarchy, and allows the user to include a range of designs and identify the lowest carbon solution.

## Developers: Anglian Water

Applicable sectors							Themes		
All Infrastructure	Buildings	Roads	Water	Energy	Transport	Construction	Materials	Ecology	Wastewater
							Potable Water	Carbon/GHG	Other
<b>Countries</b>	United Kingdom					<b>Access</b>	Presently for use by Anglian Water employees and framework partners.		
<b>Compatibility with other tools</b>	Standalone on-line tool					<b>Guidance for Users</b>	The tool includes an inbuilt help facility and regular training sessions are provided for users.		
<b>Inputs &amp; Outputs</b>	<p>The tool is primarily for use in the water and wastewater sector, identifying carbon impacts of constructing new infrastructure assets, such as water mains, pumping stations, reservoirs, treatment works, etc. Approximately 1300 models are included for a range of assets commonly used.</p> <p>In following a SAP hierarchy, an engineer selects an asset used in their design such as a centrifugal pump and enters two variables, the size of the asset and the number to be installed. Different designs can then be compared and updated using different assets, materials, sizes/volumes, etc., to identify the solution with the lowest carbon impact. An output template records the embodied and operational carbon impact of each design.</p>					<b>Methodology</b>	<p>Following regulator requirements for the 2010-2015 business plan, Anglian Water developed an embodied and operational carbon value for each scheme planned for delivery. The company developed two goals, firstly to halve embodied carbon in assets built in 2015 from a 2010 baseline and secondly reduce operational carbon by 10% in real terms in 2015 from a 2010 baseline.</p> <p>The values and carbon models used for each scheme in the business plan formed the baseline to measure performance against. Embodied and operational carbon are measured and robustly challenged on three separate occasions prior to construction activity starting to ensure the lowest carbon solution is delivered.</p>		
<b>Database library</b>	Each model within the tool is built up with greenhouse gas data covering abstraction, transport and fabrication of materials into products ready for use, transport of materials and products to site and on-site activity, including excavation and re-instatement works and commissioning.					<b>Data intensity &amp; flexibility</b>	<p>Data flexibility is low in using models, with users unable to adjust or modify models. However, for innovative solutions where models are unavailable, then manual solutions can be included in the tool where secondary verification has been approved.</p> <p>Data intensity is low in using the models, the user needs to be able to pick the relevant model and material type and include size and number.</p>		