SIEMENS

Investment Information

NetworkRail

What's happening?

Best Practice on *TLP KO2*

ASSESSING EMBODIED CARBON OF SIGNALLING EQUIPMENT

Overview:

Siemens Rail Automation recently completed a pilot 'cradle to gate' embodied carbon assessment using two case study signalling products: a relay and an ATP controller. These were chosen as they are relatively typical signalling products, but also representative in that they have multiple sub-components and a complex supply chain.

The carbon footprinting exercise initially involved:

- breaking down each of the products into their numerous individual component parts
- determining the weight of each component
- assessing exactly what material type each component is comprised of

Using the Atkins Carbon Critical Knowledgebase each individual component was then:

- modelled against industry carbon emission factors so as to calculate that components $CO_2(e)$ emissions
- totalled for each product to provide that products overall embodied carbon emissions (factor)

The results are summarised in the table below – and for comparison purposes, the indicative carbon performance of other selected railway equipment is also provided. Data gained from this exercise will be used to inform future carbon footprinting work and where carbon reduction initiatives are best focused - in a signalling context.

Benefits:

- Providing (previously unknown) embodied carbon data for signalling equipment
- Better informs focus for future work

Challenges:

- Assumptions inherent in carbon modelling are exacerbated by lack of data specific to signalling equipment
- Initial collation of data very time consuming
- Calculating carbon footprint of a complete signalling system would be very time consuming (this pilot covered 2 products – the TLP signalling BoM includes several hundred)

Meeting our Objectives & Targets:

- This initiative is aligned with TLP Sustainability Strategy *Objective 15* 'to minimise the levels of carbon generated over the whole life of TLP' and associated *TLP Delivering Carbon Emissions Reduction Policy.*
- We have also shared learnings from this exercise with the lead for the Network Rail working group currently tasked with identifying an industry wide carbon footprinting tool.

Embodied Carbon Pilot - Results

Item	tCO2(e)
Calculated	
QN1 style relay	0.004
ATP Controller	0.119
Provided for Comparison	
1m length of steel (BH95R) rail	0.131
Concrete (NFT1501) sleeper	0.079
203UC overhead line electrification mast	1.406