

asPECT

Asphalt Pavement Embodied Carbon Tool Updated and Available Now!

The Project

asPECT has been developed under the 2008-11 Collaborative Research Programme. Collaborative research is a joint initiative funded by the Highways Agency, Minerals Products Association, Refined Bitumen Association and delivered by TRL. Recognising the importance of sustainability issues for industry as a whole, the project team and steering group set out to create a 'sustainability management system' for the highways sector. Initial scoping prioritised greenhouse gas (GHG) emissions measurement as the key sustainability issue. The focus of the project was to create a standardised method of measuring the contribution to climate change highway products and applications make, gaining endorsement from across the industry. The tool identifies processes that have a high carbon impact and enable the industry to target these areas to effect reductions. Outputs of the project include a protocol with accompanying guidance notes and an embodied carbon calculator.



The protocol for the calculation of life cycle greenhouse gases generate by asphalt as used in highways

The protocol stipulates the methodologies to be applied for the calculation of greenhouse gas emissions from production and application of asphalt mixtures per tonne. The calculations are specific to individual mix formulations from individual production units and incorporate all constituent materials. GHG contributions as carbon dioxide equivalents (CO₂e) are accounted for whether they are directly generated by the operator or indirectly by sub-contractors or suppliers. The protocol follows BSI PAS 2050:2008 and defines a ten step lifecycle for a road, as shown below. The whole lifecycle is now covered by the protocol. The calculator currently covers Steps 1-7 and Steps 8, 9 & 10 will be in place by spring 2011.



Life-cycle stage	
1	Raw Material Acquisition
2	Raw Material Transport
3	Raw Material Processing
4	Processed Material Transport
5	Road Component Production
6	Material Transport to Site
7	Site Preparation, Laying and Compacting
8	Scheme Specific Works
9	Maintenance
10	End of Life





The Calculator

Part of asPECT is a software calculator which allows users to conduct simple and transparent calculations in accordance with the protocol. It provides a straightforward way to calculate the CO₂e emissions resulting from the production of constituent materials, production of asphalt and laying and compacting at a road construction site, including all the transport and intermediate steps.

Functions available in the completed tool include:

- Add / Edit Materials
- Add/ Edit Novel Fuels
- Create Asphalt Plants
 - Incorporate information on
 - Transport of Materials to the Plant
 - Processing Energy
 - Heating Energy
 - Mixtures available at the Plant
- Create Road Construction Projects
 - Select Mixtures
 - Select individual Materials
 - Modes of Transport
- View Results
 - GHG emissions breakdowns for:
 - Each life cycle stage
 - Per tonne of material
- Export Results
 - Export reports as PDF documents
- Account for Future Recyclability



Figure 1 – The Welcome page of asPECT

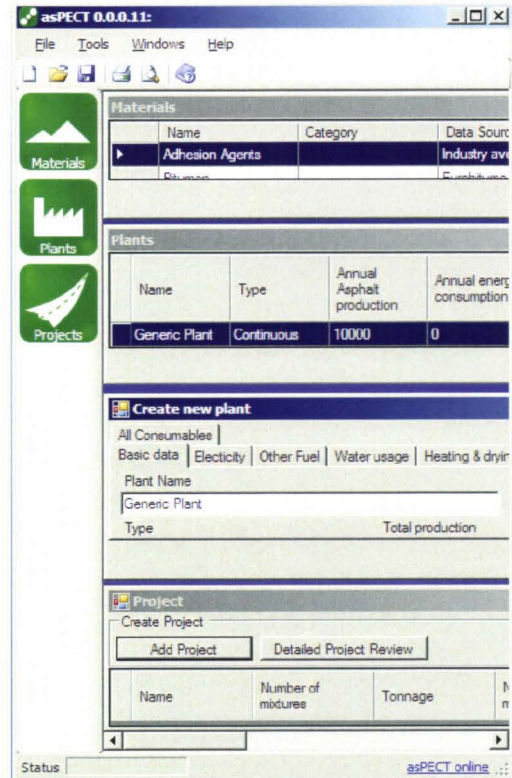


Figure 2 – The new look asPECT software

The new tool is a standalone program unlike the previous Microsoft Excel™ based version. The user is guided through the available functions to enter data and select options to produce detailed results for each stage of the road lifecycle.

All the asPECT documents and software are freely available as downloads from the project website. Visit:

www.sustainabilityofhighways.org.uk

Support of the tool is in the form of a detailed user guide, website FAQs section and dedicated support email address.

Further Information

Matthew Wayman
Senior Consultant

Phone 01344 770472

Email sms@trl.co.uk

Website www.sustainabilityofhighways.org.uk