Runcorn Energy from Waste

Transport Carbon Assessment

Addendum - July 2011

On behalf of INEOS Chlor






RPS

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1 Addendum to transport carbon assessment

Introduction

1.1 The transport carbon assessment of December 2010 provided an assessment of greenhouse gas (GHG) emissions associated with the transport by road of up to an additional 395,000 tonnes per annum (tpa) of refuse-derived fuel (RDF) to supply the Runcorn Energy from Waste (EfW) facility at Runcorn, Halton. The assessment supports the application to vary planning condition 57 which limits waste deliveries by road to the facility at 85,000 tpa.

1.2 This document provides an addendum to the previous December 2010 assessment and seeks to establish the GHG emissions associated with further combinations of sources for the 395,000 tpa RDF. Good availability of commercial and industrial (C&I) RDF within the north-west region has been identified, and this addendum updates the transport carbon assessment to include scenarios in which C&I RDF is sourced from Merseyside, Warrington and Greater Manchester.

1.3 This addendum follows the methodological approach of the existing transport carbon assessment, including use of the same GHG emissions factors (fuel/electricity consumption-based conversion metrics) in order to retain consistency with existing calculations. It should therefore be read alongside the transport carbon assessment report, in which the methodology is detailed.

1.4 For consistency with the main assessment report, the same emissions factors have been used for this addendum. These are taken from Defra/DECC's 2010 GHG Conversion Factors for Company Reporting[1]. Adoption of the updated 2011 emissions factors would change the calculated results by less than 1% and thus would not be considered significant to this addendum.

Further scenarios

1.5 Three main potential sources of C&I RDF within the region have been identified: Merseyside, Warrington and Greater Manchester. C&I RDF from these areas would be in addition to any municipal solid waste (MSW) RDF sourced from them (e.g. the 285,000 tpa from the GMWDA by rail, not proposed for change). In addition, there is potential for delivery of 100,000 tpa RDF from the North Wales region. This addendum therefore considers two scenarios:

[1] Defra/DECC (2010): 2010 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Version 1.1

- **Scenario 1**, in which 100,000 tpa is delivered from North Wales and 295,000 tpa is delivered from within the north west region; and
- **Scenario 2**, in which the full 395,000 tpa is delivered from sources within the north west region.

1.6 In each scenario, delivery of the RDF by road or by rail is assessed. As detailed in the methodology of the main assessment report, this includes where appropriate road delivery to the railheads and logistical operations (container loading/unloading).

1.7 In the case of Merseyside and Manchester, it is assumed that the waste bulking/aggregation point (waste transfer station – WTS) is co-located with the most suitable railhead. The railheads assumed are Garston for Merseyside, and Longley Lane for Manchester. For Warrington, it is assumed that the WTS is at the eastern edge of the town but that the nearest suitable railhead would be at Widnes 3MG. For North Wales, the WTS is assumed to be in Mold and the nearest potentially suitable railhead would be at Shotton, consistent with this scenario in the previous assessment. The waste sources, aggregation points, railhead and transport distances are shown in Tables 1.1 and 1.2, overleaf.

1.8 There is no direct rail freight route access south from Garston or Widnes into Folly Lane in Runcorn. Routing from these railheads is therefore assumed to be south through Runcorn to Crewe, at which point the traction unit can be moved to the northern head of the train to proceed north to Folly Lane in Runcorn. This necessitates a lengthy rail route relative to the straight-line distance between source and destination, and is a key reason for the high GHG emissions associated with the rail delivery options.

Results

1.9 Tables 1.1 and 1.2 overleaf present the results of the GHG assessment for the further scenarios considered. Rail transport and road transport by bulk HGV from each of the locations has been assessed, and the difference in emissions between the rail and road options has been calculated.

1.10 As discussed in greater detail in the main transport carbon assessment report, due to the particular conditions pertaining to RDF freight trains, it is considered that the 'high' rail emissions factor is likely to best reflect reality. Therefore the 'high' end of the results range presented in Tables 1.1 and 1.2, in which road delivery will achieve GHG emissions reductions compared to rail delivery, is judged the most likely.

1.11 **Depending on scenario, the saving in total GHG emissions that could be achieved by road delivery over rail delivery of the 395,000 tpa RDF is 418 to 515 tCO_2e/annum**. This is due to the much greater distance the RDF must be transported from the available railheads, and to additional emissions associated with road delivery from aggregation point to railhead and container handling operations required for intermodal transport.

Table 1.1 - Scenario 1 - GHG emissions associated with rail or road delivery of 395,000 tpa RDF to Runcorn

Scenario 1

RDF source	RDF quantity (tonnes)	RDF consolidation point	Railhead	Rail transport				Road transport		Difference	
				Road km*	Rail km*	tCO_2e emissions		Road km*	tCO_2e emissions	tCO_2e saving from road transport	
						*High***	*Low*			*High*	*Low*
North Wales	100,000	Mold	Shotton	11	38	316	250	40	386	**71**	137
Manchester	118,000	Longley Lane	Longley Lane	0	53	331	222	39	445	**113**	222
Merseyside	132,750	Garston	Garston	0	91	620	409	16	205	**-415**	-204
Warrington	44,250	Warrington	Widnes	25	81	294	232	25	107	**-187**	-125
Total	395,000					1,561	1,113		1,143	**-418**	30

Table 1.2 - Scenario 2 - GHG emissions associated with rail or road delivery of 395,000 tpa RDF to Runcorn

Scenario 2

RDF source	RDF quantity (tonnes)	RDF consolidation point	Railhead	Rail transport				Road transport		Difference	
				Road km*	Rail km*	tCO_2e emissions		Road km*	tCO_2e emissions	tCO_2e saving from road transport	
						*High***	*Low*			*High*	*Low*
North Wales	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**	N/A
Manchester	188,000	Longley Lane	Longley Lane	0	53	528	354	39	708	**181**	354
Merseyside	162,750	Garston	Garston	0	91	760	502	16	252	**-508**	-250
Warrington	44,250	Warrington	Widnes	25	81	294	232	25	107	**-187**	-125
Total	395,000					1,582	1,088		1,067	**-515**	-21

*Distances shown are for one-way journeys. Return journeys / empty running are included where appropriate within calculations.

**'*High*' and '*Low*' refer to the rail emissions factor. See transport carbon assessment report for details

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