



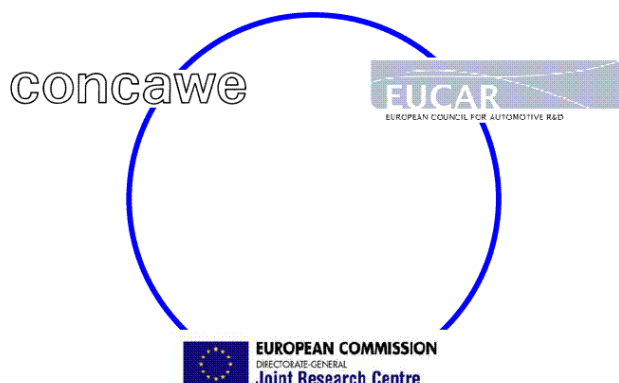
Well-to-wheels Analysis of Future Automotive Fuels and Powertrains in the European Context

WTW APPENDIX 1 Summary of WTW Energy and GHG balances

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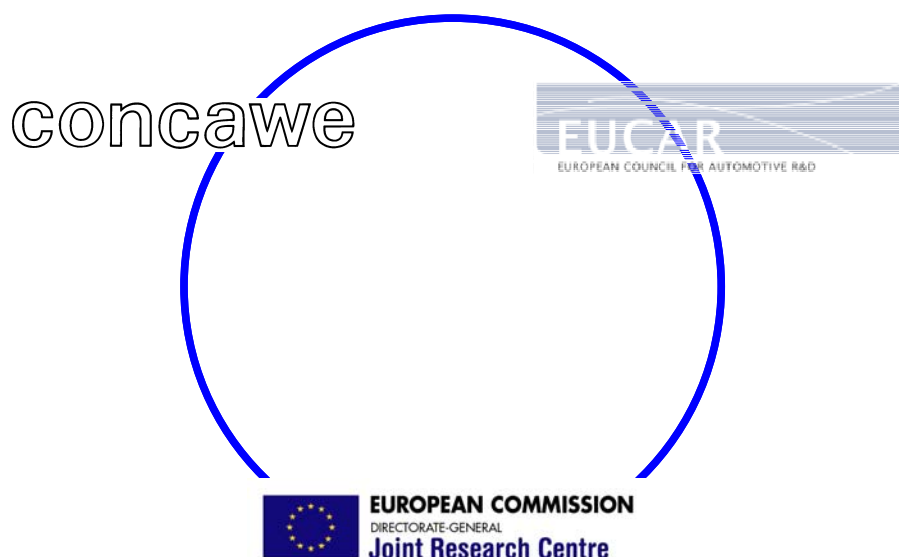
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WELL-TO-WHEELS ANALYSIS OF FUTURE AUTOMOTIVE FUELS AND POWERTRAINS IN THE EUROPEAN CONTEXT



WELL-to-WHEELS Report - Appendix 1

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Notes on version number:

This document reports on the third release of this study replacing version 2c published in March 2007. The original version 1b was published in December 2003.

This is a partial revision of version 2c in that it does not include an update of section 8 on cost and availability.

Summary of WTW Energy and GHG balances

This appendix gives, for each WTW pathway, i.e. a combination of a fuel production route and a powertrain, the energy and GHG figures including uncertainty ranges for WTT, TTW and WTW.

Pathways or data new to this version 3 or modified from version 2c are highlighted in yellow.

Note that fossil energy is only indicated where lower than total energy (i.e. for partly renewable pathways).

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1 Crude oil based fuels

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | | | | |
|-----------------------------|--|-------------------------------|-----|-----|-------------------------------|-----|-----|----------------|-----|-----|------------------------------|-----|-----|------------------------------|-----|-----|------|-----|-----|------|-----|-----|-----|----|----|
| | | Total | | | | | | | | | Fossil | | | | | | | | | | | | | | |
| | | TTW (MJ _f /100 km) | | | WTT (MJ _f /100 km) | | | WTW (MJ/100km) | | | TTW (MJ _f /100km) | | | TTW | | | WTT | | | WTW | | | | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | | | |
| Conventional fuels pathways | | | | | | | | | | | | | | | | | | | | | | | | | |
| COG1 | Conventional gasoline | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 224 | 0 | 0 | 39 | 6 | 7 | 263 | 6 | 7 | | | | | | 168 | 0 | 0 | 32 | 4 | 5 | 200 | 4 | 5 | |
| | DISI 2002 | 209 | 8 | 8 | 36 | 5 | 6 | 245 | 11 | 11 | | | | | | 157 | 6 | 6 | 30 | 4 | 5 | 187 | 8 | 9 | |
| | PISI 2010 | 190 | 6 | 6 | 33 | 5 | 6 | 223 | 8 | 9 | | | | | | 140 | 4 | 4 | 27 | 3 | 4 | 167 | 6 | 7 | |
| | DISI 2010 | 188 | 9 | 9 | 33 | 5 | 6 | 221 | 11 | 12 | | | | | | 139 | 7 | 7 | 27 | 3 | 4 | 166 | 8 | 9 | |
| | PISI hybrid | 162 | 12 | 12 | 28 | 4 | 5 | 190 | 14 | 14 | | | | | | 120 | 9 | 9 | 23 | 3 | 4 | 143 | 10 | 11 | |
| | DISI hybrid 1.3l | 154 | 12 | 12 | 27 | 4 | 5 | 181 | 13 | 14 | | | | | | 114 | 9 | 9 | 22 | 3 | 3 | 136 | 10 | 10 | |
| | Reformer + FC | 162 | 21 | 37 | 28 | 4 | 5 | 191 | 22 | 39 | | | | | | 120 | 15 | 28 | 23 | 3 | 4 | 143 | 17 | 29 | |
| | COD1 | Conventional diesel | | | | | | | | | | | | | | | | | | | | | | | |
| DISI 2002 | | 183 | 5 | 5 | 36 | 5 | 4 | 219 | 8 | 8 | | | | | | 138 | 4 | 4 | 29 | 6 | 1 | 167 | 8 | 4 | |
| DISI 2010 no DPF | | 161 | 7 | 7 | 32 | 4 | 4 | 193 | 9 | 8 | | | | | | 120 | 5 | 5 | 26 | 6 | 0 | 145 | 8 | 5 | |
| DISI 2010 DPF | | 166 | 7 | 7 | 32 | 4 | 4 | 198 | 9 | 9 | | | | | | 123 | 5 | 5 | 26 | 6 | 0 | 149 | 9 | 5 | |
| DISI hybrid no DPF 1.6l | | 129 | 10 | 10 | 25 | 3 | 3 | 154 | 11 | 11 | | | | | | 96 | 8 | 7 | 20 | 5 | 0 | 117 | 10 | 8 | |
| DISI hybrid DPF 1.6l | | 133 | 10 | 10 | 26 | 3 | 3 | 159 | 12 | 11 | | | | | | 99 | 8 | 8 | 21 | 5 | 0 | 120 | 10 | 8 | |
| Reformer + FC | | 162 | 28 | 41 | 32 | 4 | 4 | 194 | 29 | 43 | | | | | | 121 | 21 | 31 | 26 | 6 | 0 | 147 | 23 | 32 | |
| CON1 | | Conventional naphtha | | | | | | | | | | | | | | | | | | | | | | | |
| | | Reformer + FC | 162 | 7 | 4 | 23 | 4 | 3 | 186 | 8 | 5 | | | | | | 118 | 20 | 30 | 18 | 3 | 2 | 136 | 20 | 30 |
| | LRLP1 LPG: imports from remote gas field | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 224 | 4 | 4 | 26 | 0 | 2 | 250 | 4 | 5 | | | | | | 148 | 3 | 3 | 18 | 0 | 1 | 166 | 3 | 3 | |
| | PISI 2010 | 190 | 7 | 7 | 22 | 0 | 2 | 212 | 7 | 7 | | | | | | 126 | 5 | 5 | 15 | 0 | 1 | 141 | 5 | 5 | |

2 CNG / CBG

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | | | | |
|--------------|---------------------------------------|--------------------|-----|-----|-----------------|-----|-----|----------------|-----|-----|----------------|-----|-----|------------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | | | | Fossil | | | TTW | | | | | | WTT | | | | | |
| | | TTW (MJ/100 km) | | | WTT (MJ/100 km) | | | WTT (MJ/100km) | | | WTT (MJ/100km) | | | TTW | | | WTT | | | WTT | | | | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| CNG pathways | | | | | | | | | | | | | | | | | | | | | | | | | |
| GMCG1 | CNG: EU-mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 27 | 5 | 6 | 254 | 14 | 9 | | | | 133 | 7 | 4 | 20 | 2 | 3 | 153 | 8 | 5 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 27 | 5 | 6 | 249 | 15 | 9 | | | | 131 | 8 | 4 | 19 | 2 | 3 | 150 | 9 | 5 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 22 | 4 | 5 | 211 | 13 | 10 | | | | 109 | 7 | 4 | 16 | 2 | 3 | 125 | 7 | 6 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 22 | 4 | 5 | 209 | 14 | 10 | | | | 108 | 7 | 4 | 16 | 2 | 3 | 124 | 8 | 6 | | | |
| | PISt hybrid | 139 | 12 | 13 | 17 | 3 | 4 | 156 | 12 | 14 | | | | 81 | 7 | 8 | 12 | 1 | 2 | 93 | 7 | 8 | | | |
| GPCG1a | CNG: Pipeline 7000 km | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 67 | 28 | 11 | 294 | 34 | 14 | | | | 133 | 7 | 4 | 51 | 16 | 6 | 183 | 20 | 8 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 66 | 27 | 11 | 289 | 34 | 14 | | | | 131 | 8 | 4 | 50 | 16 | 6 | 180 | 20 | 8 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 56 | 23 | 9 | 244 | 29 | 14 | | | | 109 | 7 | 4 | 42 | 13 | 5 | 151 | 17 | 8 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 56 | 23 | 9 | 243 | 30 | 14 | | | | 108 | 7 | 4 | 42 | 13 | 5 | 150 | 18 | 8 | | | |
| | PISt hybrid | 139 | 12 | 13 | 41 | 17 | 7 | 181 | 24 | 17 | | | | 81 | 7 | 8 | 31 | 10 | 4 | 112 | 14 | 10 | | | |
| GPCG1b | CNG: Pipeline 4000 km | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 43 | 13 | 7 | 270 | 19 | 10 | | | | 133 | 7 | 4 | 33 | 7 | 4 | 166 | 11 | 6 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 43 | 12 | 6 | 265 | 20 | 10 | | | | 131 | 8 | 4 | 32 | 7 | 3 | 163 | 12 | 6 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 36 | 11 | 5 | 224 | 17 | 10 | | | | 109 | 7 | 4 | 27 | 6 | 3 | 136 | 10 | 6 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 36 | 10 | 5 | 223 | 18 | 10 | | | | 108 | 7 | 4 | 27 | 6 | 3 | 135 | 11 | 6 | | | |
| | PISt hybrid | 139 | 12 | 13 | 27 | 8 | 4 | 166 | 15 | 15 | | | | 81 | 7 | 8 | 20 | 4 | 2 | 101 | 9 | 9 | | | |
| GRCG1 | CNG: LNG - Vap - Pipe | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 69 | 5 | 6 | 296 | 15 | 10 | | | | 133 | 7 | 4 | 46 | 2 | 3 | 179 | 9 | 6 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 68 | 5 | 6 | 291 | 16 | 10 | | | | 131 | 8 | 4 | 45 | 2 | 3 | 176 | 9 | 6 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 58 | 4 | 5 | 246 | 14 | 11 | | | | 109 | 7 | 4 | 38 | 2 | 3 | 147 | 8 | 6 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 57 | 4 | 5 | 244 | 15 | 11 | | | | 108 | 7 | 4 | 38 | 2 | 3 | 146 | 9 | 6 | | | |
| | PISt hybrid | 139 | 12 | 13 | 43 | 3 | 4 | 182 | 13 | 15 | | | | 81 | 7 | 8 | 28 | 1 | 2 | 109 | 8 | 9 | | | |
| GRCG1C | CNG: LNG, Vap - Pipe - CCS | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 72 | 5 | 6 | 299 | 15 | 10 | | | | 133 | 7 | 4 | 38 | 3 | 3 | 171 | 9 | 6 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 71 | 5 | 6 | 294 | 17 | 10 | | | | 131 | 8 | 4 | 37 | 3 | 3 | 168 | 9 | 6 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 60 | 5 | 5 | 248 | 14 | 11 | | | | 109 | 7 | 4 | 31 | 2 | 3 | 140 | 8 | 6 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 60 | 5 | 5 | 247 | 15 | 11 | | | | 108 | 7 | 4 | 31 | 2 | 3 | 139 | 9 | 6 | | | |
| | PISt hybrid | 139 | 12 | 13 | 44 | 3 | 4 | 184 | 14 | 15 | | | | 81 | 7 | 8 | 23 | 2 | 2 | 104 | 8 | 9 | | | |
| GRCG2 | CNG: LNG - Road - Vap | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 59 | 2 | 5 | 286 | 13 | 10 | | | | 133 | 7 | 4 | 47 | 1 | 3 | 180 | 8 | 6 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 58 | 2 | 5 | 281 | 15 | 9 | | | | 131 | 8 | 4 | 46 | 1 | 3 | 177 | 9 | 6 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 49 | 2 | 4 | 238 | 13 | 10 | | | | 109 | 7 | 4 | 39 | 1 | 2 | 148 | 8 | 6 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 49 | 2 | 4 | 236 | 14 | 10 | | | | 108 | 7 | 4 | 39 | 1 | 2 | 147 | 8 | 6 | | | |
| | PISt hybrid | 139 | 12 | 13 | 36 | 1 | 3 | 176 | 13 | 15 | | | | 81 | 7 | 8 | 29 | 1 | 2 | 110 | 8 | 9 | | | |
| CBG pathways | | | | | | | | | | | | | | | | | | | | | | | | | |
| OWCG1 | CBG: municipal waste | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 198 | 35 | 30 | 425 | 47 | 36 | 39 | 15 | 9 | 133 | 7 | 4 | -90 | 7 | 6 | 43 | 7 | 5 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 195 | 34 | 29 | 417 | 48 | 35 | 38 | 16 | 9 | 131 | 8 | 4 | -88 | 7 | 6 | 43 | 8 | 5 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 164 | 29 | 25 | 353 | 41 | 32 | 32 | 14 | 10 | 109 | 7 | 4 | -74 | 6 | 5 | 34 | 7 | 5 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 163 | 29 | 24 | 351 | 42 | 32 | 32 | 15 | 10 | 108 | 7 | 4 | -74 | 6 | 5 | 34 | 7 | 5 | | | |
| | PISt hybrid | 139 | 12 | 13 | 122 | 21 | 18 | 261 | 34 | 32 | 24 | 13 | 14 | 81 | 7 | 8 | -55 | 4 | 4 | 26 | 7 | 8 | | | |
| OWCG2 | CBG: liquid manure | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 219 | 40 | 39 | 446 | 54 | 46 | 7 | 12 | 7 | 133 | 7 | 4 | -319 | 59 | 68 | -186 | 42 | 59 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 215 | 40 | 39 | 438 | 55 | 45 | 7 | 14 | 6 | 131 | 8 | 4 | -313 | 58 | 67 | -183 | 39 | 58 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 182 | 34 | 33 | 370 | 46 | 41 | 6 | 12 | 8 | 109 | 7 | 4 | -265 | 49 | 57 | -156 | 33 | 46 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 181 | 33 | 32 | 368 | 48 | 41 | 6 | 13 | 8 | 108 | 7 | 4 | -263 | 49 | 56 | -155 | 31 | 46 | | | |
| | PISt hybrid | 139 | 12 | 13 | 135 | 25 | 24 | 274 | 38 | 39 | 4 | 12 | 13 | 81 | 7 | 8 | -196 | 36 | 42 | -115 | 21 | 25 | | | |
| OWCG3 | CBG: dry manure | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 215 | 39 | 36 | 442 | 52 | 43 | 2 | 12 | 6 | 133 | 7 | 4 | -125 | 7 | 7 | 8 | 7 | 5 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 211 | 38 | 35 | 434 | 53 | 42 | 2 | 14 | 6 | 131 | 8 | 4 | -122 | 7 | 7 | 8 | 8 | 5 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 179 | 32 | 30 | 367 | 45 | 38 | 2 | 12 | 8 | 109 | 7 | 4 | -103 | 6 | 6 | 5 | 7 | 5 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 177 | 32 | 30 | 365 | 46 | 38 | 2 | 13 | 8 | 108 | 7 | 4 | -103 | 6 | 6 | 5 | 7 | 5 | | | |
| | PISt hybrid | 139 | 12 | 13 | 132 | 24 | 22 | 272 | 37 | 37 | 1 | 12 | 13 | 81 | 7 | 8 | -77 | 5 | 5 | 5 | 7 | 8 | | | |
| OWCG4 | CBG: wheat (whole plant) | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 273 | 8 | 6 | 500 | 25 | 15 | 3 | 12 | 6 | 133 | 7 | 4 | -79 | 8 | 7 | 54 | 8 | 6 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 268 | 7 | 6 | 491 | 28 | 15 | 3 | 14 | 6 | 131 | 8 | 4 | -77 | 8 | 7 | 53 | 9 | 6 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 226 | 6 | 5 | 415 | 23 | 16 | 3 | 12 | 8 | 109 | 7 | 4 | -65 | 7 | 6 | 43 | 7 | 6 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 225 | 6 | 5 | 412 | 25 | 16 | 3 | 13 | 8 | 108 | 7 | 4 | -65 | 7 | 6 | 43 | 8 | 6 | | | |
| | PISt hybrid | 139 | 12 | 13 | 168 | 5 | 4 | 307 | 22 | 23 | 2 | 12 | 13 | 81 | 7 | 8 | -48 | 5 | 4 | 33 | 7 | 8 | | | |
| OWCG5 | CBG: corn and barley, double cropping | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISt bi-fuel 2002 | 227 | 12 | 6 | 304 | 8 | 6 | 531 | 27 | 16 | 8 | 12 | 6 | 133 | 7 | 4 | -72 | 6 | 35 | 61 | 8 | 33 | | | |
| | PISt dedicated 2002 | 223 | 14 | 6 | 298 | 8 | 6 | 521 | 30 | 15 | 8 | 14 | 6 | 131 | 8 | 4 | -70 | 6 | 34 | 60 | 8 | 32 | | | |
| | PISt bi-fuel 2010 | 188 | 12 | 8 | 252 | 7 | 5 | 440 | 25 | 17 | 7 | 12 | 8 | 109 | 7 | 4 | -59 | 5 | 29 | 49 | 7 | 27 | | | |
| | PISt dedicated 2010 | 187 | 13 | 8 | 250 | 7 | 5 | 438 | 27 | 17 | 6 | 13 | 8 | 108 | 7 | 4 | -59 | 5 | 29 | 49 | 8 | 27 | | | |
| | PISt hybrid | 139 | 12 | 13 | 187 | 5 | 3 | 326 | 24 | 25 | 5 | 12 | 13 | 81 | 7 | 8 | -44 | 4 | 21 | 37 | 7 | 8 | | | |

3 Ethanol

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2e} / km | | | | | | | | | | | |
|------------------------------------|---|-------------------------------|-----|-----|-------------------------------|-----|-----|------------------------------|-----|-----|------------------------------|-----|-----|-----------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | Fossil | | | | | | TTW | | | | | | WTT | | | | | |
| | | TTW (MJ _u /100 km) | | | WTT (MJ _u /100 km) | | | WTT (MJ _u /100km) | | | WTT (MJ _u /100km) | | | Mean | | | Mean | | | Mean | | | Mean | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| Ethanol pathways, as blended fuels | | | | | | | | | | | | | | | | | | | | | | | | | |
| SBET1a | EIOH: Sugar beet, pulp to fodder, slops not used | 224 | 2 | 2 | 48 | 39 | 38 | 272 | 39 | 39 | 258 | | | 168 | 2 | 2 | 28 | 4 | 5 | 196 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 45 | 36 | 36 | 254 | 39 | 39 | 241 | | | 157 | 6 | 6 | 26 | 4 | 5 | 183 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 41 | 33 | 33 | 231 | 35 | 34 | 219 | | | 140 | 4 | 4 | 24 | 4 | 4 | 164 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 41 | 32 | 32 | 228 | 36 | 36 | 217 | | | 139 | 7 | 7 | 24 | 4 | 4 | 162 | 9 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 33 | 27 | 26 | 187 | 32 | 31 | 178 | | | 114 | 9 | 9 | 19 | 3 | 4 | 133 | 10 | 10 | | | |
| | EIOH: Sugar beet, pulp to fodder, slops to biogas | 224 | 2 | 2 | 47 | 6 | 7 | 270 | 7 | 8 | 256 | | | 168 | 2 | 2 | 27 | 4 | 5 | 195 | 5 | 6 | | | |
| SBET1b | PISI 2002 95/5 | 209 | 9 | 9 | 44 | 6 | 7 | 252 | 11 | 12 | 239 | | | 157 | 6 | 6 | 25 | 4 | 5 | 182 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 40 | 5 | 6 | 230 | 9 | 10 | 218 | | | 140 | 4 | 4 | 23 | 4 | 4 | 163 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 39 | 5 | 6 | 227 | 12 | 13 | 215 | | | 139 | 7 | 7 | 23 | 4 | 4 | 162 | 8 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 32 | 4 | 5 | 186 | 14 | 14 | 177 | | | 114 | 9 | 9 | 19 | 3 | 4 | 133 | 10 | 10 | | | |
| | EIOH: Sugar beet, pulp to heat /slops to biogas | 224 | 2 | 2 | 44 | 6 | 7 | 268 | 7 | 8 | 254 | | | 168 | 2 | 2 | 26 | 4 | 5 | 194 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 41 | 5 | 7 | 250 | 11 | 12 | 237 | | | 157 | 6 | 6 | 25 | 4 | 5 | 182 | 8 | 9 | | | |
| SBET3 | PISI 2010 95/5 | 190 | 6 | 6 | 38 | 5 | 6 | 228 | 9 | 10 | 216 | | | 140 | 4 | 4 | 22 | 4 | 4 | 163 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 37 | 5 | 6 | 225 | 12 | 13 | 214 | | | 139 | 7 | 7 | 22 | 3 | 4 | 161 | 8 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 31 | 4 | 5 | 185 | 13 | 14 | 175 | | | 114 | 9 | 9 | 18 | 3 | 4 | 132 | 10 | 10 | | | |
| | EIOH: Wheat, conv NG boiler, DDGS as AF | 224 | 2 | 2 | 50 | 11 | 9 | 274 | 12 | 9 | 259 | | | 168 | 2 | 2 | 30 | 4 | 6 | 198 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 47 | 10 | 8 | 256 | 15 | 13 | 242 | | | 157 | 6 | 6 | 28 | 4 | 5 | 185 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 43 | 10 | 7 | 233 | 12 | 11 | 221 | | | 140 | 4 | 4 | 25 | 4 | 5 | 165 | 6 | 7 | | | |
| WTET1a | DISI 2010 95/5 | 188 | 10 | 10 | 42 | 9 | 7 | 230 | 15 | 13 | 218 | | | 139 | 7 | 7 | 25 | 4 | 5 | 164 | 9 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 35 | 8 | 6 | 189 | 16 | 15 | 179 | | | 114 | 9 | 9 | 20 | 3 | 4 | 134 | 10 | 10 | | | |
| | EIOH: Wheat, conv NG boiler, DDGS as fuel | 224 | 2 | 2 | 47 | 8 | 9 | 271 | 9 | 9 | 257 | | | 168 | 2 | 2 | 29 | 4 | 5 | 197 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 44 | 8 | 8 | 253 | 13 | 13 | 240 | | | 157 | 6 | 6 | 27 | 4 | 5 | 184 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 40 | 7 | 7 | 230 | 10 | 10 | 218 | | | 140 | 4 | 4 | 25 | 4 | 5 | 165 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 40 | 7 | 7 | 227 | 13 | 13 | 216 | | | 139 | 7 | 7 | 24 | 4 | 5 | 163 | 9 | 9 | | | |
| WTET1b | DISI hybrid 95/5 | 154 | 12 | 12 | 32 | 6 | 6 | 187 | 14 | 15 | 177 | | | 114 | 9 | 9 | 20 | 3 | 4 | 134 | 10 | 10 | | | |
| | EIOH: Wheat, NG GT+CHP, DDGS as AF | 224 | 2 | 2 | 48 | 9 | 9 | 272 | 10 | 9 | 258 | | | 168 | 2 | 2 | 29 | 5 | 6 | 197 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 45 | 9 | 8 | 254 | 14 | 13 | 241 | | | 157 | 6 | 6 | 27 | 4 | 5 | 184 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 41 | 8 | 7 | 231 | 11 | 10 | 219 | | | 140 | 4 | 4 | 24 | 4 | 5 | 165 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 41 | 8 | 7 | 229 | 14 | 13 | 217 | | | 139 | 7 | 7 | 24 | 4 | 5 | 163 | 9 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 33 | 6 | 6 | 187 | 15 | 15 | 178 | | | 114 | 9 | 9 | 20 | 3 | 4 | 134 | 10 | 10 | | | |
| WTET2a | EIOH: Wheat, NG GT+CHP, DDGS as fuel | 224 | 2 | 2 | 45 | 6 | 9 | 269 | 7 | 9 | 255 | | | 168 | 2 | 2 | 28 | 4 | 6 | 196 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 42 | 6 | 8 | 251 | 12 | 13 | 238 | | | 157 | 6 | 6 | 26 | 4 | 5 | 183 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 38 | 5 | 7 | 228 | 9 | 10 | 217 | | | 140 | 4 | 4 | 24 | 4 | 5 | 164 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 38 | 5 | 7 | 226 | 12 | 13 | 214 | | | 139 | 7 | 7 | 24 | 4 | 5 | 162 | 9 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 31 | 4 | 6 | 185 | 14 | 15 | 176 | | | 114 | 9 | 9 | 19 | 3 | 4 | 133 | 10 | 10 | | | |
| | EIOH: Wheat, Lignite CHP, DDGS as AF | 224 | 2 | 2 | 49 | 10 | 9 | 272 | 11 | 9 | 258 | | | 168 | 2 | 2 | 31 | 5 | 6 | 199 | 5 | 6 | | | |
| WTET2b | PISI 2002 95/5 | 209 | 9 | 9 | 46 | 9 | 8 | 254 | 14 | 13 | 241 | | | 157 | 6 | 6 | 29 | 4 | 5 | 186 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 42 | 8 | 7 | 232 | 11 | 10 | 219 | | | 140 | 4 | 4 | 26 | 4 | 5 | 167 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 41 | 8 | 7 | 229 | 14 | 13 | 217 | | | 139 | 7 | 7 | 26 | 4 | 5 | 165 | 9 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 34 | 7 | 6 | 188 | 15 | 15 | 178 | | | 114 | 9 | 9 | 21 | 3 | 4 | 135 | 10 | 10 | | | |
| | EIOH: Wheat, Lignite CHP, DDGS as fuel | 224 | 2 | 2 | 46 | 7 | 9 | 269 | 8 | 9 | 255 | | | 168 | 2 | 2 | 30 | 4 | 6 | 198 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 43 | 6 | 8 | 252 | 12 | 13 | 238 | | | 157 | 6 | 6 | 28 | 4 | 5 | 185 | 8 | 9 | | | |
| WTET3a | PISI 2010 95/5 | 190 | 6 | 6 | 39 | 6 | 7 | 229 | 9 | 10 | 217 | | | 140 | 4 | 4 | 26 | 4 | 5 | 166 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 38 | 6 | 7 | 226 | 12 | 13 | 215 | | | 139 | 7 | 7 | 26 | 4 | 5 | 164 | 9 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 32 | 5 | 6 | 186 | 14 | 15 | 176 | | | 114 | 9 | 9 | 21 | 3 | 4 | 135 | 10 | 10 | | | |
| | EIOH: Wheat, Straw CHP, DDGS as AF | 224 | 2 | 2 | 50 | 7 | 9 | 273 | 7 | 9 | 255 | | | 168 | 2 | 2 | 27 | 4 | 6 | 195 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 46 | 6 | 8 | 255 | 12 | 13 | 238 | | | 157 | 6 | 6 | 25 | 4 | 5 | 182 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 42 | 6 | 7 | 232 | 9 | 10 | 217 | | | 140 | 4 | 4 | 23 | 4 | 5 | 163 | 6 | 7 | | | |
| WTET4a | DISI 2010 95/5 | 188 | 10 | 10 | 42 | 6 | 7 | 230 | 12 | 13 | 214 | | | 139 | 7 | 7 | 23 | 4 | 5 | 162 | 9 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 34 | 5 | 6 | 188 | 14 | 15 | 176 | | | 114 | 9 | 9 | 19 | 3 | 4 | 133 | 10 | 10 | | | |
| | EIOH: Wheat, Straw CHP, DDGS as fuel | 224 | 2 | 2 | 46 | 4 | 9 | 270 | 5 | 9 | 252 | | | 168 | 2 | 2 | 26 | 4 | 6 | 194 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 43 | 3 | 8 | 252 | 10 | 13 | 235 | | | 157 | 6 | 6 | 25 | 4 | 5 | 182 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 39 | 3 | 7 | 229 | 7 | 10 | 214 | | | 140 | 4 | 4 | 23 | 4 | 5 | 163 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 39 | 3 | 7 | 227 | 11 | 13 | 212 | | | 139 | 7 | 7 | 22 | 4 | 5 | 161 | 9 | 9 | | | |
| WTET4b | DISI hybrid 95/5 | 154 | 12 | 12 | 32 | 3 | 6 | 186 | 13 | 15 | 174 | | | 114 | 9 | 9 | 18 | 3 | 4 | 132 | 10 | 10 | | | |
| | EIOH: Wheat, DDGS to biogas | 224 | 2 | 2 | 46 | 7 | 9 | 269 | 8 | 9 | 255 | | | 168 | 2 | 2 | 27 | 4 | 6 | 195 | 5 | 6 | | | |
| | PISI 2002 95/5 | 209 | 9 | 9 | 43 | 7 | 8 | 252 | 12 | 13 | 239 | | | 157 | 6 | 6 | 26 | 4 | 5 | 183 | 8 | 9 | | | |
| | PISI 2010 95/5 | 190 | 6 | 6 | 39 | 6 | 7 | 229 | 9 | 10 | 217 | | | 140 | 4 | 4 | 23 | 4 | 5 | 164 | 6 | 7 | | | |
| | DISI 2010 95/5 | 188 | 10 | 10 | 39 | 6 | 7 | 227 | 12 | 13 | 215 | | | 139 | 7 | 7 | 23 | 4 | 5 | 162 | 9 | 9 | | | |
| | DISI hybrid 95/5 | 154 | 12 | 12 | 32 | 5 | 6 | 186 | 14 | 15 | 176 | | | 114 | 9 | 9 | 19 | 3 | 4 | 133 | 10 | 10 | | | |
| WWET1 | EIOH: W Wood | 224 | 2 | 2 | 52 | 7 | 7 | 276 | 8 | 8 | 256 | | | 168 | 2 | 2 | 27 | 4 | 5 | 195 | 5 | 5 | | | |
| | PISI 2002 95/5 | 20 | | | | | | | | | | | | | | | | | | | | | | | |

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2e} / km | | | | | | | | |
|---|---|-------------------------------|-----|-----|-------------------------------|-----|-----|----------------|-----|-----|------------------------------|-----|-----|-----------------------------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | Fossil | | | | | | TTW | | | WTT | | | WTW | | |
| | | TTW (MJ _u /100 km) | | | WTT (MJ _u /100 km) | | | WTT (MJ/100km) | | | WTT (MJ _u /100km) | | | TTW | | | WTT | | | WTW | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| EIOH pathways contribution based on neat fuel | | | | | | | | | | | | | | | | | | | | | | |
| SBET1a | EIOH: Sugar beet, pulp to fodder, slops not used | 224 | 2 | 2 | 313 | 25 | 20 | 536 | 28 | 23 | 124 | 11 | 9 | 161 | 2 | 2 | -75 | 7 | 11 | 86 | 6 | 10 |
| | PISI 2002 | 209 | 9 | 9 | 292 | 23 | 18 | 501 | 36 | 32 | 116 | 16 | 15 | 151 | 6 | 6 | -70 | 6 | 10 | 80 | 7 | 10 |
| | DISI 2002 | 190 | 6 | 6 | 266 | 21 | 17 | 456 | 30 | 26 | 105 | 13 | 12 | 138 | 4 | 4 | -64 | 6 | 9 | 73 | 7 | 9 |
| | PISI 2010 | 188 | 10 | 10 | 263 | 21 | 16 | 451 | 36 | 31 | 104 | 17 | 15 | 136 | 7 | 7 | -63 | 6 | 9 | 73 | 8 | 9 |
| | DISI 2010 | 154 | 12 | 12 | 216 | 17 | 14 | 370 | 36 | 32 | 85 | 18 | 17 | 112 | 9 | 9 | -52 | 5 | 8 | 60 | 9 | 10 |
| SBET1b | EIOH: Sugar beet, pulp to fodder, slops to biogas | 224 | 2 | 2 | 265 | 21 | 24 | 488 | 21 | 24 | 76 | 6 | 7 | 161 | 2 | 2 | -105 | 7 | 10 | 57 | 7 | 10 |
| | PISI 2002 | 209 | 9 | 9 | 247 | 20 | 22 | 456 | 21 | 24 | 71 | 10 | 11 | 151 | 6 | 6 | -98 | 6 | 10 | 53 | 9 | 12 |
| | PISI 2010 | 190 | 6 | 6 | 225 | 18 | 20 | 415 | 19 | 21 | 64 | 8 | 8 | 138 | 4 | 4 | -89 | 6 | 9 | 48 | 7 | 10 |
| | DISI 2010 | 188 | 10 | 10 | 223 | 18 | 20 | 411 | 20 | 22 | 64 | 11 | 11 | 136 | 7 | 7 | -88 | 6 | 9 | 48 | 9 | 11 |
| | DISI hybrid | 154 | 12 | 12 | 183 | 15 | 16 | 337 | 19 | 20 | 52 | 13 | 13 | 112 | 9 | 9 | -72 | 5 | 7 | 40 | 10 | 11 |
| SBET3 | EIOH: Sugar beet, pulp to heat /slops to biogas | 224 | 2 | 2 | 196 | 21 | 25 | 419 | 23 | 27 | 9 | 2 | 3 | 161 | 2 | 2 | -128 | 6 | 11 | 33 | 5 | 10 |
| | PISI 2002 | 209 | 9 | 9 | 183 | 20 | 23 | 392 | 29 | 32 | 9 | 9 | 9 | 151 | 6 | 6 | -120 | 5 | 10 | 31 | 6 | 8 |
| | PISI 2010 | 190 | 6 | 6 | 167 | 18 | 21 | 356 | 24 | 27 | 8 | 6 | 6 | 138 | 4 | 4 | -109 | 5 | 9 | 28 | 5 | 7 |
| | DISI 2010 | 188 | 10 | 10 | 165 | 18 | 21 | 353 | 28 | 31 | 8 | 10 | 10 | 136 | 7 | 7 | -108 | 5 | 9 | 28 | 7 | 8 |
| | DISI hybrid | 154 | 12 | 12 | 135 | 15 | 17 | 289 | 28 | 30 | 6 | 12 | 12 | 112 | 9 | 9 | -89 | 4 | 8 | 23 | 9 | 9 |
| WTET1a | EIOH: Wheat, conv NG boiler, DDGS as AF | 224 | 2 | 2 | 372 | 5 | 5 | 595 | 9 | 9 | 173 | 5 | 5 | 161 | 2 | 2 | -29 | 16 | 22 | 133 | 16 | 22 |
| | PISI 2002 | 209 | 9 | 9 | 347 | 4 | 5 | 556 | 21 | 21 | 161 | 12 | 12 | 151 | 6 | 6 | -27 | 15 | 20 | 124 | 15 | 20 |
| | PISI 2010 | 190 | 6 | 6 | 316 | 4 | 5 | 506 | 15 | 16 | 147 | 9 | 9 | 138 | 4 | 4 | -25 | 13 | 19 | 113 | 13 | 18 |
| | DISI 2010 | 188 | 10 | 10 | 313 | 4 | 4 | 501 | 22 | 23 | 145 | 13 | 13 | 136 | 7 | 7 | -24 | 13 | 18 | 112 | 14 | 19 |
| | DISI hybrid | 154 | 12 | 12 | 256 | 3 | 4 | 411 | 26 | 26 | 119 | 16 | 16 | 112 | 9 | 9 | -20 | 11 | 15 | 92 | 13 | 16 |
| WTET1b | EIOH: Wheat, conv NG boiler, DDGS as fuel | 224 | 2 | 2 | 278 | 5 | 6 | 501 | 8 | 9 | 85 | 3 | 3 | 161 | 2 | 2 | -45 | 16 | 21 | 116 | 16 | 21 |
| | PISI 2002 | 209 | 9 | 9 | 259 | 4 | 5 | 468 | 17 | 18 | 79 | 10 | 10 | 151 | 6 | 6 | -42 | 15 | 20 | 109 | 15 | 19 |
| | PISI 2010 | 190 | 6 | 6 | 236 | 4 | 5 | 426 | 13 | 14 | 72 | 7 | 7 | 138 | 4 | 4 | -39 | 13 | 18 | 99 | 13 | 17 |
| | DISI 2010 | 188 | 10 | 10 | 233 | 4 | 5 | 421 | 18 | 19 | 71 | 11 | 11 | 136 | 7 | 7 | -38 | 13 | 18 | 98 | 13 | 17 |
| | DISI hybrid | 154 | 12 | 12 | 191 | 3 | 4 | 346 | 22 | 22 | 58 | 13 | 13 | 112 | 9 | 9 | -31 | 11 | 15 | 81 | 12 | 15 |
| WTET2a | EIOH: Wheat, NG GT+CHP, DDGS as AF | 224 | 2 | 2 | 317 | 4 | 5 | 540 | 8 | 8 | 119 | 4 | 4 | 161 | 2 | 2 | -57 | 16 | 23 | 104 | 16 | 23 |
| | PISI 2002 | 209 | 9 | 9 | 296 | 4 | 4 | 505 | 18 | 19 | 112 | 11 | 11 | 151 | 6 | 6 | -54 | 15 | 22 | 97 | 15 | 21 |
| | PISI 2010 | 190 | 6 | 6 | 269 | 4 | 4 | 459 | 14 | 14 | 102 | 8 | 8 | 138 | 4 | 4 | -49 | 14 | 20 | 89 | 13 | 19 |
| | DISI 2010 | 188 | 10 | 10 | 266 | 4 | 4 | 454 | 20 | 20 | 100 | 12 | 12 | 136 | 7 | 7 | -48 | 14 | 20 | 88 | 13 | 19 |
| | DISI hybrid | 154 | 12 | 12 | 218 | 3 | 3 | 373 | 23 | 23 | 82 | 14 | 14 | 112 | 9 | 9 | -39 | 11 | 16 | 72 | 12 | 16 |
| WTET2b | EIOH: Wheat, NG GT+CHP, DDGS as fuel | 224 | 2 | 2 | 223 | 4 | 5 | 446 | 7 | 7 | 31 | 2 | 2 | 161 | 2 | 2 | -74 | 12 | 22 | 88 | 11 | 21 |
| | PISI 2002 | 209 | 9 | 9 | 208 | 4 | 5 | 417 | 15 | 16 | 29 | 9 | 9 | 151 | 6 | 6 | -69 | 11 | 20 | 82 | 11 | 19 |
| | PISI 2010 | 190 | 6 | 6 | 189 | 4 | 4 | 379 | 11 | 12 | 27 | 6 | 6 | 138 | 4 | 4 | -63 | 10 | 19 | 75 | 9 | 17 |
| | DISI 2010 | 188 | 10 | 10 | 187 | 4 | 4 | 375 | 16 | 17 | 26 | 10 | 10 | 136 | 7 | 7 | -62 | 10 | 18 | 74 | 10 | 17 |
| | DISI hybrid | 154 | 12 | 12 | 153 | 3 | 3 | 308 | 19 | 19 | 22 | 12 | 12 | 112 | 9 | 9 | -51 | 8 | 15 | 61 | 10 | 14 |
| WTET3a | EIOH: Wheat, Lignite CHP, DDGS as AF | 224 | 2 | 2 | 332 | 1 | 1 | 556 | 5 | 5 | 135 | 3 | 3 | 161 | 2 | 2 | 11 | 19 | 21 | 173 | 19 | 22 |
| | PISI 2002 | 209 | 9 | 9 | 310 | 1 | 1 | 519 | 16 | 16 | 126 | 10 | 10 | 151 | 6 | 6 | 11 | 18 | 20 | 162 | 19 | 21 |
| | PISI 2010 | 190 | 6 | 6 | 282 | 1 | 1 | 472 | 11 | 11 | 115 | 7 | 7 | 138 | 4 | 4 | 10 | 16 | 18 | 147 | 17 | 19 |
| | DISI 2010 | 188 | 10 | 10 | 279 | 1 | 1 | 467 | 18 | 18 | 113 | 11 | 11 | 136 | 7 | 7 | 10 | 16 | 18 | 146 | 18 | 20 |
| | DISI hybrid | 154 | 12 | 12 | 229 | 1 | 1 | 383 | 22 | 22 | 93 | 14 | 14 | 112 | 9 | 9 | 8 | 13 | 15 | 120 | 16 | 18 |
| WTET3b | EIOH: Wheat, Lignite CHP, DDGS as fuel | 224 | 2 | 2 | 238 | 1 | 1 | 462 | 4 | 4 | 47 | 2 | 2 | 161 | 2 | 2 | -5 | 12 | 25 | 156 | 12 | 25 |
| | PISI 2002 | 209 | 9 | 9 | 222 | 1 | 1 | 431 | 13 | 13 | 44 | 9 | 9 | 151 | 6 | 6 | -5 | 11 | 23 | 146 | 13 | 24 |
| | PISI 2010 | 190 | 6 | 6 | 202 | 1 | 1 | 392 | 10 | 9 | 40 | 6 | 6 | 138 | 4 | 4 | -4 | 10 | 21 | 133 | 11 | 21 |
| | DISI 2010 | 188 | 10 | 10 | 200 | 1 | 1 | 388 | 15 | 15 | 39 | 10 | 10 | 136 | 7 | 7 | -4 | 10 | 21 | 132 | 12 | 22 |
| | DISI hybrid | 154 | 12 | 12 | 164 | 1 | 1 | 318 | 18 | 18 | 32 | 12 | 12 | 112 | 9 | 9 | -3 | 8 | 17 | 108 | 12 | 19 |
| WTET4a | EIOH: Wheat, Straw CHP, DDGS as AF | 224 | 2 | 2 | 352 | 1 | 1 | 576 | 5 | 5 | 36 | 2 | 2 | 161 | 2 | 2 | -106 | 16 | 25 | 55 | 15 | 24 |
| | PISI 2002 | 209 | 9 | 9 | 329 | 1 | 1 | 538 | 17 | 17 | 34 | 9 | 9 | 151 | 6 | 6 | -99 | 15 | 23 | 52 | 13 | 20 |
| | PISI 2010 | 190 | 6 | 6 | 299 | 1 | 1 | 489 | 12 | 12 | 31 | 6 | 6 | 138 | 4 | 4 | -90 | 13 | 21 | 47 | 12 | 19 |
| | DISI 2010 | 188 | 10 | 10 | 296 | 1 | 1 | 484 | 19 | 19 | 31 | 10 | 10 | 136 | 7 | 7 | -89 | 13 | 21 | 47 | 11 | 18 |
| | DISI hybrid | 154 | 12 | 12 | 243 | 1 | 1 | 397 | 23 | 23 | 25 | 12 | 12 | 112 | 9 | 9 | -73 | 11 | 17 | 39 | 10 | 15 |
| WTET4b | EIOH: Wheat, Straw CHP, DDGS as fuel | 224 | 2 | 2 | 258 | 1 | 1 | 482 | 4 | 4 | -52 | 2 | 2 | 161 | 2 | 2 | -122 | 12 | 24 | 39 | 11 | 22 |
| | PISI 2002 | 209 | 9 | 9 | 241 | 1 | 1 | 450 | 14 | 14 | -48 | 9 | 9 | 151 | 6 | 6 | -114 | 11 | 22 | 37 | 9 | 18 |
| | PISI 2010 | 190 | 6 | 6 | 219 | 1 | 1 | 409 | 10 | 10 | -44 | 6 | 6 | 138 | 4 | 4 | -104 | 10 | 20 | 33 | 8 | 17 |
| | DISI 2010 | 188 | 10 | 10 | 217 | 1 | 1 | 405 | 15 | 15 | -43 | 10 | 10 | 136 | 7 | 7 | -103 | 10 | 20 | 33 | 8 | 16 |
| | DISI hybrid | 154 | 12 | 12 | 178 | 1 | 1 | 332 | 19 | 19 | -36 | 12 | 12 | 112 | 9 | 9 | -84 | 8 | 16 | 27 | 9 | 13 |
| WTET5 | EIOH: Wheat, DDGS to biogas | 224 | 2 | 2 | 246 | 0 | 0 | 469 | 3 | 3 | 48 | 2 | 2 | 161 | 2 | 2 | -95 | 13 | 26 | 66 | 12 | 25 |
| | PISI 2002 | 209 | 9 | 9 | 229 | 0 | 0 | 438 | 13 | 13 | 44 | 9 | 9 | 151 | 6 | 6 | -89 | 12 | 24 | 62 | 11 | 22 |
| | PISI 2010 | 190 | 6 | 6 | 209 | 0 | 0 | 399 | 9 | 9 | 40 | 6 | 6 | 138 | 4 | 4 | -81 | 11 | 22 | 56 | 10 | 20 |
| | DISI 2010 | 188 | 10 | 10 | 206 | 0 | 0 | 394 | 14 | 14 | 40 | 10 | 10 | 136 | 7 | 7 | -80 | 11 | 22 | 56 | 10 | 19 |
| | DISI hybrid | 154 | 12 | 12 | 169 | 0 | 0 | 323 | 16 | 18 | 33 | 12 | 12 | 112 | 9 | 9 | -67 | 9 | 18 | 46 | 10 | 16 |
| WWET1 | EIOH: W Wood | 224 | 2 | 2 | 436 | 23 | 23 | 659 | 28 | 27 | 62 | 5 | 4 | 161 | 2 | 2 | -117 | 0 | 0 | 44 | 2 | 2 |
| | PISI 2002 | 209 | 9 | 9 | 407 | 22 | 21 | 616 | 40 | 39 | 58 | 10 | 10 | 151 | 6 | 6 | -109 | 0 | 0 | 42 | 8 | 8 |
| | PISI 2010 | 190 | 6 | 6 | 371 | 20 | 19 | 561 | 32 | 32 | 53 | 7 | 7 | 138 | 4 | 4 | -99 | 0 | 0 | 38 | 5 | 5 |
| | DISI 2010 | 188 | 10 | 10 | 367 | 20 | 19 | 554 | 39 | 39 | 52 | 11 | 11 | 136 | 7 | 7 | -98 | 0 | 0 | 38 | 9 | 9 |
| | DISI hybrid | 154 | 12 | 12 | 301 | 16 | 16 | 455 | 41 | 41 | 43 | 13 | 13 | 112 | 9 | 9 | -81 | 0 | 0 | 31 | 11 | 11 |
| WFET1 | EIOH: F wood | 224 | 2 | 2 | 437 | 24 | 21 | 661 | 29 | 25 | 63 | 5 | 4 | 161 | 2 | 2 | -110 | 4 | 33 | 51 | 4 | 32 |
| | PISI 2002 | 209 | 9 | 9 | 408 | 23 | 19 | 617 | 40 | 37 | 59 | 10 | 10 | 151 | 6 | 6 | -103 | 4 | 31 | 48 | 6 | 27 |
| | PISI 2010 | 190 | 6 | 6 | 372 | 21 | 18 | 562 | 33 | 30 | 54 | 8 | 7 | 138 | 4 | 4 | -94 | 4 | 28 | 44 | 5 | 25 |
| | DISI 2010 | 188 | 10 | 10 | 368 | 20 | 18 | 555 | 40 | 38 | 53 | 11 | 11 | 136 | 7 | 7 | -93 | 4 | 27 | 43 | 7 | 24 |
| | DISI hybrid | 154 | 12 | 12 | | | | | | | | | | | | | | | | | | |

4 Ethers

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | |
|------------------------|-------------------------------------|--------------------|-----|-----|-------------------------------|-----|-----|----------------|-----|-----|------------------------------|-----|-----|------------------------------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | | | | Fossil | | | | | | | | | | | |
| | | TTW (MJ/100 km) | | | WTT (MJ _W /100 km) | | | WTW (MJ/100km) | | | WTW (MJ _W /100km) | | | TTW | | | WTT | | | WTW | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| Ethers (as neat fuels) | | | | | | | | | | | | | | | | | | | | | | |
| GRMB1 | MTBE: remote plant | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 224 | 2 | 2 | 67 | 0 | 3 | 290 | 3 | 5 | | | | 159 | 2 | 2 | 30 | 0 | 2 | 190 | 2 | 3 |
| | DISI 2002 | 209 | 9 | 9 | 63 | 0 | 3 | 271 | 9 | 10 | | | | 149 | 6 | 6 | 28 | 0 | 2 | 177 | 7 | 7 |
| | PISI 2010 | 190 | 6 | 6 | 57 | 0 | 3 | 247 | 6 | 8 | | | | 135 | 4 | 4 | 26 | 0 | 2 | 161 | 4 | 5 |
| | DISI 2010 | 188 | 10 | 10 | 56 | 0 | 3 | 244 | 10 | 11 | | | | 134 | 7 | 7 | 26 | 0 | 2 | 159 | 7 | 8 |
| LREB1 | DISI hybrid | 154 | 12 | 12 | 46 | 0 | 2 | 200 | 13 | 13 | | | | 110 | 9 | 9 | 21 | 0 | 1 | 131 | 9 | 9 |
| | ETBE: imported C4 and wheat ethanol | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 224 | 2 | 2 | 167 | 1 | 3 | 391 | 4 | 5 | 226 | 5 | 7 | 160 | 2 | 2 | -1 | 5 | 9 | 159 | 5 | 9 |
| | DISI 2002 | 209 | 9 | 9 | 156 | 1 | 3 | 365 | 12 | 13 | 211 | 13 | 15 | 149 | 6 | 6 | -1 | 4 | 8 | 148 | 8 | 10 |
| | PISI 2010 | 190 | 6 | 6 | 142 | 1 | 3 | 332 | 8 | 9 | 192 | 10 | 11 | 136 | 4 | 4 | -1 | 4 | 7 | 135 | 6 | 8 |
| DISI 2010 | | 188 | 10 | 10 | 141 | 1 | 3 | 329 | 13 | 14 | 190 | 15 | 16 | 134 | 7 | 7 | -1 | 4 | 7 | 133 | 8 | 10 |
| | DISI hybrid | 154 | 12 | 12 | 115 | 1 | 2 | 270 | 15 | 16 | 156 | 18 | 19 | 110 | 9 | 9 | -1 | 3 | 6 | 109 | 9 | 10 |

5 Bio-diesel

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | | | | |
|---------------------------------------|--------------------------------------|-------------------------------|-----|-----|-------------------------------|-----|-----|----------------|-----|-----|------------------------------|-----|-----|------------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | | | | Fossil | | | | | | | | | | | | | | |
| | | TTW (MJ _g /100 km) | | | WTT (MJ _g /100 km) | | | WTW (MJ/100km) | | | WTW (MJ _g /100km) | | | TTW | | | WTT | | | WTW | | | | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| Bio-diesel pathways, as blended fuels | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROFA1 | RME: Glycerine as chem, meal as AF | 183 | 6 | 6 | 43 | 8 | 6 | 227 | 11 | 10 | 212 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 43 | 8 | 6 | 227 | 11 | 10 | 212 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 38 | 7 | 6 | 199 | 11 | 10 | 186 | | | 120 | 5 | 5 | 22 | 6 | 2 | 142 | 9 | 6 | | | |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 39 | 7 | 6 | 205 | 11 | 10 | 192 | | | 124 | 5 | 5 | 22 | 6 | 2 | 146 | 9 | 6 | | | |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 31 | 5 | 5 | 160 | 13 | 12 | 149 | | | 97 | 7 | 7 | 17 | 5 | 1 | 113 | 10 | 8 | | | |
| ROFA2 | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 32 | 6 | 5 | 165 | 13 | 13 | 154 | | | 100 | 8 | 8 | 17 | 5 | 1 | 117 | 10 | 8 | | | |
| | RME: Glycerine and meal as AF | 183 | 6 | 6 | 44 | 8 | 6 | 227 | 11 | 10 | 212 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 44 | 8 | 6 | 227 | 11 | 10 | 212 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 39 | 7 | 6 | 200 | 11 | 10 | 187 | | | 120 | 5 | 5 | 22 | 6 | 2 | 142 | 9 | 6 | | | |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 40 | 7 | 6 | 205 | 12 | 10 | 192 | | | 124 | 5 | 5 | 23 | 6 | 2 | 146 | 9 | 6 | | | |
| ROFA3 | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 31 | 6 | 5 | 160 | 13 | 12 | 149 | | | 97 | 7 | 7 | 17 | 5 | 1 | 114 | 10 | 8 | | | |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 32 | 6 | 5 | 165 | 13 | 13 | 154 | | | 100 | 8 | 8 | 18 | 5 | 1 | 117 | 10 | 8 | | | |
| | RME: Glycerine to biogas, meal as AF | 183 | 6 | 6 | 44 | 8 | 6 | 227 | 11 | 10 | 212 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 44 | 8 | 6 | 227 | 11 | 10 | 212 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 38 | 7 | 6 | 199 | 11 | 10 | 186 | | | 120 | 5 | 5 | 22 | 6 | 2 | 142 | 9 | 6 | | | |
| ROFA4 | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 39 | 7 | 6 | 205 | 11 | 10 | 192 | | | 124 | 5 | 5 | 22 | 6 | 2 | 146 | 9 | 6 | | | |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 31 | 5 | 5 | 160 | 13 | 12 | 149 | | | 97 | 7 | 7 | 17 | 5 | 1 | 114 | 10 | 8 | | | |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 32 | 6 | 5 | 165 | 13 | 13 | 154 | | | 100 | 8 | 8 | 18 | 5 | 1 | 117 | 10 | 8 | | | |
| | RME: Glycerine and cake to biogas | 183 | 6 | 6 | 40 | 4 | 6 | 223 | 8 | 10 | 208 | | | 138 | 4 | 4 | 24 | 7 | 2 | 162 | 9 | 5 | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 40 | 4 | 6 | 223 | 8 | 10 | 208 | | | 138 | 4 | 4 | 24 | 7 | 2 | 162 | 9 | 5 | | | |
| ROFE1 | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 35 | 4 | 6 | 196 | 9 | 10 | 183 | | | 120 | 5 | 5 | 20 | 6 | 2 | 141 | 9 | 6 | | | |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 36 | 4 | 6 | 202 | 9 | 10 | 189 | | | 124 | 5 | 5 | 21 | 6 | 2 | 145 | 9 | 6 | | | |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 28 | 3 | 5 | 157 | 11 | 12 | 147 | | | 97 | 7 | 7 | 15 | 5 | 1 | 112 | 10 | 8 | | | |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 29 | 3 | 5 | 162 | 12 | 12 | 151 | | | 100 | 8 | 8 | 16 | 5 | 1 | 116 | 10 | 8 | | | |
| | REE: Glycerine as chem, meal as AF | 183 | 6 | 6 | 44 | 7 | 6 | 227 | 10 | 10 | 211 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| ROFE2 | DICI 2002 95/5 | 183 | 6 | 6 | 44 | 7 | 6 | 227 | 10 | 10 | 211 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 39 | 6 | 6 | 200 | 11 | 10 | 186 | | | 120 | 5 | 5 | 21 | 6 | 2 | 142 | 9 | 6 | | | |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 40 | 7 | 6 | 206 | 11 | 10 | 191 | | | 124 | 5 | 5 | 22 | 6 | 2 | 146 | 9 | 6 | | | |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 31 | 5 | 4 | 160 | 12 | 12 | 149 | | | 97 | 7 | 7 | 16 | 5 | 2 | 113 | 10 | 8 | | | |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 32 | 5 | 5 | 165 | 13 | 12 | 153 | | | 100 | 8 | 8 | 17 | 5 | 2 | 117 | 10 | 8 | | | |
| ROFE3 | REE: Glycerine and meal as AF | 183 | 6 | 6 | 45 | 8 | 6 | 228 | 11 | 10 | 212 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 45 | 8 | 6 | 228 | 11 | 10 | 212 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 39 | 7 | 6 | 200 | 11 | 10 | 186 | | | 120 | 5 | 5 | 22 | 6 | 2 | 142 | 9 | 6 | | | |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 40 | 7 | 6 | 206 | 11 | 10 | 192 | | | 124 | 5 | 5 | 22 | 6 | 2 | 146 | 9 | 6 | | | |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 31 | 5 | 4 | 160 | 13 | 12 | 149 | | | 97 | 7 | 7 | 17 | 5 | 1 | 114 | 10 | 8 | | | |
| ROFE4 | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 32 | 6 | 5 | 165 | 13 | 13 | 154 | | | 100 | 8 | 8 | 17 | 5 | 2 | 117 | 10 | 8 | | | |
| | REE: Glycerine to biogas, meal as AF | 183 | 6 | 6 | 44 | 7 | 6 | 227 | 10 | 10 | 211 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 44 | 7 | 6 | 227 | 10 | 10 | 211 | | | 138 | 4 | 4 | 25 | 7 | 2 | 163 | 9 | 5 | | | |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 39 | 6 | 6 | 200 | 11 | 10 | 186 | | | 120 | 5 | 5 | 22 | 6 | 2 | 142 | 9 | 6 | | | |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 40 | 7 | 6 | 206 | 11 | 10 | 191 | | | 124 | 5 | 5 | 22 | 6 | 2 | 146 | 9 | 6 | | | |
| SOFA1 | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 31 | 5 | 4 | 160 | 13 | 12 | 149 | | | 97 | 7 | 7 | 17 | 5 | 1 | 113 | 10 | 8 | | | |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 32 | 5 | 5 | 165 | 13 | 12 | 154 | | | 100 | 8 | 8 | 17 | 5 | 1 | 117 | 10 | 8 | | | |
| | RME: Glycerine and cake to biogas | 183 | 6 | 6 | 41 | 4 | 6 | 224 | 8 | 10 | 208 | | | 138 | 4 | 4 | 23 | 2 | 5 | 161 | 5 | 7 | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 41 | 4 | 6 | 224 | 8 | 10 | 208 | | | 138 | 4 | 4 | 23 | 2 | 5 | 161 | 5 | 7 | | | |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 36 | 3 | 6 | 197 | 9 | 10 | 183 | | | 120 | 5 | 5 | 20 | 1 | 5 | 140 | 6 | 8 | | | |
| SOFA2 | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 37 | 4 | 6 | 203 | 9 | 10 | 188 | | | 124 | 5 | 5 | 21 | 1 | 5 | 144 | 6 | 8 | | | |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 29 | 3 | 4 | 158 | 11 | 12 | 147 | | | 97 | 7 | 7 | 15 | 0 | 5 | 112 | 8 | 10 | | | |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 30 | 3 | 5 | 163 | 12 | 12 | 151 | | | 100 | 8 | 8 | 16 | 0 | 5 | 115 | 8 | 10 | | | |
| | SME: Glycerine as chem, meal as AF | 183 | 6 | 6 | 42 | 7 | 6 | 225 | 10 | 9 | 211 | | | 138 | 4 | 4 | 23 | 7 | 1 | 162 | 9 | 5 | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 42 | 7 | 6 | 225 | 10 | 9 | 211 | | | 138 | 4 | 4 | 23 | 7 | 1 | 162 | 9 | 5 | | | |
| SOFA3 | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 37 | 6 | 5 | 198 | 11 | 10 | 186 | | | 120 | 5 | 5 | 20 | 6 | 1 | 141 | 9 | 6 | | | |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 38 | 7 | 5 | 204 | 11 | 10 | 191 | | | 124 | 5 | 5 | 21 | 6 | 1 | 145 | 9 | 6 | | | |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 30 | 5 | 4 | 159 | 12 | 12 | 149 | | | 97 | 7 | 7 | 16 | 5 | 1 | 112 | 10 | 8 | | | |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 31 | 5 | 4 | 164 | 13 | 12 | 154 | | | 100 | 8 | 8 | 16 | 5 | 1 | 116 | 10 | 8 | | | |
| | SME: Glycerine and meal as AF | 183 | 6 | 6 | 43 | 8 | 6 | 226 | 11 | 9 | 212 | | | 138 | 4 | 4 | 24 | 7 | 1 | 162 | 9 | 5 | | | |
| SOFA4 | DICI 2002 95/5 | 183 | 6 | 6 | 43 | 8 | 6 | 226 | 11 | 9 | 212 | | | 138 | 4 | 4 | 24 | 7 | 1 | 162 | 9 | 5 | | | |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 34 | 4 | 5 | 196 | 9 | 10 | 183 | | | 120 | 5 | 5 | 19 | 6 | 1 | 140 | 8 | 9 | | | |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 35 | 4 | 5 | 201 | 9 | 10 | 189 | | | 124 | 5 | 5 | 20 | 6 | 1 | 144 | 9 | 6 | | | |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 28 | 3 | 4 | 157 | 11 | 12 | 147 | | | 97 | 7 | 7 | 14 | 5 | 1 | 111 | 9 | 9 | | | |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 28 | 3 | 4 | 161 | 12 | 12 | 151 | | | 100 | 8 | 8 | 15 | 5 | 1 | 115 | 10 | 8 | | | |

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2e} / km | | | | | | | | | | | |
|---------------------------------------|---|-------------------------------|-----|-----|-------------------------------|-----|-----|----------------|-----|-----|------------------------------|-----|-----|-----------------------------|-----|-----|------|-----|-----|------|-----|-----|-----|----|---|
| | | Total | | | | | | | | | Fossil | | | TTW | | | | | | WTT | | | | | |
| | | TTW (MJ _e /100 km) | | | WTT (MJ _e /100 km) | | | WTT (MJ/100km) | | | WTT (MJ _e /100km) | | | TTW | | | WTT | | | WTT | | | | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | | | |
| Bio-diesel pathways, as blended fuels | | | | | | | | | | | | | | | | | | | | | | | | | |
| SYFA1 | SYME: Glycerine as chem, mill in EU, meal as AF in Brazil | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 57 | 10 | 7 | 240 | 13 | 10 | 214 | | | | | | 138 | 4 | 4 | 26 | 10 | 2 | 164 | 12 | 5 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 50 | 9 | 6 | 211 | 13 | 11 | 188 | | | | | | 120 | 5 | 5 | 22 | 9 | 2 | 143 | 11 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 52 | 9 | 6 | 217 | 13 | 11 | 193 | | | | | | 124 | 5 | 5 | 23 | 9 | 2 | 147 | 12 | 6 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 40 | 7 | 5 | 169 | 14 | 13 | 151 | | | | | | 97 | 7 | 7 | 18 | 8 | 2 | 114 | 12 | 8 |
| SYFA3 | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 41 | 7 | 5 | 174 | 15 | 13 | 155 | | | | | | 100 | 8 | 8 | 18 | 8 | 2 | 118 | 12 | 9 |
| | SYME: Glycerine to biogas, mill in Brazil, meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 57 | 10 | 7 | 240 | 13 | 10 | 214 | | | | | | 138 | 4 | 4 | 26 | 11 | 2 | 164 | 12 | 5 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 50 | 9 | 6 | 211 | 13 | 11 | 188 | | | | | | 120 | 5 | 5 | 23 | 10 | 2 | 143 | 12 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 52 | 9 | 6 | 217 | 13 | 11 | 194 | | | | | | 124 | 5 | 5 | 23 | 10 | 2 | 147 | 12 | 6 |
| POFA1a | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 40 | 7 | 5 | 169 | 14 | 13 | 151 | | | | | | 97 | 7 | 7 | 18 | 9 | 2 | 115 | 13 | 8 |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 42 | 7 | 5 | 175 | 15 | 13 | 155 | | | | | | 100 | 8 | 8 | 18 | 9 | 2 | 118 | 13 | 8 |
| | PME: Glycerine as chem, CH4 emissions from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 45 | 7 | 6 | 228 | 10 | 9 | 211 | | | | | | 138 | 4 | 4 | 25 | 6 | 3 | 163 | 8 | 6 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 40 | 6 | 5 | 201 | 11 | 10 | 186 | | | | | | 120 | 5 | 5 | 22 | 5 | 3 | 142 | 8 | 6 |
| POFA1b | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 41 | 6 | 5 | 207 | 11 | 10 | 191 | | | | | | 124 | 5 | 5 | 23 | 6 | 3 | 146 | 9 | 7 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 32 | 5 | 4 | 161 | 12 | 12 | 149 | | | | | | 97 | 7 | 7 | 17 | 4 | 3 | 114 | 9 | 9 |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 33 | 5 | 4 | 166 | 13 | 12 | 153 | | | | | | 100 | 8 | 8 | 18 | 5 | 3 | 117 | 10 | 9 |
| | PME: Glycerine as chem, no CH4 from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 6 | 6 | 45 | 7 | 6 | 228 | 10 | 9 | 211 | | | | | | 138 | 4 | 4 | 23 | 6 | 3 | 161 | 8 | 6 |
| POFA2 | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 40 | 6 | 5 | 201 | 11 | 10 | 186 | | | | | | 120 | 5 | 5 | 20 | 5 | 3 | 140 | 8 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 41 | 7 | 5 | 207 | 11 | 10 | 191 | | | | | | 124 | 5 | 5 | 21 | 6 | 3 | 144 | 8 | 7 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 32 | 5 | 4 | 161 | 12 | 12 | 149 | | | | | | 97 | 7 | 7 | 15 | 4 | 3 | 112 | 9 | 8 |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 33 | 5 | 4 | 166 | 13 | 12 | 153 | | | | | | 100 | 8 | 8 | 16 | 5 | 3 | 115 | 10 | 9 |
| | PME: Glycerine to biogas, CH4 emissions from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| ROHY1a | DICI 2002 95/5 | 183 | 6 | 6 | 45 | 7 | 6 | 228 | 10 | 9 | 211 | | | | | | 138 | 4 | 4 | 26 | 6 | 3 | 164 | 8 | 6 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 40 | 6 | 5 | 201 | 11 | 10 | 186 | | | | | | 120 | 5 | 5 | 22 | 6 | 3 | 143 | 8 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 41 | 7 | 5 | 207 | 11 | 10 | 191 | | | | | | 124 | 5 | 5 | 23 | 6 | 3 | 147 | 9 | 6 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 32 | 5 | 5 | 159 | 13 | 12 | 149 | | | | | | 97 | 7 | 7 | 17 | 4 | 2 | 114 | 9 | 8 |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 33 | 5 | 4 | 166 | 13 | 12 | 153 | | | | | | 100 | 8 | 8 | 18 | 5 | 3 | 118 | 10 | 9 |
| ROHY1b | HRO (NEXBTL), meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 5 | 5 | 43 | 8 | 7 | 226 | 11 | 10 | 211 | | | | | | 138 | 4 | 4 | 25 | 6 | 1 | 163 | 8 | 5 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 38 | 7 | 6 | 199 | 11 | 10 | 186 | | | | | | 120 | 5 | 5 | 22 | 6 | 1 | 142 | 8 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 39 | 7 | 6 | 205 | 11 | 10 | 191 | | | | | | 123 | 5 | 5 | 23 | 6 | 1 | 146 | 9 | 6 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 30 | 5 | 5 | 159 | 13 | 12 | 149 | | | | | | 96 | 8 | 8 | 17 | 5 | 1 | 113 | 10 | 8 |
| ROHY1c | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 31 | 6 | 5 | 164 | 13 | 13 | 154 | | | | | | 99 | 8 | 8 | 18 | 5 | 1 | 117 | 10 | 8 |
| | HRO (UOP), meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 5 | 5 | 42 | 8 | 6 | 225 | 11 | 9 | 212 | | | | | | 138 | 4 | 4 | 26 | 6 | 1 | 163 | 8 | 5 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 37 | 7 | 6 | 198 | 11 | 10 | 187 | | | | | | 120 | 5 | 5 | 22 | 6 | 1 | 142 | 8 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 38 | 7 | 6 | 204 | 11 | 10 | 192 | | | | | | 123 | 5 | 5 | 23 | 6 | 1 | 146 | 9 | 6 |
| ROHY4a | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 30 | 6 | 5 | 159 | 13 | 12 | 149 | | | | | | 96 | 8 | 8 | 17 | 5 | 1 | 113 | 10 | 8 |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 30 | 6 | 5 | 163 | 13 | 12 | 154 | | | | | | 99 | 8 | 8 | 18 | 5 | 1 | 117 | 10 | 8 |
| | HRO (NEXBTL), cake to biogas | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 5 | 5 | 40 | 5 | 7 | 223 | 8 | 10 | 208 | | | | | | 138 | 4 | 4 | 24 | 6 | 1 | 162 | 8 | 5 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 35 | 4 | 6 | 196 | 9 | 10 | 183 | | | | | | 120 | 5 | 5 | 21 | 6 | 1 | 140 | 8 | 6 |
| SOHY1 | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 36 | 4 | 6 | 202 | 9 | 10 | 189 | | | | | | 123 | 5 | 5 | 21 | 6 | 1 | 144 | 9 | 6 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 28 | 3 | 5 | 157 | 11 | 12 | 147 | | | | | | 96 | 8 | 8 | 16 | 5 | 1 | 112 | 10 | 8 |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 29 | 3 | 5 | 162 | 12 | 12 | 151 | | | | | | 99 | 8 | 8 | 16 | 5 | 1 | 115 | 10 | 8 |
| | HRO (NEXBTL), meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 5 | 5 | 42 | 7 | 6 | 225 | 10 | 9 | 211 | | | | | | 138 | 4 | 4 | 24 | 6 | 1 | 162 | 8 | 4 |
| POHY1a | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 37 | 6 | 5 | 198 | 11 | 10 | 186 | | | | | | 120 | 5 | 5 | 21 | 5 | 1 | 140 | 8 | 5 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 38 | 7 | 5 | 204 | 11 | 10 | 191 | | | | | | 123 | 5 | 5 | 21 | 6 | 1 | 144 | 8 | 5 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 29 | 5 | 4 | 158 | 12 | 12 | 149 | | | | | | 96 | 8 | 8 | 16 | 4 | 1 | 112 | 10 | 8 |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 30 | 5 | 4 | 163 | 13 | 12 | 153 | | | | | | 99 | 8 | 8 | 16 | 5 | 1 | 115 | 10 | 8 |
| | HPO (NEXBTL), CH4 from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| POHY1b | DICI 2002 95/5 | 183 | 5 | 5 | 45 | 7 | 6 | 228 | 10 | 9 | 211 | | | | | | 138 | 4 | 4 | 26 | 6 | 2 | 164 | 8 | 5 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 40 | 6 | 5 | 201 | 10 | 10 | 185 | | | | | | 120 | 5 | 5 | 23 | 6 | 2 | 142 | 8 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 41 | 6 | 5 | 206 | 11 | 10 | 191 | | | | | | 123 | 5 | 5 | 23 | 6 | 2 | 146 | 8 | 6 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 32 | 5 | 4 | 161 | 12 | 12 | 148 | | | | | | 96 | 8 | 8 | 18 | 5 | 2 | 114 | 10 | 8 |
| | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 33 | 5 | 4 | 166 | 13 | 12 | 153 | | | | | | 99 | 8 | 8 | 18 | 5 | 2 | 117 | 10 | 8 |
| POHY1c | HPO (NEXBTL), no CH4 from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 5 | 5 | 45 | 7 | 6 | 228 | 10 | 9 | 211 | | | | | | 138 | 4 | 4 | 26 | 6 | 3 | 161 | 8 | 5 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 40 | 6 | 5 | 201 | 11 | 10 | 186 | | | | | | 120 | 5 | 5 | 23 | 5 | 3 | 142 | 8 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 41 | 6 | 5 | 207 | 11 | 10 | 191 | | | | | | 123 | 5 | 5 | 23 | 6 | 3 | 146 | 8 | 6 |
| | DICI hybrid n DPF 95/5 | 129 | 10 | 10 | 32 | 5 | 4 | 161 | 12 | 12 | 149 | | | | | | 96 | 8 | 8 | 18 | 4 | 2 | 114 | 10 | 8 |
| POHY1d | DICI hybrid DPF 95/5 | 133 | 10 | 10 | 33 | 5 | 4 | 166 | 13 | 12 | 153 | | | | | | 99 | 8 | 8 | 18 | 5 | 2 | 117 | 10 | 9 |
| | HPO (NEXBTL), CH4 from waste, no heat credit | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 95/5 | 183 | 5 | 5 | 45 | 7 | 6 | 228 | 10 | 9 | 211 | | | | | | 138 | 4 | 4 | 26 | 6 | 3 | 164 | 8 | 5 |
| | DICI 2010 no DPF 95/5 | 161 | 7 | 7 | 40 | 6 | 5 | 201 | 11 | 10 | 186 | | | | | | 120 | 5 | 5 | 23 | 5 | 3 | 142 | 8 | 6 |
| | DICI 2010 DPF 95/5 | 166 | 7 | 7 | 41 | 6 | 5 | 207 | 11 | 10 | 191 | | | | | | 123 | 5 | 5 | 23 | 6 | 3 | 146 | 8 | 6 |

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | | | | |
|---|--------------------------------------|-------------------------------|-----|-----|---------------------------------|-----|------|----------------|-----|-----|--------------------------------|-----|-----|------------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | Fossil | | | | | | TTW | | | | | | WTT | | | | | |
| | | TTW (MJ _f /100 km) | | | WTT (MJ _{net} /100 km) | | | WTW (MJ/100km) | | | WTW (MJ _{net} /100km) | | | Mean | | | Mean | | | Mean | | | Mean | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| Bio-diesel pathways contribution based on neat fuel (netback calculation) | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROFA1 | RME: Glycerine as chem, meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 199 | 19 | 19 | 383 | 25 | 26 | 66 | 10 | 10 | 143 | 4 | 4 | -62 | 17 | 24 | 80 | 16 | 23 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 176 | 16 | 17 | 337 | 25 | 25 | 58 | 10 | 11 | 124 | 5 | 5 | -55 | 15 | 21 | 70 | 14 | 20 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 181 | 17 | 18 | 346 | 25 | 26 | 59 | 11 | 11 | 128 | 5 | 5 | -56 | 16 | 22 | 72 | 14 | 20 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 141 | 13 | 14 | 270 | 26 | 26 | 46 | 13 | 13 | 100 | 8 | 8 | -44 | 12 | 17 | 56 | 12 | 16 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 145 | 13 | 14 | 278 | 27 | 27 | 48 | 13 | 13 | 103 | 8 | 8 | -45 | 13 | 18 | 58 | 12 | 16 | | | |
| ROFA2 | RME: Glycerine and meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 209 | 18 | 20 | 392 | 25 | 26 | 75 | 10 | 11 | 143 | 4 | 4 | -53 | 17 | 23 | 90 | 16 | 22 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 184 | 16 | 17 | 345 | 24 | 26 | 66 | 11 | 11 | 124 | 5 | 5 | -47 | 15 | 20 | 78 | 14 | 19 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 189 | 16 | 18 | 355 | 25 | 27 | 68 | 11 | 12 | 128 | 5 | 5 | -48 | 16 | 21 | 80 | 15 | 19 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 147 | 12 | 14 | 276 | 26 | 27 | 53 | 13 | 13 | 100 | 8 | 8 | -37 | 12 | 16 | 63 | 12 | 15 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 152 | 13 | 14 | 285 | 27 | 28 | 54 | 13 | 14 | 103 | 8 | 8 | -39 | 12 | 17 | 65 | 12 | 16 | | | |
| ROFA3 | RME: Glycerine to biogas, meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 202 | 18 | 20 | 385 | 25 | 27 | 68 | 10 | 10 | 143 | 4 | 4 | -56 | 18 | 24 | 87 | 17 | 23 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 178 | 16 | 18 | 339 | 24 | 26 | 60 | 10 | 11 | 124 | 5 | 5 | -49 | 16 | 21 | 75 | 15 | 20 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 183 | 16 | 18 | 349 | 25 | 27 | 62 | 11 | 11 | 128 | 5 | 5 | -51 | 16 | 22 | 77 | 15 | 21 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 143 | 13 | 14 | 272 | 26 | 27 | 48 | 13 | 13 | 100 | 8 | 8 | -39 | 13 | 17 | 61 | 12 | 16 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 147 | 13 | 15 | 280 | 26 | 28 | 49 | 13 | 13 | 103 | 8 | 8 | -41 | 13 | 18 | 62 | 13 | 17 | | | |
| ROFA4 | RME: Glycerine and cake to biogas | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 127 | 18 | 19 | 310 | 23 | 23 | -3 | 6 | 6 | 143 | 4 | 4 | -88 | 14 | 23 | 55 | 12 | 21 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 112 | 16 | 17 | 273 | 22 | 22 | -3 | 7 | 7 | 124 | 5 | 5 | -77 | 12 | 20 | 47 | 10 | 18 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 115 | 17 | 17 | 281 | 23 | 23 | -3 | 7 | 7 | 128 | 5 | 5 | -79 | 12 | 21 | 48 | 11 | 19 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 90 | 13 | 13 | 219 | 22 | 23 | -2 | 10 | 10 | 100 | 8 | 8 | -62 | 10 | 16 | 38 | 9 | 14 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 93 | 13 | 14 | 226 | 23 | 23 | -2 | 10 | 10 | 103 | 8 | 8 | -64 | 10 | 17 | 39 | 9 | 14 | | | |
| ROFE1 | REE: Glycerine as chem, meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 216 | 17 | 20 | 399 | 25 | 27 | 58 | 8 | 9 | 143 | 4 | 4 | -64 | 14 | 24 | 79 | 12 | 22 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 190 | 15 | 18 | 352 | 24 | 27 | 51 | 9 | 10 | 124 | 5 | 5 | -57 | 12 | 21 | 68 | 11 | 19 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 196 | 16 | 19 | 362 | 25 | 28 | 53 | 10 | 10 | 128 | 5 | 5 | -58 | 12 | 22 | 70 | 11 | 20 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 152 | 12 | 14 | 281 | 26 | 28 | 41 | 12 | 12 | 100 | 8 | 8 | -45 | 10 | 17 | 55 | 10 | 15 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 157 | 13 | 15 | 290 | 27 | 29 | 42 | 12 | 13 | 103 | 8 | 8 | -47 | 10 | 17 | 56 | 10 | 16 | | | |
| ROFE2 | REE: Glycerine and meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 225 | 19 | 19 | 408 | 27 | 26 | 67 | 10 | 9 | 143 | 4 | 4 | -56 | 15 | 22 | 87 | 14 | 21 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 198 | 17 | 17 | 359 | 26 | 26 | 59 | 10 | 10 | 124 | 5 | 5 | -49 | 14 | 20 | 76 | 13 | 18 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 204 | 18 | 17 | 370 | 27 | 27 | 61 | 10 | 10 | 128 | 5 | 5 | -50 | 14 | 20 | 78 | 13 | 19 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 159 | 14 | 13 | 288 | 28 | 27 | 47 | 13 | 12 | 100 | 8 | 8 | -39 | 11 | 16 | 61 | 11 | 15 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 164 | 14 | 14 | 297 | 29 | 28 | 49 | 13 | 13 | 103 | 8 | 8 | -40 | 11 | 16 | 63 | 11 | 15 | | | |
| ROFE3 | REE: Glycerine to biogas, meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 219 | 18 | 18 | 402 | 25 | 25 | 61 | 9 | 9 | 143 | 4 | 4 | -58 | 16 | 21 | 85 | 15 | 20 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 193 | 16 | 16 | 354 | 25 | 25 | 54 | 10 | 10 | 124 | 5 | 5 | -51 | 14 | 19 | 73 | 13 | 18 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 198 | 16 | 16 | 364 | 26 | 26 | 55 | 10 | 10 | 128 | 5 | 5 | -53 | 15 | 19 | 75 | 13 | 18 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 154 | 13 | 13 | 283 | 27 | 26 | 43 | 12 | 12 | 100 | 8 | 8 | -41 | 11 | 15 | 59 | 11 | 14 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 159 | 13 | 13 | 292 | 27 | 27 | 44 | 12 | 12 | 103 | 8 | 8 | -42 | 12 | 16 | 61 | 12 | 15 | | | |
| ROFE4 | REE: Glycerine and cake to biogas | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 141 | 141 | -141 | 324 | 146 | 137 | -13 | 15 | 14 | 143 | 4 | 4 | -93 | -93 | 93 | 50 | 96 | 90 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 124 | 124 | -124 | 286 | 130 | 119 | -12 | 14 | 13 | 124 | 5 | 5 | -82 | -82 | 82 | 43 | 85 | 78 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 128 | 128 | -128 | 294 | 134 | 123 | -12 | 14 | 14 | 128 | 5 | 5 | -84 | -84 | 84 | 44 | 88 | 81 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 100 | 100 | -100 | 229 | 108 | 92 | -9 | 14 | 13 | 100 | 8 | 8 | -65 | -65 | 65 | 35 | 71 | 61 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 103 | 103 | -103 | 236 | 111 | 95 | -10 | 15 | 14 | 103 | 8 | 8 | -67 | -67 | 67 | 36 | 73 | 63 | | | |
| SOFA1 | SME: Glycerine as chem, meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 170 | 17 | 18 | 353 | 23 | 24 | 58 | 10 | 10 | 143 | 4 | 4 | -92 | 9 | 8 | 51 | 8 | 7 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 150 | 15 | 16 | 311 | 23 | 23 | 51 | 10 | 10 | 124 | 5 | 5 | -81 | 8 | 7 | 44 | 7 | 7 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 154 | 16 | 16 | 320 | 23 | 24 | 53 | 10 | 11 | 128 | 5 | 5 | -83 | 8 | 8 | 45 | 7 | 7 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 120 | 12 | 13 | 249 | 24 | 24 | 41 | 12 | 12 | 100 | 8 | 8 | -65 | 6 | 6 | 35 | 8 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 124 | 13 | 13 | 257 | 24 | 25 | 42 | 13 | 13 | 103 | 8 | 8 | -67 | 6 | 6 | 37 | 8 | 8 | | | |
| SOFA2 | SME: Glycerine and meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 180 | 18 | 17 | 363 | 24 | 23 | 68 | 10 | 10 | 143 | 4 | 4 | -82 | 9 | 9 | 61 | 8 | 7 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 158 | 16 | 15 | 319 | 24 | 23 | 59 | 11 | 11 | 124 | 5 | 5 | -72 | 8 | 8 | 52 | 7 | 7 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 163 | 17 | 16 | 328 | 25 | 24 | 61 | 11 | 11 | 128 | 5 | 5 | -74 | 9 | 8 | 54 | 8 | 7 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 127 | 13 | 12 | 256 | 25 | 24 | 48 | 13 | 13 | 100 | 8 | 8 | -58 | 7 | 6 | 42 | 8 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 131 | 13 | 13 | 264 | 25 | 25 | 49 | 13 | 13 | 103 | 8 | 8 | -60 | 7 | 6 | 43 | 8 | 8 | | | |
| SOFA3 | SME: Glycerine to biogas, meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 173 | 14 | 18 | 356 | 20 | 24 | 61 | 9 | 10 | 143 | 4 | 4 | -85 | 9 | 10 | 58 | 8 | 9 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 152 | 12 | 16 | 314 | 20 | 24 | 54 | 10 | 10 | 124 | 5 | 5 | -75 | 8 | 9 | 50 | 7 | 8 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 157 | 13 | 17 | 322 | 21 | 24 | 55 | 10 | 11 | 128 | 5 | 5 | -77 | 8 | 9 | 51 | 7 | 8 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 122 | 10 | 13 | 251 | 22 | 24 | 43 | 12 | 13 | 100 | 8 | 8 | -60 | 6 | 7 | 40 | 8 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 126 | 10 | 13 | 259 | 22 | 25 | 44 | 12 | 13 | 103 | 8 | 8 | -62 | 6 | 8 | 41 | 8 | 8 | | | |
| SOFA4 | SME: Glycerine and cake to biogas | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 107 | 1 | 1 | 290 | 7 | 7 | -2 | 5 | 5 | 143 | 4 | 4 | -112 | 8 | 9 | 31 | 6 | 7 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 94 | 1 | 1 | 255 | 8 | 8 | -2 | 7 | 7 | 124 | 5 | 5 | -98 | 7 | 8 | 26 | 6 | 6 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 96 | 1 | 1 | 262 | 9 | 9 | -2 | 7 | 7 | 128 | 5 | 5 | -101 | 7 | 8 | 27 | 6 | 7 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 75 | 1 | 1 | 204 | 12 | | | | | | | | | | | | | | | | |

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | | | | |
|---|---|-----------------------------|-----|-----|-----------------------------|-----|-----|----------------|-----|-----|-----------------------------|-----|-----|------------------------------|-----|-----|------|-----|-----|------|-----|-----|--|--|--|
| | | Total | | | | | | Fossil | | | | | | TTW | | | | | | WTT | | | | | |
| | | TTW (MJ ₁₀₀ /km) | | | WTT (MJ ₁₀₀ /km) | | | WTW (MJ/100km) | | | WTW (MJ ₁₀₀ /km) | | | TTW | | | WTT | | | WTW | | | | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | | | |
| Bio-diesel pathways contribution based on neat fuel (netback calculation) | | | | | | | | | | | | | | | | | | | | | | | | | |
| SYFA1 | SYME: Glycerine as chem, mill in EU, meal as AF in Brazil | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 493 | 3 | 3 | 676 | 18 | 19 | 111 | 7 | 7 | 143 | 4 | 4 | -42 | 91 | 41 | 101 | 89 | 40 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 433 | 2 | 3 | 595 | 22 | 22 | 98 | 8 | 8 | 124 | 5 | 5 | -37 | 80 | 36 | 88 | 78 | 35 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 446 | 3 | 3 | 611 | 23 | 23 | 101 | 9 | 9 | 128 | 5 | 5 | -38 | 82 | 37 | 90 | 81 | 36 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 347 | 2 | 2 | 476 | 30 | 30 | 78 | 12 | 12 | 100 | 8 | 8 | -30 | 64 | 29 | 70 | 62 | 28 | | | |
| SYFA3 | DICI hybrid DPF | 133 | 10 | 10 | 358 | 2 | 2 | 491 | 31 | 31 | 81 | 12 | 12 | 103 | 8 | 8 | -30 | 66 | 30 | 73 | 64 | 29 | | | |
| | SYME: Glycerine to biogas, mill in Brazil, meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 448 | 2 | 2 | 631 | 17 | 17 | 114 | 7 | 7 | 143 | 4 | 4 | -32 | 97 | 25 | 111 | 96 | 25 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 436 | 2 | 2 | 597 | 22 | 22 | 100 | 8 | 8 | 124 | 5 | 5 | -31 | 94 | 25 | 93 | 83 | 24 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 448 | 2 | 2 | 614 | 22 | 22 | 103 | 9 | 9 | 128 | 5 | 5 | -32 | 97 | 25 | 96 | 85 | 25 | | | |
| POFA1a | DICI hybrid n DPF | 129 | 10 | 10 | 349 | 2 | 2 | 478 | 30 | 30 | 80 | 12 | 12 | 100 | 8 | 8 | -25 | 75 | 20 | 75 | 74 | 19 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 360 | 2 | 2 | 493 | 31 | 31 | 83 | 12 | 12 | 103 | 8 | 8 | -26 | 78 | 20 | 77 | 76 | 20 | | | |
| | PME: Glycerine as chem, CH4 emissions from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 239 | 1 | 1 | 422 | 10 | 10 | 50 | 6 | 6 | 143 | 4 | 4 | -51 | 9 | 54 | 92 | 8 | 53 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 210 | 1 | 1 | 372 | 12 | 12 | 44 | 7 | 7 | 124 | 5 | 5 | -45 | 8 | 48 | 80 | 8 | 46 | | | |
| POFA1b | DICI 2010 DPF | 166 | 7 | 7 | 216 | 1 | 1 | 382 | 13 | 13 | 45 | 7 | 7 | 128 | 5 | 5 | -46 | 8 | 49 | 82 | 8 | 48 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 168 | 1 | 1 | 297 | 17 | 17 | 35 | 10 | 10 | 100 | 8 | 8 | -36 | 6 | 38 | 64 | 8 | 36 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 174 | 1 | 1 | 307 | 18 | 18 | 36 | 11 | 11 | 103 | 8 | 8 | -37 | 6 | 40 | 66 | 9 | 38 | | | |
| | PME: Glycerine as chem, no CH4 from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 239 | 1 | 1 | 422 | 10 | 10 | 50 | 6 | 6 | 143 | 4 | 4 | -96 | 9 | 53 | 46 | 8 | 51 | | | |
| POFA2 | DICI 2010 no DPF | 161 | 7 | 7 | 210 | 1 | 1 | 372 | 12 | 12 | 44 | 7 | 7 | 124 | 5 | 5 | -85 | 8 | 47 | 40 | 7 | 44 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 216 | 1 | 1 | 382 | 13 | 13 | 45 | 7 | 7 | 128 | 5 | 5 | -87 | 8 | 48 | 41 | 7 | 45 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 168 | 1 | 1 | 297 | 17 | 17 | 35 | 10 | 10 | 100 | 8 | 8 | -68 | 7 | 38 | 32 | 8 | 33 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 174 | 1 | 1 | 307 | 18 | 18 | 36 | 11 | 11 | 103 | 8 | 8 | -70 | 7 | 39 | 33 | 8 | 34 | | | |
| | PME: Glycerine to biogas, CH4 emissions from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| ROHY1a | DICI 2002 | 183 | 5 | 5 | 242 | 1 | 1 | 425 | 10 | 10 | 53 | 6 | 6 | 143 | 4 | 4 | -44 | 9 | 48 | 98 | 9 | 47 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 213 | 1 | 1 | 374 | 12 | 12 | 46 | 7 | 7 | 124 | 5 | 5 | -39 | 8 | 42 | 85 | 8 | 41 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 219 | 1 | 1 | 385 | 12 | 12 | 48 | 7 | 7 | 128 | 5 | 5 | -40 | 8 | 44 | 88 | 9 | 42 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 170 | 1 | 1 | 299 | 17 | 17 | 37 | 10 | 10 | 100 | 8 | 8 | -31 | 7 | 34 | 69 | 9 | 32 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 176 | 1 | 1 | 309 | 18 | 18 | 38 | 11 | 11 | 103 | 8 | 8 | -32 | 7 | 35 | 71 | 9 | 33 | | | |
| ROHY1b | HRO (NEXBTL), meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 192 | 19 | 19 | 375 | 25 | 25 | 63 | 10 | 10 | 133 | 4 | 4 | -50 | 15 | 24 | 83 | 14 | 23 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 169 | 17 | 16 | 330 | 25 | 25 | 55 | 10 | 10 | 116 | 5 | 5 | -44 | 13 | 21 | 72 | 12 | 20 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 174 | 17 | 17 | 340 | 26 | 25 | 57 | 11 | 11 | 119 | 5 | 5 | -45 | 14 | 22 | 74 | 13 | 21 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 136 | 13 | 13 | 265 | 26 | 26 | 44 | 13 | 13 | 93 | 7 | 7 | -35 | 11 | 17 | 58 | 11 | 16 | | | |
| ROHY1c | DICI hybrid DPF | 133 | 10 | 10 | 140 | 14 | 14 | 273 | 27 | 26 | 46 | 13 | 13 | 96 | 7 | 7 | -36 | 11 | 18 | 60 | 11 | 16 | | | |
| | HRO (UOP), meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 168 | 16 | 17 | 351 | 22 | 23 | 75 | 11 | 11 | 133 | 4 | 4 | -47 | 13 | 23 | 85 | 12 | 22 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 148 | 14 | 15 | 309 | 21 | 22 | 66 | 11 | 12 | 116 | 5 | 5 | -42 | 12 | 20 | 74 | 11 | 19 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 152 | 14 | 15 | 317 | 22 | 23 | 68 | 12 | 12 | 119 | 5 | 5 | -43 | 12 | 21 | 76 | 11 | 20 | | | |
| ROHY4a | DICI hybrid n DPF | 129 | 10 | 10 | 118 | 11 | 12 | 247 | 23 | 23 | 53 | 13 | 14 | 93 | 7 | 7 | -33 | 9 | 16 | 60 | 10 | 15 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 122 | 12 | 12 | 255 | 23 | 24 | 55 | 14 | 14 | 96 | 7 | 7 | -34 | 10 | 17 | 61 | 10 | 16 | | | |
| | HRO (NEXBTL), cake to biogas | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 121 | 19 | 18 | 304 | 23 | 22 | -6 | 6 | 6 | 133 | 4 | 4 | -81 | 16 | 24 | 52 | 14 | 22 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 106 | 17 | 16 | 267 | 22 | 21 | -5 | 7 | 7 | 116 | 5 | 5 | -71 | 14 | 21 | 44 | 12 | 19 | | | |
| SOHY1 | DICI 2010 DPF | 166 | 7 | 7 | 109 | 17 | 16 | 275 | 23 | 22 | -5 | 7 | 7 | 119 | 5 | 5 | -73 | 14 | 22 | 46 | 12 | 19 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 85 | 13 | 12 | 214 | 22 | 21 | -4 | 10 | 10 | 93 | 7 | 7 | -57 | 11 | 17 | 36 | 10 | 15 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 109 | 17 | 16 | 375 | 12 | 12 | -5 | 7 | 7 | 96 | 7 | 7 | -73 | 14 | 22 | 84 | 9 | 38 | | | |
| | HSO (NEXBTL), meal as AF | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 164 | 17 | 19 | 347 | 22 | 24 | 56 | 9 | 10 | 133 | 4 | 4 | -79 | 9 | 8 | 54 | 8 | 7 | | | |
| POHY1a | DICI 2010 no DPF | 161 | 7 | 7 | 144 | 15 | 16 | 305 | 22 | 23 | 49 | 10 | 10 | 116 | 5 | 5 | -69 | 8 | 7 | 46 | 7 | 6 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 148 | 15 | 17 | 314 | 23 | 24 | 50 | 10 | 11 | 119 | 5 | 5 | -71 | 8 | 7 | 48 | 7 | 7 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 115 | 12 | 13 | 244 | 23 | 24 | 39 | 12 | 12 | 93 | 7 | 7 | -56 | 6 | 6 | 38 | 7 | 7 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 119 | 12 | 13 | 252 | 24 | 25 | 40 | 13 | 13 | 96 | 7 | 7 | -57 | 7 | 6 | 39 | 8 | 8 | | | |
| | HPO (NEXBTL), CH4 from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| POHY1b | DICI 2002 | 183 | 5 | 5 | 231 | 2 | 1 | 415 | 10 | 10 | 47 | 6 | 6 | 133 | 4 | 4 | -39 | 10 | 44 | 94 | 10 | 43 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 204 | 1 | 1 | 365 | 12 | 12 | 42 | 7 | 7 | 116 | 5 | 5 | -34 | 9 | 38 | 82 | 9 | 37 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 209 | 1 | 1 | 375 | 12 | 12 | 43 | 7 | 7 | 119 | 5 | 5 | -35 | 9 | 40 | 84 | 9 | 38 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 163 | 1 | 1 | 292 | 17 | 17 | 33 | 10 | 10 | 93 | 7 | 7 | -27 | 7 | 31 | 66 | 9 | 30 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 168 | 1 | 1 | 301 | 17 | 17 | 34 | 11 | 11 | 96 | 7 | 7 | -28 | 8 | 32 | 68 | 9 | 30 | | | |
| POHY1c | HPO (NEXBTL), no CH4 from waste | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 231 | 2 | 1 | 415 | 10 | 10 | 47 | 6 | 6 | 133 | 4 | 4 | -83 | 9 | 52 | 49 | 7 | 49 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 204 | 1 | 1 | 365 | 12 | 12 | 42 | 7 | 7 | 116 | 5 | 5 | -73 | 8 | 45 | 42 | 7 | 43 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 209 | 1 | 1 | 375 | 12 | 12 | 43 | 7 | 7 | 119 | 5 | 5 | -76 | 8 | 47 | 44 | 7 | 44 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 163 | 1 | 1 | 292 | 17 | 17 | 33 | 10 | 10 | 93 | 7 | 7 | -59 | 6 | 36 | 34 | 7 | 33 | | | |
| POHY1d | DICI hybrid DPF | 133 | 10 | 10 | 168 | 1 | 1 | 301 | 17 | 17 | 34 | 11 | 11 | 96 | 7 | 7 | -61 | 6 | 38 | 35 | 8 | 34 | | | |
| | HPO (NEXBTL), CH4 from waste, no heat credit | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 236 | 1 | 2 | 419 | 10 | 10 | 52 | 6 | 6 | 133 | 4 | 4 | -35 | 8 | 47 | 98 | 8 | 46 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 208 | 1 | 1 | 369 | 12 | 12 | 46 | 7 | 7 | 116 | 5 | 5 | -31 | 7 | 42 | 85 | 8 | 41 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 214 | 1 | 1 | 379 | 12 | 13 | 47 | 7 | 7 | 119 | 5 | 5 | -32 | 7 | 43 | 87 | 8 | 42 | | | |
| POHY1e | DICI hybrid n DPF | 129 | 10 | 10 | 166 | 1 | 1 | 295 | 17 | 17 | 37 | 10 | 10 | 93 | 7 | 7 | -25 | 6 | 33 | 68 | 8 | 32 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 171 | 1 | 1 | 304 | 17 | 18 | 38 | 11 | 11 | 96 | 7 | 7 | -26 | 6 | 34 | 70 | 8 | 33 | | | |

6 Synthetic diesel fuel

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2e} / km | | | | | | | | | | | |
|-------------------------------|--|--------------------|-----|-----|-------------------------------|-----|-----|-----------------|-----|-----|-------------------------------|-----|-----|-----------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | Fossil | | | | | | TTW | | | | | | WTT | | | | | |
| | | TTW (MJ/100 km) | | | WTT (MJ _d /100 km) | | | WTTW (MJ/100km) | | | WTTW (MJ _d /100km) | | | Mean | | | Mean | | | Mean | | | Mean | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| SD pathways, as blended fuels | | | | | | | | | | | | | | | | | | | | | | | | | |
| GPSD1a | Syn-diesel: NG 7000 km, GTL, Diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 42 | 7 | 5 | 226 | 10 | 8 | | | | 138 | 4 | 4 | 32 | 7 | 1 | 169 | 9 | 5 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 37 | 11 | 4 | 198 | 15 | 9 | | | | 120 | 5 | 5 | 28 | 6 | 1 | 147 | 9 | 5 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 38 | 12 | 4 | 204 | 15 | 9 | | | | 123 | 5 | 5 | 29 | 7 | 1 | 152 | 9 | 6 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 30 | 9 | 3 | 159 | 15 | 11 | | | | 96 | 8 | 8 | 22 | 5 | 1 | 118 | 10 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 31 | 9 | 3 | 164 | 16 | 12 | | | | 99 | 8 | 8 | 23 | 5 | 1 | 122 | 10 | 8 | | | |
| GPSD1b | Syn-diesel: NG 4000 km, GTL, Diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 41 | 5 | 5 | 224 | 9 | 8 | | | | 138 | 4 | 4 | 31 | 7 | 1 | 168 | 9 | 4 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 36 | 5 | 4 | 197 | 9 | 9 | | | | 120 | 5 | 5 | 27 | 6 | 1 | 146 | 9 | 5 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 37 | 5 | 4 | 203 | 10 | 9 | | | | 123 | 5 | 5 | 28 | 6 | 1 | 151 | 9 | 6 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 29 | 4 | 3 | 158 | 12 | 11 | | | | 96 | 8 | 8 | 22 | 5 | 1 | 118 | 10 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 30 | 4 | 3 | 163 | 12 | 12 | | | | 99 | 8 | 8 | 22 | 5 | 1 | 121 | 10 | 8 | | | |
| GRSD1 | Syn-diesel: Rem GTL, Sea, Diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 40 | 5 | 4 | 223 | 8 | 8 | | | | 138 | 4 | 4 | 30 | 6 | 1 | 167 | 8 | 4 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 35 | 4 | 4 | 196 | 9 | 9 | | | | 120 | 5 | 5 | 26 | 6 | 1 | 146 | 8 | 5 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 36 | 5 | 4 | 202 | 9 | 9 | | | | 123 | 5 | 5 | 27 | 6 | 1 | 150 | 9 | 6 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 28 | 4 | 3 | 157 | 11 | 11 | | | | 96 | 8 | 8 | 21 | 5 | 1 | 117 | 10 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 29 | 4 | 3 | 162 | 12 | 12 | | | | 99 | 8 | 8 | 22 | 5 | 1 | 120 | 10 | 8 | | | |
| WWS1 | Syn-diesel: W Wood, diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 45 | 6 | 5 | 228 | 9 | 8 | 209 | | | 138 | 4 | 4 | 22 | 6 | 1 | 159 | 8 | 4 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 40 | 5 | 4 | 201 | 10 | 9 | 184 | | | 120 | 5 | 5 | 19 | 5 | 0 | 138 | 8 | 5 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 41 | 5 | 4 | 206 | 10 | 9 | 189 | | | 123 | 5 | 5 | 20 | 6 | 0 | 142 | 8 | 5 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 32 | 4 | 3 | 161 | 12 | 12 | 147 | | | 96 | 8 | 8 | 15 | 4 | 0 | 111 | 9 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 33 | 4 | 4 | 166 | 12 | 12 | 152 | | | 99 | 8 | 8 | 16 | 4 | 0 | 115 | 9 | 8 | | | |
| WFS1 | Syn-diesel: F wood, diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 45 | 6 | 5 | 228 | 9 | 8 | 209 | | | 138 | 4 | 4 | 22 | 6 | 2 | 159 | 8 | 5 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 40 | 5 | 4 | 201 | 9 | 9 | 184 | | | 120 | 5 | 5 | 19 | 6 | 1 | 139 | 8 | 6 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 41 | 5 | 5 | 206 | 10 | 9 | 189 | | | 123 | 5 | 5 | 20 | 6 | 1 | 143 | 8 | 6 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 32 | 4 | 4 | 161 | 12 | 12 | 147 | | | 96 | 8 | 8 | 15 | 4 | 1 | 111 | 10 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 33 | 4 | 4 | 166 | 12 | 12 | 152 | | | 99 | 8 | 8 | 16 | 5 | 1 | 115 | 10 | 8 | | | |
| BLS1 | Syn-diesel: W Wood, Black liquor | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 42 | 5 | 5 | 225 | 8 | 8 | 209 | | | 138 | 4 | 4 | 21 | 6 | 1 | 159 | 8 | 4 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 37 | 4 | 4 | 198 | 9 | 9 | 184 | | | 120 | 5 | 5 | 19 | 5 | 0 | 138 | 8 | 5 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 38 | 5 | 4 | 204 | 9 | 9 | 189 | | | 123 | 5 | 5 | 19 | 6 | 0 | 142 | 8 | 5 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 30 | 4 | 3 | 159 | 11 | 11 | 147 | | | 96 | 8 | 8 | 15 | 4 | 0 | 111 | 9 | 8 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 31 | 4 | 3 | 164 | 12 | 12 | 152 | | | 99 | 8 | 8 | 16 | 4 | 0 | 114 | 9 | 8 | | | |
| SD pathways as neat fuel | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRSD1 | Syn-diesel: Rem GTL, Sea, Diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 115 | 10 | 10 | 298 | 15 | 15 | | | | 133 | 4 | 4 | 41 | 6 | 6 | 174 | 8 | 8 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 101 | 9 | 9 | 262 | 15 | 15 | | | | 116 | 5 | 5 | 36 | 5 | 5 | 152 | 8 | 8 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 104 | 9 | 9 | 270 | 15 | 15 | | | | 119 | 5 | 5 | 37 | 5 | 5 | 156 | 8 | 9 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 81 | 7 | 7 | 210 | 17 | 17 | | | | 93 | 7 | 7 | 29 | 4 | 4 | 122 | 9 | 10 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 84 | 7 | 8 | 217 | 17 | 17 | | | | 96 | 7 | 7 | 30 | 4 | 4 | 126 | 10 | 10 | | | |
| GRSD2 | Syn-diesel: Rem GTL, Sea, Rail/Road | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 115 | 8 | 11 | 299 | 12 | 16 | | | | 133 | 4 | 4 | 41 | 4 | 6 | 174 | 7 | 9 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 102 | 7 | 10 | 263 | 13 | 16 | | | | 116 | 5 | 5 | 36 | 4 | 6 | 152 | 7 | 9 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 104 | 7 | 10 | 270 | 13 | 16 | | | | 119 | 5 | 5 | 37 | 4 | 6 | 156 | 7 | 9 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 81 | 5 | 8 | 210 | 15 | 17 | | | | 93 | 7 | 7 | 29 | 3 | 5 | 122 | 9 | 10 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 84 | 6 | 8 | 217 | 16 | 18 | | | | 96 | 7 | 7 | 30 | 3 | 5 | 126 | 9 | 10 | | | |
| GRSD2C | Syn-diesel: Rem GTL, Sea, Rail/Road, CCS | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 139 | 9 | 11 | 323 | 14 | 16 | | | | 133 | 4 | 4 | 24 | 5 | 6 | 157 | 7 | 8 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 123 | 8 | 9 | 284 | 15 | 16 | | | | 116 | 5 | 5 | 21 | 4 | 5 | 137 | 7 | 8 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 126 | 8 | 10 | 292 | 15 | 17 | | | | 119 | 5 | 5 | 22 | 5 | 5 | 141 | 7 | 8 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 98 | 6 | 8 | 227 | 17 | 18 | | | | 93 | 7 | 7 | 17 | 4 | 4 | 110 | 9 | 9 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 101 | 7 | 8 | 234 | 18 | 19 | | | | 96 | 7 | 7 | 18 | 4 | 4 | 114 | 9 | 9 | | | |
| KOSD1 | Syn-diesel: CTL, Diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 178 | 15 | 15 | 361 | 21 | 21 | | | | 133 | 4 | 4 | 238 | 15 | 15 | 371 | 23 | 23 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 157 | 13 | 13 | 318 | 21 | 21 | | | | 116 | 5 | 5 | 210 | 13 | 14 | 325 | 23 | 23 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 161 | 13 | 14 | 327 | 21 | 22 | | | | 119 | 5 | 5 | 216 | 14 | 14 | 335 | 23 | 24 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 125 | 10 | 11 | 254 | 22 | 23 | | | | 93 | 7 | 7 | 168 | 11 | 11 | 261 | 25 | 25 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 129 | 11 | 11 | 262 | 23 | 23 | | | | 96 | 7 | 7 | 173 | 11 | 11 | 269 | 25 | 26 | | | |
| KOSD1C | Syn-diesel: CTL, CCS, Diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 194 | 14 | 14 | 377 | 20 | 21 | | | | 133 | 4 | 4 | 74 | 14 | 15 | 207 | 17 | 17 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 170 | 12 | 13 | 331 | 21 | 21 | | | | 116 | 5 | 5 | 65 | 13 | 13 | 181 | 16 | 16 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 175 | 13 | 13 | 341 | 21 | 22 | | | | 119 | 5 | 5 | 67 | 13 | 13 | 186 | 17 | 17 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 136 | 10 | 10 | 265 | 23 | 23 | | | | 93 | 7 | 7 | 52 | 10 | 10 | 145 | 16 | 16 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 141 | 10 | 10 | 274 | 23 | 24 | | | | 96 | 7 | 7 | 54 | 10 | 11 | 150 | 16 | 16 | | | |
| WWS1 | Syn-diesel: W Wood, diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 219 | 23 | 17 | 402 | 30 | 24 | 12 | 6 | 6 | 133 | 4 | 4 | -121 | 0 | 0 | 12 | 5 | 5 | | | |
| | DICI 2010 no DPF | 161 | 7 | 7 | 192 | 20 | 15 | 353 | 29 | 24 | 11 | 7 | 7 | 116 | 5 | 5 | -106 | 0 | 0 | 9 | 6 | 6 | | | |
| | DICI 2010 DPF | 166 | 7 | 7 | 198 | 21 | 16 | 363 | 30 | 25 | 11 | 7 | 7 | 119 | 5 | 5 | -109 | 0 | 0 | 10 | 7 | 7 | | | |
| | DICI hybrid n DPF | 129 | 10 | 10 | 154 | 16 | 12 | 283 | 30 | 26 | 8 | 10 | 10 | 93 | 7 | 7 | -85 | 0 | 0 | 8 | 10 | 10 | | | |
| | DICI hybrid DPF | 133 | 10 | 10 | 159 | 17 | 12 | 292 | 31 | 27 | 9 | 10 | 10 | 96 | 7 | 7 | -88 | 0 | 0 | 8 | 10 | 10 | | | |
| WFS1 | Syn-diesel: F wood, diesel mix | | | | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 219 | 20 | 20 | 402 | 27 | 27 | 12 | 6 | 6 | 133 | 4 | 4 | -117 | 3 | 20 | 16 | 4 | 17 | | </ | |

7 Methanol and DME

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | |
|-------------------|-----------------------------------|--------------------|------|-----|-------------------------------|------|-----|----------------|------|-----|------------------------------|------|-----|------------------------------|------|-----|------|------|-----|-----|----|----|
| | | Total | | | | | | Fossil | | | | | | TTW | | | WTT | | | WTW | | |
| | | TTW (MJ/100 km) | | | WTT (MJ _e /100 km) | | | WTW (MJ/100km) | | | WTW (MJ _e /100km) | | | | | | | | | | | |
| Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | | |
| Methanol pathways | | | | | | | | | | | | | | | | | | | | | | |
| GPME1a | MeOH: NG 7000 km, Syn, Rail/Road | 148 | 18 | 34 | 125 | 3 | 3 | 273 | 26 | 46 | | | | 109 | 13 | 25 | 62 | 15 | 6 | 172 | 27 | 33 |
| | Reformer + FC | | | | | | | | | | | | | | | | | | | | | |
| GPME1b | MeOH: NG 4000 km, Syn, Rail/Road | 148 | 18 | 34 | 102 | 12 | 6 | 250 | 30 | 45 | | | | 109 | 13 | 25 | 45 | 7 | 4 | 155 | 18 | 29 |
| | Reformer + FC | | | | | | | | | | | | | | | | | | | | | |
| GRME1 | MeOH: Rem Syn, Sea, Rail/Road | 148 | 18 | 34 | 90 | 2 | 5 | 238 | 22 | 43 | | | | 109 | 13 | 25 | 36 | 1 | 3 | 145 | 15 | 27 |
| | Reformer + FC | | | | | | | | | | | | | | | | | | | | | |
| KOME1 | MeOH: Coal EU-mix, Cen, Rail/Road | 148 | 18 | 34 | 138 | 14 | 13 | 286 | 35 | 56 | | | | 109 | 13 | 25 | 190 | 14 | 13 | 299 | 39 | 62 |
| | Reformer + FC | | | | | | | | | | | | | | | | | | | | | |
| WWME1 | MeOH: W Wood, Road | 148 | 18 | 34 | 158 | 19 | 20 | 306 | 42 | 65 | 9 | 18 | 34 | 109 | 13 | 25 | -95 | 0 | 0 | 14 | 18 | 33 |
| | Reformer + FC | | | | | | | | | | | | | | | | | | | | | |
| WFME1 | MeOH: F Wood, Road | 148 | 18 | 34 | 158 | 20 | 20 | 306 | 43 | 65 | 9 | 18 | 34 | 109 | 13 | 25 | -92 | 2 | 18 | 17 | 16 | 25 |
| | Reformer + FC | | | | | | | | | | | | | | | | | | | | | |
| BLME1 | MeOH: W Wood, Black liquor | 148 | 18 | 34 | 87 | 7 | 7 | 235 | 25 | 43 | 5 | 18 | 34 | 109 | 13 | 25 | -99 | 0 | 0 | 11 | 18 | 34 |
| | Reformer + FC | | | | | | | | | | | | | | | | | | | | | |
| DME pathways | | | | | | | | | | | | | | | | | | | | | | |
| GPDE1a | DME: NG 7000 km, Syn, Rail/Road | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 141 | 36 | 12 | 324 | 41 | 18 | | | | 126 | 4 | 4 | 73 | 21 | 7 | 199 | 23 | 10 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 124 | 32 | 11 | 285 | 38 | 18 | | | | 110 | 5 | 5 | 64 | 18 | 6 | 174 | 21 | 10 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 99 | 25 | 9 | 228 | 35 | 19 | | | | 89 | 7 | 7 | 51 | 15 | 5 | 140 | 20 | 11 |
| GPDE1b | DME: NG 4000 km, Syn, Rail/Road | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 114 | 15 | 8 | 297 | 19 | 13 | | | | 126 | 4 | 4 | 52 | 8 | 4 | 179 | 11 | 7 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 100 | 13 | 7 | 261 | 18 | 13 | | | | 110 | 5 | 5 | 46 | 7 | 4 | 156 | 10 | 7 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 80 | 10 | 6 | 209 | 19 | 15 | | | | 89 | 7 | 7 | 37 | 6 | 3 | 126 | 11 | 9 |
| GRDE1 | DME: Rem Syn, Sea, Rail/Road | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 97 | 3 | 6 | 280 | 8 | 10 | | | | 126 | 4 | 4 | 39 | 0 | 0 | 165 | 4 | 4 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 86 | 3 | 5 | 247 | 9 | 11 | | | | 110 | 5 | 5 | 34 | 0 | 0 | 144 | 5 | 5 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 69 | 2 | 4 | 196 | 12 | 14 | | | | 89 | 7 | 7 | 27 | 0 | 0 | 116 | 7 | 7 |
| KODE1 | DME: Coal EU-mix, Cen, Rail/Road | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 170 | 18 | 14 | 353 | 24 | 20 | | | | 126 | 4 | 4 | 237 | 1 | 0 | 364 | 9 | 8 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 150 | 16 | 13 | 311 | 23 | 20 | | | | 110 | 5 | 5 | 209 | 1 | 1 | 319 | 11 | 11 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 120 | 13 | 10 | 249 | 24 | 22 | | | | 89 | 7 | 7 | 167 | 1 | 1 | 256 | 15 | 15 |
| GRDE1C | DME: Rem Syn, Sea, Rail/Road, CCS | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 99 | 0 | 12 | 282 | 6 | 16 | | | | 126 | 4 | 4 | 20 | 0 | 0 | 147 | 4 | 4 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 87 | 0 | 11 | 248 | 8 | 16 | | | | 110 | 5 | 5 | 18 | 0 | 0 | 128 | 5 | 5 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 70 | 0 | 9 | 199 | 11 | 17 | | | | 89 | 7 | 7 | 14 | 0 | 0 | 103 | 7 | 7 |
| WWDE1 | DME: W Wood, Road | | | | | | | | | | 11 | 6 | 6 | 126 | 4 | 4 | -115 | 0 | 0 | 12 | 5 | 5 |
| | DICI 2002 | 183 | 5 | 5 | 196 | 23 | 25 | 379 | 30 | 31 | 10 | 7 | 7 | 110 | 5 | 5 | -101 | 0 | 0 | 9 | 6 | 6 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 172 | 20 | 22 | 333 | 29 | 30 | 8 | 10 | 10 | 89 | 7 | 7 | -81 | 0 | 0 | 8 | 9 | 9 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 138 | 16 | 18 | 267 | 29 | 30 | | | | | | | | | | | | |
| WFDE1 | DME: F Wood, Road | | | | | | | | | | 11 | 6 | 6 | 126 | 4 | 4 | -111 | 3 | 23 | 15 | 4 | 20 |
| | DICI 2002 | 183 | 5 | 5 | 196 | 21 | 26 | 379 | 28 | 32 | 10 | 7 | 7 | 110 | 5 | 5 | -98 | 2 | 20 | 12 | 5 | 17 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 172 | 19 | 23 | 333 | 27 | 31 | 10 | 7 | 7 | 110 | 5 | 5 | -98 | 2 | 20 | 12 | 5 | 17 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 138 | 15 | 18 | 267 | 27 | 30 | 8 | 10 | 10 | 89 | 7 | 7 | -78 | 2 | 16 | 10 | 8 | 12 |
| BLDE1 | DME: W Wood, Black liquor | | | | | | | | | | 6 | 6 | 6 | 126 | 4 | 4 | -119 | 0 | 0 | 7 | 5 | 5 |
| | DICI 2002 | 183 | 5 | 5 | 101 | 8 | 9 | 284 | 12 | 13 | 6 | 6 | 6 | 126 | 4 | 4 | -119 | 0 | 0 | 7 | 5 | 5 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 89 | 7 | 8 | 250 | 13 | 14 | 5 | 7 | 7 | 110 | 5 | 5 | -105 | 0 | 0 | 5 | 6 | 6 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 71 | 6 | 7 | 200 | 15 | 16 | 4 | 10 | 10 | 89 | 7 | 7 | -84 | 0 | 0 | 5 | 9 | 9 |

8.1 C-H₂ from natural gas reforming and coal gasification

WTW v3c July 2011 – Appendix 1

8.2 C-H₂ from biomass processing

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | | | | |
|----------|-------------------------------|--------------------|-----|-----|--------------------------------|-----|-----|----------------|-----|-----|-------------------------------|-----|-----|------------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | | | | Fossil | | | | | | | | | | | | | | |
| | | TTW (MJ/100 km) | | | WTT (MJ _{eq} /100 km) | | | WTT (MJ/100km) | | | WTT (MJ _{eq} /100km) | | | TTW | | | WTT | | | WTTW | | | | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| WWCH1 | C-H2: W Wood, O/S gasif | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 220 | 16 | 20 | 400 | 16 | 20 | 34 | 2 | 3 | 0 | 0 | 0 | 19 | 0 | 0 | 19 | 0 | 0 | 19 | 0 | 0 |
| | PISI 2010 | 168 | 5 | 5 | 204 | 15 | 18 | 372 | 21 | 25 | 32 | 6 | 6 | 0 | 0 | 0 | 18 | 0 | 0 | 18 | 1 | 1 | 18 | 1 | 1 |
| | PISI hybrid | 149 | 13 | 11 | 181 | 13 | 16 | 330 | 31 | 32 | 28 | 14 | 12 | 0 | 0 | 0 | 16 | 0 | 0 | 16 | 1 | 1 | 16 | 1 | 1 |
| | FC | 94 | 12 | 12 | 115 | 8 | 10 | 209 | 25 | 27 | 18 | 12 | 12 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 1 | 1 | 10 | 1 | 1 |
| WWCH2 | FC hybrid | 84 | 10 | 10 | 102 | 7 | 9 | 186 | 22 | 24 | 16 | 11 | 11 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 1 | 1 | 9 | 1 | 1 |
| | C-H2: W Wood, Cen gasif, Pipe | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 175 | 13 | 15 | 355 | 13 | 15 | 41 | 3 | 4 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 22 | 0 | 0 |
| | PISI 2010 | 168 | 5 | 5 | 162 | 12 | 14 | 330 | 18 | 20 | 38 | 6 | 7 | 0 | 0 | 0 | 20 | 0 | 0 | 21 | 1 | 1 | 21 | 1 | 1 |
| | PISI hybrid | 149 | 13 | 11 | 144 | 11 | 13 | 293 | 27 | 26 | 34 | 14 | 13 | 0 | 0 | 0 | 18 | 0 | 0 | 18 | 2 | 2 | 18 | 2 | 2 |
| WFCH1 | FC | 94 | 12 | 12 | 91 | 7 | 8 | 185 | 21 | 22 | 22 | 12 | 12 | 0 | 0 | 0 | 11 | 0 | 0 | 11 | 2 | 2 | 11 | 2 | 2 |
| | FC hybrid | 84 | 10 | 10 | 81 | 6 | 7 | 165 | 19 | 20 | 19 | 11 | 11 | 0 | 0 | 0 | 10 | 0 | 0 | 10 | 1 | 1 | 10 | 1 | 1 |
| | C-H2: W Wood, O/S gasif | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 224 | 19 | 18 | 404 | 19 | 18 | 39 | 3 | 3 | 0 | 0 | 0 | 27 | 3 | 22 | 27 | 3 | 22 | 27 | 3 | 22 |
| | PISI 2010 | 168 | 5 | 5 | 208 | 17 | 17 | 376 | 24 | 23 | 36 | 6 | 6 | 0 | 0 | 0 | 25 | 2 | 20 | 25 | 3 | 20 | 25 | 3 | 20 |
| WFCH2 | PISI hybrid | 149 | 13 | 11 | 185 | 15 | 15 | 333 | 34 | 31 | 32 | 14 | 12 | 0 | 0 | 0 | 22 | 2 | 18 | 22 | 4 | 20 | 22 | 4 | 20 |
| | FC | 94 | 12 | 12 | 117 | 10 | 9 | 211 | 27 | 26 | 20 | 12 | 12 | 0 | 0 | 0 | 14 | 1 | 11 | 14 | 3 | 12 | 14 | 3 | 12 |
| | FC hybrid | 84 | 10 | 10 | 104 | 9 | 8 | 188 | 24 | 23 | 18 | 11 | 11 | 0 | 0 | 0 | 12 | 1 | 10 | 12 | 3 | 12 | 12 | 3 | 12 |
| | C-H2: F Wood, Cen gasif, pipe | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 175 | 13 | 14 | 355 | 13 | 14 | 41 | 3 | 3 | 0 | 0 | 0 | 25 | 1 | 18 | 25 | 1 | 18 | 25 | 1 | 18 |
| BLCH1 | PISI 2010 | 168 | 5 | 5 | 162 | 12 | 13 | 330 | 18 | 19 | 38 | 6 | 7 | 0 | 0 | 0 | 23 | 1 | 17 | 24 | 2 | 17 | 24 | 2 | 17 |
| | PISI hybrid | 149 | 13 | 11 | 144 | 11 | 12 | 292 | 27 | 25 | 34 | 14 | 12 | 0 | 0 | 0 | 20 | 1 | 15 | 21 | 3 | 16 | 21 | 3 | 16 |
| | FC | 94 | 12 | 12 | 91 | 7 | 7 | 185 | 22 | 22 | 22 | 12 | 12 | 0 | 0 | 0 | 13 | 1 | 9 | 13 | 2 | 11 | 13 | 2 | 11 |
| | FC hybrid | 84 | 10 | 10 | 81 | 6 | 7 | 165 | 19 | 19 | 19 | 11 | 11 | 0 | 0 | 0 | 12 | 1 | 8 | 12 | 2 | 10 | 12 | 2 | 10 |
| | C-H2: W Wood, Black liquor | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 92 | 7 | 8 | 272 | 7 | 8 | 37 | 3 | 3 | 0 | 0 | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 18 | 0 | 0 |
| | PISI 2010 | 168 | 5 | 5 | 86 | 7 | 7 | 253 | 10 | 11 | 34 | 6 | 6 | 0 | 0 | 0 | 17 | 0 | 0 | 17 | 1 | 1 | 17 | 1 | 1 |
| | PISI hybrid | 149 | 13 | 11 | 76 | 6 | 6 | 224 | 18 | 17 | 30 | 14 | 12 | 0 | 0 | 0 | 15 | 0 | 0 | 15 | 1 | 1 | 15 | 1 | 1 |
| | FC | 94 | 12 | 12 | 48 | 4 | 4 | 142 | 15 | 15 | 19 | 12 | 12 | 0 | 0 | 0 | 9 | 0 | 0 | 9 | 1 | 1 | 9 | 1 | 1 |
| | FC hybrid | 84 | 10 | 10 | 43 | 3 | 4 | 126 | 13 | 13 | 17 | 11 | 11 | 0 | 0 | 0 | 8 | 0 | 0 | 8 | 1 | 1 | 8 | 1 | 1 |

8.3 C-H₂ from electrolysis (all electricity sources)

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | | | | |
|-----------|--|--------------------|-----|-----|--------------------------------|-----|-----|----------------|-----|-----|-------------------------------|-----|-----|------------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | Fossil | | | | | | TTW | | | | | | WTT | | | | | |
| | | TTW (MJ/100 km) | | | WTT (MJ _{eq} /100 km) | | | WTT (MJ/100km) | | | WTT (MJ _{eq} /100km) | | | TTW | | | WTT | | | WTT | | | | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| GP1a/CH1 | C-H ₂ : NG 7000 km, CCGT, O/S Ely | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 490 | 75 | 21 | 670 | 75 | 21 | | | | 0 | 0 | 0 | 406 | 45 | 13 | 406 | 45 | 13 | 406 | 45 | 13 |
| | PISI 2010 | 168 | 5 | 5 | 456 | 70 | 19 | 623 | 84 | 33 | | | | 0 | 0 | 0 | 377 | 41 | 12 | 378 | 53 | 23 | 378 | 53 | 23 |
| | PISI hybrid | 149 | 13 | 11 | 404 | 62 | 17 | 552 | 98 | 49 | | | | 0 | 0 | 0 | 335 | 37 | 11 | 335 | 65 | 36 | 335 | 65 | 36 |
| | FC | 94 | 12 | 12 | 256 | 39 | 11 | 350 | 72 | 44 | | | | 0 | 0 | 0 | 212 | 23 | 7 | 212 | 49 | 33 | 212 | 49 | 33 |
| GP1b/CH1 | FC hybrid | 84 | 10 | 10 | 228 | 35 | 10 | 311 | 64 | 39 | | | | 0 | 0 | 0 | 189 | 21 | 6 | 189 | 44 | 29 | 189 | 44 | 29 |
| | C-H ₂ : NG 4000 km, CCGT, O/S Ely | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 433 | 43 | 29 | 613 | 43 | 29 | | | | 0 | 0 | 0 | 364 | 25 | 17 | 364 | 25 | 17 | 364 | 25 | 17 |
| | PISI 2010 | 168 | 5 | 5 | 402 | 40 | 27 | 570 | 52 | 40 | | | | 0 | 0 | 0 | 339 | 24 | 16 | 339 | 34 | 26 | 339 | 34 | 26 |
| | PISI hybrid | 149 | 13 | 11 | 357 | 35 | 24 | 505 | 67 | 52 | | | | 0 | 0 | 0 | 300 | 21 | 14 | 301 | 47 | 37 | 301 | 47 | 37 |
| GP1b/CH2 | FC | 94 | 12 | 12 | 226 | 22 | 15 | 320 | 51 | 44 | | | | 0 | 0 | 0 | 190 | 13 | 9 | 190 | 37 | 32 | 190 | 37 | 32 |
| | FC hybrid | 84 | 10 | 10 | 201 | 20 | 14 | 285 | 46 | 40 | | | | 0 | 0 | 0 | 169 | 12 | 8 | 169 | 33 | 29 | 169 | 33 | 29 |
| | C-H ₂ : NG 4000 km, CCGT, Cen Ely, Pipe | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 442 | 47 | 34 | 622 | 47 | 34 | | | | 0 | 0 | 0 | 364 | 28 | 20 | 364 | 28 | 20 | 364 | 28 | 20 |
| | PISI 2010 | 168 | 5 | 5 | 411 | 44 | 32 | 578 | 56 | 44 | | | | 0 | 0 | 0 | 339 | 26 | 19 | 339 | 36 | 29 | 339 | 36 | 29 |
| GREL1/CH1 | PISI hybrid | 149 | 13 | 11 | 364 | 39 | 28 | 513 | 71 | 57 | | | | 0 | 0 | 0 | 300 | 23 | 17 | 301 | 49 | 39 | 301 | 49 | 39 |
| | FC | 94 | 12 | 12 | 231 | 24 | 18 | 325 | 54 | 47 | | | | 0 | 0 | 0 | 190 | 15 | 10 | 190 | 38 | 34 | 190 | 38 | 34 |
| | FC hybrid | 84 | 10 | 10 | 205 | 22 | 16 | 289 | 48 | 42 | | | | 0 | 0 | 0 | 169 | 13 | 9 | 169 | 34 | 30 | 169 | 34 | 30 |
| | C-H ₂ : LNG, O/S Ely | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 495 | 43 | 45 | 675 | 43 | 45 | | | | 0 | 0 | 0 | 396 | 25 | 26 | 396 | 25 | 26 | 396 | 25 | 26 |
| WFEL2/CH1 | PISI 2010 | 168 | 5 | 5 | 460 | 40 | 42 | 628 | 54 | 56 | | | | 0 | 0 | 0 | 368 | 23 | 24 | 369 | 34 | 36 | 369 | 34 | 36 |
| | PISI hybrid | 149 | 13 | 11 | 408 | 36 | 37 | 557 | 72 | 69 | | | | 0 | 0 | 0 | 327 | 21 | 22 | 327 | 49 | 47 | 327 | 49 | 47 |
| | FC | 94 | 12 | 12 | 258 | 23 | 24 | 352 | 55 | 56 | | | | 0 | 0 | 0 | 207 | 13 | 14 | 207 | 38 | 39 | 207 | 38 | 39 |
| | FC hybrid | 84 | 10 | 10 | 230 | 20 | 21 | 314 | 49 | 50 | | | | 0 | 0 | 0 | 184 | 12 | 12 | 184 | 34 | 35 | 184 | 34 | 35 |
| | C-H ₂ : F Wood, 200 MW gasif, CCGT, O/S Ely | | | | | | | | | | | | | | | | | | | | | | | | |
| WFEL3/CH1 | PISI 2002 | 180 | 0 | 0 | 469 | 38 | 39 | 649 | 38 | 39 | 14 | 1 | 1 | 0 | 0 | 0 | 23 | 6 | 16 | 23 | 6 | 16 | 23 | 6 | 16 |
| | PISI 2010 | 168 | 5 | 5 | 436 | 35 | 37 | 603 | 48 | 50 | 13 | 5 | 5 | 0 | 0 | 0 | 21 | 5 | 15 | 22 | 6 | 15 | 22 | 6 | 15 |
| | PISI hybrid | 149 | 13 | 11 | 386 | 31 | 32 | 535 | 66 | 63 | 11 | 13 | 11 | 0 | 0 | 0 | 19 | 5 | 13 | 19 | 6 | 16 | 19 | 6 | 16 |
| | FC | 94 | 12 | 12 | 245 | 20 | 21 | 339 | 51 | 52 | 7 | 12 | 12 | 0 | 0 | 0 | 12 | 3 | 9 | 12 | 4 | 10 | 12 | 4 | 10 |
| | FC hybrid | 84 | 10 | 10 | 218 | 18 | 18 | 301 | 45 | 46 | 6 | 10 | 10 | 0 | 0 | 0 | 11 | 3 | 8 | 11 | 4 | 11 | 4 | 11 | 4 |
| EMEL1/CH1 | C-H ₂ : F Wood, Conv power, O/S Ely | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 797 | 66 | 52 | 977 | 66 | 52 | 20 | 2 | 1 | 0 | 0 | 0 | 56 | 9 | 24 | 56 | 9 | 24 | 56 | 9 | 24 |
| | PISI 2010 | 168 | 5 | 5 | 741 | 64 | 49 | 909 | 64 | 49 | 19 | 5 | 5 | 0 | 0 | 0 | 52 | 8 | 22 | 52 | 8 | 22 | 52 | 8 | 22 |
| | PISI hybrid | 149 | 13 | 11 | 657 | 56 | 43 | 806 | 114 | 94 | 17 | 13 | 12 | 0 | 0 | 0 | 46 | 7 | 20 | 46 | 7 | 20 | 46 | 7 | 20 |
| | FC | 94 | 12 | 12 | 416 | 36 | 27 | 510 | 87 | 79 | 11 | 12 | 12 | 0 | 0 | 0 | 25 | 5 | 12 | 25 | 5 | 12 | 25 | 5 | 12 |
| KOEL1/CH1 | FC hybrid | 84 | 10 | 10 | 370 | 32 | 24 | 454 | 78 | 70 | 9 | 10 | 10 | 0 | 0 | 0 | 26 | 4 | 11 | 26 | 7 | 14 | 26 | 7 | 14 |
| | C-H ₂ : Elec EU-mix, O/S Ely | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 652 | 31 | 31 | 833 | 31 | 31 | | | | 0 | 0 | 0 | 375 | 14 | 14 | 375 | 14 | 14 | 375 | 14 | 14 |
| | PISI 2010 | 168 | 5 | 5 | 607 | 29 | 29 | 774 | 47 | 47 | | | | 0 | 0 | 0 | 349 | 13 | 13 | 349 | 23 | 23 | 349 | 23 | 23 |
| | PISI hybrid | 149 | 13 | 11 | 538 | 26 | 25 | 686 | 73 | 67 | | | | 0 | 0 | 0 | 309 | 11 | 11 | 310 | 38 | 35 | 310 | 38 | 35 |
| KOEL1/CH2 | FC | 94 | 12 | 12 | 340 | 16 | 16 | 434 | 59 | 59 | | | | 0 | 0 | 0 | 196 | 7 | 7 | 196 | 31 | 31 | 196 | 31 | 31 |
| | FC hybrid | 84 | 10 | 10 | 303 | 14 | 14 | 387 | 53 | 52 | | | | 0 | 0 | 0 | 174 | 6 | 6 | 174 | 28 | 28 | 174 | 28 | 28 |
| | C-H ₂ : Elec coal EU-mix, O/S Ely | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 571 | 96 | 76 | 751 | 96 | 76 | | | | 0 | 0 | 0 | 763 | 85 | 90 | 763 | 85 | 90 | 763 | 85 | 90 |
| | PISI 2010 | 168 | 5 | 5 | 531 | 89 | 71 | 699 | 105 | 87 | | | | 0 | 0 | 0 | 709 | 79 | 84 | 710 | 101 | 105 | 710 | 101 | 105 |
| WDEL1/CH2 | PISI hybrid | 149 | 13 | 11 | 471 | 79 | 63 | 619 | 120 | 99 | | | | 0 | 0 | 0 | 629 | 70 | 74 | 629 | 124 | 122 | 629 | 124 | 122 |
| | FC | 94 | 12 | 12 | 298 | 50 | 40 | 392 | 87 | 77 | | | | 0 | 0 | 0 | 398 | 44 | 47 | 398 | 93 | 96 | 398 | 93 | 96 |
| | FC hybrid | 84 | 10 | 10 | 265 | 45 | 36 | 349 | 78 | 69 | | | | 0 | 0 | 0 | 354 | 40 | 42 | 354 | 83 | 85 | 354 | 83 | 85 |
| | C-H ₂ : Elec coal EU-mix, Cen Ely, Pipe | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 571 | 96 | 76 | 751 | 96 | 76 | | | | 0 | 0 | 0 | 763 | 85 | 90 | 763 | 85 | 90 | 763 | 85 | 90 |
| NUEL1/CH1 | PISI 2010 | 168 | 5 | 5 | 531 | 89 | 71 | 699 | 105 | 87 | | | | 0 | 0 | 0 | 709 | 79 | 84 | 710 | 101 | 105 | 710 | 101 | 105 |
| | PISI hybrid | 149 | 13 | 11 | 471 | 79 | 63 | 619 | 120 | 99 | | | | 0 | 0 | 0 | 629 | 70 | 74 | 629 | 124 | 122 | 629 | 124 | 122 |
| | FC | 94 | 12 | 12 | 472 | 25 | 25 | 566 | 84 | 84 | | | | 0 | 0 | 0 | 398 | 44 | 47 | 398 | 93 | 96 | 398 | 93 | 96 |
| | FC hybrid | 84 | 10 | 10 | 421 | 22 | 22 | 504 | 75 | 75 | | | | 0 | 0 | 0 | 6 | 0 | 0 | 6 | 1 | 1 | 6 | 1 | 1 |
| | C-H ₂ : Elec nuclear, O/S Ely | | | | | | | | | | | | | | | | | | | | | | | | |
| WDEL1/CH2 | PISI 2002 | 180 | 0 | 0 | 905 | 48 | 48 | 1085 | 48 | 48 | | | | 0 | 0 | 0 | 13 | 1 | 1 | 13 | 1 | 1 | 13 | 1 | 1 |
| | PISI 2010 | 168 | 5 | 5 | 842 | 45 | 45 | 1010 | 70 | 70 | | | | 0 | 0 | 0 | 12 | 1 | 1 | 12 | 1 | 1 | 12 | 1 | 1 |
| | PISI hybrid | 149 | 13 | 11 | 746 | 40 | 40 | 895 | 105 | 97 | | | | 0 | 0 | 0 | 10 | 1 | 1 | 11 | 1 | 1 | 11 | 1 | 1 |
| | FC | 94 | 12 | 12 | 472 | 25 | 25 | 566 | 84 | 84 | | | | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 1 | 1 | 7 | 1 | 1 |
| | FC hybrid | 84 | 10 | 10 | 421 | 22 | 22 | 504 | 75 | 75 | | | | 0 | 0 | 0 | 6 | 0 | 0 | 6 | 1 | 1 | 6 | 1 | 1 |
| WDEL1/CH2 | C-H ₂ : Wind, Cen Ely, Pipe | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 142 | 11 | 10 | 322 | 11 | 10 | 35 | 3 | 2 | 0 | 0 | 0 | 16 | 1 | 1 | 16 | 1 | 1 | 16 | 1 | 1 |
| | PISI 2010 | 168 | 5 | 5 | 132 | 10 | 9 | 299 | 15 | 14 | 32 | 6 | 6 | 0 | 0 | 0 | 15 | 1 | 1 | 16 | 1 | 1 | 16 | 1 | 1 |
| | PISI hybrid | 149 | 13 | 11 | 117 | 9 | 8 | 265 | 23 | 21 | 29 | 14 | 12 | 0 | 0 | 0 | 14 | 1 | 1 | 14 | 2 | 2 | 14 | 2 | 2 |
| | FC | 94 | 12 | 12 | 74 | 6 | 5 | 168 | 19 | 18 | 18 | 12 | 12 | 0 | 0 | 0 | 9 | 1 | 1 | 9 | 1 | 1 | 9 | 1 | 1 |
| WDEL1/CH2 | FC hybrid | 84 | 10 | 10 | 66 | 5 | 5 | 150 | 17 | 16 | 16 | 11 | 11 | 0 | 0 | 0 | 8 | 1 | 1 | 8 | 2 | 2 | 8 | 2 | 2 |
| | C-H ₂ : Wind, Cen Ely, Pipe | | | | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 142 | 11 | 10 | 322 | 11 | 10 | 35 | 3 | 2 | 0 | 0 | 0 | 16 | 1 | 1 | 16 | 1 | 1 | 16 | 1 | 1 |
| | PISI 2010 | 168 | 5 | 5 | 132 | 10 | 9 | 299 | 15 | 14 | 32 | 6 | 6 | 0 | 0 | 0 | 15 | 1 | 1 | 16 | 1 | 1 | 16 | 1 | 1 |
| | PISI hybrid | 149 | 13 | 11 | 117 | 9 | 8 | 265 | 23 | 21 | 29 | 14 | 12 | 0 | 0 | 0 | 14 | 1 | 1 | 14 | 2 | 2 | 14 | 2 | 2 |
| WDEL1/CH2 | FC | 94 | 12 | 12 | 74 | 6 | 5 | 168 | 19 | 18 | 18 | 12 | 12 | 0 | 0 | 0 | 9 | 1 | 1 | 9 | 1 | 1 | 9 | 1 | 1 |
| | FC hybrid | 84 | 10 | 10 | 66 | 5 | 5 | 150 | 17 | 16 | 16 | 11 | 11 | 0 | 0 | 0 | 8 | 1 | 1 | 8 | 2 | 2 | 8 | 2 | 2 |
| | C-H ₂ : Wind, Cen Ely, Pipe | | | | | | | | | | | | | | | | | | | | | | | | |

9 Liquid hydrogen (L-H₂)

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2e} / km | | | | | | | | | | | |
|---------------|--|--------------------|-----|-----|-------------------------------|-----|-----|----------------|-----|-----|------------------------------|-----|-----|-----------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| | | Total | | | | | | | | | Fossil | | | GHG g CO _{2e} / km | | | | | | | | | | | |
| | | TTW (MJ/100 km) | | | WTT (MJ _e /100 km) | | | WTW (MJ/100km) | | | WTW (MJ _e /100km) | | | TTW | | | WTT | | | WTW | | | | | |
| | | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max |
| L-H2 pathways | | | | | | | | | | | | | | | | | | | | | | | | | |
| GPLH1a | L-H2:NG 7000 km, Cen Ref, Liq, Road | 180 | 0 | 0 | 240 | 40 | 6 | 420 | 40 | 6 | | | | 0 | 0 | 0 | 253 | 23 | 4 | 253 | 23 | 4 | | | |
| | PISI 2002 | 168 | 5 | 5 | 223 | 37 | 6 | 391 | 44 | 14 | | | | 0 | 0 | 0 | 236 | 21 | 4 | 236 | 28 | 11 | | | |
| | PISI 2010 | 141 | 11 | 12 | 188 | 31 | 5 | 330 | 47 | 24 | | | | 0 | 0 | 0 | 199 | 18 | 3 | 199 | 33 | 20 | | | |
| | PISI hybrid | 94 | 12 | 12 | 125 | 21 | 3 | 219 | 38 | 22 | | | | 0 | 0 | 0 | 132 | 12 | 2 | 132 | 28 | 18 | | | |
| | FC | 84 | 10 | 10 | 111 | 18 | 3 | 195 | 34 | 20 | | | | 0 | 0 | 0 | 118 | 11 | 2 | 118 | 25 | 16 | | | |
| GPLH1b | L-H2: NG 4000 km, Cen Ref, Liq, Road | 180 | 0 | 0 | 204 | 25 | 15 | 384 | 25 | 15 | | | | 0 | 0 | 0 | 227 | 15 | 9 | 227 | 15 | 9 | | | |
| | PISI 2002 | 168 | 5 | 5 | 190 | 23 | 14 | 357 | 29 | 20 | | | | 0 | 0 | 0 | 212 | 14 | 8 | 212 | 20 | 15 | | | |
| | PISI 2010 | 141 | 11 | 12 | 160 | 19 | 12 | 302 | 33 | 28 | | | | 0 | 0 | 0 | 179 | 11 | 7 | 179 | 25 | 22 | | | |
| | PISI hybrid | 94 | 12 | 12 | 107 | 13 | 8 | 201 | 28 | 24 | | | | 0 | 0 | 0 | 119 | 8 | 5 | 119 | 22 | 19 | | | |
| | FC | 84 | 10 | 10 | 95 | 11 | 7 | 179 | 25 | 21 | | | | 0 | 0 | 0 | 106 | 7 | 4 | 106 | 20 | 17 | | | |
| GRLH1 | L-H2: Rem Ref, Liq, Sea, Road | 180 | 0 | 0 | 256 | 22 | 27 | 437 | 22 | 27 | | | | 0 | 0 | 0 | 250 | 13 | 15 | 250 | 13 | 15 | | | |
| | PISI 2002 | 168 | 5 | 5 | 238 | 21 | 25 | 406 | 28 | 32 | | | | 0 | 0 | 0 | 232 | 12 | 14 | 233 | 19 | 21 | | | |
| | PISI 2010 | 141 | 11 | 12 | 201 | 18 | 21 | 343 | 35 | 40 | | | | 0 | 0 | 0 | 196 | 10 | 12 | 197 | 25 | 29 | | | |
| | PISI hybrid | 94 | 12 | 12 | 134 | 12 | 14 | 228 | 30 | 32 | | | | 0 | 0 | 0 | 130 | 7 | 8 | 130 | 23 | 24 | | | |
| | FC | 84 | 10 | 10 | 119 | 10 | 12 | 203 | 27 | 29 | | | | 0 | 0 | 0 | 116 | 6 | 7 | 116 | 20 | 21 | | | |
| GRLH2 | L-H2: LNG, Cen Ref, Liq, Road | 180 | 0 | 0 | 241 | 21 | 23 | 421 | 21 | 23 | | | | 0 | 0 | 0 | 247 | 12 | 13 | 247 | 12 | 13 | | | |
| | PISI 2002 | 168 | 5 | 5 | 224 | 19 | 21 | 392 | 26 | 28 | | | | 0 | 0 | 0 | 229 | 11 | 12 | 230 | 18 | 19 | | | |
| | PISI 2010 | 141 | 11 | 12 | 189 | 16 | 18 | 331 | 32 | 36 | | | | 0 | 0 | 0 | 194 | 9 | 10 | 194 | 24 | 27 | | | |
| | PISI hybrid | 94 | 12 | 12 | 126 | 11 | 12 | 220 | 29 | 30 | | | | 0 | 0 | 0 | 129 | 6 | 7 | 129 | 22 | 23 | | | |
| | FC | 84 | 10 | 10 | 112 | 10 | 11 | 196 | 25 | 26 | | | | 0 | 0 | 0 | 115 | 6 | 6 | 115 | 20 | 20 | | | |
| WFLH1 | L-H2: Wood F, Cen gasif, Liq, Road | 180 | 0 | 0 | 270 | 30 | 24 | 450 | 30 | 24 | 12 | 1 | 1 | 0 | 0 | 0 | 15 | 3 | 9 | 15 | 3 | 9 | | | |
| | PISI 2002 | 168 | 5 | 5 | 251 | 28 | 22 | 418 | 36 | 30 | 11 | 5 | 5 | 0 | 0 | 0 | 14 | 2 | 8 | 14 | 3 | 9 | | | |
| | PISI 2010 | 141 | 11 | 12 | 212 | 24 | 19 | 353 | 41 | 39 | 9 | 11 | 12 | 0 | 0 | 0 | 11 | 2 | 7 | 12 | 3 | 8 | | | |
| | PISI hybrid | 94 | 12 | 12 | 141 | 16 | 13 | 235 | 35 | 32 | 6 | 12 | 12 | 0 | 0 | 0 | 8 | 1 | 5 | 8 | 2 | 5 | | | |
| | FC | 84 | 10 | 10 | 125 | 14 | 11 | 209 | 31 | 28 | 5 | 10 | 10 | 0 | 0 | 0 | 7 | 1 | 4 | 7 | 2 | 5 | | | |
| GPCL1b/LH1 | L-H2: NG 4000 km, CCGT, Cen Ely, Liq, Road | 180 | 0 | 0 | 516 | 53 | 30 | 696 | 53 | 30 | | | | 0 | 0 | 0 | 415 | 31 | 18 | 415 | 31 | 18 | | | |
| | PISI 2002 | 168 | 5 | 5 | 480 | 49 | 28 | 647 | 64 | 43 | | | | 0 | 0 | 0 | 386 | 29 | 17 | 386 | 40 | 28 | | | |
| | PISI 2010 | 141 | 11 | 12 | 405 | 41 | 24 | 546 | 73 | 60 | | | | 0 | 0 | 0 | 325 | 24 | 14 | 326 | 49 | 42 | | | |
| | PISI hybrid | 94 | 12 | 12 | 269 | 28 | 16 | 363 | 62 | 50 | | | | 0 | 0 | 0 | 216 | 16 | 9 | 216 | 43 | 36 | | | |
| | FC | 84 | 10 | 10 | 240 | 25 | 14 | 323 | 55 | 45 | | | | 0 | 0 | 0 | 193 | 14 | 8 | 193 | 38 | 32 | | | |
| EMEL1/LH1 | L-H2: Elec EU-mix, Cen Ely, Liq, Road | 180 | 0 | 0 | 761 | 38 | 36 | 941 | 38 | 36 | | | | 0 | 0 | 0 | 425 | 17 | 16 | 425 | 17 | 16 | | | |
| | PISI 2002 | 168 | 5 | 5 | 708 | 35 | 33 | 875 | 56 | 55 | | | | 0 | 0 | 0 | 395 | 16 | 15 | 396 | 28 | 27 | | | |
| | PISI 2010 | 141 | 11 | 12 | 597 | 30 | 28 | 739 | 76 | 80 | | | | 0 | 0 | 0 | 334 | 13 | 13 | 334 | 39 | 41 | | | |
| | PISI hybrid | 94 | 12 | 12 | 397 | 20 | 19 | 491 | 69 | 68 | | | | 0 | 0 | 0 | 222 | 9 | 8 | 222 | 36 | 36 | | | |
| | FC | 84 | 10 | 10 | 354 | 17 | 17 | 437 | 62 | 61 | | | | 0 | 0 | 0 | 197 | 8 | 7 | 197 | 32 | 32 | | | |
| KOEL1/LH1 | L-H2: Elec coal EU-mix, Cen Ely, Liq, Road | 180 | 0 | 0 | 672 | 99 | 77 | 852 | 99 | 77 | | | | 0 | 0 | 0 | 854 | 79 | 101 | 854 | 79 | 101 | | | |
| | PISI 2002 | 168 | 5 | 5 | 625 | 93 | 72 | 793 | 111 | 91 | | | | 0 | 0 | 0 | 795 | 73 | 94 | 795 | 97 | 118 | | | |
| | PISI 2010 | 141 | 11 | 12 | 528 | 78 | 61 | 669 | 119 | 107 | | | | 0 | 0 | 0 | 671 | 62 | 80 | 671 | 113 | 137 | | | |
| | PISI hybrid | 94 | 12 | 12 | 351 | 52 | 40 | 445 | 96 | 84 | | | | 0 | 0 | 0 | 446 | 41 | 53 | 446 | 96 | 108 | | | |
| | FC | 84 | 10 | 10 | 312 | 46 | 36 | 396 | 85 | 75 | | | | 0 | 0 | 0 | 397 | 37 | 47 | 397 | 85 | 97 | | | |

10 Summary of pathways with CCS

| WTT Code | Powertrain | Energy MJ / 100 km | | | | | | | | | | | | GHG g CO _{2eq} / km | | | | | | | | |
|--------------|--|--------------------|-----|------|-----------------|-----|------|----------------|-----|------|----------------|-----|------|------------------------------|-----|------|-----|-----|------|-----|-----|----|
| | | Total | | | | | | | | | Fossil | | | | | | | | | | | |
| | | TTW (MJ/100 km) | | | WTT (MJ/100 km) | | | WTW (MJ/100km) | | | WTW (MJ/100km) | | | TTW | | | WTT | | | WTW | | |
| | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | |
| CCS pathways | | | | | | | | | | | | | | | | | | | | | | |
| GRCG1C | CNG: LNG, Vap - Pipe - CCS | | | | | | | | | | | | | | | | | | | | | |
| | PISI bi-fuel 2002 | 227 | 12 | 6 | 72 | 5 | 6 | 299 | 15 | 10 | | | | 133 | 7 | 4 | 38 | 3 | 3 | 171 | 9 | 6 |
| | PISI dedicated 2002 | 223 | 14 | 6 | 71 | 5 | 6 | 294 | 17 | 10 | | | | 131 | 8 | 4 | 37 | 3 | 3 | 168 | 9 | 6 |
| | PISI bi-fuel 2010 | 188 | 12 | 8 | 60 | 5 | 5 | 248 | 14 | 11 | | | | 109 | 7 | 4 | 31 | 2 | 3 | 140 | 8 | 6 |
| | PISI dedicated 2010 | 187 | 13 | 8 | 60 | 5 | 5 | 247 | 15 | 11 | | | | 108 | 7 | 4 | 31 | 2 | 3 | 139 | 9 | 6 |
| GPCH2bC | PISI hybrid | 139 | 12 | 13 | 44 | 3 | 4 | 184 | 14 | 15 | | | | 81 | 7 | 8 | 23 | 2 | 2 | 104 | 8 | 9 |
| | C-H2: NG 4000 km, Cen Ref, Pipe, CCS | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 139 | 15 | 8 | 319 | 15 | 8 | | | | 0 | 0 | 0 | 68 | 8 | 5 | 68 | 8 | 5 |
| | PISI 2010 | 168 | 5 | 5 | 129 | 14 | 8 | 297 | 18 | 13 | | | | 0 | 0 | 0 | 63 | 8 | 4 | 64 | 10 | 6 |
| | PISI hybrid | 149 | 13 | 11 | 115 | 12 | 7 | 263 | 25 | 19 | | | | 0 | 0 | 0 | 56 | 7 | 4 | 57 | 12 | 8 |
| KOCH1C | FC | 94 | 12 | 12 | 73 | 8 | 4 | 167 | 20 | 18 | | | | 0 | 0 | 0 | 36 | 4 | 2 | 36 | 9 | 7 |
| | FC hybrid | 84 | 10 | 10 | 65 | 7 | 4 | 148 | 18 | 16 | | | | 0 | 0 | 0 | 32 | 4 | 2 | 32 | 8 | 6 |
| | C-H2: Coal EU-mix, cen Ref, Pipe, CCS | | | | | | | | | | | | | | | | | | | | | |
| | PISI 2002 | 180 | 0 | 0 | 319 | 0 | 0 | 499 | 0 | 0 | | | | 0 | 0 | 0 | 95 | 0 | 0 | 95 | 0 | 0 |
| | PISI 2010 | 168 | 5 | 5 | 297 | 0 | 0 | 464 | 10 | 10 | | | | 0 | 0 | 0 | 88 | 0 | 0 | 89 | 3 | 3 |
| GRSD2C | PISI hybrid | 149 | 13 | 11 | 263 | 0 | 0 | 412 | 26 | 23 | | | | 0 | 0 | 0 | 78 | 0 | 0 | 79 | 7 | 6 |
| | FC | 94 | 12 | 12 | 167 | 0 | 0 | 261 | 23 | 23 | | | | 0 | 0 | 0 | 50 | 0 | 0 | 50 | 6 | 6 |
| | FC hybrid | 84 | 10 | 10 | 148 | 0 | 0 | 232 | 21 | 21 | | | | 0 | 0 | 0 | 44 | 0 | 0 | 44 | 5 | 5 |
| | Syn-diesel: Rem GTL, Sea, Rail/Road, CCS | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 139 | 9 | 11 | 323 | 14 | 16 | | | | 133 | 4 | 4 | 24 | 5 | 6 | 157 | 7 | 8 |
| KOSD1C | DICI 2010 no DPF | 161 | 7 | 7 | 123 | 8 | 9 | 284 | 15 | 16 | | | | 116 | 5 | 5 | 21 | 4 | 5 | 137 | 7 | 8 |
| | DICI 2010 DPF | 166 | 7 | 7 | 126 | 8 | 10 | 292 | 15 | 17 | | | | 119 | 5 | 5 | 22 | 5 | 5 | 141 | 7 | 8 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 98 | 6 | 8 | 227 | 17 | 18 | | | | 93 | 7 | 7 | 17 | 4 | 4 | 110 | 9 | 9 |
| | DICI hybrid DPF | 133 | 10 | 10 | 101 | 7 | 8 | 234 | 18 | 19 | | | | 96 | 7 | 7 | 18 | 4 | 4 | 114 | 9 | 9 |
| | Syn-diesel: CTL, CCS, Diesel mix | | | | | | | | | | | | | | | | | | | | | |
| GRDE1C | DICI 2002 | 183 | 5 | 5 | 194 | 14 | 14 | 377 | 20 | 21 | | | | 133 | 4 | 4 | 74 | 14 | 15 | 207 | 17 | 17 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 170 | 12 | 13 | 331 | 21 | 21 | | | | 116 | 5 | 5 | 65 | 13 | 13 | 181 | 16 | 16 |
| | DICI 2010 DPF | 166 | 7 | 7 | 175 | 13 | 13 | 341 | 21 | 22 | | | | 119 | 5 | 5 | 67 | 13 | 13 | 186 | 17 | 17 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 136 | 10 | 10 | 265 | 23 | 23 | | | | 93 | 7 | 7 | 52 | 10 | 10 | 145 | 16 | 16 |
| | DICI hybrid DPF | 133 | 10 | 10 | 141 | 10 | 10 | 274 | 23 | 24 | | | | 96 | 7 | 7 | 54 | 10 | 11 | 150 | 16 | 16 |
| GRDE1C | DME: Rem Syn, Sea, Rail/Road, CCS | | | | | | | | | | | | | | | | | | | | | |
| | DICI 2002 | 183 | 5 | 5 | 99 | 0 | 12 | 282 | 6 | 16 | | | | 126 | 4 | 4 | 20 | 0 | 0 | 147 | 4 | 4 |
| | DICI 2010 no DPF | 161 | 7 | 7 | 87 | 0 | 11 | 248 | 8 | 16 | | | | 110 | 5 | 5 | 18 | 0 | 0 | 128 | 5 | 5 |
| | DICI hybrid n DPF | 129 | 10 | 10 | 70 | 0 | 9 | 199 | 11 | 17 | | | | 89 | 7 | 7 | 14 | 0 | 0 | 103 | 7 | 7 |

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Abstract

WELL-TO-WHEELS ANALYSIS OF FUTURE AUTOMOTIVE FUELS AND POWERTRAINS IN THE EUROPEAN CONTEXT

The JEC research partners [Joint Research Centre of the European Commission, EUCAR and CONCAWE] have updated their joint evaluation of the well-to-wheels energy use and greenhouse gas emissions for a wide range of potential future fuel and powertrain options.

This document reports on the third release of this study replacing Version 2c published in March 2007.

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