## Biofuel reference list

<table>
<thead>
<tr>
<th>Country</th>
<th>Plant</th>
<th>Power</th>
<th>Engine</th>
<th>Status</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>D/B</td>
<td>MANN Energy</td>
<td>0.8 MW</td>
<td>9L 16/24</td>
<td>in operation</td>
<td>2001</td>
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<tr>
<td>D/NL/CH</td>
<td>Petrocare Qlear</td>
<td>0.8 MW</td>
<td>9L 16/24</td>
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<td>2001</td>
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<tr>
<td>A</td>
<td>Qlear I, Lustenau</td>
<td>1.4 MW</td>
<td>7L 28/32</td>
<td>in operation</td>
<td>2004</td>
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<tr>
<td>I</td>
<td>Qlear II, Diusa</td>
<td>1.4 MW</td>
<td>7L 28/32</td>
<td>in operation</td>
<td>2004</td>
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<tr>
<td>A</td>
<td>Fritzens</td>
<td>1.1 MW</td>
<td>6L 21/31</td>
<td>in operation</td>
<td>2004</td>
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<tr>
<td>B</td>
<td>SPE Harelbeke</td>
<td>85.0 MW</td>
<td>8x14V 52/55</td>
<td>in operation</td>
<td>2005/2006</td>
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<tr>
<td>D</td>
<td>STW Schwäbisch Hall</td>
<td>5.0 MW</td>
<td>12V PA</td>
<td>in operation</td>
<td>2006</td>
</tr>
<tr>
<td>D</td>
<td>Hans Wiessner destillery</td>
<td>2.9 MW</td>
<td>2x5L 27/38</td>
<td>in operation</td>
<td>2006</td>
</tr>
<tr>
<td>B</td>
<td>Electrawinds</td>
<td>17.5 MW</td>
<td>18V 48/60</td>
<td>in operation</td>
<td>2007</td>
</tr>
<tr>
<td>D</td>
<td>van Roje</td>
<td>5.5 MW</td>
<td>12V 32/40</td>
<td>in operation</td>
<td>2007</td>
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<tr>
<td>I</td>
<td>Cereal Docks</td>
<td>5.2 MW</td>
<td>2x9L 27/38</td>
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<tr>
<td>B</td>
<td>Electrawinds</td>
<td>16.6 MW</td>
<td>2x18V32/40</td>
<td>In commisioning</td>
<td>2008</td>
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<tr>
<td>I</td>
<td>IGI</td>
<td>8.3 MW</td>
<td>1x18V32/40</td>
<td>In commisioning</td>
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<tr>
<td>I</td>
<td>Oxon</td>
<td>8.3 MW</td>
<td>1x18V32/40</td>
<td>In commisioning</td>
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<tr>
<td>I</td>
<td>CONSORZIO LATTERIE VIRGILIO</td>
<td>4.6 MW</td>
<td>2x8L 27/38</td>
<td>In commisioning</td>
<td>2008</td>
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<tr>
<td>I</td>
<td>NEW BOX</td>
<td>2.3 MW</td>
<td>8L 27/38</td>
<td>contract signed</td>
<td>2007</td>
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<tr>
<td>I</td>
<td>PBR- INTERGREEN</td>
<td>4.6 MW</td>
<td>2x8L 27/38</td>
<td>contract signed</td>
<td>2007</td>
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<tr>
<td>B</td>
<td>Electrawinds</td>
<td>17.5 MW</td>
<td>1x18V 48/60</td>
<td>contract signed</td>
<td>2007</td>
</tr>
</tbody>
</table>
Fritzens

- location: Tyrol, Austria near Innsbruck
- located on a sewage plant
- engine: 6L 21/31, 1,16 MW<sub>e</sub>
- commissioned in 2004
- 35,000 operating hours (End 2008)
- availability of 8,000 h/a (90 %)
- fuel: used cooking oil
• disposal of cooking oil caused clog age in municipal waste water pipes
• rectification costs about 400,- € per ton of discarded oil
• collecting system for oil in private households and restaurants
• oil is cleaned in a settling tank and by filtration
Hans Wiessner distillery

- location: Eppingen, Germany near Heilbronn
- distillery for ethanol
- engines: 2x5L 27/38, 2x 1,44 MW_{el}
- commissioned: late autumn 2006
- 8,000 operating hours (November 2007)
- fuel: different vegetable oils
  operation: palm oil, start/stop: rapeseed oil
- like all other plants: equipped with SCR catalyst, fulfills German Clean Air Act (TA Luft)
Hans Wiessner distillery

- Electricity is fed into the local grid and refunded according to the German Renewable Energy Act (EEG)
- Heat is used in several processes
  - Radiation heat: fuel tanks
  - Cooling water: evaporation of distillers wash
  - Exhaust gas: drying of „wetcake“
  - Steam produced by drying process: plants steam system (e.g. distillation)
van Roje

- location: Oberhonnefeld, Germany near Koblenz
- sawmill, producing as well pellets for domestic heating
- engine: 12V 32/40, 5.5 MW_{el}
- commissioned: March 2007
- 8,000 operating hours (February 2008)
- fuel: different vegetable oils
  - operation: palm oil, start/stop: soy bean oil
Electrawinds

- location: Mouscron, Belgium near Lille (F)
- power plant
- engine: 18V 48/60, 17.4 MW$_{el}$
- commissioned: Februar 2007
- 15,000 operating hours (End 2008)
- availability > 90 %
- fuel: mainly animal fat
- own oil refining plant ensuring correct fuel quality
- Engine type 9L16/24
- Fuel: Vegetable oil, used oil
- Power output: 760 kWel
- Commissioning date: June 2001

References
MannEnergie / Germany

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