Managing The Energy That Moves Your Products

Innovative Fuel Management Solutions For Shippers

Breakthrough Fuel
Managing The Energy That Moves Your Products

Breakthrough®Fuel is the industry’s first fuel management company – designed specifically for shippers – focused on reducing the cost of energy used to move goods to market.

Our services provide shippers with the capabilities to:

• Understand the fuel-related costs of their supply chain
• Reduce their fuel-related transportation costs
• Manage fuel price and supply volatility (budget certainty)
• Understand and reduce the emissions associated with their supply chain
• Leverage knowledge, information and benchmarks to improve their supply chain decision-making process

Since it’s founding in 2004, Breakthrough®Fuel has helped clients improve their competitive position through effective fuel management.
**Results Delivered**

*Over $100million in client savings to date; and growing every day.*

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**Actual Cost-Per-Gallon Savings**

**Breakthrough®Fuel Clients - Composite**

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savings (¢US/Gallon)</td>
<td>17.5</td>
<td>19.0</td>
<td>20.7</td>
<td>26.6</td>
<td>21.3</td>
<td>18.6</td>
</tr>
</tbody>
</table>
Working With Breakthrough® Fuel

Experience A True Breakthrough®.
A Custom Energy Profile
The Breakthrough® Fuel process begins with the development of a custom energy profile. The profile can include:

- Energy Use Profile (Mode; Geography; Type)
- Fuel Cost Model (Fuel; Fuel Tax)
- Carbon Footprint
- Opportunity Model/Business Case

A Unique Fuel Strategy
The Breakthrough® Fuel process continues with the creation of a custom fuel management strategy. Strategic elements include:

- Fuel Purchase/Sourcing Strategy
- Fuel Consumption/Usage Strategy
- Risk Management Strategy
- Sustainability Strategy
A Unique Suite Of Services

Breakthrough®

Blue

Fuel Recovery

Stability

Advisory
BREAKTHROUGH® BLUE:

Environmentally-focused fuel management initiatives focused on understanding and managing your carbon footprint and including sustainability in the fuel strategy.

Capabilities that can be part of the sustainability initiative include:

• determination of your existing carbon footprint
• development and implementation of emissions reduction initiatives:
  • improved fuel efficiency
  • mode conversion/optimization
  • conversion to alternative and renewable fuel
• validation of emissions reductions
  • Anticipation of regulatory requirements
  • target cost savings
  • benefit of marketplace positioning
**COMPARISON OF CARBON EMISSIONS (in Metric Tons) BY MODE**

**BASED ON 40,000lb. SHIPMENTS @ 1,000,000 MILES**

<table>
<thead>
<tr>
<th>TRANSPORTATION MODE</th>
<th>METRIC TONS OF CO2 EMISSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>16639.8</td>
</tr>
<tr>
<td>Truck</td>
<td>1732.1</td>
</tr>
<tr>
<td>Inland Water</td>
<td>1021.7</td>
</tr>
<tr>
<td>Rail</td>
<td>574.5</td>
</tr>
<tr>
<td>Marine</td>
<td>291</td>
</tr>
</tbody>
</table>

**Source Methodology:** Greenhouse Gas (GHG) Protocol
Breakthrough®Fuel has helped clients understand their current emissions profile and the impact of shifting transportation modes. The example, to the left, highlights the emissions reduction achieved by clients through the conversion of movements to intermodal.
## CNG VERSUS DIESEL EMISSIONS ANALYSIS

Based on Consumption (using Greenhouse Gas (GHG) Protocol)

<table>
<thead>
<tr>
<th></th>
<th>DIESEL</th>
<th>CNG</th>
<th>VARIANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit of Measure</td>
<td>Gallon</td>
<td>Pound</td>
<td></td>
</tr>
<tr>
<td>GJ/Fuel Unit</td>
<td>.140424</td>
<td>.0228</td>
<td></td>
</tr>
<tr>
<td>kg of CO₂/Fuel Unit</td>
<td>74.010</td>
<td>56.06</td>
<td></td>
</tr>
<tr>
<td>Conversion to DGE</td>
<td>1.0</td>
<td>5.66</td>
<td></td>
</tr>
<tr>
<td>Emissions with 1 DGE</td>
<td>10.39 grams CO₂</td>
<td>7.23 grams CO₂</td>
<td>-3.16 grams (or 30.4%)</td>
</tr>
</tbody>
</table>

### ADJUSTED TO ENERGY EFFICIENCY

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Miles</td>
<td>100,000</td>
<td>100,000</td>
<td></td>
</tr>
<tr>
<td>Required DGE</td>
<td>15,385</td>
<td>17,544</td>
<td>+2,159</td>
</tr>
<tr>
<td>Emissions</td>
<td>159.9 kg CO₂</td>
<td>126.9 kg CO₂</td>
<td>-33 kg (or 20.6%)</td>
</tr>
</tbody>
</table>
# Natural Gas Versus Diesel Emissions Analysis

Based on Lifecycle Analysis (Well to Wheels Analysis)

Measures Shown in gCO₂E/MJ

<table>
<thead>
<tr>
<th></th>
<th>Extraction</th>
<th>Processing</th>
<th>Distribution</th>
<th>Liquefaction/Compress</th>
<th>Transport</th>
<th>Combustion</th>
<th>Total Lifecycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULSD</td>
<td>8.8</td>
<td>10.3</td>
<td>1.1</td>
<td>-</td>
<td>0.2</td>
<td>74.9</td>
<td>95.3</td>
</tr>
<tr>
<td>LNG</td>
<td>3.5</td>
<td>3.7</td>
<td>1.0</td>
<td>15.8</td>
<td>0.6</td>
<td>58.5</td>
<td>83.1</td>
</tr>
<tr>
<td>CNG</td>
<td>3.5</td>
<td>3.7</td>
<td>1.0</td>
<td>2.1</td>
<td>0.6</td>
<td>57.7</td>
<td>68.6</td>
</tr>
</tbody>
</table>

Source: California Air Resources Board (CARB), 2008

Emissions Analysis indicates that LNG emits 12.8% less emissions than ULSD.

CNG emits 28.0% fewer emissions than ULSD.
Experience A True Breakthrough.

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