Amp Americas Overview

- **Produces Renewable Natural Gas (RNG)**
  - FIRST and ONLY dairy digester to vehicle fuel facility in US certified by EPA for RFS
  - Only dairy RNG pathway awarded by CARB to make LCFS credits
  - Tripled dairy gas production 3 years… another 3x by end of 2018

- **Markets RNG & Manages Risk**
  - Already delivering dairy gas to customer stations in California
  - Only marketer bringing RNG economics to fleet owners

- **Distributes RNG/CNG at 20 Stations (100% owned)**
  - More than just a fuel supplier… experienced operator of 42-truck dairy CNG fleet
  - Among first fleets to 30M miles on CNG
  - One of first trucks to hit 1M miles CNG in Sep 2017

- Formed in 2011 in partnership with Fair Oaks Farms
- EIV Capital-backed
Asset-based business: AMP station network and RNG production

Amp Americas assets, partnerships, and customers extend throughout supply chain allowing us to control and capture maximum value.

RNG production → Distribution contracts → ampCNG stations & fueling contracts → RIN supply contracts → CA LCFS contracts

Assets map – RNG production, RNG distribution, CNG stations
Our Partner Fair Oaks Farm

• Leading innovator in dairy sustainability and commercial practices

• 18,000 head of milking cows

• Milk production, public education, sustainability demonstration and commercialization

• Selected innovations
  – Manure management with anaerobic digester
  – Nutrient recovery – phosphorous, fiber
  – Water management – reduction, reuse, recycling
  – Sustainable energy production: electric, heat, transportation fuel

• Vision: transparent, carbon neutral milk production
How does our partnership work

• Digester built in 1999
• Amp pays attractive economics to dairy – defrays waste handling costs
• Amp / dairy tightly aligned in partnership
• Large step in dairy goal toward carbon neutrality, brand benefits
• Amp now has distinctive and singular experience and expertise running dairy project from start to finish
ampCNG’s project at Fair Oaks Farm is a partnership with one of the largest dairy farms in the US. We transform manure from 18,000 cows into methane to fuel our trucks.
Pretreatment and Preparation
Emission and Odor Reduction
Advanced Heat Recovery

Heat recovered from Digestate, Gas Compression, Engine Cooling and Exhaust Heat Recovery
Value Added Fiber Sales
Advanced Nutrient Recovery
Low Nutrient Water
Electricity Generation
Gas Upgrading Skid (G.U.S.)
Truck fueling
What are we solving?

**Smog is a national problem**

- >150 counties non-attainment
- >700 maintenance

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**Diesel trucks cause 26% of smog**

- NOx from Mobile Sources: 55%
  - Diesel trucks: 49%
  - Light Vehicles: 51%
- Fuel burn: 24%
- Industrial: 10%
- Other: 10%

Source: EPA, amp analysis
Dairy gas creates enormous air benefits...

**Smog**

Smog-causing NOx reduced 10x with Cummins Near-Zero engine

gNOx/bhp-hr

- Diesel: 0.20
- CNG: 0.02

-10x

**Greenhouse gas**

Dairy RNG like removing 3.5 diesel trucks of GHG emissions

gCO₂e/MJ

- Diesel: 98
- Dairy RNG: -260

-3.6x
The future is now – RNG only practical renewable solution for heavy duty trucking

<table>
<thead>
<tr>
<th></th>
<th>Electric (EV)</th>
<th>Dimethyl Ether (DME)</th>
<th>RNG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installed Base</td>
<td>25</td>
<td>0</td>
<td>&gt;45,000</td>
</tr>
<tr>
<td>Range (miles)</td>
<td>124</td>
<td>500+</td>
<td>500+</td>
</tr>
<tr>
<td>New Unit Premium to Diesel ('000 $)</td>
<td>224</td>
<td>??</td>
<td>45</td>
</tr>
<tr>
<td>Years to Payback</td>
<td>5-10</td>
<td>??</td>
<td>&lt;1 – 3+</td>
</tr>
<tr>
<td>Commercially Available</td>
<td>2032</td>
<td>??</td>
<td>Now</td>
</tr>
<tr>
<td>Other Challenges</td>
<td>Few actual truck offerings, several promised</td>
<td>No clear economic benefit to DME vs. other uses for methanol</td>
<td></td>
</tr>
</tbody>
</table>

Source: MOTIV, Daimler, ampCNG analysis, NGVA

Note: Installed base of EV trucks are MOTIV refuse trucks; RNG base includes refuse, transit, and OTR trucks; DME has similar fuel specifications as LNG, assume same range. No commercially available applications of DME, therefore fuel costs, cost of equipment, and commercial availability date are unknown at this time.
CNG payback vs. diesel 3 years or less in most of country today

CNG payback for a Large User by State ($/DGE)

California diesel prices, public funding make CNG business case less than 1 year payback

30 states payback less than 3 years

If Federal Excise Tax Credit renewed (as it has been last several years) ALL states less than 3 year payback

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Source: afdc.energy.gov, state governments, NGV America, Argus, AAA.com for diesel prices, EIA VIUS survey, and ampCNG analysis.

Note: Estimated $0.30/DGE retail discount for large Diesel users, $0.37/GGE retail discount for large CNG users, $1 MMBTU NG delivery fee, $0.75 CNG compression fee, $40,000 truck conversion cost, 10% CNG fuel efficiency haircut to Diesel, 133,078 annual vehicle miles traveled. Does not include state or federal incentives.
California diesel + RNG economics = large fuel savings opportunity

### Diesel price breakdown
$/gallon

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA Excise tax incr (Nov1)</td>
<td>0.30</td>
</tr>
<tr>
<td>Taxes - current</td>
<td>0.58</td>
</tr>
<tr>
<td>Distribution</td>
<td>0.54</td>
</tr>
<tr>
<td>Refining</td>
<td>0.51</td>
</tr>
<tr>
<td>Crude oil</td>
<td>1.32</td>
</tr>
<tr>
<td>Large user discount</td>
<td>-0.30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2.96</td>
</tr>
</tbody>
</table>

### RNG price breakdown
$/diesel gallon equivalent

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxes</td>
<td>0.31</td>
</tr>
<tr>
<td>Gas cost</td>
<td>0.57</td>
</tr>
<tr>
<td>Compression fee</td>
<td>0.80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1.68</td>
</tr>
</tbody>
</table>

**Notes:**
- California excise tax increase leads to 30c/gallon more cost in November 2017
- RINs and LCFS credits increase fuel savings
## RNG dominates on cost effectiveness of emissions reductions

<table>
<thead>
<tr>
<th></th>
<th>Total cost per truck</th>
<th>Lifetime CO₂e per truck</th>
<th>Lifetime NOX per truck</th>
<th>Cost to reduce CO₂e</th>
<th>Cost to reduce NOX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>MT, vs. diesel</td>
<td>Lbs/ vs. diesel</td>
<td>$/MT</td>
<td>$/lb</td>
</tr>
<tr>
<td>Diesel</td>
<td>$125,000</td>
<td>1,937</td>
<td>1,812</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>EV</td>
<td>$349,000</td>
<td>1,131</td>
<td>307</td>
<td>433</td>
<td>149</td>
</tr>
<tr>
<td>CNG</td>
<td>$170,000</td>
<td>1,737</td>
<td>205</td>
<td>225</td>
<td>28</td>
</tr>
<tr>
<td>RNG</td>
<td>$170,000</td>
<td>-2,187</td>
<td>205</td>
<td>11</td>
<td>28</td>
</tr>
</tbody>
</table>

### Source:
- ARB, Mercedes Benz, NGVA, CME, AAA, Southern California Edison, ampCNG analysis

### Note:
- Assumes 116k miles traveled per year; using 7 year vehicle life for all vehicles; using vehicle specs of Mercedes Benz Electric Truck for EV; no public funding or environmental credits are included; EV CI score is CA Average Mix (105) divided by EER value (2.7).
What’s required to make this dairy gas thing bigger

• Certainty
  – Revenue
    • Price: >100% range vs. lows a year ago
    • Quantity: requires an engineering study and negotiation with CARB to know how many credits a dairy is going to make
    • Feedstock supply: dairy continuation, digester operations, cleanup operations
  – Market access – i.e., the pipeline
  – Demand – CNG trucks

• Help from outside California wouldn’t hurt
  – Alternative Fuels Tax Credit
  – RVO certainty

• Solution ideas
  – Simpler dairy gas rules for LCFS
  – Longer term LCFS solution post 2024 that doesn’t penalize projects