Integrating Medium and Heavy Duty Natural Gas Vehicles into Your Fleet

or...

Rome wasn’t built in a day.....
Who and Where are we?

- 50 miles North of Denver
- Population 170,000
- 4 Maintenance Shops
- 3 Natural Gas Fuel Sites
- 43 Fleet Employees
- Annual Budget – $10.8 m
- ~1,000 On-road Vehicles
### 2017 Fuel Consumption

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIODIESEL</td>
<td>202,130</td>
</tr>
<tr>
<td>CNG</td>
<td>479,217</td>
</tr>
<tr>
<td>PREMIUM DIESEL</td>
<td>1,159</td>
</tr>
<tr>
<td>Propane</td>
<td>6,448</td>
</tr>
<tr>
<td>UNLEADED</td>
<td>353,388</td>
</tr>
</tbody>
</table>
Why is CNG important

Municipal and Community Greenhouse Gas Goal

- Reduce the City’s Greenhouse Gases 20% by 2020
  - Baseline year is 2005
  - Does not account for growth
  - 80% reduction by 2030
  - Carbon Neutral by 2050
Vehicle Purchasing Policy

• Will purchase an alternative fueled vehicle if:

  - Fueling infrastructure is in place

  - Job application fits the type of factory-equipped vehicle available

  - Economics are beneficial to the City

  - Vehicle meets the operational needs of the dept.
Why is CNG important

- Cleaner Burning
- Domestically Produced
- Price Stability

Pricing since 2010
You have to start somewhere…
...
we started in the late 80s
We started with a small compressor and basket of bottles.
Then moved into slow-fill “Fuelmaker” appliances
Cost - $25,000 Installed (1998)
3.7 gasoline Gallon Equivalent / hr
Easy to hookup
Not real easy to meter
Then as we talked about buying buses, we were ready to build a Fast-fill fuel site.
but could only afford the essential components
This site cost about $380k in early 2000.
Then we added more compression (backup) and additional dispensers as we could afford to - total cost with the upgrades ~$750k

35 PSI inlet pressure = 4 gallons per minute
As we started buying trucks and pickups, we built another small site in 2016. Cost ~ $250k (used but decent equipment)

20 PSI = 4 gallons per minute (storage) then ½ gallon per minute or wait about an hour
…and finally we built our ultimate site for about $850k.

500 PSI inlet pressure = over 10 gallons per minute
Fueling Infrastructure
In the meantime, we slowly started adding vehicles as our fueling infrastructure grew
41 – Transit Buses
4 Tractors (semi’s)
12 – Tandem Trucks
8 - Medium duty pickups
Bucket Truck
Flusher Truck
Chipper Truck
CNG Fleet Profile

Cone Truck

Zamboni
This is where you get to be creative!!!! If the engine and chassis is a good fit for the application, you should be able to find tank locations.

Grapple Truck
CNG Maintenance Shop upgrades

Be strategic - Every bay in every shop does not need to be upgraded

Understand the difference between a minor and major CNG repair facility
CO2 and Fuel Qty per Year

It’s working!
Recognition

- 2012 - 29th
- 2013 - 55th
- 2014 - 72nd
- 2015 - 47th
- 2016 - 33rd
- 2017 - 14th
- 2018 - 12th

- 2012 - 22nd
- 2015 - 16th
- 2016 - 16th
- 2017 - 7th
- 2018 - 10th

2016 – top 50
2017 – 13th
2018 – 10th
Thank-you
Tracy Ochsner, Assistant Operation Services Director
City of Fort Collins
tochsner@fcgov.com
970 224-6061