Technology Solution: CNG Decanting Station

Description

Compressed natural gas (CNG) decanting stations are strategically placed fuel supply systems, designed to receive, condition, and ultimately deliver natural gas fuel for a specific end-user application.
The gas supply delivered at the decanting station is typically transported by tube trailer from a central mother/compressor station in a highly pressurized state.
Decanting systems designed by Change Energy safely and rigorously manage a controlled process that maintains the required delivery pressure and temperature despite constant and significant variations in flowrate, trailer pressure and ambient temperature. The process is made more complex by the need to automatically and smoothly transition to a full trailer from a depleted trailer. All operating specifications of the user's fuel system must be adhered to throughout the decanting process.
Tube trailers are typically swapped out on a just-in-time delivery schedule for continuous uninterrupted gas supply to the customer.

Applications and Opportunities

Change Energy's pioneering work has proven the viability of this integrated solution for various high volume end-user applications:

- Off-pipeline process industries with high energy consumption
  - Food processing, Pulp & Paper, Manufacturing
- Diesel and other liquid fossil fuel displacement
  - Mining and oil/gas operations – equipment and vehicle fuelling
  - Remote communities– stationary power and vehicle refuelling
- Biogas utilization – gas main injection and vehicle refuelling
  - Land-fill gas recovery
  - Anaerobic digester gas
  - Wastewater treatment plant gas
- Municipal/Regional energy systems
  - Integrated CHP/fleet refuelling

Benefits

Depending on the application, a delivered supply of CNG or biogas fuel that is managed by an onsite decanting station can offer multiple benefits:

- Reduced operational costs
- Improved profitability
- Reduced exposure to cost volatility of oil-based fuels
- Cleaner, easier fuel handling and equipment maintenance
- Reduced emissions of particulates and other pollutants
- Advancement of sustainability/GHG reduction goals

Operational Range

Change Energy's experience demonstrates that CNG decanting system technology can offer a strong value proposition across an array of demand capacities and operating conditions. The following select examples demonstrate this range.

Sample Projects (2011-present):

Client	Area	Transport Pressure (psig)	Delivery Pressure (psig)	Capacity * (scfm)
Cavendish Farms	PEI	2750	50	5300
McCain	NB #1	3600	100	2700
	NB#2	3600	100	2700
	Maine	3600	100	3300
AV Nackawic	NB	3600	50	3300
AWL	NB	3600	100	2300
Greenfield	ON	2750	85	1700
Compass	PA	3600	50	1180
Igasamex	Mexico	3000	55	900
Orbond	Israel	3600	100	600
Cham	Israel	3600	100	600
Shaw Brick	NS	2750	50	450
CKF	NS	2750	50	450
Amalgamated Dairy	PEI	3600	100	350
AVL Manufacturing	ON	2750	90	200
Paisley Brick	ON	2750	90	150

* The following table can help you convert from commonly used units to scfm

Energy Demand	Conversion Factor	Equivalent in scfm**
$\underline{X}$ GJ/hr	15.361	15.361 x (X) scfm
$\underline{X}$ mmBTU/hr	16.228	16.228 x (X) scfm
$\underline{X}$ therms/hr	1.623	1.623 x (X) scfm
$\underline{X}$ L no. 2 heating oil/hr	.595	.595 x (X) scfm
$\underline{X}$ L no. 6 heating oil/hr	.642	.642 x (X) scfm
$\underline{X}$ L propane/hr	.391	.391 x (X) scfm

**As per common practice, these conversions use a lower set of heating values for natural gas. Contact us for more detail on the derivation of these conversions or go to www.changeenergy.ca.