Transitioning To A New Energy Era
Alternative Natural Gas Supply Panel

Trucked Compressed Natural Gas
The Alternative Beyond the Pipeline

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NG ADVANTAGE™
A Clean Energy Company

Boiler MACT Compliance

"Initial indications have been that most compliance plans, in one way or another involve Natural Gas as an addition, conversion or new unit…"

BoilerBlast News©

Restating the obvious: Why Natural Gas?

- Abundant and reliable domestic supply
- Meets today's environmental requirements
- Meets **tomorrow's** environmental requirements
  - Near zero particulates and SO_2
  - 50% less CO_2 than coal
  - 25% less CO_2 than oil or propane
- Technology and equipment exist to use it for almost all conceivable applications
- Great for CHP

No Pipeline Here. Now What Do I Do?

- Get a scrubber
  - Compliance today but possibly not tomorrow
  - High capex and high opex
- Pay for a pipeline lateral
  - Great if already permitted and RoW acquired else not happening in MACT timeframe
  - Pipelines move at pipeline speed
  - Huge capital outlay except for very short distances
- Close the plant
  - There must be a better way!

A Better Way: The Story of International Paper's Ticonderoga Mill

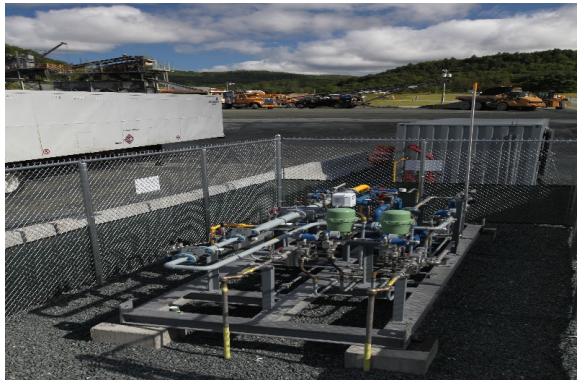
The Lesson: You can effectively use pipeline quantities of natural gas beyond the reach of pipelines!

How does the virtual pipeline supply chain work?

How it works

1. **Compressor site on pipeline**

2. Full trailer, gas in carbon-fiber cylinders



3. Customer offload facility, gas used directly from trailers

4. Empty trailer returns for refilling

Compressor Site

Filling the Trailer

- CNG transported in Type 4 trailers with carbon-fiber tanks
- Total capacity = 364,000 scf
  - about 367,640 mmBTU or the equivalent of 2,654 gallons of #2
- New trailer in 2016 will have about 50% more capacity
  - Only usable where 100,000 lbs. rigs are allowed

Offloading at a Customer Site

- NO storage required
- Gas served as if from a pipeline
  - Pipeline pressure and temperature
  - Billed as used

What are the benefits and drawbacks of a virtual pipeline vs alternatives?

Benefits of Virtual Pipeline vs Scrubbing

Capex	• Generally lower even after converting burners to NG
Opex	• Coal cheaper than CNG (as long as available) • Scrubber maintenance expensive • Scrubber waste disposal expensive • CNG burner maintenance very cheap
Regulatory Compliance	• Particulates virtually gone • Sulphur not a problem • Significant NO_X reduction possible • 50% CO_2 reduction vs coal
Time	• Both solutions can be in place in time with MACT extension

Why scrub when you can be clean?

Benefits of Virtual Pipeline vs a Pipeline Extension

Time	• 6 months for virtual pipeline if compressor station nearby; 12 months if new compressor station needed • If a pipeline extension is not permitted now and RoW hasn't acquired, it's not going to happen in time for MACT compliance
Customer Capex	• Same cost for burner conversion • Tens of millions (at least) for pipeline extension • Hundreds of thousands for outside work for virtual pipeline
Flexibility	• Commitment as low as three years • Growth requires no customer capex for increased supply
Commodity Cost	• May be lower for pipeline extension depending on capital recovery by utility

Benefits of Virtual Pipeline Service vs LNG

Time	• Onsite LNG permitting is often much longer than for CNG
Space	• For safety reasons, space at plant required for LNG storage and vaporization much greater than for CNG
Customer Opex	• Delivered LNG almost always more expensive per mmBTU than trucked CNG • LNG storage requires 24x7 staffing • LNG must be vented when not used
Customer Capex	• Burner conversion the same • Many million for LNG storage and vaporization • As little as one hundred thousand for outside work for virtual pipeline

Drawbacks of Virtual Pipeline Service

- **Pipeline curtailments**
  - Even on a pipeline, firm service is not always an economic option
  - Even firm service can be interrupted by pipeline problems
  - So compressor station supply can be affected
- **Road problems**
- **Relatively little supply onsite** at any time compared to coal, oil, or LNG
  - CNG storage IS expensive and space-consuming
- Almost all virtual pipeline customers (as well as many physical pipeline customers) have an **backup fuel**
  - LNG, propane, diesel can all be viable backup fuels
- **NOT a solution for small users**

What's Unique about the NG Advantage Virtual Pipeline Service?

Total Supply Chain anager

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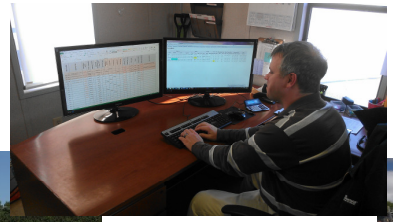

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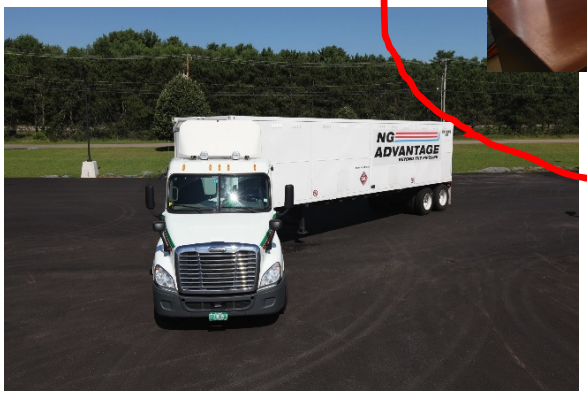

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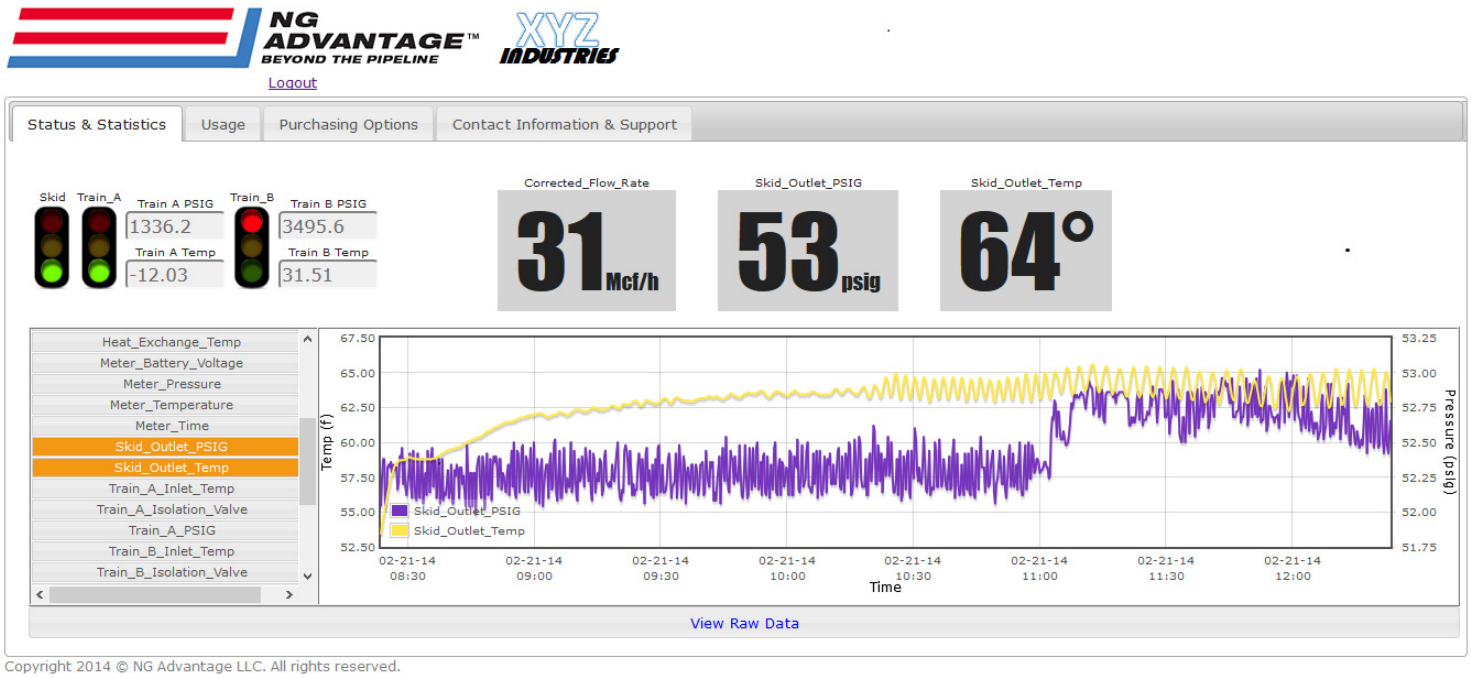
NG Advantage SCADA Key to Safety and Reliability

- Unique in-house developed SCADA
- Secure real-time readings from multiple sensors at each compressor and customer site
  - Know customer usage and onsite supply up-to-the-second
  - Integrate whole supply chain for real-time response
  - Monitor for preventive maintenance opportunities
- 100% cloud-based with 100% redundancy for security and reliability
- Video monitoring of all sites

Customizable Customer Portal



NG Advantage Advantages

- **SCADA** with customer portal
- **Total supply chain management experience**
  - Only pipeline-scale customer in the US (International Paper)
  - Supply chain custom built for mega-customers
  - Delivering far more CNG/day than anyone in the US
- Rock-solid **balance sheet**
- Partnership with majority owner **Clean Energy Fuels**
  - Nationwide fuel procurement
  - Built more compressor stations in US – by far –than anyone else
  - Extensive LNG operation
- **Customer references**

We Want to Work with You to Assure Timely and Cost-Effective MACT compliance!

Questions?

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How much carbon dioxide is produced when different fuels are burned?

Pounds of CO_2 emitted per million British thermal units (Btu) of energy for various fuels:

Coal (anthracite)	228.6
Coal (bituminous)	205.7
Coal (lignite)	215.4
Coal (subbituminous)	214.3
Diesel fuel and heating oil	161.3
Gasoline	157.2
Propane	139.0
Natural gas	117.0