



Ed Rogers, Director

15th Annual LMOP Conference
January 19, 2012
Baltimore, MD

Tazewell County LFG

- 325 scfm
- Peaking at 550 scfm in 2038
- LMOP Project Expo 2009

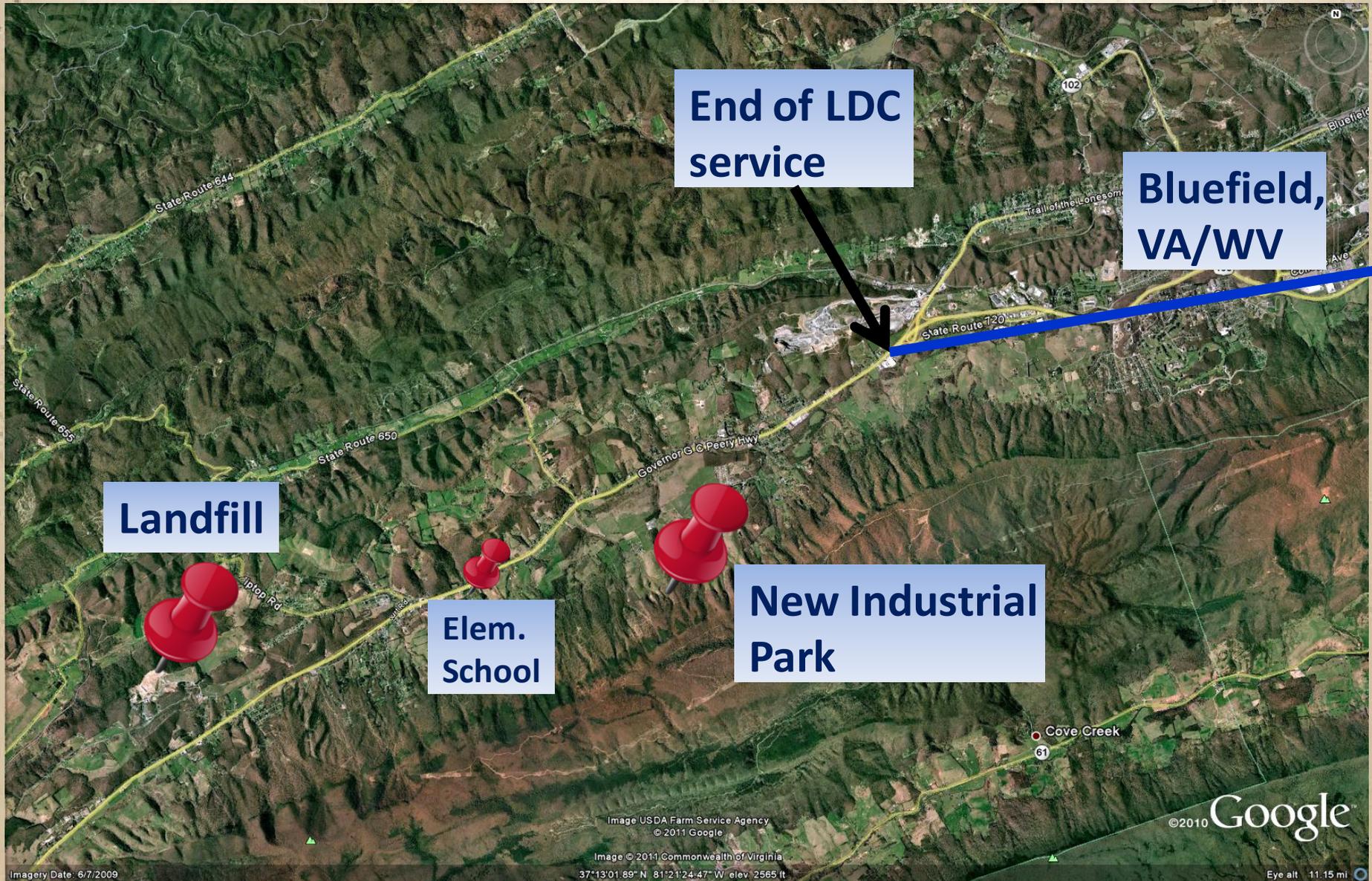


Tazewell County LFG

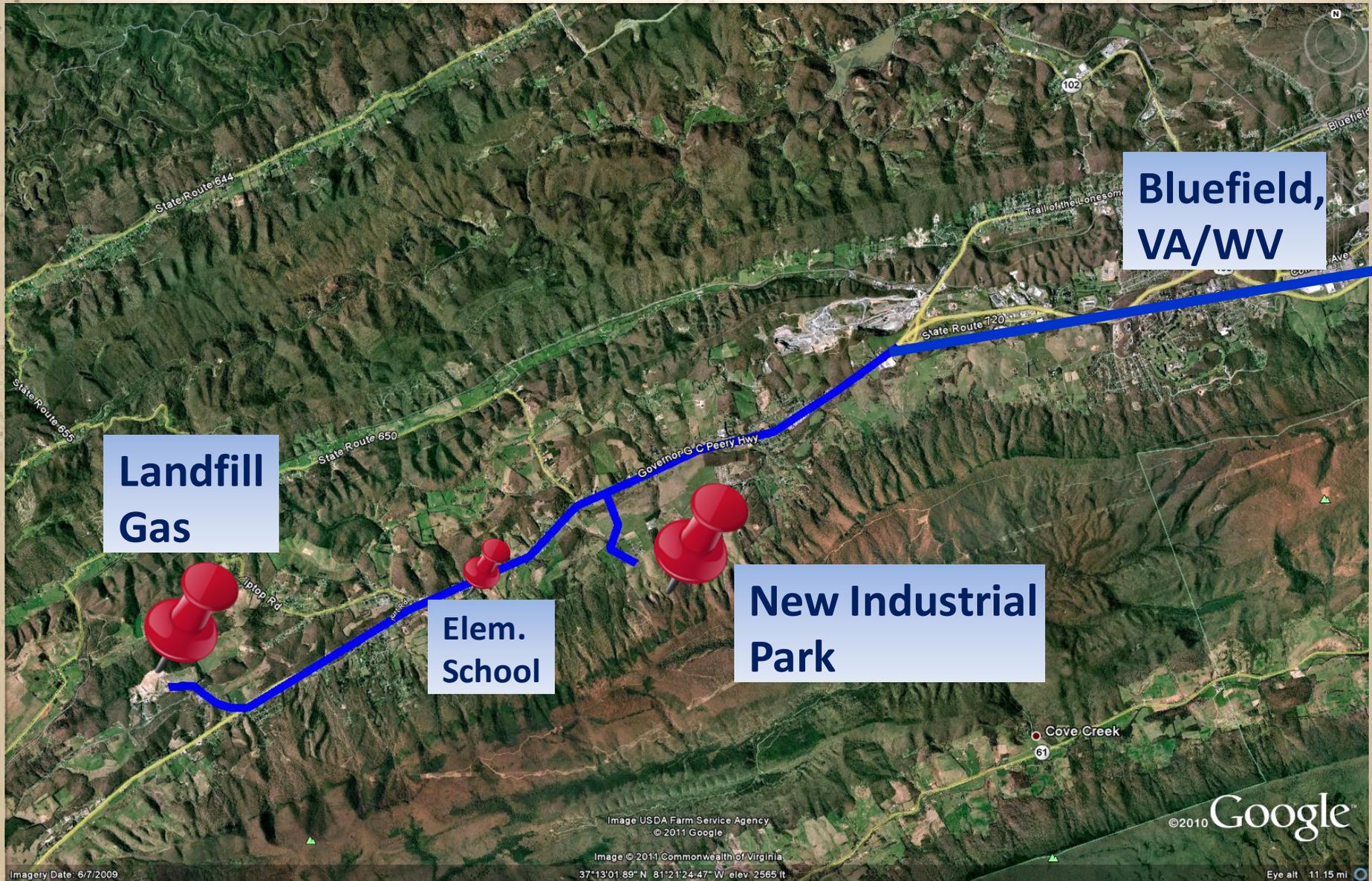
- 325 scfm
- Peaking at 550 scfm in 2038
- LMOP Project Expo 2009
- Electricity project didn't pencil out
- No viable users of low/med-Btu gas
- Closest gas line is ~8 miles away



Tazewell County, VA



Pipeline-Grade LFG Project



LFG Purification Process

- “AdvanSorb™”: PSA purification of LFG to gas pipeline specs
- Key innovations:
 - O_2 reduced from 1-4% to $<0.2\%$
 - N_2 reduced from 6-15% to $<2.0\%$
 - CO_2 reduced to $<2.0\%$
 - High CH_4 purity: $>96\%+$
 - High CH_4 yield: $>90\%$



Renewable Natural Gas Production

325 scfm @ Tazewell County Landfill

x 60 x 24 x 365 x 90% x 50%

= 75 million cubic feet/year

... of pipeline-grade natural gas

600,000 GGE



Project Partners

- Tazewell LFG Development, LLC
- Tazewell County IDA
- SWVA Higher Ed. Center Foundation
- Renew Fuels, Inc.
- Civil engineers:
 - Thompson & Litton (Tazewell, VA)
 - Draper Aden Associates (Blacksburg, VA)



Economic Development

- Gas Collection and Control System @ no cost to County
- Expanded natural gas service
- Regional supply chain
- Revenue for County and non-profit
- Possible CNG station



Regional Job Creation

- Company HQ
- Regional supply chain:
 - pressure vessels, control systems, skid fabrication, adsorbent
- O&M
- Opportunities at abandoned underground coal mines (gob gas)



Revenue

- Carbon credits
- Green gas premium
- **Renewable Fuel Standards and Renewable Identification Numbers (RINs)**
- *Visibility into project ROI ...*



Renewable Fuel Standards: RINs

EPA says:

“all oil companies that market petroleum in the U.S. are required to produce a given quantity of renewable fuel or to purchase credits, called [RINs]”



Renewable Fuel Standards: RINs

- “Only biogas that is used as renewable fuel can generate RINs. Biogas includes ... **landfill gas**, manure digester gas, and sewage waste treatment gas.” 40 CFR §80.1401.
- Inject into the pipeline at one point ... and withdraw at another point. 40 CFR §80.1426(f)(11)(ii)



let
nothing
be
wasted