

Testimony
September 15, 2016
Congress of the United States, House of Representatives
Committee on Science, Space and Technology

Progress Authority Natural Gas Utilization Value-Added Presentation



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INTRODUCTION

Bradford and Susquehanna Counties Shale Gas Production



Progress Authority

IDC/IDA

- ▶ Rank 2nd and 1st in statewide shale gas production.
- ▶ Over 5,700 wells permitted; 2,200 drilled.
- ▶ 6.5 bcf of natural gas production per day.
- ▶ 245,000 jobs impacted
- ▶ \$33 billion investment since 2007.
- ▶ Future investment lies with vertical integration.



What low-cost gas does

DISTRIBUTION

The Root of Vertical Integration

“PERFECT IRONY”

Susquehanna County - some of the most prolific wells in the world - no local distribution.

To date, private investment of over \$20 million, supporting 1,000's of jobs.

Gas to the high school, saving \$100,000 the first year.

Onsite gas used for school energy



Local Gas for Local People



Endless Mountains Health Systems - Susquehanna County

New Guthrie Troy Facility - Bradford County



- \$51 million investment
- 182 Jobs

- \$35 million investment
- 130 jobs
- Existing but value-added

Natural Gas Served Large Energy Savings

INFRASTRUCTURE DEVELOPMENT

Balance of vertical integration and movement

Tube tankers

Pipelines – real and virtual



REV LNG

- \$10 million investment
- Non-piped distribution
- New England Market Demand
- 600 times concentration

Represents \$100's of millions of investment to "Move the Gas"

Pipeline delays lead to CNG and LNG trucking terminals

ENERGY GENERATION

Broader Market Impact for Utilization



Panda Power Station, Asylum Township

- 829 megawatt combined cycle generation
- 40 - 45 full time jobs; 300 - 600 during construction
- \$900 million investment x 2
- Sister Plant - Patriot, Lycoming County \$900 million
- Others proposed in the PJM system



PandaPowerFunds



IMG Energy

- 20 mw natural gas fired power generation facility
- \$20 million in new investment
- 7 sites in 2 counties; 2 completed



Combined Heat and Power (CHP)

➤ Electrical Generation/Steam/Thermal Demand

- GTP (Global Tungsten Powders) 7.5 mw, \$20 million, 500 jobs
- Cornell University in NY (ironic) 30 mw, \$180 million, 12,800 jobs
- Proctor & Gamble - [Model Project; Worldwide Example:](#)
 - 30 mw, \$50 million, 3,000 jobs
 - “Tri-generation”

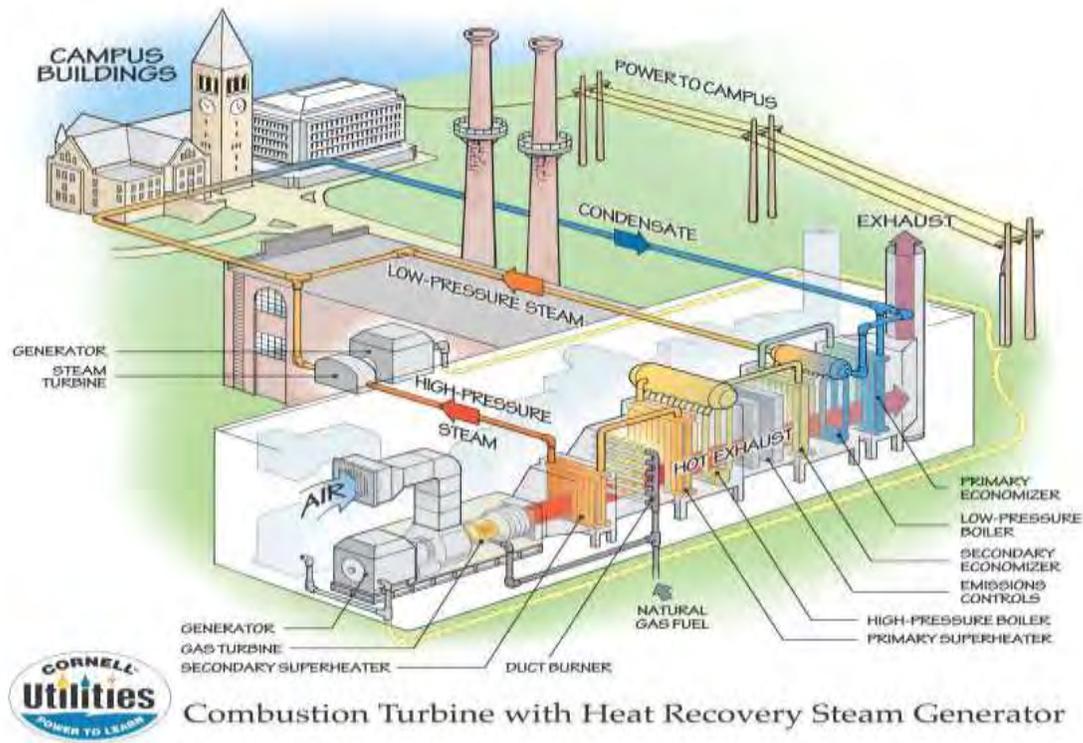
- *Cheap Fuel Stock Rising Electrical Pricing Make Proforma Payback Feasible*
- *Pennsylvania - Reverse metering advantage*



- Guthrie Healthcare 2 mw, \$6 million, affects 5,000 jobs
- Act 129 Rebate; ACE Grant
- 5 - 7 year Payback
- **Reason: Medical Record Energy Demand**



- Approximately \$10 million in investment
- Supports 500 jobs
- \$2 million rebate - Act 129
- Power buyback



Cornell University Combined Heat and Power

- Supports 12,842 Employees
- 21,600 Students
- Over 300 Buildings Serviced
- \$180 Million Investment Made
- Anti-Natural Gas Positioning; NYS Moratorium
- *NYS Converting to Natural Gas Generation Faster than its Sister States*
- Conversion from Coal - Built in 1922; 65,000 tons of Coal Per Year - positive environmental impact
- Two 15 megawatt generators
- 77% Operating Efficiency

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. The shapes are primarily triangles and polygons, creating a dynamic, layered effect. The central area is white, providing a clean space for the text.

CNG

(Compressed Natural Gas)

CNG Fueling Stations



Private CNG Fueling Stations



- *Vehicles*
- *Trucks*
- *Compressions Units for well completion*

CNG VEHICLE UTILIZATION

► Public Transportation



INDUSTRIAL UTILIZATION

Has Led to Innovative Uses



JELD-WEN
WINDOWS & DOORS



Clean
Efficient
Abundant

5,500 local manufacturing jobs supported by natural gas



Low cost
Feed Stock

Energy is at the Top of Common
Concerns

Multi-National Companies

Millions of
CF/day Used

Worldwide Example of Vertical Integration: Procter & Gamble Mehoopany Wyoming County



Marcellus Gas Utilization

- ▶ Paper Manufacturing Site
- ▶ 3,000 Employees
- ▶ Energy intensive
- ▶ Unconventionally drilled on 1,400 acre campus
- ▶ Off the grid sell 10 - 20 mw back
- ▶ Use 10 bcf/year; excess to interstate pipeline

Environmental

- Reduces CO2 emissions by 12%
- Reduced per unit consumption of energy by 30%; 40% in 2 years
- Gas purer than Gulf States; cleaner emissions
- Tri-Generation - electric, steam, hot air



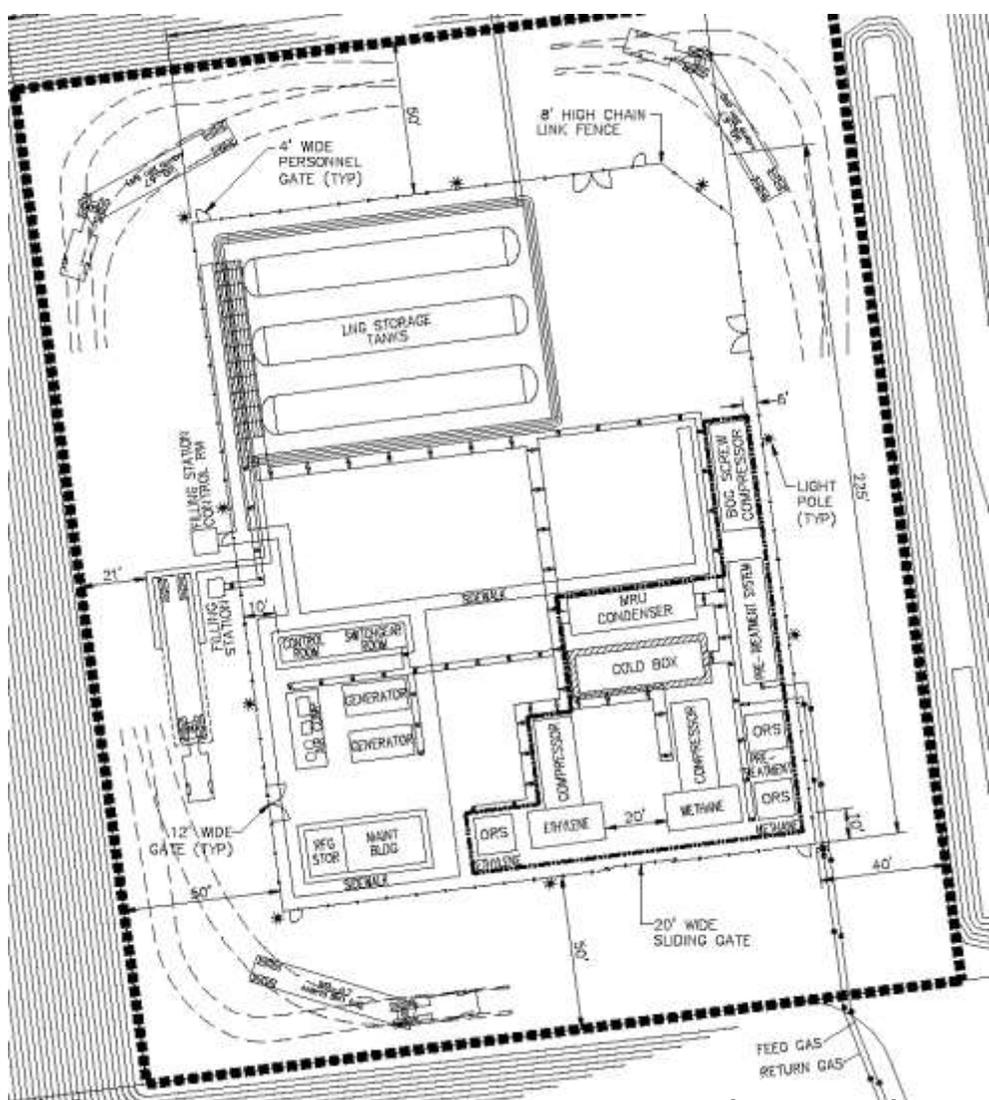
GTL (GAS TO LIQUIDS)



Global Tungsten Powders Towanda Borough and Township, Bradford County

- One of the Largest Users of hydrogen on the East Coast next to NASA
- Sintering metal - purge furnaces
- Partnering Air Products and hydrogen facility
- Thermal Cracking of natural gas to make hydrogen used in manufacturing
- Previously Gulf States/Canada - Katrina shut down
- 500 employees





Gas to Liquids

GTL:

- Diesel Fuel
- Unleaded Gas
- Waxes
- Lube oils
- Other Products
- Methanol

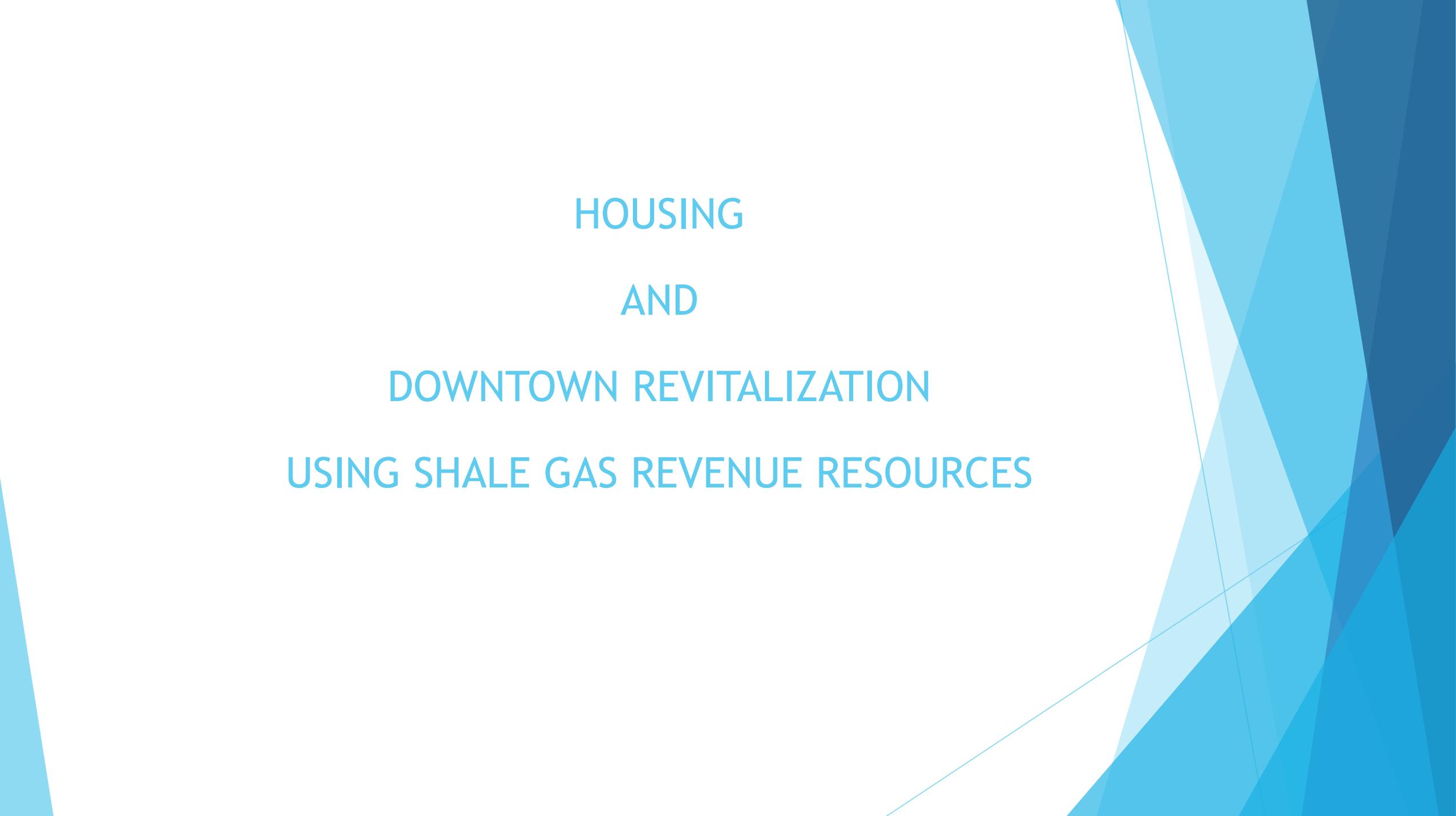
- Several Companies investigating sites, products and investments
- Fuel Stock Never Cheaper vs Competition with Crude Oil Prices and High Cap Expenditure
- Sites Evaluated in Bradford and Susquehanna Counties
- Hundreds of Jobs
- Hundreds of Millions in Investment
- Several New Proposals



Eureka Resources

Standing Stone Township, Bradford County

- Value-added from produced water
 - Crystallization
 - Downstream products
 - Road Salt
 - Environmentally beneficial; recycle water and ultimately crystalize for chlorides
- 40 Employees
\$30+ Million of Investment
Broader Market Uses for Chlorides

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the right side of the page, creating a modern, layered effect.

HOUSING
AND
DOWNTOWN REVITALIZATION
USING SHALE GAS REVENUE RESOURCES

Act 13 Natural Gas Impact Fees

Providing Tremendous Economic Benefits

- \$70 million investment locally total amount between the 2 counties.
- Sample uses via local decision making:
 - Public Safety
 - Infrastructure Development
 - Recreation
 - Environmental Conservation
 - Tax stabilization
 - Site Development
 - Housing

TOWANDA TERRACE

- 400 Block Revitalization
- Bradford County, Towanda Borough
- Burned out furniture store revitalization
- 4 story commercial with 39 units of residential
- 230 space parking garage developed
- \$15 million in investment
- Natural Gas Served



HOUSING



- Susquehanna County, Bridgewater Township
- *Meadows at Tiffany Pines*
- 40 Units of Housing - Completely Occupied
- \$11 million in investment
- Natural Gas Served

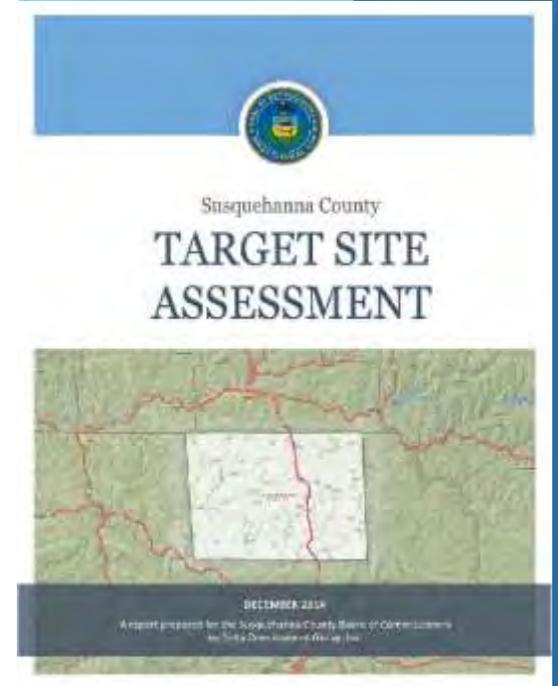


LOCATIONS

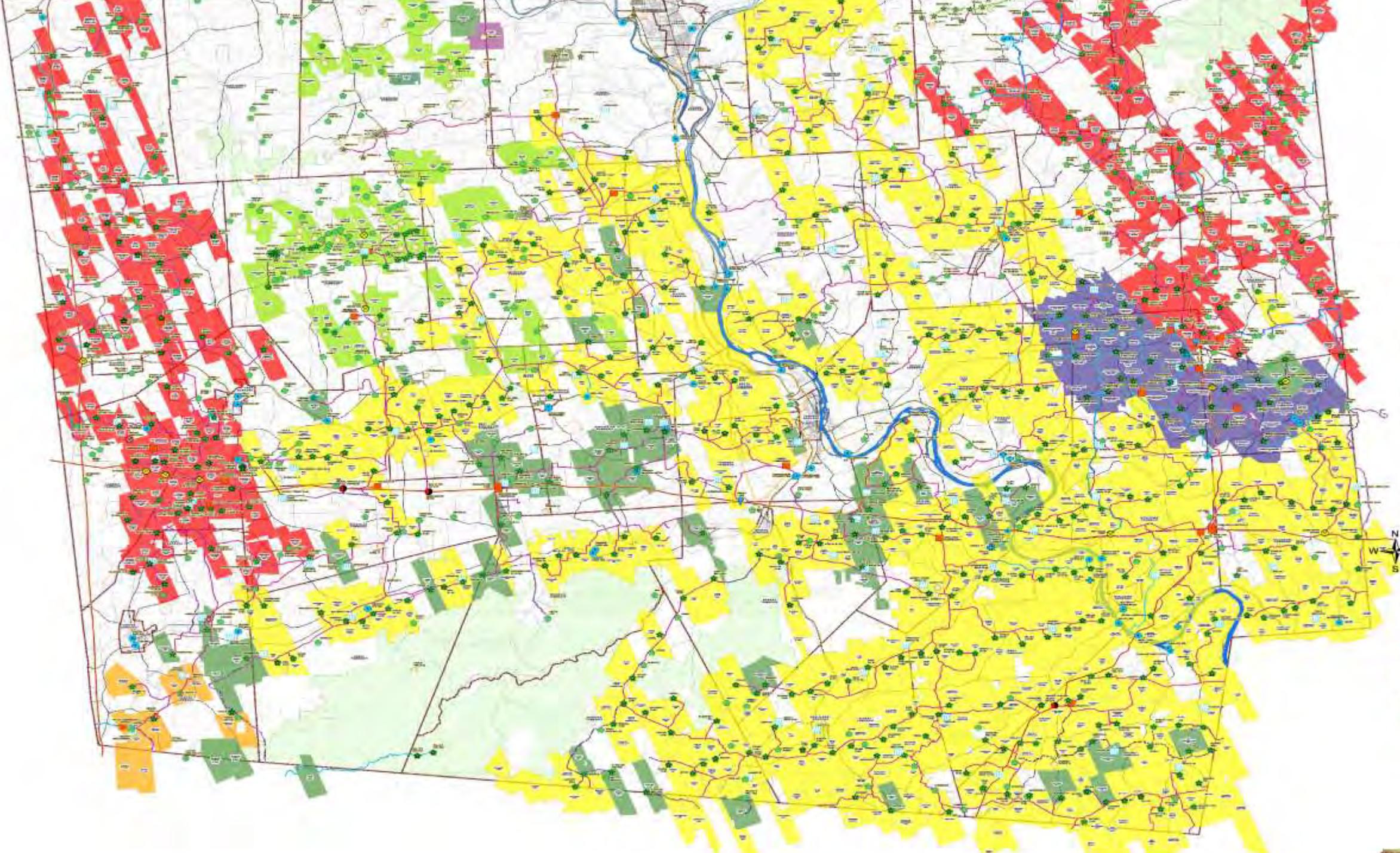
Where It Can Happen Downstream:

- Site near interstate or substantial midstream
- Liquid distribution lines for export of products from site
- Rail served
- Infrastructure:
 - Power/transmission lines
 - Sewer
 - Water
- Route 81 Interstate Corridor Analysis
- Target site assessment
- Energy corridor development Route 81 Corridor, Susquehanna County

Liberty Compression Station



*Support the Development of the Keystone Energy Enhancement Act (KEEA Tax Abatements)



Legend

- Active Off Gas Well
- Horizontal Gas Well
- Vertical Gas Well
- Communication Tower
- Compression Station
- Meter Station
- Substation
- Tap Location
- Dehydrator
- Groundwater Withdrawal
- Water Impoundment
- Surface Water Withdrawal
- Water Transfer Pad
- Water Pump Station
- Water Treatment Facility
- Water Withdrawal
- Temporary Fluids Prod.
- Waterhead Storage Pad
- Natural Gas Power Plant
- Permanent Water Lines

Natural Gas Lines

- Gathering - Proposed
- Gathering - Built
- Service - Built
- Storage - Built
- Transport - Proposed
- Transport - Built
- Well Line Proposed

Production Units

- Chief Oil & Gas
- Belden & Blair
- Chesapeake Appalachia
- Talisman Energy
- EOG
- Southwestern Energy
- East Resources
- Great Lakes Energy PA
- Range Resources
- BWER
- VWCO
- State Ownership



AGRICULTURAL PRODUCTION ON THE RISE

- Recent data from the Penn State Agricultural Extension and USDA Nation Ag Statistics are soaring
- 2001 to 2008 Dairy Cow Numbers Declining
- 2008 to date (Marcellus Gas Development Started) Cattle numbers stabilized
- Natural Gas Provided Income to Farmers to Reinvest in the Farm (purchase new equipment, building improvements and additional farmland) (abundant water resources and market proximity)
- Bradford County Amongst the Top Ten (one of the top two in dairy) Producers with Large Farms and the Other Nine Have No Gas Wells - Southern Area of State (no shale)
- Increases in Corn, Soybean, Beef, Swine, Poultry, Egg Production, Niche Farming, Maple Syrup, Orchards, etc.
- ***Natural Gas Has Been a Complimentary Land Use, Has Kept Land in Large Parcels which is Conducive to Agriculture and it maintains a Rural Way of Life.***
- It Also has Enhanced Tourism and Recreation.



FUTURE IMPACTS LIE WITH VERTICAL INTEGRATION OF NATURAL GAS NOT MORE REGULATION

- Increased production of natural gas has reduced the reliance on fuel oil and coal, thus reducing the carbon footprint.
- The natural gas industry has utilized best available technology, increasing production by 250% and emissions by 85%.
- We must create more opportunities to market gas and emissions become less of a concern.
(Move the gas)
- The natural gas industry is self-enforcing green completions, eliminating venting. New gas wells are not the traditional leakers.
- It's all about a balance between investment for production and environmental controls. Zero emissions could be achieved, but at what cost to existing positive environmental protection trends, and the benefit of independent, clean, low-cost fuel to our nation.

ENVIRONMENTAL BENEFITS BUSINESS DEVELOPMENT

- Natural Gas is clean, low-cost energy and reduces emissions
- Business opportunities resulting in substantial investment and jobs
- Natural gas is the reason for low fuel oil pricing
- Reduces crude oil consumption
- Quad 0 regulations will negatively impact the advancements made in shale gas development investment and jobs

Thank you to the Committee on Science, Space, and Technology,
Subcommittee on Environment