Real-time Experience of Early Natural Gas Boom Stages

By

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Basis for My Perspectives

- 45 Years of Professional Planning employment
  - at State level in Maryland
  - at City level in Michigan
  - at County level in Pennsylvania
- 16 Years on 8-County Joint Rail Authority owning and operating 5 freight railroads as Volunteer Citizen Board Member - Chairman
- 11 Years as Volunteer on 22-County Susquehanna Greenway Partnership - now Board Chairman
- White Paper developed from hundreds of inputs
NG Well Drilling

QuickTime™ and a decompressor are needed to see this picture.
NG Well Drilling
PA Geologic Map

QuickTime™ and a decompressor are needed to see this picture.
NG Compressor Station
NG Trucking Activity

QuickTime™ and a decompressor are needed to see this picture.
Slide of Rail NG Activity
NG Sand Transloading
NG Chemical Transload Facility
Secondary Economic Opportunities

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Secondary Economic Opportunities
NG Boom Development

• Large number of new jobs at various skill levels with highest skill levels typically filled by experienced gas field workers migrating as new gas plays open and until resident workers can secure training

• Vacant commercial building leasing by gas companies and their suppliers and support service companies equals new income for owners
NG Secondary Activity

- Vacant land is being used for pipe laydown yards + repair/maintenance centers + storage of heavy equipment and staging/mobilization yards
- New hotels have been developed and more are being built in counties with active gas well development or logistical support centers
- Rail freight traffic has increased substantially and more local train crews are being hired with increased revenues
NG Secondary Activity

• Technical training providers and Career Consortiums have strong market opportunity for their graduates and new sponsors for their training

• Major increased business for:
  – Restaurants and entertainment
  – Equipment repair and welding
  – Construction and Trucking
  – Stone aggregate suppliers need to expand their quarries and processing operations
  – Consultants providing land surveying, geology, engineering and permitting services plus forestry management
NG Secondary Activity

• Attorneys and Tax Accountants advising land and royalty owners with new-found income have seen considerable business growth.

• Specialty businesses have new applications and markets for their products:
  – crane and rigging services;
  – sand blasting and industrial coatings for pipe treatment;
  – spray-on sealants and liquid containment applications for gas well pads;
  – loggers to do tree clearing for well pads and pipelines;
  – chiropractic services needed by gas industry workers
  – local medical practices have added client base

• Water companies and Municipal Water Authorities have new market for sale of water for hydrofracturing.
Community Impacts

- Road and bridge damage and accelerated deterioration
- Sewage collection and treatment system upgrades/expansions needed to accommodate new residential and commercial development stimulated by the gas boom
- Noise from Compressor Stations and heavy truck traffic 24/7
- Stream and river frac water withdrawal operations have closed traditional fishing, boating, canoeing and kayaking access locations due to gas company lease restrictions and/or dangers of heavy trucks mixing with recreational users and families
- Demand on emergency responders for accidents, fires and spills has increased
Local Government Impacts

• Out of state gas workers who are on probation must be supervised by County Probation Officers which adds workload and costs to County governments

• Cost of emergency response for truck accidents, fires, gas well explosions and pipeline explosions or leaks is borne by the community to support their fire and ambulance companies

• Increase in Domestic Relations Caseload has added cost to County governments
Local Government Impacts

• DUI arrests and prosecution have stressed local Court calendars
• Demand for human services from county governments (e.g. Children & Youth Services, Drug and Alcohol Rehabilitation, Detention and County Prison, Court System) has increased
• Sex offenders from other states come into PA as gas workers and are not registered in PA
• Explosives storage facilities to support drilling has sparked safety concerns
Environmental Impacts

- Water well contamination or nearby stream contamination risks scare away prospective buyers and drive down home values.
- Water well contamination or farm pond contamination can add costs to farmers, especially for dairy farms and livestock growers and can put vegetable growers out of business.
Environmental Impacts
Environmental Impacts

- Well pads or Flowback Fluid impoundments or other chemical storage and staging facilities located within floodplains = Extreme Hazard
- Public water supply well fields are often located in floodplains
- Water supply contamination can become a public cost for cleanup, especially when impact emerges decades later
Impacted Parties

- Private land owners - both those who lease their land to gas companies and those who are neighbors
- Split Estate Issues and Disputes
  - Privately owned mineral rights underlying State Parks / State Forests
- Private land owners often incur damages to their property during fires, spills, accidents and explosions – and may suffer reduced property market value resulting from those risks
- Town dwellers along the major trucking routes who experience 24/7 heavy truck noise, diesel fumes, dust and traffic congestion from constant convoys of gas drilling suppliers and service companies
Impacted Resources

- State-owned forests and State forest roads and State Parks
- Streams and rivers
- Private water wells
- Wetlands and groundwater aquifer recharge zones
- Loss of tree canopy due to forest fragmentation has caused cold-water stream temperature to rise which endangers trout fisheries
NG Boom vs Long Term Activity

• Long Run Facilities
  – Pipelines
  – Compressor Stations
  – Water Supply facilities
  – Flowback Fluid Treatment facilities
  – Maintenance and Storage facilities

• Short Run Facilities
  – Gas Well Pads
Community Opportunities for NG Company Benevolence

- NG Companies want to build a positive image so they are willing to donate to community and environmental projects.
- NG companies will sometimes pay their workers regular wages for volunteer time to help with community projects if they secure public recognition.
- Local leaders need to organize their requests to NG companies.
Needed Mechanisms for Delayed Impact Remediation

- Comprehensive tracking, geographic mapping and scientific analysis of health patterns
- Independent scientific analysis of health impacts from thousands of new gas wells + compressor stations air emissions + flowback fluid impoundments
- Water quality and air quality scientific analysis of data tracking over multiple decades
- Medical doctors advisory panel to recommend health-based environmental regulations and permitting standards
Overview Issues

• New ‘haves’ and ‘have nots’ and frictions

• Lots of uncertainty (costs; risks; long run implications as to economic benefits vs public health and environmental remediation costs)

• Public discussion increasingly divided and antagonistic

• Legal uncertainty about local control, options, revenues, etc