Wyoming Boomtowns

Social and Economic Impacts Of Natural Gas Drilling

Natural Gas Drilling Workshop January 12, 2009
Tioga Central High School Auditorium

Jeffrey Jacquet
jeffrey.jacquet@gmail.com
607-351-9886
Three Phases of Natural Gas Development

Development Phase (Short Lived/Labor Intensive)
- Well-pad and Access Road Construction
- Local collection pipeline Construction
- Drilling of the Well
- Fracturing of the Well
- Reclaiming some Disturbance

Production Phase (Long lived/Small & Steady Labor Force)
- Trucking Water and condensate from Well Site
- Monitoring Production
- Occasional Well Work-Overs (partially re-drill/re-frac)

Reclamation Phase
- Dismantle and Reclaim well-sites
Jonah/Anticline Fields Direct Workforce Through The Three Phases:

Graph: Ecosystem Research Group/Jacquet
The Number of Rigs Drive Everything

Number of Rigs = Amount of Development = Size of Workforce = Impact
Typical Development Phase Organization Chart
Two Big Workforce Questions

- Where will the workers come from?
- Where will they stay?
Sublette County Wyoming

- Pre-boom Population of ~6,000
- Three principal towns – Pinedale, Big Piney, Marbleton
- Mix of tourism economy and production of old gas wells
- Average age increasing – H.S. Graduate Exodus
- Seasonal economy - high winter unemployment
- High % of investment income (not blue collar)
Southwestern Wyoming
Sublette County Permanent Population Estimates

Source: U.S. Census Bureau
Number of New Housing Units Countywide

- 2000: 50
- 2001: 75
- 2002: 100
- 2003: 125
- 2004: 150
- 2005: 175
- 2006: 200
- 2007: 225

The number of new housing units has seen a steady increase from 2000 to 2007.
Scatter Plot of Monthly Sublette County EMS runs and Drilling Rigs in Sublette County, WY 2001-2007 (Sig. <.001)

R Sq Linear = 0.695

Source: Wyoming Department of Transportation

- All Other Vehicles
- Big Trucks

Average Daily Traffic

2000: 1,740 (160 Big Trucks)
2001: 1,640 (160 Big Trucks)
2002: 1,500 (150 Big Trucks)
2003: 2,170 (340 Big Trucks)
2004: 2,690 (420 Big Trucks)
2005: 2,820 (440 Big Trucks)
2006: 3,690 (830 Big Trucks)
Monthly Sublette County Unemployment Rate 01/90 - 02/07
Source: Wyoming Department of Employment, Research & Planning
Monthly Sublette County Employment Among Residents 01/90 - 07/07
Source: Wyoming Department of Employment, Research & Planning

Number of Employed

Year

Thompkins County, NY was $1,175,010,000 in 2006.

(Tompkins County, NY was $1,175,010,000 in 2006)
Source: State of Wyoming

ERG/Jacquet 2008
Economic Two-Sided Coin

Very High Wages:
- $15-20/hr starting wage for general gas field labor with no experience
- $23/hr starting wage for rig workers with no experience
- $10/hr effective bare-minimum wage for any job in surrounding area
- No-questions-asked job interviews
- Super-fast advancement in all areas
- Median family wage 2000: $49,000 2007: $69,000

Very High Cost of Living:
- Inflation rates quadruple the national average – as high as 9%
- Average rental – $1200/month for a mobile home, more for a house
- Lots of Driving Costs
- Mechanics charge $100/hr at minimum
- Home Values (and taxes) increasing at 17%/year
Non-Gas Field Businesses and Residents struggle:

- Every business is short-staffed
- Businesses often closed for certain hours or days per week due to lack of employees
- Retail Sector stagnant or declining
- Commercial Space is very expensive
- Quality of Customer Service rapidly declining
- Very hard to afford unless tied to oil and gas industry
- Fixed Income residents hit the hardest
- Utilization of Immigrant Labor
Biggest Factors Influencing Economic Impact

1. Size of Workforce
2. Length of Development
3. Size of Community

Impact = Size of New Workforce \times \text{Length of Development} \times \text{Size of Community}
Positive Social Impacts  (Jacquet and Coburn, Forthcoming)

Town Character perceived to have changed (for the better)
- More diversity in residents
- Stores open later
- More open-minded
- Impetus to start tackling problems
- New Families
- More Young People staying in area
- Blue Collar Culture reinforced among Blue Collar residents

- Easy to get a job
- Making more money
- More money available to local governments

- Biggest Changes occurred at beginning of boom (not at height of boom) – Similar to Krannich, et. al in Delta, UT
Negative Social Impacts  (Jacquet and Coburn, Forthcoming)

Town Character perceived to have changed (for the worse)
- From sleepy outdoorsy/cowboy town to busy redneck boomtown
- Large swing from white/no-collar to blue collar culture
  - “The Bubba Factor”
- Traffic from non-existent to bumper-to-bumper
- Lots of new faces, people that weren’t raised here, don’t share values
- Lock their doors at night for the first time
- Lots of businesses bought by outsiders
- Environmental quality decreasing
- Fear of losing tourism/recreation economy

- More tension in the Community
- Social Relations said to have decreased
- Community Satisfaction said to have decreased
- Don’t socially interact with newcomers
- Controversial projects/decisions dividing residents
  - Residents become categorized by position

- Biggest Changes occurred at beginning of boom (not at height of boom) – Similar to Krannich, et. al in Delta, UT
Biggest Factors Influencing Social Impact

(Jacquet and Coburn, Forthcoming)

- Prior experience with Boom/Bust!
- Resident’s employment/experience in the industry
- Length of time in community
- Experience living in other communities (the “my community was perfect” effect)
- White Collar/No Collar vs. Blue Collar Culture (“The Bubba Factor”)
- Size of Town Compared to Size of New Workforce
Massive Government Revenue Increases -But Yet Not Enough

Table 3.3-6 Sublette County and Municipalities Oil and Gas Tax Revenue from All Sources

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Sublette County</th>
<th>Big Piney</th>
<th>Marbleton</th>
<th>Pinedale</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>$15,675,010</td>
<td>$1,564,123</td>
<td>$2,189,120</td>
<td>$2,253,178</td>
</tr>
<tr>
<td>2002</td>
<td>$21,156,928</td>
<td>$1,527,205</td>
<td>$2,688,177</td>
<td>$2,725,136</td>
</tr>
<tr>
<td>2003</td>
<td>$21,149,887</td>
<td>$1,515,172</td>
<td>$2,669,507</td>
<td>$2,700,676</td>
</tr>
<tr>
<td>2004</td>
<td>$28,366,047</td>
<td>$2,012,634</td>
<td>$6,913,024</td>
<td>$6,943,193</td>
</tr>
<tr>
<td>2005</td>
<td>$37,652,129</td>
<td>$2,649,031</td>
<td>$4,672,212</td>
<td>$4,703,126</td>
</tr>
<tr>
<td>2006</td>
<td>$52,641,542</td>
<td>$3,680,492</td>
<td>$6,490,976</td>
<td>$6,523,268</td>
</tr>
</tbody>
</table>

Pinedale: $14 million in current infrastructure projects
$35 million estimated in new infrastructure projects

Big Piney & Marbleton: $13 million in current street repair
$7 million in additional repair

New Courthouse – $10 million estimated
New Maintenance Buildings – $5 million each
New Library – $7 Million
New Health Clinics – $8 million each
Doubling of Staff
New EMS Facilities
Limitations to Local Government Policy

- Understaffed
- Overwhelmed
- Unprepared
- No way to control direct causes
- Revenues take a while to flow (if at all)
- Revenues can’t be spent directly on the problems
- Lots of local controversy/dissention
- State/Federal/others looking to take money away
- State/Federal/Industry says “we don’t manage socio-economic impacts”
Some Successful Mitigation efforts

- Police Meth Task Force
- 1% optional sales tax increase (96% will come from gas industry)
- Impact fees for developers
- Funneling money into infrastructure (can be spent directly, can’t take it away later)
- Hiring new staff, lots of new planning
- Pace of Development Projections from Industry
- Master-planned subdivisions for long-term growth
Big Questions for Marcellus Shale

★ Where? When? How Much?
   ○ Full Development Picture is still unknown. How many wells, how long to develop, and where will they be?

★ Where will workforces be located?

★ What % will be in-migrants (probably a lot)

Then:
★ What are the communities’ capacities to absorb in-migrants?
★ What are the possible revenue streams available?
★ Community-by-community analysis is probably needed
★ Some communities will be hammered/some won’t even notice
A few Preparation Steps:

- Create Intra-Governmental Task Force:
- Create Baseline Socioeconomic Profile:
- Track and Project Rig and Well Counts:
- Create Impact Projections:
Intra-Governmental Task Force:

- Invite Industry
- Invite all County, Towns, State & Community Agencies

- Create a clearinghouse for Information:
  - Existing or New Organization
  - Needs Proper Funding/Staffing – hire staff/contractor if needed – can be big task
  - Needs to be County/Community Specific
  - State wide or regional probably not effective
Baseline Socioeconomic Profile:

to define what is “normal” and to react quickly

Historical trends ■ Current capacities

Problem Thresholds

Government/Community Services:
EMS ■ Roads ■ Fire ■ Health Care ■ Social Services ■
Police ■ Water ■ Sewer ■ Courts

Broader Socioeconomic Trends:
Workforce ■ Economic Sectors ■ Unemployment ■ Wages
■ Housing Prices ■ Housing Availability ■ Temporary
Housing Hotels
Track and Project Rig and Well Counts:

- Monthly Trends of Rigs Drilling in the Area
- Number Wells In Area
- Map of Drilling Rigs and Wells
- Work with industry, state, and your own knowledge to devise drilling projections – both short and long term
- Update drilling projections as conditions change
Create Impact Projections:

- Given the development scenarios – what will the employment and population impacts be?
- What will the demand be on local services?
- How much will it cost to mitigate these demands?
- How can planning/development process be adapted to new pressures?
- What changes will take place in economy?
- What can be done to take advantage of the positives and lessen the negatives?
- How to attract long-term workers?