Community, Landscape, and Gas: Energy in Pennsylvania’s Past, Present, and Future

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Timber, oil, coal...
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And now gas: Sullivan County, PA

- 6,428 people, \(\frac{15}{\text{square mile}}\)
- Projected gas wells in Sullivan County—6,000
- Lifetime estimated royalty per well—\$1.6m
- \$1.6m \times \frac{6,000}{6,428} = \$1.5m/\text{person}

Pennsylvania population density
Gas activity and income projections: marcellusgas.org, 10/23/14
What people face

• Change over which they have little control
• Too much new and unfamiliar information
• Too many hidden and moving parts

...and what they are asked to do

• Regular people...
  – Forced to make irrevocable choices about complex issues in the face of impatient big industry
  – Who don’t know what to expect
  – Who need to be informed and empowered to minimize the risks they face
What prevents us from planning well?

- Industry is exempt from key environmental laws
- Communities are rarely protected by zoning
- Landowners are often unaware of their rights
- Sub-surface rights supersede surface rights rights
- The oil and gas market is volatile

- Landscape architects can help identify priorities
- But few people are familiar with what a landscape architect can do to help
The landscape architect’s toolkit
Our imperatives

• Contain and repair what has already happened
• Project how current conditions will develop
• Shape what has yet to happen
• Design landscapes resilient to the unexpected
• Plan to create long-lasting benefits
Our strategy

- Story telling
- Explore relationships
- Provide many examples
- Design
Take pipelines and water, for example...
Projecting the impacts of wells+pipelines

- Existing vs. future well locations projected based on characteristics of current wells

Buffered Pipelines for Current Wells

8,077 Acres

Buffered Pipelines vs Least Cost Pipelines

26,470 Acres

26,959 Acres

Geodesign analyses: Tim Murtha, Rick Hammond, Penn State
Hills Creek State Park, Colton Point State Park, and Leonard Harrison State Park are all destinations enjoyed by many people in Tioga County, PA. The lake, creek, picnic areas, and campsites provide recreational opportunities for the visitors and community, and the landscapes within and surrounding the parks offer great aesthetic value to the region. This offers significant economic value to the community. But with the Marcellus Shale Gas Industry moving in, these valuable sites and the benefits they provide to their patrons and the economy are being threatened.
Loss of forest cover due to pipelines

- Run-off, flood impacts at Montoursville, effects of alternate pipeline corridor treatments

Analysis and images: Emily Carlson, Elliott Shibley
Pipeline routing strategies

• Alternate location choices and their impacts
  Shortest-distance, Fewest leases, Conservation

158 Stream crossings
18 Homes impacted
84 Wetlands impacted
0.56 Miles per well

148 Stream crossings
3 Homes impacted
49 Wetlands impacted
0.63 Miles per well

124 Stream crossings
10 Homes impacted
19 Wetlands impacted
0.66 Miles per well

Geodesign analysis and images: Megan Prikockis, Danielle Sette
Habitats & Corridors

Implications and Strategies of Landscape Alterations related to Marcellus Shale and Non-Marcellus Shale Activities
Forest fragmentation...

- Interrupts core habitat, creates pathway for invasive species.
- Diminishes core habitat and reduces scenic amenity.
- Interrupts water access and shade, threatens water quality.

Images: Nick Monroe
...and design responses

- Minimizes access road, avoids bisecting core habitat.
- Consolidates with other disturbances.
- Maintains core and shaded silt-free streamside habitat.

Images: Nick Monroe
A hypothetical trip along Route 6 in Tioga County, PA. This hypothetical trip is made to explore Route 6's tourism potential in Tioga County where Marcellus shale gas drilling is affecting the local communities. A successful road trip planning not only helps the community in economy, but also in maintaining sense of place. This day trip story starts at Mansfield and ends at Galetton. The visitor is at the age of 25, driving along Route 6 with...
Illustrate planning issues...

- Choices in pipeline location can have impacts on scenic values
...to clarify the opportunities available

• Change pipeline routes, hide and disguise industry infrastructure
What should we do?

- Families deserve job opportunities, income for education and health care
- They deserve an environment free from pollution, flooding, excess traffic and forest fragmentation

- Help people understand the changes coming
- Help them understand what they can demand
- Help them make informed choices
- Help them influence their own future
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