What’s going on at the PSC?

North Dakota Public Service Commission
www.psc.nd.gov
701-328-2400

Brian P. Kalk
What does the Public Service Commission do?

- Follow the Law!
- Local
- State
- Federal
- Jurisdiction…. Jurisdiction…. Jurisdiction
Federal regulatory requirements

- National Environmental Policy Act (NEPA): Environmental Assessment if there is a federal nexus
- U.S. Fish and Wildlife Service
- Federal Aviation Administration – lighting if towers are tall enough
- National Park Service
- Natural Resource Conservation Service
- Environmental Protection Agency
- U.S. Army Corps of Engineers
Additional State regulatory requirements and permits

- Department of Transportation
- Highway Patrol
- Department of Health
- Game and Fish
- Historical Society
- Geological Survey
- Parks and Recreation
- Department of Agriculture
- Land Department
- Others
PSC has varying Regulatory Authority Over

- Electric & Gas Utilities
- Telecommunications (not cell phones)
- Electric Generation & Transmission
  - Power plants
  - Wind farms
  - Natural Gas Facilities
  - Transmission Lines
  - Pipelines
- Railroads & Grain Elevators
- Pipeline Safety
- Coal Mine Reclamation
How does an applicant get a certificate of site compatibility or a corridor and route permit?

- Letter of intent
- Application
- Public hearing
- Commission work session
- Commission Findings of Fact, Conclusions of Law, and Order
- Preconstruction meeting
- Post construction inspection
- Public Input
Average time for processing applications

- From date application is deemed complete to date order is issued:
  - Gas plants – 57 days
  - Pipelines – 78 days
  - Transmission – 83 days
  - Wind – 110 days
How has the PSC been impacted by the surge in energy development?

Total investment since 2005 = $14,751,216,000

- Wind: $12,298,250,000
- Pipeline: $782,346,000
- Electric Transmission: $853,620,000
- Gas Plants: $817,000,000
The Bakken

The Bakken Formation was deposited in the more central and deeper portion of the Williston Basin.

Source: USGS
Oil fields and rig locations
NORTH DAKOTA OIL PRODUCTION

Figure 1. Historic oil production for North Dakota in barrels of oil per day.

Source: North Dakota Pipeline Authority December 2010
Pipelines

- Total estimated investment in pipelines from 1996 to present – $822,361,000
- Total estimated investment in pipelines from 1996 to 2005 – $40,015,000 (2 projects)
- Total estimated investment in pipelines from 2005 to present – $782,346,000 (32 projects)

TransCanada Keystone Pipeline construction
CURRENT CRUDE OIL INFRASTRUCTURE

Figure 3. Map of the major crude oil transmission pipelines in the Williston Basin. Small scale gathering pipelines are not included.

Source: North Dakota Pipeline Authority December 2010
Reducing truck traffic

Enbridge SORTI/Dunn
Anticipated Q2 2012
Up to 100,000 BOPD
Approx 500 Truckloads/Day

Bridger Four Bears
Q1 2011
60,000 BOPD
Approx 300 Truckloads/Day

Source: North Dakota Pipeline Authority December 2010
North Dakota - Wind Resource Map

Wind Power Classification

<table>
<thead>
<tr>
<th>Wind Power Class</th>
<th>Resource Potential</th>
<th>Wind Power Density at 50 m W/m²</th>
<th>Wind Speed at 50 m m/s</th>
<th>Wind Speed at 50 m mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Marginal</td>
<td>200 - 300</td>
<td>5.6 - 6.4</td>
<td>12.5 - 14.3</td>
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<tr>
<td>3</td>
<td>Fair</td>
<td>300 - 400</td>
<td>6.4 - 7.0</td>
<td>14.3 - 15.7</td>
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<tr>
<td>4</td>
<td>Good</td>
<td>400 - 500</td>
<td>7.0 - 7.5</td>
<td>15.7 - 16.8</td>
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<tr>
<td>5</td>
<td>Excellent</td>
<td>500 - 600</td>
<td>7.5 - 8.0</td>
<td>16.8 - 17.9</td>
</tr>
<tr>
<td>6</td>
<td>Outstanding</td>
<td>600 - 800</td>
<td>8.0 - 8.8</td>
<td>17.3 - 18.7</td>
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</tbody>
</table>

Wind speeds are based on a Weibull k value of 2.0

Meteorological Station with Wind Data
City or Town

Transmission Line Voltage
- 69 Kilovolts
- 115 Kilovolts
- 230 Kilovolts
- 345 Kilovolts
- Under Construction

Indian Reservations
1. Turtle Mountain
2. Devil’s Lake Sioux
3. Lake Traverse
4. Standing Rock
5. Fort Berthold

U.S. Department of Energy
National Renewable Energy Laboratory

Grand Forks
Fargo
Jamestown
Bismarck
Dickinson
Williston
Minot

Wind speeds are based on a Weibull k value of 2.0
A Boeing 747 has a wingspan of 210 ft.
Typical Turbine Layout

Blade  
Hub  
Nacelle  
Tower  
Pad mount transformer  
Access road

Photo Source: Langdon Wind Energy Center PSC Application, Figure 8 by Tetra Tech EC, Inc.
Energy conversion facility siting criteria

- Exclusion areas
- Avoidance areas
- Selection criteria
- Policy criteria
Questions?

North Dakota Public Service Commission
Kevin Cramer, Commissioner
Tony Clark, Commissioner
Brian P. Kalk, Commissioner

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