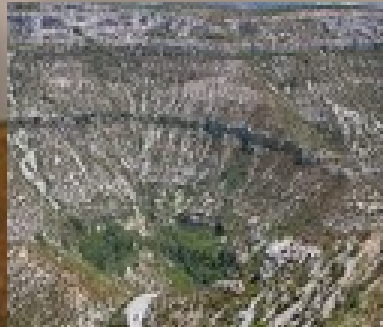


# Natural Resources & Energy Outlook:

Coal, Oil Natural Gas (Fossil Fuels), Renewables, Minerals,  
Alternative

By Terry Johnson



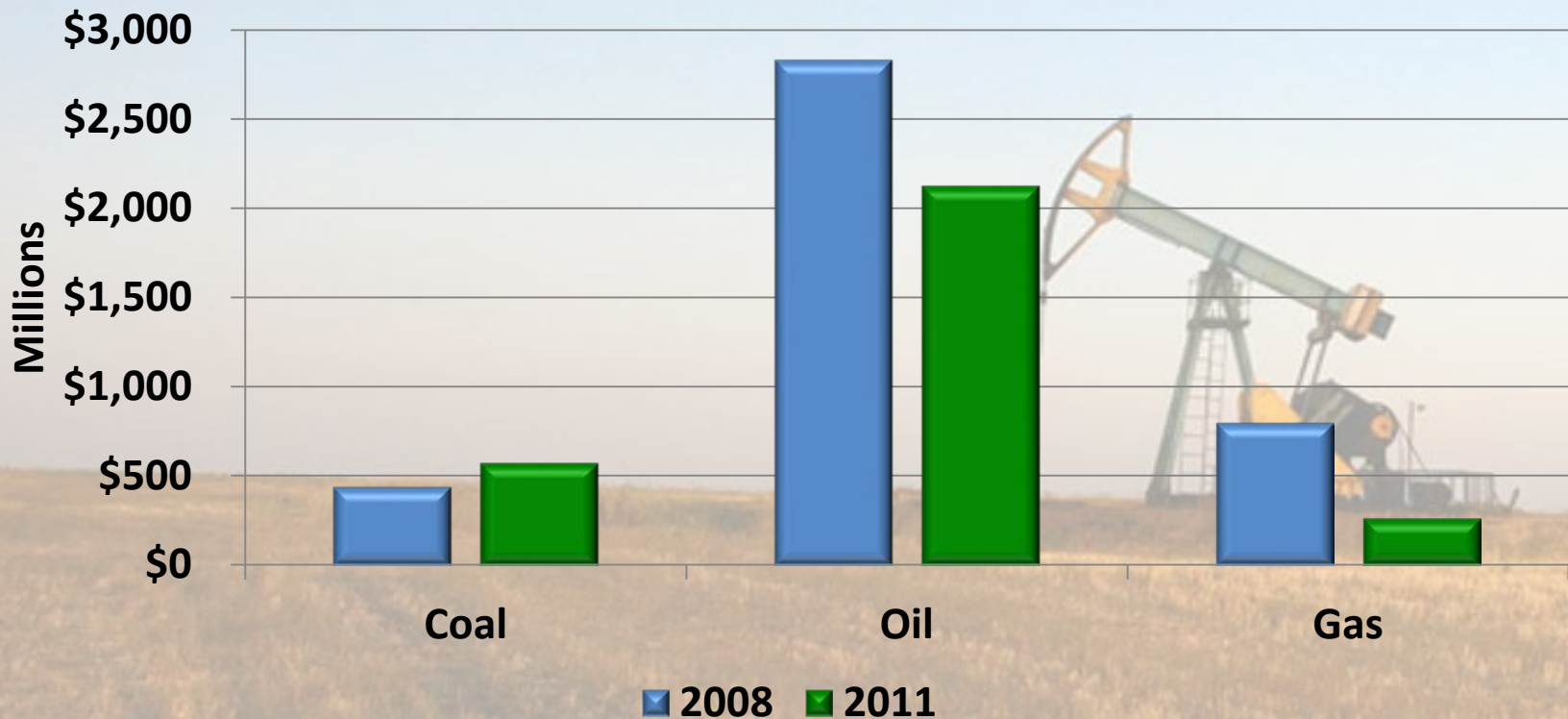
# Presentation Outline

- **Fossil Fuel Focus**
  - Coal
  - Oil
  - Natural Gas
- **Renewables, Minerals, Alternatives**
- **What Changed ? 2008 to 2011**
- **Energy Outlook**
- **What Does This All Mean?**



# Montana's Fossil Fuel Sources

Coal, Oil, Natural Gas  
Value of Production Change - 2008 versus 2011

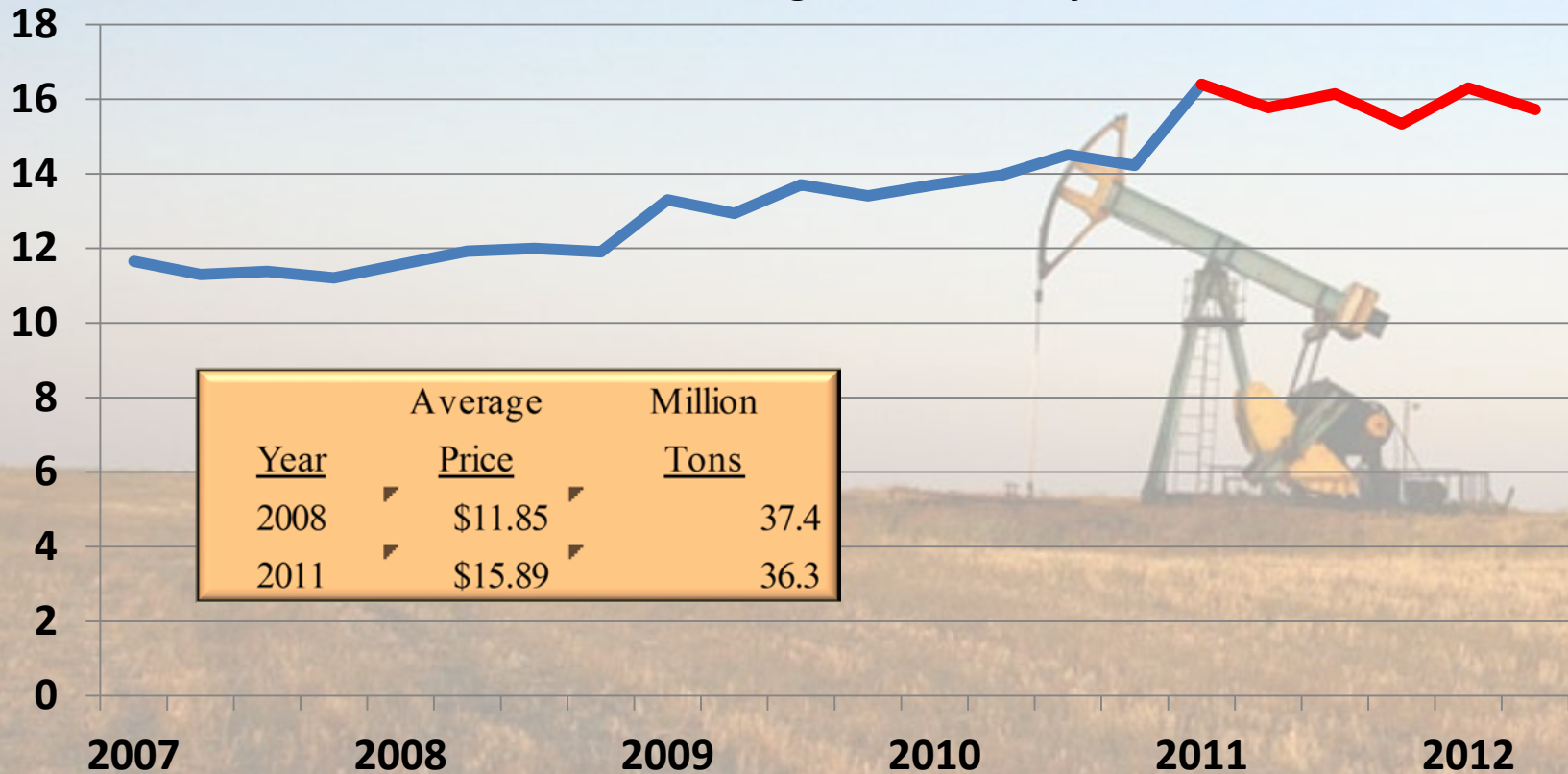




# Coal Production Value Increase: What Happened?

Per Ton (FOB)

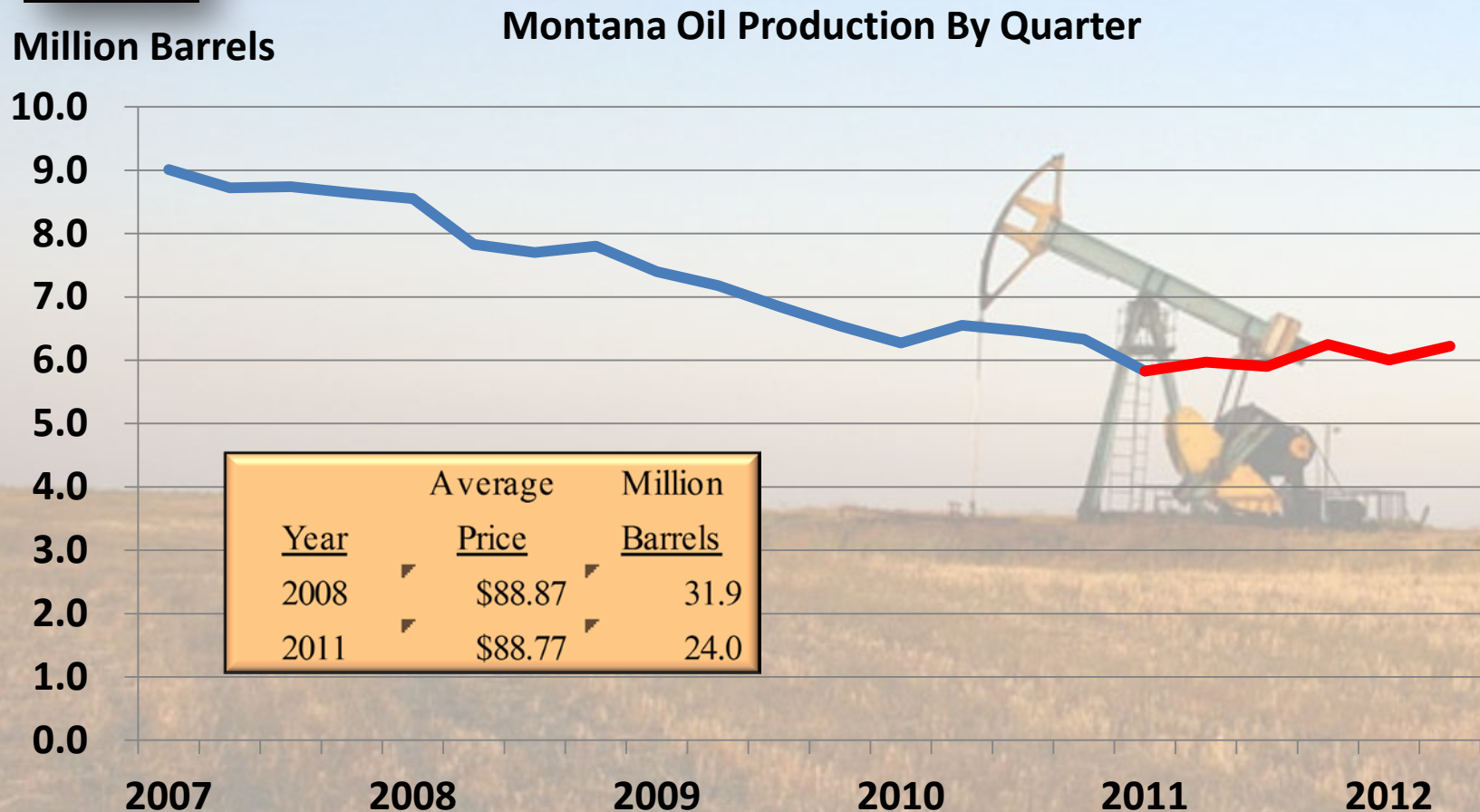
## Montana Average Coal Price By Quarter



Year	Average Price	Million Tons
2008	\$11.85	37.4
2011	\$15.89	36.3



# Oil Production Value Decline: What Happened?

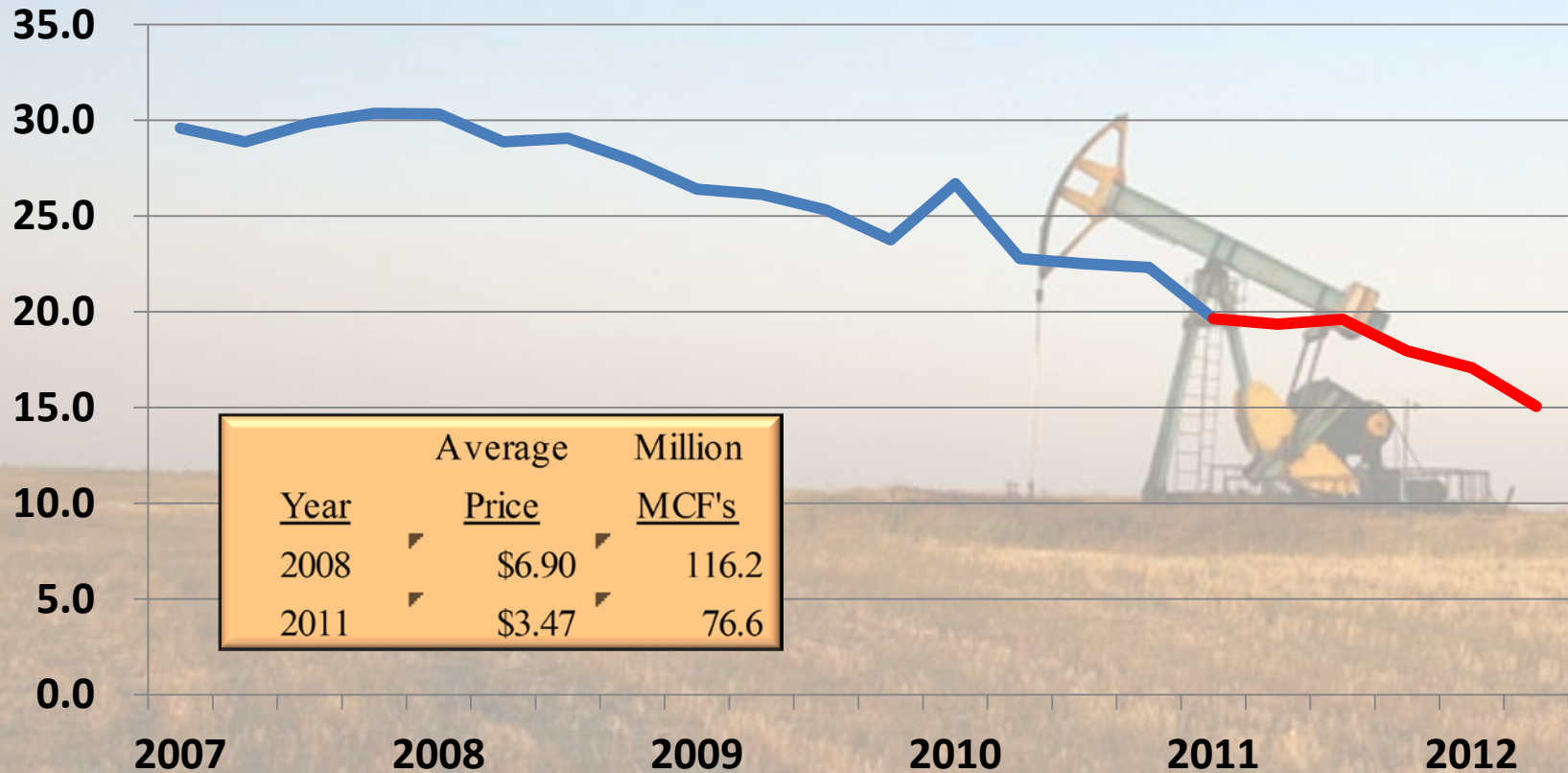


# Gas Production Value Decline: What Happened?






Million MCF

### Montana Natural Gas Production By Quarter



<u>Year</u>	<u>Average Price</u>	<u>Million MCF's</u>
2008	\$6.90	116.2
2011	\$3.47	76.6

# Reasons for Production Value Change – 2008 to 2011

- **Coal** 
  - Price increases due to world demand
  - International energy policies
- **Oil** 
  - Stable prices (on average)
  - Slow implementation of new technology
- **Natural Gas** 
  - Weak demand, over supply
  - Transportation



# Montana's Energy Outlook

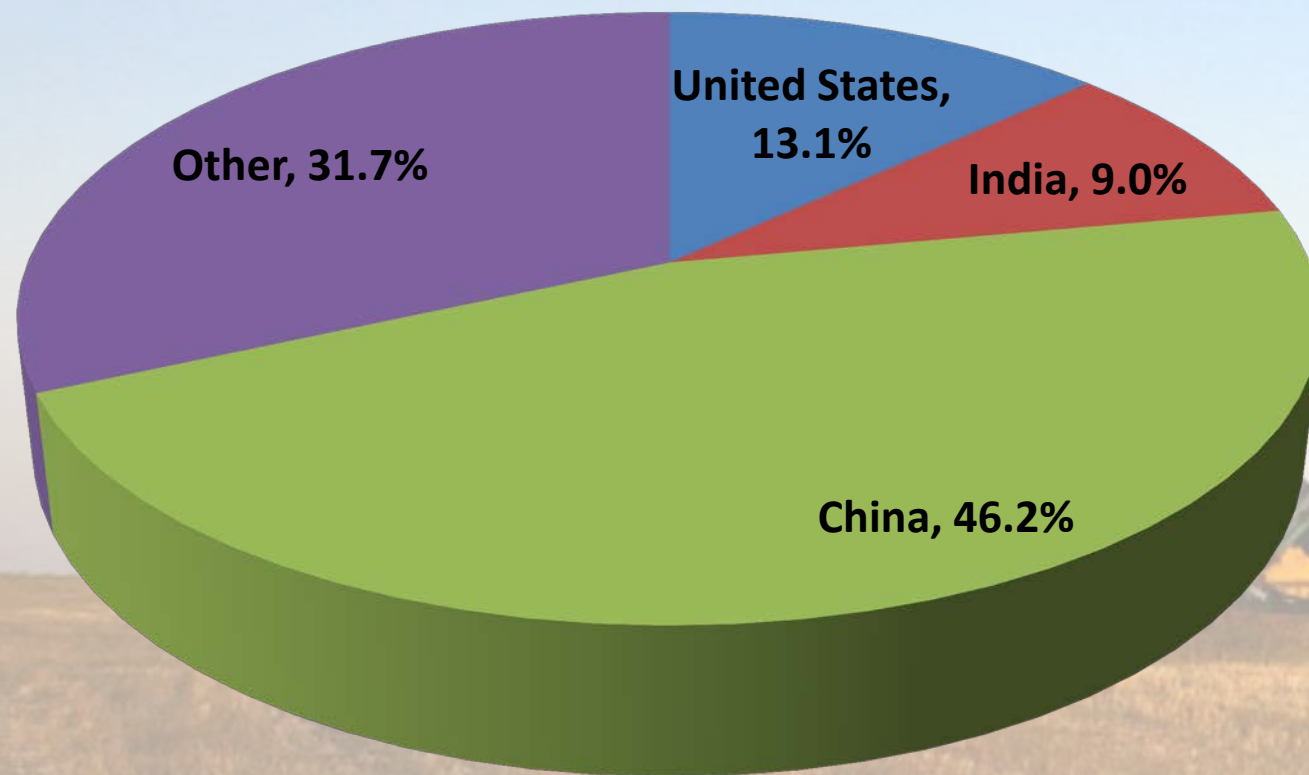
## Coal --- ↔

- **Why ?**
  - International Demand
  - International Natural Gas Price vs. Coal Price
- **What to monitor**
  - Federal Environmental Rules
  - Construction of Port Facilities





# International Coal Consumption, 2010



# Montana's Energy Outlook

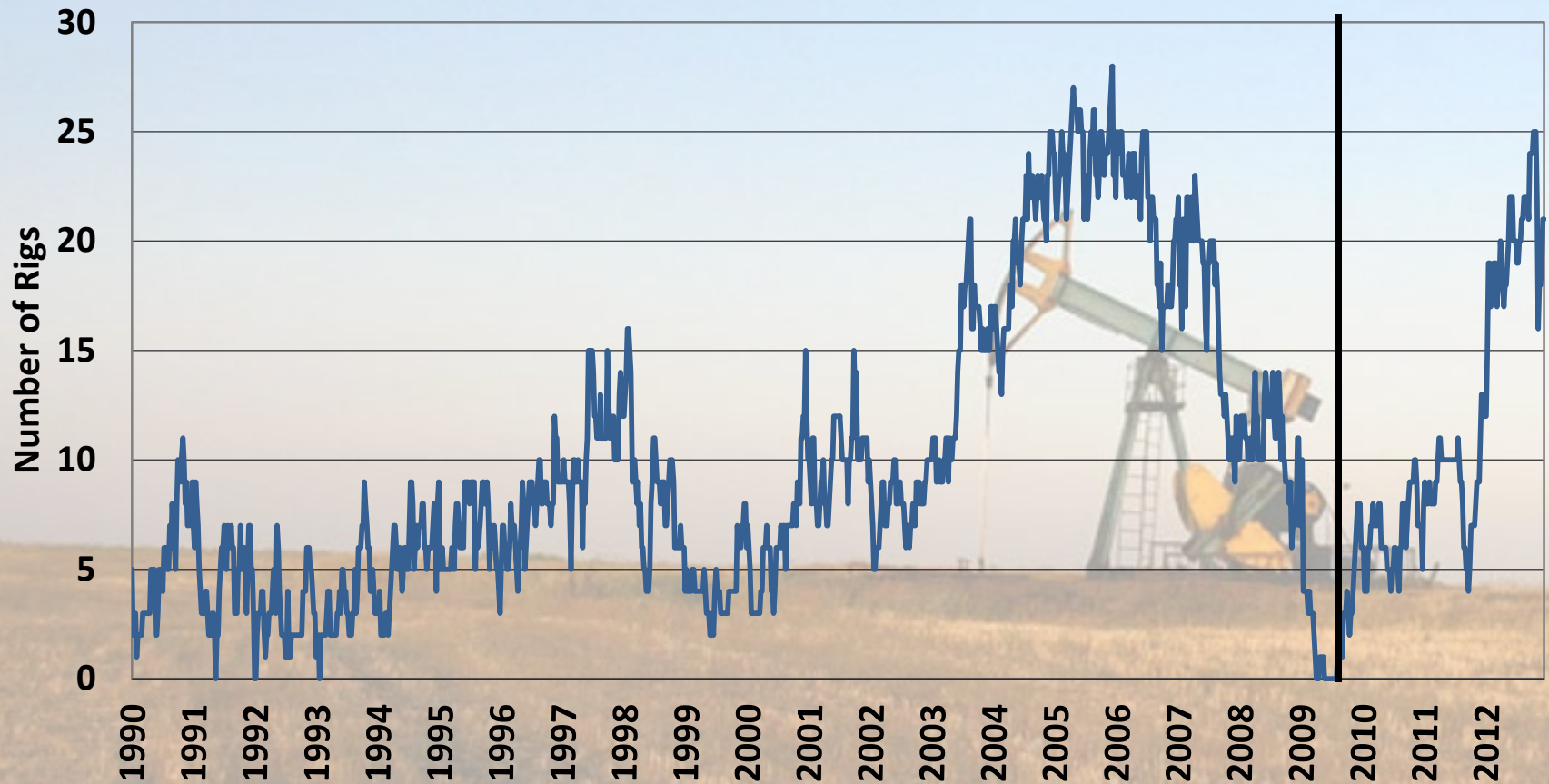
Oil --- 

- **Why ?**
  - **Rig Count Improvement**
  - **Economic Recovery**
  - **U.S. Energy Independence**
- **What to monitor**
  - **Environmental Issues With “Fracking”**
  - **Transportation Issues**
  - **Federal & State Taxation Policies**



# Montana Oil Rig Count

## Montana Oil Rig Counts By Month



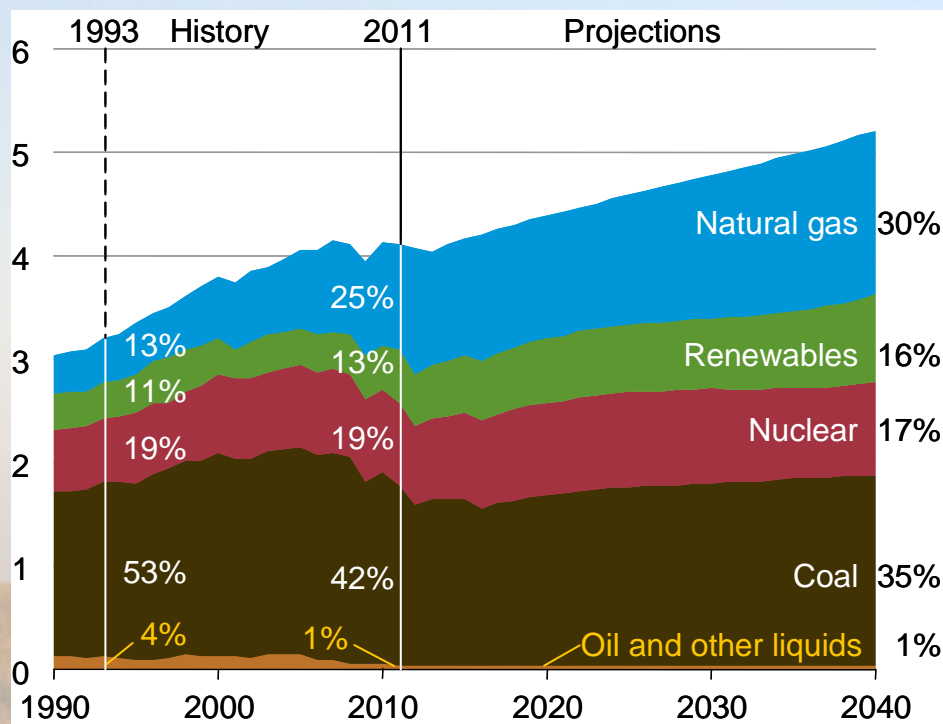
# Montana's Energy Outlook

## Natural Gas ---

- **Why ?**
  - **Electricity Generation**
  - **Environmental Issues with Coal**
- **What to monitor**
  - **Environmental Issues With “Fracking”**
  - **Federal & State Taxation Policies**



# U.S. Electricity Generation by Fuel Type



# What Does This All Mean?

- **Economic Growth**
  - Eastern Montana
  - Other Areas (Billings for example)
- **Enhanced Governmental Revenue**
  - Natural Resource Taxes
  - Income Taxes
  - Consumption Taxes
- **Governmental Service Pressures**
  - Education
  - Public Safety
  - Infrastructure (State and Local)

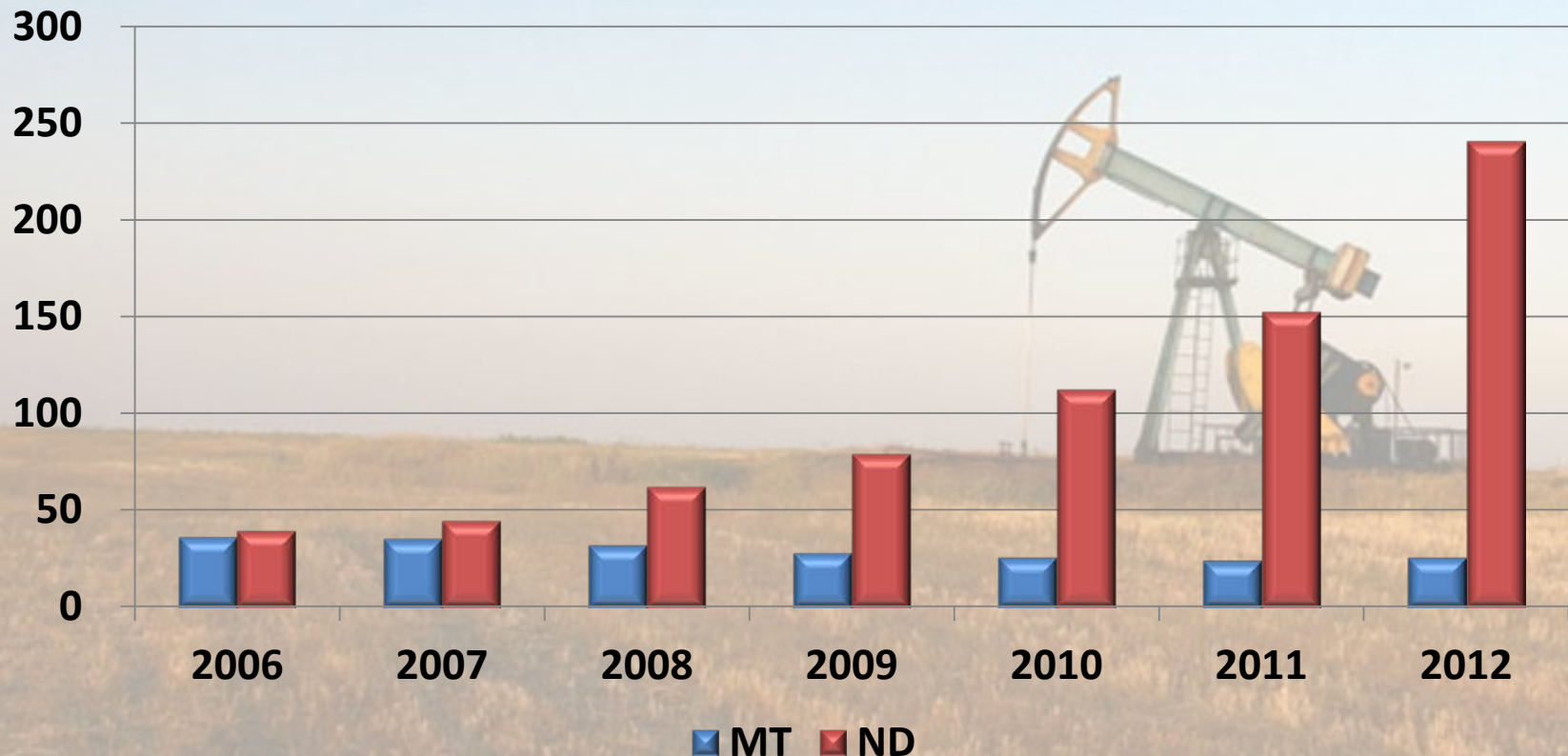


# Oil Production Comparison Montana vs. North Dakota



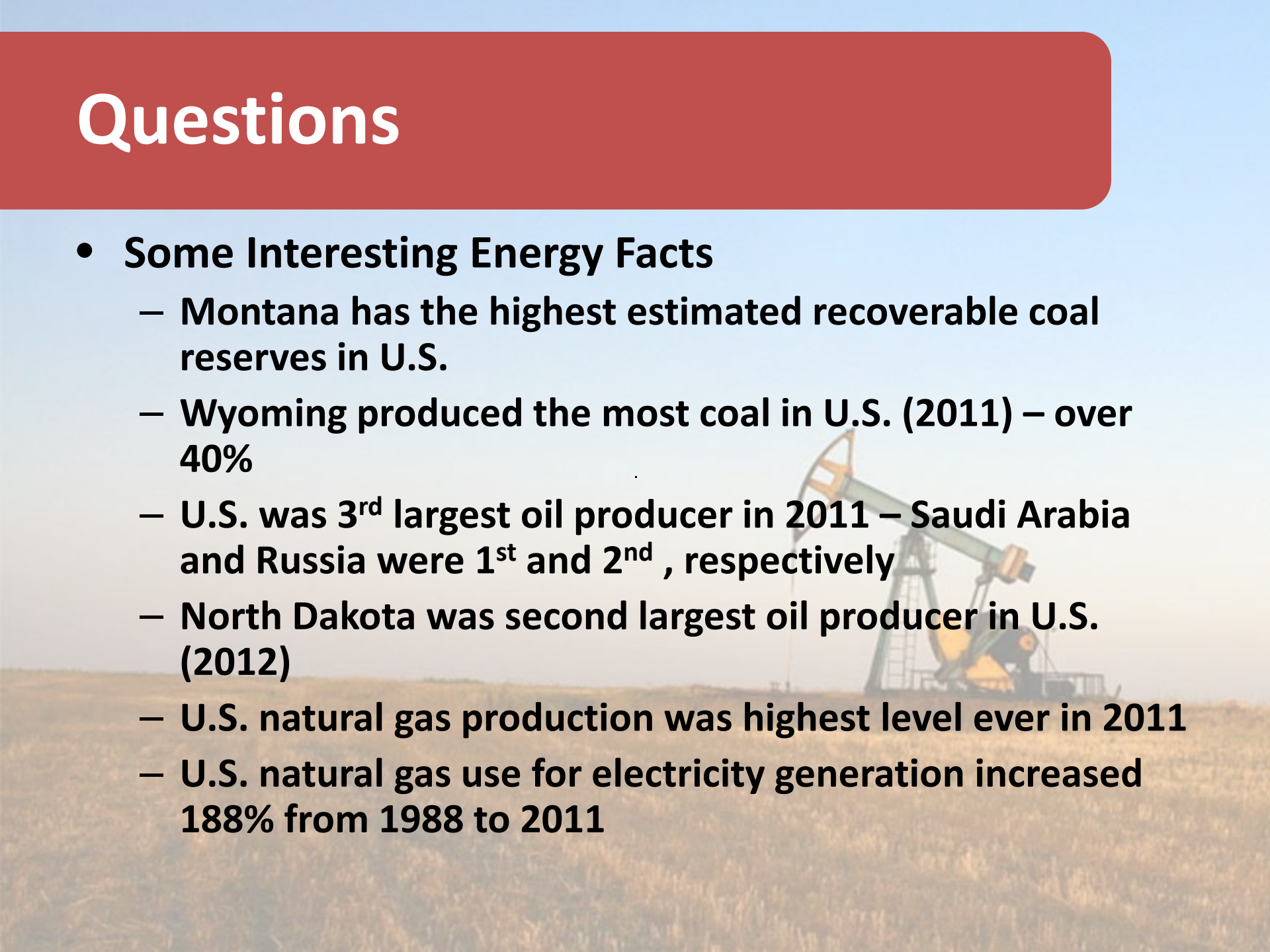
Annual Oil Production

Million Barrels



# Questions

- **Some Interesting Energy Facts**

- **Montana has the highest estimated recoverable coal reserves in U.S.**
  - **Wyoming produced the most coal in U.S. (2011) – over 40%**
  - **U.S. was 3<sup>rd</sup> largest oil producer in 2011 – Saudi Arabia and Russia were 1<sup>st</sup> and 2<sup>nd</sup>, respectively**
  - **North Dakota was second largest oil producer in U.S. (2012)**
  - **U.S. natural gas production was highest level ever in 2011**
  - **U.S. natural gas use for electricity generation increased 188% from 1988 to 2011**
- 
- A background image showing an oil pumpjack (jack-o'-lantern) in a field. The pumpjack is a mechanical device used for extracting oil from a well. It consists of a long walking beam pivoted at the other end to a vertical rod, which is connected to the wellhead. The pumpjack is shown in a field of tall grass, with a clear sky in the background.