2009
Oklahoma Economic Outlook

Metro Tech
Economic Outlook Conference

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Key Questions for 2009

• How serious is the current U.S. downturn?

• How will Oklahoma respond?
Recap of the Damage

• **Housing** collapse/subprime/bankruptcy
• **Commodity price surge** – esp. energy
• **Exotic derivative markets** collapse (pricing)
• **Financial institutions** collapse
• **Stock market** sell-off (Dow off 40%+)
• **ST corporate debt** market freezes
• **LT corporate debt** market tightens
• Municipal, credit cards, student loans, ………
Market and Govt. Reactions

- Aggressive Fed interest rate cuts
- Energy market sell-off
- Other commodities sell-off
- Household stimulus payments ($150 bil)
- Finding a bottom in stock market (?)
- Federal action on financial inst’s. (TARP, capital)
- ST debt markets resume functioning
- Likely household stimulus in 2009
Been Here Before – Many Times

• IMF study finds 42 major banking crises in 37 countries since 1970

• Some of the worst outcomes are in heavily regulated countries (e.g. Japan and S. Korea)

• Avg. bill for taxpayers is 15% of GDP

• Japan 25% of GDP, S. Korea 31%

• If this crisis costs $1 trillion, 6-7% of GDP

• U.S. in Great Depression, 50-75% of GDP
OK Forecast Assumes Severe US Recession

Growth in U.S. Non-Farm Employment
Seasonally adjusted, 4-qtr percent change

Based on Global Insight Base-Case Forecast

-2.1 mil jobs
-2.9 mil jobs
-1.6 mil jobs
-2.8 mil jobs
-3.1 mil jobs

-4% -2% 0% 2% 4% 6%
60 65 70 75 80 85 90 95 00 05 10
Oklahoma Not Always National-Like
Energy

Growth in OK Non-Farm Employment
Seasonally adjusted, annual rate

US Recessions
Shaded
Oklahoma Response

Oklahoma’s ‘09 outlook depends upon 2 factors:

Momentum:
• 1% job growth (top 10 in U.S.)
• 5%+ retail sales growth

Energy sector:
• Threshold - $45-50 oil / $6 natural gas
Job Gains in Central US / Energy States
Non-Energy States With Housing Issues Lag

<table>
<thead>
<tr>
<th>Top Job Growth States</th>
<th>Regional/Other States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State</strong></td>
<td><strong>(Sep)</strong></td>
</tr>
<tr>
<td>Wyoming</td>
<td>2.8%</td>
</tr>
<tr>
<td>Texas</td>
<td>2.4%</td>
</tr>
<tr>
<td>S. Dakota</td>
<td>1.6%</td>
</tr>
<tr>
<td>Nebraska</td>
<td>1.3%</td>
</tr>
<tr>
<td>N. Dakota</td>
<td>1.2%</td>
</tr>
<tr>
<td>Maryland</td>
<td>1.1%</td>
</tr>
<tr>
<td>Colorado</td>
<td>1.1%</td>
</tr>
<tr>
<td>Montana</td>
<td>1.1%</td>
</tr>
<tr>
<td><strong>Oklahoma</strong></td>
<td><strong>0.8%</strong></td>
</tr>
</tbody>
</table>

U.S.                            | -0.8%     |                                |      |
2009 U.S. Base Forecast Assumptions*
Weakness in 2008Q4, 2009Q1-Q2

- Recession extends through 2\textsuperscript{nd} Qtr of 2009
- Job losses through 4\textsuperscript{th} Qtr of 2009 (-1.5\% in ‘09)
- Oil: $50/bbl. in 2009, $60 in 2010
- Nat. gas: $6.50/mcf in 2009, $7.50 in 2010
- Very weak manufacturing sector (Int’l trade)
- Unemployment rate from 6.5\% to 8.25\%

*Global Insight
Key State Assumptions for ‘09

Positive
momentum
energy boost
state tax cuts
manufacturing
state banking
real estate
in-migration
rural strength

Neutral
agriculture
energy boost

Negative
US economy
Int’l trade

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## 2009 Oklahoma Economic Outlook

Small Job Losses Arrive in ‘09

<table>
<thead>
<tr>
<th>Selected Oklahoma Indicators</th>
<th>2008e</th>
<th>2009f</th>
<th>2010f</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Farm Employment</strong> (Thou) (% Change)</td>
<td>1,582.6</td>
<td>1,580.5</td>
<td>1,598.1</td>
</tr>
<tr>
<td><strong>Personal Income</strong> ($Mil)</td>
<td>133,557.4</td>
<td>137,763.0</td>
<td>142,602.3</td>
</tr>
<tr>
<td><strong>Per Capita Personal Income</strong> ($)</td>
<td>36,561</td>
<td>37,428</td>
<td>38,519</td>
</tr>
<tr>
<td><strong>Ratio OK/US Per Capita Personal Income</strong></td>
<td>91.9%</td>
<td>92.9%</td>
<td>94.2%</td>
</tr>
<tr>
<td><strong>OK Population</strong> (Thou)</td>
<td>3,621.9</td>
<td>3,656.3</td>
<td>3,682.8</td>
</tr>
<tr>
<td><strong>Unemployment Rate</strong></td>
<td>3.7%</td>
<td>4.9%</td>
<td>5.2%</td>
</tr>
<tr>
<td><strong>Taxable Retail Sales</strong> ($Mil)</td>
<td>45,148</td>
<td>46,874</td>
<td>48,355</td>
</tr>
<tr>
<td><strong>OFHEO Oklahoma Housing Price Index</strong></td>
<td>214.02</td>
<td>225.19</td>
<td>238.71</td>
</tr>
</tbody>
</table>

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# Metro Job Gains Reflect State Pattern

## Wage & Salary Employment Forecast (Thousands)

<table>
<thead>
<tr>
<th>Region</th>
<th>2007</th>
<th>2008e</th>
<th>2009f</th>
<th>2010f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oklahoma</td>
<td>1565.9</td>
<td>1582.6</td>
<td>1,580.5</td>
<td>1598.1</td>
</tr>
<tr>
<td></td>
<td>1.7%</td>
<td>1.1%</td>
<td>-0.1%</td>
<td>1.1%</td>
</tr>
<tr>
<td>OKC MSA</td>
<td>566.94</td>
<td>574.48</td>
<td>575.85</td>
<td>582.74</td>
</tr>
<tr>
<td></td>
<td>1.2%</td>
<td>1.3%</td>
<td>0.2%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Tulsa MSA</td>
<td>425.83</td>
<td>427.72</td>
<td>427.06</td>
<td>430.0</td>
</tr>
<tr>
<td></td>
<td>1.6%</td>
<td>0.4%</td>
<td>-0.2%</td>
<td>0.7%</td>
</tr>
</tbody>
</table>
Pessimistic Case Assumptions

- U.S. GDP growth negative thru 4th Qtr 2009
- 10 Quarters of U.S. job losses thru 2nd Qtr 2010
- Oil: $35/bbl. in 2009, $50 in 2010
- Nat. gas: $5.75/mcf in 2009, $6.75 in 2010
- Unemployment rate from 6.5% to 9.3% in 2010
Pessimistic Case – Job Growth

Change in OK Wage & Salary Employment Scenarios
Percent change, annual rate

*Base Case*

- 2009: 1.1%
- 2010: 0.7%

*Pess Case*

- 2009: -0.6%
- 2010: -0.1%

13,500 fewer jobs at end of 2010
State Income Gains Continue
State at Highest Ratio Since Oil Bust

Ratio OK to US Per Capita Personal Income
Oklahoma Energy Model

• Link Energy Model to State Economic Model
• Energy Supply – Oil and gas activity, electricity production, drilling, royalties, tax revenue, etc…
• Energy Demand – Use by type and fuel residential, industrial, commercial, transportation coal, petroleum, natural gas, electricity, other

OERB and OG+E
Energy vs. Non Energy Job Impacts

Growth in Total Employment - Energy vs Non Energy
Percent change, annual rate

- Non Energy
- Energy
Net Energy Impact

Can now model:

- the **net** impact of changing energy prices
- changes in fuel use mix
- price, BTUs, and expenditures
The $18 Billion Question
OK Energy Expenditures Have Doubled Since 2001

OK Total Energy Expenditures
Thousands, Annual Rate

$0 $5,000,000 $10,000,000 $15,000,000 $20,000,000

Costs Driven by Price, Not Quantity

OK Energy Price per Million BTUs
No Reduction in Energy Use in OK Through 2010

OK Total Energy Consumption
Billion BTUs

800,000 1,000,000 1,200,000 1,400,000 1,600,000 1,800,000
## 2008 Energy Costs – Who and What

**2008 OK Final Energy Expenditures by Fuel and Use Type ($Millions)**

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Residential</th>
<th>Industrial</th>
<th>Commercial</th>
<th>Transportation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>0.0</td>
<td>34.7</td>
<td>0.0</td>
<td>-</td>
<td>$34.7</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>928.3</td>
<td>1070.2</td>
<td>572.0</td>
<td>9.2</td>
<td>$2,579.7</td>
</tr>
<tr>
<td>Petroleum</td>
<td>149.7</td>
<td>1881.0</td>
<td>77.1</td>
<td>8,644.6</td>
<td>$10,752.4</td>
</tr>
<tr>
<td>Other Fuels</td>
<td>9.4</td>
<td>26.6</td>
<td>1.4</td>
<td>-</td>
<td>$37.4</td>
</tr>
<tr>
<td>Retail Electric</td>
<td>1930.6</td>
<td>680.6</td>
<td>1421.9</td>
<td>0.0</td>
<td>$4,033.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$3,018.0</strong></td>
<td><strong>$3,693.1</strong></td>
<td><strong>$2,072.4</strong></td>
<td><strong>$8,653.8</strong></td>
<td><strong>$17,437.3</strong></td>
</tr>
</tbody>
</table>
## Energy Costs - Primary Use

2008 OK Primary Energy Expenditures by Fuel and Use Type ($Millions)

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Residential</th>
<th>Industrial</th>
<th>Commercial</th>
<th>Transportation</th>
<th>Electric Utility</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>0.0</td>
<td>34.7</td>
<td>0.0</td>
<td>-</td>
<td>416.7</td>
<td>$451.0</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>928.3</td>
<td>1,070.2</td>
<td>572.0</td>
<td>9.2</td>
<td>2,191.2</td>
<td>$4,939.1</td>
</tr>
<tr>
<td>Petroleum</td>
<td>149.7</td>
<td>1,881.0</td>
<td>77.1</td>
<td>8,644.6</td>
<td>7.9</td>
<td>$10,760.3</td>
</tr>
<tr>
<td>Other Fuels</td>
<td>9.4</td>
<td>26.6</td>
<td>1.4</td>
<td>-</td>
<td>-</td>
<td>$37.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,087.4</strong></td>
<td><strong>$3,012.5</strong></td>
<td><strong>$650.6</strong></td>
<td><strong>$8,822.0</strong></td>
<td><strong>$2,615.8</strong></td>
<td><strong>$16,188.3</strong></td>
</tr>
</tbody>
</table>
# Large Price Differentials Across Major Fuels

## OK Energy Prices by Fuel and Use Type ($ per million BTUs)

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Residential</th>
<th>Industrial</th>
<th>Commercial</th>
<th>Transportation</th>
<th>Electric Utility</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>2.45</td>
<td>1.61</td>
<td>1.61</td>
<td>-</td>
<td>1.01</td>
<td>$1.04</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>11.16</td>
<td>9.00</td>
<td>10.53</td>
<td>11.11</td>
<td>8.04</td>
<td>$8.92</td>
</tr>
<tr>
<td>Petroleum</td>
<td>18.11</td>
<td>13.33</td>
<td>15.54</td>
<td>16.46</td>
<td>11.85</td>
<td>$15.91</td>
</tr>
<tr>
<td>Other Fuels</td>
<td>6.83</td>
<td>2.24</td>
<td>6.83</td>
<td>-</td>
<td>0.00</td>
<td>$2.92</td>
</tr>
<tr>
<td>Retail Electric</td>
<td>23.31</td>
<td>14.97</td>
<td>20.51</td>
<td>0.00</td>
<td></td>
<td>$20.12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$17.64</strong></td>
<td><strong>$10.73</strong></td>
<td><strong>$16.39</strong></td>
<td><strong>$16.46</strong></td>
<td><strong>$3.79</strong></td>
<td><strong>$14.80</strong></td>
</tr>
</tbody>
</table>
Full forecast release will be available online at:

http://economy.okstate.edu

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