Beyond Tesla

Presentation For the Carson City Chamber of Commerce

October 28, 2015

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University of Nevada, Reno
College of Business Administration

Topics I will be covering
Where Carson and Douglas County have been
Tesla
Population
Total Jobs
Location Quotients
Wages and Income
Changes Between the 2014 and 2015 Projections
Caveats
I bought a Tesla

In full disclosure, a hat, a vest and a mug.
Percentage of Educational Attainment for the Population 25 and Older for Carson City and Douglas County

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Carson City</th>
<th>Douglas County</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006</td>
<td>2012</td>
</tr>
<tr>
<td>Less Than High School</td>
<td>13%</td>
<td>14%</td>
</tr>
<tr>
<td>High School through Bachelors</td>
<td>67%</td>
<td>66%</td>
</tr>
<tr>
<td>Bachelors or Higher</td>
<td>21%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Estimated Total Employment for Carson City and Douglas County 2006 to 2014

- Douglas
- Carson City
Tesla -
$1 Billion in Plant Construction
Assuming annually 2,900 for three years
$3.95 in first four years for equipment
Phasing In 6,500 Jobs
2015 = 700
2016 = 1,700
2017 = 4,700
2018 = 6,500
Average wage of $27.35

Switch –
Approximately 315 Employees on site

Process
- Nevada statutes require the demographer and the Department of Taxation to annually produce the population projections by October 1.
- The Economic Development Authority of Western Nevada (EDAWN) had formed the Economic Planning Indicators Committee (EPIC) at some point. They were looking at 2020.
- Started working with the Technical Committee in using my 2014 projections at the first of the year because REMI integrates demographics and economics.
- Alternative was to look at ratio of employment to population and tie to Quarterly Census of Employment and Wages data rather than BEA.
- Here’s the rub: The EPIC report was issued in September 2015 and the new projections were released October 1.
The new projections coming out around the time of the EPIC report were substantially lower than the 2014 projections with similar inputs. The change in historic information seems to be the biggest driver.

Comparison of Projections for 2033 from the 2014 Issued Projections and the 2015 Projections

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark</td>
<td>2,031,725</td>
<td>2,380,102</td>
<td>328,379</td>
<td>2,396,255</td>
<td>364,030</td>
<td>36,156</td>
<td>-1.45%</td>
</tr>
<tr>
<td>Washoe</td>
<td>432,324</td>
<td>579,747</td>
<td>147,423</td>
<td>515,176</td>
<td>82,692</td>
<td>-64,571</td>
<td>-11.1%</td>
</tr>
<tr>
<td>Carson City</td>
<td>54,960</td>
<td>69,950</td>
<td>15,087</td>
<td>59,303</td>
<td>4,630</td>
<td>-10,663</td>
<td>-15.2%</td>
</tr>
<tr>
<td>Lyon</td>
<td>52,960</td>
<td>74,415</td>
<td>20,045</td>
<td>62,995</td>
<td>9,999</td>
<td>-10,456</td>
<td>-14.2%</td>
</tr>
<tr>
<td>Douglas</td>
<td>48,478</td>
<td>49,717</td>
<td>1,239</td>
<td>50,558</td>
<td>2,080</td>
<td>841</td>
<td>1.7%</td>
</tr>
<tr>
<td>Storey</td>
<td>4,017</td>
<td>4,619</td>
<td>802</td>
<td>5,012</td>
<td>995</td>
<td>193</td>
<td>4.0%</td>
</tr>
<tr>
<td>CSA Total</td>
<td>592,447</td>
<td>777,003</td>
<td>185,216</td>
<td>693,007</td>
<td>100,500</td>
<td>-84,556</td>
<td>-10.9%</td>
</tr>
<tr>
<td>Balance of State</td>
<td>176,736</td>
<td>191,311</td>
<td>14,515</td>
<td>180,470</td>
<td>3,674</td>
<td>-10,841</td>
<td>-5.7%</td>
</tr>
<tr>
<td>State Total</td>
<td>2,800,967</td>
<td>3,329,074</td>
<td>528,107</td>
<td>3,269,735</td>
<td>468,768</td>
<td>-69,339</td>
<td>-1.8%</td>
</tr>
</tbody>
</table>

For the EPIC 2020 Horizon growth is still substantial with the 2015 projections but not as robust compared to the 2014 projections

2020 Projections for Reno-Carson City-Fernley CSA

<table>
<thead>
<tr>
<th></th>
<th>Employment</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 Estimate</td>
<td>340,869</td>
<td>592,448</td>
</tr>
<tr>
<td>2014 Vintage</td>
<td>409,855</td>
<td>652,713</td>
</tr>
<tr>
<td>Difference</td>
<td>68,986</td>
<td>60,265</td>
</tr>
<tr>
<td>Percent Difference</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>2015 Vintage</td>
<td>395,550</td>
<td>615,792</td>
</tr>
<tr>
<td>Difference</td>
<td>52,681</td>
<td>43,344</td>
</tr>
<tr>
<td>Percent Difference</td>
<td>13%</td>
<td>7%</td>
</tr>
</tbody>
</table>

So how to explain this:
History
Changes in the national forecast
Job growth, wages, housing cost
I did try to be too cute by half as well.
### Let's Look at the National Forecast

<table>
<thead>
<tr>
<th>Category</th>
<th>2001 1.5</th>
<th>2001 1.7</th>
<th>2004 1.5</th>
<th>2004 1.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employment</td>
<td>105,510,188</td>
<td>105,510,188</td>
<td>230,277,734</td>
<td>230,346,413</td>
</tr>
<tr>
<td>Private Non-Farm Employment</td>
<td>139,296,203</td>
<td>139,308,188</td>
<td>204,451,931</td>
<td>178,013,507</td>
</tr>
<tr>
<td>Manufacturing Employment</td>
<td>16,911,609</td>
<td>16,921,609</td>
<td>12,659,910</td>
<td>10,641,098</td>
</tr>
<tr>
<td>Population</td>
<td>284,908,964</td>
<td>284,968,964</td>
<td>365,334,680</td>
<td>365,571,455</td>
</tr>
<tr>
<td>Labor Force</td>
<td>143,917,719</td>
<td>143,917,719</td>
<td>179,967,188</td>
<td>177,685,070</td>
</tr>
<tr>
<td>Labor Force Participation Rate</td>
<td>66.2%</td>
<td>66.2%</td>
<td>66.3%</td>
<td>66.5%</td>
</tr>
<tr>
<td>Ratio of Jobs to Labor Force</td>
<td>1.15</td>
<td>1.15</td>
<td>1.15</td>
<td>1.14</td>
</tr>
<tr>
<td>Gross Domestic Product Billions of Fixed (2009 Dollars)</td>
<td>$12,515,200</td>
<td>$12,684,964</td>
<td>$26,001,960</td>
<td>$24,635,386</td>
</tr>
<tr>
<td>Annual Average Wage Current Dollars as of 2013</td>
<td>$29,569</td>
<td>$29,570</td>
<td>$61,972</td>
<td>$61,032</td>
</tr>
<tr>
<td>Real Disposable Personal Income Billions of Fixed (2009 Dollars)</td>
<td>$9,175,200</td>
<td>$9,145,500</td>
<td>$18,495,110</td>
<td>$19,286,207</td>
</tr>
</tbody>
</table>

### Let's Look at the State Forecast

<table>
<thead>
<tr>
<th>Category</th>
<th>2001 1.5</th>
<th>2001 1.7</th>
<th>2004 1.5</th>
<th>2004 1.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 0-14</td>
<td>60,451,410</td>
<td>60,451,410</td>
<td>66,544,080</td>
<td>64,067,631</td>
</tr>
<tr>
<td>Ages 15-24</td>
<td>43,214,398</td>
<td>40,374,398</td>
<td>43,711,363</td>
<td>42,712,578</td>
</tr>
<tr>
<td>Ages 25-64</td>
<td>149,018,275</td>
<td>149,018,275</td>
<td>178,198,086</td>
<td>180,021,209</td>
</tr>
<tr>
<td>Ages 65+</td>
<td>35,291,660</td>
<td>35,291,660</td>
<td>76,674,320</td>
<td>75,569,347</td>
</tr>
<tr>
<td>Total</td>
<td>204,959,237</td>
<td>204,764,575</td>
<td>355,324,474</td>
<td>355,571,455</td>
</tr>
</tbody>
</table>

### Almost no difference in 2001

### Several Differences in 2001

1. **Total Employment:**
   - 2001: 105,510,188
   - 2004: 230,346,413
   - Difference: -12.5%

2. **Private Non-Farm Employment:**
   - 2001: 139,308,188
   - 2004: 178,013,507
   - Difference: -12.4%

3. **Manufacturing Employment:**
   - 2001: 16,921,609
   - 2004: 10,641,098
   - Difference: -37.8%

4. **Population:**
   - 2001: 284,968,964
   - 2004: 365,571,455
   - Difference: +28.5%

5. **Labor Force Population:**
   - 2001: 217,473,659
   - 2004: 294,070,053
   - Difference: +35.0%

6. **Labor Force Participation Rate:**
   - 2001: 66.2%
   - 2004: 66.5%
   - Difference: +0.3%

7. **Ratio of Jobs to Labor Force:**
   - 2001: 1.15
   - 2004: 1.14
   - Difference: -0.8%

8. **Gross Domestic Product Billions of Fixed (2009 Dollars):**
   - 2001: $12,684,964
   - 2004: $24,635,386
   - Difference: +95.0%

9. **Annual Average Wage Current Dollars as of 2013:**
   - 2001: $29,570
   - 2004: $61,032
   - Difference: +107.5%

10. **Real Disposable Personal Income Billions of Fixed (2009 Dollars):**
    - 2001: $9,145,500
    - 2004: $19,286,207
    - Difference: +112.4%
National Employment Levels changed between the two models with Nevada having a smaller share of national employment.

Wages Go Up Substantially For Storey County But Folks Are Projected to Commute From Washoe and Lyon Counties.
Limited Overall Wage Growth Combined With Relative Higher Housing Prices Combine to Decrease Migration

Percentage Change Between REMI Relative Housing Price Between 2014 and 2015 Projections For 2035 and 2045 Projection

Real Per Capita Income For Carson City, Lyon, Storey, and Washoe Counties 2014, 2020, and 2034
Estimated Net Migration for Carson City and Douglas County 2006 to 2014 and Projected to 2034

Estimated Natural Increase/Decrease for Carson City and Douglas County 2006 to 2014 and Projected to 2034
Caveats
Changing Technology
Competition
Education and Work Force
Over Estimating Impact of Construction Employment
Recession and International Changes
Capacity to Absorb Growth
  Housing
  Education
  Health Care
  Other Goods and Services

Questions?

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