Real World Impact of California’s Dash to Decarbonize

“Doing Just Fine?”

Northwest Gas Association
Alliance of Western Energy Consumers
June 7, 2018

Dorothy Rothrock
President
drothrock@cmta.net
916-498-3319
**CAPITOL UPDATE**

DTSC releases final 2018-2020 workplan & NPEs in laundry detergent profile, more to come

By Dawn Koepke
“Decarbonization”

A result of:

- Regulatory policies
- Technology changes
- Economy transformations

PAST, PRESENT AND FUTURE OUTLOOKS
LONG, LONG AGO.....

PURPA
Renewable Portfolio
Energy Efficiency
Electrical Restructuring
Energy Crisis
Also,

Los Angeles SMOG!

(CLEAN AIR ACT)

California Economy Transformation....
California’s annual new and expanded manufacturing facilities as percentage of annual U.S. new and expanded facilities
1977 - 2017

Before 2001
5.6%

Since 2001
2.0%

Game changer
California aerospace ramp-up

Game changer
California information technology ramp-up

1977-2000 average: 5.6%
2001-2017 average: 2.0%
LOWER ENERGY INTENSITY - Growth in Electronic Equip MFG:

From 7% to 30% Share of Value Added 1997 to 2008
THE PRESENT: 2006 to 2018

WE’VE DISCOVERED THAT IF WE JUST HOLD AN ELECTION EVERY FEW YEARS WE CAN HARNES ALL THE HOT AIR POLITICIANS EXPELL AND TURN IT INTO CLEAN, RELIABLE ENERGY.
CA electricity cost premium since 2010
Rates: Industrial vs. Commercial vs. Residential

Source: U.S. Energy Information Administration
Chart: CA Manufacturers & Technology Assn. www.cmta.net @cmta May 23, 2018
Gas Taxes in California

- **State Tax**: 41.7 cents/gallon
- **Federal Tax**: 18.4 cents/gallon
- **Cap & Trade**: 11.3 cents/gallon
- **Underground Storage Tank (UST)**: 2 cents/gallon
- **Low Carbon Fuel Standard**: 10.1 cents/gallon
- **Senate Bill 1**: 12 cents/gallon

**Total**: 95.5 cents/gallon

*Source: California Energy Commission, California Board of Equalization, California Legislative Analyst Office, California Tax Foundation*
NET JOB GROWTH....

BUT WHAT KIND OF JOBS?

High end professional & Low end services

California manufacturers getting outpaced by other sectors
Sector job growth since 2000

MANUFACTURING
1,272,900 jobs
$78.7 avg. salary

Financial Activities
794,800
$87.5k

Construction
713,600
$58.7k

Other services
552,300
$34.5k

Information
466,900
$133k

Mining & Logging
30,400
$35k

Sources:
Bureau of Labor Statistics, California Labor Market Information
Chart: CA Manufacturers & Technology Association
www.cmta.net @cmta
California MFG job growth continues to lag the country

Percent change since 2010

Jan. 2010: 1,318,500
Jan. 2018: 1,248,400

Rest of United States
Jan. '10: 10,211,600
Jan. '18: 11,295,500

5.6%

Sources: Labor Market Information Dept, U.S. Bureau of Labor Statistics    Chart: CA Manufacturers & Technology Assn.   As of March 17, 2018
Reshoring Mfg Jobs

California – only 1.4% of US mfg jobs reshored 2010 to 2017

Reshoring to US up 52 percent in 2017

Southeast and Texas big winners

Right-to-work laws
Lower costs
(property, wages, taxes energy).
California’s annual new and expanded manufacturing facilities as percentage of annual U.S. new and expanded facilities 1977 - 2017

Before 2001

5.6%

Since 2001

2.0%

Game changer California aerospace ramp-up

Game changer California information technology ramp-up

1977-2000 average: 5.6%

2001-2017 average: 2.0%
GREEN JOBS: 1 to 2% of nonfarm jobs, 6 to 8% of new jobs from 2010 to 2016

RECESSION: Created 1/3 of reductions for 2020 goal

BAY AREA: 4.7% av. annual growth since 2010, 44% of state’s growth through 2016

REST OF CA: 2.4% growth. Industries more affected by regs and taxes

OUT MIGRATION: 1 million (2007 to 2016) (2.5%)
THE FUTURE: 2018 to 2030

"And this is the zero-carbon room"
Bumper Crop of Carbon Policies

Cap and Trade regulations
Procurement mandates
Solar required on new homes
Clean energy expansion to 100%?
Electric vehicle infrastructure and subsidies
“Road diet” policy to encourage public transit
Vehicle standards
Appliance standards
....and more
Cap and Trade

$10 per ton = 9 cents/gallon

ZEV TARGET
5 MILLION by 2030

100%
75%
50%
25%

364,889
2009 - DECEMBER 2017

Data Source: California Energy Commission, CNRDA.org
Where will reductions come from?

- Greenhouse Gas Emissions (MMTCO2e)
  - Cap and trade: 236
  - SLCP: 217
  - Mobile Sources CFT and Freight: 64
  - Energy efficiency (Res, Com., Ind. Ag. & TCU): 64
  - 50% RPS: 16
  - Low Carbon Fuel Standard (18%): 25
Cap and Trade 2020 to 2030 Debates

- **Allowance prices?** Price ceiling at $50 or $147?

- **Industry assistance?** Free allowances to remain competitive?

- **Offsets?** “Local environmental benefits” is new requirement

- **Spend cap and trade revenues?** Biggest bang for the buck?
**ECONOMIC IMPACT OF CEILING PRICE OPTIONS**

<table>
<thead>
<tr>
<th>Ceiling Price Scenarios ($/MT CO₂):</th>
<th>$39</th>
<th>$67</th>
<th>$92</th>
<th>$166</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impacts</strong></td>
<td>2025</td>
<td>2030</td>
<td>2025</td>
<td>2030</td>
</tr>
<tr>
<td><strong>Allowance Price ($/MT CO₂)</strong></td>
<td>$33</td>
<td>$39</td>
<td>$39</td>
<td>$67</td>
</tr>
<tr>
<td><strong>Change in Household Income ($/HH)</strong></td>
<td>N/A</td>
<td>-$83</td>
<td>-$160</td>
<td>-$113</td>
</tr>
<tr>
<td><strong>Change in Gross State Product (Billion $s)</strong></td>
<td>N/A</td>
<td>-$3</td>
<td>-$5</td>
<td>-$4</td>
</tr>
<tr>
<td><strong>Change in Job Equivalents (‘000 jobs)</strong></td>
<td>-6</td>
<td>-26</td>
<td>-12</td>
<td>-48</td>
</tr>
</tbody>
</table>
Estimated Compliance Cost for Sectors in Medium and Low Leakage Risk Categories

- Blue bars represent increase in compliance cost if the assistance factor is not 100%. Orange is the steadier increase in compliance cost with 100% assistance factor.

- Assumes $15 allowance value for 2015 – 2020 and $20 for 2021 – 2023
- Uses 2016 emissions as a proxy for emissions in 2017 and beyond
By 2030, most industrial sectors will receive <50% of the allowances needed to cover their compliance obligations.
Figure 6
Cap-and-Trade Revenue Scenarios Vary by Billions of Dollars Annually
(In Billions, 2017 Inflation-Adjusted Dollars)

High Price Scenario
Low Price Scenario
Will public continue to support if…..

• Gasoline prices skyrocket?
• Electric service unreliable?
• Utility bills too high for low-income?
• Choice is between climate change and higher taxes?
• Disasters make infrastructure investments a higher priority for revenues?
Life is good in California
Feedback is welcome!

drothrock@cmta.net

Dorothy Rothrock
drothrock@cmta.net
916.498.3319
www.cmta.net
CA manufacturing investments not keeping pace with U.S.

Manufacturing investments per 1 million people by state 2017

2017: California attracted 2.7 MFG investments per 1 million people

4.5% of U.S. MFG investments
(106 of 2,346)

Rest of US: 7.8 MFG investments per 1 million people
Diesel Taxes in California

- **STATE TAX**: 40.01 cents/gallon
- **FEDERAL TAX**: 24.4 cents/gallon
- **CAP & TRADE**: 14.4 cents/gallon
- **UNDERGROUND STORAGE TANK (UST)**: 2 cents/gallon

**TOTAL**: $1.07/gallon

Source: California Energy Commission, California Board of Equalization, California Legislative Analyst Office, California Tax Foundation