

Assumptions:

- Boulder requires a 418,000mt reduction from today's CO2 emissions levels to reach Kyoto goal.¹
- Kyoto Goal is 7% reduction in CO2 emissions from 1990 levels by 2012.
- The 2012 Kyoto Goal for Boulder is 1,300,000 mtCO2².
- The production of electricity produces 57% of Boulder's total CO2 emissions.
- Boulder's electricity production already has a 10% renewable mix.
- Proposed additional de-carbonization (from coal to renewable): **30%**

Calculations:

1. Approximate CO2 emissions level in 2009: 1,718,000 mtCO2

Today's Emissions mtCO2 – required reduction from today's emissions = Kyoto Goal
 $1,718,000 - 418,000 = 1,300,000$

2. Approximate CO2 emissions from electricity production: 979,260 mtCO2

Electricity production mtCO2 = 57% * Today's Emissions
 $979,260 = 57\% * 1,718,000$

3. Approximate CO2 emissions assuming an increase from 10% to 40% in renewable electricity production: 652,840 mtCO2

10% renewable mix = 979,260 mtCO2, 100% renewable mix = 0 mtCO2 therefore,
Projected emissions = Current CO2 emissions divided by current non-renewable percent (90%) multiplied by projected non-renewable percent (60%)
 $979,260 / (1-10\%) * (1-40\%) = 652,840$

4. Impact of additional 30% renewable electricity production on total CO2 emissions

Today's emissions less projected emissions from electricity production
 $979,260 - 652,840 = 326,420$

5. Percentage of Boulder's Kyoto Goal achieved by a 30% de-carbonization

Emissions Reduction / Emissions Target
 $326,420/418,000 = 78\%$

Conclusion:

A 30% switch from coal-based electricity production to renewable sources will achieve approximately 78% of Boulder's Kyoto CO2 emissions goal.

¹ Attachment B, staff memo

² Draft 2009 Community Guide to Boulder's Climate Action Plan