The Economic Impact and Job Potentials for the Chicago Climate Action Plan

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Civic Consulting Alliance and The Boston Consulting Group for the City of Chicago
The Chicago Climate Action Plan (CCAP), Chicago’s sustainability roadmap, has the potential to deliver significant economic development opportunities to Chicago by creating jobs and reducing inefficient resource expenditures, while reducing carbon emissions and accelerating Chicago’s leadership position in the global green economy.

The “green jobs” sector is growing in Chicago and could double in size, adding another 25,000 jobs to the city, by the end of the decade. In addition, Chicago residents and businesses spend almost $7 billion annually on energy, water, waste, and fuel, of which a significant portion can be saved. This level of growth and investment would further establish Chicago as a leader in addressing global climate change and advancing the low-carbon economy.

Recognizing the potential for the Plan to deliver significant economic development benefits, in addition to environmental benefits, Mayor Rahm Emanuel came to office in May 2011 with a pledge to refocus the Chicago Climate Action Plan on economic impact and jobs. The Chicago Climate Action Plan outlines five strategies, each with significant potential to deliver economic growth: (1) Energy Efficient Buildings, (2) Clean and Renewable Energy Sources, (3) Improved Transportation Options, (4) Reduced Waste and Industrial Pollution, and (5) Adapting for Changes in Climate.

This study estimates the job creation and cost savings potentials for each of those strategies, and presents a call to action that identifies three strategic priorities on how the economic development benefits can be maximized:

1. Accelerating proven green practices
2. Promoting innovation and “Centers of Excellence”
3. Driving broader engagement and leadership to build sustained cultural change

Despite the recent economic downturn, Chicago’s green job sector is strong. According to Brookings Institute’s July 2011 study on “Sizing the Clean Economy” and the Boston Consulting Group’s analysis, from 2007-2010 Chicago’s green jobs grew by 2% annually, while overall jobs declined (Fig. 1).

Chicago already has the third largest number of green jobs amongst the 100 largest metro areas, but its green job market has the opportunity to grow even faster – as Figure 1 shows, other large U.S. cities have experienced higher green job growth than Chicago. This suggests that Chicago, through focused efforts, has the potential to further accelerate green job growth.

Figure 1. Green jobs growth rates, 2007-2010.

1. The Brookings study defines clean economy as “economic activity – measured in terms of establishments and the jobs associated with them – that produces goods and services with an environmental benefit or adds value to such products using skills or technologies that are uniquely applied to those products.” Green jobs are jobs associated with such clean economy. Given that, the study does not include jobs associated with how companies conduct themselves in an environmentally-friendly manner as “green jobs.”
2. City-specific job growth data not available for comparable 2007-2010 period, so overall metro area growth rate used for both City of Chicago and Chicago MSA.
3. Excludes reported job growth in City of Chicago public mass transit (which Brookings noted as a potential inaccuracy).

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GREEN JOB GROWTH

We estimate that Chicago’s green jobs can double from 25,000 today to 50,000 by 2020, propelling Chicago into the top 25 large cities in the U.S. in terms of green job concentration (Figs. 2-4).

There are two components to achieving this goal:
1. Accomplishing the climate change objectives of the Chicago Climate Action Plan (CCAP), and
2. Creating a hub or Center of Excellence for global, low-carbon companies.

Accomplishing CCAP’s climate change objectives will increase Chicago’s jobs by 10,000-17,000 by 2020, depending on the level of the investment intensity. In addition, creating a Center of Excellence could generate an additional 5,000 to 8,000 jobs. Experts interviewed for this project frequently cited the water center of excellence in Milwaukee as a model. Based on these interviews, as well as benchmarking against other leading cities, Chicago has the greatest ability to create an energy sector Center of Excellence.

Figure 2. Green jobs potential in Chicago.

Note: 79K total Chicago MSA green jobs in 2010.
1. Based on 2007-2010 overall green job growth rate of 2.3% in the rest of Chicago MSA.
2. Assumes same number of total jobs as in 2010 (1.3M).
Source: CCAP, “Sizing the Clean Economy,” Brookings, July 2011, BCG Analysis
Figure 3. A Chicago Energy Center of Excellence will accelerate growth of key industries, contributing a potential 5-8K jobs in addition to job creation through reaching CCAP’s goals.

1. Low end of job creation range: achieve average job concentration of top 25 MSAs in segment; High end of job creation range: achieve average job concentration of top 10 MSAs in segment.
2. Achieve average concentration of top 25 MSAs in segment.
3. Low: Maintain current jobs or achieve Chicago MSA concentration; High: achieve average job concentration of top 25 MSAs in segment.
4. Incremental number of jobs created above and beyond those created by achieving CCAP goals.

Source: “Sizing the Clean Economy,” Brookings, July 2011
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**JOBS CREATED BY ACHIEVING CCAP GOALS**

<table>
<thead>
<tr>
<th>CCAP Strategies</th>
<th>CCAP Actions</th>
<th>Jobs created by 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficiency</td>
<td>• Building retrofits&lt;br&gt;• Water metering&lt;br&gt;• Green infrastructure</td>
<td>4K-7K&lt;br&gt;0.1K&lt;br&gt;0.2K</td>
</tr>
<tr>
<td>Clean energy</td>
<td>• Reaching 20% renewable energy goal&lt;br&gt;• Combined Heat &amp; Power</td>
<td>0.1K-0.7K&lt;br&gt;0.4K&lt;br&gt;1K</td>
</tr>
<tr>
<td>Transportation</td>
<td>• Improve CTA infrastructure&lt;br&gt;• Expand transit incentives&lt;br&gt;• Promote transit-oriented development&lt;br&gt;• Improve biking &amp; walking&lt;br&gt;• Roadway conditions &amp; driver behavior&lt;br&gt;• Improve freight movement&lt;br&gt;• Increase car sharing</td>
<td>1.4K&lt;br&gt;~0&lt;br&gt;~0&lt;br&gt;0K-0.1K&lt;br&gt;~0.1K&lt;br&gt;0.1K-0.2K&lt;br&gt;2K</td>
</tr>
<tr>
<td>Waste and pollution</td>
<td>• Achieve zero waste</td>
<td>~3K</td>
</tr>
<tr>
<td>Adaptation / Livability</td>
<td>• Professional environmental services&lt;br&gt;• Conservation</td>
<td>0.2K-2.7K&lt;br&gt;0.1K-0.6K</td>
</tr>
</tbody>
</table>

**Total:** ~10K - 17K<sup>1</sup>

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Figure 4. Jobs created by achieving CCAP goals (excluding incremental jobs created through Center of Excellence).

1. After correcting for individual rounding errors  
   Source: Multiple
In addition to job creation, adopting sustainable practices offers significant cost-saving opportunities. Chicago residents and businesses spend approximately $7 billion per year on energy, waste, water, and fuel (Fig. 5). By 2020, an estimated $400 million to $1.2 billion per year could be saved by using those resources more efficiently, and these savings can in turn be reinvested into the local economy.

Figure 5. Cost savings potential by reaching and exceeding CCAP goals.

1. Spends estimates from: 2009 gas/electric consumption; water fees and tax revenues; waste collection fees (by private and City services); and fuel cost as derived by multiplying vehicle miles traveled by fuel cost to drive a mile (using average fuel price over past 12 months, $3.28/gall). 
2. Drivers for cost savings include: meeting CCAP’s retrofit goals and energy conservation through smart grid; installation of residential water meters and green infrastructure; 10% waste elimination and efficiency gained through franchising waste collection; and for fuel cost, savings are driven mainly by increase in CTA ridership, fuel saved through eco-driving, and conversion of City fleet to hybrids. 

To achieve these economic goals, Chicago can focus on three strategic priorities that cut across the five CCAP strategies (Fig. 6):

**Accelerate proven green practices** around energy and water efficiency, renewable energy, transportation and waste. In order to do this, the City can reform regulations, unlock capital sources, enhance collaborations between critical stakeholders, and market efforts and successes.

**Promote innovation and Centers of Excellence** in energy, across efficiency, renewable energy, transportation, and waste, building on innovation sourced in Chicago. To do this, the City can provide vision and leadership, remove barriers to innovation and entrepreneurship, convene broad-based stakeholders to establish effective networks, retain local graduates, train a workforce to align with the needs of the growing green jobs market, and incorporate a climate change preparation lens in decision-making.

**Drive broader engagement and leadership to build sustained culture change**, with a focus on developing livable communities and deeper engagement across all sectors. To do this, the City can help the communities to embed sustainable choices at everyday decision points, and lead by example.

![Figure 6. Three economic development priorities for achieving the full potential in green jobs and cost savings in Chicago](image)

Source: CCAP, Expert interviews, BCG research
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OVERALL ECONOMIC GROWTH OPPORTUNITIES

In summary, each of CCAP’s strategies is critical for achieving the Plan’s goals and each offers significant economic growth opportunities (Fig. 7).

<table>
<thead>
<tr>
<th>CCAP Strategies</th>
<th>Jobs created’ (k)</th>
<th>Economic &amp; CO2 impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficient buildings</td>
<td>7</td>
<td>4-6</td>
</tr>
<tr>
<td>Clean &amp; renewable energy sources</td>
<td>1</td>
<td>1-2</td>
</tr>
<tr>
<td>Improved transportation options</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Reduced waste &amp; industrial pollution</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Adaptation</td>
<td>1</td>
<td>0-1</td>
</tr>
<tr>
<td>Total</td>
<td>25 k</td>
<td>7-11 k</td>
</tr>
</tbody>
</table>

Figure 7. Aligning job and savings potentials against the five CCAP strategies, the largest potential comes from CCAP’s “Energy Efficient Buildings” strategy, but other strategies also contribute significantly.

1. Individual numbers rounded to the nearest thousand for summary view. Low end of job creation ranges includes jobs associated with achieving CCAP goals. High-end includes CCAP goals and upside potential from developing Centers of Excellence in Energy.
2. Adaptation priorities closely linked to other CCAP strategies. Jobs estimate includes segments distinct from other four strategies: Conservation, Professional environmental services.
3. Estimate of annual savings potential in energy, water, waste and fuel costs. Energy Efficient Building strategy includes both energy and water cost savings.
4. Estimate of operational and facilities cost to the City of Chicago (municipal government) only.
5. Mitigation actions do not add up to 15.1 MMTCO2e because some activities offset potential savings from others.

Source: CCAP, “Sizing the Clean Economy,” Brookings, July 2011, BCG analysis, Oliver Wyman
Civic Consulting Alliance and The Boston Consulting Group would like to thank the numerous groups and individuals who provided inputs to this work – without their help, expert knowledge, and feedback, this report would not have been possible. The team interviewed over 50 experts in Chicago and across the world. We would like to thank them and, especially, the Brookings Institute for their flexibility and responsiveness to our requests. We would also like to thank the City of Chicago for the opportunity to work on this critical project.