



Request for City Council Committee Action from the Department of City Coordinator

Date: April 14, 2014

To: Honorable Cam Gordon, Chair, Health, Environment & Community Engagement Committee

Subject: Adopting a long-term greenhouse gas reduction goal

Recommendations:

- Adopt a community greenhouse gas emissions reduction goal of 80 percent or more by 2050 below 2006 levels to supplement the City's existing goals for 2015 and 2025.

Previous Directives:

- On February 24, 2014 the Health, Environment & Community Engagement Committee directed staff to work with the Community Environmental Advisory Commission to develop a long-term carbon emissions reduction goal to supplement the City's short- and mid-term goals of 15% by 2015 and 30% by 2025 from a 2006 baseline, and report back to the HE&CE Committee with a recommendation no later than April 14, 2014.

Department Information

Prepared by: Brendon Slotterback, Sustainability Program Coordinator
Approved by: Paul Aasen, City Coordinator _____
Presenters in Committee: Brendon Slotterback

Financial Impact: None

Community Impact: None

Supporting Information:

The Minneapolis City Council last revised its community greenhouse gas emissions reduction targets in 2012 - to reduce community emissions 15 percent by 2015 and 30 percent by 2025, all from a 2006 baseline. These targets served as the basis for the development of the Minneapolis Climate Action Plan (the Plan), adopted by the Council in June, 2013.

Since the direction on February 24th, Sustainability staff have been working with the Community Environmental Advisory Commission (CEAC) to solicit their feedback on a long-term emissions reduction goal.

Emissions reductions needed to stay within "safe" levels of warming

In Minnesota and the Minneapolis-Saint Paul region, we are already seeing trends consistent with the expected impacts of a changing climate. Changes in precipitation, especially heavy rain events, air temperature, and humidity levels are all consistent with higher concentrations

of greenhouse gases in the atmosphere. Current trends and projections show that as the climate continues to change, Minnesotans should expect more difficult summers, with intense heat waves increasingly common, more prevalent water- and insect-borne diseases, and a greater number of days with low air quality. Floods and droughts alike may be more severe as precipitation events become stronger and summertime evaporation increases.

If greenhouse gas emissions from human activities are not significantly reduced, global average temperatures are projected to increase 2F to 11.5F over the coming century, with very significant impacts to human populations. The World Bank estimates that even if current international commitments to emissions reduction were fully implemented by the global community, there would still be a roughly 20 percent likelihood of experiencing dangerous levels of warming, with warming exceeding 4 Celsius (C) (approximately 7F).¹ In this scenario, the world would face significant impacts from coastal flooding, water scarcity, extreme heat events, significant impacts to coral reefs and associated fisheries, and significant changes in agricultural production in many regions from the increase in both flooding and droughts.

Realizing the significant risk posed by climate change, the Intergovernmental Panel on Climate Change (IPCC) 2007 Assessment report (4th Assessment report) estimated that reductions in carbon dioxide emissions of approximately 80% from 2000 levels by 2050 will be necessary to limit temperature increases to below 2 degrees Celsius.² Many communities have used this target as the basis for setting their long-term goals. Minneapolis does not have reliable emissions data from 2000, but it appears likely that emissions from that year were higher than 2006, the current baseline year. Therefore, any target adopted from that baseline year will be more aggressive than if Minneapolis used a 2000 baseline.

The newest IPCC report (5th Assessment), which is still being finalized, adopts a slightly different approach on quantifying the reduction necessary to stay within a safe level of warming. The 5th Assessment uses a "carbon budget" approach, identifying the total carbon emissions the world can emit while still having a likely chance of limiting global temperature rise to 2 degrees Celsius.³ The scientific community estimates this budget to be 1 trillion metric tons of carbon dioxide, roughly half of which has already been emitted since the Industrial Revolution. Under this approach, global emissions would need to peak by 2020, and fall rapidly thereafter, with emissions in 2040 being roughly half of what they were in 2020. We could avoid overdrawing the carbon budget if global emissions began declining at approximately 2.5% each year starting now.

Long-term emissions reduction goals adopted by other jurisdictions

In 2007, Governor Pawlenty signed in to law the Next Generation Energy Act, which established statewide greenhouse gas emissions reduction goals of 15 percent by 2015, 30 percent by 2025 and 80 percent by 2050, all from 2005 levels. This Act also included targets for the inclusion of renewable energy in utility portfolios and annual energy savings goals that utilities must plan to meet.⁴

¹ World Bank. *Turn Down the Heat: Why a 4° Warmer World Must be Avoided*. Nov. 2012. Accessed Mar. 2013. climatechange.worldbank.org/sites/default/files/Turn_Down_the_heat_Why_a_4_degree_centrigrade_warmer_world_must_be_avoided.pdf

² Intergovernmental Panel on Climate Change. "IPCC Fourth Assessment Report (AR4)." Accessed April 8th, 2014. http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm

³ World Resources Institute. "Visualizing the Global Carbon Budget". March 25, 2014. Accessed April 8, 2014. <http://www.wri.org/blog/visualizing-global-carbon-budget>

⁴ Next Generation Energy Act of 2007. <https://www.revisor.mn.gov/data/revisor/slaws/2007/0/136.pdf>

Hennepin County is a founding member of the Cool County Initiative, which is a collation of counties committed to reducing greenhouse gas emissions. Hennepin County's long-term goal is to reduce community emissions 80 percent by 2050.⁵

A number of peer cities in the US have adopted aggressive, long-term carbon reduction goals. Portland, San Francisco, Vancouver, Boston, and Chicago have all adopted a goal of reducing emissions 80 percent by 2050. A number of other cities have adopted similar long-term goals, or are considering such goals.

A goal for Minneapolis

Translating information on global emissions into a goal for Minneapolis is complex. Global carbon budgets do not map neatly to one community. Community-scale accounting protocols also do not include many emissions from global infrastructure supply chains goods consumption. Staff investigated a number of methods for mapping global emissions reduction pathways to Minneapolis emissions including:

- A 2.5% annual reduction from the year 2012.
- An 80% reduction by 2050 from 2006 levels.

Both of these approaches result in similar goals for 2050, with the 2.5% annual reduction resulting in annual emissions that are slightly higher in 2050 than the 80% reduction approach.

It is important to note that adopting a goal that is consistent with the County and the State of Minnesota will allow Minneapolis to work cooperatively in the many venues at which decisions are made that will affect emissions in Minneapolis. Examples include upcoming utility resource planning at the Public Utilities Commission, and the State of Minnesota's Clean Energy Future Study.

Both short and long-term goals are important for the City's continued progress on addressing greenhouse gas emissions. Short-term goals ensure that actions with immediate emissions impacts are prioritized, and that progress is monitored on an annual basis. At the same time, we are making infrastructure and planning decisions today which will have emissions impacts through 2050 and beyond. Staff discussions with other cities reinforce the importance of balancing the focus between short-term and long-term goals.

Minneapolis will continue to refine greenhouse gas emissions inventory methods, consistent with best practices, to best understand the emissions impacts of community activities.

Achieving this goal will require fundamental systems change

An 80 percent reduction goal will be significantly more challenging than the City's current 2025 goal for a 30 percent reduction. While staff has not conducted a detailed analysis of the opportunities and challenges of meeting an 80 percent goal, it would likely mean fundamental changes in many of our urban infrastructure systems. Based on plans for other cities and implementation studies of long-term carbon goals, an 80 percent reduction by 2050 would likely have to include:

- Significantly more efficient buildings – new buildings would need to approach net zero energy consuming and existing buildings would approach two or three times more efficient than today.
- A significantly decarbonized electricity grid (generating our electricity from 75 to 100 percent carbon-free sources).
- Reducing vehicle miles traveled and/or developing and deploying alternatives to internal combustion engine-driven transportation modes.
- Developing alternatives to fossil fuels for space heating.

⁵ Hennepin County Resolution No. 07-8-334R2

Long-term utility planning, which is ongoing through state studies and processes at the Public Utilities Commission, will have a significant impact on Minneapolis' ability to meet an 80 percent reduction goal.

Staff Recommendation

Staff recommends that Minneapolis adopt a long-term goal to reduce community-wide emissions 80% by 2050 from 2006 levels. This goal is consistent with state-adopted goals, which will potentially enhance the City's opportunities to work collaboratively with other government entities that have influence over emissions from community activities in Minneapolis. It is also consistent with the scientific consensus on the reductions that will be necessary to avoid dangerous climate change.