

ITEM 10 - Information

May 19, 2010

Briefing on the Final Results for the "What Would It Take?" Greenhouse Gas Reduction Scenario

Staff

Recommendation: Receive briefing on the final results from the analysis of "What Would It Take?" scenario which starts with goals for reducing greenhouse gas emissions for 2030 and beyond and examines how such goals might be pursued in the transportation sector through different combinations of three major strategies: increasing fuel efficiency, reducing the carbon-intensity of fuel, and improving travel efficiency.

Issues: None

Background: These results will be presented to COG's Climate, Energy and Environment Policy Committee (CEEPC) at its May 26 meeting.

National Capital Region Transportation Planning Board

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MEMORANDUM

TO: Transportation Planning Board

FROM: Monica Bansal
Department of Transportation Planning

SUBJECT: Summary of the “What Would it Take?” Scenario Final Results

DATE: May 13, 2010

The following memo provides an executive summary for the final results of the “What Would it Take?” (WWIT) Scenario. This scenario focuses on achieving aggressive regional climate change goals in the transportation sector and is one of two scenarios in the TPB Scenario Study. A final report detailing the study development, general methodology, and results and a technical report detailing the individual strategy analysis and methodology is viewable here:

http://www.mwcog.org/transportation/committee/committee/documents.asp?COMMITTEE_ID=230.

Executive Summary:

The “What Would it Take?” (WWIT) scenario is the first step toward answering major questions about transportation and climate change mitigation in the Washington metropolitan region. This study was undertaken by the TPB and led by the TPB Scenario Study Task Force in 2007 in direct response to growing concern about climate change and a desire to position the region for early action. The WWIT study was developed as an important part of a comprehensive COG climate change effort, but provides transportation sector specificity to better understand what could work to reduce mobile carbon dioxide (CO₂) emissions in this region.

As one of two scenarios in the current TPB Scenario Study, this study examines what it would take in the transportation sector to meet aggressive regional climate change goals. These regional goals were created as part of the 2008 National Capital Regional Climate Change Report and include a short-term, intermediate and long-term target for reducing CO₂ emissions based on international scientific consensus. The scenario uses these goals to create a 20-year cumulative reduction goal from 2010 through 2030. With this goal in mind, the scenario includes analysis of transportation strategies, such as higher vehicle fuel efficiency, increased use of alternative fuels, and increased public transit usage and provision to determine their CO₂ emissions reduction potential, cost-effectiveness, and the timeframe for implementation.

The outcome of this analysis is the identification of effective and cost-effective transportation strategies for climate change mitigation that can be adopted by state and local jurisdictions in the region. The results will not only provide the region with an indication of what may be necessary to achieve climate change goals, but also with a menu of strategies that can be adopted in the short- and long-term. It is important to note that not all of the strategies examined in this study are necessarily feasible or desired by every jurisdiction. This study is intended to be a first step for local planners and officials to determine what types of strategies should be explored further as a response to climate change at the local level, and is thus not a replacement for case-by-case analysis.

As the first major climate change and transportation study for the Washington region, the WWIT study began by framing the problem and involved the following analytical steps:

1. Creating a baseline inventory of mobile source CO₂ emissions
2. Determining sources of reduction potential
3. Identifying potential reduction strategies
4. Analyzing individual strategies for effectiveness, cost-effectiveness, and timeframe for implementation
5. Combining additive strategies to determine different pathways toward approaching or meeting goals

This study includes the first mobile CO₂ emissions baseline inventory and forecast for the region. This baseline includes an analysis of the current long-range plan, recently adopted national CAFE standards, and transportation emission reduction measures implemented throughout the region for the purposes of reducing other types of air pollutants. The study found that the final baseline, particularly the new CAFE standards, fills part of the gap between business as usual and regional climate change goals.

The study also examined specific sources of emissions in the region, which enabled a more comprehensive determination of reduction opportunities. Three broad sources of emissions were examined: fleet composition, fuel used, and use of the fleet. The study found that heavy duty vehicles are forecast to account for a growing share of emissions over time as light duty vehicles become cleaner. Additionally, although recent energy legislation increases the forecast use of less carbon intensive alternative fuels in the future, gasoline is still forecast to be the dominant transportation fuel across the nation. Lastly, the study found that current travel behavior can benefit from efficiency improvements to reduce CO₂ emissions. For instance, it is forecast that many short trips (under three miles) are taken by automobile, a portion of which could be shifted to non-polluting modes. Traffic congestion or frequent stop-and-go driving is also a major source of emissions, since CO₂ is quite sensitive to vehicle speeds. Therefore, operational strategies to improve traffic flow could also deliver emissions benefits.

Over fifty individual strategies were identified and analyzed according to three categories of fuel efficiency, alternative fuels, and travel efficiency. The measures

studied in this scenario do not represent the full universe of strategies that can be considered for the purposes of reducing CO₂ emissions, but instead are a first step. Following analysis of the effectiveness, cost-effectiveness and timeframe for implementation for each strategy, they were grouped in order to determine if they could meet the regional goals. Four groups were analyzed:

1. **No further federal/local action:** Legislation already adopted remains unchanged until 2030, including CAFE standards and alternative fuel standards.
2. **High federal role:** Current legislation is augmented with longer term policies, such as an extension and enhancement of CAFE standards, heavy duty vehicle CAFE standards and national gas price increases.
3. **Short-term regional actions:** Strategies that are implementable by state and local governments before 2020
4. **Long-term regional actions:** Strategies that are implementable by state and local governments between 2020 and 2030

Results of these four groups highlighted a few major issues and findings that can instruct future action in this region. The first grouping sets the maximum conceivable regional burden for action and shows that major reductions will still be necessary if aggressive federal action is not taken. The second grouping (high federal role) illustrates the effectiveness of aggressive federal measures, which are large in scope and therefore impact. However, while this grouping comes close to meeting the regional goals, it does not meet early targets and therefore does not achieve the region's 20-year reduction goal. The last two groupings (short and long-term regional actions) show the potential of state and local governments to make significant contributions to meeting regional goals. Although neither meets the goals, the short-term strategies position the region toward meeting early targets. These strategies, therefore, provide a menu for potential actions that can be done quickly across the region. It is also important to note that many of these strategies are very small-scale and can thus be implemented more quickly and easily than large infrastructure projects. Finally, an initial cost-effectiveness analysis was also provided in order to begin the discussion on prioritizing strategies and projects. The study found that many strategies can be done relatively cost-effectively; however, most, if not all, transportation strategies will have multiple benefits worth examining.

Major findings from the study include:

- Additional strategies would need to be analyzed and incorporated into the study groupings in order to meet the region's CO₂ reduction goals.
- The short-term regional actions grouping shows the ability of local governments to achieve important early targets if a wide range of early actions is taken immediately.
- It is unlikely that the goals can be achieved with any one of the categories of strategies; instead it will take a more aggressive approach across all three categories.

- Transportation strategies will have various other benefits from criteria pollutant reduction to increasing mobility and accessibility that should be factored into decision-making.