

## Discussion Draft

# A Method for Setting Performance-based Regional Greenhouse Gas Emission Reduction Targets

Prepared for Regional Targets Advisory Committee  
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### PURPOSE OF THIS DOCUMENT

Over the past four months, the SB 375 Regional Targets Advisory Committee (RTAC) has discussed a wide variety of issues as part of its charge to recommend to the Air Resources Board (ARB) methodologies for setting regional passenger vehicle greenhouse gas emission reduction targets.

At its June 3 meeting, the RTAC discussed the role of policies versus modeling, how the MPOs' (Metropolitan Planning Organization) current modeling capabilities should be considered, the role of the sustainable communities strategy and alternative planning strategy, how to recognize actions already taken to reduce greenhouse gases, incentivizing actions that go beyond what is required to meet the target, determining what kind of flexibility should be included in the recommendation, and how to factor in the co-benefits as well as economic, financial, and social equity concerns.

At the June 3 meeting, the committee requested that ARB staff prepare a framework to assist the RTAC's further discussions on methodologies for setting targets. In response, ARB staff developed a performance-based approach to provide the RTAC a starting point for discussion. In it, staff has attempted to capture the desired features of a method that have emerged during the committee's discussions.

### FEATURES OF A TARGET-SETTING METHOD IDENTIFIED BY THE RTAC

Balancing Uniformity and Regional Considerations: The RTAC has expressed a general desire that the targets be uniform to assure that all regions are contributing to California's effort to reduce greenhouse gas emissions. At the same time, the committee has expressed the opinion that a uniform target may not be equitable and that regional characteristics should be considered. These two desires pose an apparent contradiction. A uniform target suggests a top-down approach. A region-specific target suggests a bottom-up approach. To balance these competing concepts, a uniform target could be modified to account for regional differences. The RTAC has referred to this as a modified-uniform target. An ARB staff approach to resolving this contradiction is one of the primary features of the framework outlined here.

Per Capita Metric: The committee has indicated an initial preference for targets expressed as a per capita metric. The idea is that per capita targets are easily understood by the public and communicate the role of individuals in helping to achieve

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needed emission reductions. Furthermore, per capita metrics can be developed with currently available data and remain a widely used metric by MPOs today.

Baseline or Starting Point for the Targets: The committee has indicated its desire that targets reflect actions that regions have already taken to reduce greenhouse gases. The idea is that regions that have moved ahead should get credit in some fashion for what has already been accomplished.

Policy Focus: Some of the RTAC members hold strong views that the target setting method should focus on land use and transportation policies that are recognized as playing a significant role in reducing greenhouse gas emissions. The argument goes that the most direct path to sustainable land use and transportation planning is to identify the policies that will achieve the goal.

Based on the RTAC discussions, the attached table identifies four main policy categories: land use, transportation, pricing, and transportation demand management (TDM) and transportation systems management (TSM). Associated with each category is a preliminary list of more specific policies and the performance indicators that would be important for assessing how the policies impact greenhouse gas emissions over time.

MPO Modeling and Scenario Planning: Some RTAC members believe that the target-setting method needs to accommodate the MPOs' existing modeling-based approach to regional planning. Existing blueprint processes have been done this way. MPOs currently use modeling for scenario-based planning to satisfy federal transportation planning requirements. MPO representatives in particular have commented that the scenario approach to planning will continue regardless of how SB 375 proceeds, and SB 375 implementation should be built around that process.

Use of Empirical Data: As part of its discussions of both policy-based and modeling-based approaches to target setting, the RTAC has discussed the need to rely on empirical data. The committee has discussed two types of empirical data. One is empirical data drawn from existing literature and studies that captures the range of impacts (elasticities) of individual land use, transportation, and pricing policies on greenhouse gas emissions from vehicle travel. A second type of empirical data would be observed changes in fuel consumption, which can help verify changes in the rate of growth in vehicle travel projected by transportation models.

Economic Challenges: The current economic situation has come up repeatedly in the RTAC discussions. The primary point of concern is that the economic downturn will have a direct impact on how much change is possible by 2020. Even with sustainable planning in place, the current pace of development will slow implementation of that sustainable planning.

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Flexibility: The need for flexibility in regional planning has been expressed often in the RTAC discussions. The point has been made that while ARB sets the targets, regions should have full flexibility in determining how to meet the targets, whether it is through land use, transportation, pricing, TDM and TSM strategies, or other actions. The concept of a menu approach was put forward. ARB staff interprets this as RTAC support for a performance-based approach to target setting.

## **METHODOLOGY FOR SETTING TARGETS—FRAMEWORK FOR DISCUSSION**

ARB staff has developed a framework for a three-step process for setting performance-based targets that captures the features outlined above. In step 1, ARB identifies a preliminary target that is uniform for all MPOs. In step 2, each MPO identifies and quantifies proposed adjustments to the uniform target for their regions. In step three, ARB reviews the information provided by the MPOs and publishes draft modified targets for each MPO.

### **Step 1. Preliminary Uniform Statewide Target**

In this step, uniform per capita statewide targets for 2020 and 2035 would be identified. The targets would take into account the value of near-term actions, as well as what is needed to contribute to the longer-term goals for reducing greenhouse gas emissions from the transportation sector.

The AB 32 scoping plan recognizes that a 2020 target is a milestone on the path towards the goal of reducing greenhouse gas emissions by 80 percent by 2050. Decisions made today about California's transportation infrastructure and land use patterns have long-term impacts. While new vehicle technologies and low carbon fuels are expected to deliver most of the reductions in the transportation sector, empirical studies indicate that significant reductions and co-benefits can be achieved with sustainable land use and transportation planning.

The evaluation would consider what the empirical data say about how much change is possible from better land use and transportation planning in the near-term (2020), mid-term (2035), and long-term (2050). The 2020 and 2035 targets should set California on a trajectory to meet the long-term goal. Existing regional transportation plans, along with the products of regional blueprint planning and other visioning processes, would be used to factor in how much change regions are already looking to achieve.

Information on the impacts of the adopted Pavley regulation and Low Carbon Fuel Standard, and the potential benefits of future measures to further increase fuel efficiency and shift the State's transportation fuel mix would be taken into account on a statewide basis.

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## Step 2. MPOs Identify and Quantify Adjustments

In this step, each MPO would evaluate the statewide uniform target in light of the region's characteristics and identify and quantify proposed modifications to the statewide target. This process is consistent with the structure in SB 375 where MPOs are to identify why the ARB target cannot be met if that is the case. MPOs would be expected to do this as part of the process of developing a recommended target to ARB.

Each region's ability to meet the statewide targets would be assessed based on results of modeling and blueprint planning scenarios, actions already taken, potential benefits of new policies, and other relevant information provided by the MPO. Beyond the suite of policies a region chooses to pursue, MPOs would need to consider their current and future regional growth rates and existing travel and development patterns. The degree to which these differ from statewide data will factor into modifications to the uniform target. Current and expected economic conditions will also factor into what can be accomplished by 2020. The impact of current conditions is be expected to play a smaller role in adjustments to the 2035 target.

The impact of pricing and other TDM and TSM strategies can have a greater impact earlier than land use strategies whose benefits will build over time. MPOs should consider how the benefits of the regional mix of TDM and TSM strategies relate to the target, and how incentives could accelerate reductions in the near-term. Sustainable land use patterns and transportation infrastructure are expected to provide greater benefits in 2035 than in 2020, which should be reflected in the targets.

In the process of identifying proposed adjustments, MPOs should consider the types of policies and performance indicators that are recognized as having a significant role in reducing greenhouse gas emissions. (See the attached table for examples.) To support proposed modifications to the uniform targets, MPOs would explain and document the mix of policies and modeling inputs used as the basis for the recommendation.

Recognizing the widely variable modeling capabilities across MPOs, the analysis would use a combination of modeling and off-modeling calculations to quantify impacts of various actions. To maintain uniformity across regions, some underlying modeling assumptions such as the price of gasoline would be set at the statewide level and reflected in each MPO's analysis. Input and output data related to the analysis, including information relevant to the performance indicators would be provided to ARB to support the target setting process.

ARB staff recognizes that development of multiple scenarios is not feasible for smaller MPOs as part of this process. ARB staff is evaluating options to this approach to accommodate smaller MPOs.

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### **Step 3. ARB Proposes Draft Modified-Uniform Targets**

ARB staff would review the suggested adjustments and the underlying data to understand the technical underpinnings. For example, staff would assess whether the impacts of the regional strategies, as quantified by the MPO modeling and other analyses, reflect empirical studies and the model input data. Based on a review of the suggested adjustments, and consideration of the factors that led to the uniform statewide target, ARB staff would propose appropriate adjustments and modified targets.

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## Examples of Policies and Performance Indicators

Policies	Performance Indicators (change from base year to target year)
<p><b>Land Use</b></p> <ul style="list-style-type: none"> <li>- Land use distribution</li> <li>- Development density</li> <li>- Land use mix</li> <li>- Urban design/pedestrian environment</li> <li>- Destination accessibility</li> </ul> <p>Policies could have many descriptions:</p> <ul style="list-style-type: none"> <li>- Regional transit corridors</li> <li>- Smart growth opportunity areas</li> <li>- Compact development plan</li> <li>- Transit-oriented development</li> </ul>	<ul style="list-style-type: none"> <li>- Average residential densities</li> <li>- Average residential + employment densities</li> <li>- Housing product mix (% of new dwellings -- attached, small lot detached, and large lot detached)</li> <li>- Land use mix (% of new development – infill, redevelopment, Greenfield)</li> <li>- Housing units within X distance of transit with Y service</li> </ul>
<p><b>Transportation</b></p> <ul style="list-style-type: none"> <li>- Transit network</li> <li>- Road network</li> <li>- Non-motorized transportation network</li> </ul>	<ul style="list-style-type: none"> <li>- Housing units within X distance of transit with Y service</li> <li>- Average cost of transit fares</li> <li>- Number of lane miles</li> <li>- Centerline miles per square mile (to analyze walkable street patterns)</li> <li>- % of non-highway roads with sidewalks</li> <li>- % of non-highway roads with bike lanes</li> <li>- Funding priorities (% of funding for new capacity projects, for transit projects, for road maintenance, for transit operations, for non-motorized transportation, other)</li> <li>- Mode split (% trips auto, transit, bike, walk)</li> <li>- Speed-related impacts (% of VMT at different speeds)</li> </ul>

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<b>Policies</b>	<b>Performance Indicators (change from base year to target year)</b>
<b>Pricing</b> <ul style="list-style-type: none"> <li>- Parking pricing</li> <li>- Road pricing (congestion pricing, HOT lanes, tolls/toll roads)</li> <li>- VMT pricing</li> </ul>	<ul style="list-style-type: none"> <li>- Daily cost of driving</li> <li>- Speed-related impacts (% of VMT at different speeds)</li> </ul>
<b>TDM/TSM</b> Strategies to reduce trips/VMT and to smooth extreme congestion to more carbon-friendly speeds. Includes: <ul style="list-style-type: none"> <li>- Telecommuting</li> <li>- Incentives for ridesharing and transit</li> <li>- Parking management</li> <li>- Vanpooling</li> <li>- Compressed work schedules</li> <li>- Safe routes to schools programs</li> <li>- Intelligent transportation systems</li> <li>- Incident management systems</li> </ul>	These are often finite programs that often must be evaluated separately. Impacts are difficult to estimate. After-the-fact empirical data must be compiled. Such as: <ul style="list-style-type: none"> <li>- For employer-based trip/VMT programs: employer participation levels accompanied by employee commute surveys.</li> <li>- For school-based programs: school participation levels accompanied by student/family trip surveys.</li> <li>- For TSM programs: Speeds and congestion incidents monitored before and after TSM programs.</li> </ul>