

MPO Follow-up Questions – Kern COG Response

1. If you were to fully account for the impact of the recession in your region, how would the % reductions in GHG/capita numbers change for each scenario in 2020? We accounted for the recession with the adoption of our forecast in September 2009, our forecast is 9% below DOF. Our employment forecast assumes 1.1 jobs per household.
 - a. In what ways has the economy affected your region (e.g. population, jobs, unemployment, new development, foreclosures, vacancy rates, etc.)? A slower housing/employment growth was anticipated in our 2005 adopted forecast, which was re-adopted in September 2009. If we have underestimated the recession, a slowing in growth would likely slow the increase in emissions. Per capita emissions should mitigate any big changes in emissions. Current high unemployment rates are NOT reflected in base year validation of the model. A new validation should be performed in the next several years to reflect the latest unemployment rates and lower levels of commuter traffic.
 - b. If you have already included the impact of the recession, where is it reflected in your scenario data? The growth forecast totals are the same in all scenarios. The location of growth is the only change between the two land use scenarios.

2. What factors cause the reductions in 2020 to be different from 2035, and where do they show up in your data? In the Kern model it is unclear what is causing the reduction in CO2 emissions in 2020. A review of the speed bins indicates an increase in travel at speeds above 45 MPH which would work against the CO2 reduction. Vehicle mix may play a factor. Light Duty Trucks ~2 tons (LDT2) decreases between 2005 and 2020 from 24.40% of passenger vehicles to 23.35% and rises slightly by 2035. The vehicle mix is based on the defaults for EMFAC07 for Kern. As Kern continues to urbanize, the percentage of households working in agriculture and oil, requiring larger trucks will likely decrease. The modest change in the vehicle fleet appears plausible.

Considerable building on the periphery of the existing urban area after the year 2020 may be one of the factors causing the increase after 2020. New housing in the peripheral areas may generate longer commute trips if the development is not balanced with employment and shopping opportunities as represented in the model. We have found that many of the proposed Greenfield development areas lack a balance of commercial areas and transit access needed to reduce travel. Development of an optimum balance in greenfield areas is a challenge. Often what is anticipated to create an intuitive balance in the model shows disappointing CO2 reductions. For example, we are finding that locating housing and retail opportunities in outlying communities may reduce travel better than infill in the urban core. Numerous model iterations are needed to optimize the

balance between jobs and housing. There was not enough time to perform more than one iteration in time for this round of target setting.

New modeling tools are now available that allow the incorporation of a feedback loop between land use and the transportation model to allow optimization of land use on a variable such as VMT, congestion or transit usage. The method is being considered as part of the San Joaquin Valley Model Improvement Plan (MIP). Another factor that needs to be considered is balancing housing affordability with wages in the area. Just because the employment and housing is balanced in the model does not mean that households can afford to live in housing near their work. Further complicating this issue is modeling 2 wage earner households and the decision on where the household chooses to locate.

Housing balanced with wages are an interregional issue. The only tool available to begin to handle this issue is the statewide model. Currently we are not aware of any efforts to look at balancing wages and housing in the statewide model.

3. What model improvements or additional policies are you considering that were not used in developing the scenarios? In addition to optimizing the balance of housing and employment, Kern is developing a new long range transit plan that will look at innovative transit alternatives. The result could be a significantly revised transit network that we are modeling based on the adopted 1997 Major Transportation Investment Study.
 - a. How will they impact the direction and/or magnitude of change?
Currently transit accounts for less than 2% of all trips in the model. Even if this amount is doubled the emissions reduction may be limited. As discussed in item 2 above, we will continue to work on a better balance of housing and employment as well.
4. Have the sensitivities of your model changed since the 2009 Model Evaluation Survey conducted for RTAC? If yes, please explain why. (i.e., are you using any new models or postprocessors to develop your scenarios that were not evaluated during the RTAC Survey?) Yes. Since July 2009 a new model validation was implemented using 2006 traffic count data, and we added a 2035 model year. In addition, we incorporated a 4D processor on land use alternative to account for density, mix and design improvements.
5. Did you add or remove any transportation projects in your scenarios? If so, what type of projects? Yes. We prepared a no-build scenario that removed all new highway and transit projects after the year 2015. In most cases emissions got worse. We did NOT include any project/network changes between the base and the two land use alternative scenarios.