

# Greenhouse Gas Reduction Close to Home

## Local Efforts to Curb a Global Phenomenon

Juan Matute - 2013

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### RESEARCH TOPIC

In 2008, California adopted the Sustainable Communities and Climate Protection Act ( known as SB 375) in order to lower greenhouse gas emissions by reforming local land use and transportation policies that subsidize cars and suburban sprawl. Recent literature focuses on the need to measure the complete output of GHG emissions in local areas, but these efforts run the risk of falling short of state and federal targets for two reasons: (1) a lack of proper local forecasting tools and (2) the absence of an appropriate guide for implementing local measurement. This report remedies research shortcomings by offering a framework for measuring, evaluating, and forecasting the GHG effects of local policies.

### RECOMMENDATION

Local planners should adopt a measurement framework that accurately measures the effectiveness of local policies with the following core objectives:


- Account for how reducing emissions in one area may increase them elsewhere, and identify the spillover effects of policies between neighboring local governments.
- Isolate and control for effects regional, state or federal policies have on local emissions sources.
- Identify and control for the effects of macroeconomic trends, which are beyond the control of a local government.
- Assess and control for issues of data quality and trans-boundary economic transactions.



## STUDY

This study introduces a new inventory boundary that is necessary to meet emerging local GHG emissions measurement needs. We then describe which new evaluative methods are needed in order to better measure the effectiveness of local government policies. We focus on transportation because measuring GHG emissions from mobile sources to accurately attribute them to specific jurisdictions and policies pose the biggest challenge.

## MAIN FINDINGS

- **Current forecasting models are not capable of meeting the regulatory requirements of SB 375.** There is a need for a larger amount of observational data as well as more for control variables to disentangle local policy efforts from non-policy and extra-local efforts.
  - **Planners must address GHG emissions differently from the way they have historically addressed criteria pollutants.** Local hotspots of criteria pollution can lead to negative health outcomes like increased childhood asthma rates, but GHG hotspots in dense urban areas can actually be positive due to below-average levels of emissions per capita.
  - **Policies that reduce emissions in one city can increase them in another.** For example, if the GHG-efficient city of Berkeley's goal is to continue reducing its own greenhouse gas emissions, it will reject new housing and focus on decreasing emissions from existing sources. This means the demand for new housing units will be met somewhere else in the region in a place with higher demand for driving and air-conditioning.
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- **It is essential to account for the lag between policy proposals and subsequent changes in transportation and land use.** For example, a transit line takes years to build, land use changes and ridership take even longer, and further complicating such forecasting is that fact that changes due to policy are difficult to predict.

Matute, Juan. 2013. "Greenhouse Gas Management: Local Efforts to Curb a Global Phenomenon," *Access Magazine*, 42.

Matute, Juan. 2011. "Measuring Progress Towards Transportation GHG Goals: Required Actions for Successful SB 375 Implementation," *UCLA Center for Innovation*.