



GHG Inventory Methods: Initial reaction to the Discussion Paper

Guido Franco

Technical Lead for Climate Change Research
Public Interest Energy Research (PIER) Program
California Energy Commission

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Initial Observations

- The discussion paper offers a lot of useful observations and advice. We are very grateful to the work of both Margaret Torn and Amber Kerr
- Unfortunately a discussion paper on CO₂ emissions from the combustion of fossil fuels was not prepared – I offer some observations based on my work for the 1997 and 2001 GHG inventories.
- I provide comments on the following topics:
 - Need for ambient measurements
 - Need for spatial and temporal disaggregated emission estimates
 - Discovering potential structural problems with existing methods?
 - CO₂ emissions from the combustion of fossil fuels



Need for Ambient Measurements

- Emission estimates for non-CO₂ gases are too uncertain to just rely on inventories
- Ambient measurements are needed to corroborate estimates and to follow emission trends
- However, this is still a research frontier in need of support before becoming an operational tool



California Greenhouse Gas Emission Measurement Project
M.L. Fischer, C. Zhao, W.J. Riley, LBNL
A. Andrews, C. Sweeny, P. Tans, NOAA-ESRL

Sutro Tower,
San Francisco



Contact:
mfischer@lbl.gov

CALGEM Measurement Sites



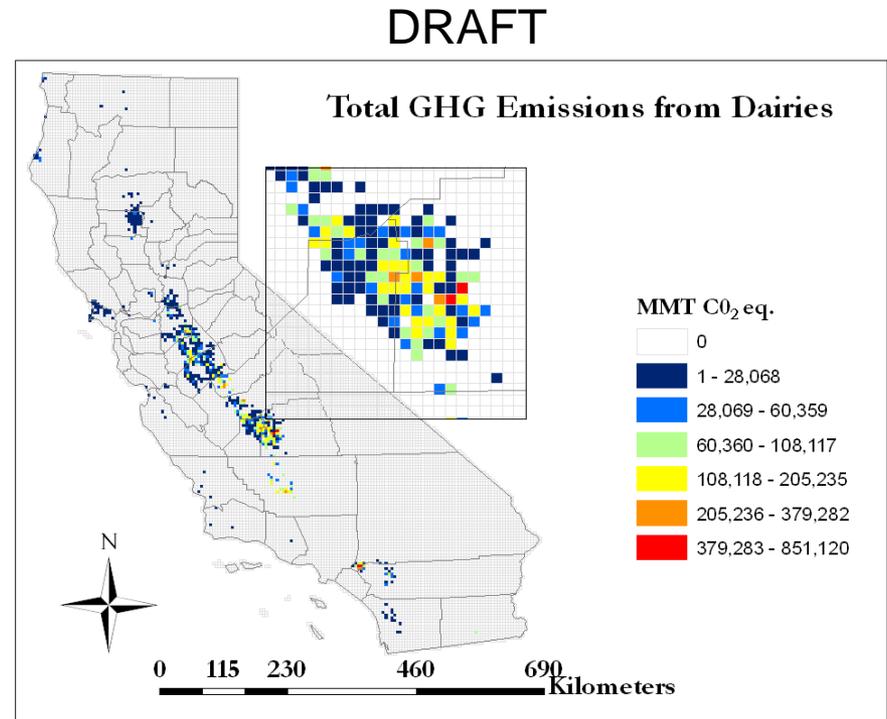
Richland Tower,
Walnut Grove





Need for Disaggregated Data: spatial and temporal

- Process based methods need this type of data
- Ambient measurements rely on disaggregated emission estimates



Source: Salas, W., Li, C., Mitloehner, F., and J. Pisano. 2008.
Developing and Applying Process-based Models for Estimating GHG and Air Emission from California Dairies.
California Energy Commission, PIER Energy-Related Environmental Research



How to discover potential structural problems with existing methods?

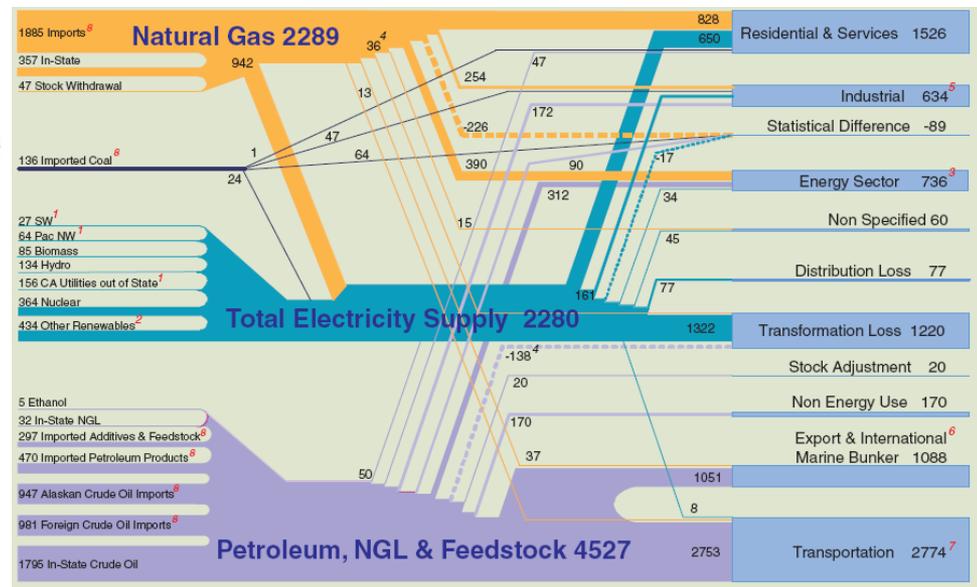
- Study the documentation supporting the existing methods (you may be surprised!)
- Measurement to test existing methods/models
- Is this a valid research topic?
- Offset that would be available to electrical and natural gas utilities will need technically sound methods



CO₂ Emissions from the Combustion of Fossil Fuels

- Some “minor” fuels may be poorly quantified
- Are the assumed carbon content of the fuels close enough?
- How to reconcile old fuel consumption estimates with new data to be submitted to ARB?
- Should PIER continue supporting the development of Energy Balances for CA?

California Energy Balances



Source: PIER report by LBNL