

California Environmental Protection Agency



**Air Resources Board**

***OPGEE Revisions and  
Updated Crude CI Values***

**March 5, 2013**

# Agenda

- OPGEE Revisions: Professor Adam Brandt, Stanford University
- ARB Staff Discussion
  - Effect of model changes on crude CI estimates and 2010 Baseline Crude Average
  - Preliminary estimate for 2012 Crude Average CI
  - Additional crude CI estimates for Crude Lookup Table
- Future Work

# *OPGEE Revisions*

# *Effect of OPGEE Changes on CI Estimates*

- WOR smart default
  - Reduced CI estimate especially for older fields and fields using gas lift
- Corrections to Bitumen Extraction and Upgrading
  - Reduced CI values for Alberta oil sands crudes
- Corrected time horizon for LUC emissions
  - Increased CI values especially for fields located in tropical forest areas
- Added demethanizer emissions for NGL separation
  - Increased CI values especially for fields with high GOR
- Correction to heater-treater calculations
  - Reduced CI values especially for fields with large WOR

# *Effect of OPGEE Changes on CI Estimates*

- Effect on 2010 Baseline Crude Average is small
  - OPGEEv1.0 estimate was 11.39 g/MJ
  - Preliminary OPGEEv1.1 estimate is 11.44 g/MJ

# *Preliminary 2012 Crude Average CI*

- Surveyed California refineries for 2012 crudes
- Obtained 2011 crude production data
  - California DOGGR
  - Alaska Oil and Gas Conservation Commission
  - Alberta Energy Resources Conservation Board
  - Nigerian National Petroleum Corporation
  - NOAA National Geophysical Data Center
  - Oil and Gas Journal
  - North Dakota Industrial Commission, Texas Railroad Commission, Colorado Oil and Gas, etc.
- Estimated CI values using OPGEEv1.1\_DraftA
- Preliminary 2012 Crude Average CI of 11.45 g/MJ

# *Additions to Crude Lookup Table*

- All crudes supplied during 2011 and 2012
- Most crudes supplied during 2006 to 2009
- Other crudes for which data are available
- Crude names supplied by refiners
- Default CI values
  - TEOR, mining, synthetic crude
  - Conventional recovery

# *Future Work*

- Stakeholder comments due April 5, 2013
  - OPGEE revisions
  - Crude production data and modeling
  - Additional crudes to assess
- Collect additional data
- Revise OPGEEv1.1 and CI estimates
- Propose LCFS amendments
  - Incorporate OPGEEv1.1
  - Revise 2010 Baseline Crude Average CI
  - Update and make additions to Crude Lookup Table

# Contact Information

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**Thank You**