

# API Climate Challenge Program



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**Climate VISION Partners' Workshop**

**February 14, 2006**



# Background – before the Challenge

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- Members have widely varied mix of assets
- Members in different stages of action on climate
- API already working towards consistent GHG estimation methodology



# API Climate Challenge Program

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- Formally established 1/10/2003 in letter to the Secretary of Energy
- Three key components
  - Climate Action Challenge
  - Climate R&D Challenge
  - Climate Greenhouse Gas Estimation and Reporting Challenge



# Climate Action Challenge (I)

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- Reduce our industry's GHG intensity
- Improve aggregate energy efficiency of member's refinery operations 10% over 2002-2012
- Initiate GHG management plans
- 100% participation in EPA's Natural Gas Star program



# Climate Action Challenge (II)

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- **Many ways for action including:**
  - Reduce methane venting/flaring
  - Reduce methane emissions from operations
  - Expand cogeneration (CHP)
  - Expand carbon capture/storage
  - Improve energy efficiency
  - Use alternative technologies



# Climate R&D Challenge

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- Undertake R&D “to create new options for reducing GHG intensity in the longer-term”
- Participating companies pledge to integrate GHG considerations into R&D decision-making process to impact the trend in operations GHG intensity.



# Climate GHG Estimation and Reporting Challenge

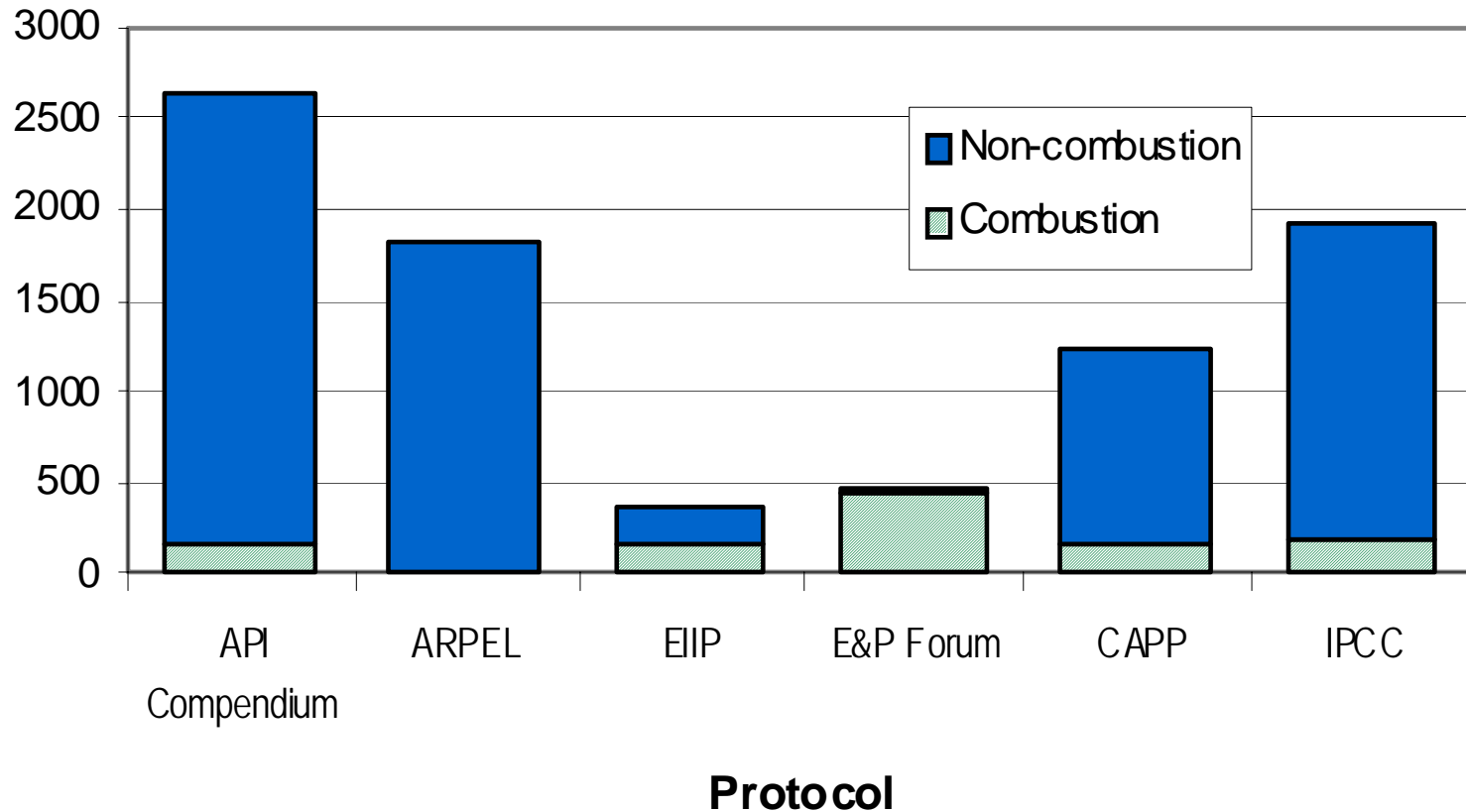
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- Create consistent and sound basis for estimating and managing GHG emissions.
- Why is consistency and soundness a major concern?

# Climate GHG Estimation (II)

## *Because...*

### Protocol Comparison: Onshore Oil Production Facility Methane Emissions (Metric tons/yr)







# Climate GHG Estimation and Reporting Challenge (III)

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- Goal: 100% member participation
- Utilize consistent GHG estimation methodology worldwide
- Report US GHG emissions and activity factors to API for aggregate reporting as well as blind comparison for internal company use.



# Climate GHG Estimation and Reporting Challenge (IV)

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## Concerns moving forward

- Oops – where was LNG in the late '90s?
- Underlying emissions factors possibly outdated
- Undertaking new work, especially on natural gas
- So *Compendium* is “evergreen”
- Huge numbers of different types of facilities and equipment



# Many Emission Sources to Track (Sample Oil & Gas Facilities)

Single Facility	Combustion	Vented
Onshore Oil Field	23	779
Offshore Platform	14	221
NG Processing Plant	17	10
Gas Compressor Site	4	62
Marketing Terminal	6	10
Refinery	68	Depends

Source: API *Compendium*, excludes possible fugitive sources.



# The Three *Really* Hard Parts of the Challenge Program

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- Doing (members plus API)
- Tracking
- Communicating

# GHG Estimation & Reporting Tools

## GHG Global Emissions Reporting Guidelines (IPIECA/API/OGP)

- Released December 2003
- Address business-related issues on reporting GHG emissions
- Drawn from WRI/WBCSD

## API *Compendium* of GHG Emissions Estimation methodologies

(Revised 2/04)

## SANGEA™ GHG Emissions Calculation tool

–<http://ghg.api.org>

The screenshot displays the SANGEA website interface. At the top, it features the API logo (American Petroleum Institute) and the title 'COMPENDIUM OF GREENHOUSE GAS EMISSIONS METHODOLOGIES FOR THE OIL AND GAS INDUSTRY'. Below this, the SANGEA logo is prominently displayed with the tagline 'Emissions Software'. A navigation menu includes links for 'SANGEA™ Home', 'API Home', 'Battelle Home', and 'Featured Links'. A sidebar on the left lists various resources such as 'User Guide and Download', 'Software and Registration', 'Aggregation Tool and Download', 'FAO Knowledge Base', 'Technical Support', 'Training and Implementation Support', and 'Updates'. The main content area contains a 'Welcome to SANGEA™' message, a 'Printer-Friendly Version' link, and a list of available GHG emissions accounting tools and guidance for the petroleum industry, including links to the SANGEA User Guide, Software, Aggregation Tool, and various support and update resources.



# Industry Action Examples

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- >90% of upstream and >95% of downstream member volumes participating
- 100% participation in Natural Gas Star
- Support for EPA Natural Gas Star, Methane to Markets, and World Bank/GGFR
- CO2 sequestration/enhanced oil projects in Wyoming



## Industry Action Examples (II)

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- Company-wide energy efficiency programs
- CO2 capture/storage project in Algeria
- Increased solar, wind and LNG production in US and abroad
- Reduce natural gas flaring and venting
- Increased natural gas/elec production in Africa



## Industry Action Examples (III)

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- Offset projects – tree planting
- Increased production of renewable/electric energy (including geothermal)
- Increased Cogeneration (CHP)
- Vehicle/fuel technologies, e.g., FreedomCar, H<sub>2</sub> Fuel Cells, Calif. fuel Cell Partnership, ...
- H<sub>2</sub> production technologies



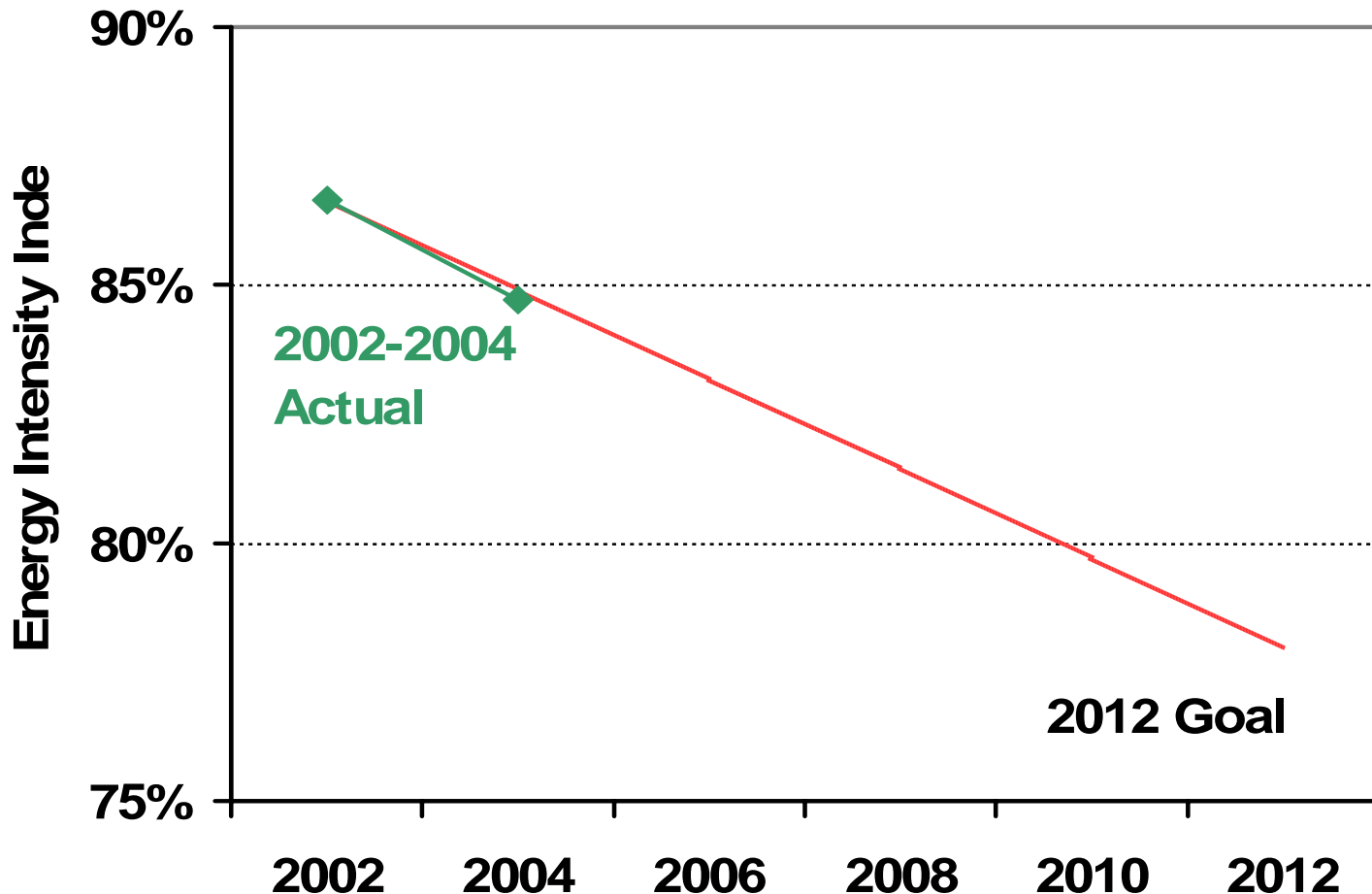


# Industry Action Examples (IV)

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- Academic-type research initiatives
  - MIT – Carbon Sequestration
  - MIT – Joint Program on Science & Policy
  - Princeton – Carbon Mitigation Initiative
  - Stanford – GCEP
  - CO2 Capture Project
  - GEODISC – underground CO2 storage
  - IEA Weyburn CO2 Monitoring & Storage

# Progress on Aggregate Member Refinery Energy Efficiency Pledge





# Key Change – integrating GHG considerations & decisionmaking

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- Companies pledged to integrate GHG considerations into R&D – clearly evident in CO2 sequestration and fuels and alternatives research agendas
- They are doing more: integrating GHG consideration into capital project decision making



# Challenges & Lessons

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- Quantifying voluntary actions isn't easy – especially R&D efforts
- API focuses on US actions -- but companies undertaking diverse and globally cost-effective options
- Emissions reporting can be costly and raise confidentiality issues
- GHG inventories don't provide emission reduction cost information