

## Road to Climate Action Leader™: El Paso Pipeline Case Study

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**EPA Natural Gas STAR Annual  
Conference**

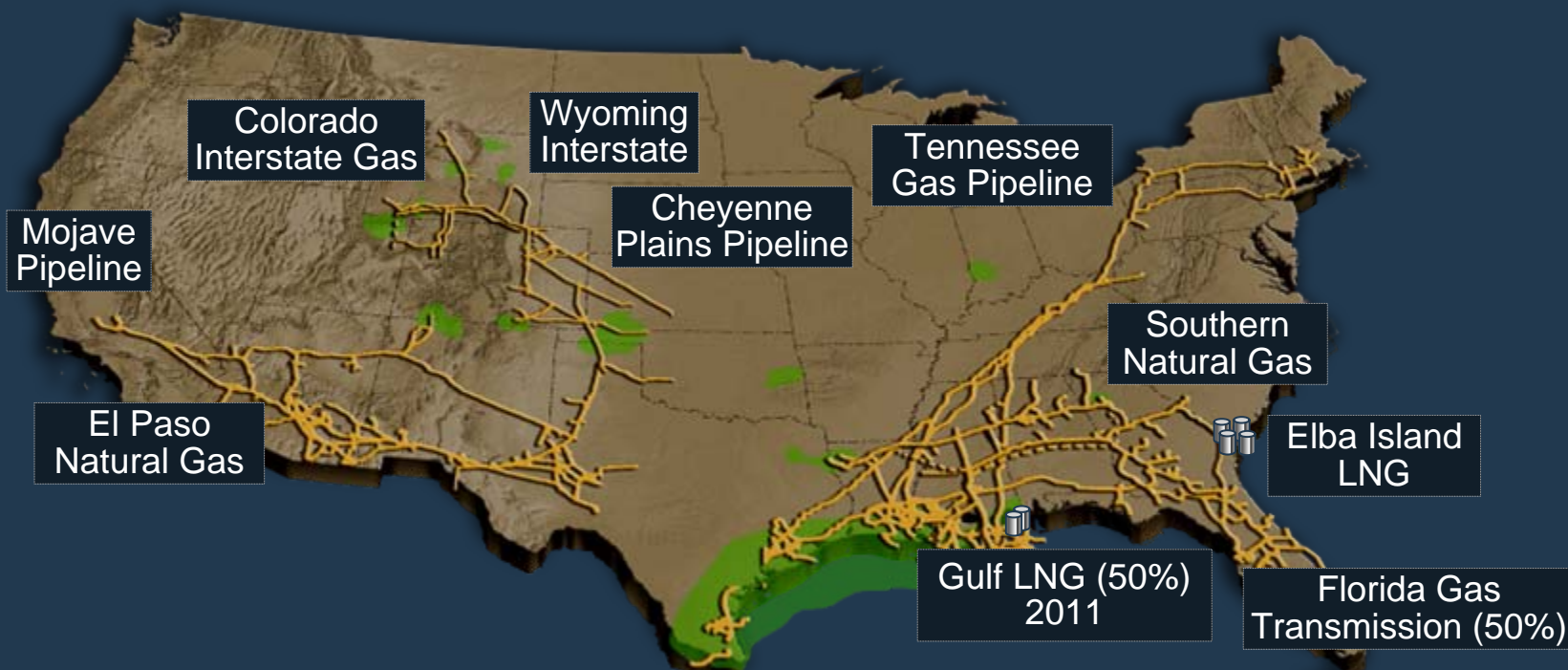
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# Overview of El Paso Corporation



## Premier Pipeline Franchise

- ▲ \$1.3 billion of 2007 EBIT
- ▲ 42,000 miles of interstate pipeline with unmatched connectivity
- ▲ 17 Bcf/d throughput (28% of gas delivered to U.S. consumers)
- ▲ Nearly \$4 billion of organic projects with firm customer commitment

## Top 10 independent E&P

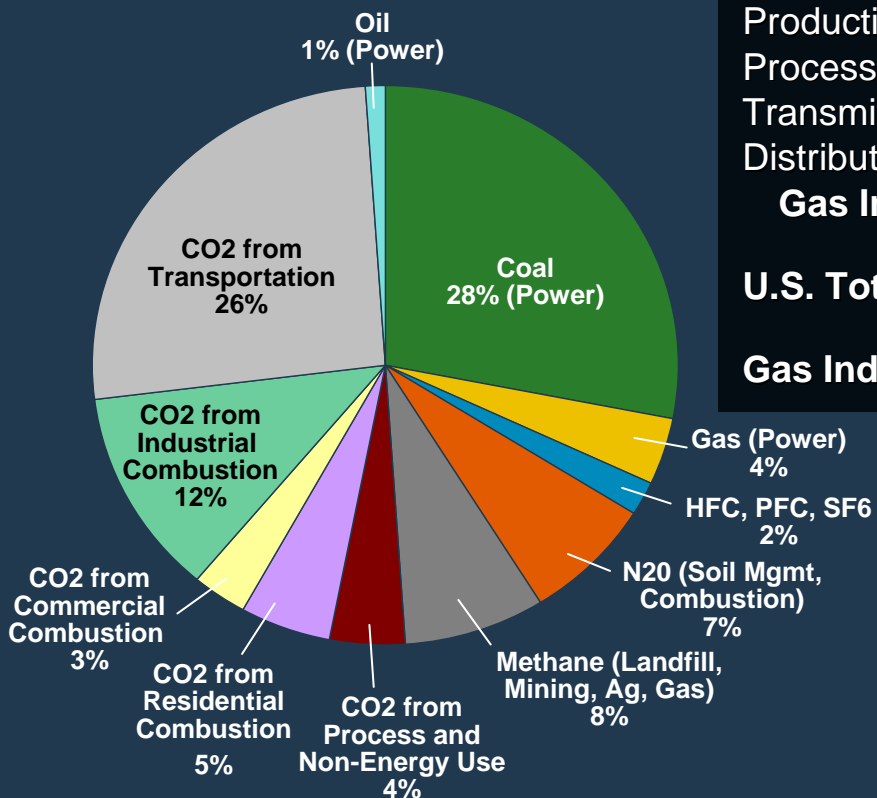
- ▲ 3.1 Tcfe YE 2007 proved reserves
- ▲ Top 10 independent domestic gas producer

# El Paso Corporate: Greenhouse Gas Commitment

- ▲ “Assess, engage and act”
  - Commitment statement <http://elpaso.com/profile/mainneighbor.shtm>
- ▲ Carbon Disclosure Project (CDP) 5 response
  - [http://www.cdproject.net/online\\_response\\_pf.asp?cid=558&year=2](http://www.cdproject.net/online_response_pf.asp?cid=558&year=2)
- ▲ California Climate Action Registry (CCAR)
  - First company in CCAR history to certify without significant errors
  - First company to achieve Climate Action Leader™ for 2007
  - First natural gas company to join CCAR
- ▲ Reported third party verified entity wide emissions to DoE’s 1605(b) program in 2007
- ▲ Serves on Advisory Committee—The Climate Registry (TCR)
  - El Paso Natural Gas and Colorado Interstate Gas are TCR “Founding Reporters”
- ▲ 2008 Southern Gas Association (SGA) Environmental Excellence Award for leadership on GHG matters

# 2005 Emissions Profile For the Natural Gas Sector

U.S. GHG Emissions by Fuel/Source—2005



	(Million tonnes of CO <sub>2e</sub> )			Total CO <sub>2e</sub>
	CO <sub>2</sub>	CH <sub>4</sub>	Other Gases	
Production	47.8	35.2	—	83.0
Processing	41.1	11.9	—	53.0
Transmission and Storage	32.0	36.8	—	68.8
Distribution	—	27.4	—	27.4
<b>Gas Industry Total</b>	<b>120.9</b>	<b>111.1</b>	<b>—</b>	<b>232.2</b>
<b>U.S. Total</b>	<b>6,089.5</b>	<b>539.3</b>	<b>631.6</b>	<b>7260.4</b>
<b>Gas Industry Share of U.S.</b>	<b>2.0%</b>	<b>20.6%</b>	<b>0.0%</b>	<b>3.2%</b>

▲ Relative to total U.S. CO<sub>2eq</sub> emissions

- Natural Gas combustion ~ 17%
- Natural Gas Industry Share ~ 3%
- Methane emissions ~ 1.5%

Methane Emissions from the gas sector are a small fraction of the total U.S. emissions

# Road to Climate Action Leader™—The Vision

## ⤴ Develop a Sustainable GHG Inventory Management & Compliance Strategy

- Certified inventory forms the bedrock of most GHG strategies
  - Basis for assessing risks and opportunities
  - Development of sustainable programs and processes
  - Recent federal and state proposals have applicability based on emission “threshold” levels

## ⤴ Create Leadership Culture

- Ensure sustainability of GHG efforts

# Road to Climate Action Leader™—Why CCAR?

## ^ Reviewed several programs

- Rigor

- Credibility

- Transparency

- Flexibility

- Advocacy and leadership opportunities

## ^ Signed on to CCAR on August 3, 2006

- Participate and lead regulatory, policy, and technical discussions associated with T&D sector

# El Paso's Experience in GHG Emissions Accounting



A three year effort....  
Established a process focused on continuous improvement



# Road to Climate Action Leader™— 2004 GHG Inventory

## ▲ 2004 GHG Emission Inventory

- INGAA GHG Guidelines
- Direct and Indirect emissions from 5 El Paso pipelines
  - Operational Control
- CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O

## ▲ Third party GAP Analysis against CCAR and ISO

- Completeness
- Accuracy

Goal = develop a GHG Inventory

# Road to Climate Action Leader™— 2005 GHG Inventory

## ▲ Similar in scope to 2004

→ Developed internally

## ▲ Process Improvements

→ Enhanced spreadsheets

→ More comprehensive inventory of sources

→ Better Estimation

- Vast improvement in activity data

→ Need for development of internal GHG database

## ▲ Third party pre-certification against CCAR

Goal = verifiable grade inventory

# Road to Climate Action Leader™— 2006 GHG Inventories

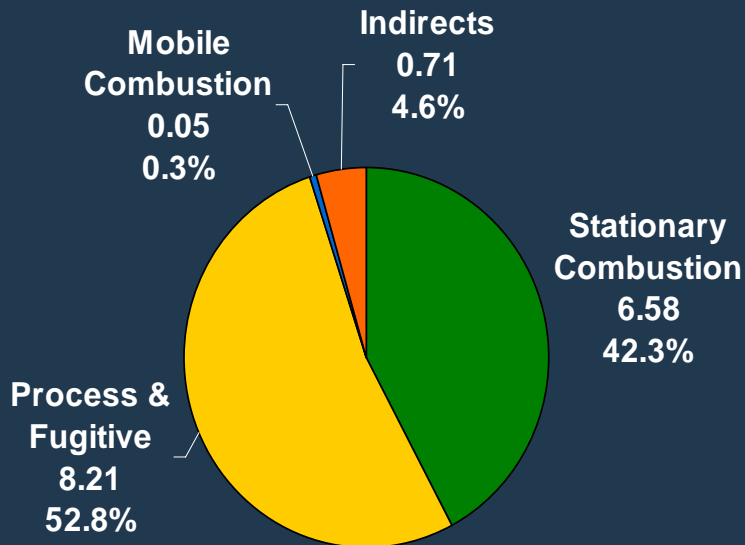
- ▲ 2006 GHG Emission Inventory (CA)
  - Comprised of CA assets
  - All applicable GHGs
  - Based on CCAR guidelines & INGAA GHG Guidelines for industry specific emissions
  - CCAR Certification
  
- ▲ 2006 GHG Emission Inventory (US Operations)
  - DoE 1605(b)

Goals: (1) Submit Certified inventory to CCAR for CA Ops  
(2) Submit verified inventory to DoE 1605(b)

# 2006 El Paso's GHG Emissions

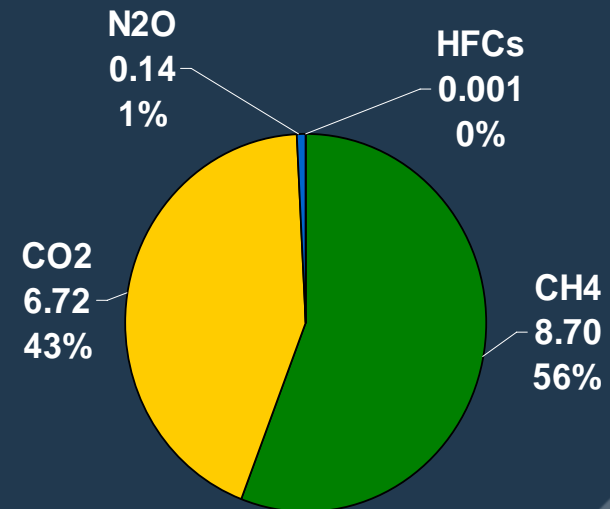
## Total Emissions by Emission Category\*

Emission Category	Emissions MMT CO <sub>2</sub> e	Contribution
Stationary Combustion	6.58	42.3%
Process & Fugitive	8.21	52.8%
Mobile Combustion	0.05	0.3%
Indirects	0.71	4.6%
<b>Total</b>	<b>15.56</b>	<b>100%</b>



## Total Emissions by Gas\*

GHG	Emissions MMT CO <sub>2</sub> e	Contribution
CH <sub>4</sub>	8.70	55.9%
CO <sub>2</sub>	6.72	43.2%
N <sub>2</sub> O	0.14	0.9%
HFCs	0.001	0.01%
<b>Total</b>	<b>15.56</b>	<b>100%</b>



\*As reported to 1605(b), does not include ANR

# GHG Emission Categories and Sources: Natural Gas Transmission

Vast number of discrete but “small sources”

## Direct Emissions

### ^ Stationary Combustion

- Reciprocating IC engines
- Turbines
- Process heaters
- Process boilers
- LNG vaporizers
- Flares/Thermal Oxidizers

### ^ Mobile combustion

- Vehicle fleet
- Aviation fleet

### ^ Process/Vented

- NG blowdowns
- Dehydrators
- Amine units
- Pneumatic devices
- Gas-assisted pumps
- Work-over & Completion Venting
- Storage Tanks

### ^ Fugitive

- Transmission and Gathering Pipelines
- Transmission/Storage Station Piping Components
- Reciprocal and Centrifugal Compressors
- M&R Stations
- Storage Wells
- Vehicle Fleet A/C Systems
- Process Plant piping & components

## Indirect Emissions

### ^ Generation of electricity used by:

- Stations/office buildings
- Electric driven compressors
- Electric driven pumps (pump-jacks)

# Road to Climate Action Leader™— Lessons Learned (Technical)

- ⤴ Relative to electric sector, GHG inventorying is a “new” technical challenge
  - 100% of the emissions non directly measured (non CEMS)
- ⤴ Several thousand emission sources for a single company
- ⤴ Over 50% of the emissions profile is methane
- ⤴ High uncertainty of fugitive emission factors
  - Outdated and unrepresentative
    - → Not “cap-and-trade” quality
- ⤴ Facility level versus emission unit level combustion (CO2) emissions
  - Lack of fuel metering at every unit
- ⤴ Computation of Indirect Emissions can be time consuming
- ⤴ Frequent acquisition/divestiture activity
- ⤴ Complex ownership
- ⤴ Remotely located
  - Data collection issue

# Road to Climate Action Leader™— Lessons Learned (Process)

- ⤴ Efficient data management → GHG database
- ⤴ Improve internal processes for activity data and enhance emissions factors for GHG inventory
- ⤴ Collateral benefits
  - LAUF Reductions
  - Fuel efficiency initiatives

# Road to Climate Action Leader™— Lessons Learned (Management)

- ⤴ Management support at Board and Executive Committee level is vital
  - Clear defined goals and roles/responsibilities
    - Footprint? <<< Verifiable/Certifiable grade?
  - Level of effort is directly proportional to the goals chosen
- ⤴ Communicate inventory goals and needs to Executives, mid-level management and other stakeholders
- ⤴ Departmental/cross-functional team with a reporting structure and budget
- ⤴ Inventory Management Plan and Technical Manual
  - Document policies, procedures, and estimation techniques
- ⤴ GHG IMS or Not?
- ⤴ Recognition of team efforts!



# El Paso's GHG EI Reporting Recommendations

- ^ Consistent “national” program
  - > Single registry
- ^ Consider the majority of the sources (outside power) have limited experience
- ^ Use experience from existing programs
  - > CCAR, TCR, CARB: AB32, and 1605(b)
- ^ Seek input from industry “leaders” who have undertaken inventory development
- ^ Limit to Scope I emissions
- ^ Phased approach
- ^ Reporting no more than once a year
- ^ Establish “de-minimus” limit similar to CAA’s Title V program
- ^ Verify or establish quality assurance programs/protocols

# QUESTIONS??

*THANK YOU FOR THE OPPORTUNITY TO  
PRESENT EL PASO'S  
ACCOMPLISHMENTS*