

# Power/Utility Sector

# Reporting Requirements for

the

# California Climate Action Registry

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# Goals of the Registry



- Help companies and organizations establish GHG emissions inventories and baselines against which any future GHG emission reduction requirements may be applied.
- Encourage voluntary actions to:
  - Increase energy efficiency
  - Decrease GHG emissions

# Selected Registry Members: Electricity



## IOUs

PacifiCorp  
PG&E Corporation\*  
San Diego Gas and Electric  
Southern California Edison

## Independent Power Producers

AES  
Calpine Corporation  
Mirant  
NRG Energy  
Reliant Energy

## Power Authority

Northern CA Power Agency  
Platte River Power Authority

## Municipal Utilities

Anaheim Public Utilities  
Austin (Texas) Energy  
Burbank Water and Power  
City of Palo Alto Utilities  
L.A. Dept. of Water & Power\*  
Riverside Public Utilities  
Sacramento Municipal Utility  
District\*

**\*Charter Member**

107 members total


200 million tons registered =  
annual emissions of Turkey

# Annual Three Step Process

1. **Calculate** GHG emissions according to the Registry protocols
  - CO<sub>2</sub> first 3 years, then all 6 Kyoto gases (CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>)
  - Direct stationary, mobile, process and fugitive emissions
  - Indirect emissions from energy purchases
  - January – December time period
2. **Report** GHG emissions data through CARROT
3. **Certify** emissions inventory results using state- and Registry-approved 3<sup>rd</sup> party certifiers
  - Certified data is publicly reported through [www.climateregistry.org](http://www.climateregistry.org)

# Registry Power-Sector Reporting Tools



- General Reporting & Certification Protocols (GRP + GCP)
  - General guidance for all reporters
  
- Power/Utility Reporting & Certification Protocols (PUP + PUCP)
  - Industry-specific guidance for power generators and electric utilities
    - Define indirect emissions → T&D losses from purchases
    - Establish metrics
    - Improve comparability within industry
      - Natural gas T&D guidance forthcoming
  
-  CARROT – Climate Action Registry Reporting Online Tool

# CARROT



## *Climate Action Registry Reporting Online Tool*

- REPORT: Annual inventory must be reported through CARROT
    - Reporters manage their entity's users:
      - Administrator – all access
      - User – one or more facilities
      - Reviewer – read-only access
      - Certifier – read-only access, submit electronic opinion
  - CALCULATE: Many calculations can be done in CARROT
  - CERTIFY:
    - Standardizes/lowers certification cost
    - Certifiers view all data once authorized by Participant (after data submitted for certification)
      - Public Users access certified emission reports
- [www.climateregistry.org](http://www.climateregistry.org)

# Power/Utility Protocol Development Process



- PIER funding
- Protocol development process
  - Power/Utilities Workgroup
    - IOUs, munis, merchant generators, regulators, NGOs, technical experts
    - PacifiCorp participated
  - Expert review process
  - TAC review & consideration
  - Public hearing & Agency review
  - Board consideration
- Final Protocol adopted April 2005

# Required Information (1)



- Direct Emissions from:
  - Mobile Sources
  - Stationary Combustion
    - Fossil fuels
    - Bio & non-emitting fuels
  - Process Emissions
    - CO<sub>2</sub> from scrubbing coal
  - Fugitive Emissions
    - Refrigerants
    - SF<sub>6</sub>



# Direct Emissions



Direct Emissions from Owned Facilities	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	Unit
Mobile Combustion	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	metric tons
Total Stationary Combustion	9,809,296.00	9,809,296.00	0.00	0.00	n.a.	n.a.	n.a.	metric tons
from Electric Power Generation, Transmission & Distribution Activities	9,809,296.00	9,809,296.00	0.00	0.00	n.a.	n.a.	n.a.	metric tons
from Natural Gas-Related Activities	0.00	0.00	0.00	0.00	n.a.	n.a.	n.a.	metric tons
from Other On-Site Combustion	0.00	0.00	0.00	0.00	n.a.	n.a.	n.a.	metric tons
Process Emissions	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	metric tons
Fugitive Emissions	406,897.50	0.00	0.00	0.00	0.00	0.00	17.03	metric tons
<b>TOTAL DIRECT EMISSIONS</b>	<b>10,216,193.50</b>	9,809,296.00	0.00	0.00	0.00	0.00	17.03	metric tons
% of Net Generation Delivered to CA	100							
% of Net Generation Delivered Outside of CA	0							
Total Direct Emissions from Deliveries to CA	10,216,193.50	0.00	0.00	0.00	0.00	0.00	0.00	metric tons
Total Direct Emissions from Deliveries outside of CA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	metric tons

Source: Southern California Edison, actual data for Emissions Year 2004

# Required Information (2)

- Indirect Emissions from:
  - Electricity purchased and consumed:
    1. Outside service territory
    2. T&D Losses from:
      - Purchased power
      - Direct access
      - Wheeled power (excluding direct access)
  - Purchased Co-Generation, Imported Steam, and District Heating and Cooling

Indirect Emissions from Owned Facilities	CO <sub>2</sub>	Unit
Electricity Purchased and Consumed	0.00	metric tons
Steam Purchased and Consumed	0.00	metric tons
Heat Purchased and Consumed	0.00	metric tons
Cooling Purchased and Consumed	0.00	metric tons
Total Transmission and Distribution Losses	<b>1,539,798.00</b>	metric tons
from Purchased Power	1,074,556.00	metric tons
from Wheeled Power (excluding Direct Access)	141,196.00	metric tons
from Direct Access	324,046.00	metric tons
<b>TOTAL INDIRECT EMISSIONS</b>	<b>1,539,798.00</b>	metric tons

# Required Information (3)



- Entity Information
  - Owned & Purchased Generation (MWh & CO2)

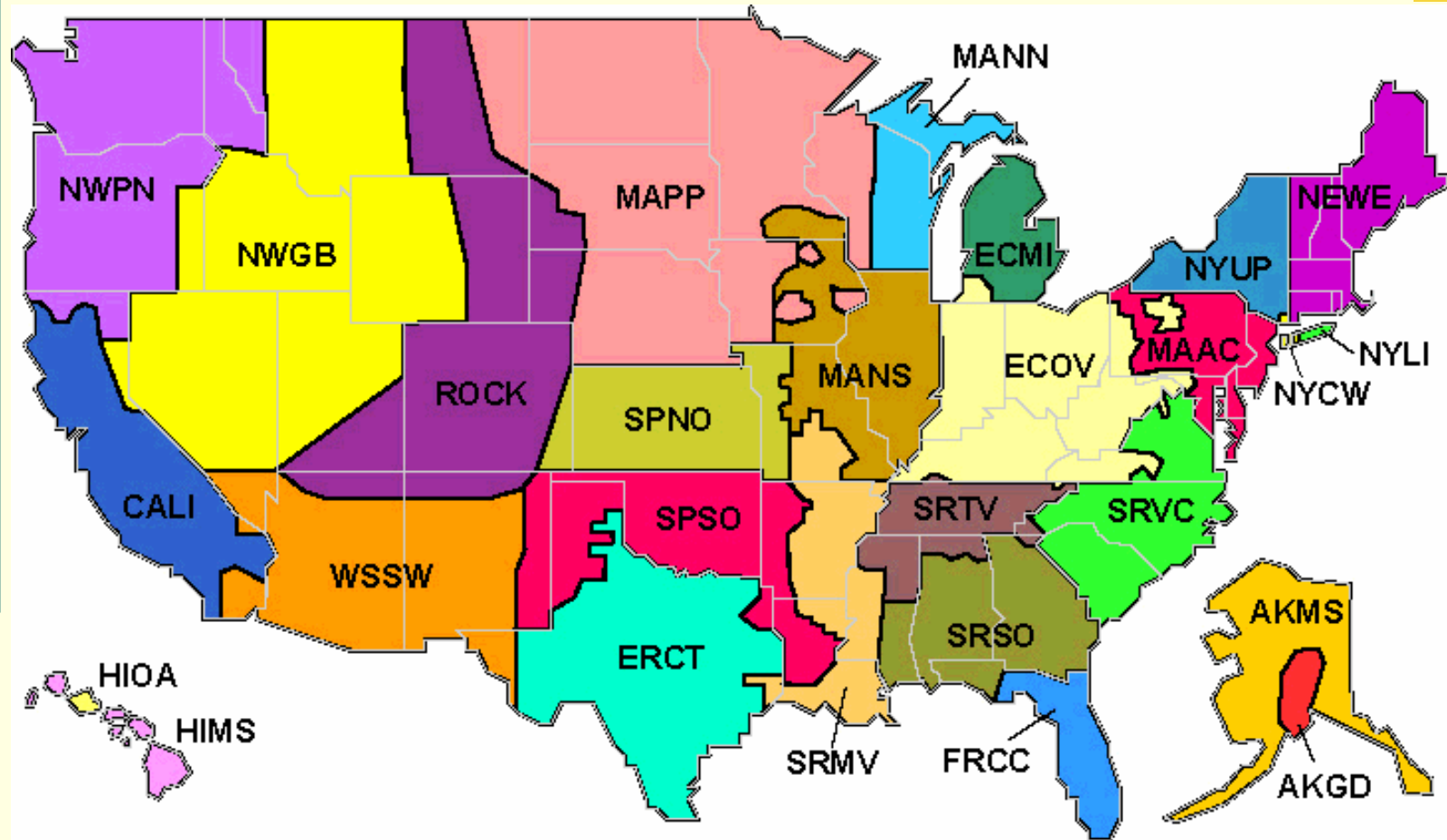
POWER/ELECTRIC UTILITY ENTITY INFORMATION	Amount	Unit	CO <sub>2</sub>	Unit
<b>Owned Generation Total (Net)</b>	<b>17,451,139.41</b>	<b>MWh</b>	<b>12,367,960.25</b>	<b>metric tons</b>
Fossil Generation (Net)	14,895,405.06	MWh	12,367,960.25	metric tons
Renewable Generation (Net)	445,540.35	MWh	0.00	metric tons
Zero Emission Generation (Net)	2,110,194.00	MWh	0.00	metric tons
Steam Generation (Net)	0.00	MWh	0.00	metric tons
<b>Purchased Generation Total (Net)</b>	<b>8,976,563.00</b>	<b>MWh</b>	<b>3,992,837.11</b>	<b>metric tons</b>
Purchased Fossil Generation (Net)	2,624,595.00	MWh	2,330,901.56	metric tons
Purchased Renewable Generation (Net)	40,000.00	MWh	0.00	metric tons
Purchased Zero Emission Generation (Net)	1,909,030.00	MWh	0.00	metric tons
Purchased Cogeneration (Net)	240,953.00	MWh	143,073.44	metric tons
Purchased Wholesale Power (Net)	4,161,985.00	MWh	1,518,862.11	metric tons
<b>TOTAL FROM ALL GENERATION SOURCES</b>	<b>26,427,702.41</b>	<b>MWh</b>	<b>16,360,797.36</b>	<b>metric tons</b>

# Calculating Entity Information



1. Facility-specific purchases
  - eGRID facility emission factor
  
2. Company-specific purchases
  - eGRID company emission factor
  
3. Market purchases
  - eGRID sub-region average for California:  
804.54 lbs CO<sub>2</sub>/MWh (WECC-CALI)

# eGRID subregions



# Efficiency Metrics



- Three required metrics
  1. lbs CO<sub>2</sub>/MWh electricity **delivered** to end-user
  2. lbs CO<sub>2</sub>/MWh electricity net **generation**
  3. lbs CO<sub>2</sub>/MWh net **fossil generation**

EMISSIONS EFFICIENCY METRICS		Ratio
Electricity Deliveries:	678.88	lbs CO <sub>2</sub> /MWh delivered ( <i>includes CO<sub>2</sub> from owned and purchased generation</i> )
Net Generation:	719.21	lbs CO <sub>2</sub> /MWh net generation ( <i>includes CO<sub>2</sub> from natural gas, coal, nuclear, large</i> )
Net Fossil Generation:	1,998.79	lbs CO <sub>2</sub> /MWh net fossil generation ( <i>includes CO<sub>2</sub> from natural gas and coal</i> )

- Includes CO<sub>2</sub> from stationary combustion only
- Does not include *de minimis* emissions
- Does not include CO<sub>2</sub> from bio fuels

# Metrics – Selected Reporters



	<u>Deliveries</u>	<u>Generation</u>	<u>Fossil Generation</u>
Calpine	n.a.	650	905
LADWP	1365	1562	1831
PacifiCorp	1811	2020	2172
SCE	679	719	1999
SDG&E	614	n.a.	n.a.
SMUD	769	639	982

*All units: (lbs CO<sub>2</sub>/MWh)*

# Deadlines



- Reporting: August 31 (Data year + 1)
- Certification: December 31 (Data year + 1)

## Example: 2005 Emissions

Reported in CARROT by **Aug. 31, 2006**

Certified by **Dec. 31, 2006**

- **Other Reporting Rules:**
  - Report for each year of participation (no breaks in reporting)
  - Can report from present back to 1990
  - Can set a baseline year



# Certification Process



- **Participants:** calculate and report; select certifier
- **Certifiers:** conduct certification activities
  - COI determination
  - CEC notification
  - Prepare report for participant; opinion for Registry
- **Registry:** review, accept and store data
- **State:** oversee certification activities (CEC), and consider data

# Questions?

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