US EPA Mandatory GHG Reporting Program Update: *Measuring, Reporting and Verifying GHG Data*

20th International Emissions Inventory Conference

August 14th 2012, Tampa, FL

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EPA ghgdata

e-GGRT Electronic Greenhouse Gas Reporting Tool

Outline

- Overview of the Mandatory GHG Reporting Rule
  - GHGRP vs GHG Inventory
  - Coverage
  - Methodologies
  - Data Flow: Collecting, Verifying, Publishing GHG Data
- Electronic Reporting Tool (e-GGRT)
- EPA - State Collaboration
- Verifying GHG Data
- Publishing GHG Data
- RY 2010 Highlights

GHGRP Milestones & The Emissions Inventory Conference

April, 2009

18th Emissions Inventory Conference, Baltimore

- proposed mandatory reporting rule

September, 2010

19th Emissions Inventory Conference, San Antonio

- final rule, technical corrections, began data system development

August, 2012

20th Emissions Inventory Conference, Tampa

- successfully collected, verified and published data

Overview: U.S. EPA GHG Reporting Rule

- Annual reporting of GHG by:
  - Rule covers 41 source categories for reporting, accounting for 85-90% of total U.S. GHG emissions:
    - 33 types of direct emitters
    - 6 types of suppliers of fuel and industrial GHG

  - Facilities that inject CO_2 underground for geologic sequestration, enhanced oil recovery, or any other purpose.

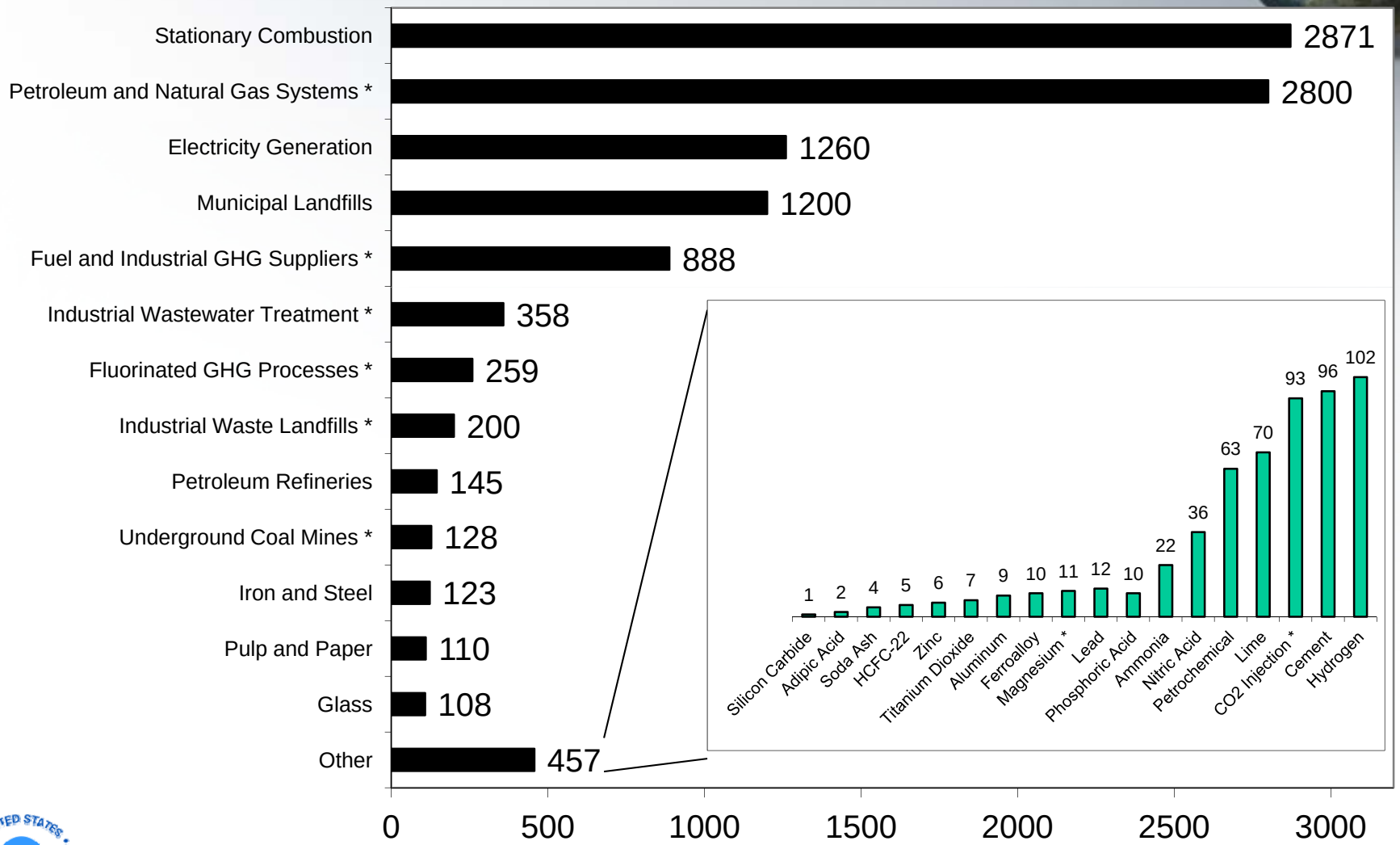
- Direct reporting to EPA electronically
- EPA verification of emissions data
- Monitoring began in 2010 for most emission sources with first reports submitted to EPA in September, 2011

GHGRP vs. U.S. GHG Inventory

- The U.S. GHG Inventory is a comprehensive top-down assessment of national GHG emissions and removals which presents emissions across multiple years starting in 1990.
  - U.S. GHG emissions calculated using internationally-accepted methods and nationally appropriate statistics
  - Emissions estimates not provided at the geographic or facility level
  - Includes small industrial emitters, residential and commercial sectors
  - Includes agriculture and land-use/forestry sectors

- When compared in aggregate, some of the summary emissions totals for specific industries appear different in the Inventory and GHGRP.
  - Different Source Category Definitions
  - Reporting Threshold
  - Lack of Disaggregated Data to Represent Certain Industries
  - Use of Continuous Emissions Monitoring Technologies
  - Differences in use of Default International Factors from Facility-Specific Methods

Approximately 10,000 U.S. Facilities & Suppliers Covered



* Approximate (first reports due Sep 2012)

What GHGs Are Reported?

- CO_2
- CH_4 (methane)
- N_2O (nitrous oxide)
- Fluorinated GHGs
  - HFCs (hydrofluorocarbons)
  - PFCs (perfluorocarbons)
  - SF_6 (sulfur hexafluoride)
  - Other fluorinated gases (except CFC and HCFC and gases <1 mm Hg @25^o C)

Methodologies (Measuring GHGs)

- Methodologies develeoped from extensive review of existing GHG programs
- Tiering approach used in many sub parts (lower order to higher order)
- Example: Stationary Combustion employs 4 Tier Approach
- In addition to calculation methodologies, the GHG Rule Requires:
    - Adherence to and reference of Standards (ASTM, ISO etc...)
    - Calibration requirements
    - Missing data procedures
    - Extensive recordkeeping requirements

Collecting, Verifying, Publishing GHG Data

EPA GHG Data System

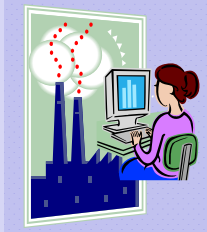
e-GGRT Electronic Greenhouse Gas Reporting Tool

EPA EnviroFacts: (Under Development)
Serviceable, searchable and separately hosted copy of non-CBI dataset. Open Access to Public

State-Specific Service
Oriented data flow over State-EPA Exchange Network (e-GGRT XML Reporting Schema)

Data Verification (EPA)

Downloadable XLS, XML & HTML Data Files, all non-CBI data (e-GGRT XML Reporting Schema). Open Access to Public



CBI Redaction

Reporters
Appox. 10,000 Facilities and Suppliers

e-GGRT, interactive web-based, CROMERR compliant data reporting tool, 40+ modules

e-GGRT Database Servers
(Master Data Store)

e-GGRT
Datamart

GHGRP Data Publication Website
(ghgdata.epa.gov)
GUI with open-source APIs. .

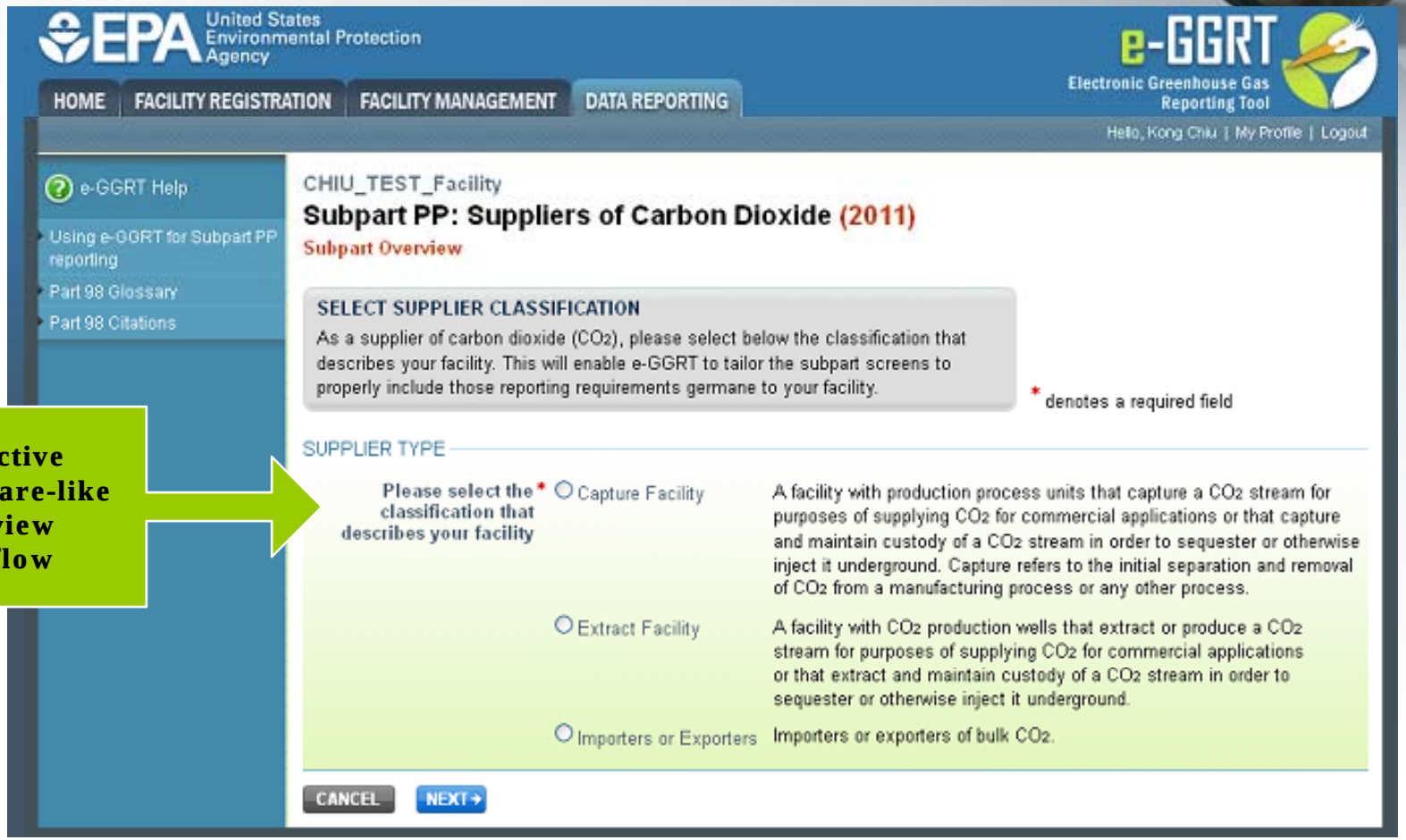
Collection (e-GGRT XML Reporting Schema)

Publication (Datamart XML Schema)

Data Collection: e-GGRT

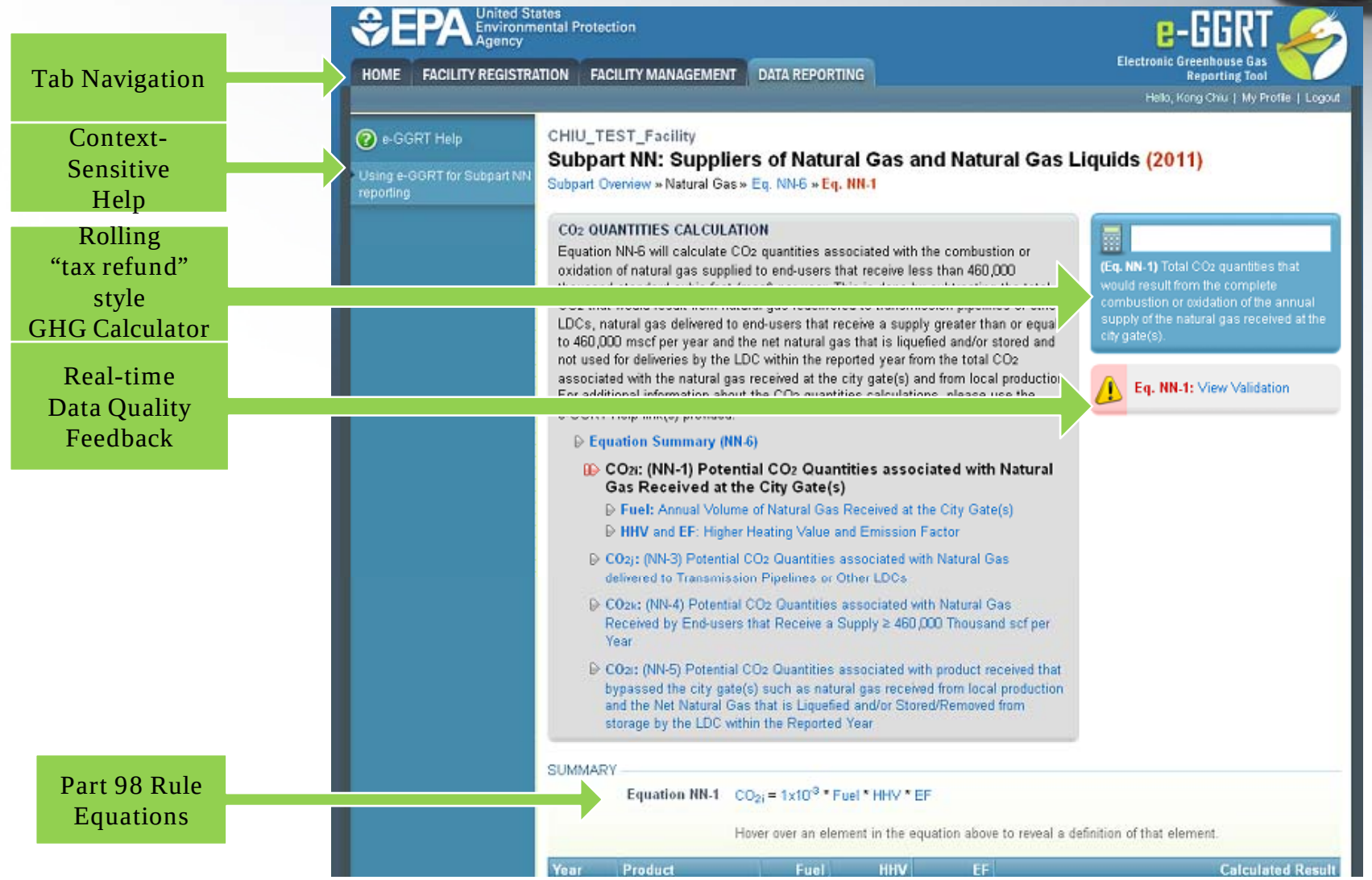
- EPA's **e**lectronic **G**reenhouse **G**as **R**eporting **T**ool (e-GGRT)
- Web-based application for facilities/suppliers to report directly to EPA
- For Reporting Year 2010, includes 29 individual sub-part modules, each with self-guided web forms
- Additional 12 Source Category modules available in mid-2012
- Also includes option for direct data upload via XML
- Annual Reports are electronically submitted and CROMERR Compliant
- Publicly accessible "beta" version available June 4th, 2012 at: sandbox.ccdsupport.com

Electronic Reporting Tool

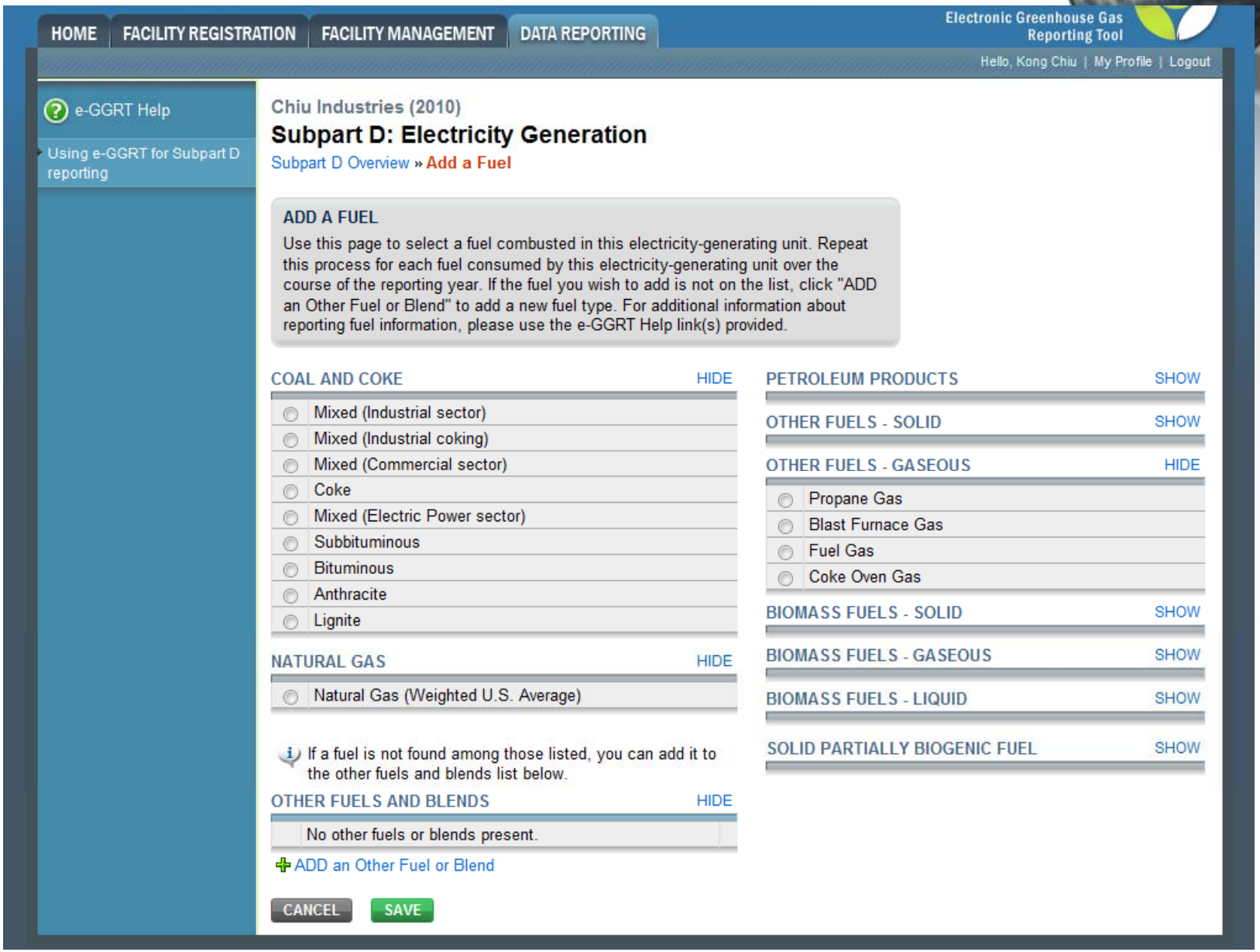


Interactive Tax software-like Interview workflow

Reporting Tool, continued



Fuel Selection Screenshot

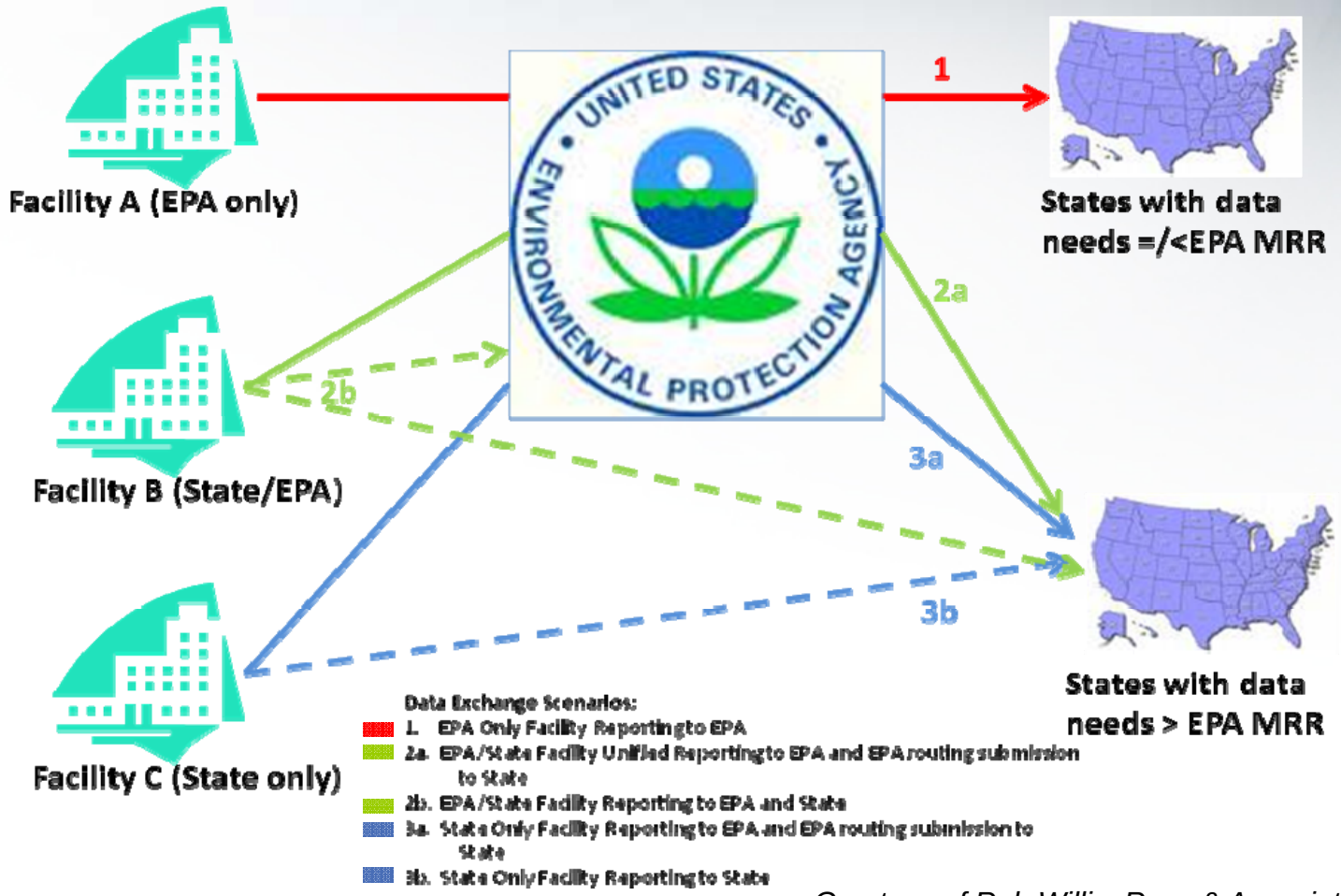


High Quality Data begins with High Quality Submissions

- Real Time Data Quality Feedback
- Comprehensive GHGRP Help Site
  - www.ccdsupport.com
- Context-Sensitive Help within e-GGRT
- Staffed Help Desk
- Multi-Tier Ticket Triage
  - Received over 3,000 tickets during RY2010 Reporting Season
- Training Webinars
  - Part 98 overviews, e-GGRT overviews, registration, testing and subpart webinars
- Beta Testing
  - e-GGRT Sandbox

State Coordination

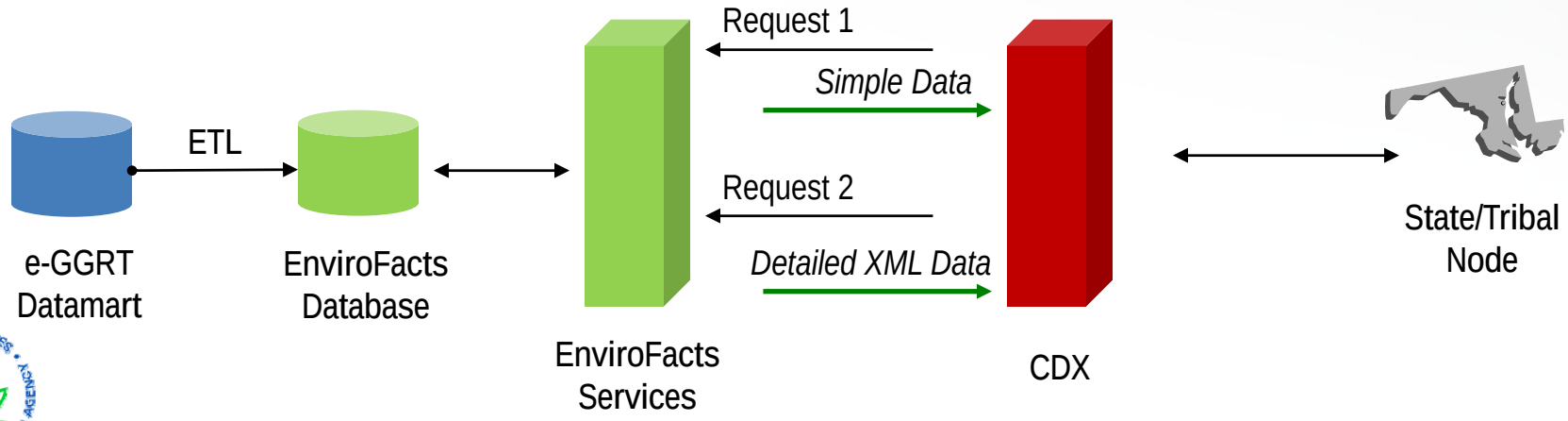
- State - EPA Workgroup on GHG Data Collection and Exchange
  - AZ , CA , CO (State co-chair), HI , IA , MA , MI, NC , NJ , NV , NM, OR , WA , WI



Courtesy of Rob Willis, Ross & Associates

State Data Service

- Through State-EPA Workgroup, develop EPA to State flow for GHGRP Data
- Two – level query:
  - (1) State/Tribal Node, via service, requests GHG Data using basic parameters (i.e. State, Year, Zip etc ...)
  - (2) EPA returns facility list (including basic GHG data)
  - (3) State/Tribal Node, via service, requests facility-specific XML package



Cal e-GGRT

California Environmental Protection Agency
AIR RESOURCES BOARD

Cal e-GGRT
California Electronic Greenhouse Gas Reporting Tool

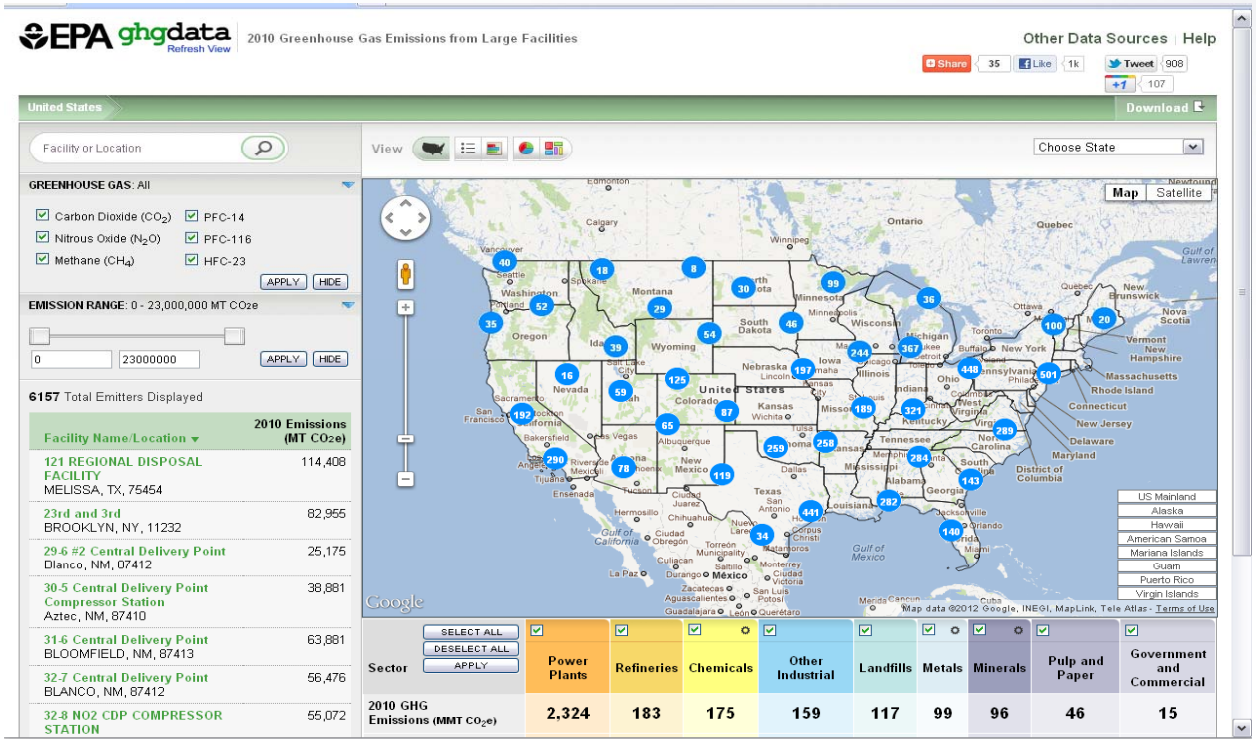
e-GGRT
Electronic Greenhouse Gas Reporting Tool

Data Verification

- Reporter Self-Certifies
- Electronic Verification
    - Pre-submittal warning for reporters entering data outside reasonable ranges or missing data
    - Post-submittal verification through logic checks, use of outside data sets, and statistical analyses across facilities
    - Improvements to ranges & algorithms over time with real data
- Staff review and direct follow-up
    - Staff review electronic verification results
    - Phone/email follow-up- built in secure communications via e-GGRT
    - Resubmissions, as needed
    - Targeted site visits as necessary

Data Publication

- http://GHGdata.epa.gov
- Data publication tool allows stakeholders and the public to access the key data elements quickly and easily and to sort data by location, sector, and by gas.
- 2010 data published in January 2012.



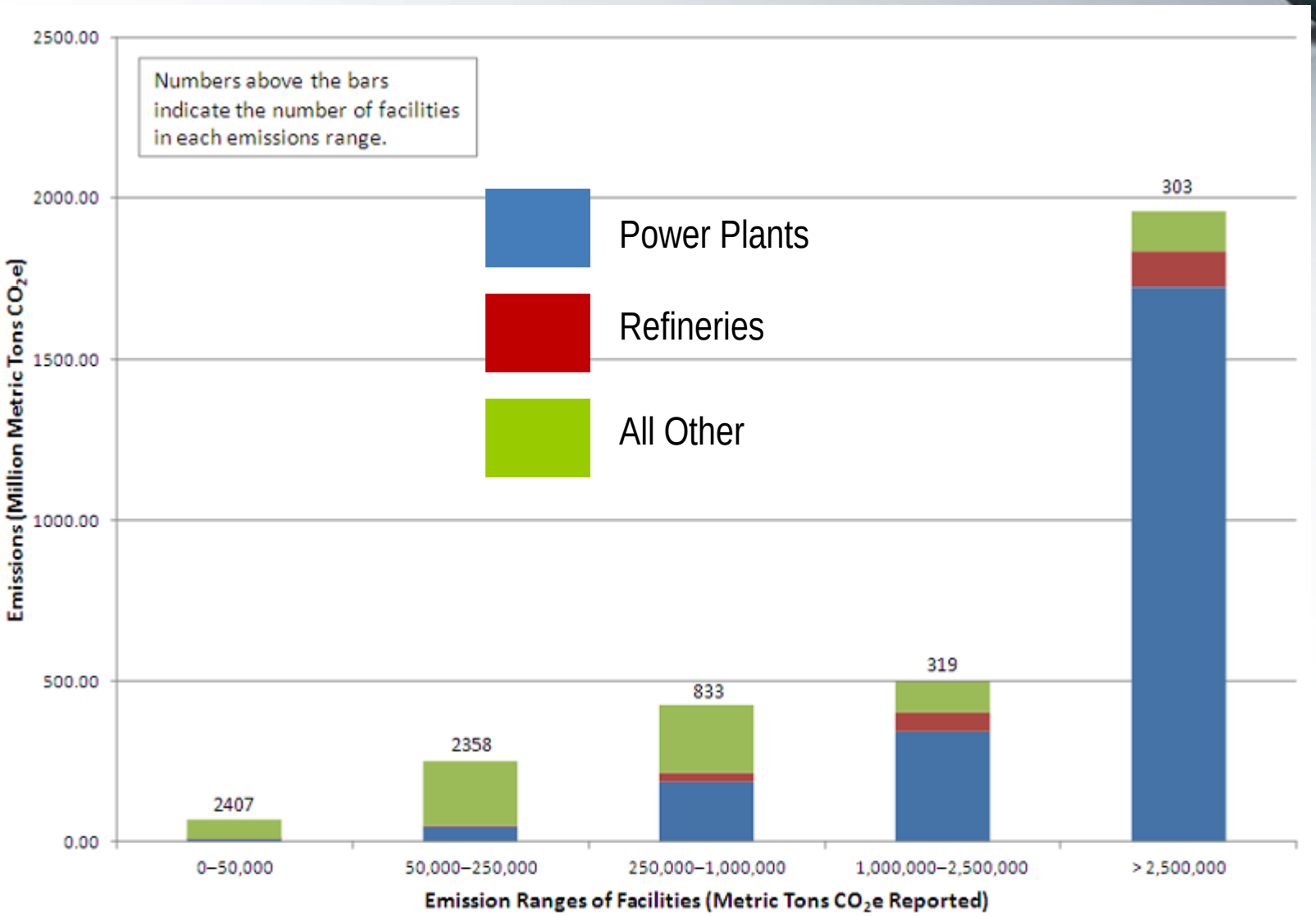
Goals of GHG Data Publication

- Increase understanding of the sources of GHG emissions in the U.S. among the public
- Voluntary management (TRI)
- Improve quality of reported data
- Support regional, state, and local programs
- Provide a tool for schools, students, researchers and journalists
- Information displayed in a simple, transparent manner
  - Allows public to use data in creative ways

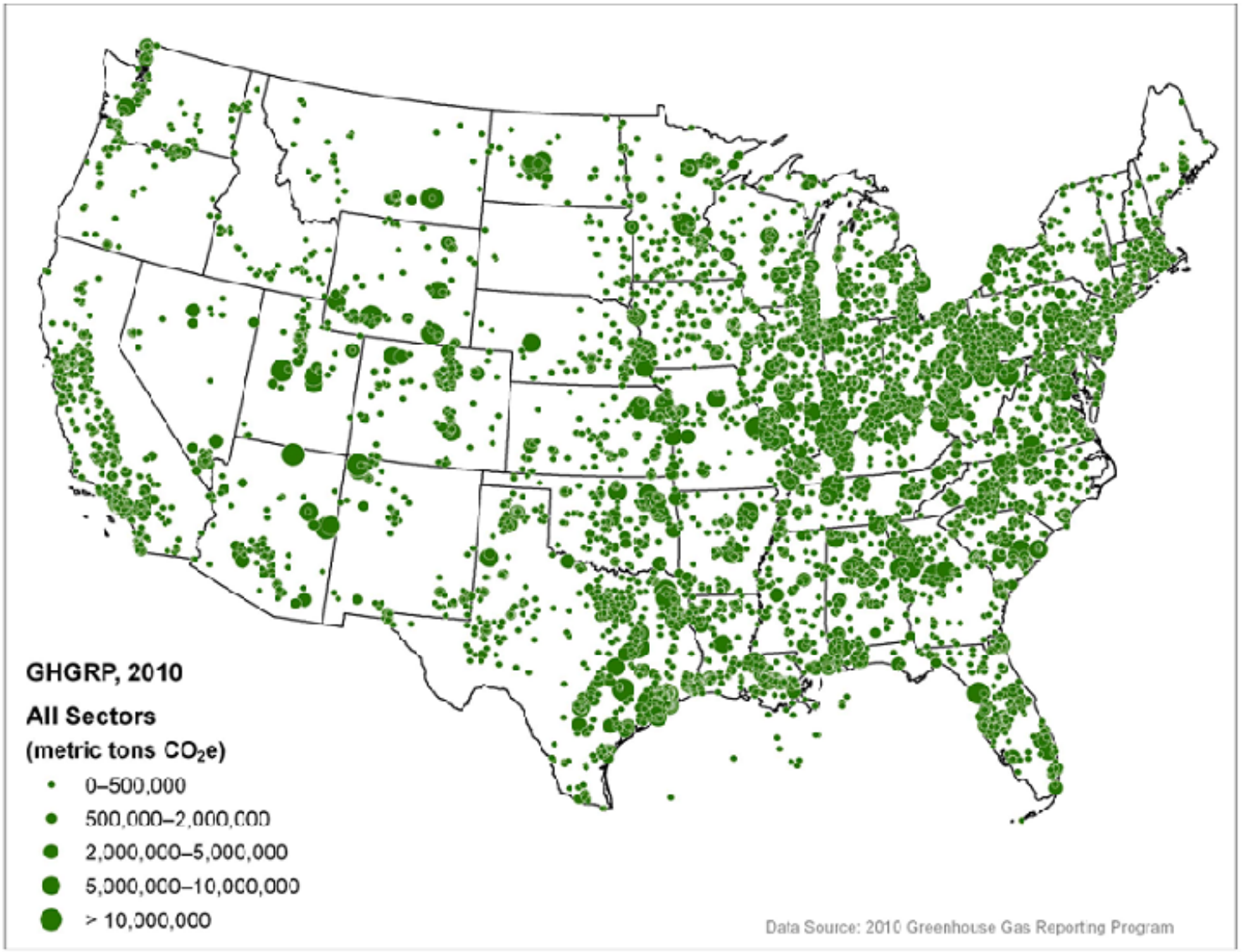
2010 GHG Data Quick Summary

- Reports from over **6,700** entities
- Power plants are largest stationary source of direct emissions- **2,324** MMTCO2e
- Refineries are second at **183** MMTCO2e
- **100** facilities reported over **7** MMTCO2e including **96** power plants, **2** iron and steel mills, **2** refineries
- 2010 data accounts for roughly **80 percent** of total U.S. emissions.
  - This percentage reflects both upstream suppliers and direct emitters.
  - Among the data not covered are GHG emissions from smaller sources, and from agricultural and land-use activities.

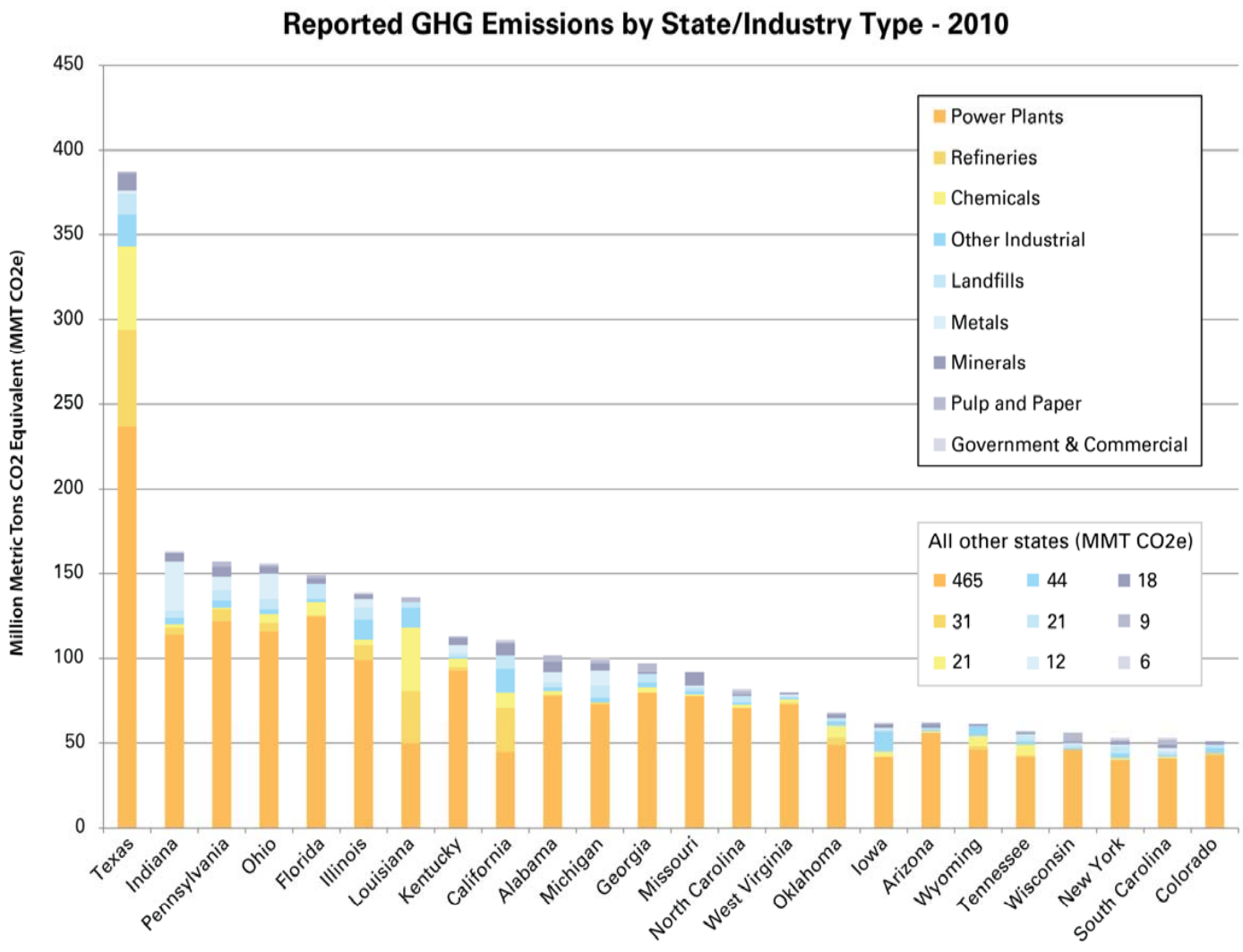
RY 2010 Data: National



RY 2010 Data: National



RY 2010 Data: State Snapshot



This figure shows GHG emission totals by state and industry type reported by facilities covered by the Greenhouse Gas Reporting Program in 2010. The GHGRP covers the vast majority of U.S. emissions from the electric power and industrial sectors. The transportation, residential, commercial and agriculture sectors emit a significant amount of GHGs, the majority of these emissions are not included in these state totals.

GHG Data Publication: Demo

- Time-permitting

Next Steps

2012

- August, 2012:
  - Launch e-GGRT for 12 new RY2011 Source Categories
- September 28th, 2012:
  - RY2011 Reporting Deadline for new RY2011 Source Categories
- Fall, 2012:
  - Refresh RY2010 Data & Release 1st Batch (29 sources) of RY2011 Data

2013

- Early 2013:
  - Collect RY2012 GHG Data for all 41 Source Categories
  - Release RY2011 Data (all 41 source categories, Data Tool Revision)

Additional Information

- Part 98 Info:
  - www.epa.gov/climatechange/emissions/ghgrulemaking.html
- Electronic Reporting, General GHGRP Help:
  - www.ccdsupport.com
- Published Data:
  - ghgdata.epa.gov
- e-GGRT:
  - https://ghgreporting.epa.gov