



GHG Compliance: Reality vs. Myth

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Today's Agenda

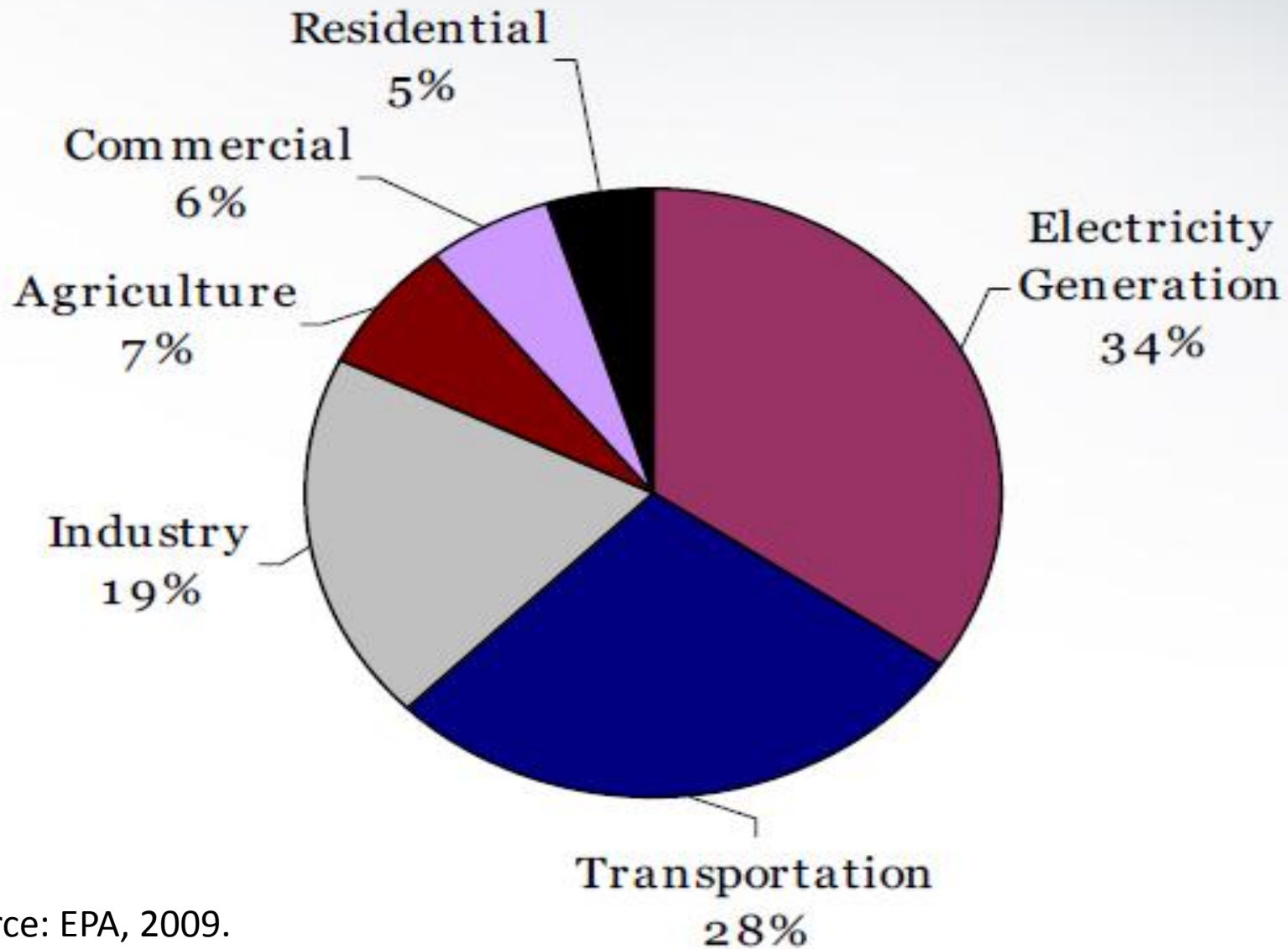
Welcome and Introduction	8:00-8:30am
Review of AB 32	8:30-9:45am
– Mandatory Reporting	
– Command-and-Control Rules	
– Cap-and-Trade	
Break	9:45 – 10:00am
Review of EPA Rule	10:00-11:30am
– Major Provisions	
– Differences with AB 32	
Wrap-up & Questions	11:30am-noon



Overview of EPA Rule

Major Provisions

Emissions (CO₂e) Allocated to Economic Sectors



Source: EPA, 2009.



Overview of EPA Rule

Major Provisions:

- Mandatory GHG Reporting Rule signed on 9-22-09 with a targeted effective date of 1-1-10
- Estimated to affect 10,152 facilities
- Compliance cost is estimated to be:
 - \$132 million in the first year
 - \$72 million in subsequent years
- EPA does not preempt state programs
- EPA does not delegate authority to states



Overview of EPA Rule

Major Provisions (con't):

- Facilities will report directly to EPA using an online web-based reporting tool
- EPA is working with state and regional reporting programs to minimize reporting burden and duplication of effort to the extent possible
- EPA's intent is to collect GHG data to enable future decision-making and rule-making



Overview of EPA Rule

Major Provisions (con't):

- EPA provides lots of help.
- There are upcoming webinars, training sessions and outreach programs.
- I find these Info Sheets to be very helpful:

http://www.epa.gov/climatechange/emissions/ghg_infosheets.html



Overview of EPA Rule

Three Major Source Categories:

- Upstream Sources – Suppliers of fuels, petroleum products, natural gas, industrial GHGs and CO₂.
- Downstream Sources – Typical industrial facilities (e.g., petroleum refinery, GSC, etc.)
- Mobile Sources – vehicles and engines out of light-duty sector



Overview of EPA Rule

Facilities Subject to Reporting:

- EPA evaluated 692,068 facilities in 29 sectors
(See Table 4-61 in your handout)
- EPA's intent is to capture >85% of GHG emissions
by regulating 10,132 facilities
- Threshold is 25,000 MT CO₂e or an equivalent
threshold based on sector metrics
- EPA doesn't intend to capture residential or small
businesses that contribute insignificant amounts
of GHGs

Sector	Number of Entities	Number of Entities Covered
GSC	350,000	3,000
Landfills	7,800	2,551
Suppliers of Natural Gas	1,502	1,502
Electricity Generation	1,108	1,108
Pulp & Paper	425	425
Mobile Sources	NA	317
Suppliers of Petroleum	364	315
Suppliers of Industrial Gases	383	167
Petroleum Refineries	150	150
Remaining Sectors	330,336	617
TOTAL	692,068	10,152



Overview of EPA Rule

Mandatory Reporting Not Required for:

- Portable equipment
- Emergency generators and equipment
- Agricultural irrigation devices
- Flares (unless required under a specific subpart)
- Hazardous waste combustion units (co-fired with fossil fuels only)
- Fleet vehicles

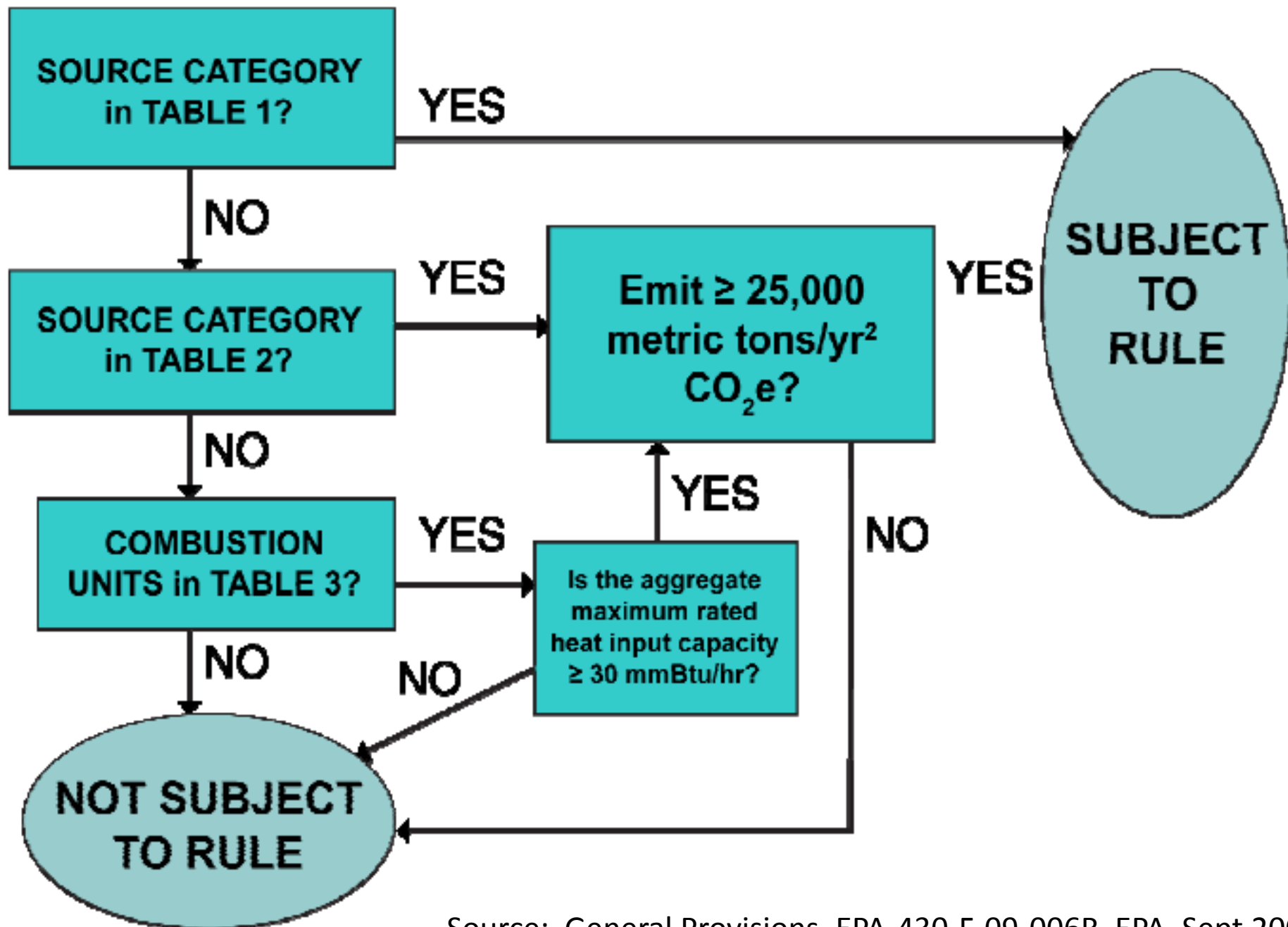
Deadline	Action / Requirement
1-1-10	Begin collecting data using best available monitoring methods
1-31-10	Deadline for submitting application to extend use of best available monitoring methods
3-31-10	Monitoring equipment installed and calibrated
12-31-10	Complete 2010 data collection
1-30-11	Submit certificate of representation
3-31-11	Submit GHG report for 2010



Overview of EPA Rule

Applicability Determination:

- Five different applicability determinations
- Five tables of source categories
- Let's look at the decision flowchart and then discuss each one....



Source: General Provisions, EPA-430-F-09-006R, EPA, Sept 2009.



Overview of EPA Rule

Applicability Determination:

1. “All-in” Category

- If the facility contains any of the source categories listed in Table 1, then it must report emissions from all source categories for which calculation methodologies are provided in any subpart of the rule.
- 17 sectors covered



Overview of EPA Rule

Table 1:

- Adipic Acid Production
- Aluminum Production
- Ammonia Manufacturing
- Cement Production
- Electricity Generation
- HCFC-22 Production
- HFC-23 Destruction
- Lime Manufacturing
- Manure Management Systems



Overview of EPA Rule

Table 1 (con't):

- MSW Landfills
- Nitric Acid Production
- Petrochemical Production
- Petroleum Refineries
- Phosphoric Acid Production
- Silicon Carbide Production
- Soda Ash Production
- Titanium Dioxide Production



Overview of EPA Rule

Applicability Determination:

2. Combined Emissions:

- If the facility *emits >25,000 MT CO₂e in combined emissions* from the source categories listed in Table 2, then it must report emissions from *all* source categories for which calculation methodologies are provided in *any* subpart of the rule.
- 7 sectors listed



Overview of EPA Rule

Table 2:

- Ferroalloy Production
- Glass Production
- Hydrogen Production
- Iron and Steel Production
- Pulp and Paper Manufacturing
- Zinc Production



Overview of EPA Rule

Applicability Determination:

3. Stationary Combustion Emissions:

- If the facility emits >25,000 MT CO₂e in combined emissions from its stationary combustion sources in Table 3, then it must report emissions from stationary combustion devices only.
- 5 sectors listed
- If aggregate maximum-rated heat-input capacity is <30 MMBtu/hr, then facility is exempt.



Overview of EPA Rule

Table 3:

- Boilers
- Stationary Internal Combustion Engines
- Process Heaters
- Combustion Turbines
- Other Stationary Fuel Combustion Equipment but excluding:
 - Portable equipment
 - Emergency Generators
 - Agricultural irrigation pumps
 - HW waste combusters
 - Flares



Overview of EPA Rule

Applicability Determination:

4. Per Table 4, suppliers of fossil fuels must report the annual quantities supplied into the economy plus the GHG emissions associated with complete oxidation of these fuels:
 - Coal-based liquid fuels
 - Natural gas and natural-gal liquids
 - Petroleum Products



Overview of EPA Rule

Applicability Determination:

5. Per Table 5, suppliers of industrial GHGs must report quantities of each gas supplied and the emissions associated with their complete release:
 - Fluorinated gases
 - Nitrous oxide
 - Carbon dioxide



Overview of EPA Rule

Applicability Determination:

5. Per Table 5, suppliers of industrial GHGs must report quantities of each gas supplied and the emissions associated with their complete release:
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 - Carbon dioxide



Overview of EPA Rule

Calculating Emissions:

- Each subpart of the rule (for each sector) has its own equations and methodology
- Regulations are very prescriptive (711 pgs)
- In general, meters and readings should be accurate to +/- 5% of the true value
- Pay attention to frequency of monitoring and required recordkeeping



Overview of EPA Rule

Discussion of Tier 1-4 Details:

- Slides are taken directly from recent EPA webinars
- GSC is most common source category, so let's look at the details

Tier	Fuel Type	Measure these parameters	Defaults can be used for..
1	All	Annual fuel use	<ul style="list-style-type: none"> •HHV •CO₂ emission factor
2	All	<ul style="list-style-type: none"> •Annual fuel use •HHV 	CO ₂ emission factor
	MSW	Steam generation	CO ₂ emission factor
3	Solid or liquid	<ul style="list-style-type: none"> •Annual fuel use •Carbon content 	None
	Gas	<ul style="list-style-type: none"> •Annual fuel use •Carbon content •Molecular weight 	None
4	All	CO ₂	None



Overview of EPA Rule

Tier 1 Monitoring of Fuel Use:

- Use company records
 - Direct measurement of fuel consumption by gravimetric or volumetric means
 - Tank drop measurements
 - Engineering calculations
 - Fuel billing records
 - Other
- Must maintain records of methods used



Overview of EPA Rule

Use of Tier 1:

- Can be used in 3 situations:
 - Combustion unit <250 MMBtu/hr and fuel is listed in Table C-1 (55 common fuels)
 - MSW unit that doesn't produce steam
 - Biomass in unit of any size

Exception: If HHV data are available, Tier 2 must be used.



Overview of EPA Rule

Tier 2 Monitoring of HHV:

- Fuel use can be tracked by company records
- HHV of fuel must conform to minimum sampling frequencies:
 - Natural gas: semi-annual
 - Coal and fuel oil: each shipment of delivery
 - Other liquid fuels or biogas: quarterly
 - Other solid fuels and MSW: weekly sample and monthly analysis
 - Other gaseous fuels: daily (if equipment is in place) or weekly



Overview of EPA Rule

Use of Tier 2 (Measuring HHV):

- Equipment must be <250 MMBtu/hr and fuel listed in Table C-1 (55 common fuels)
- Pipeline natural gas and distillate fuel oil in unit of any size
- MSW unit that produces steam



Overview of EPA Rule

Tier 3 Monitoring – Fuel Carbon Content:

- Fuel use
 - Solid fuel: company records
 - Liquid fuel: flowmeter, billing meter, or tank drop measurements
 - Gaseous fuel: flowmeter or billing meter
- Minimum fuel sampling frequency is same as Tier 2.



Overview of EPA Rule

Use of Tier 3 – Measuring Carbon Content:

- Must be used in two situations:
 - Equipment > 250 MMBtu/hr for any fuel listed in Table C-1 except for:
 - Pipeline natural gas and distillate fuel oil
 - MSW
 - If Tier 4 is required
 - Equipment > 250 MMBtu/hr and a fuel is not listed in Table C-1 providing 10% or more of annual heat input to unit



Overview of EPA Rule

Tier 4 Monitoring – CEMS:

- Use validated hourly concentration data from CEMS and missing data values
- Calculate hourly mass emission rates
- Sum to annual emissions



Overview of EPA Rule

Use of Tier 4 (CEMS):

For large units, CEMS is required if ALL six rqmts are met:

1. Unit has CEMS that is required by reg or permit
2. Unit has >250 MMBtu/hr or >250 tpd of MSW
3. Solid fossil fuel or MSW is primary or secondary fuel
4. Unit operated >1000 hrs in any CY since 2005
5. CEMS has a gas monitor or any kind or a stack gas volumetric flow rate monitor
6. Monitors undergo periodic QA testing under Part 75 NSPS or State Program



Overview of EPA Rule

Differences Between CA and EPA Rules



Overview of EPA Rule

EPA added two additional GHGs to their list:

GHG	GWP	Uses
HFE	11 - 14,900	Refrigerant, degreasing solvent, heat transfer fluid, anaesthetic
NF ₃	17,200	Semi-conductor manufacturing



Overview of EPA Rule

Issue	EPA	CA
Source/Sector Categories	29	4
Cogen Facilities	No threshold	Separate threshold – 2,500 MT CO ₂ e
Threshold Determination	CO ₂ e	Only CO ₂
Landfills	Must report GHG emissions	Regulated under landfill gas capture and control rule



Overview of EPA Rule

Issue	EPA	CA
Abbreviated Report	Allowed in 2010 for GSC	Allowed for cogen <10 MW and 2,500 MT CO ₂ e
Annual Deadline	March 31st	April 1 st or June 1 st
Upstream Fuel Suppliers	Must report	Exempt
Missing Data Computations	Specified by EPA	Left to discretion of facility



Overview of EPA Rule

Issue	EPA	CA
Internal Audit	No requirement	Required
Certificate of Representation	Required	No requirement
Verification	EPA staff	3 rd party
Written QAPP	Required	Less formal
Biogenic emissions	Optional – can include	Included but can denote



Overview of EPA Rule

Issue	EPA	CA
Primary Schools	Not exempted	Exempted
Hospitals	Not exempted	Exempted
R&D Activities	Exempt	No specific exclusion
De Minimus Category	None	<3% of emissions not to exceed 20,000 MT CO ₂ e



Questions or Comments?

If you need to contact me after class:

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