



Local Government Operations Protocol



Public Workshop

Welcome!



The Climate
Registry

July 10, 2008
Sacramento, CA



Welcome and Introductions



Agenda

- Protocol Development Process
- Protocol Structure
- Protocol Contents
- Standard Reporting under Protocol
- Q&A
- Next Steps, Contacts and Adjourn



Protocol Development Process

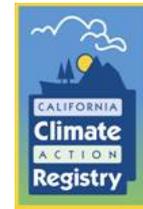
Public Outreach

- Kick-off Public Workshop
 - March 11, 2008
- Coordinated effort for protocol development
- ARB Partners
 - California Climate Action Registry
 - ICLEI - Local Governments for Sustainability
 - The Climate Registry
- Formed Workgroup, Subgroups, and Advisory Group
- All interested parties invited to participate

Protocol developed through a multi-stakeholder workgroup process that strives for consensus-based decision making to promote broad participation and adoption

Advisory Group

- California Air Pollution Control Officers Association
- California State Association of Counties
- League of California Cities
- Regional Council of Rural Counties
- Local Government Commission
- City, county, and town representatives
- Special districts
- Association and Council of Governments
- California state agencies
- Non-governmental organizations
- Industry/private sector representatives



Technical Protocol Workgroup

- Bay Area AQMD
- Center for Neighborhood Technologies
- City and County of San Francisco
- City of Carlsbad, CA
- City of Chula Vista, CA
- City of Edmonton, Alberta
- City of Kansas City, MO
- City of Los Angeles, CA
- City of Oakland, CA
- City of Palo Alto, CA
- New York Department of Environmental Conservation
- Pacific Gas & Electric Company
- Salt Lake City, UT
- Tamalpais Community Service District
- US EPA
- Washington Department of Ecology
- World Resources Institute

Subgroups

Solid Waste Subgroup

- Californians Against Waste
- CDM
- City of Kansas City, MO
- City of Los Angeles Bureau of Sanitation
- CIWMB
- LA County Sanitation District
- Stopwaste.org
- US EPA
- Waste Management

Wastewater Subgroup

- CA Wastewater Climate Change Group
- CA State Water Resources Control Board
- Central Valley Clean Water Association
- City of Los Angeles, Bureau of Sanitation
- Los Angeles County Sanitation District
- Sacramento Regional County Sanitation District
- Tamalpais Community Service District

Reporting Subgroup

- Bay Area AQMD
- Center for Neighborhood Technologies
- City of Carlsbad
- City of Los Angeles
- City and County of San Francisco
- Salt Lake City, UT
- US EPA

Schedule of Meetings

	March	April	May*	June	July
Public Workshop	●				●
Workgroup	● ● ●	● ● ● ●		● ●	
Subgroup <ul style="list-style-type: none"> ■ Solid Waste ■ Wastewater ■ Reporting 		● ●	● ● ●	●	
Advisory Group		●	●		

* Preliminary draft Protocol released in mid-May

Preliminary Draft Comments

- 19 sets of written comments received
- Comments discussed with technical workgroup over 2 week period
- Comments and suggestions incorporated into revised draft for public review

Comments included:

- Recommended additions
- Annual reporting and base year
- Organizational boundaries
- Biogenic emissions
- Recognition of green power & Renewable Energy Credits
- Vehicle fleets
- Waste emission sources

Comments Received

- Alameda County
- Association of Monterey Bay Area Governments
- Carbon Neutral Working Group of the Green Communities Committee, British Columbia
- Center for Neighborhood Technologies
- City of Chula Vista, CA
- City of Edmonton, Alberta, Canada
- City of Los Angeles, CA
- City of San Diego, CA
- City of Santa Monica, CA
- Inland Empire Disposal Association
- Jill Boone
- League of California Cities
- Pacific Gas & Electric Company
- Sacramento Municipal Utility District
- Solid Waste Industry from Climate Solutions
- US EPA
- URS Corporation
- Washington Department of Ecology
- Western Riverside Council of Governments

Timeline to Finalize LGO Protocol

Draft available for public review	June 19, 2008
Public comments due	July 18, 2008
Respond to written comments	August 1, 2008
LGO Protocol finalized	early August 2008
CCAR Board consideration	August 12, 2008
ARB Board Meeting	September 25-26, 2008
ICLEI Board consideration	Fall 2008



Protocol Structure

Protocol Structure

- Designed to create a common standard for local governments engaging in a GHG inventory exercise for their operations
- Program neutral guidance - does not inherently have any *requirements*
- Local governments participating in a program will have requirements - detailed in Part IV
- Protocol guidance applicable to wide audience
- Standardized reporting guidance included to promote transparency and consistency
- Inventory tracks emissions over time - not designed for quantifying project-based GHG emission reductions

Protocol Structure

- **PART I - Introduction**
 - Background, purpose, objectives, etc.
- **PART II - Identifying Your Emissions**
 - Defining organizational and operational boundaries
- **PART III - Quantifying Your Emissions**
 - Chapters arranged according to local government sectors
 - Recommended and alternate calculation methodologies provided *
- **PART IV - Reporting Your Emissions**
 - Standard Inventory Report
 - Program-specific requirement chapters

* All default emission factors in Appendix C

Local Government Sectors

Protocol structured according to sectors for relevance and ease of use

- Buildings and other facilities
 - Street lights and traffic signals
 - Water supply facilities
- Vehicle fleet
- Power generation facilities
- Solid waste facilities
- Wastewater facilities
- Other process and fugitive emissions

California Guidance

- “California Local Governments and AB 32”
- Several boxes throughout Protocol
- Local government facilities may be subject to mandatory reporting (e.g. power generation, solid waste and centralized wastewater treatment facilities)
 - Cogeneration or power generation
 - Nameplate capacity of 1MW or higher
 - Emits over 2,500 metric tons of CO₂
 - Stationary combustion source
 - Emits over 25,000 metric tons of CO₂



Protocol Contents



PART I

INTRODUCTION

- Background on purpose of Protocol, Partners and objectives
- Protocol Audience
 - Designed for local governments, but guidance may be applicable to special districts, state agencies, etc.
 - Broad use is encouraged!

PART II

IDENTIFYING YOUR EMISSIONS

- Principles are consistent with WRI/WBCSD principles for corporate accounting
- Should report all 6 GHGs on a calendar year basis
- Defining organizational boundaries - operational control is recommended
 - Most accurately represents sources that local governments can influence
 - Consistent with mandatory GHG reporting under AB 32 and other environmental/air quality reporting
- Should report all Scope 1 and Scope 2 emissions
- Should report biogenic emissions from combustion, but separately from Scope 1 emissions

Operational Boundaries

Scope	GHG Emission Source	Local Government
1	Direct	Owns and/or operates
2	Indirect	Generated elsewhere for or as a result of local government <i>(only purchased electricity, steam, district heating/cooling)</i>
3	Direct & Indirect	Exerts some control or influence <i>(upstream, downstream, etc.)</i>

PART III

QUANTIFYING YOUR EMISSIONS

Chapters structured according to local government sectors:

- Facilities
- Vehicle Fleet
- Power Generation Facilities
- Solid Waste Facilities
- Centralized Wastewater Treatment Facilities
- Other Process and Fugitive Emissions

* Chapters include guidance for all scopes/gases found in each sector

PART III

Activity data x emission factor = GHG emissions

- Recommended and alternate activity data and emission factors are detailed in chapters, where appropriate
- CCAR/ARB-approved methodologies are denoted with
- Includes step-by-step calculation methodologies
- Look in Appendices for:
 - Standard conversion factors
 - Global Warming Potentials
 - Default emission factors

PART III - Solid Waste Facilities

Three methodologies - choose appropriate method based on type of landfill gas (LFG) collection system

1. Landfill with comprehensive LFG system → standard collection efficiency and LFG collection data
 - Standard collection efficiency = 75%
 - Emissions calculated using site-specific collection efficiency can also be reported optionally
2. Landfill with partial LFG system → standard collection efficiency, LFG collection data and ratio to account for uncovered area



PART III - Solid Waste Facilities

3. Landfill with no LFG system → FOD model

- Model based on IPCC method to be provided with Protocol
- Model inputs include:
 - Landfill opening/closing year
 - Waste composition (% per waste type)
 - Average annual rainfall
 - Type of cover
 - Fraction of CH₄ in LFG (default available in model)
- No recommended/alternate methodologies in this chapter; based on landfill technology and data availability
- Note re: ongoing research & development - chapter will be updated as improved methodologies become available

PART III -

Centralized Wastewater Treatment Facilities

- Methodologies and default emission factors based on IPCC/EPA guidelines
- Two methodologies available for most sources:
 1. Uses site-specific data collected according to standardized requirements (e.g. NPDS permit)
 2. Uses default variables and population served by treatment plant
- Note re: ongoing research & development - chapter will be updated as improved methodologies become available

PART III -

Centralized Wastewater Treatment Facilities

Table 10.2 Summary of Wastewater Treatment Process and Fugitive Emission Sources

GHG type	GHG source	Data Available	Equation
Fugitive CH ₄ emissions	Incomplete combustion of digester gas	<ul style="list-style-type: none"> Digester gas (ft³/day) F CH₄ 	Equation 10.1
		Population served	Equation 10.2
Process CH ₄ emissions	Wastewater treatment lagoons	<ul style="list-style-type: none"> BOD₅ load (kg BOD₅/person/day) F removed 	Equation 10.3
		Population served	Equation 10.4
Fugitive CH ₄ emissions	Septic systems	BOD ₅ load (kg BOD ₅ /person/day)	Equation 10.5
		Population served	Equation 10.6
Process N ₂ O emissions	Centralized WWTP with nitrification/denitrification	Population served	Equation 10.7
Process N ₂ O emissions	Centralized WWTP without nitrification/denitrification	Population served	Equation 10.8
Process N ₂ O emissions	Effluent discharge to receiving aquatic environments	N load (kg N/day)	Equation 10.9
		Population served	Equation 10.10

ARB Reporting Requirements (Chapter 14)

- Local governments can contribute to California's emission reductions
- No set baseline year
- Mandatory Greenhouse Gas Emissions Reporting
 - Facility definition
 - Organizational boundaries
 - Difference in stationary combustion emission factors
 - De minimis emissions - 3% (not to exceed 20,000 metric tons CO₂e)
 - Verification requirement begins in 2010

CCAR Reporting Requirements (Chapter 15)

CCAR members *overlay* this guidance on LGO Protocol guidance to meet CCAR program requirements

- Definition of local government to identify which members use LGO Protocol
- Annual calendar year reporting required
- Report CO₂ for first 3 years, all 6 GHGs in year 4 and onward
- Calculation methodology requirements limited to CCAR-approved methodologies (denoted in Protocol with)
- Additional guidance on setting and updating baseline year
- Guidance on de minimis emissions
- Annual verification requirement and guidance
- Reporting and verification deadlines



ICLEI Reporting Requirements (Chapter 16)

- Currently developing program-specific requirements
- Will be available by August 1
- Questions? Contact:

Alex Ramel

ICLEI

(360) 305-5079

alex.ramel@iclei.org



Standard Reporting under the Protocol



Reporting Overview

The Standard Inventory Report includes four sections:

1. Local Government Profile Information

2. Summary of GHG Emissions

- Emissions by sector
- Optional Indicators
- Information Items
- Optional Scope 3

3. Activity Data Disclosure

4. Methodology / Emission Factor Disclosure



1. Local Government Profile

Government Size Indicators:

- Size (Square miles)
- Population
- Annual Budget
- Employees (FTE)

1. Local Government Profile

Government Services Checklist

Services Provided:

<input type="checkbox"/> Water treatment	<input type="checkbox"/> Mass transit (buses)	<input type="checkbox"/> Airport
<input type="checkbox"/> Water distribution	<input type="checkbox"/> Mass transit (light rail)	<input type="checkbox"/> Seaport/shipping terminal
<input type="checkbox"/> Wastewater treatment	<input type="checkbox"/> Mass transit (ferries)	<input type="checkbox"/> Marina
<input type="checkbox"/> Wastewater collection	<input type="checkbox"/> Schools (primary/secondary)	<input type="checkbox"/> Stadiums/sports venues
<input type="checkbox"/> Electric utility	<input type="checkbox"/> Schools (colleges and universities)	<input type="checkbox"/> Convention center
<input type="checkbox"/> Fire Protection	<input type="checkbox"/> Solid waste collection	<input type="checkbox"/> Street lighting and traffic signals
<input type="checkbox"/> Police	<input type="checkbox"/> Solid waste disposal	<input type="checkbox"/> Natural gas utility
	<input type="checkbox"/> Hospitals	<input type="checkbox"/> Other

2. Summary of GHG Emissions

How to report GHG sources in each sector?

- Reporting sectors follow Protocol chapters
- Stationary combustion, purchased electricity and steam, process, and fugitive sources can be reported in all sectors
- Contents of Chapter 6 (Facilities) will be broken out into local government sectors:
 - Buildings and other facilities
 - Streetlights and traffic signals
 - Water supply facilities
- Mobile sources should be reported in Vehicle Fleet sector exclusively

2. Summary of GHG Emissions

How to report optional Scope 3 emissions?

- Line items provided in each sector
- Standard list of possible sources also provided to help comparability

POSSIBLE SOURCES OF OPTIONAL SCOPE 3 EMISSIONS

Employee Commute
Employee Business Travel
Emissions From Contracted Services
Upstream Production of Materials and Fuels
Upstream and Downstream Transportation of Materials and Fuels
Waste Related Scope 3 Emissions
Purchase of Electricity Sold to an End User
Transmission and Distribution Losses from Consumed Electricity
Other Scope 3



2. Summary of GHG Emissions

How to report optional indicators?

Sector-specific indicators can be reported along with emissions from that sector

The following suggested indicators are included:

- Water/wastewater treated/transported (gallons)
- Number of vehicles/pieces of equipment
- Vehicle miles traveled/operating hours of equipment
- Solid waste accepted/year (tons)
- Years of operation (landfills)
- Total electricity generated (MWh)

2. Summary of GHG Emissions

What it looks like:

VEHICLE FLEET (Chapter 7)							
SCOPE 1		CO2e	CO2	CH4	N2O	HFCs	PFCs
	Mobile Combustion						
	Fugitive Emissions						
	Total Direct Emissions from Vehicle Fleet						
SCOPE 2		CO2e	CO2	CH4	N2O		
	Purchased Electricity for Electric Vehicles						
	Total Indirect Emissions from Vehicle Fleet						
SCOPE 3		CO2e					
	See list at bottom for some examples						
	e.g., Employee Commute						
	e.g., Employee Business Travel						
INDICATORS							
	Number of Vehicles						
	Vehicle Miles Traveled						
	Number of Pieces of Equipment						
	Equipment Operating Hours						



2. Summary of GHG Emissions

How to report Information Items?

Information Items will be recorded in a separate section of the report rather than in each sector:

- Biogenic CO₂ from combustion
- Carbon offsets purchased/sold
- Renewable Energy Credits (Green Tags) purchased/sold

INFORMATION ITEMS

Biogenic CO₂ from CombustionCO₂e: _____

Carbon Offsets Purchased

CO₂e: _____

Carbon Offsets Sold

CO₂e: _____

Renewable Energy Credits (Green Power) Purchased

MWH: _____

CO₂e: _____

% of Total electricity use offset by Green Power

%: _____

Renewable Energy Credits (Green Power) Sold

MWH: _____

CO₂e: _____

3. Activity Data Disclosure

- Every number reported in Section 2 should be accompanied by a reference for activity data
- Data disclosure should include:
 - Source for activity data used to compute emissions for each scope in each sector
 - Detailed description of all assumptions and estimation methods for the data
 - References should be cited for all data in the references section (e.g. published reports and website URLs)

4. Calculation Methodology Disclosure

- Every number reported in Section 2 should be accompanied by a a method to convert that data into emissions
- Methodology disclosure should include:
 - Primary calculation methodology and associated emission factors and other coefficients used for each gas, in each scope, and in each sector
 - A detailed description of assumptions and any deviations from the primary methodology
 - References for the methodology



Q&A



Next Steps



Next Steps

- Accepting written comments through Friday, July 18
- Responses to written comments posted by August 1
- Adoption of Protocol by Partner Boards
- Protocol will then be available for download on Partner websites
- Series of workshops for local governments in California - assistance implementing protocols, other resources
- Kick-off development of Community Protocol in October 2008

Websites

- “Protocol in Progress” information available on CCAR website:
www.climateregistry.org/tools/protocols/protocols-in-progress/local-government-operations.html
- ARB Local Government website:
www.arb.ca.gov/cc/protocols/localgov/localgov.htm
- ICLEI website:
www.icleiusa.org

Contacts

ARB

Dana Papke
Staff Lead, LGO Protocol
(916) 324-9615
dpapke@arb.ca.gov

Webster Tasat
Manager, Emission Inventory
Analysis
(916) 323-4950
wtasat@arb.ca.gov

CCAR

Rachel Tornek
Senior Policy Manager
(213) 891-1444 x109
rachel@climateretry.org

ICLEI

Alex Ramel
Senior Program Officer
(360) 305-5079
alex.ramel@iclei.org