September 17, 2014 – BACWA AIR

Air Regulatory Update: California Wastewater Climate Change Group (CWCCG)

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Tracking key state and federal issues

Mitigation

- Air: AB 32 – Global Warming Solutions Act
  - Scoping Plan Update
  - GHG Mandatory Reporting
  - Cap-and-Trade Program
- Air: EPA PSD and Title V GHG Tailoring Rule & Deferral Rule
- Energy:
  - SB 1122 – Bioenergy Projects
  - AB 1900 – Pipeline Biomethane
- Solids:
  - AB 341 – Waste Diversion

Adaptation

- CNRA Fourth CA Climate Change Assessment
- CEC and CAT Climate Change Research Plan
- AB 25
  Level

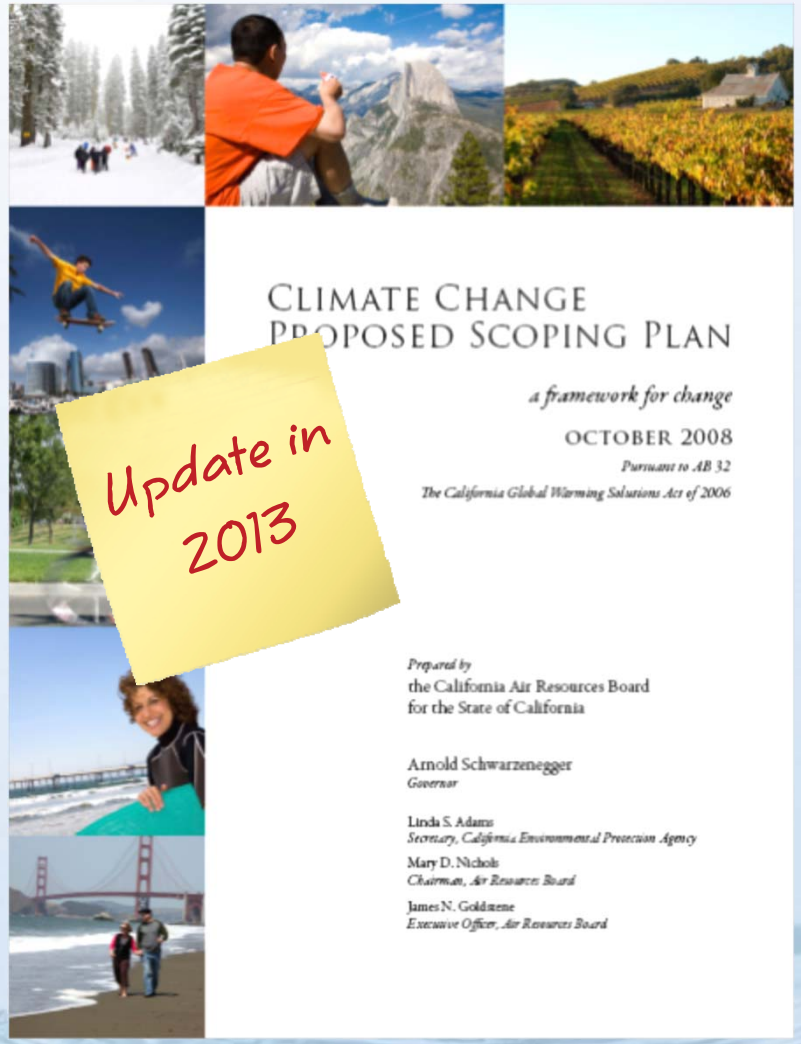
California's Climate Future: Environmental Goals and Policy Report

- Discussion draft released September 2013
- Update to Gov Brown's 1978 *Urban Strategy for California*
- 20-30 year perspective
- Goals and objectives for
  - land use
  - population growth and distribution
  - conservation of natural resources
  - air and water quality

http://opr.ca.gov/docs/EGPR_ReviewDraft.pdf

Mitigation

AB 32 Scoping Plan outlines the approach for meeting future statewide GHG targets…

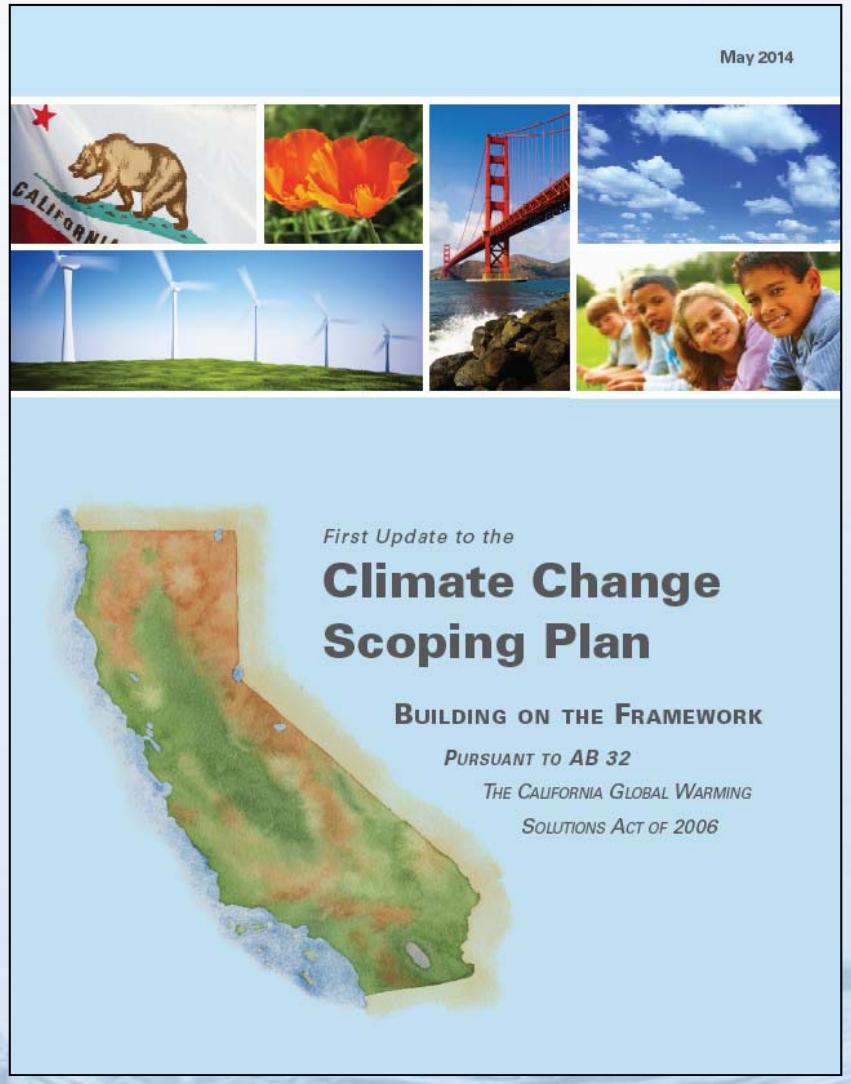


- Original Proposed Scoping Plan released in 2008
- Update required every 5 years
- First update began in 2013

Key elements to achieve statewide GHG reduction targets including…

- Vehicle reductions
  - Low carbon fuel standard
  - Raise average fuel economy
- Renewable portfolio standard of 33% by 2020
- Cap-and-Trade Program
- Energy efficiency
- Enforce existing regulations

First Update to the AB 32 Scoping Plan was adopted May 22, 2014

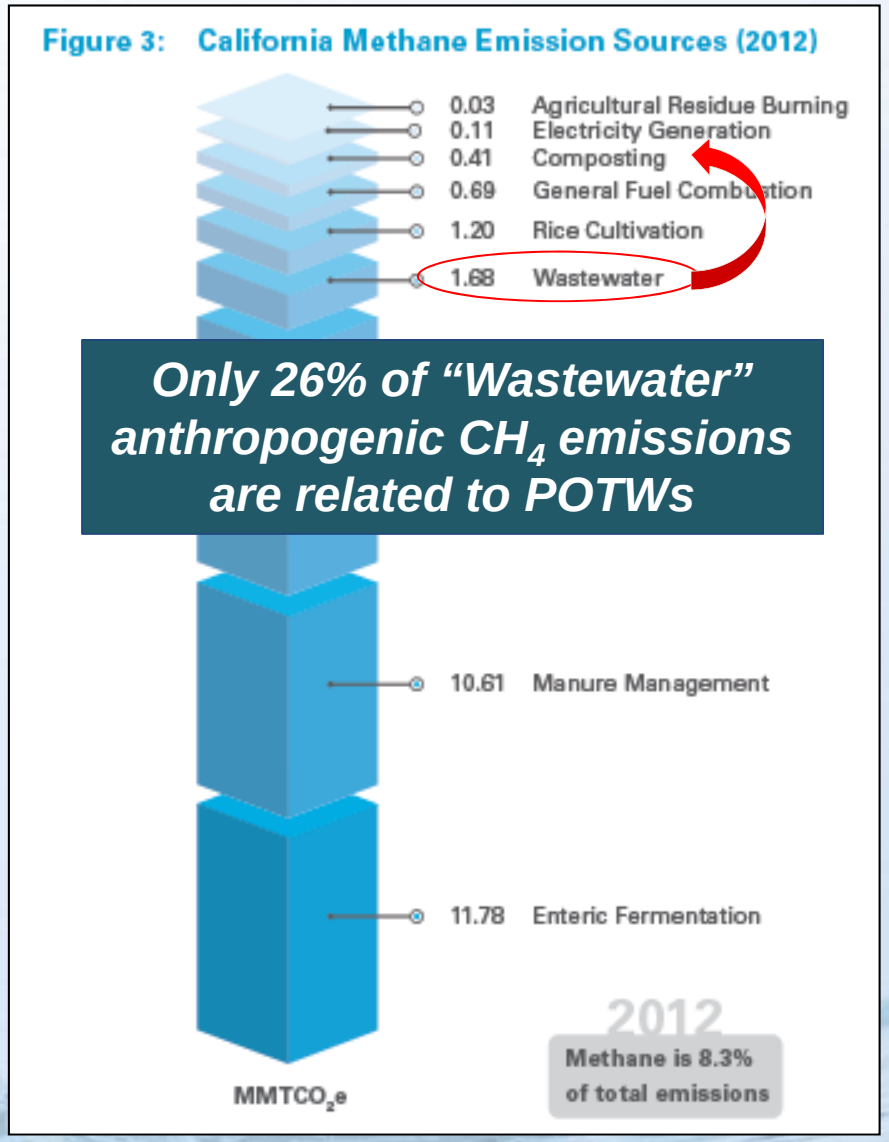


- Climate change priorities for next 5 years
- Progress toward meeting 2020 goals
- 9 economic sectors for setting post 2020 goals
- Set an interim target between 2020 and 2050

CWCCG's primary concerns:

- "Wastewater" shown as 5th largest source of anthropogenic methane (CH_4) in CA
- ARB is expanding its GHG monitoring program to examine wastewater treatment plants for fugitive methane emissions over next 5 years
- Progress toward meeting the 2020 GHG emissions reduction target was not quantified
- Setting post 2020 GHG emission reduction targets without knowing progress to date

Met ARB staff to discuss "Wastewater" anthropogenic CH_4 emissions



Breakdown of "Wastewater" ($MMTCO_2e$)	
Domestic:	0.80
Industrial:	0.88
Total:	1.68

Breakdown of "Domestic" ($MMTCO_2e$)	
Septic Systems:	0.37
Centralized:	0.41
Anaerobic (biogas):	0.02
Total:	0.80

Also discussed POTWs as a potential underestimated source of CH_4

- Page 24 states:
  - "ARB is also expanding the program to include flux chambers and controlled tracer release studies to study large area sources such as landfills, **wastewater treatment plants**, oil and gas extraction fields, natural gas leakage from pipelines, and other fugitive emission sources.."

Surface emission isolation flux chamber Columbia University's team used to conduct online monitoring at WWTPs.

Source: http://www.engineering.columbia.edu/wastewater-plant

ARB staff believes CH_4 from POTWs is not grossly underestimated

- Stated POTWs are not the primary target
- Agreed to draw from POTW experience and studies/data
- CWCCG encouraging the formation of workgroups to establish work plans for review of data and reports

HOWEVER

- ARB staff also mentioned nitrous oxide (N_2O) is to be looked at by the Research Group
- CWCCG providing studies performed at POTWs across the U.S. by Columbia University

AB 32
Scoping Plan Update
Post 2020 Goals

9 economic sectors are the focus for achieving post 2020 goals

- Energy
- Transportation
- Agriculture
- Water
- Waste Management
- Natural and Working Lands
- Short-Lived Climate Pollutants
- Green Buildings
- Cap-and-Trade

Energy sector goals include:

- CPUC and CEC streamlining process to develop a low-cost interconnection process for distributed generation by **2015**
- State plan being developed by **2016** to achieve near-zero GHG emissions by 2050 from electric utilities
  - Account for carbon intensity of energy
  - Maximize local/regional benefits

Transportation sector goals include:

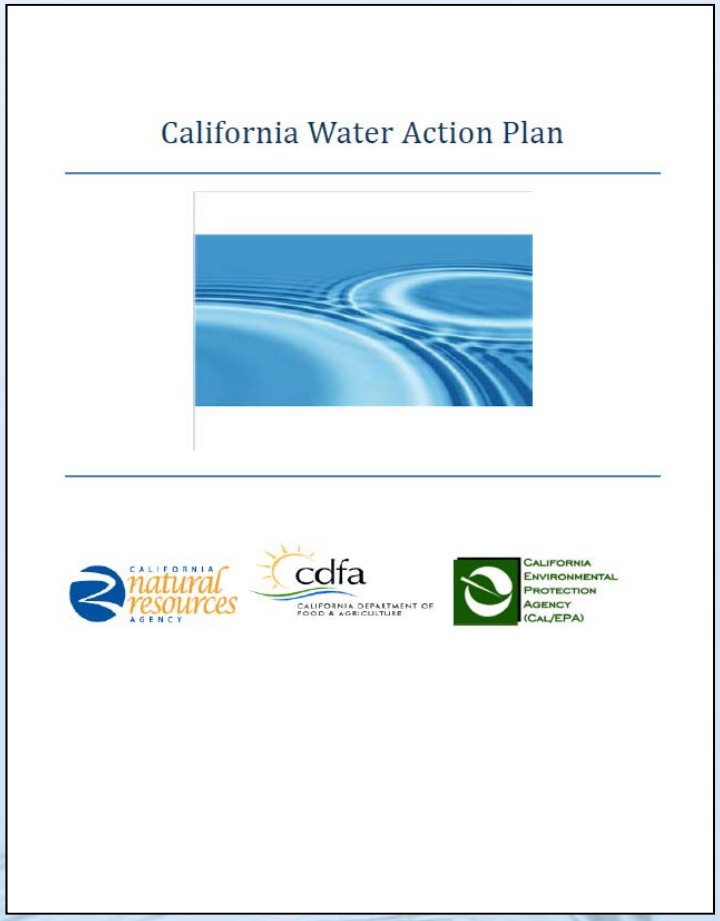
- Reducing criteria air pollutants, GHG emissions, and carbon content of fuels
  - Consider extending the low carbon fuel standard to 2030
  - Leverage public money to scale-up clean technology markets and ensure infrastructure investments
    - AB 118 Air Quality Improvement Program
    - AB 118 Alternative and Renewable Fuel and Vehicle Technology Program
    - Cap-and-Trade auction proceeds
  - By **2018**, adopt regulations/policies supporting commercial markets for low-carbon fuels

Agriculture sector goals include:

- Starting in **2014**, develop a CA-specific agricultural GHG tool to estimate GHG emissions and carbon sequestration potential from all on-farm sources
- Bioenergy Interagency Working Group implementing actions in the Bioenergy Action Plan in **2015** to promote input of digester biogas into natural gas pipelines and bioenergy onto the electric grid
- Research N_2O emissions data from fertilizer use

Water sector goals include:

- By **2015,** develop incentives for resource-recovery wastewater treatment projects
- By **2016**, modify state and regional water board policies and permits to achieve:
  - conservation, water recycling, stormwater reuse, and wastewater-to-energy goals.
- By **2016,** implement green infrastructure permits to treat and capture urban runoff for local use.



Waste Management sector goals include:

- Eventually eliminating disposal of organic materials to landfills with compliance actions in **2016**
- Funding/incentivizing in-state infrastructure:
  - Cap-and-Trade Investment Plan
  - Loan, grant, and payment programs
  - LCFS pathways (anaerobic digestion at POTWs)
  - CPUC proceedings (e.g., biogas from anaerobic digestion and Renewable Market Adjusting Tariff)
  - Offset protocols (recycling, composting, anaerobic digestion)
- Identifying/recommending actions to address cross-CA agency and federal permitting and siting challenges associated with composting and anaerobic digestion

Natural and Working Land sector goals include:

- In **2015**, convene an inter-agency workgroup to establish a local land use program – including expansion of green infrastructure
- Publishing a Forest Carbon Plan in **2016** targeting research on how to ensure there is a net increase in forest carbon storage

Short-Lived Climate Pollutants sector goals include:

- Developing a strategy for mitigating SLCPs by **2015**
- Reducing emissions of smog-forming pollutants (VOCs, NOx, CO) to ~90 percent below 2010 levels by 2032 to meet the National Ambient Air Quality Standards for ozone

Short-Lived Climate Pollutants (SLCPs) = black carbon, ***methane***, tropospheric ozone, and some hydrofluorocarbons

Cap-and-Trade sector goal is to…

- Develop a plan for a post-2020 Cap-and-Trade program
  - ARB requested the Bioenergy Association of California prepare a bioenergy investment plan
  - CWCCG has and will continue to provide input on wastewater related projects
  - CASA also submitted a letter to legislature recommending funds be allocated to the wastewater community

Cap-and-Trade program has held eight auctions and will link to Quebec next

8th Auction	Number of Allowances Offered/Sold	Settlement Price	Average Settlement Price
Current Auction (2014 vintage)	22,473,043	$11.50	$13.65
Advance Auction (2017 vintage)	9,260,000	$11.34	$11.54

- 9th auction: November 19, 2014
- August 7, 2014: First practice auction between CA and Quebec
- ARB and Australian Clean Energy Regulator to "collaborate"– MOU expires January 1, 2016

Cap-and-Trade Auction Proceeds – GHG Reduction Fund

- 2013-2014 Drought Legislation
  - Water/Energy Efficiency $40M
- 2014-2015 Budget ~$832M
  - Low Carbon Transportation $200M
  - Waste Diversion $25M
- Approved Long-Term Investment Strategy for Cap-and-Trade Revenue with 40% annually spread across:
  - Low Carbon Transportation
  - Natural Resources (waste diversion)
  - Energy
  - Other programs

Push to delay second phase of Cap-and-Trade by legislature and CARB (adding transportation fuel and natural gas distributors later than 2015)

Waste Diversion: $25M to CalRecycle in FY 2014/15

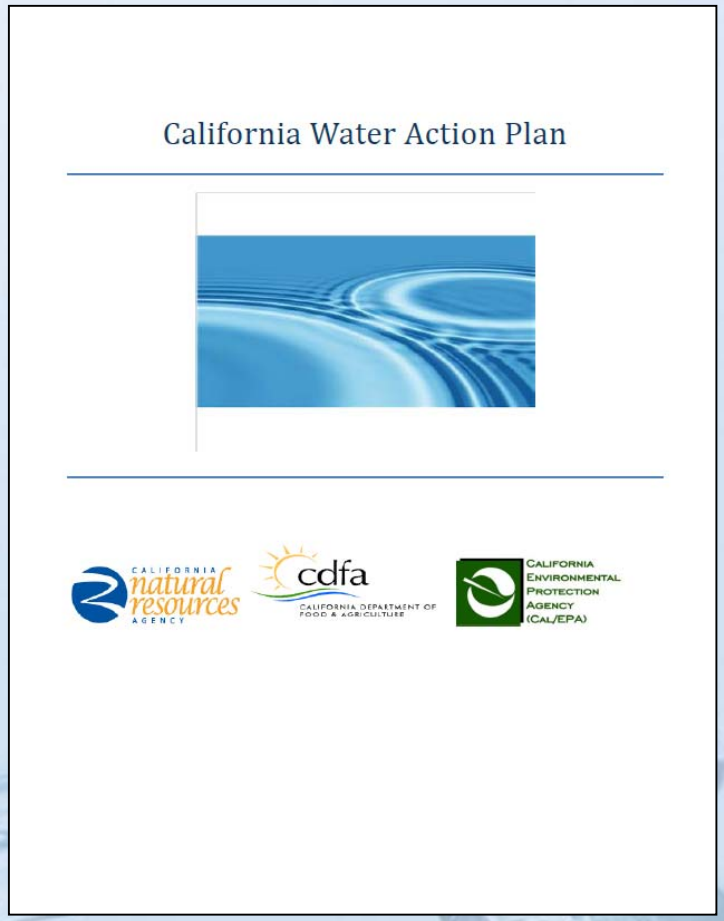
- Organics Grant Program
  - Composting and anaerobic digestion projects (increased throughput and GHG reductions)
  - $3M maximum per project
  - Pays in arrears
- Score ≥60% including “shovel” readiness
  - GHG reduction weighs only 25%, but includes upstream and downstream benefits
    - Low carbon fuel production
    - Renewable electricity production
    - Heat or power used onsite
    - Digestate
    - Liquid products/effluents

Waste Diversion: $25M to CalRecycle in FY 2014/15

- GHG Reduction Loan Program
  - 4.00% interest
  - $5M maximum (CalRecycle loans combined)
  - Requires 25% match
  - Loans to go to organics diversion projects first, then fiber/plastic/glass diversion (if any $ remaining)
- Fiber, Plastic, and Glass Grants
- "Project Requirement" concern
  - "Increase in quantities (tons) of California-generated greenwaste, food materials, and /or *alternative daily cover (a) diverted from a landfill(s)* and (b) composted or digested."

Focus group working papers on specific sectors are also provided in Appendix C

- Appendix C: Focus Group Working Papers (6)
  - Energy
  - Agriculture
  - Natural and Working Lands
  - Transportation
  - Waste
  - Water – Governor Brown's Water Action Plan



Appendix C: Governor Brown's Water Action Plan

- Developed by:
  - California Natural Resources Agency
  - California Department of Food and Agriculture
  - California Environmental Protection Agency
- Lays groundwork for water and water-energy future in 2050, but actions are focused on next 5 years
- Plan states…
  - "…*most new water will come from a combination of improved conservation and water use efficiency, conjunctive water management (i.e., coordinated management of surface and groundwater), recycled water, …groundwater remediation, and brackish and seawater desalination*."

10 key actions for the next 5 years include:

1. Make conservation a CA way of life;
2. Increase regional self-reliance and integrated water management across all levels of government;
3. Achieve co-equal goals for the Delta;
4. Protect and restore important ecosystems;
5. Manage and prepare for dry periods;
6. Expand water storage capacity and improve groundwater management;
7. Provide safe water for all communities;
8. Increase flood protection;
9. Increase operational and regulatory efficiency;
10. Identify sustainable and integrated financing opportunities.

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10 key actions for the next 5 years include:

1. Make conservation a CA way of life;
   - Increase Water Sector Energy Efficiency and Greenhouse Gas Reduction Capacity (funding)
2. Increase regional self-reliance and integrated water management across all levels of government;
   - Support and Expand Funding for Integrated Water Management Planning and Projects
   - Legislation for Local and Regional Self Reliance (DPR)
   - Demonstrate State Leadership (RW, SW capture)
   - Encourage State Focus on Projects with Multiple Benefits (SW capture, GW recharge)
   - Increase the Use of Recycled Water (IPR for GW Recharge and DPR to come)
   - Streamline Permitting for Local Water Reuse or Enhancement Projects (RW, SW Capture, Desal)

10 key actions for the next 5 years include:

5. Manage and prepare for dry periods;
6. Expand water storage capacity and improve groundwater management;
   - Increase Statewide Groundwater Recharge (SW and other water not used by other users or the environment)
7. Provide safe water for all communities;
   - Provide Funding Assistance for Vulnerable Communities (WW infrastructure)
10. Identify sustainable and integrated financing opportunities
   - Develop Water Financing Strategy (Energy efficiency and renewable energy)

Federal Regulations

Federal GHG Regulations for Stationary Sources – Tailoring Rule

- **Utility Air Regulatory Group vs EPA – GHGs from stationary sources (including biogenic CO_2)**
  - June 23, 2014, Supreme Court ruled:
    - GHGs are an "air pollutant" subject to regulation under CAA
    - GHG emissions alone cannot bring you into PSD and Title V permitting programs
    - If facility is already in a program AND exceeds thresholds, EPA can bring GHGs into the programs
    - Subject to BACT in the PSD program
  - EPA to propose an amended regulation addressing:
    - Supreme Court ruling
    - Biogenic CO_2 emissions
- EPA to complete scientific analysis on biogenic CO_2 emission sources in summer 2014
  http://www.epa.gov/climatechange/Downloads/ghgemissions/Biogenic-CO2-Accounting-Framework-Report-Sept-2011.pdf

Regulation of Biogenic CO_2 Emissions by Texas Commission of Env Quality (TCEQ)

- House Bill (HB) 788 adopted in 2013 and gives TCEQ permitting authority for GHG emissions
- Meant to reduce wait times/costs for the permitting process of GHG emissions under:
  - Prevention of Significant Deterioration (PSD) Program
  - Federal Operating Permits (Title V) Program
- EPA forced inclusion of biogenic CO_2 emissions
- TACWA/WEAT met with TCEQ June 9, 2014 to discuss options for WWTPs – very receptive
- Texas Health & Safety Code statute, 382.05102, states "…the commission will repeal the GHGs permitting rules if emissions of GHGs are no longer to be authorized under federal law," so the agency will no doubt go back and rewrite their rules.

President Obama's Climate Action Plan: EPA's Clean Power Plan Proposed Rule

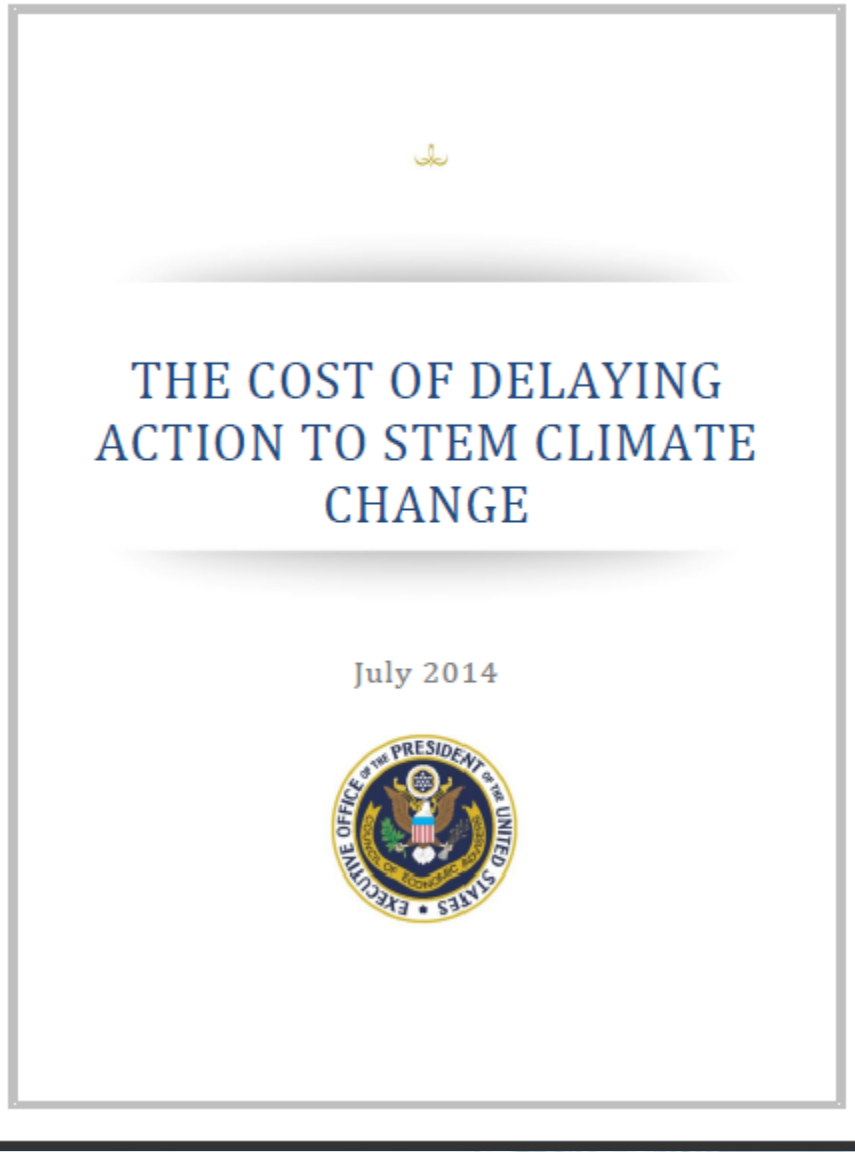
- Released June 2, 2014 (120 days to comment)
- Focused on reducing emissions (relative to 2005 levels) from existing (coal-fired) power plants:
  - Reduce GHG emissions 30% by 2030
  - Reduce pollution leading to soot and smog 25% by 2030
- If adopted, States submit plans to achieve target reduction by June 30, 2016
- Allows state or regionally led goals to be set for renewable energy, energy efficiency programs, cap-and-trade programs, etc.

For more information see: http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule

AWWA to comment

White House: Cost of Delaying Action to Stem Climate Change

- Discusses drivers (avoided costs) for taking action now to reduce anthropogenic GHG emissions
- Encouraged NACWA to write letter of support
  - wastewater community's role in building resilient communities – recovering biogas, biosolids/ digestate, recycled water, etc.
  - acknowledge vulnerability of these facilities and the need for uninterrupted operation for public health and safety



Adaptation

CNRA 4th California Climate Change Assessment – Drafting Scope of Work

- First three climate change assessments looked at:
  1. 2006 – impacts to state resources such as water supply, public health, agriculture, coastal areas, forestry, and electricity production and demand
  2. 2009 – initial estimates of economic impacts, concluded adaptation could reduce economic impacts of loss and damage
  3. 2012 – vulnerability and adaptation options discussed in 2009 assessment, led to update of 2009 Climate Change Adaptation Strategy >> *Safeguarding California: Reducing Climate Risks*
  4. Goal is to "*provide critical additional information to support decisions that will safeguard the people, economy, and resources of California*"

CNRA 4th Climate Change Assessment – Draft Scope of Work

- CWCCG recommended three efforts be researched and pursued:
  - Development of an adaptation strategy to protect municipal facilities (including wastewater treatment plants) from future sea level rise and extreme weather events
  - Funding and making use of recycled water as a drought-proof water supply and making it a priority statewide
  - Identifying barriers to and funds for wastewater facility bioenergy programs (focus of CEC's Climate Change Research Plan)

CEC draft Climate Change Research Plan

- Plan broken down by sector to identify and perform research needed over the next 3-5 years to help mitigate climate change and adapt critical CA structures
- CWCCG comments focused on energy services to emphasize the point that WWTPs can uniquely provide **renewable energy, low carbon fuel, emissions reductions, etc., in a single project** (which is a priority type project in this plan – one that mitigates climate change while improving the resilience of the state)

CWCCG is providing input on *adapting* communities with emphasis on:

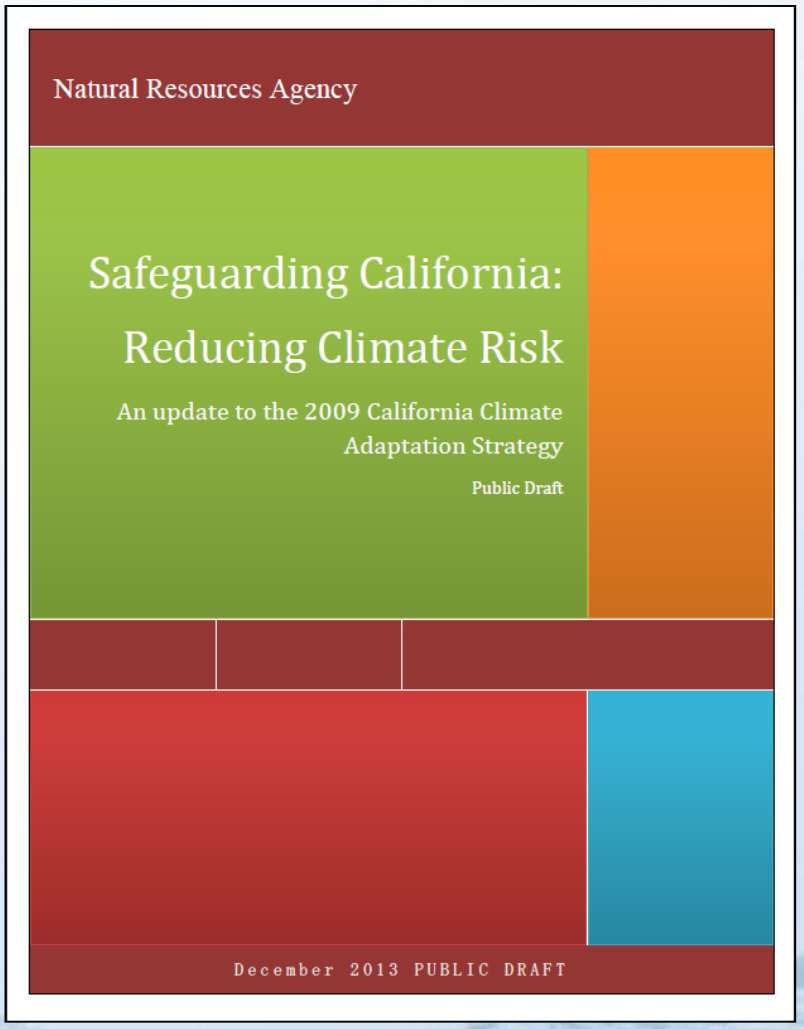
- Vulnerability of POTWs to sea level rise
- Increasing recycled water use
- Increasing bioenergy production at POTWs

CARB AB 32 Scoping Plan

CNRA 4th Climate Change Assessment

CEC Climate Change Research Plan

Safeguarding California: Reducing Climate Risk final report released July 31, 2014



- Update to 2009 Climate Adaptation Strategy
- "Actions Needed for Improved Readiness for Climate-Related Public Health Risks" Page 289, text was added:
- "Other priorities include advancing the science and policy needed to expand the role of recycled water as a drinking water supply…"

Safeguarding California: Reducing Climate Risk comments focused on…

- Adapting the State's water resources with local strategies:
  - recycled water
  - improved stormwater management
  - groundwater remediation
  - conjunctive management of surface and underground water storage

CWCCG has been following developing legislation - only one bill to note

- AB 2516 (Gordon) – Governor to sign or veto by September 30th
- Bill requires creation of a “Planning for Sea Level Rise Database” populated with studies/reports/data provided by public and private agencies
- CASA has a "watch" position on this bill
- Bill was introduced after hearing of the Assembly Select Committee on Sea Level Rise and the California Economy October 2013 (recall the testimony delivered by Kevin Hardy) http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab_2501-2550/ab_2516_bill_20140821_amended_sen_v95.htm

Questions?
Next CWCCG meeting: September 18th

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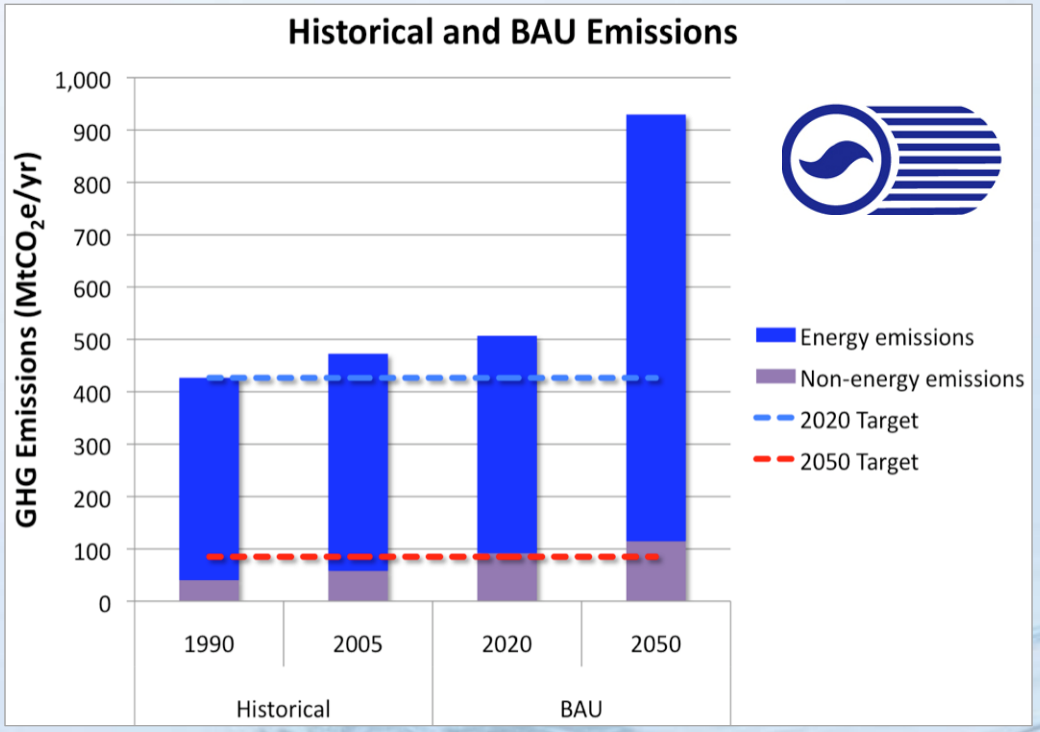
Air: Assembly Bill 32 requires some POTWs to report greenhouse gases (GHGs)

- First Act in U.S. regulating GHGs
- Enforced by the California Air Resources Board
- Sets targets for future statewide GHG emissions levels:
  - 2020: 1990 levels
  - 2050: 80% below 1990 levels



And POTWs can contribute toward goals set for these elements simultaneously

- "Wastewater to Energy" projects
  - Biogas to energy
  - Biogas to transportation fuel (biofuel)

↓ GHG emissions

↑ renewable energy production

↑ low carbon fuel production

- Land application of digestate/biosolids
  - Store carbon
  - Displace synthetic fertilizer

↓ GHG emissions

- Increase soil's carbon retention
- Replacing energy-intensive synthetic fertilizer