

Analyzing Greenhouse Gas Emissions from Desalination Facilities Pursuant to CEQA

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Energy Intensity of Water Supply (kWh/MG)

State Average Water
Supply and Conveyance

2,117

Desalination

12,000 - 15,000

Source: California Energy Commission. 2006. Refining Estimates for Water-Related Energy Use in California. CEC-500-2006-118

CEQA Statute and OPR Guidance

"Lead agencies should make a good-faith effort, based on available information, to calculate, model, or estimate the amount of CO₂ and other GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities."

Sources of GHGs

- ▶ Electricity consumption
- ▶ Pumps/conveyance of water to the facility
- ▶ Truck hauling
- ▶ Waste/Toxins handling
- ▶ Construction emissions (amortize over the projected project life)
- ▶ Worker commute trips
- ▶ Backup generators (diesel or natural gas)
- ▶ Off-road equipment used at the facility such as a loader
- ▶ Post-handling/treatment of brine

Models, Tools, and Methodologies for Estimating GHGs

- ▶ URBEMIS or CalEEMod
- ▶ EMFAC2011
- ▶ OFFROAD
- ▶ AP 42 Emission Factors
- ▶ CEC Guidance
- ▶ ARB Protocols
- ▶ Protocols from The Climate Registry
- ▶ IPCC Protocols
- ▶ Manufacturer Specifications

CEQA Checklist Questions

Climate change-related impacts are considered significant if implementation of the proposed project would do any of the following:

- ▶ Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- ▶ Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

AB 32 Scoping Plan Water Recommendations

Measure No.	Description	Projected Reductions (MMTCO ₂ E in 2020)
W-1	Water Use Efficiency	1.4
W-2	Water Recycling	0.3
W-3	Water System Energy Efficiency	2.0
W-4	Reuse Urban Runoff	0.2
W-5	Increase Renewable Energy Production	0.9
W-6	Public Goods Charge	TBD
	Total	4.8

Types of Thresholds of Significance

- ▶ Mass Emission Thresholds
- ▶ Efficiency-Based Thresholds
- ▶ Consistency with an Adopted Plan

Mass Emission Thresholds

- ▶ 25,000 MT CO₂/year - from EPA's final rule for mandatory reporting of GHGs
- ▶ 10,000 MT CO₂/year - recommended by SCAQMD for industrial facilities
- ▶ 10,000 MT CO₂/year - once recommended by BAAQMD for industrial facilities
- ▶ Carbon Neutrality

Efficiency-Based Thresholds

How GHG-efficient should a water supply system be?

Efficiency Metric

Option 1

mass of CO₂e per volume of
water supplied

MTCO₂e/MG

Efficiency Metric

Option 2

mass of CO₂e per resident served

MTCO₂e/person

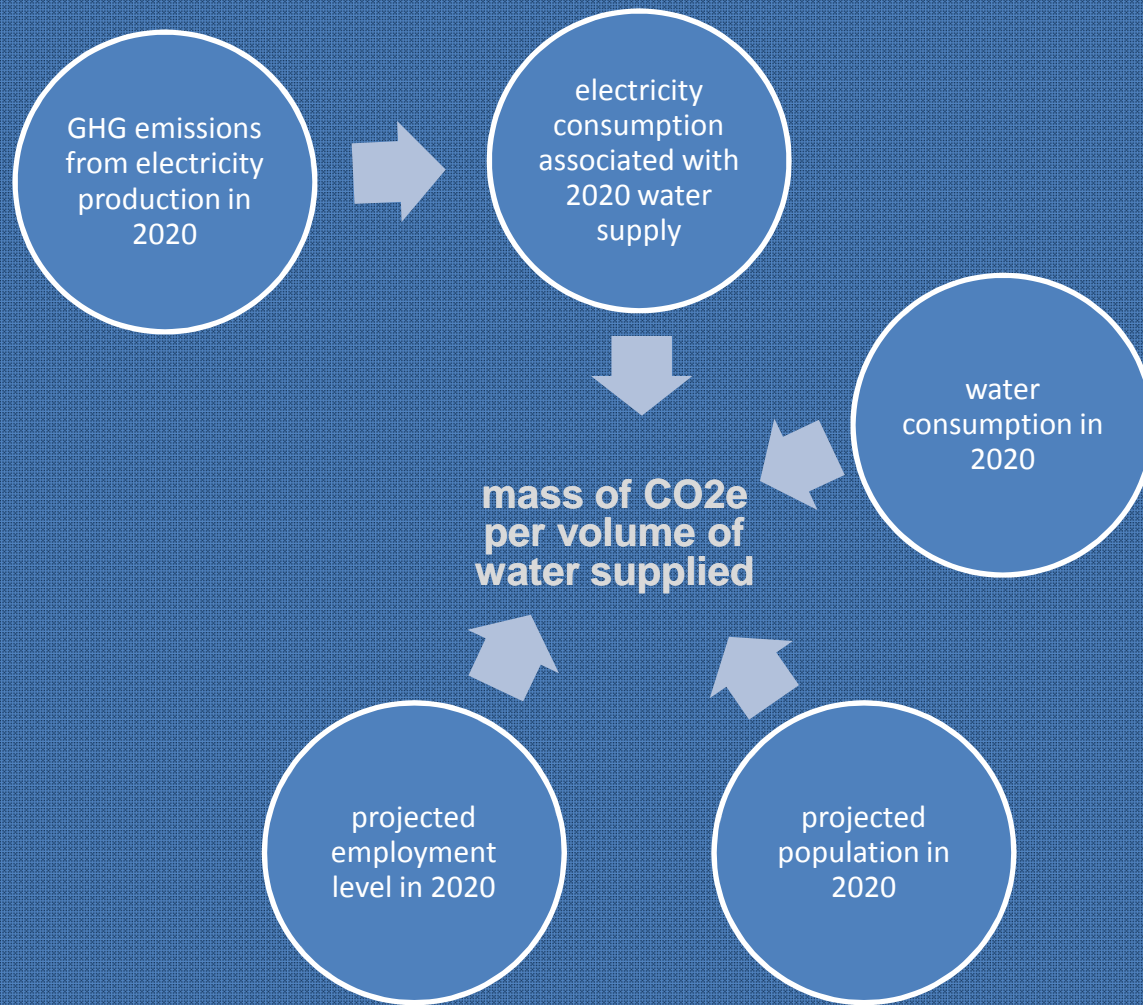
Efficiency Metric

Option 3

mass of CO₂e per service
population, where service
population = residents + jobs

MTCO₂e/SP

Parameters to Build and Efficiency Metric



Considerations

- ▶ Data availability
- ▶ NorCal vs. SoCal
- ▶ "Avoided Emissions"

Sidebar: Other Efficiency Metrics

- ▶ Wood-to-Energy Biomass Power Plant: MT CO₂e/MW-hr of electricity produced
- ▶ Land Use Development Project: Annual MTCO₂e/SP, where SP = Residents + Jobs

Consistency with the Local Climate Action Plan

CEQA's Fair Argument Standard for EIRs