Table A-1: Net CO_2 Emissions Reductions per MWh of Electric Vehicle Charging

Electric Emissions from 1 MWh of EV Charging

Row #	*Formula*	*Description*	*Value*	*Units*	*Notes*
(1)		Average Electric Vehicle Efficiency	0.30	kWh/mi	What if One of your Cars was Electric?" U.S. EPA, https://www.epa.gov/greenvehicles/what-if-one-your-cars-was-electric. See also "Electric Vehicle Supply Equipment Standards Standardized Regulatory Impact Assessment," California Air Resources Board, https://ww2.arb.ca.gov/sites/default/files/classic/regact/2019/evse2019/appc.pdf
(2)	= 1,000 / [1]	Miles of Gasoline-Powered Travel Avoided per MWh of EV Charging	3,333	mi/MWh	
(3)		Approximate MISO South Marginal Emission Rate	1,200	lbs/MWh	
(4)		2022 RCPS Requirement	64%	%	
(5)	=(100%–[4]) * [3]	Approximate 2022 Electric Sector Emissions Increase per 3,333 miles, or 1 MWh of EV Charging	432	lbs/MWh	

Non-Electric Emissions Avoided with 1 MWh of EV Charging

Row #	*Formula*	*Description*	*Value*	*Units*	*Notes*
(6)		Average Fuel Economy of U.S. Passenger Cars	24.2	mi/gal	"Average Fuel Economy by Major Vehicle Category," U.S. Department of Energy's Alternative Fuels Data Center, https://afdc.energy.gov/data/10310 "Greenhouse Gas Emissions from a Typical Passenger Vehicle," U.S. EPA, https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle
(7)		CO2 Content of Gasoline	19.55	lbs/gal	
(8)	=[7] / [6]	Per mile CO_2 Content of Gasoline	0.808	lbs/mi	
(9)	=[8]* [2]	CO_2 Emissions Avoided from Gasoline Vehicle per 3,333 miles (or 1 MWh of EV Charging)	2,693	lbs/MWh	

Net CO_2 Emissions Avoided per MWh of EV Charging

Row #	*Formula*	*Description*	*Value*	*Units*	*Notes*
(10)	=[9]–[5]	**Net CO_2 Emissions Reduction per MWh of EV Charging**	**2,261**	**lbs/MWh**	

Table A-2: Proposed CEC Credit Rate for EV Charging, 2022-2026

Row #	*Formula*	*Description*	*Value*	*Value*	*Value*	*Value*	*Value*	*Units*
			2022	**2023**	**2024**	**2025**	**2026**	
(11)		CO2 Emissions Avoided from Gasoline Vehicle	2,693	2,693	2,693	2,693	2,693	lbs/MWh-equiv.
(12)		RCPS Requirement	64%	66%	68%	70%	72%	%
(13)		Approximate MISO South Marginal Emission Rate	1,200	1,200	1,200	1,200	1,200	lbs/MWh
(14)	= (100%–[12]) * [13]	Approximate Electric Sector Emissions Increase from Incremental Electric Demand	432	408	384	360	336	lbs/MWh
(15)	=([11]–[14])	Net Emissions Reduction from EV Charging	2,261	2,285	2,309	2,333	2,357	lbs/MWh
(16)	= [13]	Expected CO_2 Emissions Reduction per CEC	1,200	1,200	1,200	1,200	1,200	
(17)	= [15]/[16]	**EV Charging CECs per MWh Electrified**	**1.88**	**1.90**	**1.92**	**1.94**	**1.96**	