
**SENATE COMMITTEE ON ENERGY, UTILITIES AND
COMMUNICATIONS**

**Senator Steven Bradford, Chair
2023 - 2024 Regular**

Bill No:	AB 2083	Hearing Date:	6/18/2024
Author:	Berman		
Version:	5/16/2024 Amended		
Urgency:	No	Fiscal:	Yes
Consultant:	Sarah Smith		

SUBJECT: Industrial facilities' heat application equipment and process emissions

DIGEST: This bill requires the California Energy Commission (CEC) to assess the potential for achieving an 85 percent reduction below 1990 levels in emissions from industrial heat application processes by January 1, 2045. This bill specifies evaluations that must be included in the CEC's assessment and requires the CEC to submit its assessment to the Legislature by January 1, 2027.

ANALYSIS:

Existing law:

- 1) Establishes the Cap-and-Trade program, which is market-based compliance mechanism administered by the California Air Resources Board (CARB) to enforce greenhouse gas (GHG) emissions limits and achieve specified feasible, cost-effective emissions reductions. Existing law requires CARB to approve a scoping plan for achieving these emissions reductions and update that scoping plan at least once every five years. (Health and Safety Code §38500 et. seq.)
- 2) Requires the CEC to establish the Industrial Decarbonization and Improvement of Grid Operations (INDIGO) program to provide incentives for projects at industrial facilities that help achieve the following:
 - a) Enhance electrical grid reliability and enable effective industrial participation in certain load reduction programs.
 - b) Electrify processes using gas or fossil fuels.
 - c) Incorporate energy storage or renewable energy resources.
 - d) Increase energy efficiency.
 - e) Deploy novel decarbonization technologies and strategies. (Public Resources Code §§25662-25662.2)

- 3) Specifies that projects benefiting oil and gas processes are not eligible for INDIGO incentives. (Public Resources Code §25662.2)
- 4) Establishes preferences for INDIGO incentives and requires the CEC to consult with CARB to ensure that incentives provided by the INDIGO program are consistent with emissions reduction goals and Cap-and-Trade requirements. (Public Resources Code §25662.4)
- 5) Specifies that a project that receives an incentive from the INDIGO program is ineligible for incentives from the Food Production Investment Program. (Public Resources Code §25662.6)

This bill:

- 1) Requires the CEC to assess the potential to reduce GHG emissions from the state's industrial facilities heat application equipment and processes by at least 85 percent below 1990 levels by January 1, 2045.
- 2) Requires the CEC's assessment of industrial emissions reductions to consider all the following:
 - a) An evaluation of the cost per metric ton of carbon dioxide equivalent and of the potential reduction from each subsector of industrial emission sources relative to other statewide GHG emissions reduction strategies.
 - b) How to maximize reductions in emissions of criteria air pollutants in under-resourced communities and meet applicable federal Clean Air Act deadlines in nonattainment areas.
 - c) Strategies to reduce GHG emissions from industrial heating in both new and existing industrial facilities, assessing which subsectors within the industrial sector have the greatest readiness for transition to zero-emission technologies.
 - d) Strategies to reduce GHG emissions from industrial heating processes and applications that also reduce or eliminate emissions of criteria air pollutants.
 - e) Opportunities and challenges associated with reducing GHG emissions through electrification of industrial heat processes, and the commensurate health benefits.
 - f) An evaluation of interim zero-emission technology deployment targets, including, but not limited to, industrial heat pumps and thermal energy storage devices, necessary to achieve the GHG and criteria air pollutant emissions reductions required in the industrial sector.

- g) Opportunities and challenges associated with reducing GHG emissions from high-heat processes.
 - h) An assessment of how demand response, distributed energy resources, energy efficiency, thermal energy storage, and other complementary resources and strategies may optimize industrial energy use to strengthen grid reliability and reduce GHG emissions.
 - i) Potential impacts of GHG emissions reduction strategies on ratepayers, construction costs, and grid reliability.
 - j) Workforce needs to install, maintain, and operate new zero-emission equipment, including, but not limited to, the direct workforce necessary for demolition, alteration, and repairs for equipment retrofits and the indirect workforce within the upstream supply chain that will produce raw materials, clean energy, and other necessary components to facilitate the installation of zero-emission equipment.
 - k) An analysis of the potential for facilitating and expanding businesses in California that manufacture zero-emission industrial technologies.
- 3) Requires the CEC to restrict its assessment to industrial processes in the manufacturing sector that are not included in petroleum and coal refining.
 - 4) Requires the CEC to submit its assessment to the Legislature by January 1, 2027.
 - 5) Sunsets the bill's requirements on January 1, 2031.

Background

Industrial processes are major sources of emissions. While the transportation sector is the largest source of GHG emissions in California, the industrial sector is the second largest source of these emissions. Industrial processes contributed approximately 23 percent of California's emissions in 2020. Oil refineries and hydrogen production facilities represent the largest emitters in the industrial sector; these facilities produce 36 percent of the industrial sector emissions. California's efforts to reduce emissions from the power sector have helped reduce emissions from electricity by 44 percent over 20 years; however, emissions from the industrial sector have only dropped 20 percent over the same period.

Scoping Plan vs. Electrification Pathway: Who's on first? California's Cap-and-Trade program is a key component of the state's strategy to reduce GHG emissions. The program is intended to provide an economic incentive to reduce emissions on a sector-wide basis. Under existing law, CARB sets annual caps on major sources of

emissions, and these annual caps decline over time. CARB produces allowances for units of emissions under the cap, and entities covered by the Cap-and-Trade program can purchase these allowances at auctions or through trades with other covered entities. As the cap declines, fewer allowances are issued and the cost for allowances increases. As a result, covered entities pay progressively more to continue emitting under the cap, incentivizing investments in decarbonization. In addition to administering the Cap-and-Trade program, CARB also develops updates to the Scoping Plan, which identifies pathways to meeting the state's GHG emissions reduction goals. The Cap-and-Trade program and the Scoping Plan do not presume a single pathway to achieving emissions reductions.

Many industrial facilities are covered entities for the purposes of the Cap-and-Trade program, and the Scoping Plan already includes a high-level discussion of pathways to decarbonization of industrial processes, including heat processes. The 2022 Scoping Plan update notes that multiple emissions reduction strategies are likely needed to achieve the greatest feasible emissions reductions from the industrial sector. The update states:

“Decarbonizing industrial facilities depends upon displacing fossil fuel use with a mix of electrification, solar thermal heat, biomethane, low- or zero-carbon hydrogen, and other low-carbon fuels to provide energy for heat and reduce combustion emissions. Emissions also can be reduced by implementing energy efficiency measures and using substitute raw materials that can reduce energy demand and some process emissions. Some remaining combustion emissions and some non-combustion CO₂ emissions can be captured and sequestered. The strategy employed will depend on the industrial subsector and the specific processes utilized in production.”

Existing law gives the CEC broad authority to administer energy research and development programs and energy efficiency assessments; however, existing law also establishes CARB as the agency primarily responsible for assessing pathways for achieving emissions reductions, including reductions of criteria emissions from certain sectors. Since the CEC does not have extensive experience in evaluating specific emissions from stationary sources in the same manner as CARB, it is unclear if the CEC has sufficient resources to conduct some of the assessments required by this bill, including assessments regarding the potential health impacts of emissions. While it may be reasonable for the CEC to provide assessments regarding the potential and opportunities for electrification, energy efficiency and demand response strategies supporting industrial decarbonization, overall responsibility for assessing the potential for sector-wide emissions reductions remains with CARB.

Focusing on electrification as the sole pathway may come with costs. This bill appears to be focused on setting goals for electrifying industrial processes as the primary pathway to reducing emissions from the industrial sector. However, focusing solely on electrification may limit attention paid to broader emissions reduction goals and fail to consider the costs associated with electrification over other pathways. Both the CEC's Integrated Energy Policy Report (IEPR) and CARB's Scoping Plan have noted that increasing electricity costs can pose substantial barriers to electrifying certain industrial heat processes. The CEC's IEPR states:

Most common industrial heating equipment (such as boilers, air heaters, process heaters) can accommodate blends of hydrogen with fossil gas up to 20–23 percent with adjustments and verification...However, there are many technical and economic challenges that must be addressed for clean and renewable hydrogen to help decarbonize California's industrial sector. Today, fossil gas is considerably cheaper than clean alternatives like electricity or hydrogen, which makes adoption difficult for industrial activities that are particularly price-sensitive.

While the CEC underscores the economic disincentive to fuel switch from cheaper fossil fuels to other, more expensive fuels, CARB notes that electricity rates and broader reliability issues can pose a specific disincentive to electrification. CARB's Scoping Plan states: "Under current rate structures for industrial electricity and fossil gas in California, most projects to electrify a fossil gas-powered industrial process will face operating cost barriers and potential reliability concerns."

Scope of this bill is unclear and may indirectly provide the CEC with authority beyond assessments. While this bill requires the CEC to assess the potential for reducing emissions from industrial heat process, the bill also requires the CEC's assessment to include various components that appear to require the CEC to assess industrial decarbonization opportunities outside industrial heat processes. Additionally, this bill also appears to indirectly require the CEC to set targets and interim targets for the deployment of specific electric fuel switching technologies. Including such targets in an assessment of the potential for industrial electrification would preclude any analysis of alternative decarbonization pathways and appears to presume the outcome of the assessment.

Need for Amendments. As currently written, this bill tasks the CEC with creating an industrial decarbonization assessment for GHG emissions reductions outside CARB's next Scoping Plan update; however the CEC lacks the authority and resources necessary to conduct all the duties required by this bill. Additionally, the assessment required by this bill appears to provide the CEC with implied authority beyond

requirements needed to assess the potential for certain electrification opportunities.

As a result, the author and committee may wish to amend this bill to do the following:

- *Reassign the responsibility for leading this bill's industrial decarbonization assessment from the CEC to CARB.*
- *Require the assessment to be completed as part of CARB's next update to the Scoping Plan.*
- *Require CARB to incorporate an evaluation from the CEC of the potential to electrify certain industrial heat processes as part of the assessment and provide an analysis of the potential sector-wide emissions reductions that would result from that electrification.*
- *Require CARB to work with the CEC and CPUC to incorporate an estimate of the potential load growth and rate impacts associated with a high-electrification scenario for industrial decarbonization into the assessment.*

Dual Referral. Should this bill be approved by this committee, it will be re-referred to the Senate Committee on Environmental Quality.

Prior/Related Legislation

AB 841 (Berman, 2023) would have required CEC to create a roadmap for electrifying industrial processes, including processes requiring heat, as specified. The bill was held in the Senate Committee on Appropriations.

AB 209 (Committee on Budget, Chapter 251, Statutes of 2021) among other changes needed to implement the 2021 Budget Act, the bill required the CEC to establish the INDIGO program to provide incentives for projects at industrial facilities that provide significant benefits to the electrical grid, reduce emissions, and achieve the state's energy goals.

SB 596 (Becker, Chapter 246, Statutes of 2021) required CARB to develop a comprehensive strategy for the state's cement sector to achieve net-zero GHG emissions no later than December 31, 2045.

FISCAL EFFECT: Appropriation: No Fiscal Com.: Yes Local: No

SUPPORT:

Earthjustice, Co-sponsor
 Industrious Labs, Co-sponsor
 350 Bay Area Action
 Asian Pacific Environmental Network
 Breathe California Sacramento Region

California Environmental Voters
Center for Biological Diversity
Center for Community Action & Environmental Justice
Central California Asthma Collaborative
Central Coast Alliance United for A Sustainable Economy
Clean Coalition
CleanEarth4Kids.org
Climate Action California
Coalition for Clean Air
Community Dreams
Community Environmental Council
E2
Elders Climate Action NorCal Chapter
Elders Climate Action SoCal Chapter
Environment California
GreenLatinos
Los Angeles Cleantech Incubator
Natural Resources Defense Council
NextGen California
Physicians for Social Responsibility - Los Angeles
Physicians for Social Responsibility - San Francisco Bay Chapter
Rondo Energy
Santa Cruz Climate Action Network
Sierra Club California
SoCal 350 Climate Action
Stand.earth
Sunflower Alliance
The Climate Center
The Climate Reality Project, California Coalition
The Climate Reality Project, Los Angeles Chapter
The Climate Reality Project, Orange County
The Climate Reality Project, Silicon Valley Chapter
Vote Solar
Watts Clean Air and Energy Committee

OPPOSITION:

Aerospace and Defense Alliance of California
Agricultural Council of California
Agricultural Energy Consumers Association
Almond Alliance
American Chemistry Council

California Cotton Ginners and Growers Association
California League of Food Producers
California Grain & Feed Association
California Large Energy Consumers Association
California Manufacturers and Technology Association
California Metals Coalition
California Poultry Federation
California Tomato Growers Association
California Warehouse Association
Chemical Industry Council of California
Dairy Institute of California
Industrial Environmental Association
Pacific Coast Renderers Association
Pacific Egg & Poultry Association
Plastics Industry Association
Recycled Materials Association
Western Agricultural Processors Association
Western Growers Association
Western States Petroleum Association

ARGUMENTS IN SUPPORT: According to the author:

Industrial emissions make up 23 percent of greenhouse gas emissions in California, which is the second largest source behind transportation. Unfortunately, emissions reported from industrial sources have remained flat or even risen in recent years. Moreover, these sources emit large quantities of criteria air pollutants that create heavy air pollution burdening primarily under-resourced communities. AB 2083 is a key first step for California to push the transition of our industrial sectors to zero-emission. This bill achieves this by tasking the California Energy Commission to assess the potential for the state's industrial facilities to reduce greenhouse gas emissions in order to contribute towards California's existing climate target of reducing greenhouse gas emissions by at least 85 percent below 1990 levels by 2045.

ARGUMENTS IN OPPOSITION: A coalition of industrial and manufacturing organizations, including the California Manufacturers and Technology Association (CMTA) opposes this bill. CMTA argues that this bill duplicates work done through the Scoping Plan and conflicts with both the Scoping Plan and other legislation aimed at decarbonizing certain industrial processes. CMTA states:

AB 2083 openly conflicts and duplicates other existing legislative and regulatory activities. For example, CARB's 2022 Scoping Plan Update

(Scoping Plan) contains the GHG reductions, technology, and clean energy mandated by existing California statutes. The Scoping Plan was developed to achieve carbon neutrality by 2045 by substantially reducing fossil fuel dependence, increasing the deployment of efficient non-combustion technologies, and distributing clean energy. The Scoping Plan and all future iterations will continue to include an emission reduction pathway for transportation, energy, industry, and the state's natural and working lands. It also identifies policies needed to support industrial decarbonization. Through the Scoping Plan roadmap, the CEC is now funding various technological and deployment grants to accelerate industrial decarbonization further.

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