SENATE COMMITTEE ON ENERGY, UTILITIES AND COMMUNICATIONS
Senator Steven Bradford, Chair
2023 - 2024 Regular

Bill No:	AB 2109	**Hearing Date:**	6/18/2024
Author:	Juan Carrillo		
Version:	4/22/2024 Amended		
Urgency:	No	**Fiscal:**	Yes
Consultant:	Nidia Bautista		

SUBJECT: Electricity: surcharge exemption: industrial process heat recovery

DIGEST: This bill exempts large industrial customers from paying certain surcharges on their reductions in electricity if that reduction is achieved through an industrial process heat recovery technology with specified requirements.

ANALYSIS:

Existing law:

1) Establishes and vests the California Public Utilities Commission (CPUC) with regulatory authority over public utilities, including electrical corporations. (Article XII of the California Constitution)

2) Requires all charges demanded or received by any public utility, or by any two or more public utilities, for any product or commodity furnished or to be furnished or any service rendered or to be rendered shall be just and reasonable. Every unjust or unreasonable charge demanded or received for such product or commodity or service is unlawful. (Public Utilities Code §451)

3) Requires the CPUC to apply specific uneconomic costs to each customer based on the amount of electricity purchased by the customer from an electrical corporation or alternate supplier of electricity, subject to changes in usage occurring in the normal course of business. (Public Utilities Code §371(a))

4) Defines "change in usage" to generally mean changes occurring in the normal course of business resulting from changes in business cycles, termination of operations, departure from the utility service territory, weather, reduced production, modifications to production equipment or operations, changes in production or manufacturing processes. (Public Utilities Code §371(b))

5) Requires an electrical corporation to purchase from an eligible customer-generator, excess electricity that is delivered to the grid that is generated by a combined heat and power. (Public Utilities Code §2841)

6) Defines "small commercial customer" to mean a customer that has a maximum peak [electricity] demand of less than 20 kilowatts. (Public Utilities Code §331)

7) Requires the California Air Resources Board (CARB) to prepare and approve a Scoping Plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas (GHG) emissions and to update the Scoping Plan at least every five years. (Health & Safety Code §38561)(h))

This bill:

1) Defines "industrial process heat recovery" to mean a process that captures and reuses heat that would otherwise not be used, without any additional fuel input or supplemental firing, thereby reducing the electrical consumption of the industrial process.

2) Defines "reduction" to mean a reduction from the baseline electrical load of the industrial process before installation of the industrial process heat recovery technology.

3) Specifies that the enhancement or increased efficiency of equipment occurring in the normal course of business includes industrial process heat recovery technology that meets the following requirements:

   a) The industrial process heat recovered to produce electricity is integral to, and created by, the industrial process.
   b) No supplemental firing or fuel use occurs to increase or to stabilize the steam's temperature.
   c) The electricity generated by the industrial process heat recovery technology:
      i) has zero marginal GHG emissions associated with it.
      ii) is fully self-consumed onsite during a manufacturing process.
      iii) is not exported to the electrical grid for sale into the wholesale market.
      iv) does not exceed 25 percent of the installing customer's peak electrical load at the time of the installation.
      v) has a minimum name plate rating of 500 kilowatts.
      vi) is installed on or after January 1, 2024.

4) Prohibits nonbypassable or departing load surcharges from applying to a reduction in kilowatt-hours of electricity that an electrical corporation customer consumes from the electrical grid in a metered interval due to industrial process heat recovery technology that meets the prescribed requirements (noted above in 3).

5) Requires the CPUC to minimize impacts to nonparticipating customers by prohibiting the costs directly attributable to the nonbypassable or departing load charges of customers using industrial process heat recovery technology from being paid by residential or small commercial customers.

Background

Industrial sector. California's industrial sector includes a diverse range of facilities, including cement plants, refineries, glass manufacturers, oil and gas producers, paper manufacturers, mining operations, metal processors, and food processors. According to the California Energy Commission's 2023 Integrated Energy Policy Report, combustion of fossil gas, other gaseous fossil fuels, and solid fossil fuels provide energy to meet three broad industry needs: electricity, steam, and process heat. According to the CARB's 2022 Scoping Plan, industrial processes account for roughly 23 percent of statewide emissions of GHG in 2020 and are the second-largest contributor of GHG emissions in the state, behind transportation. Refineries and hydrogen production represent the largest sources in the industrial sector. Cement production accounts for about two percent of in-state GHG emissions, more than half of those emissions are related to cement production processes and less than half are from fuel and electricity consumption.

Industrial process heat. Industrial process heat is defined as heat energy (thermal energy) used for preparation or treatment of materials that produce manufactured goods. Process heat is reportedly the most significant source of energy use and GHGs in the industrial sector, accounting for about 50 percent of all onsite energy use and 30 percent of GHG emissions, according to the 2018 Manufacturing Energy and Carbon Footprint analysis. According to the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy, process heating systems are emission-intensive because fossil fuel combustion provides 95 percent of industrial heat across the manufacturing sector.

Industrial process heat recovery. Energy that is generated in industrial processes that is not put to practical use is lost as waste heat in the form of hot exhaust gases, cooling water, and heat lost from hot equipment surfaces and heated products. According to the U.S. Department of Energy Office of Energy Efficiency and

Renewable Energy, roughly 20-50 percent of industrial energy inputs are lost as waste heat. The installation and use of industrial process heat recovery technologies allow customers to use this otherwise-wasted heat energy to generate electricity that the customer uses on site and does not export to the electrical grid. This technology is commonly referred to as industrial process heat recovery. The three essential components required for waste heat recovery are: the source of waste heat, a recovery technology, and an end use for the recovered heat.

Electricity charges. The CPUC authorizes the electric utilities under its ratemaking jurisdiction to recover many of their costs through charges on each unit of electricity used by their customers. The CPUC, and in some cases statute, makes many of these charges nonbypassable, which means a customer must continue to pay the charges on each unit of electricity the customer consumes. Nonbypassable charges, include but are not limited to departing load charges, are mandated volumetric customer charges to be assessed on each kilowatt-hour of electricity used by the customers to fund a variety of purposes, including:

a) Public Purpose Program charges fund a variety of programs, including rate assistance programs, such as the California Alternate Rates for Energy (CARE) low-income assistance program, Energy Savings Assistance Program that provides energy efficiency and weatherization assistance to income-eligible households, Energy Efficiency Procurement, and the Electric Program Investment Charge (EPIC) to fund research and development.
b) Other nonbypassable charges have been authorized to address specific purposes, such as stranded investments during the electricity deregulation of the late 1990s, procurement costs incurred by the Department of Water Resources on behalf of electrical corporation customers during the Electricity Crisis of 2000-01, and to fulfill ratepayers' portion of payments into the Wildfire Fund to settle claims related to certain wildfires.

Nonbypassable charges represent the obligations of all the utility's customers, regardless of the amount of electricity the utility supplies to any given customer, so all utility customers should pay them (this includes customers served by community choice aggregators and electric service providers). Since nonbypassable charges are assessed on a per kilowatt of usage basis, customers who use large amounts of electricity pay more in nonbypassable charges.

Additional charges assessed by electric utilities are not considered nonbypassable charges, and may be assessed depending on the customer tariff:

a) *Demand charges.* These charges are typically applied to customers who use large amounts of electricity. They are based on a customer's maximum demand incurred during a monthly period or on a customer's maximum demand over on-peak and over partial-peak hours of the month.

b) *Standby charges.* These charges serve as an insurance premium for customers who meet their own load (or a portion of their load) every hour of the month via on-site generation. Standby rates and charges are provided electric service when a customer's generator experiences a partial or complete shutdown. Standby rates are designed to cover the cost of standby electric service when the customer's generator is not operating as intended. These charges are owed each month, whether or not the customer actually has a generator failure and cover the costs of the electric utility ensuring available service should it be needed.

c) *Other charges.* Fund renewable electricity program procurement and other programs, including the Self-Generation Incentive Program (SGIP) to fund customer-sited energy storage.

Departing load charges. A customer who generates electricity for onsite use through application of industrial process heat recovery avoids the cost of purchasing that volume of electricity from an electric utility. However, the customer still faces the cost of what are known as "departing load charges," which capture the value of nonbypassable charges on the volume of electricity the customer would have used if not for the use of industrial process of heat recovery. These charges are intended to ensure the collection of these costs are shouldered by all (or most) customers, thereby reducing the risk that the costs for the electric system are recovered. State policy has long encouraged energy efficiency, including by not applying nonbypassable charges or departing load charges to a customer who reduces their electricity use through implementation of energy efficiency. However, such industrial process heat recovery has not received similar treatment.

Federal Investment Opportunities. In March 2024, the U.S. Department of Energy announced up to $6 billion from the Infrastructure and Investment Jobs Act (IIJA) for 33 projects across the country to support the decarbonization of energy-intensive industries. This announcement is the largest investment in industrial decarbonization in American history. The projects will focus on the highest emitting industries where decarbonization technologies will have the greatest impact, including cement and concrete, glass, iron, and steel.

State efforts. Beyond the state's GHG emissions reduction program, including the cap-and-trade program, at the state level, there are several programs and policies to

support energy efficiency or decarbonization of the industrial sector. These include EPIC and Gas Research and Development utility ratepayer funded programs, including those administered by the California Energy Commission (CEC) and the utilities. These programs have funded energy efficiency and decarbonization projects affecting industrial, agriculture, commercial, and water sectors. With the passage of AB 209 (Committee on Budget, Chapter 251, Statutes of 2021), the Legislature and Governor established the Industrial Decarbonization and Improvements to Grid Operations (INDIGO) program to fund industrial projects that increase energy efficiency, including providing incentives for industrial projects that develop and deploy novel decarbonization technologies. Additionally, the Legislature and Governor adopted SB 596 (Becker, Chapter 246, Statutes of 2021) which required CARB to develop a comprehensive strategy for the state's cement sector to achieve net-zero GHG emissions by 2045. CARB has held several workshops and solicited comments, however, CARB has not yet adopted a strategy.

Comments

Need for this bill. The author states:

> It is critical for California to identify and remove hurdles to decarbonize industry sectors to abate the effects of climate change. Specifically, the cement industry must achieve carbon neutrality by 2045, as defined in SB 596 (Becker) chapter 246 of the statutes of 2021. Industrial Process Heat Recovery (IPHR) technologies is a process of capturing high heat generated as part of the industrial manufacturing process, and converts that heat into carbon free electricity to be self-consumed on site. AB 2109 will encourage new investment in zero-carbon IPHR technology, keeping good paying jobs and clean manufacturing throughout the state. AB 2109 will also protect residential and small commercial ratepayers, should there be a cost shift.

Barriers to deploying industrial process heat recovery technologies. Recovering waste heat losses can generate cost savings, reduce environmental impacts, and improve work flow and productivity. Although there are numerous commercially available technologies for waste heat recovery, due to various barriers, these technologies are not being pursued to the fullest extent possible. The U.S. Department of Energy notes barriers include material constraints, greater maintenance costs, as well as, the upfront costs of purchase and installation. The industrial sector contends that electricity charges, including nonbypassable and departing load charges, also pose a barrier to deploying this technology. The CEC also acknowledges as much noting in a March 2021 report on assessment of small combined heat and power market potential, that "Standby rates and departing load

charges are significant barriers to combined heat and power technologies in California." The report notes these charges pose a significant barrier for customers within the three large investor-owned utility service territories.

Cost shifts. By treating industrial process heat recovery as energy efficiency and thereby exempting this load from departing load charges or nonbypassable charges, other customers will be obliged to fund the shortfall in charges. Based on the criteria and requirements in this bill, electric utilities and sponsors of this bill believe only a handful of customers will be eligible for this treatment, mostly located within the service territory of the Southern California Edison and to a lesser extent Pacific Gas & Electric, and likely none within San Diego Gas & Electric. Per the amendments taken in the Assembly, this bill would prohibit any recovery from residential and small commercial customers for any of the shortfall. As such, these increased collections would be obtained from large commercial, government, agricultural, and industrial customers.

Prior/Related Legislation

AB 2083 (Berman, 2024) requires the 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. The bill is pending before this committee.

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: Yes

SUPPORT:

California Large Energy Consumers Association, Co-sponsor
California Nevada Cement Association, Co-sponsor
Brad Thompson Company
California Construction & Industrial Materials Association
CalPortland Company
Clean Energy Technologies, Inc.
Environmental Defense Fund
Heat is Power Association
Kanin Energy
Kline Consulting LLC
Mitsubishi Cement Corporation
New Buildings Institute
Natural Resources Defense Council
RMI
Sierra Club California
The Low Carbon Initiative

OPPOSITION:

None received

ARGUMENTS IN SUPPORT: In support of the bill the California Large Energy Consumers Association (CLECA) states:

> CLECA is proud to sponsor this measure which seeks to assist California in achieving its carbon neutrality goal by 2045, reduce stress off the state's electricity grid, and keep jobs, and manufacturing in California. …AB 2109 seeks to encourage new investment in the use of IPHR [industrial process heat recovery], more commonly known as waste heat recovery, by removing economic barriers such as nonbypassable charges. If passed, this measure would treat IPHR as energy efficiency or the same as a renewable source of energy, and manufacturers would no longer be assessed punitive charges. Recovering industrial process heat, which would otherwise simply dissipate into the atmosphere, and turning it into carbon-free power is a proven technology used worldwide. In fact, California agencies encourage industrial customers to adopt efficiency improvements in their normal course of business to decarbonize their operations. However, the nonbypassable fees are a significant economic hurdle, so much so that companies cannot justify investment in IPHR.

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