

Date of Hearing: June 19, 2024

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Cottie Petrie-Norris, Chair

SB 1298 (Cortese) – As Amended June 3, 2024

**SENATE VOTE:** 33-0

**SUBJECT:** Certification of thermal powerplants: data centers

**SUMMARY:** Authorizes the California Energy Commission (CEC) to exempt from certification a thermal power plant with generating capacity of up to 150 megawatts (MW) if that power plant is used solely as a backup generation facility for a data center and certain conditions are met.

Specifically, **this bill:**

- 1) Exempts from the CEC’s power plant siting process a thermal power plant with a generating capacity up to 150 MW if all of the following conditions are met:
  - a. The facility is used solely as a backup generation facility for a data center;
  - b. The facility is located on the customer side of the meter and is not interconnected to the distribution center;
  - c. A skilled and trained workforce, as specified below, will be used to perform all construction work on the facility;
  - d. The CEC finds that no substantial adverse impact on the environment or energy resources will result from the construction and operation of the facility; and
  - e. The CEC finds that the facility’s backup generation technology meets the best available control technology (BACT) requirements set by the applicable air pollution control district or air quality management district.
- 2) Provides that an application for an exemption shall include the applicant’s, including every contractor’s and subcontractor’s, certification that a skilled and trained workforce will be used to perform all construction work on the facility. Authorizes the Labor Commissioner to assess a penalty within 18 months of completion of the facility should a contractor or subcontractor fail to comply with the requirement to use a skilled and trained workforce. Requires an applicant to retain records that demonstrate compliance while the facility or contract is being performed and for three years after completion of the facility or contract unless all contractors and subcontractors are subject to a project labor agreement that meets certain conditions, as specified.

**EXISTING LAW:**

- 1) Defines a “thermal power plant” as any stationary or floating electrical generating facility with a generating capacity of 50 MW or more using any source of thermal energy, including any facilities related to the power plant. Exempts from the definition facilities

related to a geothermal development or production facility, as well as wind, hydroelectric, or solar photovoltaic facilities. (Public Resources Code § 25120)

- 2) Authorizes the CEC with exclusive jurisdiction to certify all thermal power plants and facilities in the state, regardless of whether a facility is a new site or a change or addition to an existing facility. Provides that the certificate issued by the CEC for a power facility serves in lieu of any permit, certificate, or similar authorization required by any local, regional, state, or federal agency to the extent permitted by federal law. (Public Resources Code § 25500)
- 3) Designates the CEC as the lead review agency under the California Environmental Quality Act (CEQA) for projects subject to the CEC's power plant siting review authority. Requires any other public agency making a decision related to the CEQA review of a power plant that is subject to the CEC's authority to use the CEC's certification review as the environmental impact report (EIR) for that decision. (Public Resources Code § 25519)
- 4) Allows the CEC to exempt from its certification process certain thermal power plants with a generating capacity of up to 100 MW and modifications to existing facilities that do not add capacity in excess of 100 MW, as long as the CEC finds that no substantial adverse impact on the environment or energy resources will result from the construction or operation of the proposed facility or from the modifications. This is referred to as the Small Power Plant Exemption (SPPE). (Public Resources Code § 25541)
- 5) Provides an expedited judicial review by the California Supreme Court of decisions by the CEC on applications for certification of a power plant or transmission facility. (Public Resources Code § 25531)

**FISCAL EFFECT:** According to the Senate Committee on Appropriations, this bill would incur ongoing costs of an unknown amount (General Fund or special fund) at the California Air Resources Board (CARB) for activities and actions to address emissions and/or negative impacts by, to the extent that this bill results in, the installation of large diesel generators. The CEC also estimates ongoing costs of an unknown amount (General Fund or special fund) to make certain findings and implement provisions of this bill.

## **BACKGROUND:**

*Small power plant exemptions* – The CEC has exclusive jurisdiction to review, and ultimately approve or deny, applications to construct and operate thermal power plants<sup>1</sup> that generate 50 MW or more.<sup>2</sup> For projects that will generate more than 50 MW but less than 100 MW, the CEC may grant the proposed project an exemption to the CEC's exclusive jurisdiction whereby local permitting entities would obtain jurisdiction over the approval of the site and related facility.<sup>3</sup> As the lead agency under CEQA for all thermal power plant projects, the CEC must find that a proposed project would not create a substantial adverse impact on the environment or on energy resources in order to approve the project or grant it an SPPE. If the application for the SPPE is

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<sup>1</sup> And related facilities, such as transmission to and from the power plant

<sup>2</sup> Public Resources Code § 25500

<sup>3</sup> Public Resources Code § 25541

denied, the project applicant would be required to file an application for power plant certification with the CEC.

*Gluttons for energy* – Data centers are facilities that house large volumes of high-performance computers, storage systems, and computing infrastructure. They are crucial for maintaining internet-based communications and providing certain services, including virtually all cloud-based computing; however, data centers also support a variety of non-essential functions, such as mining for cryptocurrency. These systems require continuous power and cooling, which requires a substantial amount of electricity. According to the U.S. Department of Energy, data centers consume 10 to 50 times more energy than similarly sized commercial office buildings.<sup>4</sup> The CEC estimated that data centers accounted for 2% of California’s electricity demand in 2019.<sup>5</sup> Since then, the technology sector has seen a boom in artificial intelligence (AI) and a corresponding growth in load; as a result, grid planners expect electricity consumption by data centers to accelerate more rapidly over the next five years and beyond.<sup>6</sup>

Since the establishment of the SPPE process in the 1980s, the CEC has provided a total of 36 SPPEs, including 17 for data centers’ backup power generation.<sup>7</sup> All of the SPPE applications filed since 2011 have been for backup generating facilities serving data centers, and all but one of the 17 data center exemptions were provided for diesel generator systems. Fuel costs, fuel availability, and energy capacity shape the selection of diesel generators over lower and zero-emitting backup power systems. These exempted power generator systems typically comprise banks of 30 to 50 small (2 to 4 MW) diesel generators to allow for as needed, segmented use; most have a total generation capacity above 100 MW to provide redundancy in the case that there are any downed generators when the backup power system is needed. The singular non-diesel CEC-exempted system runs off of renewable natural gas generators.

#### COMMENTS:

- 1) *Author’s statement.* According to the author, “Recognizing the critical demand for data processing capabilities, SB 1298 allows infrastructure development to keep pace with advancements in cloud computing. The current vacancy rate of data centers in Silicon Valley is a mere 1.6%, underscoring the need to expand capacity to meet the growing demand. By streamlining the approval process for data centers and maintaining clear guidelines for development, SB 1298 will ensure that innovation is thriving and sustainable in Silicon Valley and across California. Expanding our data center infrastructure is essential for the continued growth and competitiveness of our tech industry, supporting and expanding the economy throughout California in many sectors.”
- 2) *Knowing little, planning for a lot.* The Electric Power Research Institute estimates that AI queries require ten times the electricity of traditional Google queries; and emerging, computation-intensive capabilities such as image, audio, and video generation have no precedent.<sup>8</sup> While there is consensus that data center loads will grow over the next

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<sup>4</sup> US DOE; “Data Centers and Servers”; <https://www.energy.gov/eere/buildings/data-centers-and-servers>.

<sup>5</sup> CEC; “Enabling Energy Efficient Data Center in Smart Power Distribution Systems”; May 2024.

<sup>6</sup> CPower; “Demand Growth Offers Opportunities for Data Centers”; March 2024; <https://cpowerenergy.com/demand-growth-offers-opportunities-for-data-centers/>.

<sup>7</sup> CEC; “Power Plant Listing”; [https://www.energy.ca.gov/proceedings/power-plant-listing?field\\_project\\_type\\_value=SPPE&field\\_project\\_status\\_value=All&field\\_technology\\_value=All](https://www.energy.ca.gov/proceedings/power-plant-listing?field_project_type_value=SPPE&field_project_status_value=All&field_technology_value=All).

<sup>8</sup> Electric Power Research Institute; “Powering Intelligence: Analyzing Artificial Intelligence and Data Center Energy Consumption”; May 2024.

several years, largely due to the shift towards cloud computing and AI, the magnitude of that load growth is less certain. Goldman Sachs Research estimated that global data center electricity demand will grow 160% from 2023 to 2030;<sup>9</sup> while the International Energy Agency projected more than 200% from 2024 to 2026.<sup>10</sup> This disparity in demand forecasting points to a large gap in knowledge about energy use by data centers. To understand commercial sector energy use and inform their load forecast modeling, the CEC conducts a survey study every six to eight years that randomly samples tens of thousands of commercial facilities, including data centers. Since participation by the selected facilities is voluntary, oftentimes the CEC can only make conjectures about energy usage at these facilities.<sup>11</sup> *To better inform the CEC's assessment of future electricity demand and supply, which it does every two years in the Integrated Energy Policy Report, the committee recommends requiring an applicant seeking an SPPE for a data center's backup power system with generating capacity between 100 and 150 MW to submit a report on the expected energy use of the entire data center project.*<sup>12</sup>

- 3) *Emissions oversight.* Health and safety concerns around granting an expansion of the SPPE arise due to drastically higher carbon emissions from most thermal power plants compared to clean energy facilities. This bill narrowly provides expansion of the SPPE to data center backup systems, which have most often relied on diesel fuel. It is important to note that a data center itself is run day-to-day off of California's electricity grid; the diesel backup is not connected to the state's grid system and provides power only in instances where the grid power to the facilities is impacted. The author notes that this diesel backup is rarely, if ever, used; the generators are primarily turned on for routine testing and maintenance, which previous data center project applicants have stated rarely exceed 12 hours per year per engine.<sup>13</sup>

Nevertheless, the potential proliferation of hundreds of MW of diesel power plants, as made possible under this bill, presents a departure from California's clean energy goals. As noted by the California Air Pollution Control Officers Association, writing in opposition, "just 100 MW of backup power is equivalent to approximately...670 automobiles operating at full throttle at once." Data centers have also uniquely proliferated within small, densely urban geographic areas, primarily in the Silicon Valley; as a result, this bill may disproportionately impact certain communities near large population centers, increasing local air pollution concerns. The author acknowledges this concern, and references the provision in the bill requiring the backup facility must comply with current air district requirements regarding BACT. However, the construction of this requirement seems to give responsibility to the CEC in making that determination. Since local air districts have the exclusive authority to determine BACT requirements for any facility in California, *the committee recommends providing clarifying language that preserves this authority to determine whether a facility meets BACT requirements with*

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<sup>9</sup> Goldman Sachs; "Generational Growth: AI, data centers and the coming US power demand surge"; April 2024; <https://www.goldmansachs.com/intelligence/pages/generational-growth-ai-data-centers-and-the-coming-us-power-surge.html>.

<sup>10</sup> International Energy Agency; Page 35; "Electricity 2024: Analysis and forecast to 2026"; January 2024.

<sup>11</sup> CEC; "California Commercial End-Use Survey"; <https://www.energy.ca.gov/data-reports/surveys/california-commercial-end-use-survey>.

<sup>12</sup> CEQA requires the lead agency to consider the whole of the action; therefore, the CEC will include an entire data center project in its EIR

<sup>13</sup> CEC; Page 4.3-8; "Bowers Backup Generating Facility Final EIR – Part 1"; October 2023.

*the air districts, and requires the air districts to report their determination to the CEC during its review of an SPPE application.*

- 4) *Sized to match.* Historically, backup power systems are sized to match the computing power of a data center one-to-one. In conversations with the committee, the bill's sponsors indicated that building larger data centers in California will require an increased allowance in the SPPE, as proposed by this bill, for a couple of reasons. One, tech companies want to maintain the one-to-one size matching between the data center and the backup generator; as data centers increase in size, the backup generation facility would follow suit. The companies cite a duty to provide customers with a high level of reliability as the need for this one-to-one matching. Two, diesel generators, specifically, provide a level of reliability and quickness that is currently unmatched by cleaner energy technology.

However, it is unclear to the committee why the MW expansion put forward by this bill is necessary. According to the bill's sponsors, the availability of computing power at existing data centers in the state is the lowest in the nation. They note new and bigger data centers, and the backup power needed to support them, will be critical to maintaining California's economy, comfort, and livelihood. Even so, the practice of matching the total computing power of a data center to the total generation capacity of its onsite backup power source is not regulated nor required by statute. For many facilities that need a backup power system in the event of an outage, including hospitals and skilled nursing facilities, the system is not matched one-to-one; rather, it is required to power only certain indispensable functions, such as maintaining ventilators.<sup>14,15</sup> The sponsors of this bill maintain size matching of their backup is necessary because data centers serve all aspects of our economy, including emergency services and hospitals. Certainly backup reliability, and thus backup generation, should be provided for the subset of systems in a data center that serves critical infrastructure. However, there are also subsets of data center systems that serve nonessential functions.

The sponsor contends that data centers are not typically built in a modular way to allow prioritization of its clients and servers. Yet some data center companies have begun to employ demand response programs to shift portions of data processing workloads to times or geographies where the grid is less congested or renewable energy sources are more plentiful.<sup>16</sup> Such functionality speaks to the ability of some data centers to power only a limited set of critical infrastructure when needed, belying the need for larger backup power for these facilities. The disparity between data centers in deploying such flexibility may be, as the Rocky Mountain Institute points out, due to demand flexibility incentives varying among data centers.<sup>17</sup> Cryptocurrency mining operations, for instance, often suspend activities when electricity prices exceed operational profitability. On the other hand, data centers engaged in AI computations and which serve to lose major profit should they go down – a survey by Ponemon Institute found that the average cost of data

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<sup>14</sup> Code of Regulations Title 22 § 73639

<sup>15</sup> Health and Safety Code § 1418.22

<sup>16</sup> Google; "Supporting power grids with demand response at Google data centers"; October 2023;

<https://cloud.google.com/blog/products/infrastructure/using-demand-response-to-reduce-data-center-power-consumption>.

<sup>17</sup> Rocky Mountain Institute; "How data centers can set the stage for larger loads to come"; May 2024; <https://rmi.org/how-data-centers-can-set-the-stage-for-larger-loads-to-come/>.

center downtime in 2015 was about \$7,900 per minute,<sup>18</sup> a figure that has likely gone up as AI has proliferated – may see little cause to reduce demand, making their need for one-to-one backup more a strategic decision influenced by corporate goals. In contrast, all state-owned and leased data centers must annually report their power usage effectiveness (PUE), a common metric for measuring data center energy efficiency, and employ energy saving measures and/or scheduled and budgeted power and cooling supply equipment replacements to achieve a PUE of 1.5<sup>19</sup> – this, generally speaking, is the PUE at which most energy efficient data centers run today.<sup>20</sup>

Given that these backup systems, according to the author, have been rarely used, it may be valuable to consider policy and regulatory mechanisms to encourage adoption of demand flexibility tools and energy efficiency technologies in data center operations – rather than an expansion of these backup systems as this bill puts forward – in line with policies the state has enacted to foster adoption of such programs by California residents. As advancements in clean energy technologies, such as batteries or hydrogen fuel cells,<sup>21,22</sup> continue to be made, it may also be prudent to revisit this expansion of small thermal power plant exemptions and reconsider its need. *As such, the committee recommends adding a provision for the CEC to find that energy efficiency technologies or demand response options to reduce a data center’s load have been considered by the applicant before it exempts that data center’s thermal backup power system, should it have a generation capacity between 100 and 150 MW; requiring the owner or operator of these exempted data centers to annually report their PUE to the CEC; and including a sunset provision that will make this exemption operative between January 1, 2025 and January 1, 2030.*

- 5) *Diluting stakeholder engagement.* The CEC’s power plant siting authority was established to set requirements for certifying the construction and operation of new power plants in the state. Additionally, the process was intended to provide certainty for project developers and offer a public forum in which stakeholders could submit comments and concerns about proposed power plants, and workshop with CEC staff to discuss, clarify, and inform pertinent issues like clean energy alternatives, which the CEC considers under CEQA. If a project applies for an SPPE and is approved, there are no clear opportunities offered for stakeholder engagement within that timeline. Established in the 1980s, the SPPE program may not have been created with data centers, which entered a frenzy of expansion in the 1990s,<sup>23</sup> in mind. Taken together, it may be shrewd to reconsider if the SPPE is the best pathway for certifying data center-associated power plant systems.
- 6) *Wrong place, wrong time?* This bill would require a data center applicant to certify that a skilled and trained workforce is used to perform all construction work on the proposed facility. However, the timing of such certification may be inappropriately tied to the

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<sup>18</sup> Ponemon Institute; “Cost of Data Center Outages”; January 2016.

<sup>19</sup> Department of General Services; State Administrative Manual § 1820.3; <https://www.dgs.ca.gov/Resources/SAM/TOC/1800/1820-3>.

<sup>20</sup> Sunbird; “How do I calculate PUE?”; June 2022; <https://www.sunbirdcim.com/blog/how-do-i-calculate-pue>.

<sup>21</sup> Data Center Dynamics; “Microsoft replaces diesels with battery system at Swedish data center”; October 2023; <https://www.datacenterdynamics.com/en/news/microsoft-replaces-diesels-with-battery-system-at-swedish-data-center/>.

<sup>22</sup> Hitachi; “Hitachi Energy unveils new emission-free alternative to diesel-powered generators”; November 2023; <https://www.hitachi.com/New/cnews/month/2023/11/231122.html>.

<sup>23</sup> Robertson, Duke; “The History of Data Centers: An Exponential Evolution”; March 2024; <https://blog.enconnex.com/data-center-history-and-evolution>.

SPPE. Data center developers at the time of seeking an SPPE may not yet be in negotiations with contractors or subcontractors for construction of the facility. The ownership of data center projects can also often change at any stage of a project, between when they're exempted, entitled locally, permitted locally, partially constructed, or fully constructed. More importantly, this provision is beyond the traditional scope of the CEC's review of an SPPE application; the CEC reviews the environmental impact of the construction and operation of a proposed project. If an SPPE is granted, all authority to grant land use entitlements, issuance of building permits, and compliance monitoring and enforcement for the life of the project changes hands to the local jurisdictions. Therefore, the construction labor provision within this bill is likely unenforceable by the CEC.

7) *Prior legislation.*

SB 858 (Beall, 2020) would have exempted data centers' emergency backup power generators from CEC siting approvals and shifted CEQA lead agency authority for these generators from the CEC to local land use authorities. Status: *Died* – Senate Committee on Energy, Utilities, and Communications.

8) *Double referral.* This bill is double-referred; upon passage in this Committee, this bill will be referred to the Assembly Committee on Labor and Employment.

**REGISTERED SUPPORT / OPPOSITION:**

**Support**

California State Association of Electrical Workers  
California State Pipe Trades Council  
Data Center Coalition  
Microsoft Corporation  
State Building & Construction Trades Council of California  
Western States Council Sheet Metal, Air, Rail and Transportation

**Opposition**

American Lung Association in California  
California Air Pollution Control Officers Association  
Clean Power Campaign  
Coalition for Clean Air  
Environmental Defense Fund  
South Coast Air Quality Management District  
Union of Concerned Scientists  
Western Electrical Contractors Association

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