

TITLE 17. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER ADOPTION OF A PROPOSED REGULATION FOR REDUCING SULFUR HEXAFLUORIDE EMISSIONS FROM GAS INSULATED SWITCHGEAR

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider the adoption of a new regulation to reduce sulfur hexafluoride (SF₆) emissions from gas insulated switchgear used in electric power systems.

DATE: February 25, 2010

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California 95814

This item will be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., February 25, 2010 and may continue at 8:30 a.m., February 26, 2010. This item may not be considered until February 26, 2010. Please consult the agenda for the meeting date and time, which will be available at least 10 days before February 25, 2010, to determine the day on which this item will be considered.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT **OVERVIEW**

Sections Affected: Proposed adoption of California Code of Regulations, title 17, division 3, chapter 1, subchapter 10, article 4, subarticle 3.1., Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear, sections 95350, 95351, 95352, 95353, 95354, 95355, 95356, 95357, 95358, and 95359.

Background:

Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006 (AB 32) on September 27, 2006. When the Legislature adopted AB 32, it declared that global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. AB 32 directed ARB to establish a statewide greenhouse gas (GHG) emissions limit for 2020 based on 1990 emissions.

AB 32 directs the Board to carry out specific tasks related to reducing GHG emissions. These tasks include monitoring GHG emissions, implementing a program of annual reporting of GHG emissions from GHG emission sources, and accounting for all GHG emissions, including emissions from electricity generated in California or imported from

other states, providing reporting tools for such data, and ensuring emitting sources maintain records of GHG emissions.

AB 32 directed ARB to adopt a Scoping Plan by January 1, 2009, that shows how emission reductions will be achieved from significant GHG sources through regulations, market mechanisms, and other actions. The Scoping Plan identifies the regulation for reduction of SF₆ from electrical equipment as a possible GHG emission reduction measure. ARB and other State agencies are now developing and implementing proposed measures to meet the State's GHG emission reduction goals.

SF₆ is a colorless, odorless, nontoxic, and nonflammable gas with a global warming potential that is 23,900 times that of carbon dioxide (CO₂). Since the 1980s, SF₆ has been used extensively in electrical power systems as a dielectric medium (insulator) and interrupter (arc quencher) in medium and high voltage gas insulated switchgear or "GIS." The term switchgear, used in association with the electric power system, refers to the combination of electrical switches, disconnects, fuses and/or circuit breakers used to isolate electrical equipment. This equipment is commonly found in electrical substations and can be located either above or below ground in protected vaults. Nearly 80 percent of California's SF₆ emissions result from leakage and handling losses from GIS.

Worldwide, only the European Commission currently regulates SF₆ use in GIS. Nationally, in 1999, the United States Environmental Protection Agency (U.S. EPA) created a voluntary SF₆ emission reduction program which has been effective in gaining substantial emission reductions from its participants. However, because this is a voluntary program, only five of the scores of California utilities and power producers are active in the U.S. EPA's voluntary program.

Although a potent greenhouse gas, SF₆ has properties that allow the optimized operation of electrical switchgear and electricity networks throughout California. Despite international research efforts, no equivalent alternative has been identified, nor is currently available. Because of its simplicity and cost-effectiveness, this proposed measure may influence future national and international SF₆ regulations.

DESCRIPTION OF THE PROPOSED REGULATORY ACTION

The proposed regulation would require owners of gas insulated switchgear (GIS) to establish an initial, maximum emission rate of ten percent of their nameplate capacity of SF₆ by January 1, 2011. GIS owners would be required to continually reduce SF₆ emission rates by one-percent-per-year over the following nine-year period beginning in 2011 and ending in 2020. The maximum emission rate in 2020 would be set at one percent. This time period coincides with the timeline established by the Global Warming Solutions Act (Health & Saf. Code §§ 35800 *et seq.*) to meet GHG emission reductions.

Specific methods to attain required emission reductions are not set out in the proposed regulation. Rather, affected entities would determine which methods they would employ

to meet the requirements. Currently, least-cost gas management techniques employed nationally and globally include technician training, SF₆ leak detection and repair, gas recycling, equipment evacuation, and equipment refurbishment or replacement. The following summarizes these established gas management techniques.

Leak Detection and Repair (LDAR). SF₆ leak detection is achieved using various techniques, including “sniffing” for gas with SF₆ gas sensors and using laser-based remote sensing technology. LDAR-based repairs, address small leaks on specific components, such as a bushing or flange gasket.

SF₆ Recycling. Recycling gas cart systems are available which can withdraw, purify, and return SF₆ to gas-insulated equipment.

Evacuation of Equipment. Evacuation attains a high level of SF₆ recovery from closed-pressure equipment.

Equipment Refurbishment. Equipment refurbishment encompasses comprehensive repairs for large leakage losses. Refurbishment consists of disassembling, rebuilding and possibly upgrading equipment using remachined, cleaned, and/or new components. Generally, equipment refurbishment represents a less expensive option than equipment replacement.

Equipment Replacement. Equipment replacement is undertaken when equipment parts are no longer available or when refurbishment will not correct leakage problems.

Applicability

The proposed regulation would affect approximately 75 private and public entities including eight investor owned utilities, four large corporations (refineries employing on-site distributed electrical generation), approximately 50 publically-owned utilities and rural electric cooperatives, one State agency (Department of Water Resources), two federal agencies (Western Area Power Association and U.S. Department of Defense), and two national laboratories.

Standards

The proposed regulation would establish maximum annual SF₆ emission rates for GIS owners. The emission rate requirements begin in 2011 at ten percent of the GIS owners’ total equipment capacity averaged over the year. The emission rate would steadily decline by one percent per year until 2020. Beginning in 2020, the SF₆ emission rate would be set at one percent.

Exemptions

Beginning in 2020 emissions due to an “emergency event” could be exempted from the emission rate calculation for that year, if those emissions cause the one percent emission rate limit to be exceeded. GIS owners would be required to demonstrate to the Executive Officer that the emergency event causing the emission rate to be exceeded was beyond the control of the GIS owner.

Recordkeeping and Reporting

The regulation would require GIS owners annually to: (1) report their SF₆ emissions and emission rate; and (2) provide a complete inventory of all gas containers and GIS equipment. GIS owners would also be required to maintain and have this information available for ARB enforcement staff for inspection and verification.

Environmental Impacts:

Staff estimates that the proposed SF₆ emission reduction measure would decrease GHG emissions by an average of 25,300 metric tons CO₂-equivalent (MTCO₂e) annually and 253,000 MTCO₂e cumulatively over a ten year period. Because the proposed regulation reduces only GHG emissions by improving SF₆ management practices, it is not expected to result in any significant adverse air quality, wastewater, or hazardous waste impacts.

Economic Impacts:

The projected total cost of the regulation over the ten year regulatory period is estimated to range from \$4,500,000 to \$7,000,000. The average cost per metric ton of CO₂e emissions reduced, including recordkeeping and reporting costs, would range from \$18/MTCO₂e to \$28/MTCO₂e. Unit costs of emission reductions for the proposed SF₆ GIS regulation vary greatly among emission reduction methods—from -\$1/MTCO₂e for SF₆ recycling to \$55/MTCO₂e for GIS repair and replacement. ARB staff assumed that less expensive methods are employed first, and that the unit cost of SF₆ emission reductions steadily increases over the regulatory period. The high end of the estimate is extremely conservative based on final emission reductions resulting exclusively from equipment replacement, which is the most costly emission control technique. During the final years of the regulatory period, staff believes a combination of less costly emission reduction methods will continue to be used in addition to undertaking equipment replacement, maintaining reduction costs nearer to \$18/MTCO₂e.

COMPARABLE FEDERAL REGULATIONS

There are no federal regulations that mandate the reduction of SF₆ from GIS.

AVAILABILITY OF DOCUMENTS AND AGENCY CONTACT PERSONS

ARB staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The ISOR is entitled, "Initial Statement of Reasons for the Proposed Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear."

Copies of the ISOR and the full text of the proposed regulatory language may be accessed on ARB's website listed below, or may be obtained from ARB's Public Information Office, Visitors and Environmental Services Center, 1001 I Street, First Floor, Sacramento, California, 95814, (916) 322-2990.

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons identified below, or may be accessed on ARB's website listed below.

Inquiries concerning the substance of the proposed regulation may be directed to the designated agency contact persons, Mr. David Mehl, Stationary Source Division, Energy Section Manager, at (916) 323-1491, or Ms. Michelle Garcia, Air Pollution Specialist, at (916) 322-8387.

Further, the agency representative and designated back-up contact persons to whom non-substantive inquiries concerning the proposed administrative action may be directed are Ms. Lori Andreoni, Manager, Board Administration & Regulatory Coordination Unit, (916) 322-4011, and Ms. Amy Whiting, Regulations Coordinator, (916) 322-6533.

The Board has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

This notice, the ISOR, and all subsequent regulatory documents, including the FSOR, when completed, are also available on ARB's website for this rulemaking at <http://www.arb.ca.gov/regact/2010/sf6elec/sf6elec.htm>.

COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulations are presented below. The ARB Executive Officer has determined that, except as discussed below, the proposed regulatory action would not create costs or savings, as defined in Government Code sections 11346.5(a)(5) and 11346.5(a)(6), to any State agency or in federal funding to the State, costs or mandate to any local agency or school district, whether or not reimbursable by the State pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, or other nondiscretionary costs or savings to any State or local agencies.

The proposed regulation would impose costs on some State and local agencies, but not on school districts. One State agency that may experience an economic impact is the State Department of Water Resources (DWR). DWR generates electricity and owns GIS used in its electrical power systems. However, there may be no net fiscal impact on DWR if it is able to either offset its costs by reduced purchases of SF₆ gas, or if it is able to use existing administrative mechanisms to pass minor costs on to its customers.

The Executive Officer has determined that the proposed regulatory action may create costs and impose a mandate on some local agencies. The local agencies impacted would be publically-owned utilities, which own GIS within their electric power systems. However, there may be no net fiscal impact on the publically-owned utilities if they are able to either offset their costs by reduced purchases of SF₆ gas, or are able to use existing administrative mechanisms to pass the costs on to their customers.

Because the requirements imposed by the regulation are generally applicable to all entities subject to the regulations, the Executive Officer has determined that the proposed regulatory action imposes no costs on local agencies or school districts that are required to be reimbursed by the State pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, and does not impose a mandate on local agencies or school districts that is required to be reimbursed pursuant to section 6 of Article XIII B of the California Constitution.

In developing this regulatory proposal, ARB staff evaluated the potential economic impacts on representative private persons or businesses. ARB has determined that representative private persons may be affected by the cost impacts from the proposed regulatory action. The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

In accordance with Government Code section 11346.3, the Executive Officer has determined that the proposed regulatory action would not affect the creation or

elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within the State of California, or the expansion of businesses currently doing business within the State of California. A detailed assessment of the economic impacts of the proposed regulatory action can be found in the ISOR.

The Executive Officer has also determined, pursuant to California Code of Regulations, title 1, section 4, that the proposed regulatory action would affect small businesses.

In accordance with Government Code sections 11346.3(c) and 11346.5(a)(11), the Executive Officer has found that the reporting requirements of the regulation which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Before taking final action on the proposed regulatory action, ARB must determine that no reasonable alternative considered by ARB, or that has otherwise been identified and brought to the attention of ARB, would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

SUBMITTAL OF COMMENTS

Interested members of the public may also present comments orally or in writing at the meeting, and comments may be submitted by postal mail or by electronic submittal before the meeting. The public comment period for this regulatory action will begin on January 11, 2010. To be considered by the Board, written comments, not physically submitted at the meeting, must be submitted on or after January 11, 2010, and received **no later than 12:00 noon, February 24, 2010**, and must be addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: <http://www.arb.ca.gov/lispub/comm/bclist.php>

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request. Additionally, this information may become available via Google, Yahoo, and other search engines.

The Board requests, but does not require, that 20 copies of any written statement be submitted and that all written statements be filed at least 10 days prior to the hearing so that ARB staff and Board Members have time to fully consider each comment. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action.

STATUTORY AUTHORITY AND REFERENCES

This regulatory action is proposed under the authority granted to ARB in Health and Safety Code sections 38510, 38560, 38580, 39600, 39601, 41510, 41511, and 41513. The proposed regulations will implement, interpret and/or make specific Health and Safety Code sections 38560, 38580, 39600, 39601, 41510, 41511, and 41513.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text, as modified, is sufficiently related to the originally proposed text that the public was adequately placed on notice that the regulatory language, as modified, could result from the proposed regulatory action. In the event that such modifications are made, the full regulatory text, with the modifications clearly indicated, will be made available to the public for written comment at least 15 days before it is adopted.

The public may request a copy of the modified regulatory text from ARB's Public Information Office, Visitors and Environmental Services Center, 1001 I Street, First Floor, Sacramento, California, 95814, (916) 322-2990.

SPECIAL ACCOMMODATION REQUEST

To request a special accommodation or language needs for any of the following:

- An interpreter to be available at the hearing.
- Have documents available in an alternate format (i.e. Braille, large print) or another language.
- A disability-related reasonable accommodation.

Please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Para solicitar alguna comodidad especial o si por su idioma necesita cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia.
- Documentos disponibles en un formato alternativo (es decir, sistema Braille, letra grande) u otro idioma.
- Una acomodación razonable relacionados con una incapacidad.

Porfavor llame a la officina del Consejo a (916) 322-5594 o envíe un fax a (916) 322-3928 lo mas pronto possible, pero no menos de 10 dias de trabajo antes del el dia programado para la audencia del Consejo. TTY/TDD/ Personas que nesessitan este servicion pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

CALIFORNIA AIR RESOURCES BOARD

/s/

James N. Goldstene
Executive Officer

Date: December 29, 2009

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs see our website at www.arb.ca.gov.