

# **SF<sub>6</sub> EMISSION REDUCTION MEASURE**

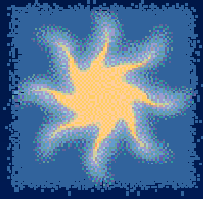
## **GIS AND PARTICLE ACCELERATORS**

**Third Technical Working Group Meeting**

**California Air Resources Board**

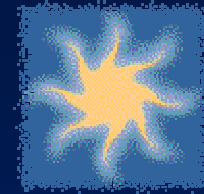
**July 27, 2009**

# DISCUSSION OVERVIEW



- **Draft Proposal**
- **Exemptions**
- **Cost Assumptions**
- **Next Steps**
- **Written feedback requested**



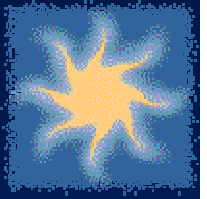


# DRAFT PROPOSAL

- Proposed effective Date 1/1/2011
- Steadily declining emission rate from 2011 to 2020.
- Emission rate would be reported in 2012
- 2011 permissible emission rate: 10%
- 2020 permissible emission rate: 1%



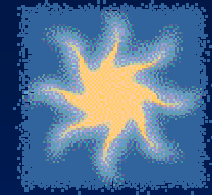
# REQUIREMENTS



## EMISSION DETECTION AND REPAIR

- Must have or install automatic emission (leak) detection and notification system
- Leaks must be repaired within 24 hours of detection
- A detailed emission detection and repair log must be established and maintained





# NON-SF<sub>6</sub> CIRCUIT BREAKERS

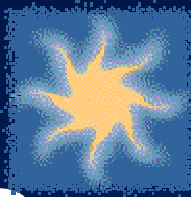
- Require installing new, and replacing retiring, lower voltage ( $\leq 70$  kV) gas insulated circuit breakers with non-SF<sub>6</sub> breakers.
- Curtail use of SF<sub>6</sub> in low-voltage ( $\leq 70$  kV) gas insulated circuit breakers after December 31, 2019.





# SF<sub>6</sub> EMISSION DATA REPORT

- Requires calculation of annual emission rate
- Requires inventory of all SF<sub>6</sub> cylinders
- Requires a detailed inventory of all GIS
- Working with ARB mandatory reporting staff to ensure no duplication occurs

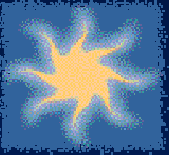


# PARTICLE ACCELERATORS

## On-site Substations

- Most SF<sub>6</sub> use is from onsite substations
- Lesser amounts are used for research purposes
- Accelerators substations will be subject to the same reporting and emission reduction measures as those applied to the electricity sector





# PARTICLE ACCELERATORS

- **Reporting Requirements**
  - All will be subject to the same requirements for GIS.
- **Exemptions**
  - Medical Uses
  - National Security



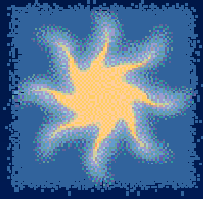




# PARTICLE ACCELERATORS

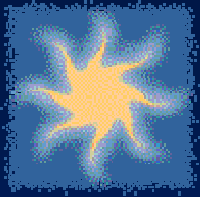
- **Physics/Experimental Uses**
  - Are subject to the requirements of title 17, CCR, sections 95340-95346 (proposed)
  - Website address:  
<http://www.arb.ca.gov/cc/sf6nonelec/sf6nonelec.htm>

# COST EFFECTIVENESS



- **Current Analysis**
  - **Leak detection and repair**
    - Presume cost savings due to reduction in purchase and consumption rate
  - **Recordkeeping and Reporting**
    - Presume no additional costs for electricity providers subject to mandatory reporting
    - Presume increased costs for new requirements for particle accelerators
  - **Costs of gas circuit breaker replacement**
    - Analysis in progress





# EARLY ACTIONS/OFFSETS

- **Discussing options with the Office of Climate Change staff**
  - **Rewarding early actors**
  - **Offsets**



# NEXT STEPS

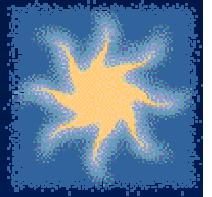
EVENT	DATE
Public Workshop	September 2nd
Release staff report and begin 45-day public comment period	October 23rd
Present proposed regulation to the Board	December 10 <sup>th</sup>



# **CONTACT INFORMATION**

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