



GE Renewable Energy
Grid Solutions



g^3 is a revolutionary gas for the electrical transmission industry, offering the same technical performances as SF_6 with a **global warming potential reduced by more than 99%**

SF_6 IS A GREENHOUSE GAS WITH A STRONG GLOBAL WARMING POTENTIAL



18/19*

of the warmest years on record occurred since 2001. Greenhouse Gases (GHGs) are the root cause of the „Greenhouse Effect“, causing climate change throughout the world.

GHGs

Infrared rays

SF_6 contributes 23,500 times more to the greenhouse effect than CO_2

SF_6 1 kg vs CO_2 23,500 kg

80% of all SF_6 used is in the transmission industry

10,000 tons of SF_6 are installed yearly

3,200 years is the number of years SF_6 remains in the atmosphere

+ 20% is the SF_6 concentration in the last 5 years

THE g^3 REVOLUTION



Replacing 1 kg of SF_6 with $\sim 1/2$ kg of g^3

Saving of 16 CARS

running one year (10,000 km each)

Saving of 1 CAR

circling the Earth 4 times



g^3 products operate under the same ambient conditions and temperature ranges as state-of-the-art SF_6 products. (-25°C and -30°C)

Same dimensions, same technical performance and safety with a drastically reduced impact of gas releases to atmosphere

THE BENEFITS OF g^3 OVER SF_6



Environmental impact of g^3 vs SF_6



Utilities can **adopt best practices** in terms of environment sustainability



Utilities may qualify for **tax reduction or incentives** related to greenhouse gas emissions reduction

* Source : <https://climate.nasa.gov/vital-signs/global-temperature/>



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g³ is an insulating gas mixture using
Novac 4710™ Insulating Gases from 3M



g³ supply, g³ handling and g³ monitoring
solutions are available with our partners



GLOBAL TREND TOWARDS MORE STRINGENT SUSTAINABILITY STANDARDS

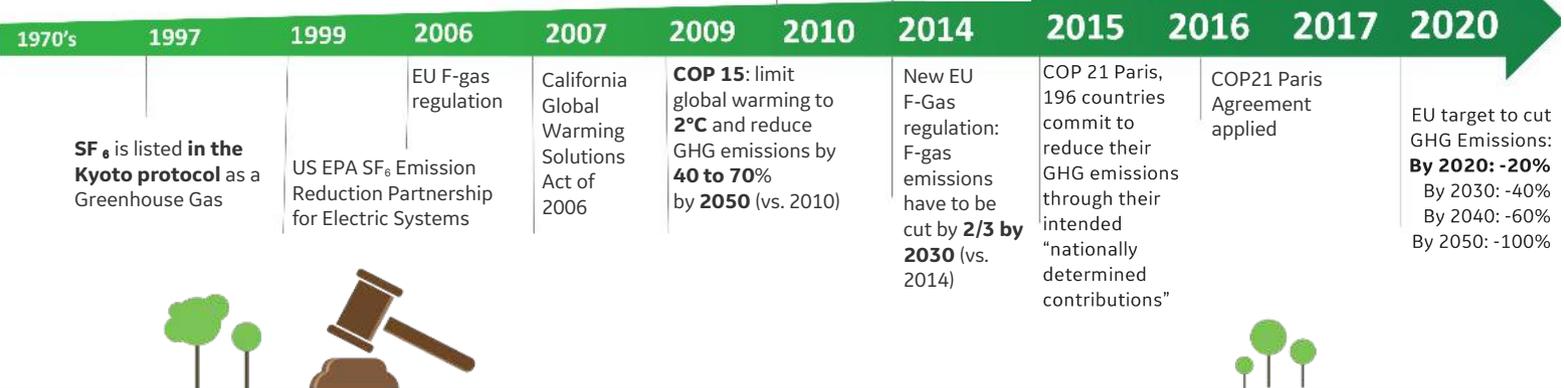
SF₆ becomes the main insulating
medium for high voltage

GE's cooperation
with 3M begins

g³ gas
disclosed

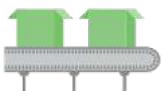
First g³
products

First
energizations



ADOPTION OF g³: SOME LEADING UTILITIES

18 LEADING UTILITIES
have decided to
test equipment with g³



40% UTILITIES
are expecting tax on SF₆ or
an incentive for alternative
gases in the next 5 years



g³ Gas-Insulated Lines
420 kV, -25 °C
5 sites - 2033 meters

g³ Gas-Insulated Substations
145 kV, -25 °C
13 sites - 76 Bays

g³ AIS Current Transformers
245 kV, -30 °C
3 sites - 6 CTs - 3 CMU

g³ AIS Live Tank CB
145 kV, -30 °C
3 sites - 12 circuit breakers

**Example with 100 metres of 3-phase Gas-Insulated Line (GIL),
considering gas emissions (average 0.4% p.a.) over 40 years**

GIL filled with SF₆
6,157 tons
equivalent CO₂



GIL filled with g³
102 tons
equivalent CO₂



Example with a carbon tax
at 25€/ton of CO₂

TAX SAVING

150 k€
20-30% of CAPEX

For more information, please contact
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