NM0212: SF\textsubscript{6} Switch at Dead Sea Magnesium and NM0222: Conversion of SF\textsubscript{6} to the Alternative Cover Gas SO\textsubscript{2} in Magnesium Production in China

**Baseline scenario**

![Diagram showing SF\textsubscript{6} in magnesium and casting]

**Project scenario**

![Diagram showing HFC134a, Novec-612 or SO\textsubscript{2} in magnesium and casting]

**EB36:**
- The Board agreed that “dilute-SO\textsubscript{2}” shall be allowed as an alternative cover gas;
- The Board requested the secretariat to undertake further analysis on the GWP of Fluroketone;
- The Board requested the secretariat to undertake assessment of the impact of the methodology on generation of CERs.
NM0212: SF₆ Switch at Dead Sea Magnesium and NM0222: Conversion of SF₆ to the Alternative Cover Gas SO₂ in Magnesium Production in China

GWP value of NOVEC

Prof. V. Ramaswamy (National Oceanic and Atmospheric Administration - Geophysical Fluid Dynamics Laboratory NOAA/GFDL, Princeton University) member of Working Group 1 of IPCC and Coordinating Lead author of Chapter 2 in consultation with Dr. J. Burkeholder at NOAA in Boulder, Colorado opined that fluoroketones have a lifetime of 10 days and for a time horizon of 100 years, the GWP works out to slightly less than 0.7.

This opinion is based on the following works:

a. “Photolysis Study of Perfluoro-2-methyl-3-pentanone under Natural Sunlight Conditions” D’Anna et al. (Department of Chemistry, University of Oslo, and Fundación Centro de Estudios Ambientales del Mediterraneo (CEAM), Valencia, Spain, 2005) for the spectra of Novec-612. This work states that “... the short atmospheric lifetime makes the global warming potential of the compound negligible.”

b. “Atmospheric Chemistry of C₂F₅C(O)CF(CF₃)₂ : Photolysis and Reaction with Cl Atoms, OH Radicals, and Ozone” Taniguchi et al. states that “As a result of its short atmospheric lifetime, the global warming potential of C₂F₅C(O)CF(CF₃)₂ is negligible.”

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- Amount of CERs per tonne of Mg will be **6-10** (net amount will be 1-6).
- CERs that could be generated from converting all facilities is **3.36 – 5.6 million** per annum.
- IRR for switching cover gas ranges from **30 to 80%** (estimated based on capital cost of switching and incremental operating cost of using new cover gas).
Baseline scenario (14)
In the absence of the project activity, the existing power plant would continue to operate without significant changes.

P2 continuation of power generation using the same plant w/o retrofitting
P4 the generation of power in the grid

B4 biomass residues are used for heat and/or electricity at the project site

H5 continuation of heat generation in an existing biomass residue fired cogeneration plant without retrofitting

Description of the project activity
Improvement of energy efficiency by retrofit or replacement of the existing biomass residue fired power plant at a site where no other power plants are operated.

\[ EG_y = EG_{project\ plant, y} \cdot \left(1 - \frac{E_{el, baseline\ plant}}{E_{el, project\ plant, y}}\right) \]

- Assumption of same biomass allows simpler procedure to estimate net increase in electricity
- If more biomass is used, scenario has no equations for estimating
- Leakage emissions from use of extra biomass
- Increased biomass could come from increased production, whereas, this scenario assumes that there is no change in demand for power and steam generation