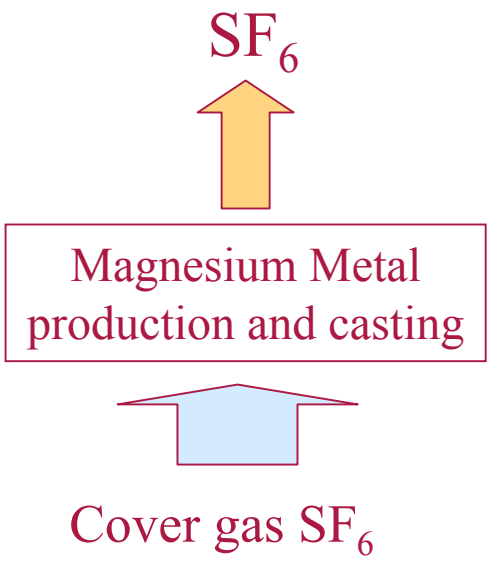
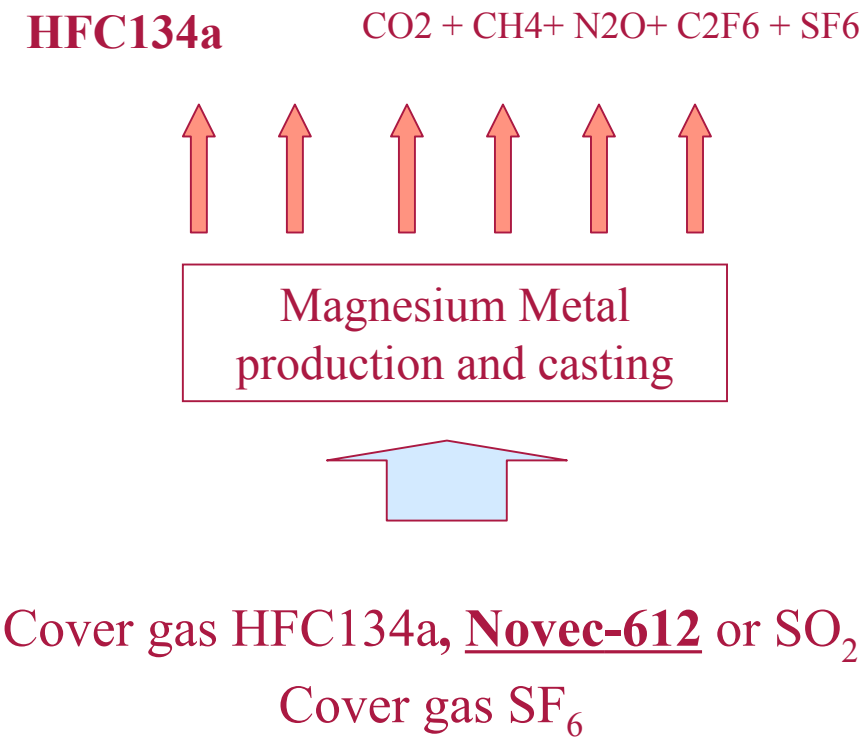
NM0212: SF_6 Switch at Dead Sea Magnesium and NM0222: Conversion of SF6 to the Alternative Cover Gas SO2 in Magnesium Production in China

Baseline scenario



Project scenario



EB36:

- The Board agreed that **"dilute-SO_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.**

GWP value of NOVEC

Prof. V. Ramaswamy (National Oceanic and Atmospheric Administration - Geophysical Fluid Dinamics 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 $C_2F_5C(O)CF(CF_3)_2$: 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 $C_2F_5C(O)CF(CF_3)_2$ is negligible**."

c. "Radiactive forcing of climate by hydrochlorofluorocarbons and hydrofluorocarbons" Pinnock et al. (1995) for **the computational methodology.**

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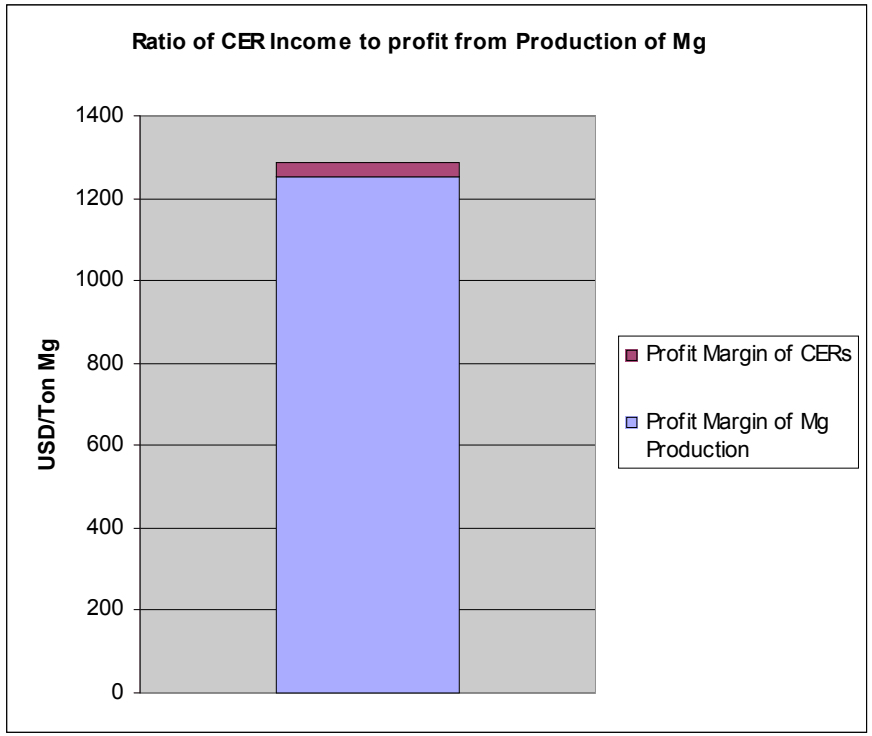
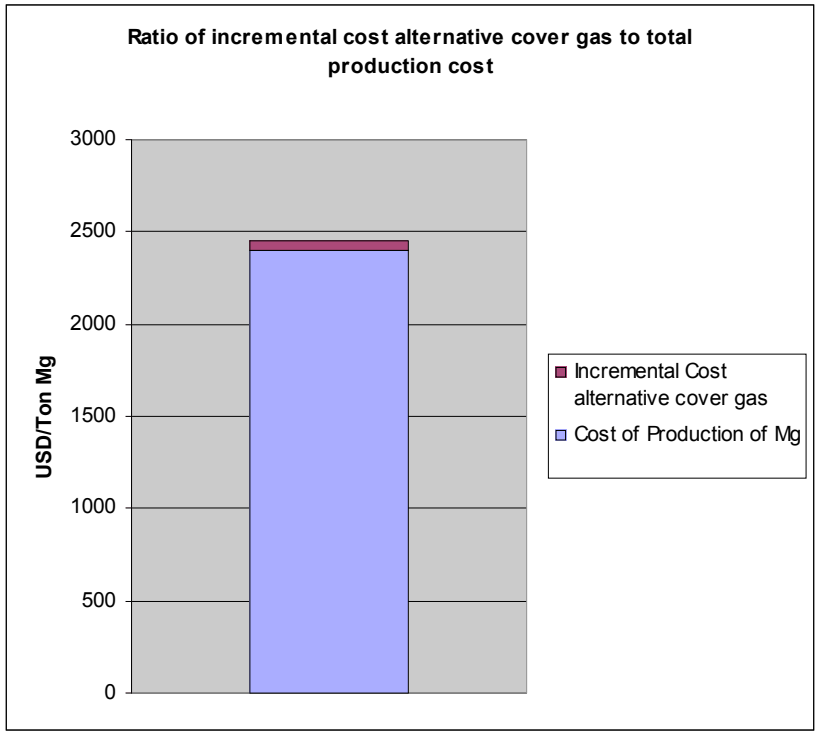




- Amount of CERs per tonne of Mg will be **6-10** (net amount will be 1-6).
- CERs that could be generated from converting all facilities is **3.36 – 5.6 million** per annum.
- IRR for switching cover gas ranges from **30 to 80% (estimated based on capital cost of switching and incremental operating cost of using new cover gas).**

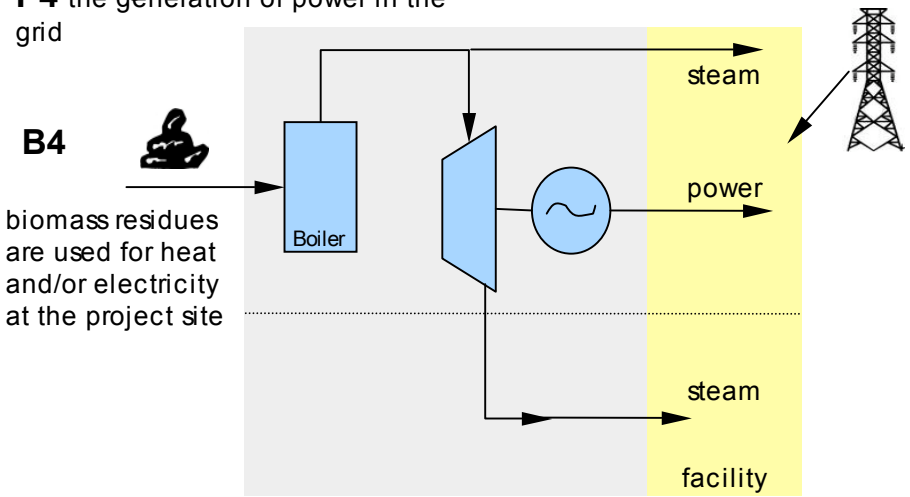
ACM0006 – Consolidated methodology for electricity generation from biomass residues

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

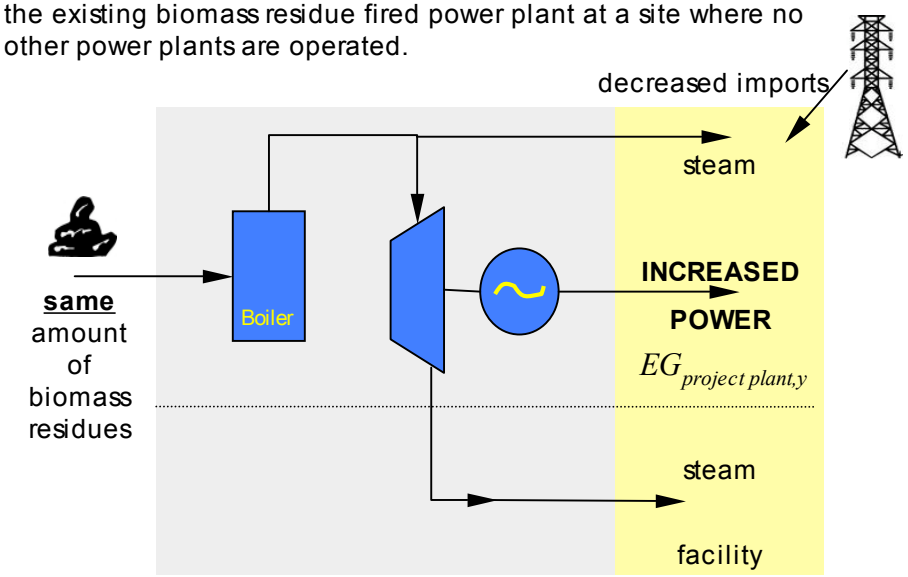
P4 the generation of power in the grid



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.



The retrofit or replacement increases the power generation capacity, while **the thermal firing capacity is maintained**

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

- 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