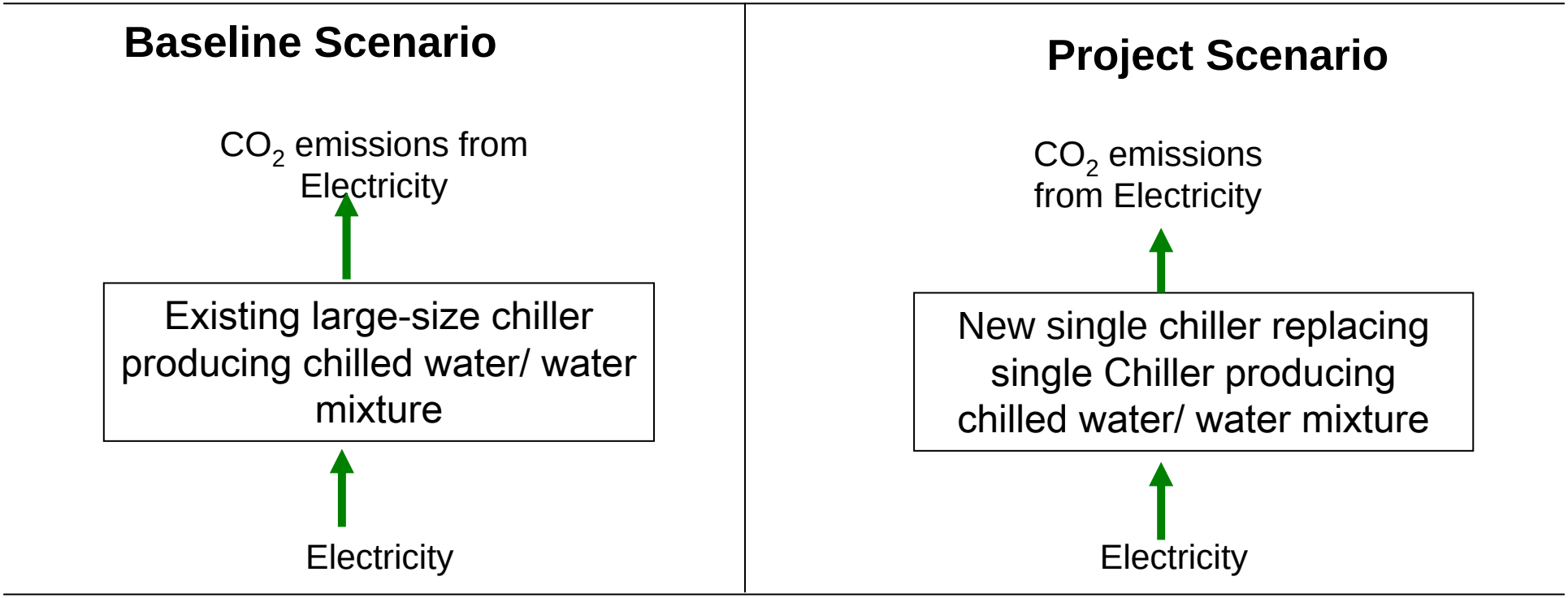
Annotated Agenda Addendum – 2a – Case NM0197- rev

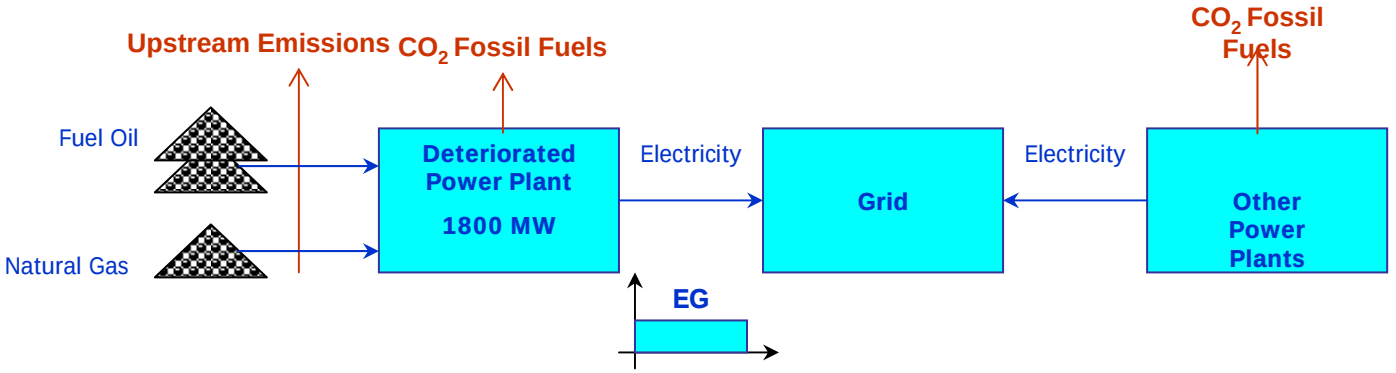
NM0197-rev: Power saving through replacement by energy efficient chillers



Baseline emissions: Based on power consumption function of existing chiller derived before implementation of project activity. This function helps to select the power that existing chiller would have consumed for the output produced by new chiller.
Project Emissions: Based on actual electricity consumption of new chiller and leakage of refrigerant (if refrigerant listed in paragraph 1 of convention).
Leakage: If HCFC22 is used as refrigerant in new, and/or baseline chiller, the leakage is calculated in terms of HFC23 gas that would have emitted in its production facility.

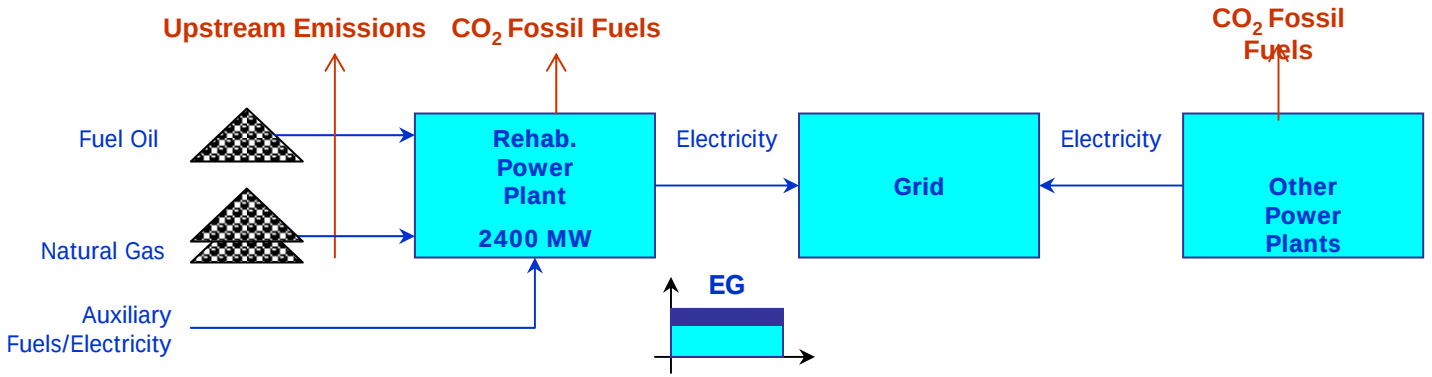
Annotated Agenda Addendum – 2a – Case NM0202- rev

AzDRES Power Plant Efficiency and Change in fuel mix NM0202



Baseline Scenario

Project Scenario



Rehabilitation measures in the turbines, thermal insulation, condensate and feedwater systems, boilers, generators, fans, controls, etc.

+

~~**Change in fuel mix**~~

Annotated Agenda Addendum – 2a – Case NM0203 - rev

NM0203: Energy efficiency improvements of a power plant through retrofitting turbines

Applicability-Project activity

- - steam and gas turbines (single cycle) are retrofitted for energy efficiency improvements;
- - power plant supplies electricity to the connected grid;

  - Not applicable to gas turbine plants, combined cycle plants, cogeneration plants, or plants supplying part of electricity to process before export to grid

Project Boundary

Turbine, generator and grid

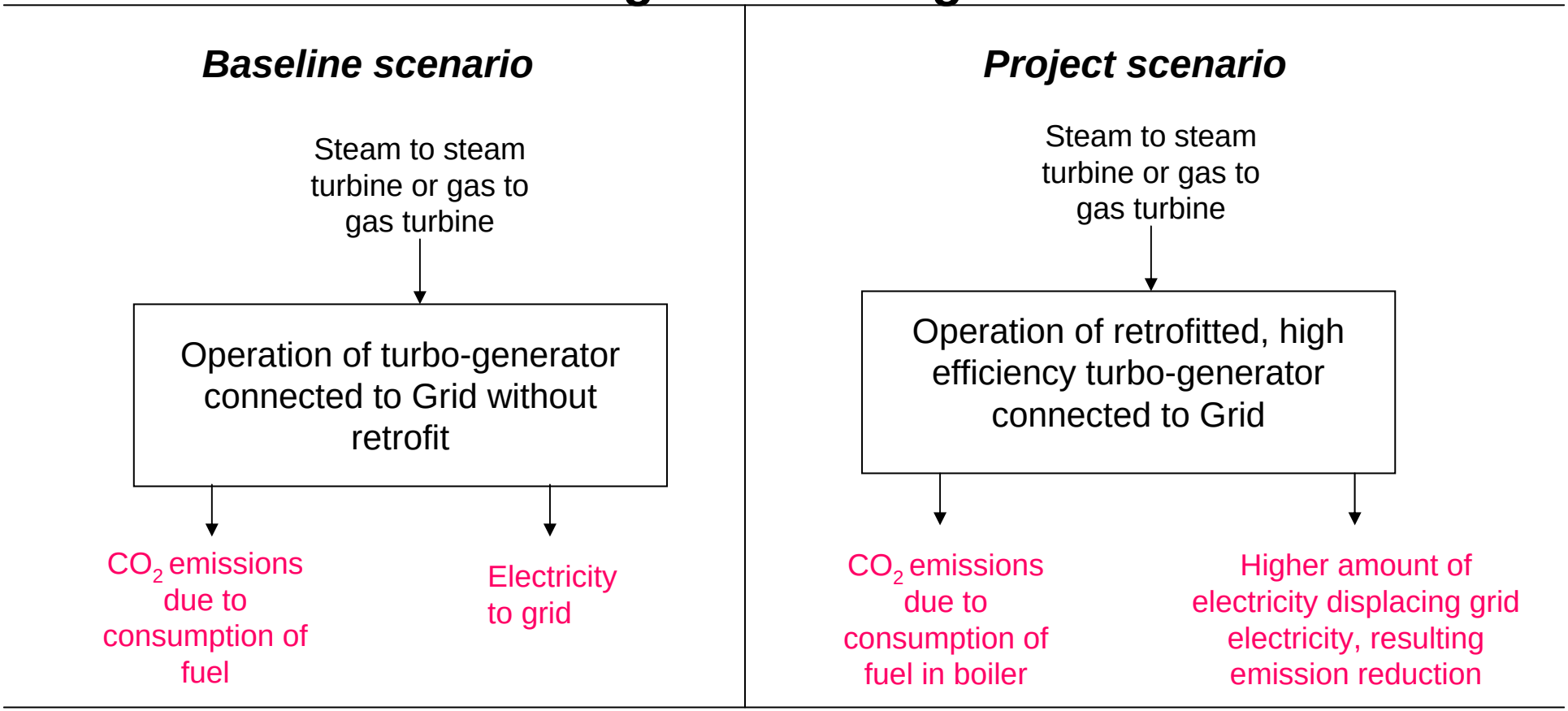
Baseline

Continuation of operation of turbine without retrofit having higher emissions.

Additionality

The methodology proposes the use of the Combined Tool.

NM0203: Energy efficiency improvements of a power plant through retrofitting turbines



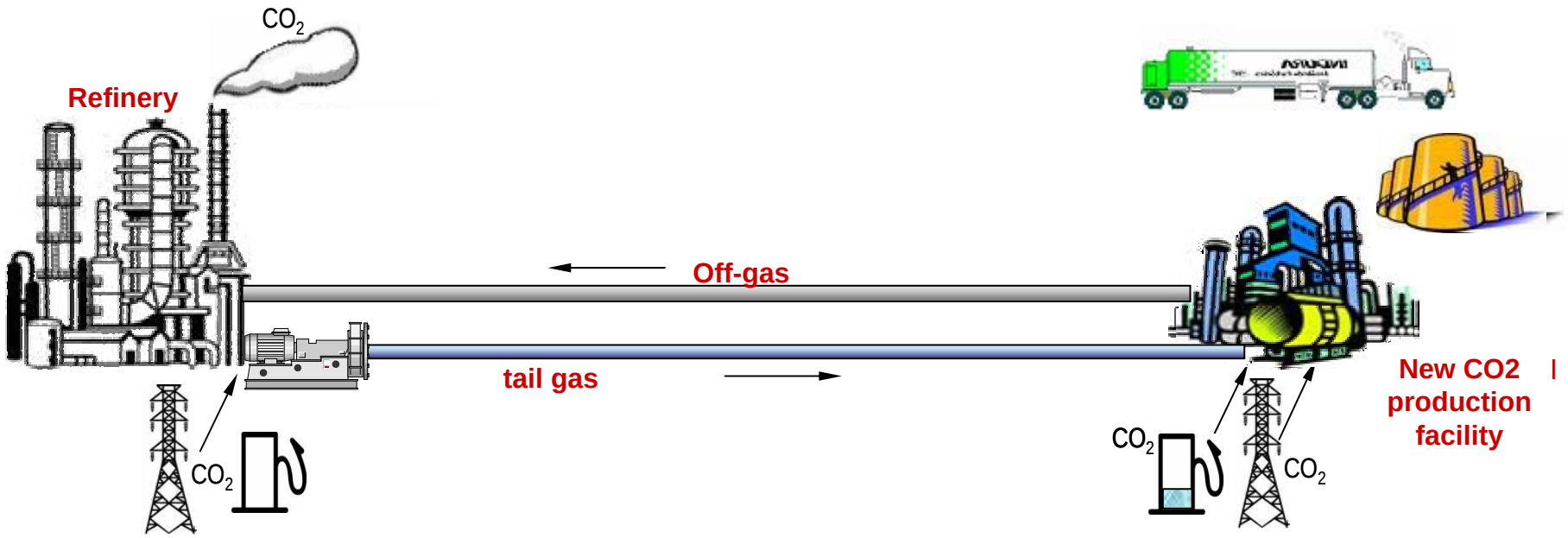
Baseline Emissions: Based on baseline efficiency function of output v/s. heat input to turbine
Note: Maximum efficiency of turbine capped based on performance test of retrofitted turbine immediately after the retrofit.

Project Emissions: Based on actual consumption of fuel.

Annotated Agenda Addendum – 2a – Case NM0230

Recovery of CO2 from tail gas in industrial facilities to substitute the use of fossil fuels for production of CO2 NM0230

Project activity

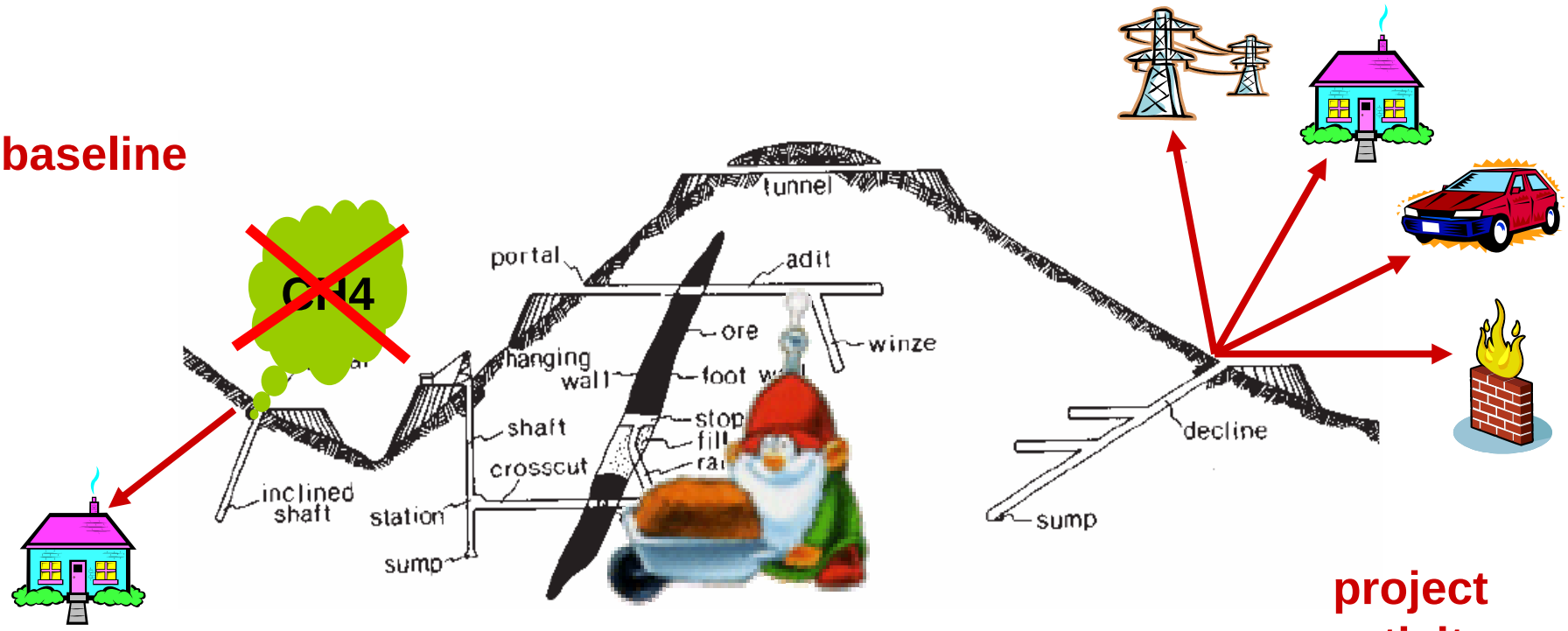


Annotated Agenda Addendum – 2a – Case NM0236

Methodology for mine methane capture and destruction in underground, hard rock, precious and base metal mines

NM0236

baseline

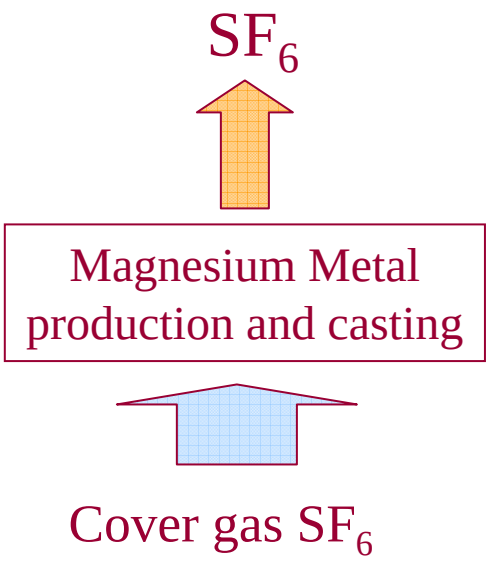


project activity

Annotated Agenda Addendum – 2b – Case NM0212+NM0222

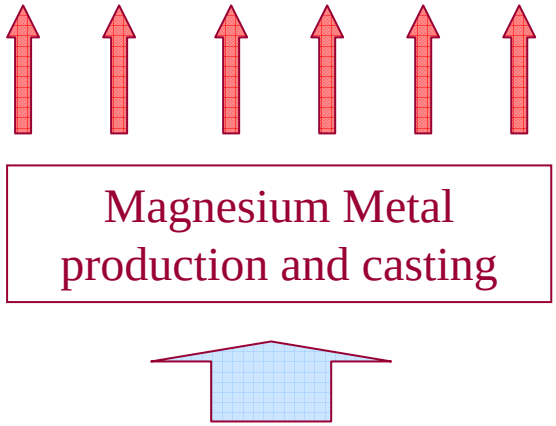
NM0212 and NM0222: Conversion of SF6 to the Alternative Cover Gas in Magnesium Production

Baseline scenario



Project scenario

HFC134a CO2 + CH4+ N2O+ C2F6 + SF6



Cover gas **HFC134a, Novec-612 or SO_2**

The baseline is = 0.5 * SF6 consumption; 0.5 is default destruction of SF6

- Experiments for estimating proposed, but procedure could lead to high level of uncertainty
- Limited studies available on SF6 destruction; IPCC states 30% destroyed.
- Roughly 10 CER per tonne of Magnesium produced; value approx. 10% of sale price of Magnesium
- No sustainable development benefits.

Issue: To allow use of lean-SO2 as cover gas in Project activity

1. **SO_2** technology has been in use for 5-7 years in Europe as SF_6 use is banned in Europe
2. **SO_2** was used before SF6 was introduced in industry.
3. SO_2 in Europe should comply with the regulations of concentration less than 2 ppm.
4. To meet the environmental regulation the "dilute SO_2" has sophisticated delivery systems and also needs instruments in working area to deduct the SO_2 concentration.
5. Die casting may have an exhaust system or may not have one.

The draft methodology as proposed is applicable:

- Only **"dilute SO_2"** technology (defined in the methodology) and
- An associated SO_2 **exhausting and abatement system** is installed; and
- Local regulations in the host country regarding SO_2 emissions in the exhausting system should be complied with. If such regulations are not in place, the following value should be taken into account as a cap limit of SO_2 concentration in the exhausting system – 1470 mg/m3 (dry basis, 273 K, 101,325 kPa at an oxygen concentration of 6 %(v/v).

Decision for the Board:

Option 1: Approve the draft methodology allowing use of "Dilute SO_2"as cover gas; OR

Option 2: To limit the draft methodology to cover gases other than "Dilute SO_2"

NM0212: To allow use of NOVEC-612

- **Novec-612** is a fluorinated ketone, and IPCC does not provide a GWP value
- Three reference provide an approximately the same as CO_2 (i.e., equal to **1**)

Novec 612 Results - Max Weights			
	w/w %	GWP	w/w % * GWP
Novec 612	67.30%	1	0.673
C3F8	33.41%	7000	2338.7
CH4	3.10%	21	0.651
C2F6	5.32%	9200	489.44
			2829

Decision for the Board:

Option 1: Approve the draft methodology allowing use of "Novec-612"as cover gas; OR

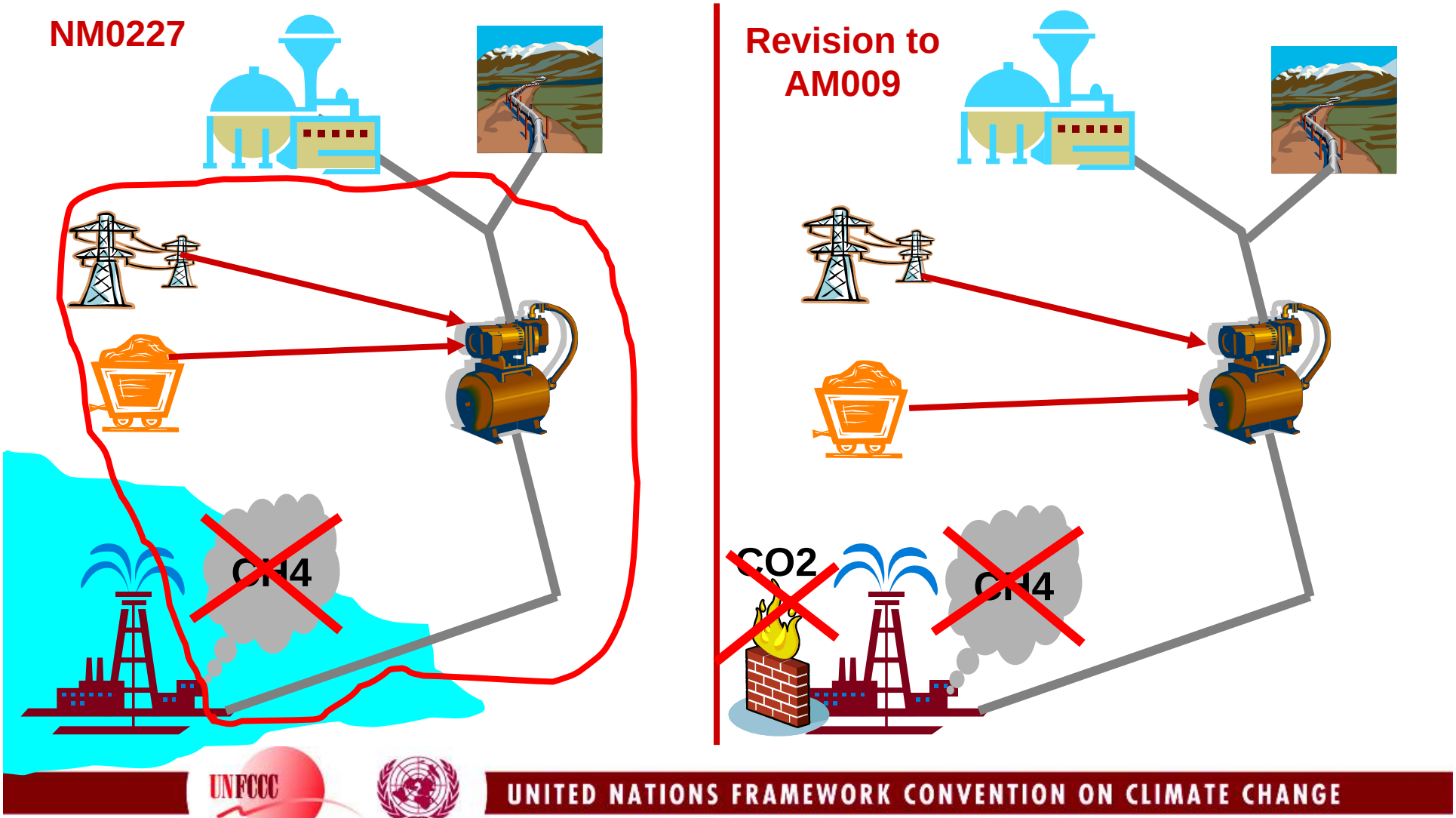
Option 2: To limit the draft methodology to cover gases other than ""Novec-612"

Milbrath D. Proc.of the 60th annual international magnesium association conference, 2003

N. Taniguchi, et. Al.: J. Phys Chem. A. 107 (2003) (15), pp. 2674–2679.

Annotated Agenda Addendum – 2c – Case AM0009+NM0227

Recovery of methane from on- and off-shore oil fields that otherwise will be vented into the atmosphere



Revision of AM0009 to integrate NM0227

Guidance from the Board is requested:

Option 1.

New baseline scenario: venting

Baseline emissions:

(CH4 from venting)*(1-R) + (CO2 from flaring)*R

Option 2.

New baseline scenario: venting

Baseline emissions: CO2 from flaring

Option 1

Requirements:

To be shown at registration and during crediting period	1. 100% of the associated gas from oil wells used by the project activity, has been vented at least for the last 5 years (use satellite imagery database) 2. Common practice test: It can be demonstrated that 50% or more of the oil wells in the country do not flare or utilize associated gas. Other registered CDM projects are not included in this analysis. 3. Compliance with national/local laws and regulations (or provide evidence for non-enforcement > 50%): annual assessment
To be shown at renewable of crediting period:	4. Common practice test: It can be demonstrated that 50% or more of the oil wells in the country do not flare or utilize associated gas. Other registered CDM projects are included in this analysis.

Feedback from „venting“ expert suggests that venting does happen

1. Venting is done in many parts of the world, specially offshore if the infrastructure is not available to evacuate the gas.

2. Flaring of the gas requires compression and systems to flare, which are costly and as flares are not visible, the companies will vent it rather than flare.

3. There are satellite images available through which it can be demonstrated that historically a particular site was venting/flaring.

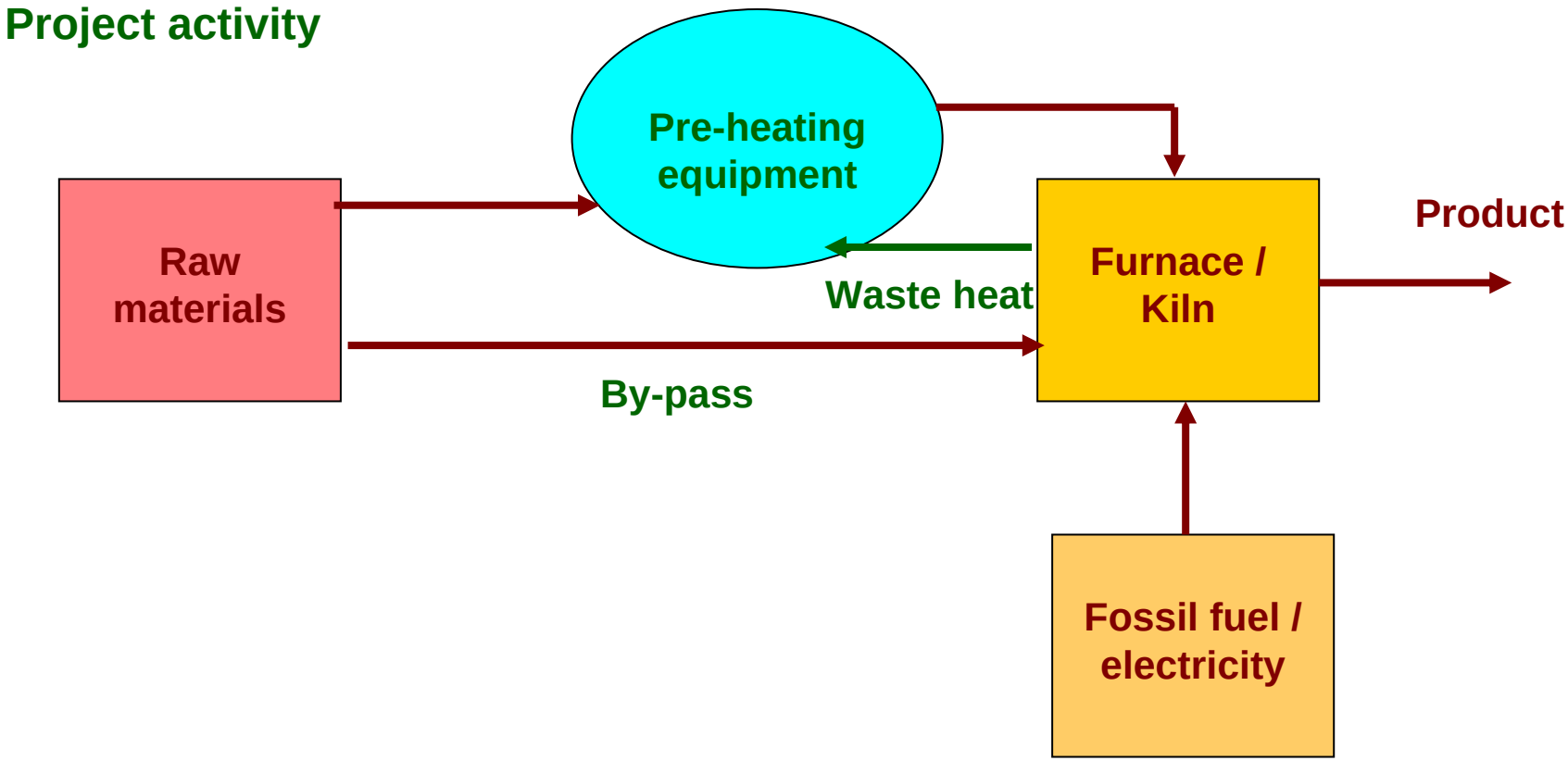
4. Sour gas is normally flared or utilized due to security reasons. Venting mostly refers to sweet gas.

5. Countries were venting is common and reported: USA, Azerbaijan, Indonesia, Venezuela, Trinidad.

6. As enforcement of regulations banning venting is difficult (very difficult to monitor venting as it is invisible especially off-shore), the situation is unlikely to change in the coming 5 years.

Annotated Agenda Addendum – 2a – Case NM0231

NM0231: Waste heat utilization for charge pre-heating in sponge iron manufacturing process at HKMPL, India



NM0231: Waste heat utilization for charge pre-heating in sponge iron manufacturing process at HKMPL, India

MP questioned the accuracy of estimation of baseline emissions in the case of Greenfield projects and requested secretariat to consult experts regarding a possible impact of pre-heater installation on the design of a kiln/furnace

Guidance from the Board is requested:

- **Option 1. Applicable to**

  Existing facilities and

  Greenfield facilities

- **Option 2. Applicable to**

  Existing facilities only

NM0231: Waste heat utilization for charge pre-heating in sponge iron manufacturing process at HKMPL, India

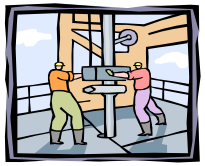
Consultations with industry experts:

- **Pre-heater is a separate piece of equipment**
- **Pre-heater does not affect the design of kiln/furnace**
- **Increase in production output**

Annotated Agenda Addendum – 2e – Case NM0228+NM0233+AM0047

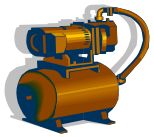
NM0233: Palm Methyl Ester – Biodiesel Fuel (PME-BDF) production and use for transportation in Thailand

Baseline scenario



Extraction

Diesel Plant



Stationary Installations

Captive Fleet

Project scenario

Methanol

Biodiesel Plant

Existing cultivated fields and newly established plantation sites.

Blending

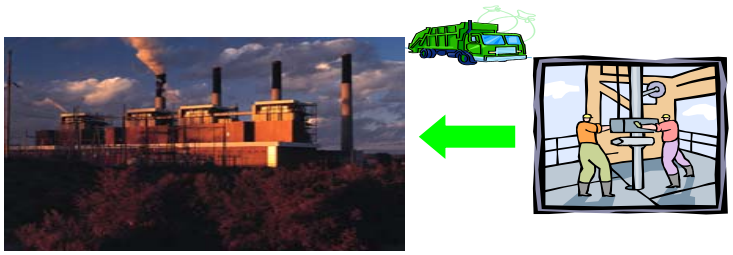
Stationary Installations

Captive Fleet

The project activity can lead to **shift of pre-project activities** outside the project boundary, that will be accounted as leakage for indirect land use change. The Meth Panel notes that it has **not concluded** its work on how to address the shift of pre-project activities. Furthermore, the default approach taken in NM0233 to estimate the leakage due to conversion of land to crop land, based on area of conversion runs counter to EB decision (EB24 annex 13) on NM0082rev which considers such an approach as **flawed though conservative.**

AM0047: “Production of biodiesel based on waste oils and/or waste fats from biogenic origin or from oil seeds cultivated in dedicated plantations for use as fuel”

Baseline scenario



Extraction

Diesel Plant

Stationary Installations

Captive Fleet

Project scenario

Waste oils and/or waste fats

Methanol

Plantations (severely degraded land or under-utilized agricultural land)

Biodiesel Plant

Blending

Stationary Installations

Captive Fleet

Leakage is accounted for the **production and transportation of petrodiesel**.

AM0047: EMISSION SOURCES

PETRODIESEL	BIODIESEL
Oil refinery: energy consumption and fugitive emissions.	**Cultivation of land:** energy (electricity and fossil fuel) consumption, and when applicable, application of fertilizers, application of limestone and dolomite, clearance of land, changes in soil carbon stocks, field burning of biomass, N in crop residues,
	Biodiesel plant: energy (electricity and fossil fuel) consumption.
Regional Distribution: transport from refinery to local distributor.	**Transport:** of feedstock to the biodiesel plant, and of the biodiesel to the blending facility.
Extraction: operation of wells, energy for separation of associated gas, flare combustion, associated CO2, CH4 venting.	**Production of synthetic fertilizer**.
Long-distance transport: transport of crude oil to the refinery.	**Production of Methanol**.

AM0047: Estimation of emissions

Source	Ton CO2e/ ha kg Urea	Ton CO2e/ha (100 kg Urea)	Ton CO2e/ t Biodiesel kg Urea	Ton CO2e/ t Biodiesel (100 kg Urea)
Direct Emissions	0.0022	0.22	0.0034	0.34
Indirect Emissions	0.0002	0.02	0.0004	0.04
Indirect Emissions (leaching and runoff)	0.0005	0.05	0.0008	0.08
Emissions from Urea application	0.0007	0.07	0.0011	0.11
Emissions from urea production	0.0008	0.08	0.0012	0.12
Emissions from the amount of N in crop residues returned to field	0.0005	0.05	0.0007	0.07
Total	0.0049	0.49	0.0074	0.74

AM0047: Estimation of emissions (Data presented by NM0228)

Source	Ton CO2e/ha (Sunflower)	Ton CO2e/ha (Soy)	Ton CO2e/ton biodiesel (Sunflower)	Ton CO2e/ton biodiesel (Soy)
Direct Emissions	0.31	0.31	0.46	0.54
Indirect Emissions	0.16	0.12	0.24	0.21
Emissions from urea application	0.05	0.05	0.07	0.09
Emissions from fertilizer production	0.16	0.16	0.24	0.28
Emissions from the amount of N in crop residues returned to field	0.26	0.1	0.39	0.17
Total	0.94	0.74	1.4	1.29

AM0047: Cases for which relevant emission sources from the cultivation of biomass should be taken into account

Emission Sources	Cases in which the emission sources should be considered
N_2O emissions from the application of fertilizers.	Should be estimated if **synthetic fertilizers or organic fertilizers** are applied at the plantation.
CO_2 emissions from urea application.	Should be estimated if **urea** is applied as a nitrogen source at the plantation.
CO_2 emissions from application of limestone and dolomite.	Should be estimated if **limestone or dolomite** is applied.
Emissions from clearance of land prior to the establishment of the biomass plantation.	If the total stock in above ground and below ground biomass is higher in the project case than in the baseline these emissions **do not need** to be estimated
CO_2 emissions resulting from changes in soil carbon stocks following land use changes or changes in the land management practices.	If the total stock in above ground and below ground biomass is higher in the project case than in the baseline these emissions **do not need** to be estimated.
CH_4 and N_2O emissions from the field burning of biomass.	Should be estimated if biomass from the plantation is to be burnt regularly during the crediting period.
Direct N_2O emissions from land management at the plantation	Should be estimated when relevant, for example, drainage/management of organic soils is only applicable in the case of organic soils.
Emissions from the production of synthetic fertilizer that is used at the plantations	Should be estimated if synthetic fertilizers are applied at the plantation.

AM0047: "Production of biodiesel based on waste oils and/or waste fats from biogenic origin or from oil seeds cultivated in dedicated plantations for use as fuel"

- If the oil seeds are sourced from a plantation area that is registered as one or several CDM A/R project activities, then emissions from cultivation of biomass are not accounted as project emissions.

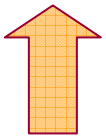
- The Meth Panel notes that it is currently evaluating the possibility of estimating **default emission factors for upstream and shift in pre-project activities emissions**, which can expand the scope of applicability of the current methodology to projects that source the bio-crop from dedicated plantations either from conversion of agricultural lands or from the market. It is envisaged that the default emission factors can be estimated for specific crops in specific regions.

- Emissions associated with petrodiesel production are estimated separately for extraction, transport of crude oil to the refinery, oil refinery and regional distribution. These emissions are quantified based on the eligible production of biodiesel and the default emission factors provided in the methodology. If available, reliable local emission factors from a peer-reviewed publication or a comparable source will be used.

Annotated Agenda Addendum – 4a – Revision to AM0021

AM0021: “Baseline Methodology for decomposition of N2O from existing adipic acid production plants”

Baseline scenario

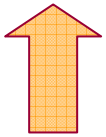


N_2O

Adipic Acid Facility

Project scenario

N_2O destruction facility



N_2O

Adipic Acid Facility

AM0021: “Baseline Methodology for decomposition of N2O from existing adipic acid production plants”

Main Changes:

- Clear procedures for the identification of the baseline scenario;
- Clearer procedures for estimating the baseline N_2O emission using equations;
- A requirement to measure the N_2O emissions before the destruction unit to estimate the baseline N_2O emissions;
- Further clarity in the monitoring requirements.

Annotated Agenda Addendum – 4b – Revision to AM0030

Annotated Agenda Addendum – 4c – Revision to ACM0001

AM_CLA_0057 (ACM0001): Ex post monitoring of the adjustment factor for landfill projects

The following has been added to the methodology:

- A procedure to calculate the Adjustment Factor, where in the baseline the landfill gas was captured and destroyed/used.
- Guidance on how to apply the "Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site" for estimating ex-ante landfill gas emissions over the crediting period.

Annotated Agenda Addendum – 5d – Revision to ACM0002

Revision to ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”

Reasons for revision:

- **to clarify that if a run-of-river power plant is leading to an increase of the water reservoir, the power density of the reservoir increase shall be checked and shall be more than 4 W/m2 (EB34);**
- **to clarify that the methodology is only applicable to project activities where a new power generation unit(s) using renewable energy source is installed or an existing renewable power generation unit(s) is modified/retrofitted (CLA_0061);**
- **to clarify that three years of historical generation data (five years for hydro power plants) have to be available (CLA_0061);**
- **to delete from the monitoring section parameters related with well testing that are not used in the methodology (CLA_0062);**
- **to incorporate the “Tool to calculate the emission factor for an electricity system”.**

Annotated Agenda Addendum – 5e – Revision to ACM0003

Revision to ACM0003 “Emissions reduction through partial substitution of fossil fuels with alternative fuels or less carbon intensive fuels in cement manufacture”

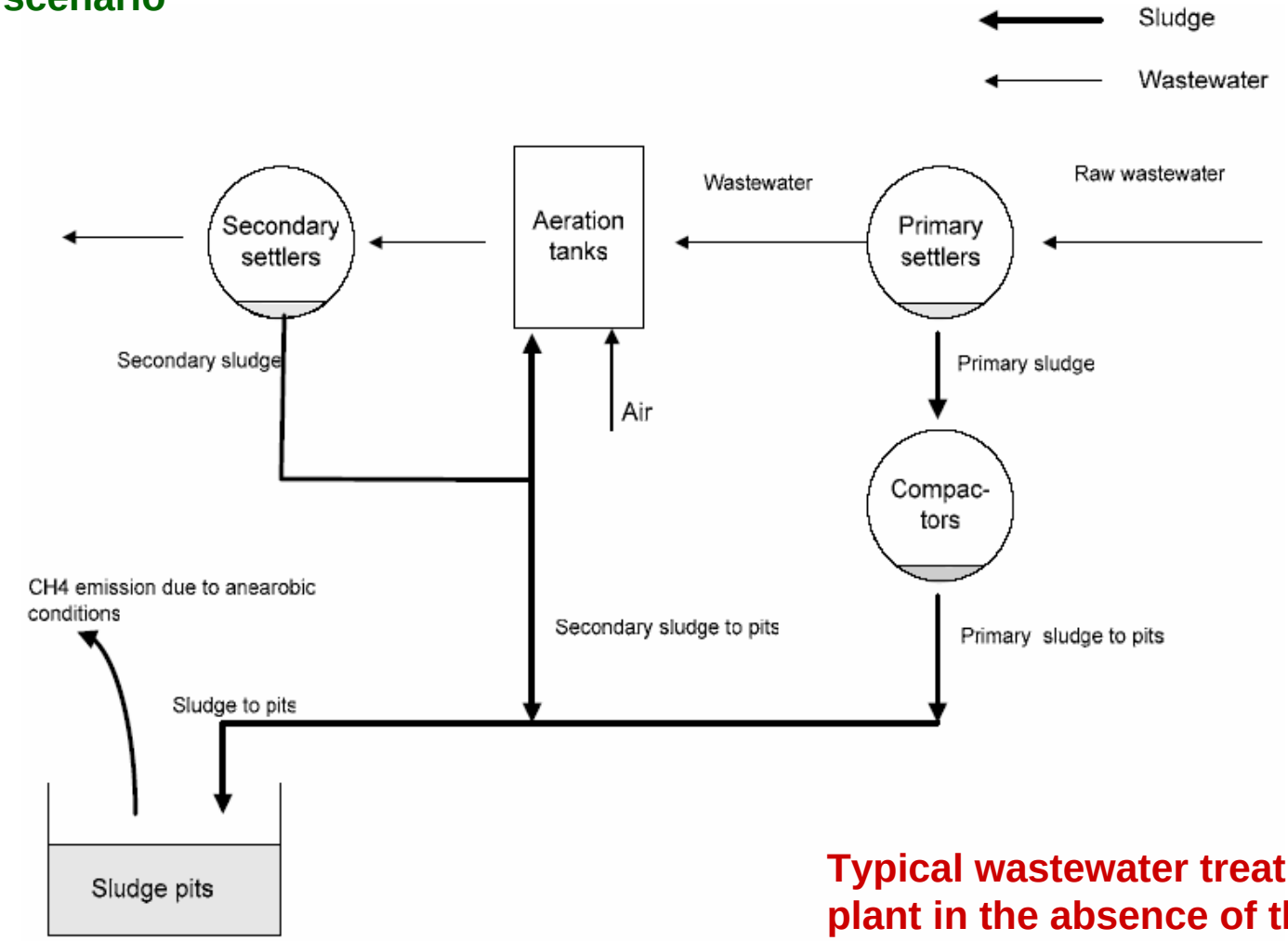
Reasons for revision:

- **to clarify that the methodology is applicable to fuel switch in the process of producing clinker and that the pre-calciner, as a component of the kiln, is included in this process (CLA_0059);**
- **to provide a definition of the calcination process (process of producing clinker) and the fuel consumed in the process that is included within the project boundary.**

Annotated Agenda Addendum – 6 – Consolidation of AM0013 and AM0022

"Avoided methane emissions from wastewater treatment"
AM0013+AM0022

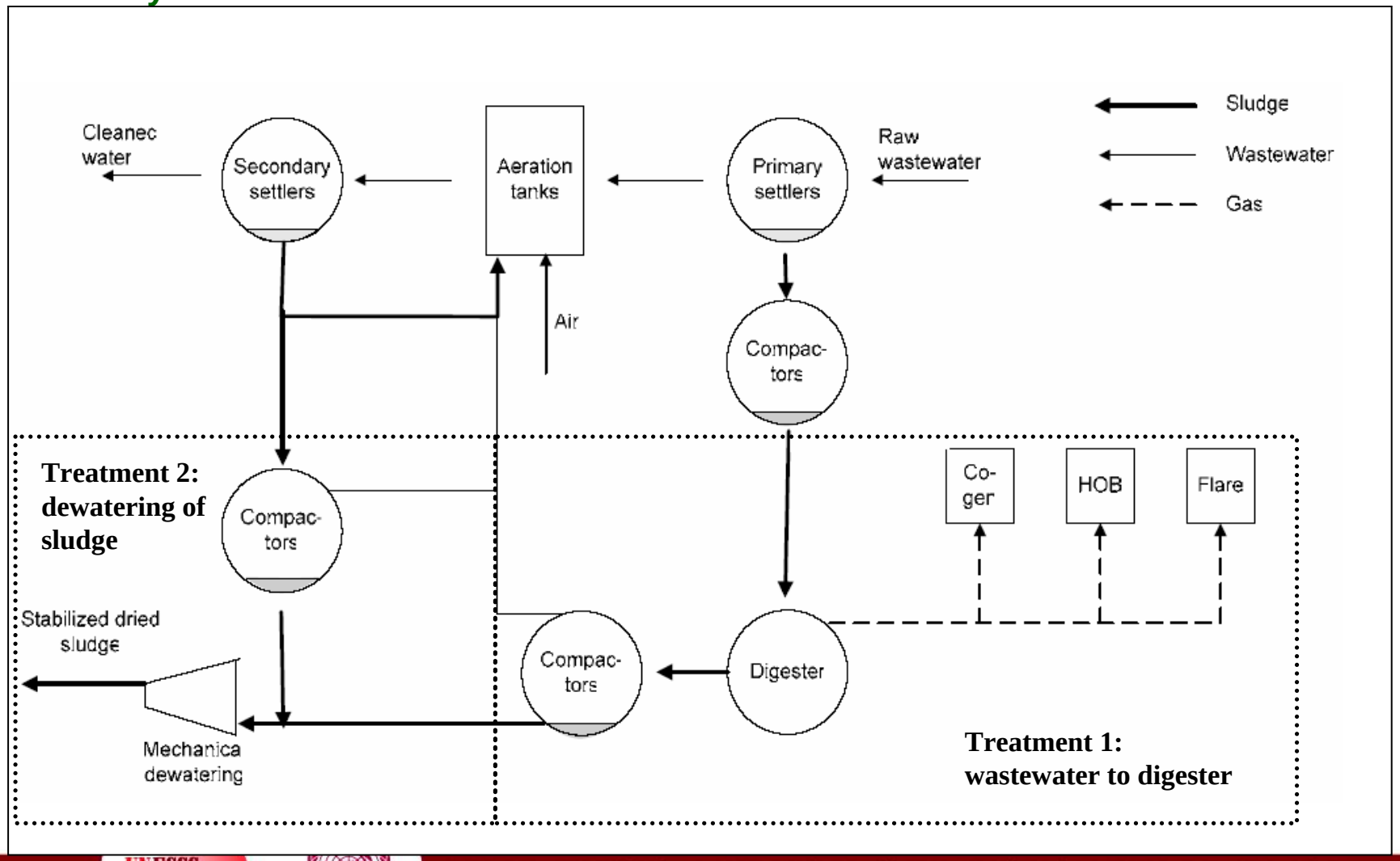
Baseline scenario



Typical wastewater treatment plant in the absence of the project

"Avoided methane emissions from wastewater treatment" AM0013+AM0022

Project activity



"Avoided methane emissions from wastewater treatment" AM0013+AM0022

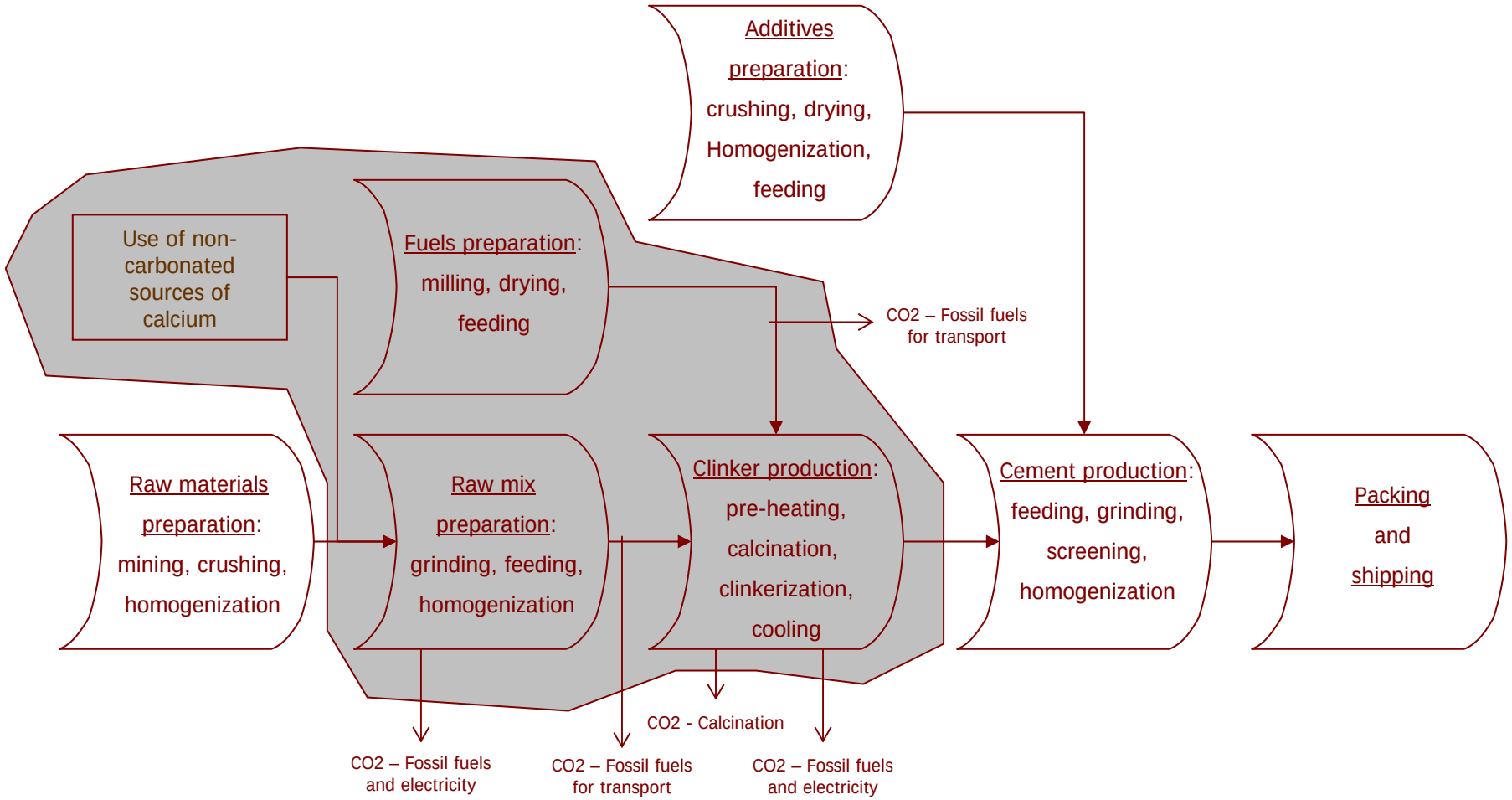
Features of consolidation:

- **All applicability conditions of AM0013 and AM0022 remain;**
- **Better description of the possible elements of the project activity (i.e. treatment of the wastewater/sludge in the digester, dewatering of sludge and land application);**
- **Description of alternative baseline scenarios for treatment of wastewater streams, sludge disposal, generation of heat and electricity;**
- **"Tool to calculate the emission factor for an electricity system";**
- **"Tool to calculate project emissions from electricity consumption";**
- **"Tool to calculate project or leakage CO2 emissions from fossil fuel combustion".**

Annotated Agenda Addendum – 8 – Consolidation of AM0033 and AM0040

"Consolidated baseline and monitoring methodology for project activities using alternative raw materials that do not contain carbonates for clinker manufacturing in cement kilns"

AM0033 + AM0040



"Consolidated baseline and monitoring methodology for project activities using alternative raw materials that do not contain carbonates for clinker manufacturing in cement kilns"

AM0033 + AM0040

Features of consolidation:

- **Expansion of applicability to Greenfield projects;**
- **Exclusion of LOI method used in AM0033 as it may lead to overestimation of CO2 emissions;**
- **"Tool to calculate the emission factor for an electricity system";**
- **"Combined tool for identification of baseline scenario and demonstration of additionality"**

"Consolidated baseline and monitoring methodology for project activities using alternative raw materials that do not contain carbonates for clinker manufacturing in cement kilns"

AM0033 + AM0040

Reasons for LOI exclusion:

- LOI can be attributed to the decomposition of carbonates however, other factors such as water of hydration, organic materials (roots, woods, plants etc.) and sulphur containing minerals may also contribute;
- In the cement industry, the LOI method is used mostly for the quick determination of carbonated matter content of raw materials. In AM0033, the method is used to determine CO2 emissions due to the calcination of raw materials used in the production of clinker in the kiln. The main problem is that the method may lead to an overestimation of CO2 emissions since moisture and other volatiles, which may be present in the sample under analysis, affect the test results.