Working Group initiatives & objectives for 2025/2026

CCGT Efficiency Penalty					
WG Name	CCUS Working Group	**Chair**	Jens Walter (BASF)	**Co-chair**	David Peralta-Solorio (Uniper)
Project lead	Jens Walter (BASF)				
Core team	Jens Walter (BASF), David Peralta-Solorio (Uniper), Ward De Paepe (UMons), Nicolò Cairo (ETN)				
ETN officer in charge	Nicolò Cairo				

Initiative description

Short project description

The efficiency penalty is the most important criterion for the economy of CCS. The penalty of different technologies and including different scenarios of carbon removal (90-95%) are to be considered.

Objective setting

The CC technology with the highest TRL is the amine gas treating. Different system configurations such as the use of exhaust gas recirculation can have a major influence on efficiency. Also new technologies are developed.

For the scope of this new Master Thesis, emphasis will be placed on **post-combustion carbon capture technologies**, with possible EGR solutions. In addition, the option for blue hydrogen may also be considered during the implementation of the activities.

In more detail, the analysis will be carried out, by taking into account retrofit/new-built assets, baseload or flexible operations. Based on the choice of operations and fuels to be considered, the unit size will be defined at the earlier stage of the work (utilities to provide a profile).

Expected outcome

A comprehensive overview of the possible system configurations for CC and their expected efficiency penalty for the entire system over the entire load range.

Implementation of the activities

Project execution

Please describe the role and the involvement of the participating members. Estimate the required manhours. Opportunities to involve a Master student from an ETN University could be explored. This activity may be delivered via a Master Thesis (in light of the positive experience with the previous two CCS Master Thesis).

Project finances

No external funding is required.

Meeting schedule and dissemination

The CCUS Working Group monthly meeting will provide a guiding platform for the Master Thesis. Regular updates and feedback from ETN Members will be exchanged during these occasions.

Deliverables & Milestones (max. 1 per each objective)			
Deliverable 1	Master Thesis Description	**Timing**	09/2025 (2025)
Explain briefly.			
Deliverable 2	Delivery of the Master Thesis	**Timing**	06/2026
Explain briefly.			

Milestone 1	Start of the Master Thesis	**Date**	09/2025
Explain briefly.			
Milestone 2	Delivery of the Master Thesis	**Date**	06/2026
Explain briefly.			
Project timeline Please provide a simple planning with milestone and deliverables.			