



ETSAP – TIAM phase II

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ETSAP Workshop,
June 3rd, 2014



Road Map for phase II:

- 1. Each team runs ETSAP TIAM from phase I and defines the possible improvements.**
- 2. First workshop in Amsterdam with presentations from each partner and discussion of the planned improvements.**
- 3. Each team provides the improvements in separate files**
- 4. Discussion on the first improvements in the second workshop in London, evaluation of the relevance of these improvements.**
- 5. The common version of ETSAP-TIAM will be prepared by IER (IEW / ETSAP meeting in China)**
- 6. Project finishing in September 2014 with a final report of improvements**



Deliverables

- **An updated version of a common ETSAP-TIAM for energy systems analysis, including extensions provided by the partners**
- **Technical reports on the feasibility or actual extension of the second ETSAP-TIAM phase**
- **Periodic reports on workshops or seminars, and on analytical studies undertaken in connection with the partners (EXCO reports)**
- **A final report on the activities of the second ETSAP-TIAM phase**



Improvements promised by partners for ETSAP-TIAM phase II

Institution	Workprogramm
ECN	CCS in the Industry
CMA	CCS Potentials and costs
VITO	Further Improving demand scenarios for steel production and trade
JRC	Improvement of oil and coal trade, and unconventional hydrocarbons
UCL	Improvement to climate module
Ciemat	Update + New Nuclear Fusion module
DTU	Update China and debugging
IFE	Update and improvement of wind power in ETSAP-TIAM
IER	Integration of the improvements in



Improvements for ETSAP-TIAM status

Institution	Workprogramm	Status
ECN	CCS in the Industry	done
CMA	CCS Potentials and costs	done
VITO	Further Improving demand scenarios for steel production and trade	open
JRC	Improvement of oil and coal trade, and unconventional hydrocarbons	open
UCL	Improvement to climate module	done
Ciemat	Update + New Nuclear Fusion module	done
DTU	Update China and debugging	done
IFE	Update and improvement of wind power in ETSAP-TIAM	done
IER	Integration of the improvements in	In progress



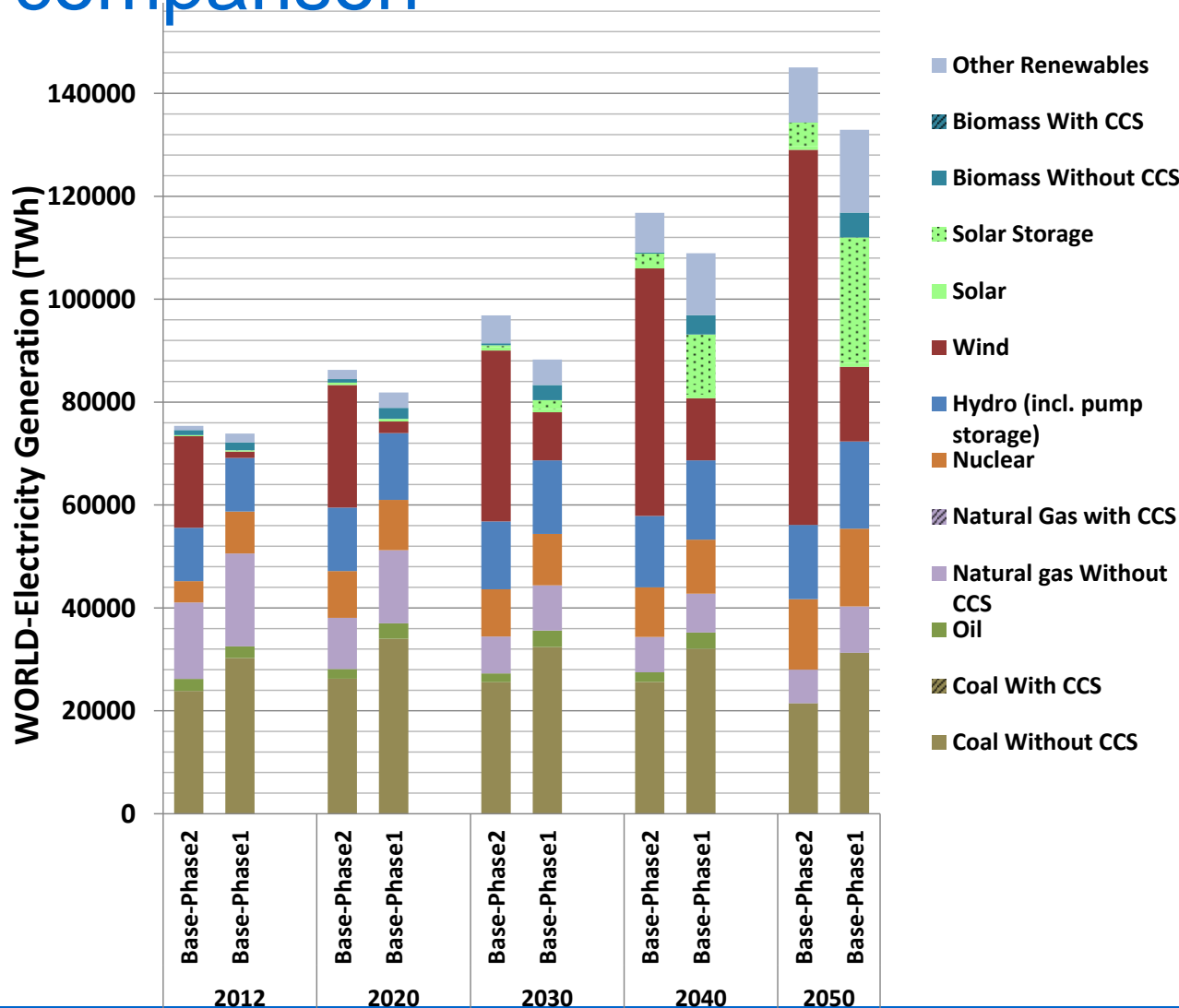
Szenarioanalysis

Scenario	Description
Base	Development without CO2 constraints or CO2 tax.
CO2Tax	CO2Tax assumed 100\$/t tax for GHG emissions in 2030 (5% p.a.) for all regions.

Comparison of the results of ETSAP TIAM phase I and phase II



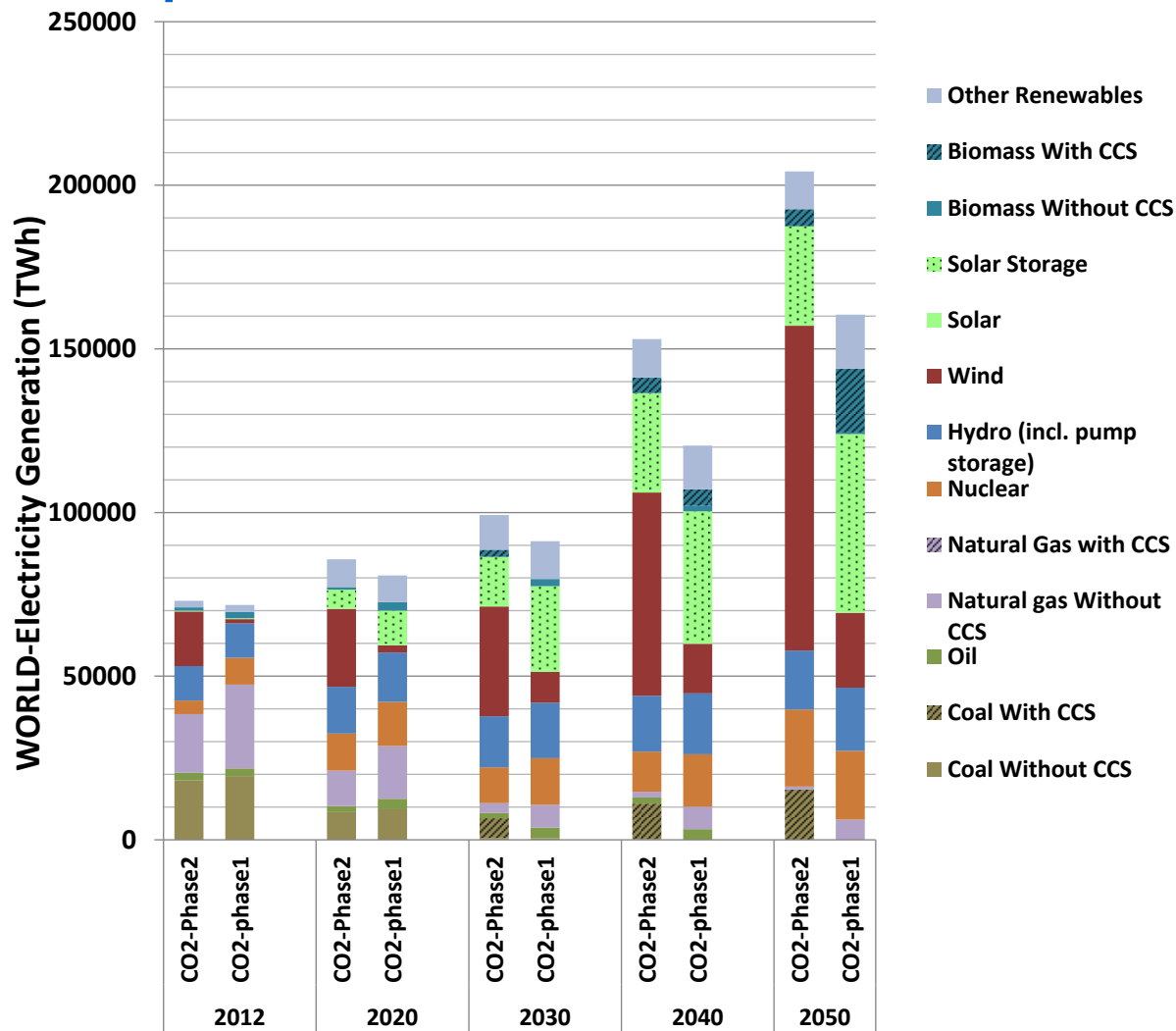
Electricity generation world – base case comparison



- **Updated electricity capacities in base year**
- **Higher share of Wind technology in Electricity generation indicates the effect of new wind technologies and potentials**
- **More flexibility in using electricity consumption technologies in industry cause a higher electricity demand/generation**

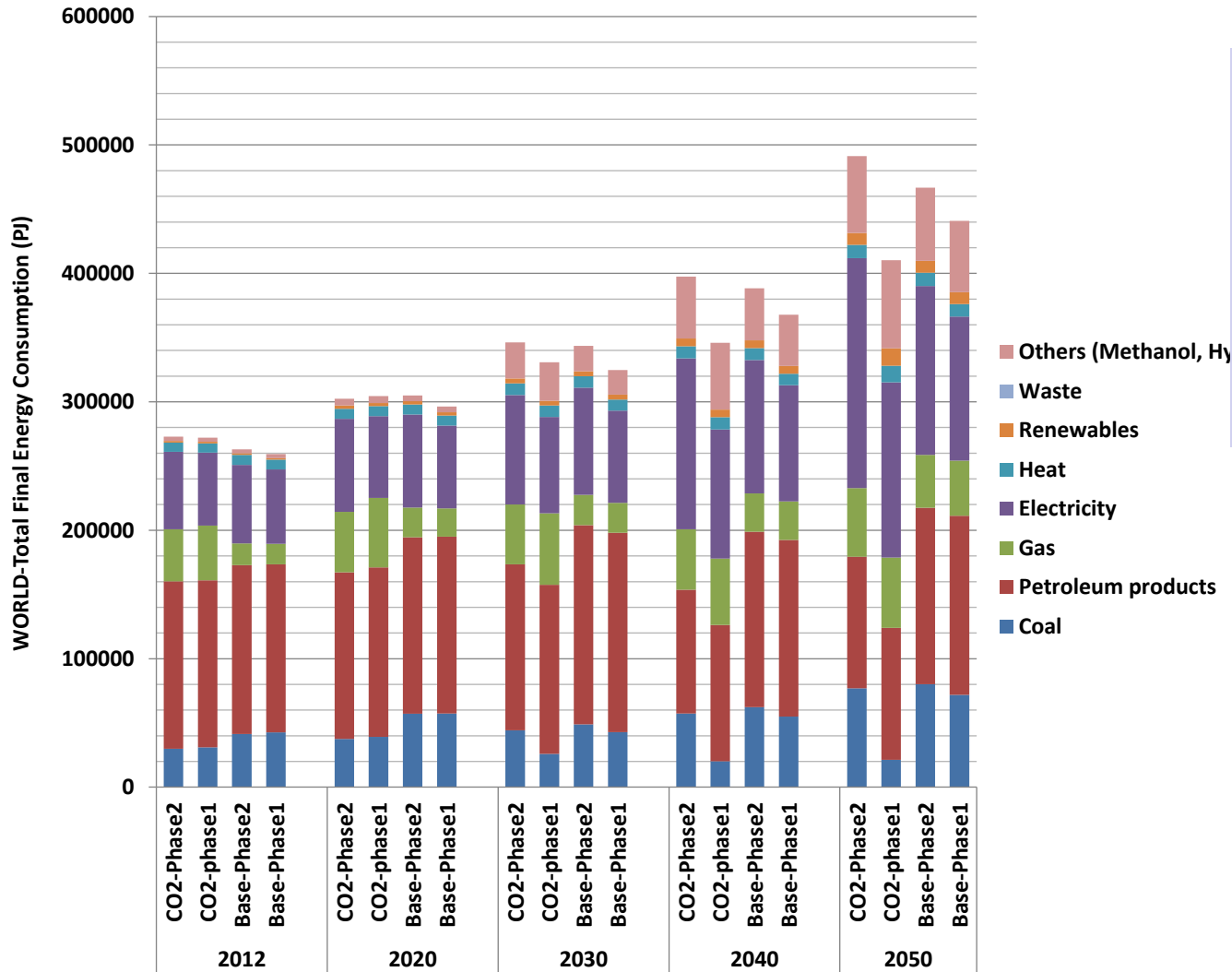


Electricity generation world – CO2tax case comparison



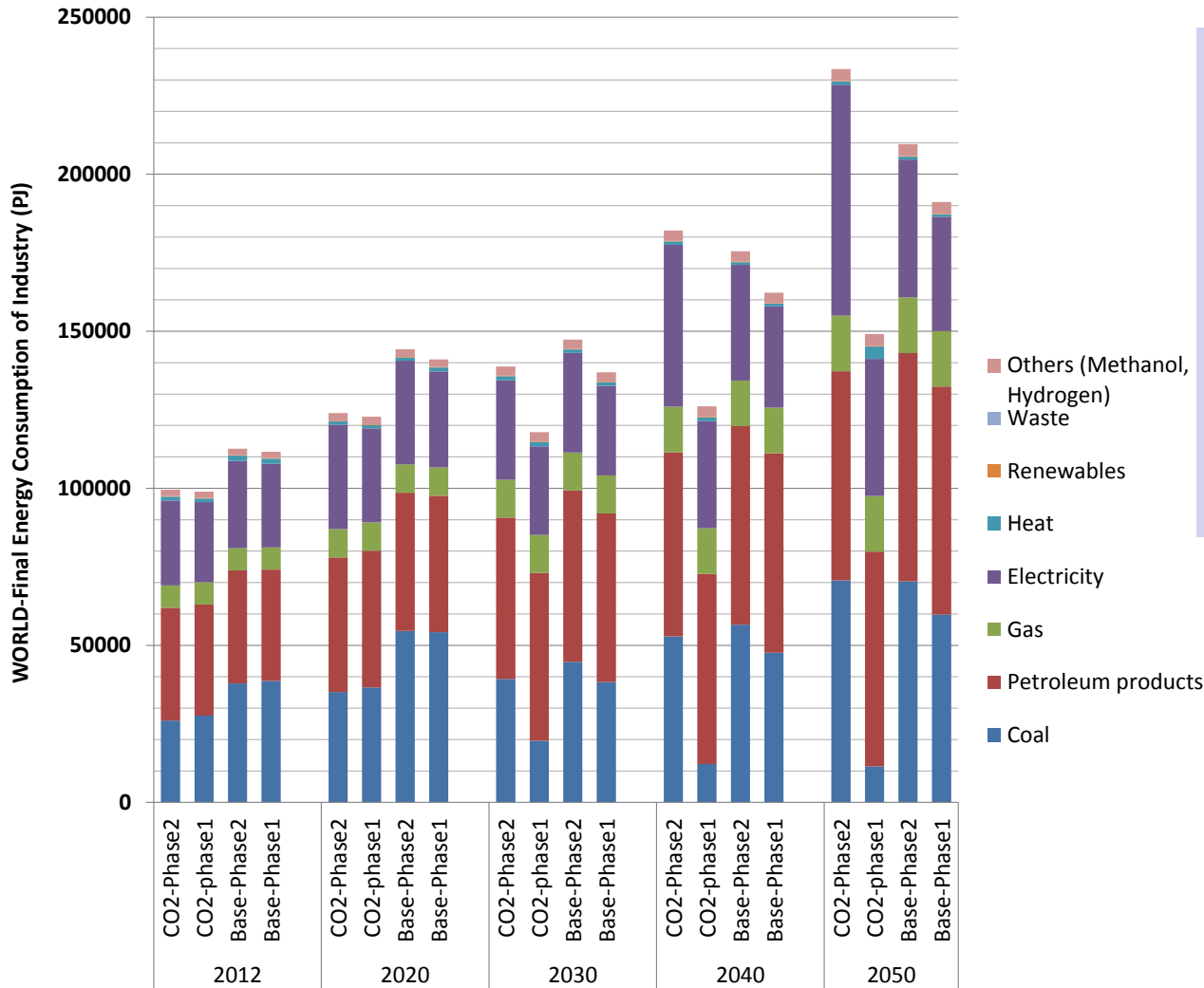
- **New CCS technologies in Industry sector producing part of industry electricity demand**
- **In general updated CCS potentials have impact on CCS plants**
- **The new nuclear extraction path and the updated nuclear power plants not effect much the results**

Final energy consumption world



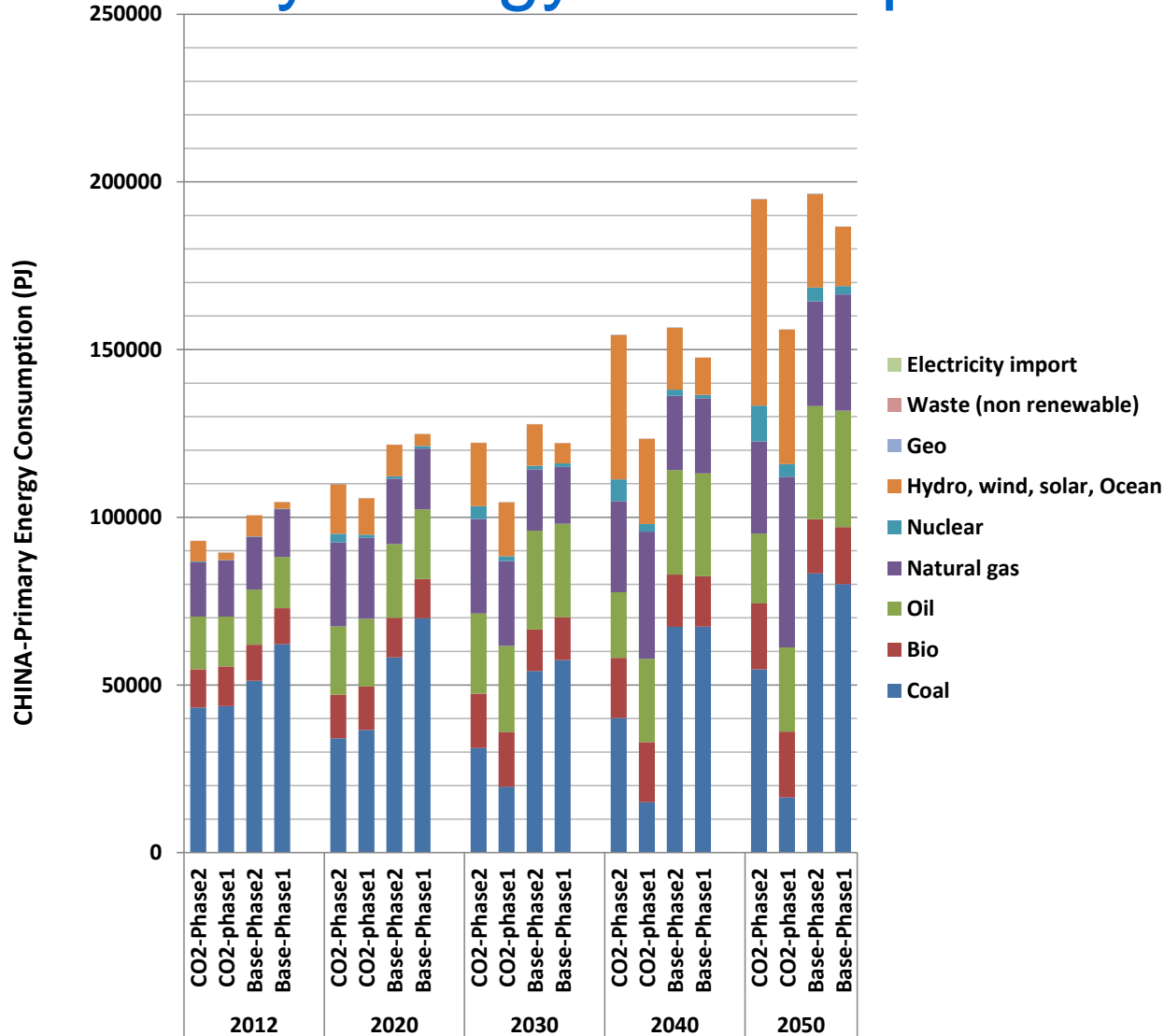
- **Higher final electricity consumption**
- **Changes in coal consumption in the CO2 case additional due to additional CCS options**

Final energy consumption industry world



- **Higher consumption in final energy consumption**
- **Electricity demand growth**
- **Changes in coal consumption in the CO2 case due to the additional CCS options**

Primary energy consumption China



- **Recalibration of the base year related shares of energy carries used and total amount**
- **Higher primary energy consumption due to changes in demand projection**
- **Impact on the updated wind and CCS potentials**
- **Impact on the updated technology characterization in industry and power generation**



Summary

- Model improvements have not been done in the main areas but also some changes/correction have been made in the base year templates and the description of new technologies
- A version of ETSAP TIAM phase II will be tested at the moment in the group.
- A updated description of the necessary scenario files will be generated
- It's a active platform / collaboration with a open discussion also related general research question in the are of energy system modelling. (9 active ETSAP partners are in involved + one observer)