



NEW OPEN DATABASE



PREPARED FOR THE EUROPEAN COMMISSION, DG ENER,
UNDER SERVICE CONTRACT N° ENER/2020/OP/0011/C2/SER/2019-569/SI2.840687



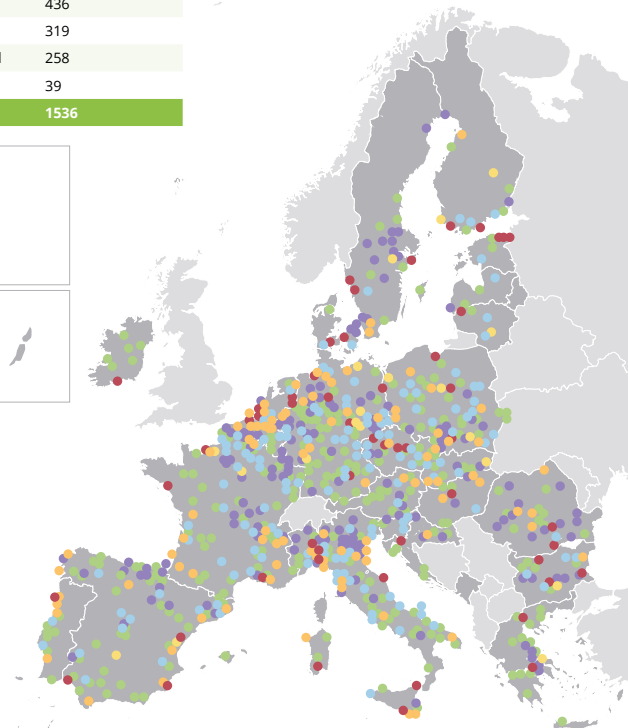
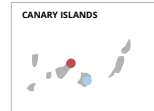
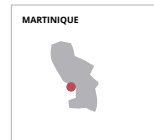
AIDRES

ADVANCING INDUSTRIAL DECARBONIZATION BY ASSESSING THE FUTURE USE OF RENEWABLE ENERGIES IN INDUSTRIAL PROCESSES

The AIDRES project built a spatially explicit open database, covering future demands for renewable energy carriers: electricity, natural gas, hydrogen, biomass, various liquid fuels and heat. Thus, it represents current and future pathways for six energy-intensive industries in the European Union: steel, chemical, cement, glass, fertilisers and refineries.

AIDRES INDUSTRIAL PRODUCTION SITES PER SECTOR

Sector	# Production Sites
Steel	372
Refinery	112
Cement	436
Glass	319
Chemical	258
Fertiliser	39
TOTAL	1536



MAIN PROJECT GOALS

- To identify the magnitude of renewable energy demand for potential technological innovation paths of energy-intensive industries towards carbon neutrality in 2030 and 2050.
- To compare effectiveness, efficiency and investment needs of technological innovation options.
- To identify potential symbiosis with other sectors.
- To determine where resulting renewable energy demands will be located within the EU.

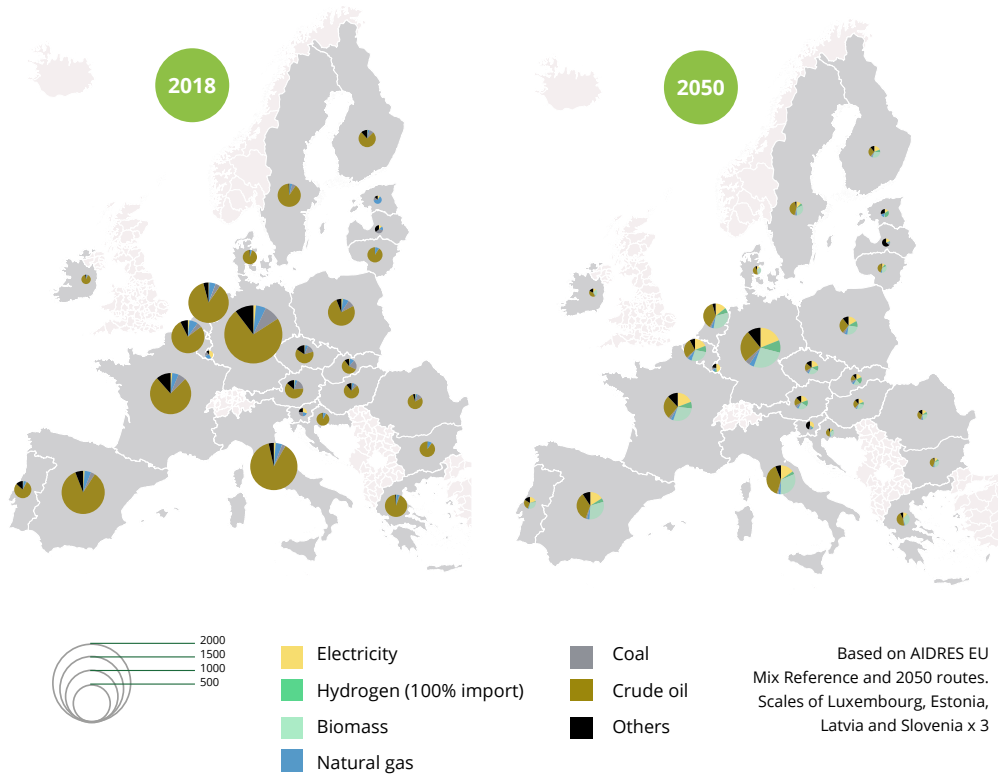


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AIDRES EU ENERGY AND FEEDSTOCK INPUT

By 2050, around 2000 TWh additional green energy and feedstock inputs.
Strong decrease in crude oil, natural gas and coal in all sectors by 2050.



PROJECT PARTNERS



WWW.ENERGYVILLE.BE/EN



Discover the AIDRES results in the Energy and Industry Geography Lab, developed and maintained by the European Commission's Joint Reserach Centre.

ENERGY INTENSIVE INDUSTRIES AND PRODUCTS IN SCOPE

6 Sectors	14 products
Steel	Primary and secondary steel excl. steel finishing sites
Refinery	Light liquid fuel (63,8% of product of crude oil) excl. naphtha, heavy fuel, other
Cement	Portland Cement II, LC3 cement
Glass	Flat, container, fibre glass
Chemical	Olefins, polymers and organic synthesis excl. other basic chemicals and downstream products
Fertiliser	Ammonia, urea, nitric acid



INDUSTRIAL PRODUCTION ROUTES USING SCENARIOS

NR	YEAR	DESCRIPTION	€/t _{CO2}	€/MWh electricity	kg _{CO2} /MWh electricity	€/kg H ₂	kg _{CO2} /kg H ₂	€/MWh NG
0	2018	Reference	25	125	231	1.8	8.2	24.4
1	2030	low H ₂ price	120	71	120	3	0	25
2	2030	low H ₂ - high NG price	150	71	120	3	0	50
3	2030	high H ₂ price	150	71	120	5	0	25
4	2030	high H ₂ price - high NG price	150	71	120	5	0	50
5	2050	low H ₂ price	350	71	0	1.5	0	35
6	2050	low H ₂ - high NG price	350	71	0	1.5	0	50
7	2050	high H ₂ price	350	71	0	2.5	0	35
8	2050	high H ₂ price - high NG price	350	71	0	2.5	0	50

CO₂ EMISSION REDUCTIONS IN THE INDUSTRIAL PRODUCTION ROUTES

- Direct CO₂ emissions target by sector, related to process and energy, based on EU FF55 Mix reference scenario.
- Targets for 2030 and 2050 compared to yearly reported average 2015 - 2019.
- Historical CO₂ emission reduction progress from 1990 until 2018 are considered.

AIDRES EMISSION REDUCTION TARGETS		
Sector	2030	2050
Steel	21%	86.3%
Refineries	29%	87.2%
Cement	13%	93.2%
Glass	13%	93.2%
Chemical	29%	96.1%
Fertiliser	29%	96.1%

Discover more about the AIDRES project on our EnergyVille website, providing you with an interesting selection of project highlights and results.

