

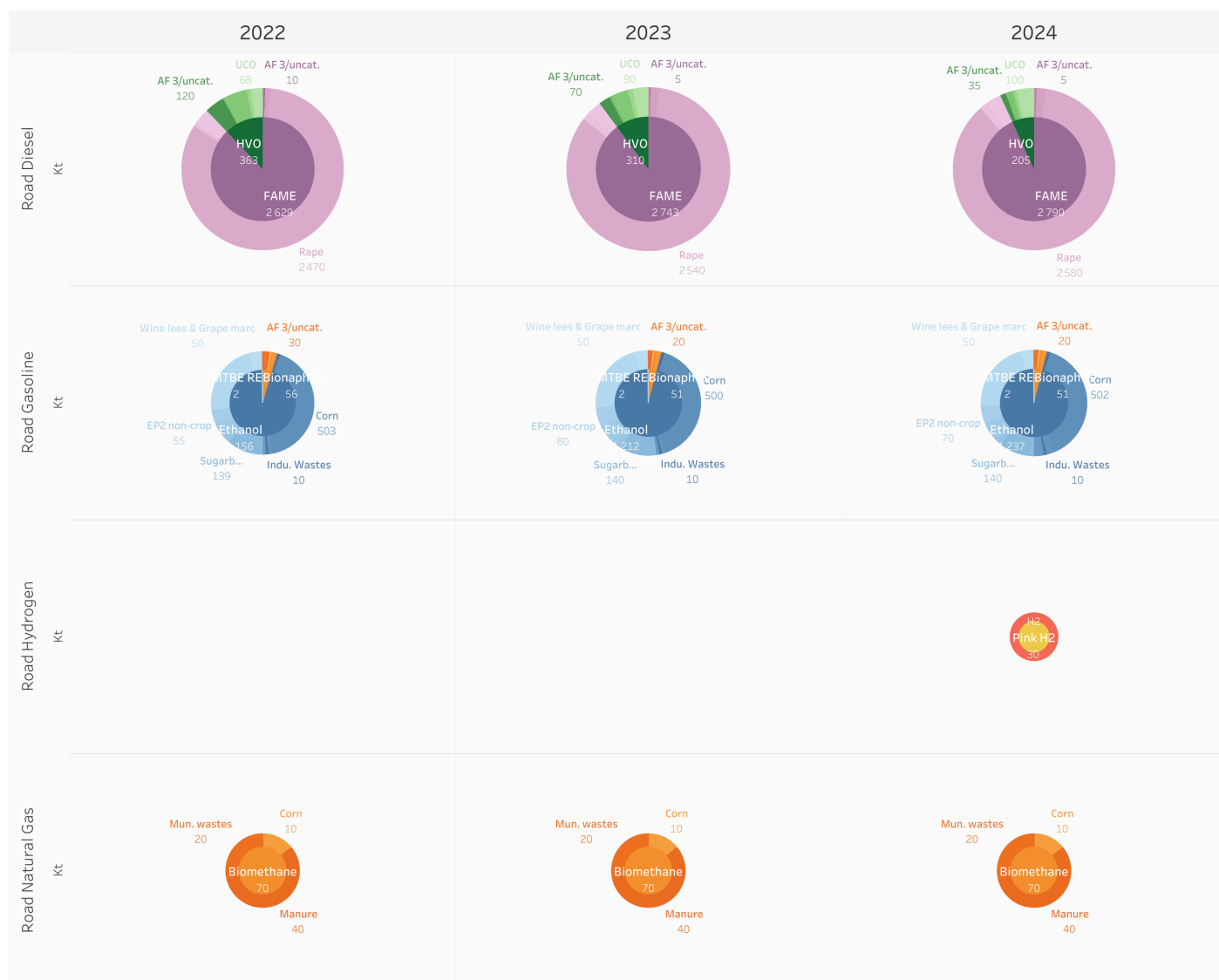
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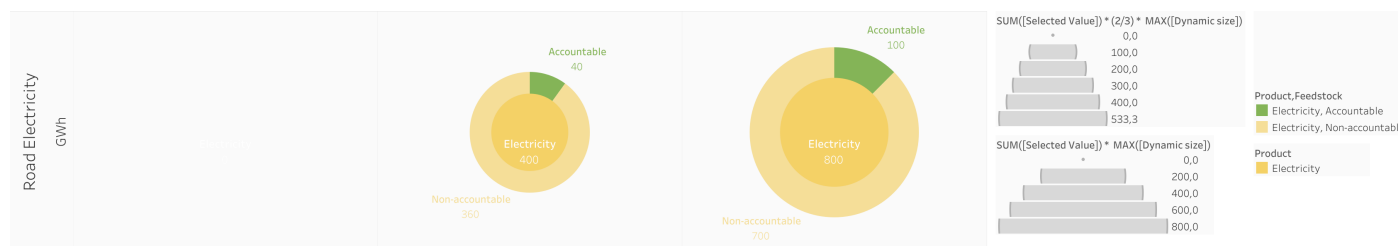
1. Statistics

1.1 Renewable Energy Demand Overview

1.1.1 Road transport



1.1.2 Road electricity



1.1.3 Aviation transport



1.2 Energy Demand Feedstocks Splits

1.2.1 Road transport feedstocks split

				2022	2023	2024
Road Diesel	FAME	Annex 9A	Palm Oil Mill Effluent (POME) Kt	30	58	60
		Annex 9B	Animal fats C1/C2 Kt	5	10	10
			Used Cooking Oil (UCO) Kt	94	80	85
		Crop	Rapeseed oil Kt	2 470	2 540	2 580
			Sunflower oil Kt	20	50	50
		Uncategorized	Animal fats C3 / uncategorized Kt	10	5	5
	HVO	Annex 9A	Palm Oil Mill Effluent (POME) Kt	10	20	35
		Annex 9B	Used Cooking Oil (UCO) Kt	68	90	100
		Crop	Rapeseed oil Kt	140	100	15
			Sunflower oil Kt	25	30	20
		Uncategorized	Animal fats C3 / uncategorized Kt	120	70	35
	Diesel fossil	Fossil	Fossil Kt	32 013	31 252	31 138
Road Gasoline	Ethanol	Annex 9A	Food wastes Kt	15	15	30
			Industrial waste Kt	10	10	10
			Wine lees / Grape marc Kt	50	50	50
		Crop	Barley Kt	13	15	15
			Corn Kt	503	500	502
			Sugarbeet Kt	138	140	140
			Sugarcane Kt	28	30	30
			Thin juice sugar beet (EP2) crop Kt	55	80	70
			Wheat Kt	277	280	280
		EP2/Residual Starch	Low grade starch Kt	12	12	40
			Thin juice sugar beet (EP2) no.. Kt	55	80	70
	MTBE RE	Annex 9A	Annex 9A Kt	2	2	2
	Bionaphta	Annex 9A	Palm Oil Mill Effluent (POME) Kt	5	5	5
			Tall oil Kt	2	2	2
		Annex 9B	Used Cooking Oil (UCO) Kt	9	9	9
		Crop	Rapeseed oil Kt	10	15	15
		Uncategorized	Animal fats C3 / uncategorized Kt	30	20	20
	Gasoline fossil	Fossil	Fossil Kt	8 455	8 792	8 968
Road Hydrogen	Pink H2	Hydrogen	Hydrogen Kt			30
Road LPG	LPG	Fossil	Fossil Kt	36	37	37
Road Natural Gas	Biomethane	Crop	Corn Kt	10	10	10
		not found	Manure Kt	40	40	40
			Municipal wastes Kt	20	20	20
	LNG	Fossil	Fossil Kt	76	76	76
	CNG	Fossil	Fossil Kt	188	188	188

1.2.2 Road electricity accountable split

Road Electricity	Electricity	non-renewable	accountable	GWh	0	0	0
			non-accountable	GWh	0	300	600
		renewable	accountable	GWh	0	40	100
			non-accountable	GWh	0	60	100

1.2.3 Aviation transport feedstocks split

Aviation Jet Fuel	SAF	Annex 9B	Used Cooking Oil (UCO)	Kt	28	30	46
	Jet Fuel	Fossil	Fossil	Kt	5 523	5 966	6 189

1.2.4 Maritime transport feedstocks split

Maritime Diesel	Gasoil (marine)	Fossil	Fossil	Kt	1 359	1 399	1 427
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1.3 Demand under Compliance Level

1.3.1 Compliance 2022

Year	Mandate	Classification	Physical Value	unit	Enforced	%	Reached
2022	Aviation energy	Reference	5 551	Kt			
		Renewable	28	Kt	1,0 %	ec	1,0 %
	Diesel energy	Reference	35 005	Kt			
		Renewable	2 992	Kt	8,0 %	ec	8,2 %
		Crop	2 655	Kt	7,0 %	ec	6,7 %
		Annex 9A	40	Kt	0,2 %	ec	0,2 %
		Annex 9B	167	Kt	0,9 %	ec	0,9 %
		Uncategorized	130	Kt			
	Gasoline energy	Reference	9 670	Kt			
		Renewable	2 430	Kt	9,2 %	ec	9,2 %
		Crop	1 025	Kt	7,0 %	ec	7,0 %
		Annex 9A	2	Kt			
			84	Kt	1,0 %	ec	1,2 %
		Annex 9B	18	Kt	0,2 %	ec	0,2 %
		EP2/Residual Starch	67	Kt	1,0 %	ec	0,5 %
		Uncategorized	30	Kt			

1.3.2 Compliance 2023

2023	Aviation energy	Reference	5 996 Kt			
		Renewable	60 Kt	1,0 %	ec	1,0 %
	Diesel energy	Reference	34 305 Kt			
		Renewable	6 106 Kt	8,6 %	ec	8,6 %
		Crop	2 720 Kt	7,0 %	ec	7,0 %
		Annex 9A	78 Kt	0,4 %	ec	0,4 %
		Annex 9B	360 Kt	1,0 %	ec	1,0 %
		Uncategorized	75 Kt			
	Gasoline energy	Reference	10 057 Kt			
		Renewable	1 265 Kt	9,5 %	ec	9,3 %
		Crop	1 060 Kt	7,0 %	ec	7,0 %
		Annex 9A	84 Kt	1,2 %	ec	1,1 %
		Annex 9B	18 Kt	0,2 %	ec	0,2 %
		EP2/Residual Starch	92 Kt	1,0 %	ec	0,6 %
		Electricity	40 GWh			
		Uncategorized	20 Kt			

1.3.3 Compliance 2024

2024	Aviation energy	Reference	6 235 Kt			
		Renewable	46 Kt	1,5 %	ec	1,5 %
	Diesel energy	Reference	34 163 Kt			
		Renewable	3 025 Kt	9,0 %	ec	9,0 %
		Crop	2 665 Kt	7,0 %	ec	6,8 %
		Annex 9A	95 Kt	0,5 %	ec	0,5 %
		Annex 9B	195 Kt	1,1 %	ec	1,1 %
		Hydrogen	60 Kt			
		Uncategorized	40 Kt			
	Gasoline energy	Reference	10 258 Kt			
		Renewable	1 290 Kt	9,9 %	ec	9,2 %
		Crop	1 052 Kt	7,0 %	ec	6,8 %
		Annex 9A	99 Kt	1,3 %	ec	1,3 %
		Annex 9B	9 Kt	0,2 %	ec	0,2 %
		EP2/Residual Starch	110 Kt	1,1 %	ec	0,7 %
		Uncategorized	20 Kt			

1.4 Insights and Updates

1.4.1 Insight 2022

- We haven't changed our numbers since the last forecast
- The final Customs data should be available by the end of the summer

1.4.2 Insight 2023

- The first adjustment made was the pools' growth rates: -2% for diesel and +4% for gasoline, based on new data for Jan-Apr by UFIP
- The second one related to the size of the B100 outlet , now estimated at 250 KT
- That modified slightly the mix within the biodiesel segment, with more RME vs a bit less of POME ME and crop-based HVO (to respect the 7% crop cap)
- The third one was the reduction of our assumption of renewable electricity supplied to the road in 2023
- Local sources described promising debuts for the generation of certificates, but many hurdles including heterogeneity of the supply, technical constraints (type of electric meters) and administrative burden prove to be more consequent than previously expected
- We now stick to a figure of 100 Gwh of renewable electricity due to a lower rate of "accountability" in France than in Germany, at least currently
- The turmoil of the biodiesel market since Q1-23 has changed the dynamics between the diesel and gasoline mandates: we now assume that all the certificates generated from EVs would be allocated to the gasoline segment
- We consequently revised our figures for 9A (stable from 2022) and EP2-based ethanol

1.4.3 Insight 2024

- Forecasting the influence of eligible renewable electricity is a complex task, as the practical hurdles to a fast development are uncertain
- We remain cautious in our model with a lower number than previously inputted (200 Gwh vs 400 Gwh)
- With the inclusion of the "low carbon" hydrogen made out of nuclear electricity within the TIRUERT, a major game changer will be introduced in 2024
- Our model worked with a figure of 30 KT of low carbon hydrogen and 1 KT of green hydrogen, potentially destroying 160 KT of HVO (because of the DC and high energy content of hydrogen)
- We previously failed to account properly for this in our model, explaining why we decreased further the HVO figure
- We assumed the B100 market would progress further to 300 KT

1.5 Forecasts Methodology

Our model integrates historical data retrieved from the following official sources: Customs (“Bilan TGAP or TIRIB or TIRUERT”), DGEC (retrieved from the CarbuRe platform), UFIP and Eurostat (consumption (SHARES), production and trade).

The size of the fuel pool is calibrated on the Customs inputs, reflecting the mandates’ compliance environment, cross-checked with UFIP growth rates.

Our estimations of the consumption of renewable fuels products, and their feedstock mix, are based on our fine knowledge of the rules enforced (mandates, caps, multiple counts, sub-targets, penalties and tax breaks), inputs from local market players, market evolution (relative prices and supply main constraints) and our analysis of the historical data.

DGEC data provides very valuable inputs to determine past and current feedstock mixes, but they must be cross-checked with an analysis of the export dynamics.

GHG emissions linked to each product/feedstock are estimated based on DGEC data.

Germany

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2. Regulatory

2.1 Multiple Counts

		2022	2023	2024
Feedstock	Animal fats C1/C2	2x	2x	2x
	Animal fats C3 / uncategorized	1x	1x	1x
	Annex 9A	2x	2x	2x
	Barley	1x	1x	1x
	Corn	1x	1x	1x
	Electricity	4x	4x	4x
	Food wastes	2x	2x	2x
	Hydrogen	2x		2x
	Industrial waste	2x	2x	2x
	Low grade starch	1x	1x	1x
	Manure	1x	1x	1x
	Municipal wastes	1x	1x	1x
	Non-accountable	1x	1x	1x
	Palm Oil Mill Effluent (POME)	2x	2x	2x
	Rapeseed oil	1x	1x	1x
	Sugarbeet	1x	1x	1x
	Sugarcane	1x	1x	1x
	Sunflower oil	1x	1x	1x
	Tall oil	1x	1x	1x
	Thin juice sugar beet (EP2) crop	1x	1x	1x
	Thin juice sugar beet (EP2) non-crop	1x	1x	1x
	UERS	1x	1x	1x
	Used Cooking Oil (UCO)	2x	2x	2x
	Wheat	1x	1x	1x
	Wine lees / Grape marc	2x	2x	2x

2.2 Classifications

	2022	2023	2024
Animal fats C1/C2	Annex 9B	Annex 9B	Annex 9B
Animal fats C3/ uncategorized	Uncategorized	Uncategorized	Uncategorized
Annex 9A	Annex 9A (DC)	Annex 9A (DC)	Annex 9A (DC)
Barley	Crop (low ILUC)	Crop (low ILUC)	Crop (low ILUC)
Corn	Crop (low ILUC)	Crop (low ILUC)	Crop (low ILUC)
Food wastes	Annex 9A (DC)	Annex 9A (DC)	Annex 9A (DC)
Hydrogen	Hydrogen		Hydrogen
Industrial waste	Annex 9A (DC)	Annex 9A (DC)	Annex 9A (DC)
Low grade starch	EP2/Residual Starch	EP2/Residual Starch	EP2/Residual Starch
Manure	--	--	--
Municipal wastes	--	--	--
Palm Oil Mill Effluent (POME)	Annex 9A (DC)	Annex 9A (DC)	Annex 9A (DC)
Rapeseed oil	Crop (low ILUC)	Crop (low ILUC)	Crop (low ILUC)
Sugarbeet	Crop (low ILUC)	Crop (low ILUC)	Crop (low ILUC)
Sugarcane	Crop (low ILUC)	Crop (low ILUC)	Crop (low ILUC)
Sunflower oil	Crop (low ILUC)	Crop (low ILUC)	Crop (low ILUC)
Tall oil	Annex 9A (SC)	Annex 9A (SC)	Annex 9A (SC)
Thin juice sugar beet (EP2) crop	Crop (low ILUC)	Crop (low ILUC)	Crop (low ILUC)
Thin juice sugar beet (EP2) non-crop	EP2/Residual Starch	EP2/Residual Starch	EP2/Residual Starch
UEs	UEs	UEs	UEs
Used Cooking Oil (UCO)	Annex 9B	Annex 9B	Annex 9B
Wheat	Crop (low ILUC)	Crop (low ILUC)	Crop (low ILUC)
Wine lees / Grape marc	Annex 9A (DC)	Annex 9A (DC)	Annex 9A (DC)

2.3 Blending Mandates

	Advanced sub-target for diesel	Advanced sub-target for gasoline	Aviation fuels substitutes	Diesel substitutes	Gasoline substitutes
	% e.c	% e.c	% e.c	% e.c	% e.c
2015				7.7 %	7 %
2016				7.7 %	7 %
2017				7.7 %	7.5 %
2018				7.7 %	7.5 %
2019				7.9 %	7.9 %
2020				8 %	8.2 %
2021				8 %	8.6 %
2022	0.2 %	1 %	1 %	8.4 %	9.2 %
2023	0.4 %	1.2 %	1 %	8.6 %	9.5 %
2024	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2025	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2026	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2027	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2028	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2029	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2030	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2031	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2032	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2033	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2034	0.5 %	1.3 %	1.5 %	9 %	9.9 %
2035	0.5 %	1.3 %	1.5 %	9 %	9.9 %

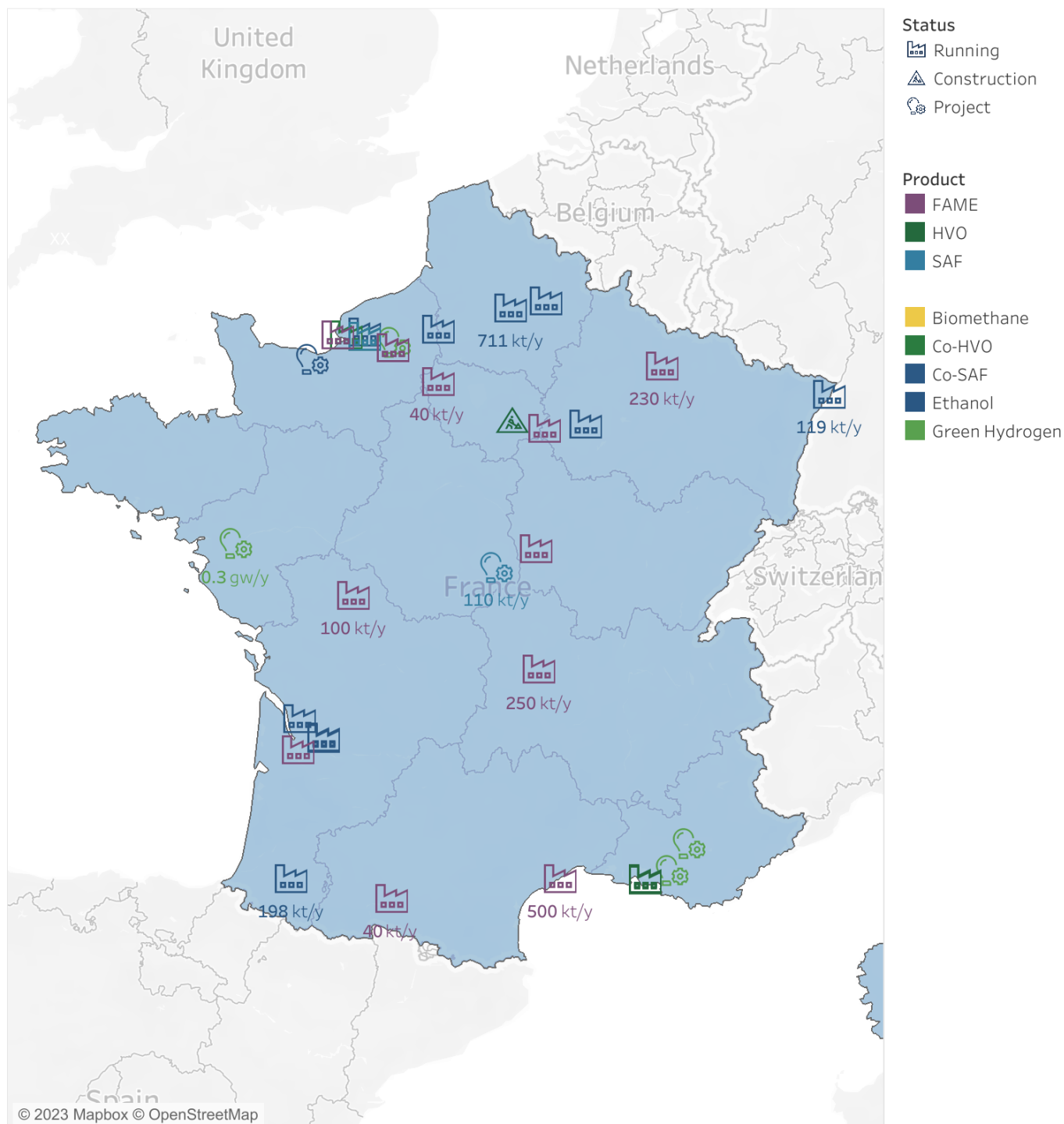
2.4 Caps

	Thin juice sugar beet (EP2) - 50% non-crop	Tall oil	Soy based biofuels	Sewage sugar plants after 2 extractions (45% of energy content) + residual starch	Palm	Food based crop biofuels	Annex IX Part B
	% e.c	% e.c	% e.c	% e.c	% e.c	% e.c	% e.c
2019				0.2 %		7 %	0.9 %
2020		0.6 %		0.4 %	0 %	7 %	0.9 %
2021	1 %	0.6 %	0.7 %	0.4 %	0 %	7 %	0.9 %
2022	1 %	0.6 %	0 %	0.4 %	0 %	7 %	0.9 %
2023	1 %	0.6 %	0 %	0.4 %	0 %	7 %	1 %
2024	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2025	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2026	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2027	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2028	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2029	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2030	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2031	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2032	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2033	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2034	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2035	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2036	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %
2037	1.1 %	0.6 %	0 %	0.4 %	0 %	7 %	1.1 %

3. Plants

3.1 Map

Map



The geolocation of Projects may not be exact and is subject to change over time as soon as reliable information is disclosed.

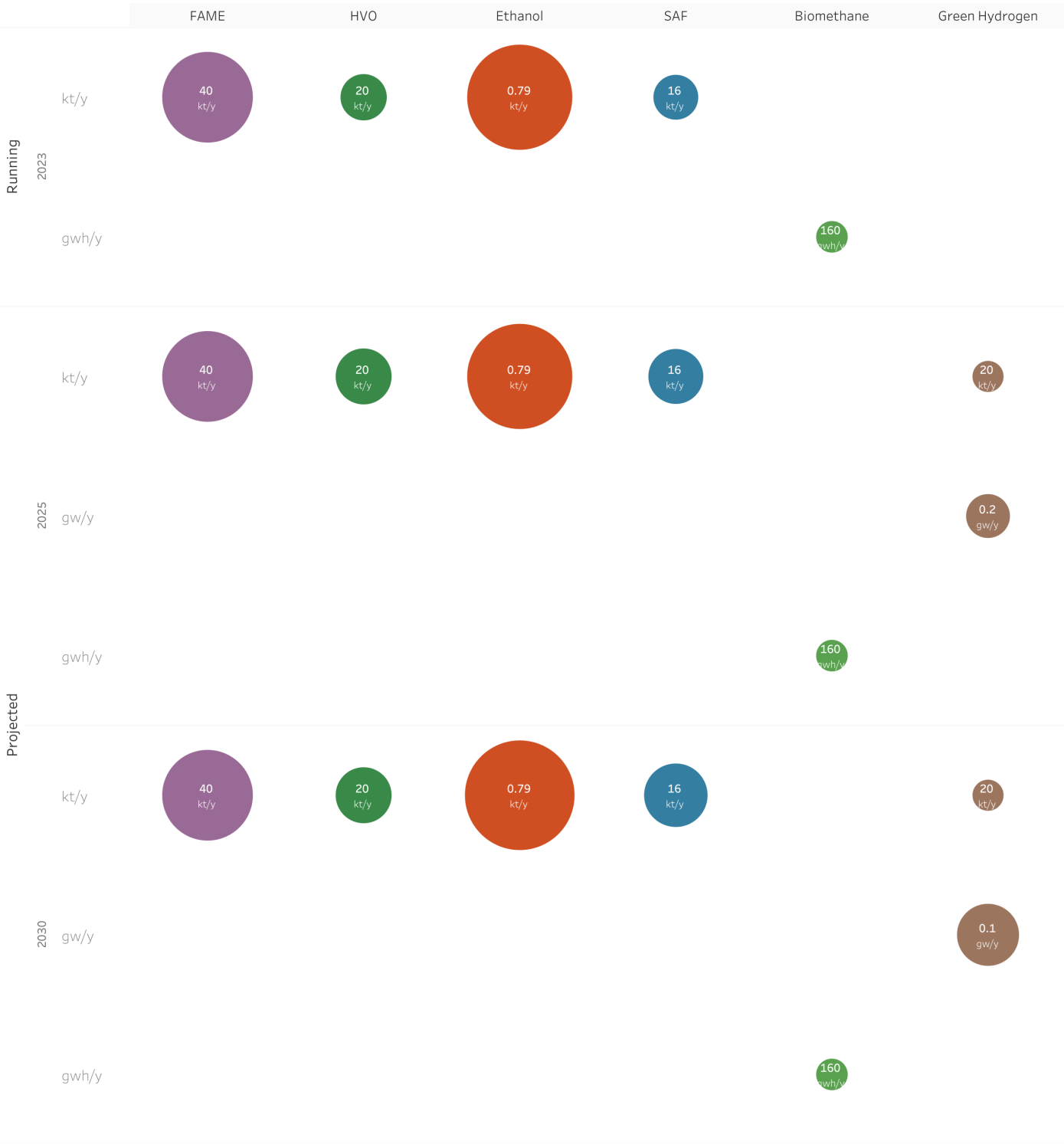
3.2 Table

Plants List

Status	Product	City	Group / Company	Capacity	Unit	Estim. St..	
Running	Biomethane	Mourenx	TotalEnergies BioBéarn	160	gwh/y		
		Co-HVO	Gonfreville-l'Orcher	20	kt/y		
		Port jérôme sur Seine	Esso Rafinage	XX	kt/y		
	Co-SAF	Gonfreville-l'Orcher	TotalEnergies Normandy Refinery	16	kt/y		
		Port jérôme sur Seine	Esso Rafinage	XX	kt/y		
	Ethanol	Bazancourt	Cristal Union	277	kt/y		
		Beinheim	Roquette Frères	119	kt/y		
		Coutras	Union Coopératives Viticoles d'Aquitaine UCVA	12	kt/y		
		Lacq	Vertex Bioenergy Bioénergie du Sud-Ouest	198	kt/y		
		Lillebonne	Tereos Starch & Sweeteners LBN	237	kt/y		
		Loon Plage	CropEnergies AG Ryssen Alcools S.A.S.	171	kt/y		
		Marcillac	Distilleries Viticoles du Blayais DVB	2.37	kt/y		
		Mesnil Saint Nicaise	Tereos Grain Alcohols France	711	kt/y		
		Origny Saint Beniotte	Tereos	219	kt/y		
		Vauvert	Raisinor Vauvert	0.79	kt/y		
		Villette sur Aube	Cristal Union	199	kt/y		
	FAME	Bassens	Avril Saipol	250	kt/y		
		Boussens	BASF Cognis	40	kt/y		
		Chalandray	Coop. C.O.C Centre Ouest Céréales	100	kt/y		
		Dunkerque	Daudruy Nord Ester	130	kt/y		
		Grand Couronne	Avril Saipol Grand Couronne I	260	kt/y		
			Avril Saipol Grand Couronne II	250	kt/y		
		Le Havre	Saria Estener	75	kt/y		
		Le Meriot	Avril Saipol	250	kt/y		
		Lezoux	Avril Saipol	250	kt/y		
		Limay	SARPI-VEOLIA Dielix	40	kt/y		
		Prémery	PremEster Prémery	40	kt/y		
		Sete	Avril Saipol	500	kt/y		
		Verdun	Valtris Verdun	230	kt/y		
	HVO	La mède	TotalEnergies La Mède Biorefinery	500	kt/y		
		La Mède	TotalEnergies	500	kt/y		
	SAF	La mède	TotalEnergies Biorefinery	390	kt/y		
		Port jérôme sur Seine	Esso Rafinage	XX	kt/y		
Construction	HVO	Grand Puits	TotalEnergies Grand Puit	120	kt/y	2024	
	SAF	Grand Puits	TotalEnergies Grand Puit	210	kt/y	2024	
Project	Ethanol	Blainville-sur-Orne	Tertu Project TH2	17	kt/y	2026	
		Grandpuits-Bailly-Garros	TotalEnergies/Airliquid	20	kt/y	2025	
	Green Hydrogen	Manosque	Air Liquide, Engie Hygreen Provence	1.3	gw/y	2028	
		Meyreuil	Hy2gen, Gazel Energy Hynovera Project	0.1	gw/y	2028	
		Nante	Plug Power, Lhyfe Plug Power/Lhyfe	0.3	gw/y	2025	
		Saint-Jean-de-Folleville	Air Liquid Group Air Liquid Normand'Hy	0.2	gw/y	2025	
	SAF	Lacq	Elyse Energy, IFP Energies nouvelles, AVRIL, BioNext	110	kt/y	2027	
		Venette/Grande-Synthe	Axens/Avril/TotalEnergies/IFPEN/CEA BioTfuel	110	kt/y	2027	

3.3 Capacities Sunburst

Capacities Sunburst
France
Estimated Capacities



Projected aggregations does not include IDLE capacities.