



Nordion Energi
Gasmarknadsrådet

Market Intelligence Report

STX Group

6/13/2023



Before we get started, who is STX?

We are pure-play environmental commodity traders

+ 15 years

STX Group has been active in environmental commodities for over 15 years and is a **pure-play environmental commodity trader active across all markets globally**

Integrated teamwork

We have dedicated, closely collaborating product-focused teams across all environmental commodity markets, with **direct access to corporate end-users through Strive by STX**

Scaling up our biomethane operations

In biomethane, we currently have **30+ FTEs** (and growing) dedicated to covering the full biomethane eco-system and **ensuring high quality customer service**

Biomethane optimization

STX endeavors to have full **visibility on the value pathways for biomethane** and its feedstocks, ensuring we provide unrivaled market access to all participants

Versatile options

As a trading company **we take principal risk** in all transactions. This gives us more **flexibility and creativity when structuring deals**

Agenda

1 Biomethane market overview

- EU fundamentals
- Price forecasts and risks
- Recap of biomethane market complexities

2 EU biofuels market

- Supply/demand history of biofuels
- Direction of travel for biofuels mix – 2030 forecast

3 Regulatory framework

- RED III, Repower EU, Fuel EU Maritime, ETS 2
- Direction of travel to 2030



A vertical image on the left side of the slide showing several wind turbines against a sunset sky with orange and yellow clouds.

Key take aways

Short-term sentiment

- Premium biomethane products have declined sharply in the short-term due to weakness in biofuels and general recessionary sentiment.
- Uncertified prices hold their value as economic slump pushes demand towards cheaper products.

Long-term Outlook

- Regulatory pressure is building, with an even more ambitious targets in the latest RED stacking up on top of Repower EU, Fuel EU Maritime and ETS 2, and more!
- Biomethane capacity growth *should* be exponential, but reality remains uncertain
- Transport market is heading into an environmental crunch point, but biomethane supply could be earmarked for other markets

Ever present regulatory and market risks means uncertainty is certain.

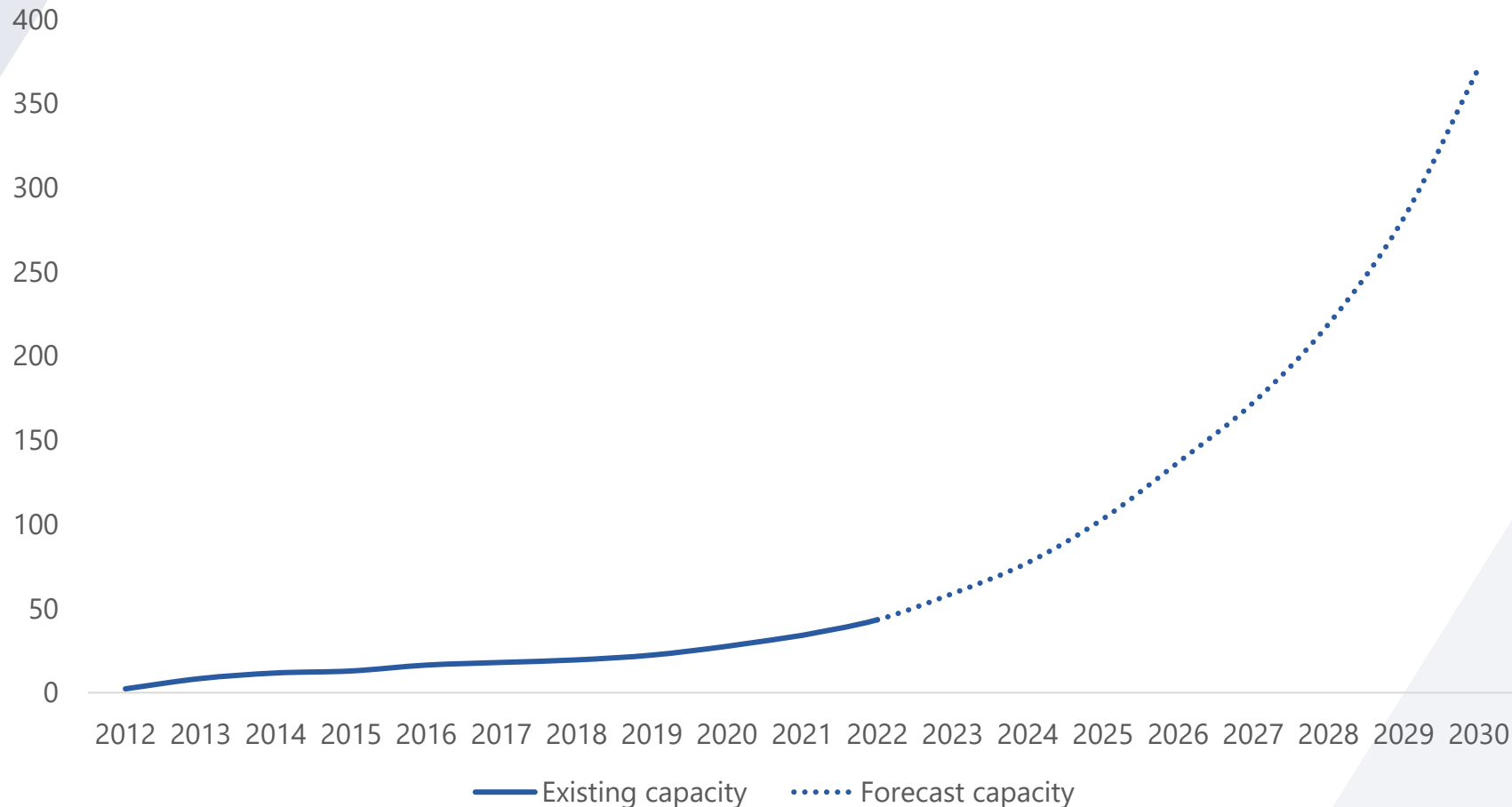
Expect more volatility!

Biomethane market overview



Market growth *should* be exponential

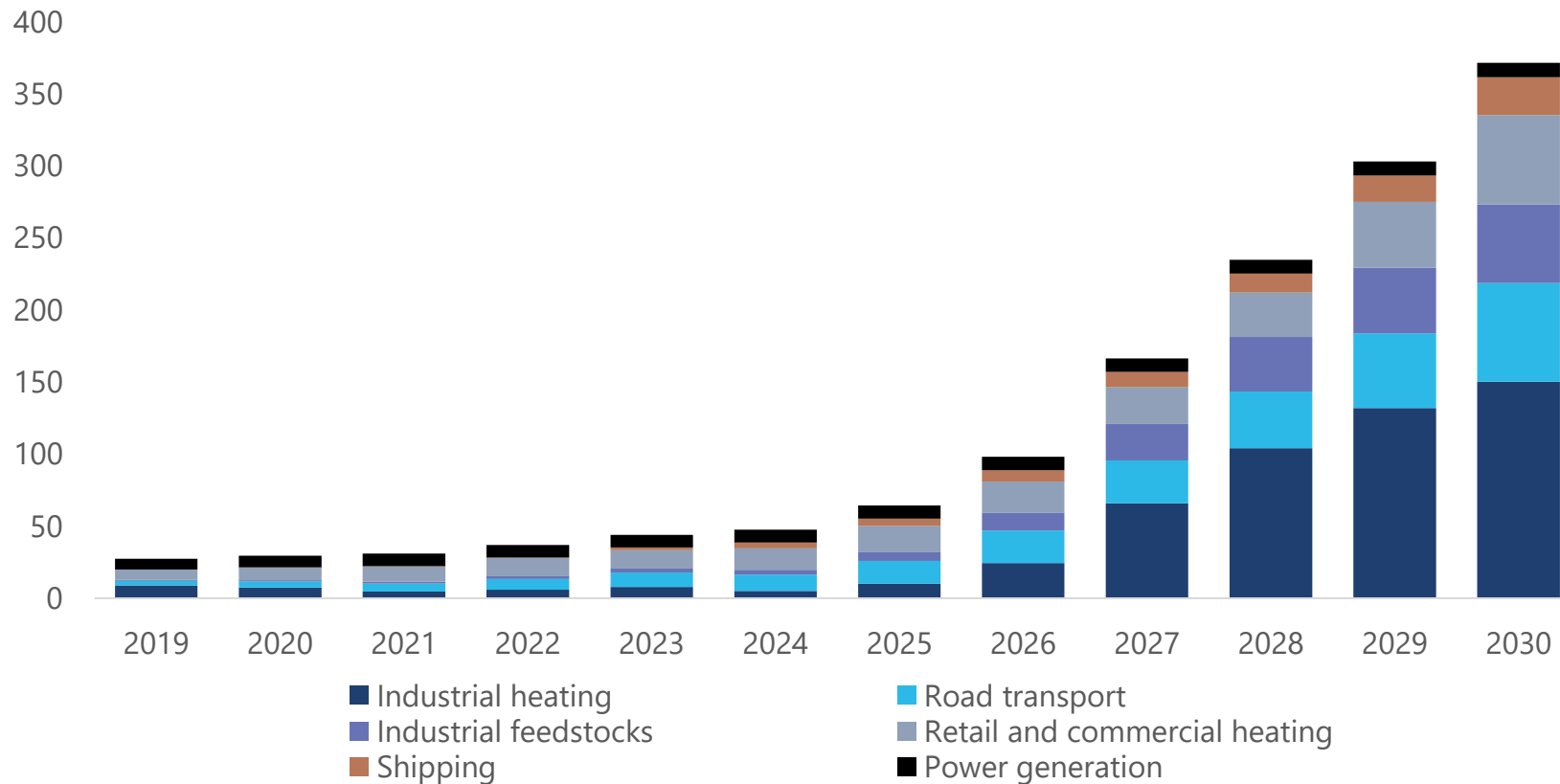
European Biomethane production capacity forecast (TWh/year)



EBA has reported planned investments of EUR 1.4bn in France, EUR 1.1bn in Italy, EUR 951mn in the Netherlands, EUR 948mn in Spain, EUR 658mn in Germany, **EUR 635mn in Sweden** and EUR 429mn in Poland.

Grid blending obligations and ETS/ETS 2 will be the biggest demand pools

Biomethane demand by sector (TWh)

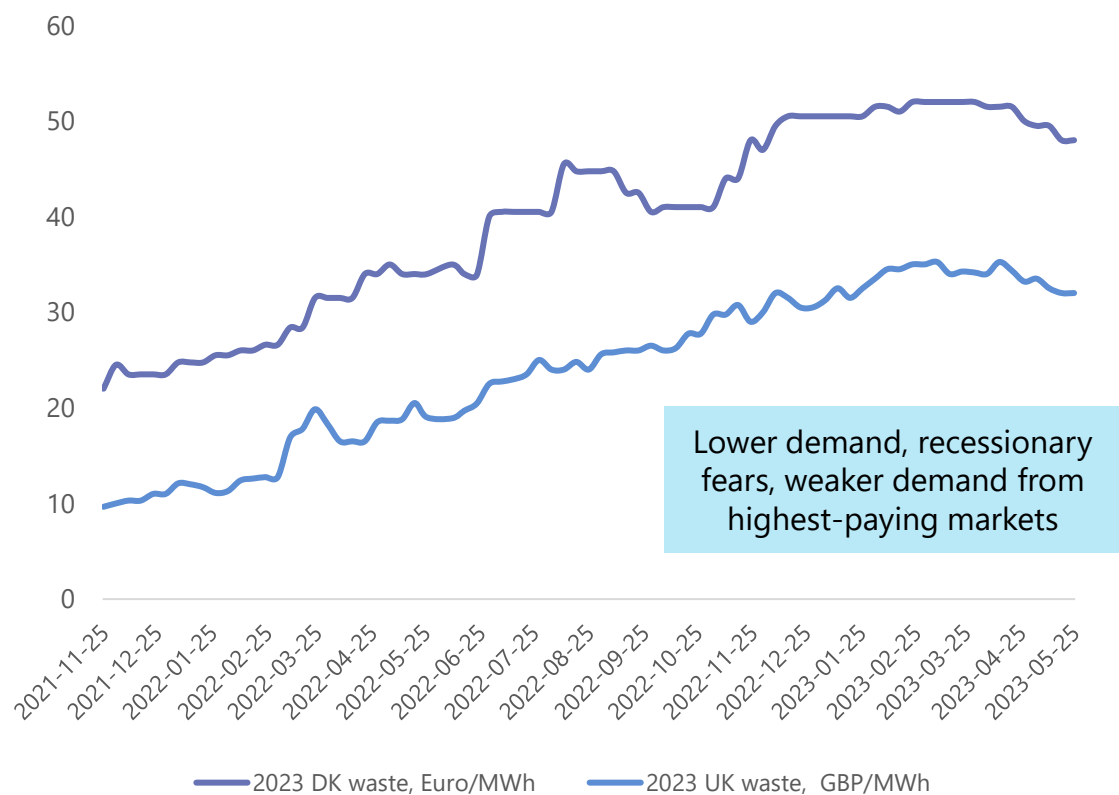


EU regulatory pressure for biomethane demand is shifting towards industrials.

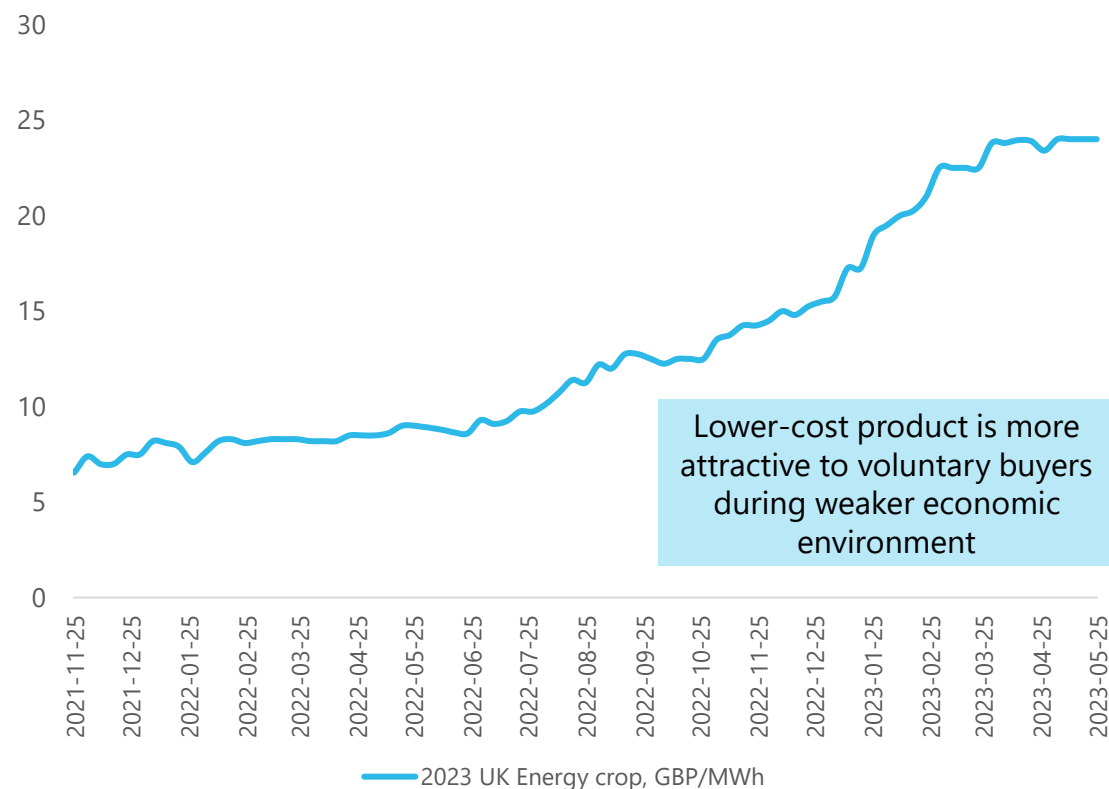
Sweden's new demand-side regulations will need to account for RED III and other EU legislation which mandates higher renewable content in hard-to-abate sectors, such as heating and transport.

Certified waste biomethane prices face downward pressure, but uncertified crop remains resilient

Argus Media 2023 DK and UK certified waste prices

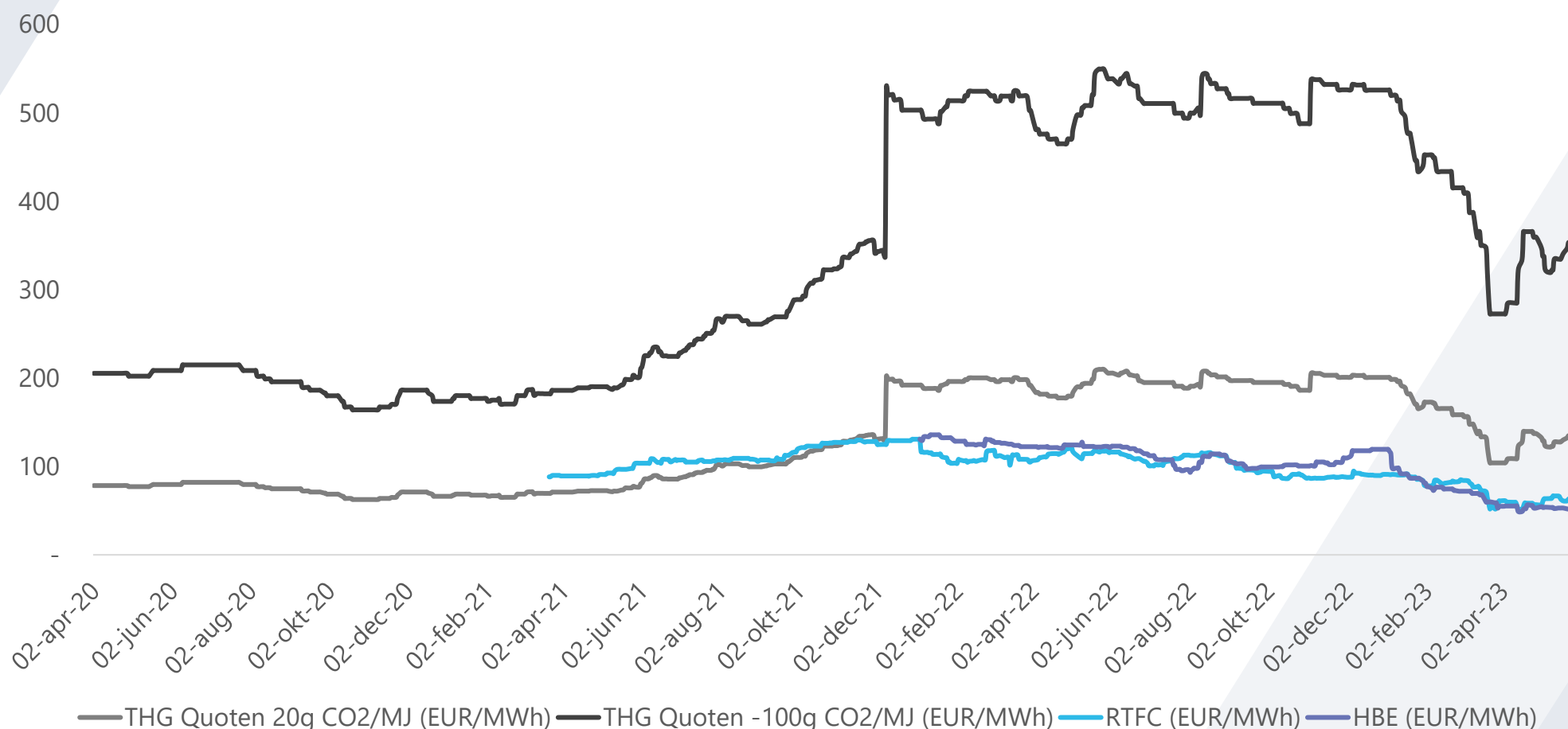


Argus Media 2023 UK uncertified crop, GBP/MWh



Premium biomethane certificates have fallen with weaker biofuels market

Biomethane value in transport ticket markets (EUR/MWh)



Extremely high import volumes of Chinese advanced biofuels/feedstocks plus 15% drop in oil demand this year has weighed heavily on biofuels prices.

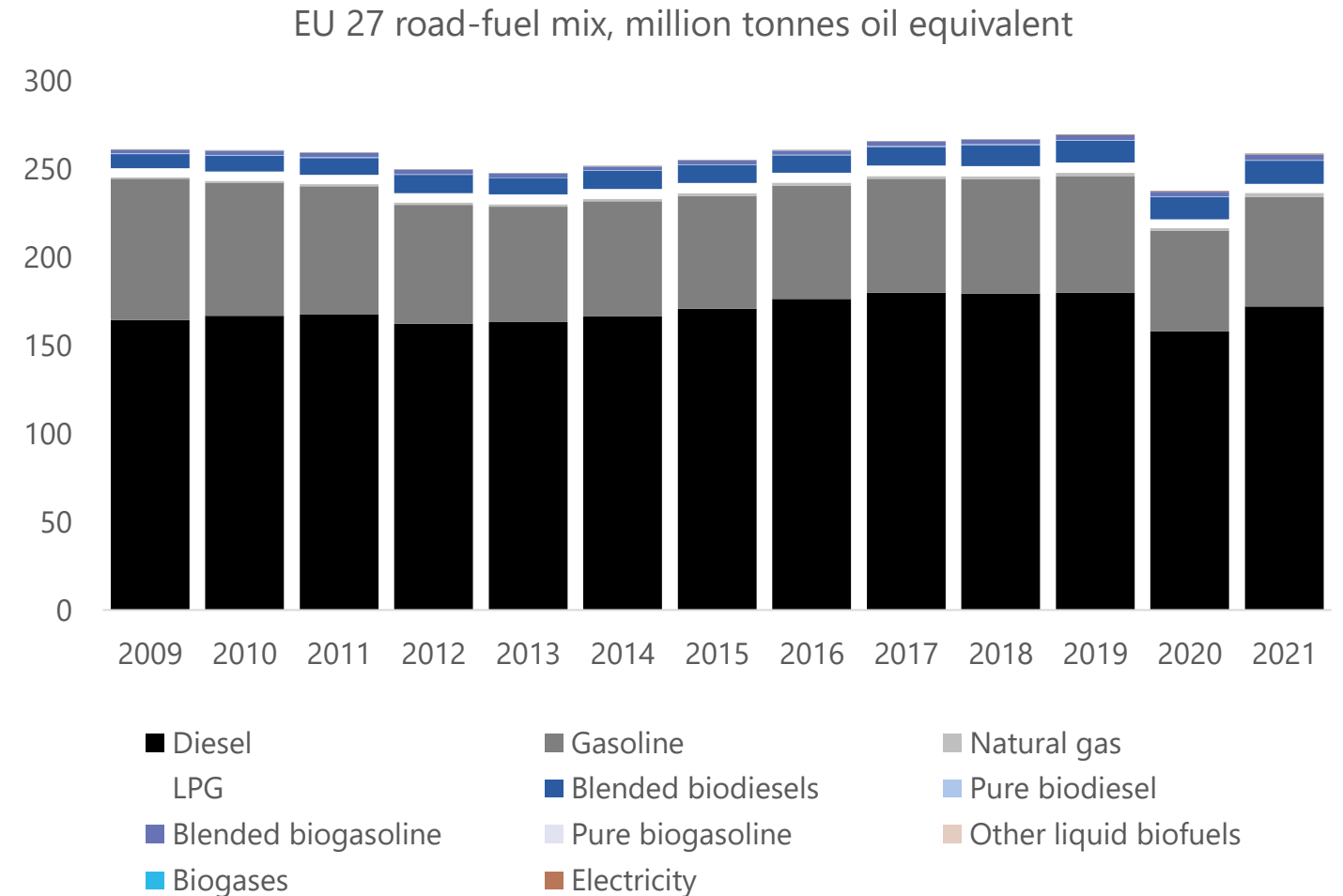
ISCC fraud investigations on Chinese exporters has slowed supply of 9A material recently, supporting the price.



EU biofuels market

Biofuels remain a small fraction of the EU road fuel mix

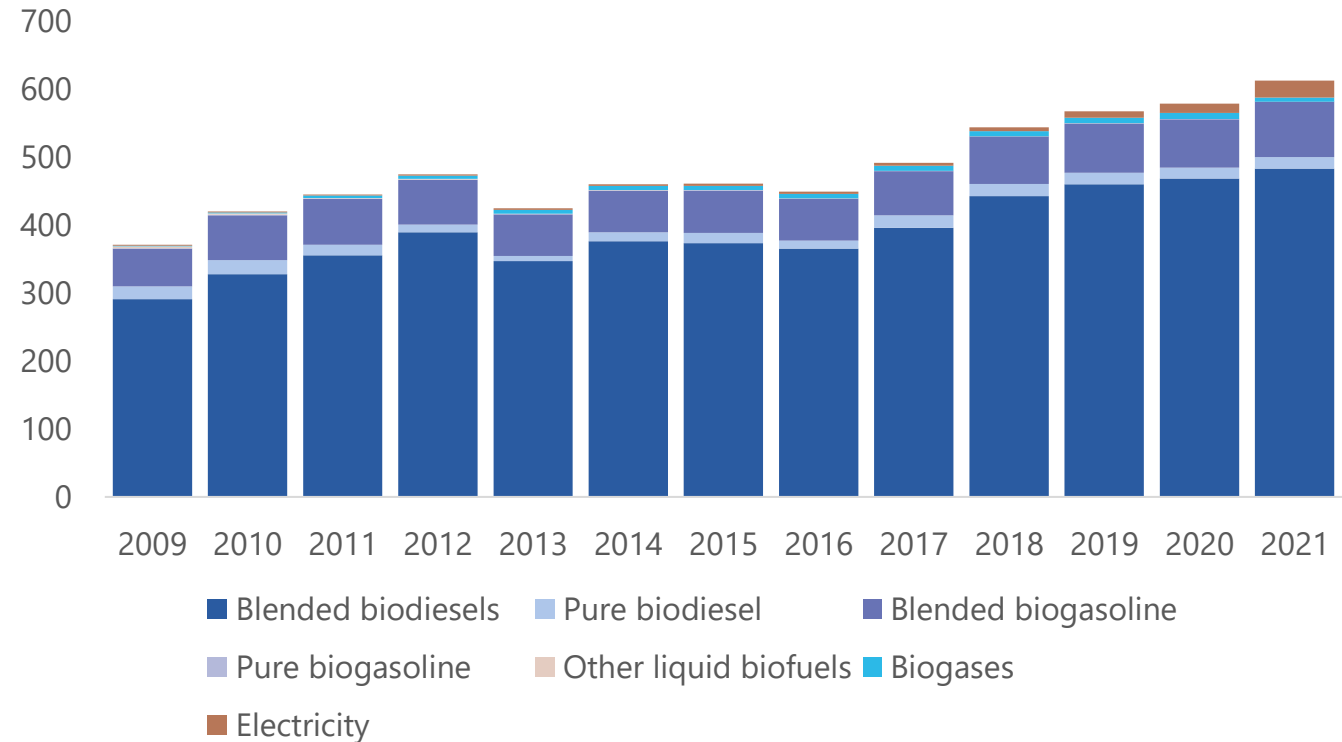
- EU biofuels blending peaked in 2020
- FQD required 6% GHG savings to be achieved in 2020
- Carry over of blending credits can reduce physical blending
- Biofuels and ticket prices have weakened amid recessionary demand drop



The biofuels mix is changing, slowly...

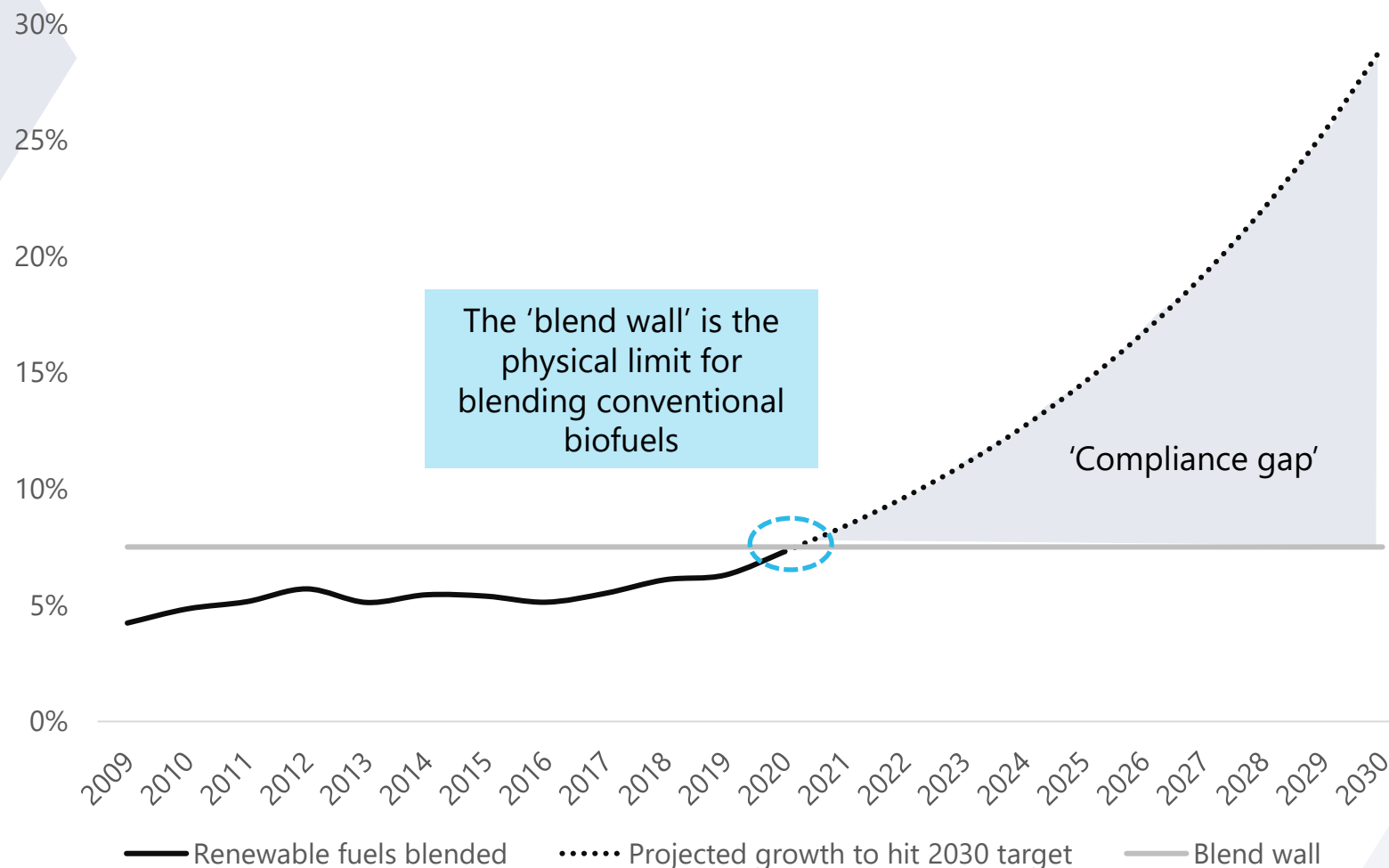
- Biodiesels account for nearly 80% of biofuels supply.
- Biogasoline is less than 20% of biofuels supply
- **EV and biogases provide less than 5% of the renewable fuel supply**
- In order to decarbonize transport, Europe needs to entirely displace diesel and gasoline with alternative fuels.

EU 27 biofuels supply, PJ



Conventional biofuels cannot achieve 2030 decarbonization goals

EU renewable fuel blending vs the blend wall

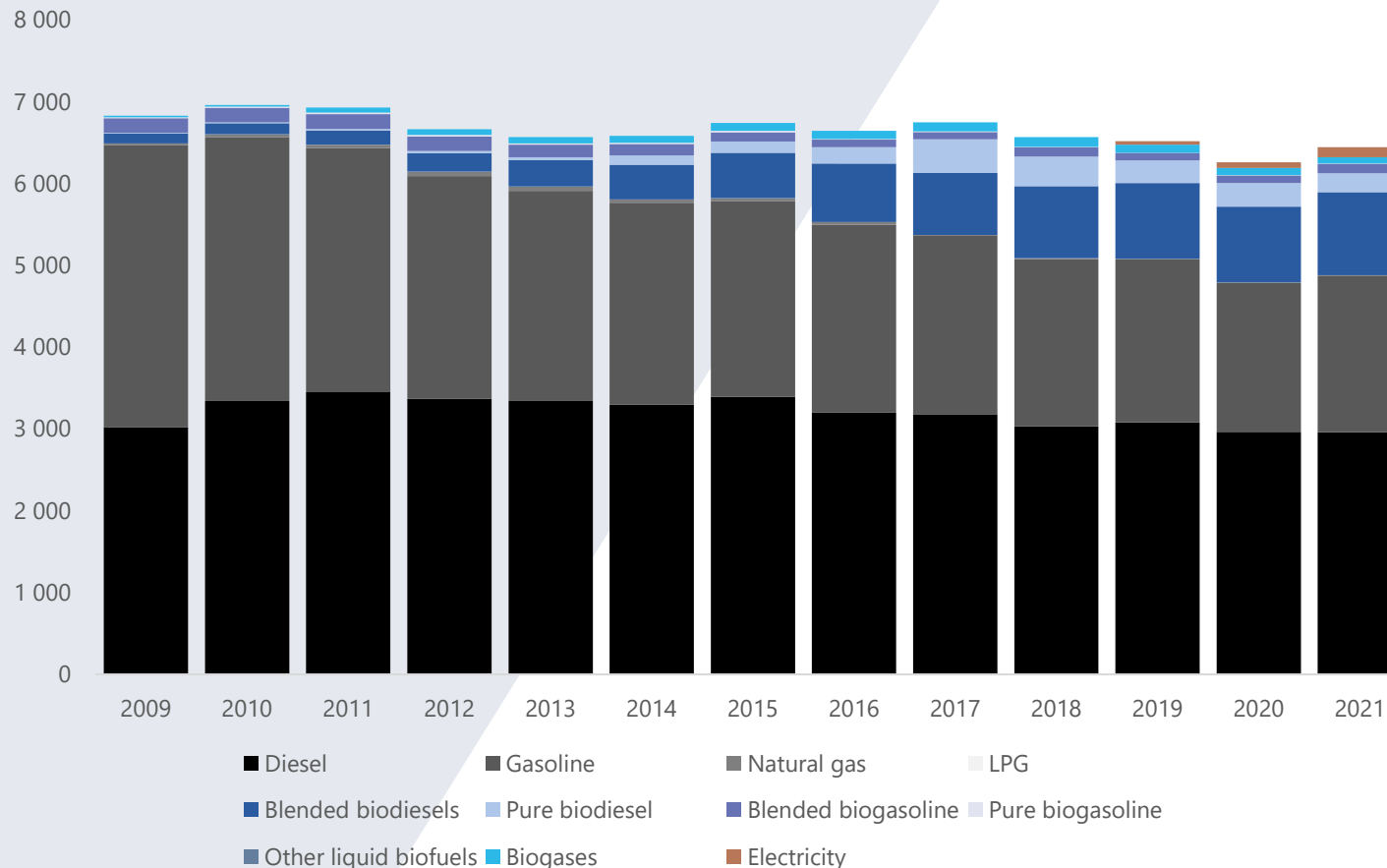


Current proposed RED III targets are *either* **14.5% GHG savings** or **29% renewable energy content**. We believe a GHG savings target will be easier to achieve as negative CO₂ biomethane can contribute significantly more

Requires a change in road transport fuel mix, such as EV and biogases

Business as usual: conventional biofuels blending

Swedish biofuels market is undergoing a huge restructuring



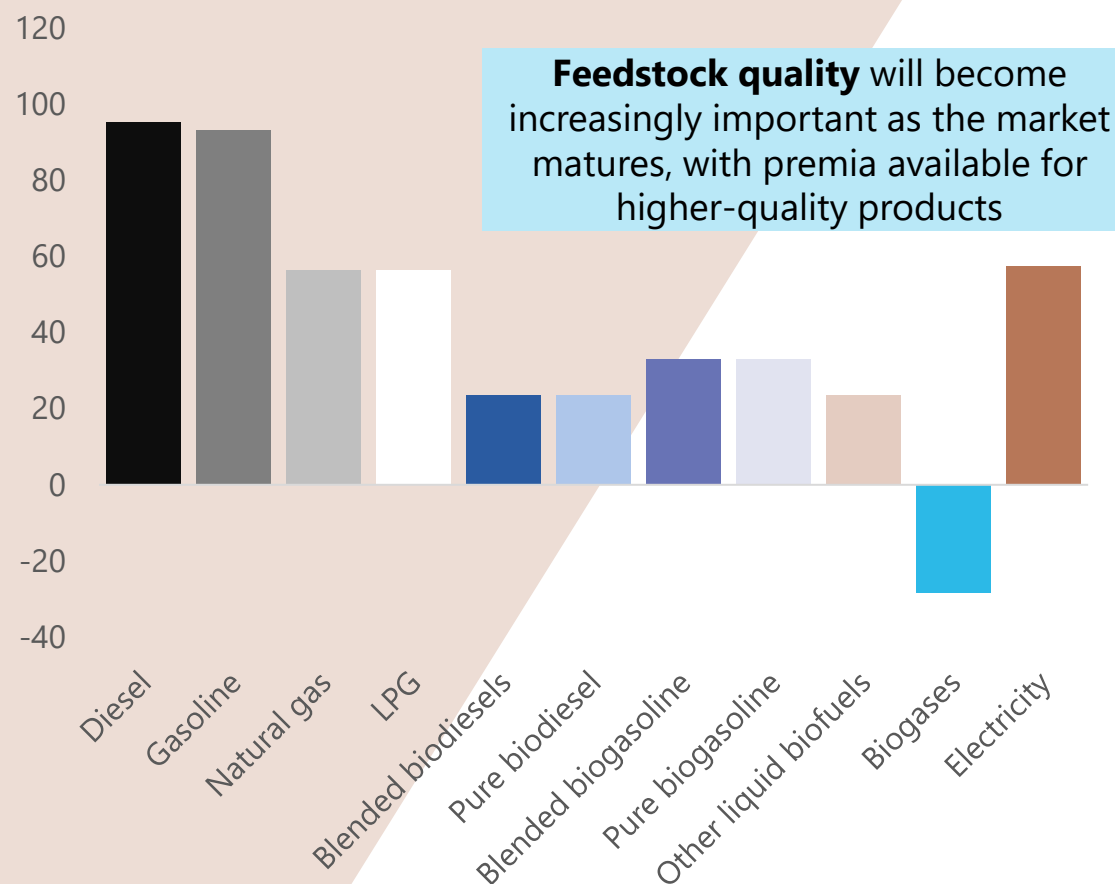
Historically, Sweden has blended large amounts of biodiesel made from hydrotreated vegetable oil (HVO). HVO is considered one of the most expensive biofuels products.

Recently, Sweden lowered its transport sector decarbonization goals from 30.5% GHG savings in diesel and 12.5% GHG savings in gasoline to 6% GHG savings in both.

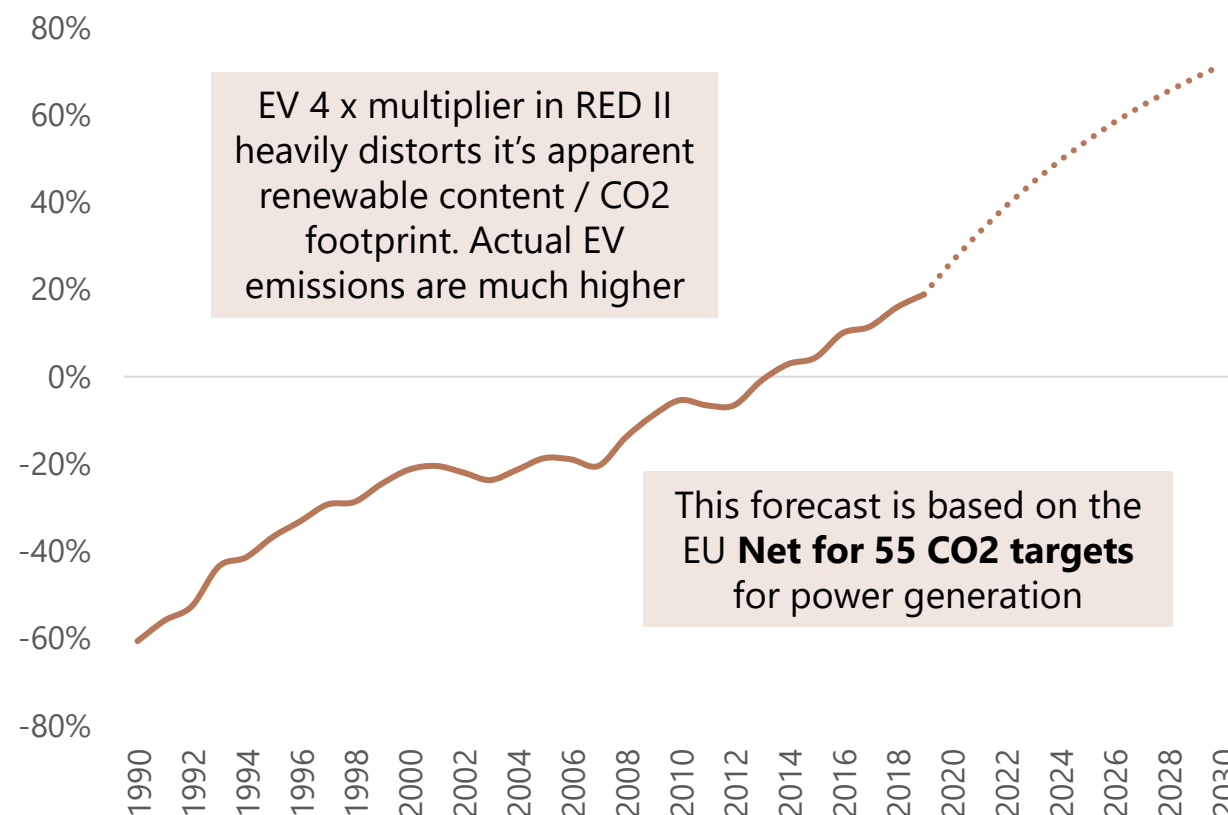
In order to meet its environmental commitments, Sweden will create new legislation to decarbonize transport fuels. Biomethane is one of the most efficient ways to lower road fuel emissions and is already cost-competitive with conventional biofuels.

CO2 reductions differ greatly by fuel type, but alternative fuels have the greatest potential to reduce emissions

Estimated EU average biofuels emissions, g CO2/MJ



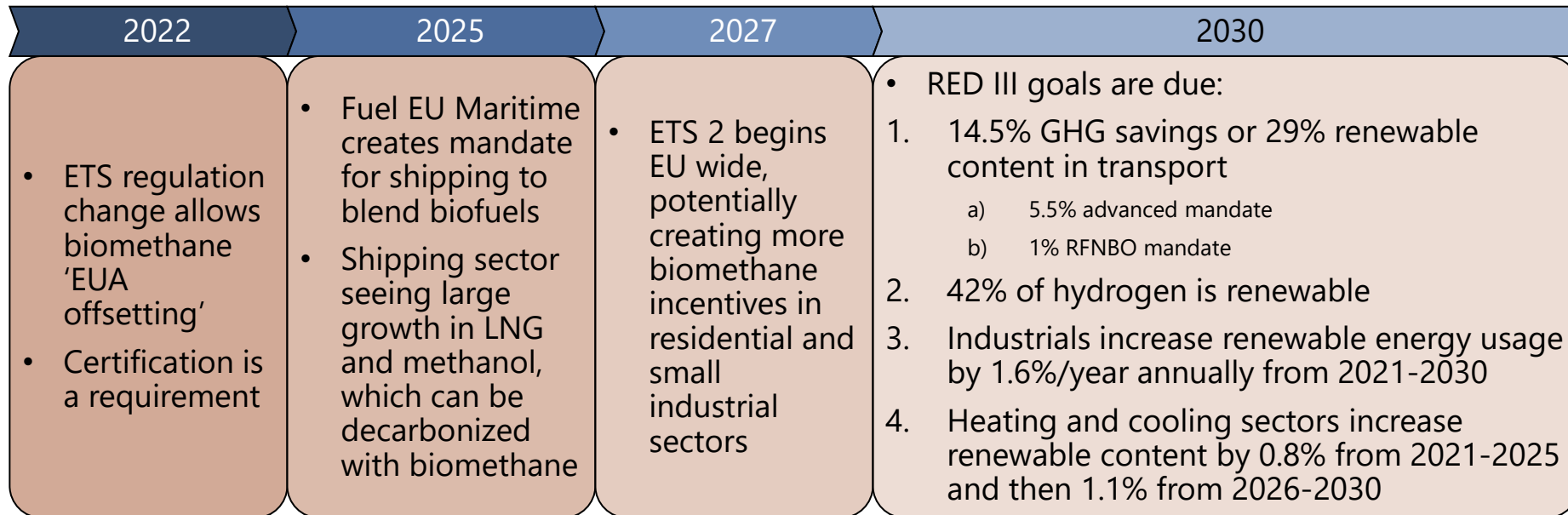
EV GHG savings vs RED II comparator





Regulatory framework

European legislation: Repower EU, Fuel EU Maritime, ETS 2, RED III



High level overview!
There are many EU directives and regulations which affect biomethane, these are just the key highlights

EU road transport targets

Still not confirmed!

	EU transport decarbonization targets						
	Minimum GHG reductions	Minimum renewable energy share	Maximum crop feedstock	Maximum annex 9B feedstock	Minimum annex 9A feedstock	Minimum RFNBO (sub-target of 9A)	Double counting for advanced fuels
RED I/FQD 2020	6%	10%	7%	1.7%			Yes
RED II 2022			7%	1.7%	0.2%		Yes
RED III latest proposal 2030	14.5%	29%	7%	1.7%	5.5%	1%	Yes*

CO2 transport target is easier to achieve than renewable energy share if utilizing biomethane with negative carbon footprint.

Regulatory risks

European directives are not instantly law in Member States. Each country implements its own renewable transition legislation, and those laws are ultimately the

Key risks

1. GHG Protocol amends legislation, excluding the use of biomethane certificates for scope 1 reporting. As a result, CDP will no longer allow biomethane for voluntary use, causing a huge short-term dent in demand. This is a huge downside risk currently pending a decision.
2. France opens up its borders for exports. France is rapidly building capacity but currently most volumes are domestically consumed. If they open up, then cheap volumes could flood the European market.
3. Germany opens for grid imports. This would create a scramble for the German market, destroying the investment case for some bio-LNG assets and totally rearranging EU biomethane trade flows.
4. Swedish biomethane tax reductions were ended following the Landwaerme case, hurting the Danish export case (50% of Danish production goes to Sweden) and causing a big dent in demand. The new market structure remains uncertain.
5. ETS prices could be a major driver for biomethane in the future, especially as grid supply obligations come in and renewable content targets on industrials rise.
6. Many other policies being discussed, such as OEM tailpipe vs lifecycle emissions; methane slippage; taxonomy; reporting requirements; ESG; etc

How does STX mitigate these risks?

- We have a large policy team, maintaining a detailed view of the existing policy landscape and upcoming changes
- We advise EU and national level policy decision makers
- We do this across our commodity exposures: renewable gases, biofuels, carbon, energy efficiency, electricity guarantees of origins and more!

Thanks for listening!