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CONSULTING PARTNER
FOR BIODIESEL

EU Biodiesel Market Outlook 2019



Executive summary

In 2019, major worldwide geopolitical events may trigger tensions in key commodities markets, creating uncertainty around biodiesel commodities prices. On the supply side, the world's main biodiesel exporters are on track to become significant biodiesel consumers.

Regarding EU legislation, the **new RED II directive** has been adopted on December 2018 setting EU biodiesel policy for the next 10 years. Although uncertain, Brexit will have an impact on the **UK biofuels policy** and on the EU biodiesel market.

Regarding feedstocks, 2019 will bring significant changes to the **EU biodiesel feedstock mix**:

- **Rapeseed production in the EU is expected to be substantially low in 2019** as last year's sown area has been reduced
- **Palm oil & PME imports** may start to decline only at the end of 2019 (mainly due to France's and Norway's new legislations banning palm oil from the beginning of 2020)
- **Soybean biodiesel** should be highly abundant for EU, as long as the EU does not restrict its importations
- ... and **waste-based biodiesel** feedstock EU imports are expected to substantially grow alongside EU mandates.

In order to adapt to the new feedstock mix available, EU diesel retailers will need to adapt their **biodiesel blending mix**:

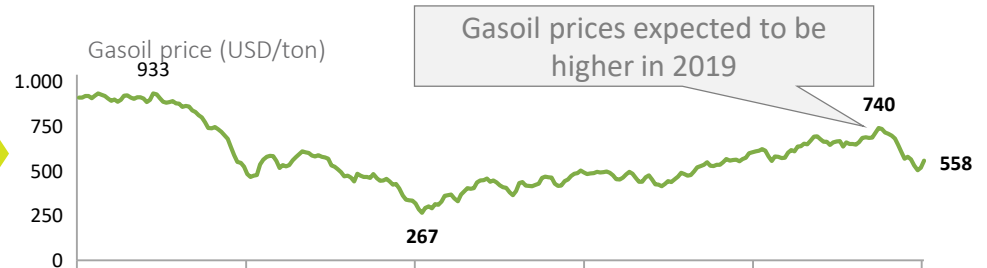
They can either

- ...blend FAME O⁹ with a higher content of SME or more expensive low-CFPP FAME
- ... or increase the proportion of waste-based methyl ester biodiesel (UCOME or TME) in their blending
- ... or use HVO biodiesel where its production capacity in Europe should grow by at least 10% CAGR from 2018

2019 worldwide geopolitical events may create uncertainty around macroeconomic drivers

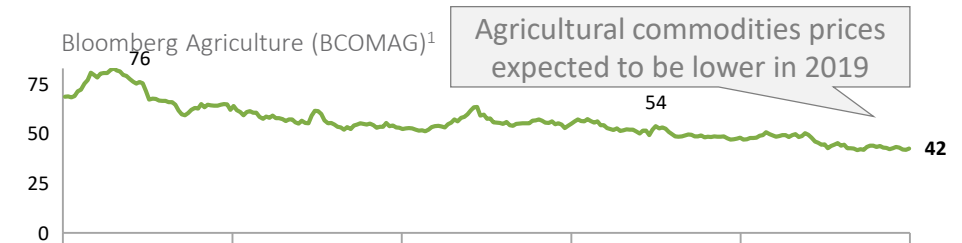
OIL MARKET

- OPEC has agreed to reduce oil production
- Impacts of US sanctions on Iran will start being effective



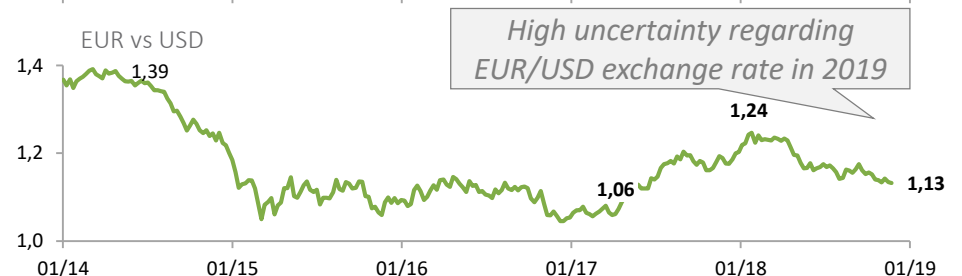
AGRICULTURAL COMMODITIES

- Continuing trade war between the US and China will push down agricultural commodities prices



EUR vs USD

- Negotiations regarding Brexit are still ongoing
- EU elections in May 2018 will test resilience of EU's mainstream political parties

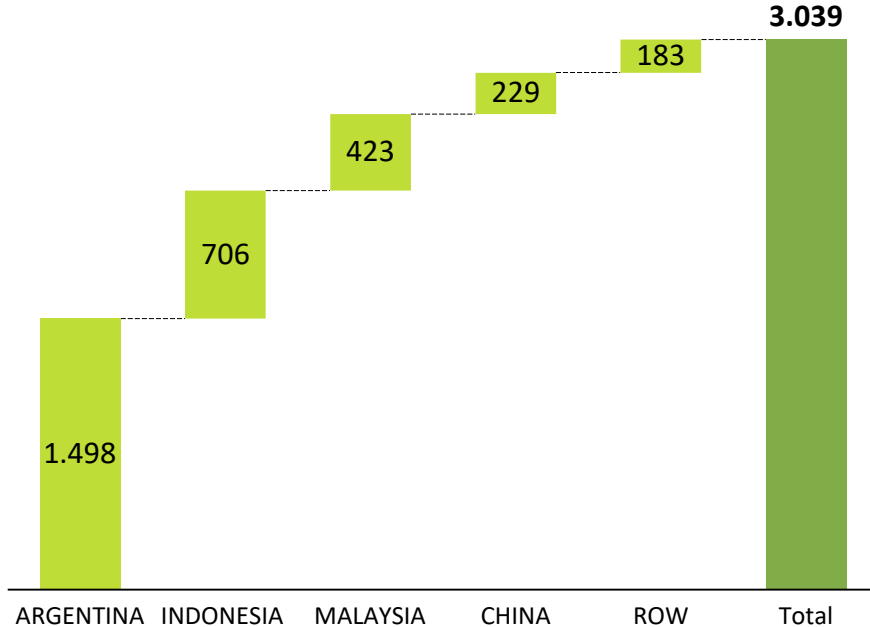


In 2019, major worldwide geopolitical events may trigger tensions in key commodities markets, creating uncertainty around biodiesel commodities prices

World's biodiesel exporters are on track to become significant biodiesel consumers

Many biodiesel exporters to the EU...

2018 Biodiesel Exports to the EU by country (in ktons)²



...could ramp up their local consumption to prepare for larger biodiesel mandates

These countries are increasing their local mandates as a response to the growing protectionism from the EU and the US, world's main importers.



Indonesia

From B15¹ in 2018
...to B20 by 2019



Brazil

From B7 in 2018
...to B10 in 2019



Malaysia

From B5 in 2018
...to B10 by 2019
...and B20 by 2020



India

Concurrently, the biodiesel blend is less than 0.12% mostly due to limited feedstock availability and lack of an integrated and dedicated supply chain.



Argentina

From B10 since 2016
...to – no info available

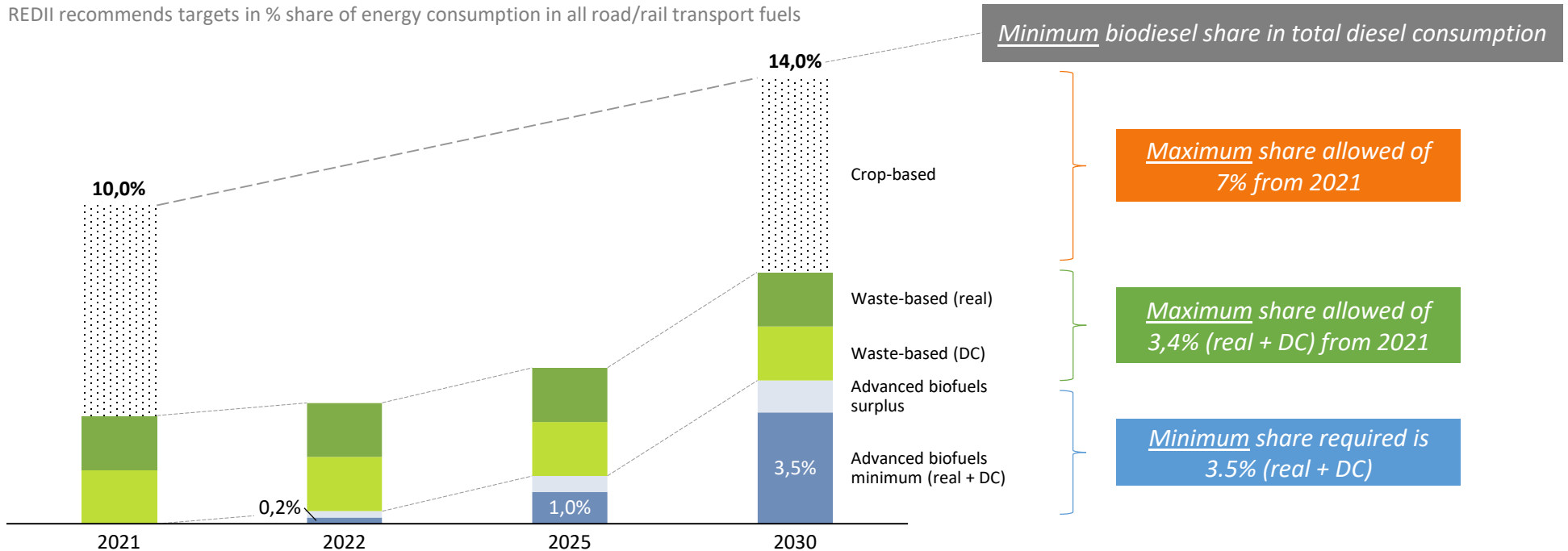
5% blending of biodiesel with diesel by 2030.

While on the long term global supply might be in jeopardy due to exporters own biodiesel use, application delays and local supply difficulties may soften changes in global supply during 2019

The new EU's RED II directive has been adopted on December 2018 setting EU biodiesel policy

Renewable Energy Directive II sets a global biodiesel target and requirements on biodiesel split by specific feedstock type

REDII recommends targets in % share of energy consumption in all road/rail transport fuels



Although RED II is clear about the 1.7% maximum share of WB, EU MS should translate these requirements into local legislation (to take longer)

Although uncertain, Brexit will have an impact on UK biofuels policy and on EU market

- The key document stating the biofuels regulations in the UK is **The Renewable Transport Fuels and Greenhouse Gas Emissions Regulations**.
- There is a **cap on crop-based biofuels of 4%** between 2018 and 2020. Then, it should decrease progressively to reach max 2% in 2032.
- There will be a **sub-target for advanced fuels** (or “development fuels” as they are called in the UK) of 0.1% (DC) in 2019 and 0.15% in 2020.
- In parallel to the volume mandate, the UK introduced also a **GHG¹ emissions mandate of 4%** in 2019 and of 6% in 2020.
- The **overall mandate should steadily increase** from 2021 to reach 12.4% in 2032. However, it should be met predominantly by an increase in the use of advanced biofuels.

MANDATE	2017	2018	2019
Biofuels	4.737% vol.	7.25% vol from April 15	8.5% vol from January 1
DOUBLE COUNTING	2017	2018	2019
UCOME	Yes	Yes	Yes
TME cat 1	Yes	Yes	Yes
TME cat 2	Yes	Yes	Yes
TME cat 3	-	-	-
Fatty Acids	-	-	-
POME	Yes	Yes	Yes



It will be important to watch if and how the biofuels policy may change in the UK after Brexit. Will they follow the RED II or will they choose their own way?

Not only will UK policy on renewable energy be affected by Brexit, but also potential export tariffs may appear from the EU, specially in a hard Brexit scenario

On the supply side, rapeseed EU production is expected to be substantially low in 2019...

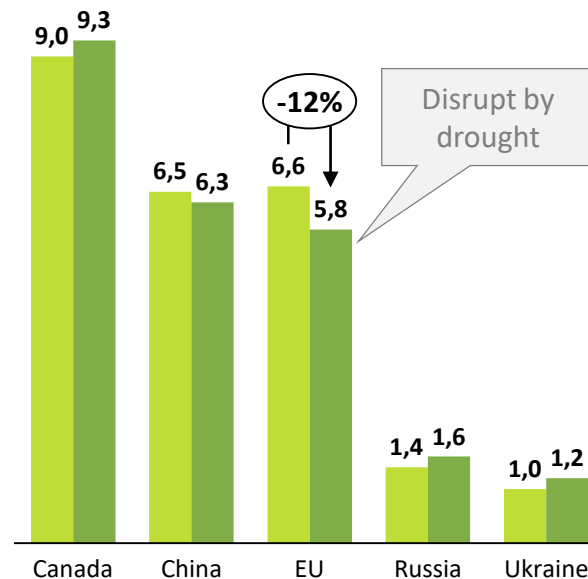
Climate issues reduced 2018 RME EU production

The **low Rhine water level** prevented material leaving production facilities, meaning the transport of rapeseed to facilities for crushing and the transport of the finished RME was largely impossible during Q4 2018. Even if this situation is now solved, this may be a significant risk to consider with global warming

Furthermore, EU rapeseed production has been affected largely by dry weather during the seedlings season

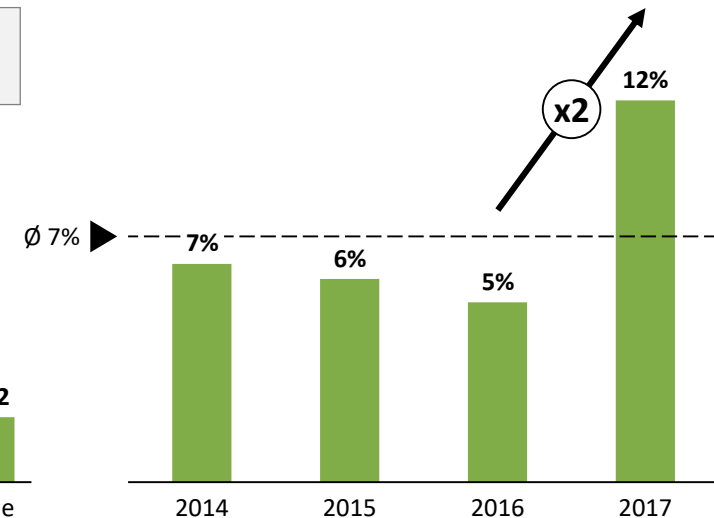
2019 rapeseed area seeded has been reduced by 12%

Rapeseed area forecast of main producers (in million hectares)



Imports, although growing, average 7% of the EU demand

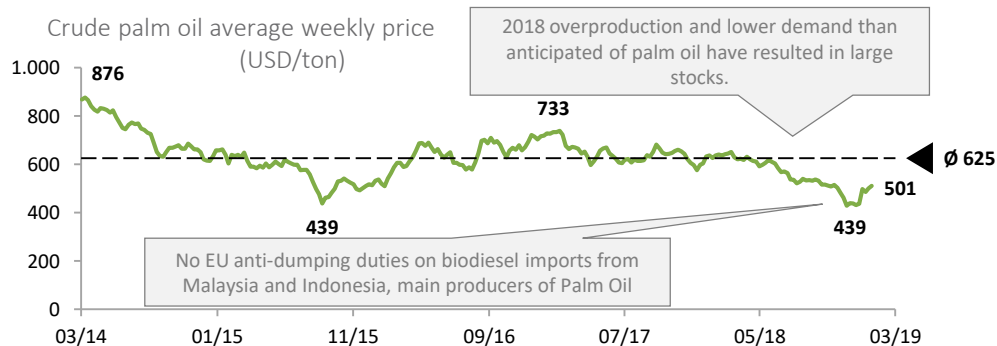
Rapeseed consumption imported by the EU



If rapeseed imports do not keep increasing in 2019, Rape crushers & RME local production will not suffice to cover the demand

... while palm oil imports may decline throughout 2019

Although PME is a competitive, high-abundant, low-price biodiesel in 2019...



After having hit record-low levels, palm oil prices may recover in 2019, because of the rationalization of large Southeast Asian inventories, new blending mandates, anti-subsidy investigations and major weather events

- Malaysia and Indonesia have adopted new blending mandates in order to promote local PME consumption to compensate their excess stocks of palm oil
- The U.S. has imposed anti-dumping duties on Indonesian biodiesel

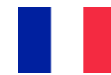
... the EU and EU member states are aiming to restrict its usage



Early drafts of EU REDII (EU's Renewable Energy Directive) suggest that the **EU is working** on an Indirect Land Use Change ILUC factor **to restrict the use of palm oil based biodiesel**



The EU is investigating possible **anti-subsidies for Indonesian PME** that could take effect not earlier than Q3 2019



The 31th December 2018 France has passed a new law to **stop considering palm oil based fuels as biofuels** from 2020



Norway plans to completely ban PME (palm methyl ester) from 2020

What biodiesel products will benefit from the EU markets transition to PME-free biodiesel that may start at the end of 2019?

Soybean biodiesel should be highly abundant for export in 2019

2019 should bring important changes to the SME worldwide supply landscape



European Commission has proposed definitive countervailing duty of 25-33.4pc on subsidized imports of Argentinian SME to the EU; **final decision is due by February 2019**, however the EU is likely to set quotas on SME regulated with a price formula.



Meanwhile, Brazil, the world's second largest soybean producer, will see **crop prices supported** by Bolsonaro's government.





China-US commercial war uncertainty. With China buying from elsewhere, **US farmers** should face an oversupply of soybeans and **will likely see stocks more than double** to record levels by the end of 2018-19.

Scarcity of RME may cause SME imports to largely increase in Europe, essentially from China who may experience an important production surplus in 2019


EU imports on waste-based biodiesel feedstock are expected to grow substantially in 2019


Larger mandates for EU members should drive demand for waste-based biodiesel...

 In 2018, the Dutch government raised the biofuel mandate to 16.4% by 2020, including double-counting.

 The UK has decided to increase its biofuel mandate from 7.25% in 2018 to 9.75% by 2020 and to 12.% by 2032.

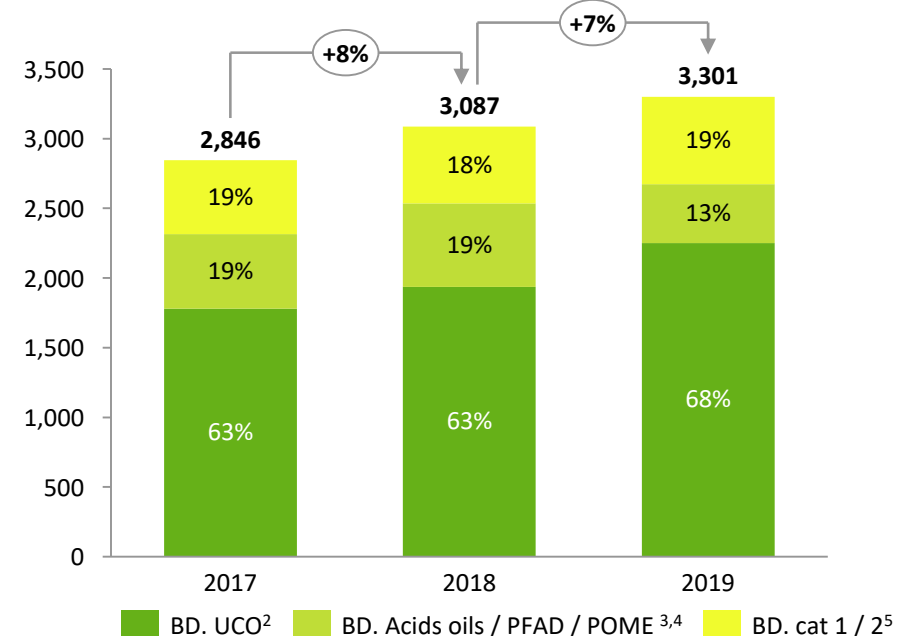
- Crop-based fuels are subject to a cap starting at 4% by volume in 2018
- DC¹ accounted for 66% of biodiesel consumption in 2016/2017

 Spain has approved DC beginning of 2019

 France blending mandate from 2018's 7.5% to 7.9% in 2019 and to 8.2% in 2020

... while DC¹ biodiesel production in Europe is stagnating, calling for an increase of imports

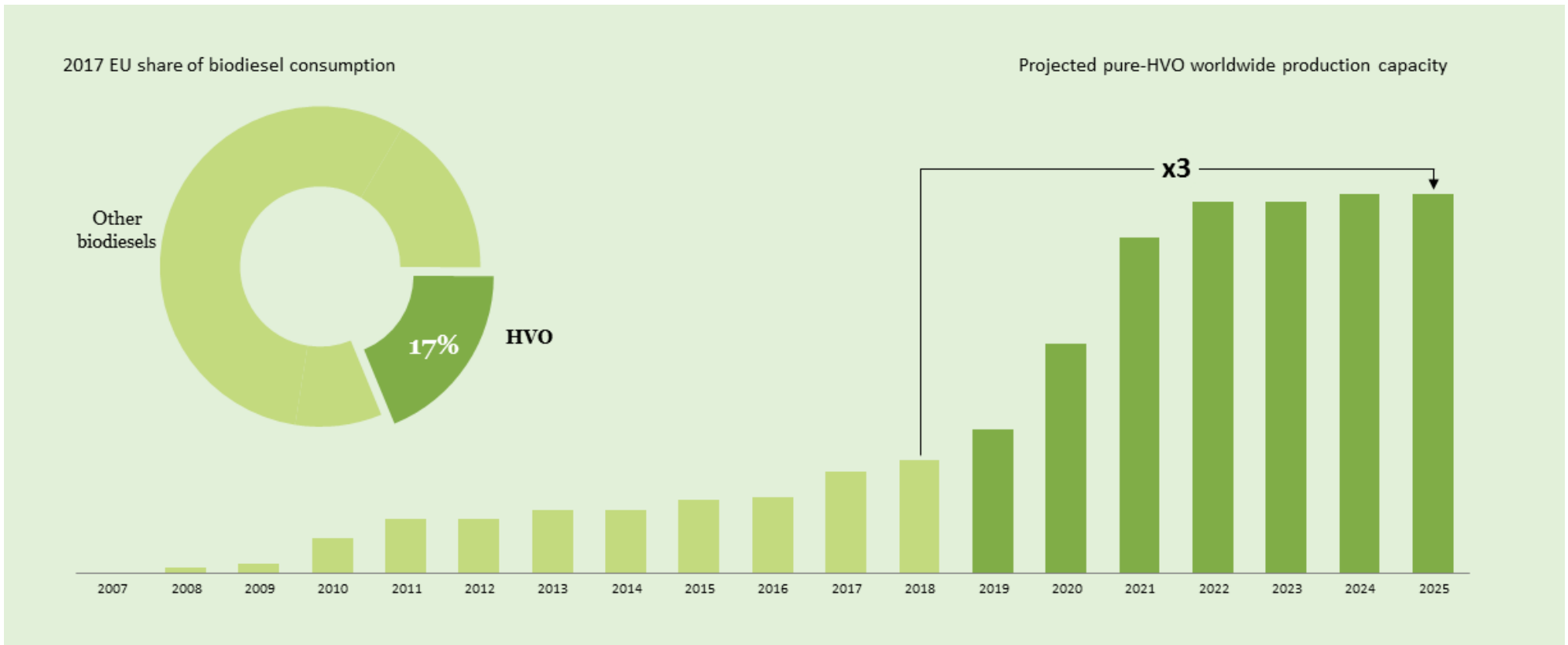
DC EU Production by feedstock type 2017-19 (in kt)



In light of the increasing need for EU imports of WB feedstocks & WB Biodiesel, there is a risk of supply shortage if producing countries (China, India) increase their local consumption of WB biodiesel

Finally, HVO / Renewable Diesel production capacity would reach 15 millions tons by 2025

Worldwide pure-HVO production capacity is expected to grow by more than 3 times in the next decade as many Oil & Gas companies make gigantic investments



Greenea Consulting can help you get ahead of biodiesel market changes in 2019

Greenea Consulting can help you better understand the consequences for your business concerning 2019 market changes and can draft strategic recommendations tailor-made to your business

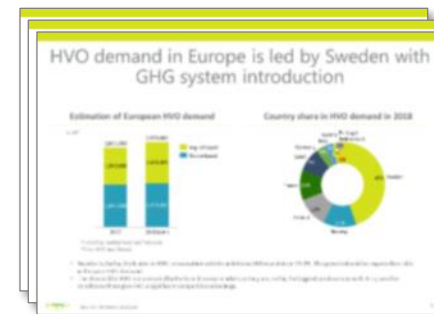
How to enter/expand in the biodiesel EU market ?



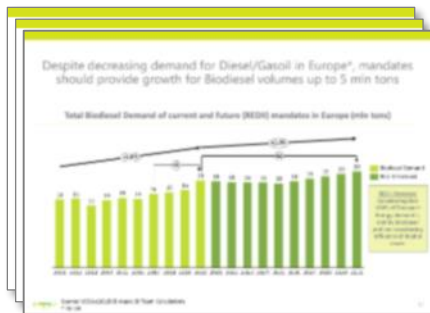
How to secure your supply chain?



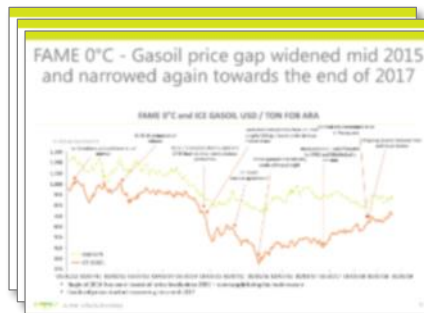
What is HVO competitive advantage and future market share?



Demand projections according to RED II and evolution of EU MS policies



Biodiesel prices drivers and forecast



Contact us at:

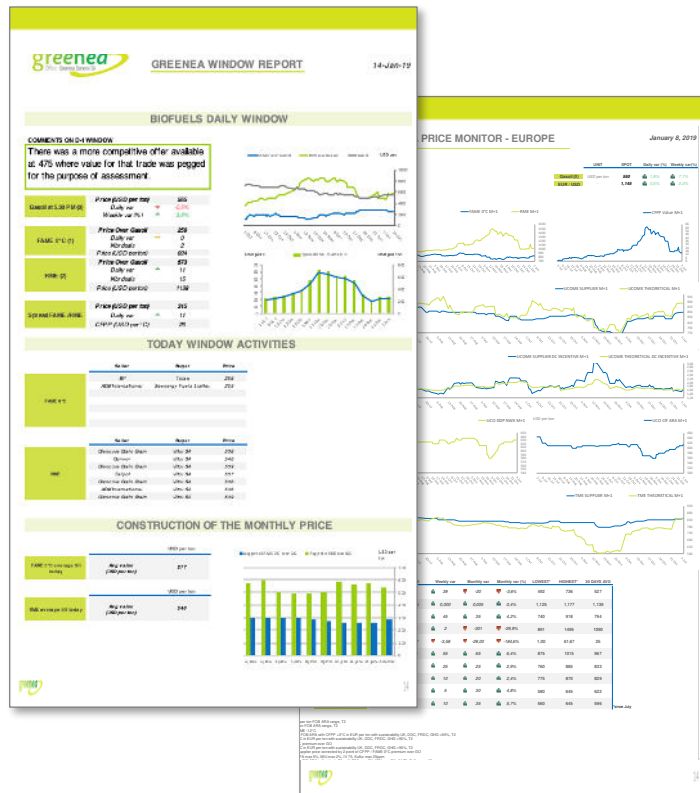
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...to find out how we can help you

Greenea Brokerage gets you the best deals on waste-based feedstock and biofuels

Greenea publishes on a daily basis the latest biodiesel-market prices and drivers updates

Greenea team cumulates +20 years of experience in biofuels and brokerage



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- Ex-consultant at BCG
- ISAE-SUPAERO



Arezki Djelouadji

Consultant

- École Polytechnique
- UC Berkeley

Broker on physical biodiesel, glycerin, animal fats, UCO and veg-oils.

Prior to it, he was the Project Manager on Clean Technologies at CEZ, the largest power company in Central Europe in charge of the e-mobility project in the CEE region.

Having worked for The Boston Consulting Group on several key missions in the renewable energy and biofuels sectors, he has gained practical experience in carrying out analysis and research related to second generation biofuels, biomass markets, plantation business maps as well as solar and wind energies.

He holds a Master's degree in Business and Associate Degree in Plant Technology with a specialization in Seed Production.

To manage this new division, Olivier Madiot joins GREENEA as Manager and new partner of Greenea Geneva SA.

Olivier has an acknowledged expertise in the industry as a broker. A graduate of EM Lyon Business School, Olivier first started his career as a senior auditor at Ernst and Young and then became a broker in oil products and biofuels.

His knowledge of the biofuels market is certainly an asset for GREENEA's development. We would like to thank Olivier for joining the GREENEA team on this new challenge..

Strategy consultant in the Energy sector.

His experiences regarding biofuels include biodiesel, waste-based feedstocks and advanced biofuels.

He has previously worked for The Boston Consulting Group in projects ranging from long-term growth strategies definition to commercial due-diligences for M&A, for multinational corporate clients in a wide-range of different sectors.

He holds a Master's degree in Aerospace Engineering from ISAE-SUPAERO with an additional specialization in Business Administration.

Strategy consultant in the Energy sector.

In the biodiesel sector his experiences range from suppliers rentability analysis to global demand forecasting.

He previously worked as a market and financial analyst for Kacific Broadband, a leading satellite operator in Southeast Asia, and as a consultant for Navis, the global leader of ports and maritime terminals supply chain optimization.

He graduated from Ecole Polytechnique and the University of California, Berkeley – majoring in Engineering and Entrepreneurship.

Why Greenea (1/3) – Our expertise in the biofuels sector is world-renowned



FOLLOW UP OF
DEVELOPMENTS
AND INNOVATIONS

- We have developed a deep understanding of the **HVO market** which should play a key role in the biofuels sector in the next years
- We closely **follow up new investments** on the waste-based biofuels and HVO markets in order to monitor development of the market
- We regularly **publish articles and market studies** about the waste-based biodiesel market to make sure our clients are up-to-date



PRESENCE ACROSS
ALL THE SUPPLY
CHAIN

- We have experience in **feedstock supply** for biodiesel plants as well as in **sales of their final products** to refineries across Europe
- Except for sales of biodiesel, we also **find outlets for the plants' by-products** such as glycerine and BHO
- We provide a comprehensive service including: biodiesel sales, logistics and documentation follow-up, solving of quality issues which gives **good understanding of operational side of the biodiesel supply chain**

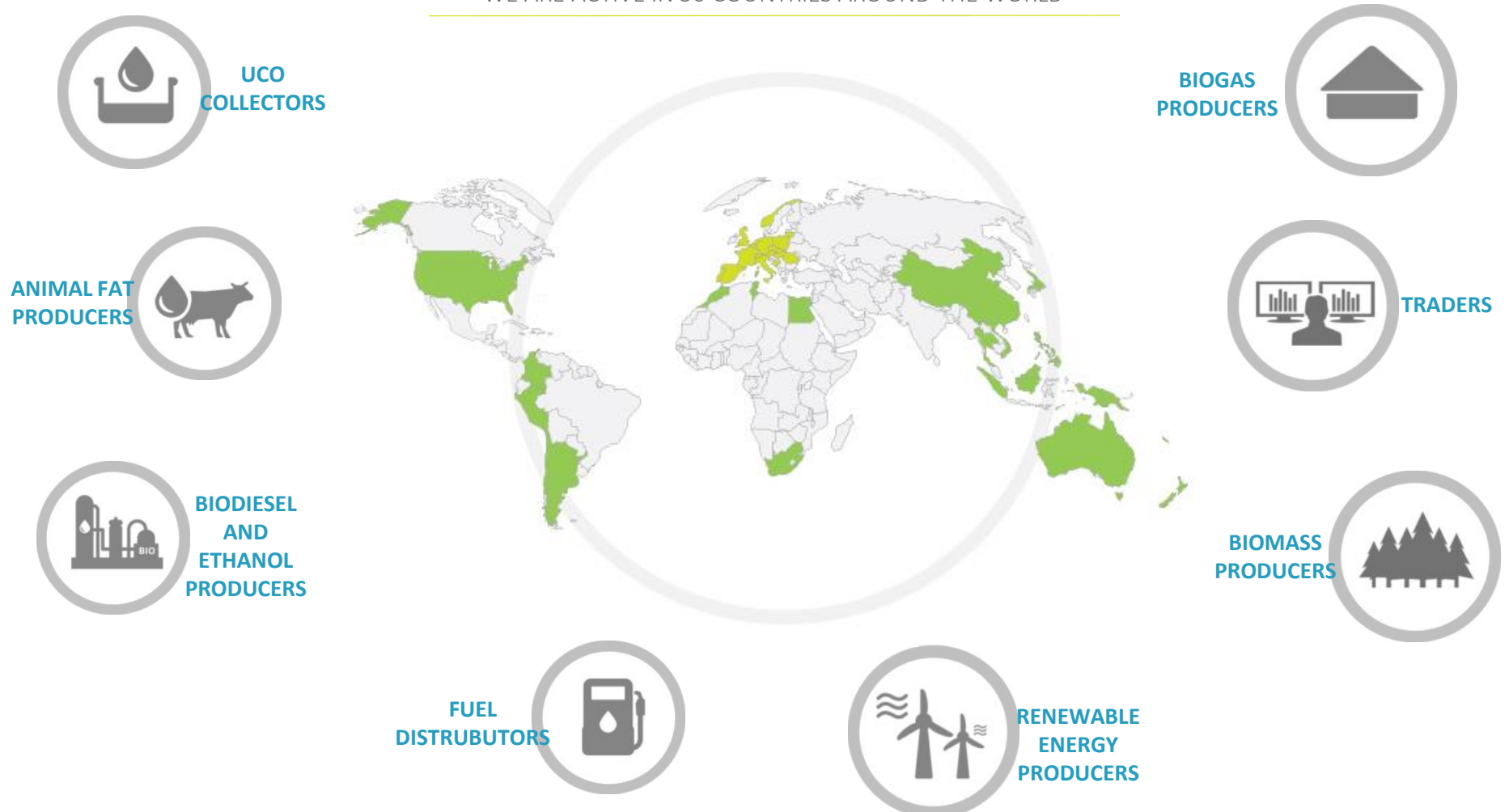


FOCUS ON
CIRCULAR
ECONOMY

- For more than 10 years we have **specialized in advanced biofuels** using waste materials as feedstock. They have high GHG emission savings and help in waste recycling
- We know the **quality requirements and possible issues connected to waste-based feedstock and biofuels**
- We know very well **different waste-based feedstock types** such as UCO, Animal Fat, Fatty Acids, etc. and **have experience with their handling and sourcing**

Why Greenea (2/3) – We have access to industry experts along all the value chain and all regions

WE ARE ACTIVE IN 50 COUNTRIES AROUND THE WORLD



Why Greenea (3/3) – We have successfully carried out dozens of projects in the biofuels sector in 10+ years



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