ZOOM
Netiquettes

Your name: Please name yourself according to the following format "*First name Surname, Organisation*" (e.g. Johanna Friese, dena). This will make it easier for us to identify who is talking during the call / commenting in the chat.

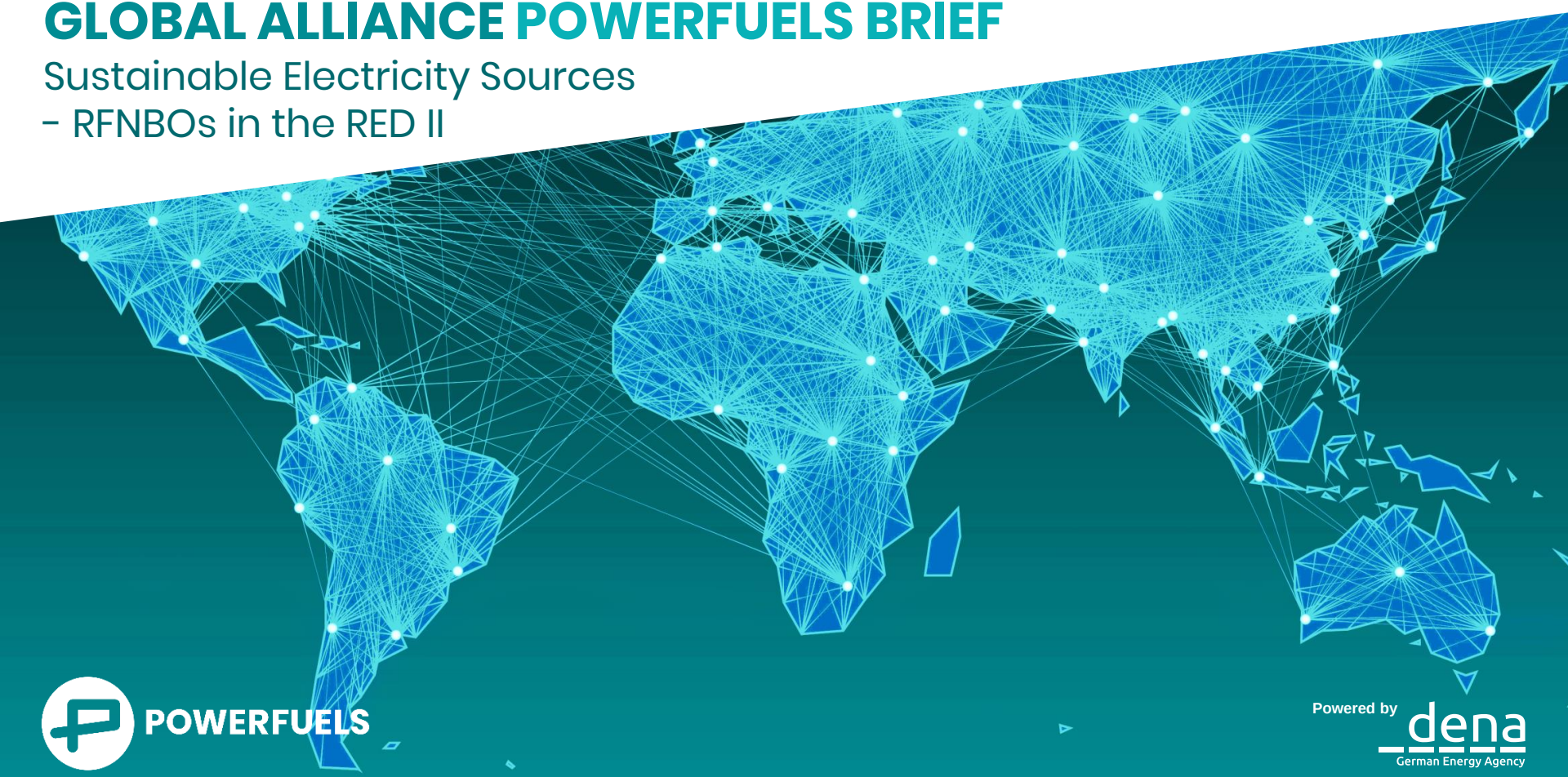
Video: If possible, please enable the video function so that all participants can see you (click on video button). This will make interaction easier.

Microphone: Please disable your microphone (go to participant list (right hand side) -> your name -> click microphone button <u>or</u> press *6 if using phone). Enable microphone only when you wish to speak.

Chat: Please use the chat room to express that you wish to comment or add to what is being said by raising your "virtual hand" (go to participant list -> your name -> click hand button or press *9). The chat room moderator will make your request known to the person speaking.

GLOBAL ALLIANCE POWERFUELS BRIEF

Sustainable Electricity Sources – RFNBOs in the RED II



POWERFUELS

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AGENDA

1 **Our work as the GLOBAL ALLIANCE POWERFUELS**

2 **General requirements for sustainability regulation**

3 **Presentation of the Alliance‘s proposal on the delegated acts of the RED II**

4 **Discussion / Q&A**

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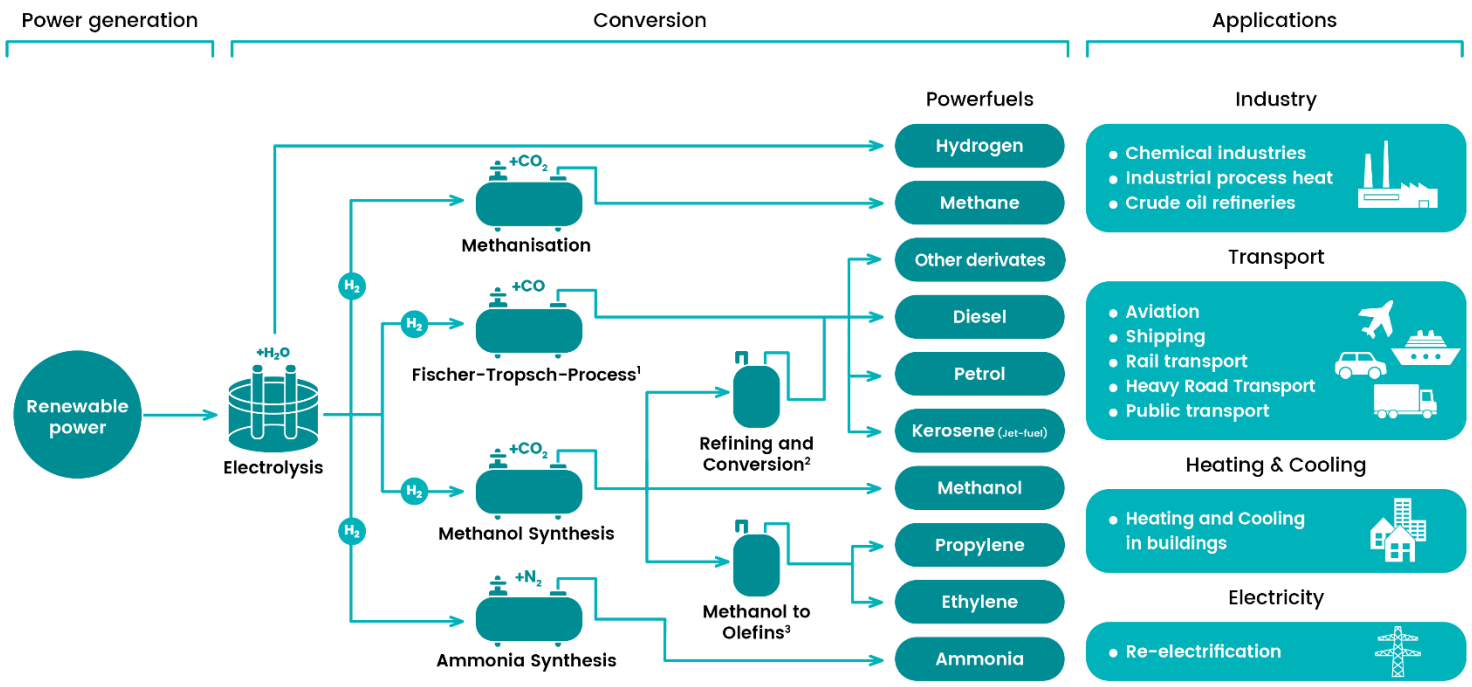
POWERFUELS



1 Includes: Fischer-Tropsch synthesis, hydrocracking, isomerization and distillation.

2 Includes: DME/OME synthesis, olefin synthesis, oligomerisation and hydrotrating.

3 Methanol-to-olefins process.

GLOBAL ALLIANCE POWERFUELS – What we do

Advocacy & Communication

Policy & Regulation

Global Project Development

OUR MEMBERS

bp

ENERTRAG
Eine Energie voraus

BOSCH
Technik fürs Leben

BDL
Bundesverband der Deutschen Luftverkehrswirtschaft

iwo
Institut für Wärme und Oeltechnik

SCHAEFFLER

DAIMLER

MEW
Mittelständische Energiewirtschaft Deutschland e.V.

MWV
MINERALÖL WIRTSCHAFTS VERBAND e.V.

Deutsche Post DHL Group

DVFG
Deutscher Verband Flüssiggas e.V.

Lufthansa

uniper

UNITI Bundesverband mittelständischer Mineralölunternehmen e.V.

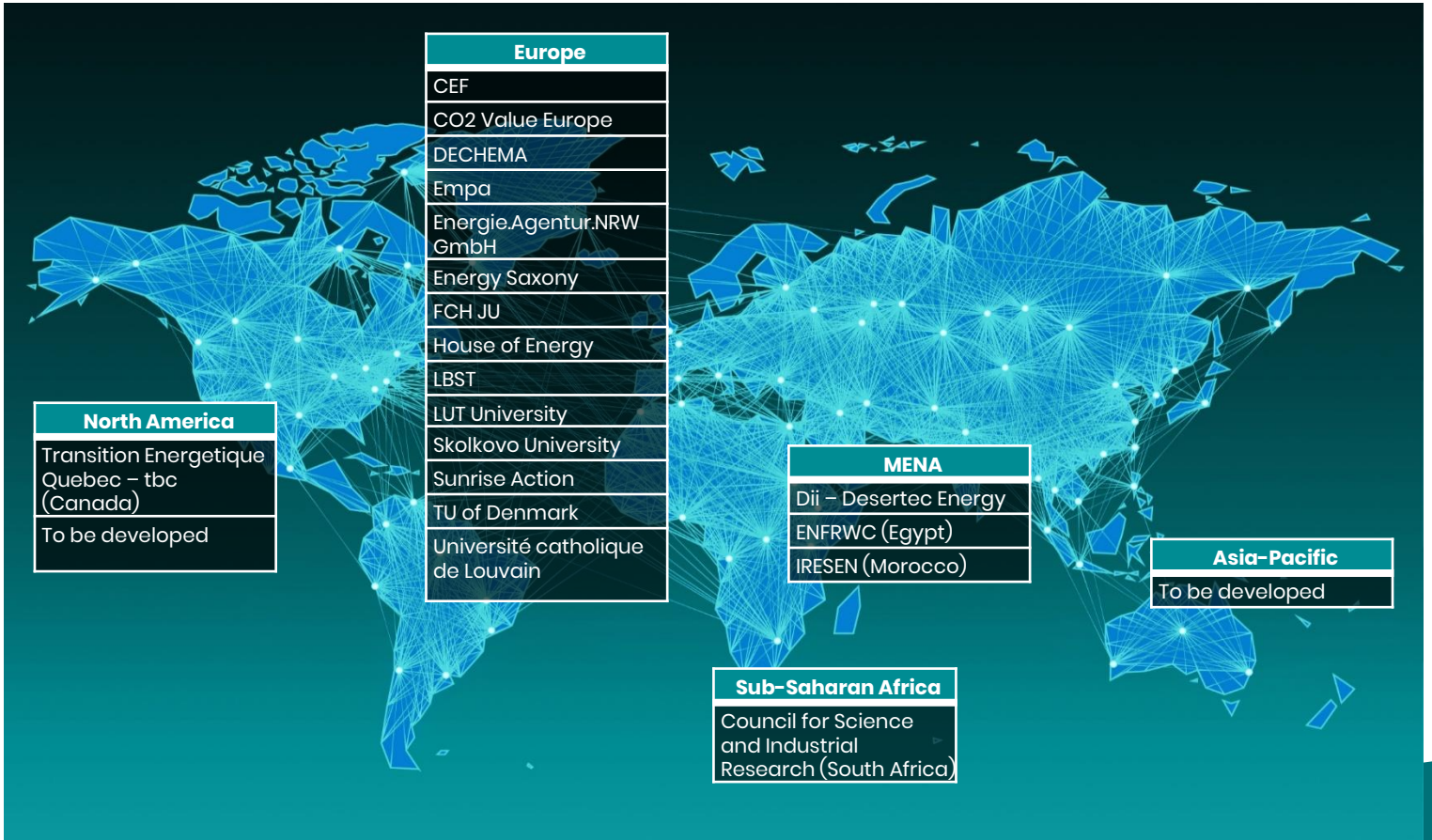
Mitsubishi International GmbH

ExxonMobil

PAUL WURTH
SMS group

sunfire

OUR GLOBAL PARTNER NETWORK



Sustainability criteria for electricity sources in the RED II

RFNBOs in the RED II - Sustainability criteria

In Dec 2018, the revised EU Renewable Energy Directive (RED II) was adopted:

- The overall EU target for Renewable Energy Sources consumption by **2030** was raised to **32%**
- **Article 25** mandates Member States to require fuel suppliers to supply a minimum of **14%** of the energy consumed in **road and rail transport** by **2030** as **renewable energy**
- Member States are **given the option** of using **Renewable Fuels of Non-Biological Origin (RFNBOs) / powerfuels** to fulfil the overall target of 14% for the share of **renewable transport fuels**

RFNBOs in the RED II - Possible electricity sources

Recital 90 of Article 27 establishes four criteria for power sources of electrolysers that producers have to comply with for the powerfuels to be counted toward the renewable transport target:

	From electricity mix through grid connection	From direct connection (could be PPA)	From PPA through grid connection
Defined in RED II?	Yes	Yes	Delegated Act pending
Required reduction vs fossil baseline	70 %		
Necessary criteria for electricity	Carbon intensity of electricity mix	Renewability	Renewability Temporal Correlation Geographical Correlation Additionality

Legislative Timeline – Specification of criteria is still pending

11/12/2018	RED II adopted, with Art. 27 mandating delegated act
17/07/2019	EC publishes tender ENER/C1/2019-418 for the „Assessment of Potential of RFNBOs and Recycled Carbon Fuels and Assistance to Establish a Methodology to Determine the Share of Renewable Energy from RFNBOs"
30/06/2021	Due date for implementation of RED II in member states
31/12/2021	Due date for delegated act Art. 27

Our proposal

General requirements - What makes a good regulatory proposal?

Simplicity, Verifiability and Certifiability
Complex proposals will suffocate the nascent market, create loopholes and place a large administrative burden on governments, regulators, and producers. Only simple and effective regulation with easily verifiable criteria will enable third-party evaluators to enforce these criteria

Global Applicability and Comparability
With the perspective of developing a global market for powerfuels, sustainability criteria need to equally apply in supply regions outside the EU and be enforceable globally. This also avoids regions undermining the sustainability efforts of others.

Predictability for project developers and investors
Project developers and investors need rules that are certifiable independent of national institutions of supply markets and can be implemented globally. Further,, certification should therefore be done on a per-project basis.

Coherence with existing regulation
In the existing practice, such as the RED, transport fuels are evaluated separately for their sustainability and their GHG reductions (depending on the feedstock used).

Renewability

Renewability: RED II definition

Recital 90 : "*To ensure that renewable fuels of non-biological origin contribute to green-house gas reduction, the electricity used for the fuel production* ***should be of renewable origin***."

All major sources of renewable electricity are covered: **Article 2** states that 'renewable energy' includes **wind**, **solar** (solar thermal and solar photovoltaic) and **geo-thermal** energy, **ambient energy**, tide, wave and other **ocean energy**, **hydropower**, **biomass**, **landfill gas**, **sewage treatment plant gas**, and **biogas**.

Background:

- RFNBOs need to achieve a **greenhouse gas reduction** of at least **70%** compared to fossil fuel baseline
- The **type of electricity** used in their production has **the largest impact on GHG emissions**: To achieve this the electricity would need to have a GHG intensity of 45-70^gCO2/kWh
- By defining the minimum reduction level, the regulation places an **implicit limit** on the **partial use** of **renewable electricity**: In any realistic scenario involving e.g. solar PV and fossil fuel plants with low efficiency, the **use of any fossil electricity** is virtually **excluded**. Powerfuels production **from grid electricity** would be feasible only in very few countries (e.g. Norway)

Renewability: Our proposal

Electricity should be limited to renewable energy sources only.

- **should not exclude** any of the mentioned renewable energy sources **to grant** the largest possible degree of **flexibility in choosing** a renewable energy source
- Powerfuels producers should be allowed to **complement PPAs** with spot market electricity through Guarantees of Origin (GOs) or at average GHG intensity – especially as grids get greener.
    - **more flexibility in terms of supply** in the future
    - potentially **increasing RFNBO plant capacity utilization**
    - **improving the availability of RFNBOs** without creating additional risks.

Temporal Correlation

Temporal Correlation: RED II definition

Recital 90: "*methodology should ensure that there is a **temporal [...] correlation** between the electricity production unit with which the producer has a bilateral renewables power purchase agreement and the fuel production. For example, renewable fuels of non-biological origin **cannot be counted** as fully renewable if they are produced **when the contracted renewable generation unit is not generating electricity***"

Background:

- It is technically possible to run the electrolyser when the renewable power plant **is not generating electricity**
- A larger window could lead to a scenario where RFNBO plant is operating and RE asset is not, and **marginal plant** covering this supply gap **could be fossil** -> renewability criterion would be violated and CO2 balance would be worse than when using fossil transport fuels
- crucial to **commercial viability:** determines the load factor of the capital asset and the degree of oversizing renewable generation assets

Through the **direct link** between **temporal correlation** and **total cost**, temporal correlation is potentially the **most relevant** of the criteria to making powerfuels production a **business case**

Temporal Correlation: Our proposal

A range of weekly to daily balancing between generation unit and RFNBO plants when commissioned between 2020-2025, daily to hourly correlation 2026-2030, and hourly to imbalance settlement period (15 minutes) after 2030.

Together with a regular review process on the advancement of the best available technologies, targets could be adjusted towards more ambitious time frame, if appropriate.

Year of Plant Commissioning	2020-2025	2026-2030	After 2030
Required Temporal Correlation (range)	Weekly to Daily	Daily to Hourly	Hourly to Imbalance Settlement Period (ISP)

Georgraphical Correlation

Geographical Correlation: RED II definition

Recital 90: "*[…] ensure that there is a […]* ***geographical correlation*** *between the electricity production unit […] and the fuel production.[…] Another example is the case of electricity grid congestion, where fuels can be counted as fully renewable only when both the electricity generation and the fuel production plants are located on the same side in respect of the congestion.*"

In the case of grid congestions, the final product can only be certified as **partially renewable**.

Background:

- The intention is to **limit** the extent to which the production of powerfuels **exacerbates any existing bottlenecks** in both distribution and transmission grids, or links between grid zones.

Geographical Correlation: Our proposal

Production plant and power plant should be located in the same bidding zone, and not be separated by permanent grid congestion.*

- Should use the **Electricity Regulation recast** definition of "**structural congestion**" : congestion in the transmission system that is "capable of being unambiguously defined, predictable, geographically stable over time, and frequently reoccurs under normal electricity system conditions."
- **Certification** should be given **for the plant itself**, provided by certifying bodies in reference to the national grid regulator.
- **Identifications of grid bottlenecks** could be **based on national rules** and **existing development plans**.

*Within the same bidding zone, transmission system operators (TSOs) have **congestion management mechanisms**.

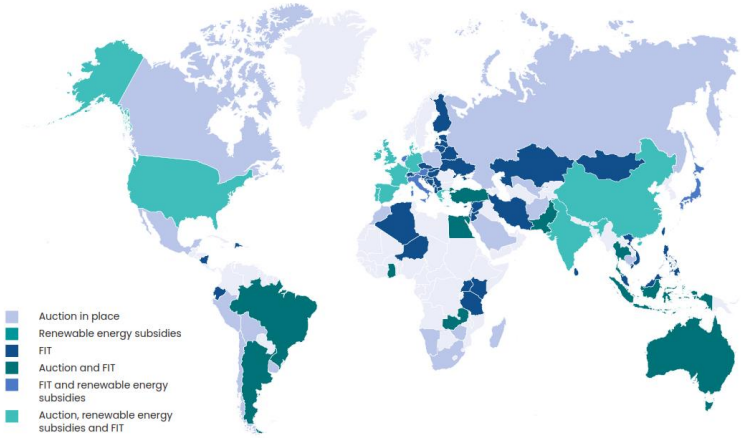
Additionality

Additionality: RED II definition

Recital 90 states: „*Furthermore, there should be an **element of additionality**, meaning that the fuel producer is adding to the renewable deployment or to the financing of renewable energy.*"

Background:

- Ensure that additional **demand** for renewable electricity for powerfuels **does not interfere** with the **efforts** to **increase** the **share of renewable electricity** in existing electricity demand.
- Scenario **with subsidies**: **Any newly built** renewable electricity production unit that **does receive offtake** subsidies **can be considered as additional**.
- Scenario **without subsidies**: Any newly built renewable electricity production unit would be additional to the defossilisation of the existing demand in the power sector, as there is **no competition** for a limited resource
    - Outlook: **cost degression** of RES and **absence of scarcity** of RES



Additionality: Our proposal

The renewable generation unit can demonstrate additionality if it is not receiving any offtake subsidies aimed at the power market.

- **Non-subsidy** environment: certified directly by the certification body
- **Subsidy** environment: RES plant needs to demonstrate that it does not receive subsidies (possibly use of national subsidies registers)
- The scarcity of sites should be monitored by national governments.
- A **similar definition** of additionality **for both RFNBOs** and **electric vehicles** should be pursued ("framework on additionality in the transport sector" beyond RFNBOs, Art. 27)

Outlook

Outlook

RED II has the potential to push or suffocate market development of powefuels
It is the first regulation to require powerfuels to meet certain standards when procuring electricity. As such, it has a landmark character for the global development of powerfuels.

Universal appeal, validity and global enforceability
The largest potential for low-cost powerfuels is **outside of Europe**. These regions should be considered by devising regulation that can be verified in a variety of regulatory and institutional conditions.

Timely and feasible implementation
Regulation must move forward quickly to give early certainty to project developers as well as national governments in the process of implementing the directive. A decision **before 2021** would therefore be welcome.

Thank you for your attention.

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www.powerfuels.org

Q & A

Alliance Proposal - Summary

1 **Renewability**: Electricity should be limited to renewable energy sources only.

2 **Temporal Correlation**: A range of weekly to daily balancing between generation unit and RFNBO plants when commissioned between 2020-2025, daily to hourly correlation 2026-2030, and hourly to imbalance settlement period (15 minutes) after 2030.

3 **Geographical Correlation**: Production plant and power plant should be located in the same bidding zone, and not be separated by permanent grid congestion.

4 **Additionality**: The renewable generation unit can demonstrate additionality if it is not receiving any offtake subsidies aimed at the power market.

Contact us – Project Team

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