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For more information,  
contact:

Frederick Lazell  
+44 20 7551 2143  
[flazell@kslaw.com](mailto:flazell@kslaw.com)

Dan Feldman  
+971 2 596 7027  
[dfeldman@kslaw.com](mailto:dfeldman@kslaw.com)

Dr. Axel J. Schilder  
+49 69 257 811 300  
[aschilder@kslaw.com](mailto:aschilder@kslaw.com)

Dr. Salomé Ciscal de Ugarte  
+32 2 898 0205  
[sciscaldeugarte@kslaw.com](mailto:sciscaldeugarte@kslaw.com)

John Taylor  
+44 20 7551 7553  
[jtaylor@kslaw.com](mailto:jtaylor@kslaw.com)

James F. Bowe, Jr.  
+1 202 626 9601  
[jbowe@kslaw.com](mailto:jbowe@kslaw.com)

Zöe Bromage  
+65 6303 6088  
[zbromage@kslaw.com](mailto:zbromage@kslaw.com)

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## EU regulatory challenges complicating the development of international green hydrogen projects

The EU rules defining green hydrogen and derivative fuels (such as ammonia, e-methanol and e-NG)<sup>1</sup> became binding law in June 2023 (as covered in our [client note on the RFNBO Delegated Acts](#)). Subsequently, in late July 2023, the European Commission (EC) issued guidance, intending to aid the application of these rules, in the form of a Q&A document.<sup>2</sup>

However, in several areas, the guidance failed to deliver the regulatory clarity that project developers had been clamouring for. The EC guidance leaves developers seeking to export RFNBO to Europe facing significant challenges in structuring their projects to meet the RFNBO requirements. Two of the most significant such challenges are:

- The **prohibition on State aid for renewable power generation** where electricity is transmitted from a renewable generation facility to the RFNBO facility under a PPA through the grid. This restriction is very broad and applies to state support provided outside the EU.
- The **requirement for PPAs to be directly between RFNBO producer and renewable power generator**. This restricts the use of sleeved PPAs or any structure with a utility supplier as an intermediary power supplier, or other participant in the contractual structure, raising issues in electricity markets that have state-mandated power purchasers and suppliers.

Unless these issues can be resolved, projects that had been intending to produce RFNBOs for the EU may look elsewhere for their markets (e.g., Asia is developing attractive demand-side subsidy mechanisms to support imports of green and low-carbon fuels). These technical issues may be serious enough for some in the industry to consider challenges before the Court of Justice of the European Union. Although it should be



acknowledged that strictly the deadline for bringing a direct claim against the European Commission has passed.

### RESTRICTION ON STATE AID FOR RENEWABLE POWER GENERATION

One of the eligibility requirements for grid-transmitted power to be used for RFNBO production is that the renewable power installation must not have received any State aid.<sup>3</sup> This is a broad principle that prohibits any form of subsidy or other financial support for the construction or operation of the renewable power plant (including tax credits, grants and preferential tariffs, amongst other things), with only limited exceptions.

Several countries around the world have implemented support schemes for renewable power projects, in part, to stimulate a green hydrogen industry and specifically contemplating that hydrogen-based fuels produced with renewable power could be exported to Europe. This includes the U.S. under the Inflation Reduction Act (**IRA**) (which allows the “stacking” of credits for different parts of the value chain), Canada through the investment tax credits announced in its 2023 budget, and Egypt, amongst others.

### WHY IS STATE AID FOR RENEWABLE POWER RESTRICTED?

The restriction on State aid forms part of the “additionality” test under the Additionality Delegated Act. In a general sense, showing “additionality” is a counterfactual test: i.e., but for the demand for renewable power from the RFNBO producer, the renewables project would not have been developed. However, there is no single definition of additionality.

The EC has defined the additionality test that applies to RFNBO production under Article 5 of the Additionality Delegated Act. This requires that the renewable generation installation must be no older than 36 months from the date the RFNBO plant commenced operation and that the renewables facility has not received State aid.

The EC’s decision to include this restriction on State aid makes the EU’s version of additionality more onerous than even the strictest requirements being considered in the U.S. (see our [client note on the U.S. debate on the definition of clean hydrogen](#) under the IRA). Moreover, this decision is not, some in the industry argue, explicable by reference to the framework under the Renewable Energy Directive (**RED II**) authorising the EC to adopt the Delegated Acts and to define the additionality principle to apply to RFNBO production.

The EC’s authority to adopt the Additionality Delegated Act derives from Article 27(3) of RED II. This empowers the EC to define the “*other appropriate criteria*” that need to be met for grid-transmitted power to be eligible for RFNBO production. The scope of these criteria is circumscribed by the text of Recital 90 of RED II, which introduces the concepts of temporal and geographical correlation, as well as the additionality principle. In relation to additionality, Recital 90 states as follows: “*there should be an element of additionality [of the renewable power supply], meaning that the fuel producer is adding to the renewable deployment or to the financing of renewable energy*”.

Some argue that the parameters of the additionality principle in Recital 90 are significantly less strict than the final additionality test adopted by the EC in the Additionality Delegated Act. As a result, there have been suggestions in the industry that the EC could have exceeded its delegated authority under RED II. However, it is not yet clear whether there is the appetite or ability to turn such suggestions into a formal claim before the Court of Justice of the European Union.

This would, though, appear to be the only route that currently exists to remove the restriction on State aid. Absent this, projects need to carefully structure their power supply solutions so as to navigate around this restriction. States yet to implement support schemes may consider structuring these to provide higher levels of support for green hydrogen rather than by indirectly via subsidies for renewable electricity production.



## RESTRICTION ON BACK-TO-BACK OR SLEEVED PPAS

The second major challenge facing developers is the statement from the EC in its July 2023 guidance that a PPA must be entered *directly between the renewables generator* and the RFNBO producer (i.e., no intermediary power supplier can be a contracting party to the power supply arrangements).<sup>4</sup> This is seen by some in the industry as a significant about-face from the EC.

## PPA ARRANGEMENTS VIA INTERMEDIARIES

Article 5 of the Additionality Delegated Act requires RFNBO producers to show that they “*have concluded directly, or via intermediaries, one or more renewables power purchase agreements*” for the quantity of power used for RFNBO production. The reference to “*or via intermediaries*” was added during the negotiation process of the Additionality Delegated Act and was widely understood to allow an intermediary power purchaser and supplier to participate in the contractual structure between renewables generation and RFNBO production. This would be done through a back-to-back PPA arrangement (a form of sleeved PPA).

This was understood to be distinct from a virtual PPA structure, where unbundled renewable energy certificates (RECs) or guarantees of origin (GOs) are supplied to ‘green’ the power supply to an electricity user. This use of unbundled RECs or GOs was never considered to be a possible power supply solution; the temporal correlation requirements in particular would, in any case, make this practically impossible.

There are two main scenarios (which may occur together) in which the back-to-back PPA structure is being considered by developers globally:

1. **Electricity markets with state-mandated power purchasers and suppliers.** In these markets, electricity consumers are not permitted to contract directly with renewable power generators, since local laws oblige (i) generators to sell to the state-mandated offtaker and/or (ii) consumers to purchase power from the state-mandated supplier (these may be different entities).

This is the structure of many markets globally, including in the Middle East, North Africa, Canada, and Central Asia (all of which are anticipated to be key sources of European imports of RFNBOs).

2. **Optimising economics of renewables components and the grid services from green hydrogen production.** Under this structure, the renewables components are developed as a conventional renewable power project with a credit-worthy utility as buyer of the power. This allows sponsors to achieve better economics through higher debt-to-equity ratios on the renewable power components. This optimises the financial and commercial structuring of green hydrogen projects, because the intermediary’s credit-strength standing behind the PPA could be used to support non-recourse financing of the renewables elements of a project. This structure also allows for the aggregation of electrons generated by several renewables projects (i.e. with multiple upstream PPAs aggregated by the utility into one downstream PPA) which would drive up the load factor and drive down the per-unit cost of green hydrogen production.

The utility then on-sells the same power, together with all RECS / GOs, to the RFNBO producer under a back-to-back PPA arrangement (complying also with all other RFNBO rules). A significant advantage of this structure is that it makes it easier for the utility (which either is, or interfaces with, the relevant transmission system operator) to optimise the potential for electrolyzers to act as flexible load, thereby providing grid-services from green hydrogen production. For example, at times of peak electricity demand, excess renewable power can be sold to the grid and the demand from the electrolyser facility can be reduced to divert more renewable power to the grid.<sup>5</sup>



### THE EC'S REQUIREMENT FOR DIRECT PPAS ONLY

However, the EC in its guidance of July 2023 stated that the role of the “*intermediaries*” in PPA arrangements can only be as “*facilitator of such contracts but not as a contracting party*”.<sup>6</sup> This would therefore prohibit both of the back-to-back PPA scenarios described above. The EC states that this limitation is a result of the definition of a “*renewables power purchase agreement*” under RED II, which is defined as a contract “*to purchase renewable electricity directly from an electricity producer*”. However, it is not clear what the role of such facilitators would be (although they cannot be parties to the contractual arrangements). Such facilitators are not common features of large-scale power procurement activities globally in our experience.

Supplementary requests for clarification on this issue are pending before the EC, essentially seeking a reversal of this guidance or some other narrowing of its application. However, even if such reversal can be obtained, the EC's guidance is non-binding and so the mere existence of the earlier guidance requiring direct PPAs would create legal risk for developers. The only binding resolution to such an issue would be a decision of the Court of Justice of the European Union.

The EC's apparently strict limitation of the scope of the Delegated Acts within the confines of the letter of RED II in relation to the sleeved PPA issue stands in notable counterpoint to the discretion it is seen by some to have exercised in restricting State aid to renewables as part of the EU's additionality test.

### COMMERCIAL IMPACT OF THESE RESTRICTIONS

These issues create further uncertainty and legal risk for project developers seeking to export RFNBOs to the European market.

Ultimately, the State aid restriction risk denying European offtakers and consumers access to RFNBO from many projects that seek to use subsidised renewable power transmitted through the grid. Furthermore, the requirement for direct PPAs will make it impossible for projects in many countries that will be crucial in meeting Europe's future energy demands to export product to Europe as RFNBO, absent a change in the local electricity market laws.

Cumulatively and individually these limitations on RFNBO eligibility may be expected to make it even more expensive for European fuel suppliers to source RFNBO to meet European demand. Confronted with these issues, the first RFNBO projects may have to turn to other markets to sell their product. If that happens, Europe risks losing its lead as both a key destination market for green hydrogen and derivative fuels and (relatedly) as an exporter of the electrolyzers and other technologies required to produce the hydrogen to meet that demand.

The King & Spalding Global Hydrogen Industry Team is at the forefront of developments in the sector globally and is actively advising clients navigate these regulatory challenges on many of the first and largest projects around the world.



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<sup>1</sup> I.e. “renewable fuels of non-biological origin” (RFNBOs).

<sup>2</sup> [https://energy.ec.europa.eu/system/files/2023-07/2023\\_07\\_26\\_Document\\_Certification\\_questions.pdf](https://energy.ec.europa.eu/system/files/2023-07/2023_07_26_Document_Certification_questions.pdf)

<sup>3</sup> This restriction will apply from January 1, 2028; or, for RFNBO facilities commencing operations before that date, from January 1, 2038 but will then apply even to pre-existing RFNBO producers. The restriction only applies to grid-transmitted power: i.e., it does not apply to directly connected renewable power supply. The restriction applies to production projects both in and outside of the EU.

<sup>4</sup> [https://energy.ec.europa.eu/system/files/2023-07/2023\\_07\\_26\\_Document\\_Certification\\_questions.pdf](https://energy.ec.europa.eu/system/files/2023-07/2023_07_26_Document_Certification_questions.pdf) See Q.16

<sup>5</sup> This has been recognised recently by France in its proposed low-carbon production support scheme, which is understood to contain bonus provisions for this kind of flexible load activity by hydrogen producers.

<sup>6</sup> [2023\\_07\\_26\\_Document\\_Certification\\_questions.pdf \(europa.eu\)](#) See Q.16