

# European Commission proposes definition of renewable hydrogen in the EU

April 17, 2023

On February 10, 2023, the European Commission finally approved two Delegated Acts<sup>1</sup> required under Directive (EU) 2018/2001 (“RED II”)<sup>2</sup> clarifying the features of “renewable hydrogen” in an attempt to foster market players’ investments in this sector.

The Delegated Acts aim at upscaling the use of renewable hydrogen by providing regulatory certainty to investors in light of European Union’s objectives on hydrogen production and import as set out in the REPowerEU Plan (*i.e.* a 10 million tonnes renewable H<sub>2</sub> production and a 10 million tonnes renewable H<sub>2</sub> import by 2030).<sup>3</sup> Upscaling the use of renewable hydrogen will accelerate decarbonisation and reduce dependence on Russian fossil fuels.

The Delegated Acts were submitted to the European Parliament and the Council which have two months to accept or reject the proposals as they stand. On February 23, 2023, the European Parliament requested an extension of two months, delaying further the entry into force of the Delegated Acts

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<sup>1</sup> [I.e. Council Delegated Regulation of February 10, 2023 supplementing Directive \(EU\) 2018/2001 of the European Parliament and of the Council by establishing a Union methodology setting out detailed rules for the production of renewable liquid and gaseous transport fuels of non-biological origin and Council Delegated Regulation of February 10, 2023 supplementing Directive \(EU\) 2018/2001 of the European Parliament and of the Council by establishing a minimum threshold for greenhouse gas emissions savings of recycled carbon fuels and by specifying a methodology for assessing greenhouse gas emissions savings from renewable liquid and gaseous transport fuels of non-biological origin and from recycled carbon fuels.](#)

<sup>2</sup> In particular, pursuant to Article 27(3) of the [RED II](#).

<sup>3</sup> Requirements will apply to both domestic producers and to third-countries producers willing to export renewable hydrogen to the European Union.



## 1. The first Delegated Act

Pursuant to RED II, the portion of renewable energy consumed in the transport sector shall reach at least 14% by 2030.<sup>4</sup> This quota can be fulfilled by using renewable liquid and gaseous transport fuels of non-biological origin (“**RFNBOs**”).<sup>5</sup> RFNBOs are fuels made from renewable sources (other than biomass), which generally means hydrogen-based fuels.

RED II required the Commission to provide further details on the criteria for electricity used in hydrogen-production to be considered as fully renewable. These details were provided for under the first Delegated Act, which establishes “*a Union methodology setting out detailed rules for the production of renewable liquid and gaseous transport fuels of non-biological origin*”.

The criteria set forth by the first Delegated Act apply to both EU hydrogen producers and third countries producers willing to export renewable hydrogen to the European Union.

The first Delegated Act provides for different set of criteria for hydrogen to be considered as “renewable”, depending on the source of electricity used in hydrogen-production.

### 1.1 Hydrogen production: No direct connection to renewable power installations

Hydrogen must fulfil the following criteria where electricity used for hydrogen production is taken from the grid:<sup>6</sup>

#### a) Additionality

Starting from January 1, 2028, renewable hydrogen producers will be required to ensure that electricity fed into their electrolysers is sourced from renewable energy installations no older than 36 months.<sup>7</sup> Hydrogen installations that come into operation before January 1, 2028 will, however, be exempt from the additionality requirement until January 1, 2038.

This is to ensure that renewable hydrogen be produced from new (additional) renewable energy capacity (and not from pre-existing renewable energy installations) to avoid diverting renewable energy produced from such pre-existing installations from renewable energy customers, which might otherwise end up looking for energy from non-renewable sources, such as coal or gas.

In addition, as a general rule, for hydrogen to be considered as renewable, the renewable energy installations should not have received any EU or non-EU “operating aid or investment aid”, since renewable hydrogen is already being supported by being eligible to count towards the requirements on fuel suppliers to

installation is located (i) in a bidding zone that reaches 90% renewable electricity in the electricity mix or (ii) in a bidding zone where the emission intensity of electricity is lower than a certain threshold (*i.e.* 18 gCO<sub>2</sub>eq/MJ) or (b) the electricity consumed from the grid by the hydrogen production installation reduces the need for re-dispatching renewable electricity generation.

<sup>7</sup> The time span is motivated under Recital 4 of the first Delegated Act: “*The nascent nature of the hydrogen industry, its value chain and the market means that planning and construction of installations generating renewable electricity as well as installations producing renewable liquid and gaseous transport fuel of non-biological origin are often subject to significant delays in the permitting processes and other unexpected hurdles, despite being scheduled to enter into operation at the same time*”.

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<sup>4</sup> See Article 25 of [RED II](#).

<sup>5</sup> According to the amendments to RED II proposed within the “[Fit for 55](#)” package (*i.e.* Article 1(3) of the [Proposal for a Directive of the European Parliament and of the Council amending Directive \(EU\) 2018/2001](#)), “renewable liquid and gaseous transport fuels of non-biological origin” will no longer be limited to “transport” and thus become relevant also for industrial and heating sectors.

<sup>6</sup> As explained in paragraph 1.2 below, other requirements apply in case the electricity used for hydrogen production is directly obtained from renewable energy installations. Article 4 of the first Delegated Act further provides for exceptions from all or part of such requirements, allowing fuel producers to count the electricity taken from the grid as fully renewable if (a) the hydrogen production

ensure that the share of renewable energy consumed in the transport sector is at least 14 % by 2030, as set out in Article 25 of RED II. Hydrogen installations coming into operation before January 1, 2028 would, however, not become subject to such requirement before January 1, 2038.<sup>8</sup>

Article 5(b) of the first Delegated Act further provides for exemptions in case (a) the financial support (i) was received before the repowering of the installation (e.g., full or partial replacement of installations or operation systems and equipment for the purposes of increasing the efficiency or capacity of the installation), (ii) was granted for land or grid connections or (iii) has been fully repaid; or (b) the renewable energy installation benefiting from such support supplies installations producing RFNBOs for research, testing and demonstration.

#### **b) Temporal correlation**

Until December 31, 2029, renewable hydrogen producers (without direct connection to renewable power installations) will be entitled to use renewable energy produced throughout an entire month to supply their hydrogen installations.<sup>9</sup> Starting from January 1, 2030, the renewable energy used for hydrogen production will need to be produced within the same hour as the hydrogen so produced, and no longer within the same month.

This temporal requirement between renewable energy generation and hydrogen production has been questioned as hydrogen plants would remain inactive at times when the dedicated renewable energy installations are not generating any electricity (*e.g.*

when there is no wind), thus increasing the total average cost of green hydrogen.

Such criticism led the European Commission to introduce the above-mentioned transitional regime, in order to support the profitability of early hydrogen projects. It is too early to assess whether the market will find the transitional framework sufficient to encourage green hydrogen initiatives.

#### **c) Geographical correlation**

The renewable energy installation from which the electricity used in the hydrogen production is generated must be located either: (i) in the same bidding zone<sup>10</sup> as the electrolyser; (ii) in an interconnected bidding zone, including as the case may be in another Member State, provided that the electricity prices in the relevant time period on the day-ahead market in such interconnected bidding zone are equal to or higher than in the bidding zone where the hydrogen is produced; or (iii) in an offshore bidding zone interconnected with the electrolyser's bidding zone.

#### **1.2 Hydrogen production: Direct connection to renewable power installations**

Different requirements apply in case the hydrogen production installation is directly connected to a renewable power installation.

In this case, electricity used for hydrogen production can be counted as fully renewable if the fuel producer demonstrates that: (i) the renewable power installation is connected to the hydrogen production installation via a direct line (or that the renewable power production and the hydrogen production occur within

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<sup>8</sup> The prohibition applies to both domestic producers and third countries producers willing to export renewable hydrogen to the European Union. Therefore, attention should be paid by fuel producers in case renewable energy installations fuelling hydrogen production outside the EU obtain non-EU public support (*e.g.* support provided for under the Inflation Reduction Act in the US), as the EU may exclude any qualification as “renewable” hydrogen where the renewable energy installations have previously benefitted from what would be considered as “operating aid or investment aid” in the EU.

<sup>9</sup> Member States may, however, introduce stricter rules on such temporal correlation as from July 1, 2027.

<sup>10</sup> “Bidding zones” are defined under Article 2(65) of [Regulation \(EU\) 2019/943 of the European Parliament and of the Council](#) as the largest geographical area within which market participants are able to exchange energy without capacity allocation.

the same installation); (ii) the renewable power installation came into operation not earlier than 36 months before the hydrogen production installation; and (iii) the renewable power installation is not connected to the grid (or, if it is connected to the grid, that no electricity has been taken from the grid to produce hydrogen – otherwise, the criteria set out in paragraph 1.1 above would apply).

### 1.3 Purple hydrogen and the scope of the Delegated Acts

Nuclear energy does not qualify as “renewable” energy under RED II and therefore does not fall within the bucket of energy sources from which RFNBOs may be produced. However, emissions from nuclear energy are very low and the Delegated Act provides that fuel producers may count the electricity taken from the grid as fully renewable in case the hydrogen installation is located in a bidding zone where the emission intensity is lower than a certain threshold (*i.e.* 18 gCO<sub>2</sub>eq/MJ).<sup>11</sup> As a result, it may be argued that the European Commission has paved the way for nuclear-produced hydrogen produced through a connection to grids with high levels of nuclear power to be considered as “renewable”.

## 2. The second Delegated Act

RED II sets a minimum greenhouse gas emission saving threshold of 70% (compared to fossil fuels) for all RFNBOs.<sup>12</sup> The second Delegated Act provides for a rather technical methodology to calculate such savings.

In particular, the methodology takes into account greenhouse gas emissions over the entire life cycle of fuels and clarifies how to calculate greenhouse gas emissions of renewable hydrogen or its derivatives

when generated in a facility that also produces fossil-based fuels.<sup>13</sup>

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<sup>11</sup> Pursuant to Article 4(2) of the first Delegated Act, the following additional criteria must be met: (a) the fuel producers have concluded directly, or via intermediaries, one or more renewables power purchase agreements with economic operators producing renewable electricity in one or more installations generating renewable electricity for an amount that is at least equivalent to the amount of electricity that is claimed as fully renewable and the electricity claimed

is effectively produced in this or these installations; and (b) the conditions on temporal and geographical correlation.

<sup>12</sup> See Article 25(2) of [RED II](#).

<sup>13</sup> See [Annex I](#) to the second Delegated Act.