

Net Zero Industry Act

Delegated regulations

Comments and recommendations

February 2025

The Aeronautics industry strongly welcomed the adoption in [date] of the Net-Zero Industry Act (NZIA) as the industrial leg of the Green Deal Industrial Plan. ASD considered, since its inception, that this new piece of legislation would actively contribute to building a framework for innovating and scaling the manufacturing capacity of net-zero technologies necessary to deliver the EU's decarbonisation ambitions, in particular in the aeronautics industry, ie Sustainable aviation Fuels, Carbon capture and storage and carbon capture and utilisation, Liquid Hydrogen technologies, and electric and hybrid-electric propulsion technologies.

To be successful, the NZIA must be fully consistent with the Green Deal's objectives and the Fit for 55 package and ensure that no technology that is crucial to reach the EU's climate objectives is left behind. The strategic importance of aviation decarbonisation has been rightly recognized by the launch by the European Commission of two industrial alliances, the [Renewable and Low-Carbon Fuels Value Chain Industrial Alliance \(RLCF\)](#) and the [Alliance for Zero-Emission Aviation \(AZE\)](#). RLCF and AZE are key in bringing private and public partners together to boost production and supply of SAF, and to prepare the entry into commercial service of hydrogen-powered and electric and hybrid-electric aircraft. ASD strongly welcomed the recognition of the role of both alliances and the commitment of the Net Zero Platform to engage with them and contribute to their work by involving Member States, as stressed by recital 112 of the adopted regulation. The industry as a whole is eager to start working with the Platform.

In this context, ASD welcomes the much awaited publication on [date] of the draft delegated acts supporting the implementation of the NZIA. [OBJ] [question: do we target the 2 delegated acts or only the one related to article 46(7)?]

Whilst the proposed wording of the sections related to CCUS technologies and Sustainable alternative fuels technologies seem overall comprehensive, ASD would like to express its deep concern about the failure to take into account the industry's needs in the Hydrogen and Wind and electric propulsion technologies for transport categories. **We believe that these sections should be further refined to appropriately cover our industry decarbonisation industrial needs.** Accordingly, the ASD contribution to this consultation will primarily focus on hydrogen and electric/hybrid-electric technologies for aviation, while a few comments will tackle SAF related technologies in a second stage.

It must be underlined from the outset that all the technologies that we suggest below to be added are commercially available, primarily used, specific and essential to our industry needs, and therefore fully meet the criteria defined by article 46.7 of the NZIA regulation.

1. **Hydrogen technologies:** hydrogen technologies listed under that section of the annex as currently written do not mention explicitly liquid hydrogen technologies that will be necessary to support the development and production of hydrogen-powered aircraft.

Hydrogen-powered aircraft will indeed rely on liquid hydrogen technologies, such as liquefiers (to transform gaseous hydrogen into liquid hydrogen), hydrants and refuelers (to distribute liquid hydrogen on airports), as well as specific equipment on aircraft (such as pumps and disruptive technologies). These technologies will need to mature in the coming decade, and therefore could benefit from the regulatory sandboxes proposed in the NZIA.

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Proposed changes to annex section related to Hydrogen technologies (in red)

<i>Sub-categories of net-zero technologies</i>	<i>Final products</i>	<i>Primarily used components</i>
<i>Other hydrogen technologies</i>	<i>Hydrogen distribution /storage, including liquid hydrogen</i>	<i>Onboard liquid and gaseous hydrogen storage</i> <i>Gaseous Hydrogen on-tank valves</i> <i>Stationary highpressure and liquid storage tanks</i> <i>Hydrogen compressors</i> <i>Hydrogen liquefaction</i> <i>Liquid hydrogen refuelers incl. connectors and loading arms</i> <i>Liquid Hydrogen handling equipment and Boil of Gas (BOG) management systems, e.g., sensors incl. leak detection, meters, cryopumps, flexibles, valves, filters, losses neutralisation systems, vacuum systems</i>

NB: while the sub-category of net-zero technologies dedicated to hydrogen fuel cells seems to focus only on stationary electricity production, due account should be taken of the needs of embarked fuel cells technologies, used in transport. As for aviation fuel cells, we propose to tackle this issue in the electric propulsion sub-category, by enlarging the focus from automotive to air transport fuel cells (see below).

2. Wind and electric propulsion technologies: whilst the section refers generically to all modes of transport, it is quite surprising to see that the proposed list of “primarily used components” only refers to technologies reserved for other modes of transports. Thus, the proposed delegated act expressly include batteries for automotive, permanent magnets for traction motors, fuel cells for automotive, and electric motors for road, waterborne and rail transport – de facto preventing the aeronautics industry from benefiting from it, even though these technologies are perfectly relevant.

This limitation of the scope of electric propulsion technologies, which are essential for the industrial implementation of the roadmap for the decarbonisation of air transport, is not only highly problematic, but also inconsistent with the NZIA regulation adopted by the co-legislators, which in no way intended to cover such a narrow scope (see recital 112, article 4, Annex).

Proposed changes to annex section related to Electric propulsion technologies (in red)

<i>Sub-categories of net-zero technologies</i>	<i>Final products</i>	<i>Primarily used components</i>
<i>Electric propulsion technologies</i>	<i>– Electric propulsion systems for road transport</i>	<i>– Automotive traction electric motors</i> <i>– Permanent magnets of traction and air transport electric motor</i> <i>– Automotive and aeronautics battery packs</i>

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– Electric propulsion systems for rail transport – Electric propulsion systems for waterborne transport – Electric propulsion systems for air transport	– Automotive <i>and aviation</i> fuel cells – Traction inverters – Onboard chargers – Charge ports – <i>Gaseous and liquid</i> Onboard hydrogen storages – Current collectors (including pantograph) – Rail propulsion electric motors – Waterborne propulsion electric motors – <i>Air transport propulsion electric and hybrid-electric motors, including their power electronics and its gearbox</i> – <i>Air transport turbogenerators (gas turbine, electrical generator including its power electronics, electrical fuel pump, gearbox)</i> – <i>Sic and GaN Electrical Components for air transport</i> – <i>Magnets Components and their substitute for Air Transport</i> – <i>Copper and Cobalt Substitutes for Air Transport</i>
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NB: in order to ensure full complementarity between the dedicated Batteries category and the Electric propulsion for transport category, it is crucial to preserve a trans-sectoral approach in the batteries section in order to ensure that it can benefit to all modes of transport. While synergies could be built with the automotive industry, batteries for use in aeronautics do not have the same specifications.

3. **Electricity grid technologies:** similarly, the list of components primarily used for the production of charging technologies only includes elements related to road transport, hence excluding charging technologies for air transport at airports, despite the work done on the issue over the past two years with the European Commission within the Alliance for Zero Emission Aviation (AZE).

This is again, not only highly problematic, but also inconsistent with the NZIA regulation adopted by the co-legislators, which aims to cover all modes of transport (no sectoral specification in article 4, nor the Annex).

Proposed changes to annex section related to Electricity grid technologies (in red)

<i>Sub-categories of net-zero technologies</i>	<i>Final products</i>	<i>Primarily used components</i>
Electricity grid technologies	– Electric vehicle supply equipment – Electric road systems – Shore-side electricity supply equipment – Overhead contact lines • <i>Electric air transport supply equipment</i>	– Electric vehicle supply equipment – Electric vehicle charging connectors – Shore-side electricity supply equipment • <i>Electric air transport supply equipment</i> • <i>Electric air transport charging connectors</i>

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	– Electric distribution and transportation for Air Transport	– Electrical distribution cabinets – Electrical conductors for High Altitude usage – Electrical Harnesses for Low and High Voltage at High altitude usage – Protection and Commutation components including Circuit Breaker, Contactors, pyrofuses and SSPC – High Voltage connectors for High Altitude usage – AC-DC Converters and DC-DC Converters mono or bidirectional – Electrical Energy Management System
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4. Additional comments on SAF related technologies:

Various proposed changes to annex sections related to SAF (in red)

Sub-categories of net-zero technologies	Final products	Primarily used components
Sustainable alternative fuels (SAF) technologies	– SAF plants	– Catalysts for SAF production – Enzymes and microorganisms for SAF production – Thermochemical, <i>electrochemical</i>, chemical and biochemical/biological reactors to convert biomass into bio-intermediates and/or syngas – Reactors and post-treatment units to convert bio-intermediates and/or syngas into SAF – <i>Biomass logistics technologies, including onsite transformation</i> – <i>Biomass pre-treatment technologies</i> • <i>Tools for optimal energetic management of complex plants</i>
Renewable fuels of non-biological origin (RFNBO) technologies	– RFNBO plants	– Reactors to convert H₂, CO₂ or CO₂/light hydrocarbons into syngas, alcohols or other molecules – Reactors to convert syngas or alcohols into RFNBOs – Catalysts for RFNBO production
Biomass technologies	<i>Biomass based SAF plants</i>	• <i>Biomass logistics technologies, including onsite transformation</i> • <i>Biomass pre-treatment technologies</i>
Sustainable biogas technologies	– Sustainable biogas plants	– Anaerobic digesters / fermentation tanks – Enzymes and microorganisms for sustainable biogas production – Catalysts for sustainable biogas production • <i>coupled methane/biogenic CO₂ valorisation processes</i>
CO ₂ utilisation technologies	– Thermochemical utilisation – Electrochemical utilisation – <i>Biological utilisation</i>	•

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