

FUSION



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Fusion Industry Association
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Washington, DC 20024

June 9, 2023

Commissioner Kadri Simson
European Commission
Rue de la Loi / Wetstraat 200
1049 Brussels
Belgium

Dear Commissioner Simson,

I'm writing on behalf of the Fusion Industry Association (FIA), the voice of the private fusion industry, whose 37 members are the developers working on building fusion power plants and commercializing fusion energy, and whose 73 affiliate members sustain and contribute to the development of fusion energy around the world. Fusion energy, when commercialized, holds unparalleled potential to reduce greenhouse gas emissions, matching the European twin goals of decarbonisation and energy independence, and to create the new industry of the 21st century. The FIA and its members have had strong communication with the Officers of DG Energy and DG Research and Innovation over the past two years about aligning the EU's capacity to support an acceleration of private initiatives on fusion energy, and we appreciate the opportunity to work with your team to ensure that the EU continues to be a leader in fusion technology.

One of the key principles that the FIA and our members stand for is that the laws regulating fusion energy should be clear, fair, and encouraging of innovation while assuring the safety and security of the public. That means that, due to their fundamental differences, fusion energy regulations must be kept separate from those applicable to nuclear fission.

A positive example of such regulatory practice can be observed already in the United States, where the recent decision by the Nuclear Regulatory Commission (NRC) to regulate fusion energy under the byproduct materials framework of 10 CFR Part 30 provides a guide to the most technical and risk-appropriate regime for fusion energy facilities. The radiological hazards presented by fusion — tritium management, radiation produced during operations, and low-level waste — are well understood and have been regulated in relation to other technologies for decades. Current fusion energy demonstration devices in the US, and many other commercial activities using fusion reactions, are presently regulated based on this Part 30 approach.

While the mechanisms are different, the US NRC decision is largely aligned with the approach taken by regulators in the United Kingdom. In 2022, the UK Government announced that it would be regulating future fusion devices under its Health and Safety Administration and Environmental Agency, as it has

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done with the Joint European Torus (JET), not the Office for Nuclear Regulation, which regulates fission facilities.

A number of other national governments, including EU Member States, are discussing similar frameworks and are looking to lead in commercial fusion energy. Early movers will have a competitive advantage at the vanguard of a new, trillion-dollar industry that has already received more than \$5 billion in venture funding. This is not just an industry of the future: it is growing today. A recent report by the FIA on the fusion supply chain showed that fusion companies spent over \$500 million in 2022, and that number will grow to over \$7 billion per year in the next decade.

For those reasons, now is the time to begin the process of determining the most appropriate regulatory regime for commercial fusion in the European Union. Of the FIA's 37 members, six have significant operations in EU Member countries – a relatively small number, but a growth of 100% in the last year. Given the expertise, research and supply chain leadership acquired through ITER and its satellite projects, the EU is a natural place for fusion to take the next commercial step. Our companies are hopeful about the opportunities to expand and deploy commercial fusion power plants in Europe; and regulatory certainty is essential to do so. For that reason the FIA and its members are eager to deepen work with the European Commission and all interested Member States to help ensure that the regulatory framework for commercial fusion in Europe is risk-appropriate and as globally harmonized as possible to ensure that the EU is a competitive jurisdiction for the deployment of fusion technology.

As governments around the world move towards determining the most appropriate regulations for commercial fusion, the EU can gain insight from the recent UK and US regulatory processes. A crucial lesson from both is to recognize the fundamental differences – including size of risk – between fusion and nuclear fission. It is important that countries separate fusion regulations from preexisting regulatory regimes for nuclear fission. Keeping the link with fission results in unnecessary and costly procedures that do nothing to improve safety. In addition, the plans for commercial fusion power plants that are being designed by the private industry are generally smaller in size and scale – and therefore lower in risk – than the larger “DEMO” fusion power plants.

While licensing will occur at the Member State level, the European Commission has a crucial role to play in ensuring harmonization of Member State licensing processes and avoiding cumbersome differences between countries. To this end, we wholeheartedly agree with the most recent European Commission (EC) study¹, which noted that “there should be a distinction on the regulation between fission and fusion energy, as they have certain fundamental differences that affect their environmental impact and safety risks” and ultimately recommended (quoting):

Regulatory approaches to fusion are important – regulation should be proportionate to fusion risks, not based on fission.

¹ Foresight study on the worldwide developments in advancing fusion energy, including the small scale private initiatives Trinomics B.V. November – 2022 - <https://op.europa.eu/en/publication-detail/-/publication/83bc3ecd-b19c-11ed-8912-01aa75ed71a1/language-en>

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- *Recommendation: the EC should push for regulatory agencies in the main MS to develop their approaches on regulation for fusion to provide clarity for the sector.*
- *Recommendation: the EC should continue to work via international agencies, e.g. IAEA, to seek to harmonised regulatory approaches to fusion globally.*

To realize this goal, we propose that the EC develops a robust policy process that will create a pathway for harmonized fusion regulation and licensing in the EU, engaging with all relevant stakeholders, including EUROfusion, the IAEA, Member State regulators, international partners, and the commercial fusion sector.

The FIA and our member companies laud your leadership on European energy security and climate action. Fusion energy can play a key role in meeting 2050 climate goals and realizing energy security. By engaging all relevant stakeholders in the regulatory and licensing process now, Europe can help accelerate fusion's deployment and ensure the EU remains competitive as this nascent industry grows.

We stand ready to work directly with the European Commission to further elaborate on our industry perspective and provide any data useful to the discussion. Please do not hesitate to reach out if you have any questions.

Sincerely,



Andrew Holland
Chief Executive Officer
Fusion Industry Association

CC: Commissioner Cabinet, DG RTD, DG ENER, Massimo Garribba, EUROfusion, Member State Ambassadors