Position Paper

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Regulation (EU) 2021-821: a New Approach to Intra-EU Transfer Controls for Nuclear Projects

Executive Summary

As nuclear installed capacity is expected to increase significantly in the coming decades, the successful and timely delivery of new nuclear projects in Europe will depend on the availability of resilient, efficient and integrated European nuclear supply chains. Ensuring the effectiveness of these supply chains requires an equally effective and robust framework governing intra-Union transfers of nuclear items, equipment, technologies and technical information.

In light of the ongoing evaluation and possible review of Regulation (EU) 2021/821, expected to take place between September 2026 and September 2028, the European nuclear industry calls for the update of the current framework governing intra-Union transfers of nuclear items. The objective is to ensure that export controls remain effective, proportionate to the sensitivity of transfers and adapted to the realities of European industrial cooperation, while maintaining, the highest standards of safety, security, safeguards and non-proliferation.

In the short term, this includes promoting greater harmonisation of licensing practices across Member States, making better use of existing authorisation mechanisms, simplifying administrative procedures and strengthening cooperation between competent authorities and industry stakeholders.

At the same time, considering their level of sensitivity, the European nuclear industry calls for a review of some of the items on the list subject to intra-Union transfer controls set out in Annex IV of the Dual-Use Regulation, and a reconsideration of transfer authorisation requirements for civil nuclear reactor components, reactor-related technologies, software used in safeguarded civil nuclear facilities, while maintaining strict controls for genuinely sensitive fuel-cycle technologies such as enrichment and reprocessing where proliferation risks are already effectively mitigated through the Euratom safeguards framework and the Safeguards agreements and additional protocols with the IAEA.

This paper aims to demonstrate that a more proportionate, harmonised and risk-based approach to intra-Community transfers would strengthen the functioning of the European Internal Market, improve the resilience and competitiveness of the European nuclear supply chain, and facilitate the timely delivery of the nuclear

projects required to support Europe's long-term energy security and climate objectives, while fully preserving the EU's non-proliferation commitments.

Introduction

Europe is entering a new phase of nuclear investment and project development.

As recognised in the European Commission's 8th Nuclear Illustrative Programme (PINC), nuclear generating capacity across the EU is expected to increase significantly by 2050 (projections include 100 GWe to close to 150 GWe by 2050[1]), which will require the timely and effective delivery of multiple new nuclear projects over the next two decades.

The success of these projects depends on a highly integrated European nuclear supply chain, with hundreds of specialised companies across different Member States contributing to the design, manufacture and delivery of nuclear components, equipment and technology. The facilitation of exchanges between these companies within the Internal Market is therefore essential to an efficient project delivery.

However, the current framework governing transfers of nuclear items and technology between Member States introduces potential delays to, for example Final Investment Decision, Engineering, Procurement, and Construction contract, supplier qualification, licensing, Commercial Operation Date etc. as it requires a prior authorisation by the Member State from which the items are to be transferred. Some of these regulatory obligations may risk undermining the efficient execution of nuclear newbuild projects at a time when Europe is seeking to strengthen its energy security and advance its decarbonisation objectives. They also risk hindering the Union ambitions expressed in the Net-Zero Industry Act[2] to strengthen Europe's nuclear fission energy technologies. In addition, such licensing requirements, which were designed for non-proliferation objectives, are applied to transfers between Member States operating under the common Euratom legal framework, as all transfers within the EU are subject to safeguards obligations.

It must be noted that the safeguards system and export controls are complementary yet distinct frameworks, with their own respective objectives. At the same time, both share the common goal of preventing the misuse of nuclear materials, equipment and technology through their own distinct mechanisms, which both rely on verification, information, compliance obligations, competent authorities and international cooperation.

The Euratom legal framework provides for safeguards, nuclear security and oversight throughout the Union, providing transparency for transfers that present a lower level

[1] Communication Nuclear Illustrative Programme presented under Art. 40 of the Euratom Treaty – Final

[2] Regulation (EU) 2024/1735 of 13 June 2024 establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem and amending Regulation (EU) 2018/1724.

of risk. Against that backdrop, there may be opportunities to reduce the administrative burden associated with intra-EU transfers while continuing to ensure the peaceful use of nuclear technology, considering both systems' complementarity.

The framework governing transfers of nuclear items and technology between Member States should ensure that controls are proportionate to the actual proliferation risk, adapted to the realities of integrated European supply chains, and consistent with EU strategic priorities. Therefore, the European nuclear industry urges the Union and its Member States to streamline the current export control framework in order to better support the successful delivery of nuclear projects in Europe, while maintaining a high level of safety, security, safeguards, and non-proliferation compliance.

1. Legal context: the applicable international framework

Over the course of 75 years, export control has been contributing to international peace and security, preventing the proliferation of weapons of mass destruction.

As such, the export control regime helps EU Member States to implement their international obligations under the following:

- United Nations Security Council Resolution 1540[3];
- The Treaty on the Non-Proliferation of Nuclear Weapons (NPT)[4];
- The Chemical Weapons Convention[5];
- The Biological Weapons Convention[6], and
- Various Export Control regimes[7] applicable to Member States.

2. The evolution of the EU Dual-Use Regulation and control on intra-Union transfers of nuclear items within the Union

The EU Dual-Use Regulation[8] establishes a common framework for controlling exports of sensitive goods, software and technologies within the Union. It contributes to implement, among other things, the EU's international non-proliferation commitments and consolidates the control lists agreed under the major multilateral export control

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[3] UN Security Council Resolution 1540 (2004) on the non-proliferation of weapons of mass destruction.
[4] Treaty on the Non-Proliferation of Nuclear Weapons
[5] Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction.
[6] Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction.
[7] Wassenaar Arrangement, Nuclear Suppliers Group, Australia Group, Missile Technology Control Regime.
[8] Regulation (EU) 2021/821 of the European Parliament and of the Council of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items

regimes by requiring prior authorisation for exports of listed dual-use items and technologies through an export license, as set out in Annex I of the Regulation[9].

Annex I is a consolidated version of the lists of items and technologies that are agreed in the four multilateral export control regimes, and contains nuclear, chemical, biological and military related items.

Nuclear materials, facilities and equipment and their related software and technology ("nuclear items") are listed in Category 0 of Annex I. Category 0 corresponds to the Trigger List items defined in the Nuclear Suppliers Group (NSG) Guidelines for Nuclear Transfers[10].

The Dual-Use Regulation itself introduces different types of authorisations, assessment criteria, administrative requirements and mechanisms for the cooperation and information exchange while creating a common framework for licensing decisions by Member States.

The Regulation is legally binding and directly applicable across the EU. Nevertheless, Member States retain responsibility for implementing licensing and enforcement provisions through national measures resulting in variations, uncertainty and inconsistency in administrative practices, procedures and ultimately, licensing outcomes.

Although the primary purpose of the Dual-Use Regulation is to control exports to third countries, while ensuring the free movement of dual-use items inside the customs territory of the Union, successive revisions[11] have progressively extended authorisation requirements to certain transfers within the European Union.

In particular:

- The first 1994 Dual-Use Regulation introduced authorisation requirements for a limited number of intra-Community transfers of highly sensitive nuclear items between Member States[12] listed in Annex IV of the Regulation. Annex IV initially covered a narrow range of technologies associated with uranium enrichment, reprocessing, heavy water production, plutonium and highly enriched uranium.

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[9] The List of dual-use items is updated annually via a Delegated Act Last update is the Commission delegated regulation (EU) 2025/2003 of 8 September 2025 amending Regulation (EU) 2021/821 of the European Parliament and of the Council as regards the list of dual-use items

[10] INFCIRC/254/Part 1 - NSG Part 1 Guidelines.

[11] The EU Dual-Use Regulation was first introduced in 1994, and was updated in 2000, 2009 and in 2021.

[12] Council Regulation (EC) No 3381/94 of 19 December 1994 setting up a Community regime for the control of exports of dual-use goods, and Council Decision of 19 December 1994 on the joint action adopted by the Council on the basis of Article J.3 of the Treaty on European Union concerning the control of exports of dual-use goods (94/942/CFSP)

- In 1998, Member States and the European Commission signed Additional Protocols to their safeguards agreement with the IAEA[13] and in 2000, the list of nuclear items in Annex IV was extended[14]. Since then, transfers between Member States of almost all items in Category 0 of Annex I and several other nuclear-related items have been subject to an authorisation requirement.

As a consequence, transfers of almost all civil nuclear equipment, components, software, technology and technical data between EU Member States are now subject to transfer authorisation requirements despite taking place within the common Euratom legal framework, which already provides for safeguards, nuclear security and oversight throughout the Union.

This evolution represents a departure from the principles reflected in the Dublin Declaration[15], under which participating European States recognised that transfers of nuclear material, equipment and technology within the Euratom safeguards system present a fundamentally different proliferation risk from exports to third countries. While the Declaration remains an important policy reference, the expansion of Annex IV in 2000 reduced its practical effect by extending export licensing requirements to wider range of intra-Union transfers.

Moreover, intra-EU transfer controls are an exception to the principle of free movement of goods which is one of the fundamental principles of the Treaty on the Functioning of the European Union and an exception to the principle of free movements of dual-use items inside the customs territory of the Union which is an objective of the Dual-Use Regulation. Member States retain the right to carry out controls on intra-Union transfers of certain dual-use items to safeguard their public policy or public security interests.

Thus, intra-union controls are in principle only maintained for particularly sensitive items amongst the dual-use items. This is not the case for nuclear items which are (nearly) all subject to intra-Union controls regardless of their level of sensitivity. Thus, the Dual-Use Regulation doesn't take account of the distinction made in the NSG Part 1 Guidelines between "sensitive exports" requiring special controls - namely enrichment and reprocessing facilities and their equipment and technology - and other facilities and equipment of lower risk such as the nuclear reactor.

As a result, the framework imposes administrative burdens on integrated European nuclear supply chains without a corresponding enhancement of non-proliferation objectives, creating unnecessary barriers to the timely delivery of reactor new-build projects as transfers of many civil nuclear reactor components, technologies, and

[13] INFCIRC/193/Add.8
[14] Council Regulation (EC) No 1334/2000
[15] INFCIRC/322

technical data between EU Member States are subject to export authorisations, despite operating within the common Euratom legal and safeguards framework.

3. Challenges to the current framework

The European Union has ambitious climate goals. Under the Green Deal, launched in 2019, Europe plans to be the first climate-neutral continent by 2050. Against the backdrop of a fraying international order, in the fields of energy, security and technology, Europe increasingly pursues a policy of resilience and strategic independence including in nuclear fission energy technologies.

Under the Dual-use Regulation in force, nuclear items face the most stringent control rules as they are all included (with a few exceptions for source and some special fissionable [16]) in Annex IV - Part II to this Regulation which does not allow the benefice of general authorisations for intra-EU transfers. Moreover, under Regulation (EU) 2021/821, nuclear activities are not eligible for general licenses, whereas foreign competitors benefit from a general license for products relating to nuclear reactors. As a result, it is administratively easier and more convenient for a Member State to import a nuclear item/reactor from outside of the EU than from another EU Member State.

Mention of nuclear items in Annex IV- Part II has several practical consequences:

- any transfer of nuclear equipment or technology from a Member State to another Member State requires a specific export authorisation (either individual or global), regardless of the nature of the transfer, the entity carrying it out or the identity of the recipient. This includes intragroup transfers of technology or software within the EU – and so on in case of a new transfer or retransfer from the Member State of destination to another Member State. According to the current framework, export authorisation requirements may be required for the transfer of export-controlled technology between companies and Euratom authorities (e.g. the European Commission for the purposes of fulfillment of legal requirements) or national authorities, for example national safety authorities for the purposes of a safety assessment of a nuclear reactor.

[16] All Category 0 of Annex I is included in Annex IV, subject to the following:
— 0C001: this item is not included in Annex IV;
— 0C002: this item is not included in Annex IV, with the exception of "special fissile materials" as follows:
(a) separated plutonium;
(b) "uranium enriched in the isotopes 235 or 233"to more than 20%.
— 0C003 only if for use in a "nuclear reactor"(within 0A001.a.);
— 0D001 ("software") is included in Annex IV except insofar as it relates to 0C001 or to those items of 0C002 that are excluded from Annex IV;
— 0E001 ("technology") is included in Annex IV except insofar as these related to 0C001 or to those items of 0C002 that are excluded from Annex IV.

- although not specific to nuclear-related items, any subsequent retransfer of nuclear equipment or technology from the first recipient in a Member State to another company located in the same Member State or in another Member State may require the prior approval of the Member State of origin if the retransfer was not already authorised under the initial transfer authorisation;

In this context, the EU nuclear industry and nuclear operators face the following challenges:

- Administrative burden and project delays: The need to obtain multiple export licences for transfers within the EU creates substantial administrative burdens for operators involved in large-scale nuclear projects, such as large-size NPP. Complex supply chains involving multiple Member States can face repeated licensing procedures, inconsistent national practices, and delays that affect project schedules and contractual obligations. This situation is worsened considering the need to renew licenses on average every two years (and even annually in some Member States) which is out of sync with the duration of nuclear projects and the length of technical exchanges in the nuclear industry. Moreover, the friction created by the authorisation requirements is disproportional to the risk of proliferation.

- Standardisation for SMRs: For SMRs, repeated licensing for similar transfers could undermine fleet deployment and standardisation across EU/Europe. This situation would require a licence every time the complete unit is exported, which could be solved with a global licence.

- Competitive disadvantage for European nuclear industry: The current framework may unintentionally favour non-EU suppliers over European manufacturers by requiring multiple export licences for intra-EU transfers, thereby potentially giving foreign suppliers an unintentional strategic advantage. Moreover, while transfers between Member States of nuclear items (including nuclear reactor components) and technology require specific authorisations on a case by case basis, while other non-EU MS, such as the United States, have general authorisation or general license available for exporting non-sensitive nuclear technology (such as nuclear reactor technology)[17] and certain nuclear equipment[18] to the European Union. Consequently, non-EU exporters only have to notify their activities to their authorities when exporting to the EU while European operators must file

[17] Under 10 CFR Part 810 to a list of generally authorized destinations.
[18] Under 10 CFR Part 110, for example for exporting nuclear reactor components to listed destinations.

applications to transfer the same kind of technology or items to an EU customer or manufacturer. This situation runs counter to EU objectives relating to:

- Strategic autonomy;
- Energy independence;
- Industrial competitiveness;
- Supply chain resilience;
- Decarbonisation and climate neutrality.

- Disproportionate controls relative to risk: The level of control imposed on intra-EU transfers appears disproportionate given the robust safeguards already established under the Euratom Treaty[19]. Since 1958, the European Atomic Energy Community has maintained a secure and safeguarded nuclear industry. Euratom safeguards ensure that nuclear materials are not diverted from peaceful purposes and that nuclear facilities are not misused. All EU Member States are also members of the Nuclear Suppliers Group and remain fully committed to non-proliferation objectives. In this context, imposing highly restrictive export control requirements on intra-EU transfers of safeguarded civil nuclear items may no longer reflect the actual level of proliferation risk. As members of the Nuclear Suppliers Group, all EU Member States support the objective of preventing the proliferation of nuclear weapons. But to impose such strict export controls, while the risks are mitigated by the Euratom Treaty, goes against the spirit and the letter of the Treaties of the EU, and in particular, against the Euratom Treaty.

  Moreover, the intra-EU transfer controls imposed on nuclear items take no account of the level of sensitivity of the items as defined by the NSG. The same level of control applied to civil nuclear reactors developed for producing electricity and to enrichment facilities.

4. Our Recommendations

Suggestions for measures that will help create a more level playing field and reduce administrative burdens can be distinguished between *policy* options, comprised of measures to smoothen the implementation of the Regulation by Member States and could be enacted relatively quickly and *regulatory* options, which will require amending the EU Dual-Use Regulation and therefore will be more long-term solutions.

While dual-use export controls are based on an EU-wide regulation, the implementation of European export controls (licensing, enforcement) is done at the national level taking into account national non-proliferation policies. However, the Commission has a coordinating role to help harmonise these policies and possibly

recommend good practice/standards. Therefore, the points below are for the Member States and the Commission to consider both at the national level and at the EU level.

To reduce inefficiencies and to level the playing field, we suggest that the Commission and the Member States consider the following options:

4.1 Policy Options

- Consider how the Large Project Authorisation (LPA), which was introduced in the 2021 Dual-Use Regulation, can be leveraged to reduce administrative burden for intra-EU supply chains for newbuild NPP and SMR programmes.
- Consider whether there are novel ways to satisfy the information requirements under article II.a.(ix) of the Additional Protocol, for example through digital notification or consolidated reporting.

- Consider extending the validity period of authorisations (individual and global) by modifying national regulations (for example 5 years as already implemented in the United Kingdom). An optimal authorisation validity would take into account:
    - the duration of the contract, especially for intragroup transfers of technology inside the EU, and long-term cooperation contracts.
    - for newbuild projects, the lifecycle of a reactor build, which includes design, licensing, construction, commissioning and early operation.

- Expedite licensing for intra-EU transfers. Minimising processing times will prevent delays in EU supply chains. Reducing the need for duplicative paperwork, especially for renewals or extensions of existing licences.

- Promote the use of global licences for intra-EU transfers and ensure licences provide the widest possible scope and longest feasible validity. If multiple items, including technology, spare parts and replacement items, can be transferred on a single global licence, this will reduce administrative delays for suppliers.

- Regular engagement between export control authorities, nuclear policy departments, internal market/trade officials and nuclear industry will increase understanding of the objectives and priorities of each stakeholder. Mutual understanding will ensure that transfer arrangements meet the right requirements and will improve/expedite decision making.

4.2 Regulatory Options

- Pursuant to the Preamble of the EU Dual-Use Goods Regulation[20], and considering Articles 34[21], 35[22] and 36[23] of the Treaty of the Functioning of the European Union (TFEU), consider the proportionality of the items listed in Annex IV of the Dual Use Regulation, and reconsider the inclusion of certain nuclear equipment and facilities (and their associated technology and software) where proliferation risks are limited and adequately mitigated by Euratom safeguards. Highly sensitive technologies such as enrichment and reprocessing may justify stricter controls, but standard reactor components (for example) used in safeguarded civil nuclear facilities may not require the same level of restriction.

- In particular, remove nuclear reactors and reactor components (0A001) and plants specifically designed for the fabrication of nuclear fuel (0B005) and their associated software (0D001) and related technology (0E001) to reactor components and fuel fabrication from Annex IV of the Dual-Use Regulation, given that the risk of proliferation is mitigated by Euratom safeguards. Such items should be allowed to move freely between EU companies inside the customs territory of the Union to support the successful delivery of nuclear projects in Europe.

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[20] Regulation (EU) 2021/821 of the European Parliament and of the Council of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items (recast), recital 28:
"(…) The list of items subject to intra-Union transfer controls set out in Annex IV should be periodically reviewed taking into account the further evolution of the underlying international obligations, as well as technological and commercial developments as regards the assessment of the sensitivity of transfers. Decisions to update the common list of dual-use items subject to export controls set out in Annex IV should be made having regard to Article 36 TFEU, namely the public policy and public security interests of the Member States."

[21] Article 34 TFEU, Consolidated version of the Treaty on the Functioning of the European Union:
"Quantitative restrictions on imports and all measures having equivalent effect shall be prohibited between Member States."

[22] Article 35 TFEU, Consolidated version of the Treaty on the Functioning of the European Union:
"Quantitative restrictions on exports, and all measures having equivalent effect, shall be prohibited between Member States."

[23] Article 36 TFEU, Consolidated version of the Treaty on the Functioning of the European Union:
"The provisions of Articles 34 and 35 shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of public morality, public policy or public security; the protection of health and life of humans, animals or plants; the protection of national treasures possessing artistic, historic or archaeological value; or the protection of industrial and commercial property. Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States."

- If deemed necessary to ensure an appropriate level of control, introduce a Union general authorisation for transfers of items 0A001, 0B005 and associated 0D001 and related 0E001 to items 0A001 and 0B005 from EU suppliers to nuclear newbuild projects in the EU that will be under Euratom safeguards. Additionally, it is essential to remove administrative barriers for intra-EU transfer of technology under category 0E001 associated with items 0A001 and 0B005, as it is of essence at the early stage of newbuild developments to exchange information freely within the EU on nuclear technology with other EU entities, including suppliers and advisors.

- Develop EU General Export Authorisations for clearly defined categories of low-risk nuclear reactor components and technologies under specified conditions.

Conclusion

The successful delivery of Europe's nuclear new-build programmes depends on efficient, predictable and resilient supply chains operating across the European Internal Market. While the EU Dual-Use Regulation plays a vital role in supporting international non-proliferation objectives, its application to certain intra-Union transfers of civil nuclear items imposes administrative burdens and licensing requirements that may not always seem proportionate to the level of proliferation risk, particularly where transfers take place within the common Euratom safeguards framework.

As Europe seeks to accelerate the deployment of nuclear energy to strengthen energy security, achieve climate objectives and reinforce industrial competitiveness, it is essential that the regulatory framework evolves to reflect the realities of integrated European nuclear supply chains. A more harmonised, risk-based and proportionate approach to intra-EU transfers would improve predictability, reduce unnecessary delays and administrative costs, and prevent delays to the delivery of strategic nuclear projects, while maintaining the highest standards of safety, security, safeguards and non-proliferation.

The European nuclear industry therefore calls on the European Commission and Member States to work together to modernise the current framework through both short-term policy measures and longer-term regulatory reform.

By removing unnecessary barriers to intra-Union trade in civil nuclear items, the European Union can strengthen its internal market, enhance the competitiveness of its nuclear industry and ensure that export controls continue to serve their intended purpose without impeding the delivery of Europe's strategic energy objectives.