Environmental impact assessments and long-term operation of nuclear power reactors: Increasing importance of environmental protection in the European Union?

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1. Introduction

Over the last decades, the world has become increasingly mindful of the potential impact of human activities on the environment and many governments have recognised the need to better assess the potential impacts of such activities prior to their authorisation. Legal requirements to perform environmental impact assessments (EIA) for activities likely to have environmental effects have been enacted under national, European and international law and have gained the status of international customary law. Due to the nature of the risks posed by the civilian use of nuclear energy on human health and the environment, it has become a requirement in most – if not all – countries that an EIA be performed prior to authorising the construction and operation of any nuclear installation, including nuclear power reactors.

Many nuclear power reactors in the European Union (EU) have now reached the end of their design life. Such design life largely depends on the design of the concerned reactors and usually ranges between 30 to 40 years for the most commonly operating light-water and heavy-water reactors worldwide. Since investments in new nuclear reactors require large financial commitments and face long construction times and citizens have become more critical about building new nuclear power plants, an increasing number of national governments consider authorising extended operation of existing nuclear power reactors (most often for additional periods of ten years). This process, which can take different legal formats depending on the concerned countries, is often denominated “long-term operation” or “life extension” or “lifetime extension” or “refurbishment” or “licence renewal”. This article uses the generic term “long-term operation (LTO)” to describe this process. LTO is defined by the International Atomic Energy Agency (IAEA) as the “Operation beyond an...
established time frame defined by the licence term, the original plant design, relevant standards or national regulations”.

One important question that arises in this regard is whether or not an EIA must be performed prior to authorising the LTO of nuclear power reactors, if such an authorisation is required. Until recently, the answer to that question was found to be either unclear or negative in EU member states, notably because their national legislative and regulatory frameworks appear to leave substantial room for interpretation. If the national legislation of an EU member state does require performing an EIA and the concerned nuclear power reactor is located near the national border, the question also arises whether there is a legal obligation to submit the EIA documentation for consultation to the national authorities and the public of the neighbouring country or of other member states of the European Union that may be affected by the nuclear power reactor prior to authorising LTO of the reactor – a process commonly referred to as “transboundary EIA”. This question is of particular importance in Europe, since several EU member states are located on a relatively small geographic area, with different languages being spoken in each of them, hence requiring the translation of EIA documents and consultation in languages other than that spoken in the country of origin.

After a short introduction to the legal framework relating to EIAs for nuclear power reactors in the European Union (Chapter 2), an overview will be provided of the legal and regulatory approaches to EIAs in relation to LTO-related processes for nuclear power reactors in the European Union (Chapter 3). The following chapter addresses the changing landscape for EIA approaches in relation to LTO-related processes of nuclear power reactors under the auspices of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)

(Chapter 4). This changing landscape is best illustrated by the recently endorsed “Guidance on the applicability of the [Espoo] Convention to the lifetime extension of nuclear power plants”. A recent judgment of the Court of Justice of the European Union (CJEU) pertaining to the same issue will then be addressed (Chapter 5). After introducing the background of the case, the judgment of the Court is described and analysed, along with its potential effects on LTO approaches for nuclear power reactors in the European Union. The article concludes that many nuclear power countries in the European Union have for a long time opposed the organisation of EIAs prior to the LTO of nuclear power reactors but that they are now under increasing pressure to do so and may have to adapt their national nuclear and environmental legislation accordingly (Chapter 6).

2. Legal framework applicable to EIAs for nuclear power reactors in the European Union

An EIA is a procedure whereby the environmental consequences of a project or plan are assessed and integrated in written documentation that is then submitted for public


participation. Public authorities must take due account of the EIA documentation in their decision to authorise a project or plan. An EIA serves several functions:

First, [an EIA] should provide decision-makers with information on the environmental consequences of proposed activities and, in some cases, programmes and policies, and their alternatives. Second, it requires decisions to be influenced by that information. And, third, it provides a mechanism for ensuring the participation of potentially affected persons in the decision-making process.

In 2010, the International Court of Justice (ICJ) ruled that “[…] it may now be considered a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource.” Since nuclear activities do pose a risk for the environment, various national and international legal instruments contain obligations on conducting EIAs prior to authorising such activities. Many of these instruments provide for an EIA when authorising the construction or operation of “new” nuclear reactors, but most of them contain no clear, consistent or well-defined provisions or obligations to carry out an EIA for “existing” nuclear power reactors prior to entering the stage of LTO.

The Convention on Nuclear Safety contains a clear obligation for contracting parties to:

[consult] Contracting Parties in the vicinity of a proposed nuclear installation, insofar as they are likely to be affected by that installation and, upon request providing the necessary information to such Contracting Parties, in order to enable them to evaluate and make their own assessment of the likely safety impact on their own territory of the nuclear installation.10

However, this obligation to consult contracting parties does not amount to an obligation to carry out an EIA, as it is primarily limited to nuclear safety and therefore the radiological impact of the concerned nuclear installation. Furthermore, it only applies to the siting of a proposed nuclear installation and therefore does not apply to LTO.

The Espoo Convention contains an obligation to organise a transboundary EIA prior to authorising proposed activities that are likely to have a significant effect on the environment within an area under the jurisdiction of another party.11 The list of proposed activities to which the Espoo Convention applies is detailed in Appendix I to the Convention and includes most civilian nuclear activities. The Espoo Convention specifies what has to be considered at an early stage of planning and lays down the obligations of the parties concerned to notify and consult each other and the public of such an activity. All EU member states, as well as the European Union, are contracting parties to the Espoo Convention.

The Espoo Convention contains a very detailed list of legal obligations that must be respected prior to authorising the aforementioned proposed activities. For example, a party that plans to build a new nuclear power reactor will need to prepare EIA documentation and notify other parties that may be affected by that reactor, including inter alia providing

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information on the nuclear power reactor and its possible transboundary environmental impact.\textsuperscript{12} The minimum content of the EIA documentation must include a description of the proposed nuclear power reactor, a description of reasonable alternatives (locational and/or technological), a description of the environment likely to be significantly affected by the proposed reactor and its alternatives, a description of the potential environmental impact of the proposed installation and its alternatives, a description of mitigation measures to keep adverse environmental impact to a minimum, an explicit indication of predictive methods and underlying assumptions as well as the relevant environmental data used, an identification of gaps in knowledge and uncertainties encountered in compiling the required information and a non-technical summary to allow effective public consultation.\textsuperscript{13} The party of origin will need to offer possibilities for consultation on the EIA documentation to affected parties and take due account of their comments in the final decision authorising the construction of the nuclear power reactor.\textsuperscript{14}

The Espoo Convention defines proposed activities as including new activities, but also “major changes” to existing activities, as long as such major changes are subject to a “decision of a competent authority in accordance with an applicable procedure” and provided that such major changes are “likely to cause significant adverse transboundary impact”.\textsuperscript{15} It is undisputed that the Espoo Convention applies to new nuclear power reactors but, perhaps unsurprisingly, the situation appears more complex with regard to nuclear power reactors entering the stage of LTO. As further explained in Chapter 4, open questions remain as to whether entering the stage of LTO would trigger an obligation to conduct a prior transboundary EIA under the Convention.

Specific legislation at the EU level has also been adopted to ensure that the environmental consequences of projects are taken into account by decision makers. The Directive on the assessment of the effects of certain public and private projects on the environment (EIA Directive) obliges member states to conduct an EIA for a wide number of industrial projects, including the construction and dismantling or decommissioning of nuclear power reactors, installations for the reprocessing of irradiated nuclear fuel, installations designed for the production or enrichment of nuclear fuel and installations for radioactive waste management.\textsuperscript{16} The EIA Directive does not contain explicit wording regarding the LTO of nuclear power reactors, but it provides that “[a]ny change to or extension of projects listed in [the] Annex” shall be made subject to an EIA, “where such a change or extension in itself meets the thresholds, if any, set out in [the] Annex”.\textsuperscript{17} A similar question arises as under the Espoo Convention, namely whether the LTO of nuclear power reactors is to be considered as such a change.

The Directive on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) ensures the conservation of a wide range of rare, threatened or endemic animal and plant species in the European Union as well as some 200 rare and characteristic habitat types.\textsuperscript{18} It was adopted in 1992 to help maintain biodiversity throughout the entire EU territory. It directs EU member states to take measures to maintain the so-called “favourable conservation status” of protected habitats and species.\textsuperscript{19} It specifically obliges member states to conduct an EIA for all plans and

\begin{footnotesize}
12. Espoo Convention, supra note 5, Articles 3 and 4.
13. Ibid., Appendix II.
14. Ibid., Articles 2(6), 3(8), 5 and 6.
15. Ibid., Articles 1(v) and 2(3).
17. Ibid., Article 4(1) and Annex I, point 24.
19. Ibid., Articles 2(2), 3(1) and 4(4).
\end{footnotesize}
programmes that are likely to have a significant effect on the conservation objectives of a protected site.\textsuperscript{20} The Habitats Directive also applies to nuclear power reactors but does not contain specific provisions on the requirement to carry out an EIA prior to the LTO of a nuclear power reactor.

The lack of clarity and the absence of specific provisions in international, EU and national legal instruments on the need to conduct an EIA as part of LTO-related processes for nuclear power reactors and the fact that there was – until recently – no judgment by the CJEU to shed light on this question, made it very difficult for governments, regulators, operators and the public in the European Union to ascertain their rights and obligations.

3. Legal and regulatory EIA approaches for the LTO of nuclear power reactors in the European Union

European Union member states that operate nuclear power reactors must organise an EIA prior to authorising the siting, construction and operation of new nuclear power reactors and the decommissioning of existing nuclear power reactors. However, legal and regulatory approaches for conducting an EIA in relation to existing facilities as part of LTO-related processes differ extensively.

Some EU member states, such as Hungary and Slovenia, require the performance of a full environmental review as part of the LTO review process for nuclear power reactors, including an EIA.\textsuperscript{21} This approach may be motivated by a desire to “compensate” for the fact that the nuclear power reactors on their national territory were constructed and started operating at a time when there was no requirement to conduct an EIA.\textsuperscript{22}

Other EU member states, such as Belgium, France and the Netherlands, only require performing an environmental “screening” as part of the LTO review process to assess whether the LTO entails any physical modification to the nuclear power reactor that would require conducting a full EIA.\textsuperscript{23} The underlying idea of this approach is that no EIA is required, as long as the environmental effects of operating the reactor do not exceed the limits that have been set at the initial licensing. This “screening” approach may be illustrated by the 2013 Ministerial Decision related to the LTO of the Borssele nuclear power plant, which is the sole operating nuclear power reactor in the Netherlands. The licence to operate this reactor was issued in 1973 for an indefinite duration, with periodic safety assessments conducted at least every ten years. However, a safety report for the concerned reactor was attached to its operating licence, and this report specified a technical design life of 40 years. Thus, when the operator of the Borssele nuclear power plant requested to continue operating this reactor beyond 40 years, an update of this safety report and consequently an amendment of the initial operating licence were required. This amendment was approved by the Dutch Minister of Economic Affairs by a decree issued in March 2013.\textsuperscript{24} The licence itself kept its indefinite duration, but the reactor’s technical design life set out in the safety report was extended for an additional 20 years, i.e. until

\textsuperscript{20} Ibid., Article 6(3) and (4).
\textsuperscript{21} NEA (2019), supra note 4, pp. 80 and 118.
\textsuperscript{22} See e.g. NEA (2019), supra note 4, p. 80.
\textsuperscript{23} Ibid., p. 52, 73 and 98.
Several environmental non-governmental organisations (NGOs) brought an action against the Minister of Economic Affairs before the Raad van State (Council of State, i.e. the highest administrative court in the Netherlands) seeking an annulment of the concerned decree. The environmental NGOs argued *inter alia* that this decree had to be declared void because it had not been preceded by an EIA. The Minister pleaded that the screening of the activities related to the LTO of the nuclear power reactor had indicated that there was no need for an EIA because there was neither a modification of the plant nor any change of the licensed activity or of the operating conditions. On 19 February 2014, the Raad van State rejected the claim by the NGOs because the Dutch legislation did not require the performance of an EIA in the absence of any physical alteration to the nuclear power plant.

Other EU member states, such as the Slovak Republic and Sweden, do not require the consideration of environmental issues when evaluating LTO. The underlying idea of this approach is that these issues need not be assessed, since the nuclear power reactor continues to operate under the conditions foreseen in the initial safety and/or environmental permits. It should be added that, for those countries that solely review the LTO of nuclear power reactors through periodic safety reviews (PSRs), such PSRs most commonly do not include a specific assessment of environmental issues comparable to an EIA. Often no specific documentation – or only limited documentation, at least compared to the one for a full-fledged EIA – related to environmental issues is required by the national regulatory body to make its determination as part of this process.

### 4. Changing landscape for EIA approaches for LTO of nuclear power reactors under the Espoo Convention

#### 4.1 The Rivne nuclear power plant case

As stated above, all EU member states and the European Union are contracting parties to the Espoo Convention. While the Espoo Convention applies to a large number of activities beyond just nuclear activities, it is worth noting that such activities are some of the most discussed under the auspices of this Convention. In particular, the issue of the LTO of nuclear power reactors is a longstanding one, having been first considered within the framework of the Convention almost a decade ago regarding the two reactors of the Rivne nuclear power plant in Ukraine, located close to the border with Belarus and Poland.

All nuclear power reactors currently in operation in Ukraine are pressurised light-water reactors of Russian VVER design, with a typical initial designed life of 30 years. In accordance with the country’s regulatory framework, operation licences for nuclear power reactors are granted with a specific term of 30 years, corresponding to their designed

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25. A design lifetime of 40 years was taken into account for the Borssele nuclear power plant in the plant’s safety report. Political discussions and eventually the decision by the Minister of Economic Affairs led to an expected ultimate shutdown date after 60 years of operation. For a detailed description of the history of the case, see: United Nations Economic Commission for Europe (UNECE) (2019), “Findings and recommendations with regard to communication ACCC/C/2014/104 concerning compliance by the Netherlands: Adopted by the Compliance Committee on 4 October 2018”, ECE/MP.PP/C.1/2019/3, Geneva, 11-15 Mar. 2019, pp. 3-5.


27. Ibid., para. 94. See also Decree of the Minister of Economic Affairs (2013), *supra* note 24, pp. 45-46.

28. Ibid., pp. 1-6.

life. Among these reactors, the two reactors located at the Rivne nuclear power plant started operation in the early 1980s, with an initial design life expected to end around 2010. In 2010, the Ukrainian nuclear regulator adopted a decision to issue a new licence for the two reactors of the Rivne nuclear power plant, therefore authorising their LTO for an additional period of 20 years. No transboundary EIA was organised prior to this decision.

As Ukraine is a party to the Espoo Convention, a Ukrainian NGO decided to test the compliance mechanism under the Convention. It therefore submitted a complaint to the Espoo Implementation Committee, arguing that Ukraine had breached its obligations under the Espoo Convention by not having organised a transboundary EIA prior to making its final decision on the LTO of the concerned reactors. The NGO further alleged that Ukraine had not notified potentially affected parties, in particular Belarus and Poland as the closest neighbouring countries to the Rivne nuclear power plant.

Ukraine contested the claim of the NGO before the Espoo Implementation Committee. Paralleling the argument later raised by the Netherlands in the Borssele case (see supra Chapter 3), it argued that:

"the operational lifetime extension does not lead to any major changes in the operation of a nuclear facility determined by the license authorizing its activity at the life cycle stage called "operation of a nuclear facility". The license extending the life time of the Rivne NPP units 1 and 2 was not subjected to a transboundary EIA procedure envisaged by the Espoo Convention ...".

According to Ukraine, the LTO decision was not a new licence, but a confirmation that the nuclear power reactors could continue to operate within the parameters defined in the original licence.

At its 30th session in February 2014, the Espoo Implementation Committee came to the conclusion “that no consideration [had been] given [by the Ukrainian authorities] at any stage to the changed environmental conditions since 1980 and the potential impact of the continued operation on the environment”.

The Committee also considered that:

if an EIA procedure was necessary only for the construction or demolition of physical parameters, such as buildings, of an NPP and was not necessary for the modernization and replacement of technical components for safety reasons, Parties would be able to continuously modernize and thus extend the lifetime of all existing nuclear installations, without ever carrying out an EIA procedure in accordance with the [Espoo] Convention.

The Implementation Committee thus found that the “extension of the lifetime of reactors 1 and 2 of the Rivne nuclear power plant after the initial licence has expired, even in the absence of any works, is to be considered as a proposed activity under Article 1(v) of the...”
Espoo Convention] and is consequently subject to the provisions of the [Espoo] Convention”, including the obligation to perform a transboundary EIA beforehand.\(^{35}\)

At its 6th session held in June 2014, the Meeting of the Parties to the Espoo Convention (MOP) endorsed the findings of the Implementation Committee that Ukraine was in breach of its obligations under Articles 2(2), 2(3), 4(1), 3 and 6 of the Espoo Convention with respect to LTO of reactors 1 and 2 of the Rivne nuclear power plant.\(^{36}\) However, this endorsement came with limitations. Indeed, the MOP Decision solely applied to the Rivne nuclear power plant in Ukraine and thus did not make a general statement that an EIA must be conducted prior to any extension of the lifetime of nuclear power plants. In addition, contrary to the findings and recommendations of the Implementation Committee, this decision made no mention of an obligation to carry out a transboundary EIA even in the absence of works.\(^{37}\)

The findings and recommendations of the Implementation Committee and subsequent decision of the MOP have led Ukraine to take several actions to ensure compliance with the Convention. The Ukrainian Parliament adopted the Law of Ukraine on Environmental Impact Assessment on 23 May 2017, which requires an applicant for LTO to organise an EIA and submit an EIA report to the nuclear regulator as a condition precedent for LTO approval.\(^{38}\) Ukraine also notified potentially affected contracting parties to the Espoo Convention, namely Austria, Belarus, Hungary, the Republic of Moldova, Poland, Romania and the Slovak Republic regarding the LTO of reactors 1 and 2 of the Rivne nuclear power plant.\(^{39}\) Notwithstanding these actions, in December 2020 the MOP expressed concern that Ukraine had “not yet fully complied with [the aforementioned] decision and that the transboundary environmental impact assessment procedure under the convention with respect to the activity [had] not yet been completed”.\(^{40}\)

### 4.2 The Good Practice Recommendations on the Application of the [Espoo] Convention to Nuclear Energy-related Activities

In 2014, the MOP acknowledged that “nuclear energy-related activities imply special challenges due to, e.g., the potentially wide scope of severe impacts, great public concern and national interests” and that there was a need for special guidance on how to apply the Convention to such activities.\(^{41}\) The MOP considered that “open discussion and sharing experiences” about practices in applying the Espoo Convention to nuclear activities would be beneficial for all parties and therefore decided to start specific discussions, with the
objective of developing guidance and recommendations. These discussions led in 2017 to the adoption by the MOP of the Good Practice Recommendations on the Application of the Convention to Nuclear Energy-related Activities, which “describe existing good practice regarding the application of transboundary [EIA] procedures in the field of nuclear energy” including on screening, notification duties, EIA documentation, examination of the information gathered, public participation, consultation and the final decision on the project.

As mentioned in Chapter 2, the Espoo Convention itself does not mention explicitly whether its obligation to conduct a transboundary EIA also applies to the LTO of nuclear power reactors. While Article 1(v) implies that there must be a “major change” to a nuclear activity for potentially raising an obligation to conduct a transboundary EIA, there was no clear answer, aside from the Rivne nuclear power plant case, to whether any other LTO process would fall within the scope of application of the Convention. The Good Practice Recommendations on the Application of the [Espoo] Convention to Nuclear Energy-related Activities would have been a useful instrument to enhance legal certainty. Unfortunately, the lack of consensus among parties to the Convention and format of the document did not allow for the Good Practice Recommendations to provide clear elements of response to this question. Instead, this document simply notes that “the criteria and considerations for identifying a major change to nuclear energy-related activities are to be determined on a case-by-case basis” and that “[i]f upgrade works during the life cycle are planned, Parties are to be aware that these works may fall under ‘major change’ causing significant transboundary impacts”. The Good Practice Recommendations only provide a brief reference to the Rivne nuclear power plant case, noting that this was “one specific case”. Conducting an EIA prior to the LTO of a nuclear power reactor is not listed as one of the good practices identified by this document.

4.3 A growing number of LTO cases pending before the Espoo Implementation Committee

While no clear answers to the questions of whether and how the Espoo Convention should be applied to the LTO of nuclear power reactors have been identified by the parties, the Implementation Committee was faced with a growing number of LTO-related cases following the adoption of its findings and recommendations in the Rivne nuclear power plant case, all of which remain pending without any findings and recommendations yet issued:

The Netherlands (EIA/IC/INFO/15)

After the judgment of 19 February 2014 by the Raad van State in the Netherlands (see supra Chapter 3), one of the plaintiffs, Greenpeace Netherlands, decided to seek a remedy outside court. It submitted a communication to the Espoo Implementation Committee arguing that the Dutch government had breached the Espoo Convention by not organising a transboundary EIA prior to approving the LTO for the Borssele nuclear power plant. In its communication, Greenpeace Netherlands focused on the absence of conducting a transboundary EIA prior to the Ministerial Decree of 18 March 2013.

Belgium (EIA/IC/INFO/18)

Two German federal states (North Rhine-Westfalia and Rhineland-Palatinate) submitted communications to the Espoo Implementation Committee regarding the absence of organising a transboundary EIA as part of the LTO approval process for reactors 1 and 2 of the Doel nuclear power plant and reactor 1 of the Tihange nuclear power plant in Belgium (see infra Chapter 5.1).

42. Ibid., para. 1(b).
44. Ibid., p. 12.
45. Ibid.
Czech Republic (EIA/IC/INFO/19)

In 2016, several NGOs submitted a communication to the Espoo Implementation Committee arguing that no transboundary EIA had been organised prior to LTO approval for several nuclear power reactors at the Dukovany nuclear power plant in the Czech Republic.

Ukraine (EIA/IC/INFO/20)

The Espoo Implementation Committee is currently also considering a communication submitted in 2016 by multiple NGOs in relation to LTO approval processes for several nuclear power reactors in Ukraine.

Bulgaria (EIA/IC/INFO/28)

A Romanian NGO submitted information regarding the LTO of two reactors at a Bulgarian nuclear power plant (Kozloduy) near the border with Romania.

4.4 Guidance on the applicability of the Espoo Convention to the lifetime extension of nuclear power plants

Due to this growing number of cases and with the expectation that additional cases are likely to be submitted to the Implementation Committee in the future because of the ageing of the nuclear fleet in many countries, the MOP decided in 2017 to establish an ad hoc working group composed of representatives of parties to draft terms of reference to provide guidance on the applicability of the Espoo Convention to the lifetime extension of nuclear power reactors. The ad hoc working group completed the terms of reference in 2018 and was subsequently mandated by the Espoo Working Group on Environmental Impact Assessment and Strategic Environmental Assessment to draft guidance on the applicability of the Espoo Convention to the lifetime extension of nuclear power plants, which would be submitted to the MOP for adoption in late 2020.

The ad hoc working group identified three key conditions that must be met for the Espoo Convention to apply to decisions authorising LTO of nuclear power reactors, derived from the text of Article 1(v) and 3(1) of the Convention:

1. For the Espoo Convention to apply, LTO must qualify as a “proposed activity” under Article 1(v) of the Convention, which means that LTO should constitute either an activity or a major change to an activity listed in Appendix I to the Convention;
2. Pursuant to Article 3(1) of the Convention, a transboundary EIA procedure is only mandatory insofar as LTO is “likely to cause a significant adverse transboundary impact”; and

46. UNECE (2017), “Decisions and the declaration adopted jointly by the Meeting of the Parties to the Convention and the Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol”, Addendum to the “Report of the Meeting of the Parties to the Convention on its seventh session and of the Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol on its third session”, “Decision VII/3-III/3, Adoption of the workplan”, ECE/MP.EIA/23/Add.1- ECE/MP.EIA/SEA/7/Add.1, Minsk, 13-16 June 2017.


3. In accordance with Article 1(v) of the Convention, LTO must be “subject to a decision of a competent authority in accordance with an applicable national procedure”.

After three years of work and discussions under the auspices of the ad hoc working group and the Working Group on EIA and SEA, the MOP endorsed the “Guidance on the Applicability of the Espoo Convention to the lifetime extension of nuclear power plants” (hereunder “the Guidance”). This document, which was subject to intensive negotiations between the parties to the Espoo Conventions until late 2020, constitutes the most advanced attempt to answer the aforementioned questions and, as such, merits to be addressed in detail.

Regarding the notion of a lifetime extension, the Guidance acknowledges that the commonly used terminology, be it lifetime extension or LTO, does not have a legal definition in international law. Noting that various elements (political, environmental, economic, safety-related, etc.) may limit the operational life of a nuclear power reactor, the Guidance identifies five “situations” that could be covered by the Espoo Convention, namely:

(i) the operation of a nuclear power reactor after the expiration of a time-limited licence;
(ii) the operation of a nuclear power reactor beyond the initial “design life of irreplaceable safety-critical structures, systems and components” in countries with licences of an indefinite duration;
(iii) the operation of a nuclear power reactor after a specific safety review, most often being the fourth decennial periodic safety review for light-water reactors;
(iv) modifications to a nuclear power plant that would require modifying the existing licence to operate; and
(v) the operation of a nuclear power plant beyond a time limit set by national legislation.

The Guidance notes, however, that the aforementioned list of situations is not exhaustive and that the presence of one of these situations does not automatically mean that a transboundary EIA is required. As a general point, the Guidance is intended to provide “principles and factors” to be considered by parties on a case-by-case basis.

Regarding the first condition for the Espoo Convention to apply, namely that LTO is to be considered an activity or a major change to an existing activity under the Espoo Convention, the Guidance provides some valuable insights. It notes that nuclear energy-related activities that are listed in Appendix I to the Espoo Convention appear to cover the full life cycle of the concerned activities. In this regard, LTO must be “considered to be covered by the list of activities even though [it is] not explicitly mentioned.” According to the Guidance, LTO represents a “prolongation of an existing activity rather than an activity in its own right”, therefore indicating that LTO would rather correspond to a major change to an existing activity than to a new activity. The Guidance notes an exception for nuclear power reactors that would have had to terminate their operation, for example due to expiration of their licence, for which LTO “may be regarded as an activity in its own right.”

50. Ibid., paras. 21-23.
51. Ibid., paras. 17-20.
52. Ibid., paras. 25-26.
53. Ibid., para. 27.
54. Ibid., paras. 28-31.
55. Ibid., para. 32.
56. Ibid., para. 33.
57. Ibid., para. 24.
58. Ibid., para. 9.
59. Ibid., para. 37.
60. Ibid., para. 39.
61. Ibid.
In relation to the question whether LTO may constitute a major change to an existing activity, the Guidance notes that parties have the discretion to decide this question on the basis of a case-by-case screening. The Guidance notes that “[a]n important factor to consider in this respect is whether the lifetime extension in question, taking account of its specific features, may cause significant adverse transboundary impact”.  

The Guidance identifies a number of factors that may lead to the conclusion that a lifetime extension should be considered a major change to an activity under the Espoo Convention. It notes that lifetime extension is considered a major change where it “is combined with major renovation works of a nature or scale that is comparable, with regard to their potential to cause significant adverse transboundary environmental impacts, to that when the plant was first put into service”. In this regard, the text of the Guidance appears to adopt an approach similar to that of the CJEU in the case presented below. However, the Guidance explains that a lifetime extension could also amount to a major change to an activity even in the instance of “physical works or modifications in the operating conditions of a smaller scale”. In this regard reference is made to the duration of the lifetime extension, which is identified as “one factor” that Parties should consider, as well as to a list of “illustrative factors” provided in its Annex II, including, inter alia, the “[i]ncreased use of natural resources as compared to the limits envisaged in the initial licence”, the “[i]ncreased production of waste or spent fuel as compared to the limits envisaged in the initial licence”, the “[e]xtent of upgrading works and/or safety upgrades or improvements, in particular those requiring significant alteration of the physical aspects of the site or substantial improvements arising from ageing components and/or obsolescence”, “[c]hanges in the surrounding environment such as those from climate change” or “[c]limate change adaptation and mitigation measures”. While the Guidance notes that “it is unusual for lifetime extensions to be carried out without ... any associated physical works or modifications in the operating conditions”, it still foresees that a lifetime extension could qualify as a major change in the absence of such physical works or modifications, notably due to a “changing environment ... that may not have been considered in the initial authorization to operate”. Similarly, the Guidance foresees that multiple minor changes to a nuclear power plant may amount to a major change under the Espoo Convention, where “there is a tangible link between the multiple minor changes and the lifetime extension, demonstrating that the minor changes are part of one complex activity undertaken with a demonstrable intent to extend the lifetime of the nuclear power plant”.  

On the contrary, the Guidance stresses that “changes covered by the existing authorization to operate do not trigger the application of the Convention”. It also specifies that the Convention does not apply retroactively, which explains why parties eventually decided not to include the absence of an EIA carried out during the initial licensing of a nuclear power plant as a factor to determine whether a lifetime extension is a major change or not. Finally, although the Guidance does not provide an explicit list of works that are not considered to amount to a major change, it notes that “physical works undertaken as part of regular maintenance work or ageing management are not usually regarded as major changes”.  

62. Ibid., para. 41.  
63. Ibid., para. 42.  
64. Ibid., para. 46.  
65. Ibid., para. 47.  
66. Ibid., para. 47 and Annex II(1).  
67. Ibid., para. 49.  
68. Ibid., paras. 50-51.  
69. Ibid., para. 43.  
71. UNECE (2020), Guidance, supra note 6, para. 48.
Regarding the second condition to be covered by the Espoo Convention, namely that the lifetime extension of a nuclear power reactor is “likely to cause significant adverse transboundary impact”, the Guidance identifies two broad categories of impacts, most of which are actually similar to impacts considered for the licensing of a new reactor, namely: “(a) Impacts resulting from operational states, including normal operation and anticipated operational occurrences; [and] (b) Impacts resulting from accidents, including accidents within the design basis and within the design extension conditions as well as beyond design basis accidents.”

In general, the Guidance refers to the approach developed by the Implementation Committee in the Hinkley Point C case, later endorsed by the MOP as part of its 2019 Decision on General issues of compliance with the Convention (IS/1), which highlights the role of the precautionary principle and scientific evidence.

This approach indicates that:

Although the likelihood of a major accident, accident beyond design basis or disaster occurring for nuclear activities listed in appendix I to the Convention is very low, the likelihood of significant adverse transboundary environmental impact can be very high, if the accident occurs. Consequently, when assessing, for the purpose of notification, which Parties are likely to be affected by a proposed nuclear activity listed in appendix I, the Party of origin should make the most careful consideration on the basis of the precautionary principle and available scientific evidence.

The Guidance specifies, however, that the determination of accident scenarios falls outside its scope and that “it is the responsibility of the competent authority to assess which accident scenarios are likely to cause significant adverse transboundary impacts and which accident scenarios can be excluded”, taking into account “internationally recognised nuclear safety and environmental standards”. While the Guidance notes that it could be considered good practice for parties to engage in discussions regarding accident scenarios with potentially affected parties, the wording of the document highlights the difficulty for its drafters to reach consensus on the extent to which very severe accidents with a very low probability should be considered.

The last condition, namely that the LTO of a nuclear power reactor must be “subject to a decision of a competent authority in accordance with an applicable national procedure”, appears to have been the subject of substantial discussions between some members of the ad hoc working group. This is not surprising, given the wide variety of legal and regulatory frameworks among parties to the Espoo Convention. For countries with time-limited licences for the operation of nuclear power reactors, it may be rather straightforward to identify a decision to authorise LTO, be it in the form of a decision to renew a licence, amend an existing one or issue a new one. However, several countries with licences for an indefinite duration have pointed to the fact that their respective legal and regulatory frameworks may not necessarily include a specific decision to authorise LTO, which itself is often not defined in their national law. This difference has led to a fundamental question of interpretation of Article 2 of the Espoo Convention, where some parties argue that the Convention requires parties to introduce a decision-making procedure for any major change to an activity,
including LTO, while others are of the opinion that the existence of a decision-making procedure is rather a pre-condition for applying the Convention. The Guidance appears to settle this issue by recalling the framework of the Espoo Convention, stating that “in accordance with article 2(2) of the [Espoo] Convention, Parties have committed themselves to having in place and taking all the legal, administrative and other measures necessary to implement the Convention effectively within the domestic legal order” and further highlighting that “a “final decision” on the proposed activity is one of the core obligations under the Convention, which Parties must implement in accordance with article 6”.

The Guidance seems to indicate that the notion “decision by a competent authority” is to be interpreted broadly and that it is for each party “to determine ..., according to its national legislation, [what could be the administrative trigger for] the extension, continuation, renewal or modification of authorizations allowing previous operation.” What is important to determine whether there is indeed a “decision by a competent authority” “is not the title (e.g. ‘licence’ or ‘permit’) but rather the authorizing function with regard to the rights or duties of the nuclear operator, equivalent to that of [an initial licence], consent or a permit.” In this regard even an authorisation for LTO that is given by a legislator or a judicial body could qualify as a “decision by a competent authority”. The Guidance also addresses the specific question of the relationship between PSRs and the notion of decision under the Espoo Convention. It indicates that these reviews, in themselves – including their findings – are not to be considered as decisions. However, PSRs may be followed by authorisations aimed at transposing their findings or requiring that the operator take specific action. Such authorisations could meet the criteria to be considered as a decision linked with the LTO of a nuclear power reactor, albeit that the Guidance notes that there is “no systematic correlation between periodic safety reviews and the authorisation regime”.

5. Changes initiated by the Court of Justice of the European Union

5.1 Background

On 29 July 2019, the CJEU rendered a landmark judgment relating to EIA and the approval of LTO for nuclear power reactors in the EU. The case relates to two nuclear power reactors located in Belgium.

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77. See Letter from L. Tanner and C. Sangenstedt to the Meeting of the Parties to the Espoo Convention, 8th Session and Meeting of the Parties to the Protocol on SEA, 4th Session, Vilnius, Lithuania, 8-11 December 2020, “Letter of the Co-Chairs of the ad hoc working group on the applicability of the Espoo Convention to the lifetime extension of nuclear power plants”.
78. UNECE (2020), Guidance, supra note 6, paras. 80-84.
79. Ibid., para. 88.
80. Ibid., para. 90.
81. Ibid., paras. 101-102.
82. Ibid., para. 95.
83. Ibid.
84. Judgment of 29 July 2019, Inter-Environnement Wallonie, C-411/17, EU:C:2019:622 (“2019 CJEU Judgment”). The judgment is available at: www.curia.europa.eu/juris/documents.jsf?num=C-411/17. The CJEU is the judicial body of the European Union that ensures that EU law is respected and applied in the same way throughout all EU member states. It has two principal competences: first, ensuring compliance by the EU member states and EU institutions (essentially the EU Commission, the Council of the EU and the EU Parliament) with European law covering a vast area of domains including nuclear energy and secondly, clarifying EU law at the request of national courts and tribunals of the EU member states to ensure that it is applied uniformly throughout the European Union. The CJEU’s interpretation of EU law is binding in all EU member states.
At present, Belgium has seven nuclear power reactors, supplying approximately half of the country’s electricity, four of which are located at Doel (Antwerp) and three at Tihange (Liège). The reactors started operating between 1975 and 1985. The CJEU case relates to the Doel 1 and Doel 2 nuclear power reactors. Both reactors are located near areas that are protected under EU environmental legislation and are situated roughly 20 km from the Netherlands and 100 km from Germany.

In order to better understand the case, it is important to distinguish the roles of the national legislature and of the nuclear regulator (Federal Agency for Nuclear Control or FANC) in Belgium. The national legislature decides whether and under which conditions electricity may be generated. The nuclear regulator regulates the siting, design, construction, commissioning, operation and decommissioning of nuclear installations. Licences for nuclear installations are granted by the Belgian government on the basis of a Royal Decree on the positive advice of the nuclear regulator. Licences for nuclear power reactor operation in Belgium are granted for an indefinite duration. The operation of a nuclear power reactor beyond its original designed life is assessed through the decennial PSR and not through a renewal of the initial licence, which remains valid during the LTO period.

In 2003, the Belgian national legislature adopted the Act of 31 January 2003 on the nuclear phase-out ("Nuclear Phase-Out Act"). This Act provided that no new nuclear facility was to be built and existing nuclear facilities had to stop operating after a lifetime of 40 years. Although operating licences of nuclear power reactors in Belgium are valid for an indefinite term, the adoption of the Nuclear Phase-Out Act meant in practice that all plants had to cease operating after 40 years. Since the Doel 1 and 2 nuclear power reactors started operating in 1975, the Nuclear Phase-Out Act allowed both installations to generate electricity until 2015.

From 2010 onwards, the national legislature became concerned that the nuclear phase-out would cause problems of security of electricity supply for the Belgian economy. In 2015, it was therefore decided to amend the date of the nuclear phase-out. The national legislature adopted the Act of 28 June 2015 ("Nuclear Life Extension Act") thereby prohibiting the Doel 1 and 2 nuclear power reactors from generating electricity beyond 2025. The Nuclear Life Extension Act actually "extended" the lifetime of the Doel 1 and 2 reactors by ten years compared to their status under the Nuclear Phase-Out Act and tied the extension of the life to the condition that the operator would invest approximately EUR 700 million in the safety of the reactors.

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85. Over the last few years there has been interest regarding the hydrogen flakes that have been detected in the reactor vessels of some Belgian nuclear power plants. These hydrogen flakes have been denominated “cracks” in some media. Those nuclear power reactors (Doel 3 and Tihange 2 reactors) are different than the ones that are the subject matter of the case in the main proceedings.

86. An overview of the Belgian approach to LTO is available in NEA (2019), supra note 4, pp. 51-54. For additional information about the legislative and regulatory framework for nuclear safety in Belgium as well as the regulatory authority, see FANC (2016), National Report: Seventh Meeting of the Contracting Parties to the Convention on Nuclear Safety, available at: www.iaea.org/sites/default/files_belgium_nr-7th-rm.pdf, pp. 24-47.


Several weeks after the adoption of the Nuclear Life Extension Act, the FANC decided that there was no need for an EIA since it was of the opinion that the LTO of the Doel 1 and 2 reactors would not lead to new negative radiological effects on the environment or to additional existing radiological effects on the environment and hence that there were no significant adverse effects on the environment. The FANC later decided that there was no need for the operator to request a modification or extension of its operating licence because the planned work to the installations to enable LTO did not qualify as a major change to the installations under national legislation.

Authorisations for nuclear energy projects are usually given by the nuclear regulator or the competent Ministry. In the Belgian case the situation was different since the authorisation for LTO of the Doel 1 and 2 reactors appeared not to have been given by the nuclear regulator or the competent Ministry but by the national legislature through the adoption of the Nuclear Life Extension Act. Moreover the decision on whether or not there was a requirement for an EIA was taken after the adoption of the LTO decision instead of prior thereto. Hence the national legislature could not have taken any EIA documentation into account since it only arrived after the adoption of the Nuclear Life Extension Act.

Two environmental NGOs brought an action before the Belgian Constitutional Court seeking annulment of the Nuclear Life Extension Act. The plaintiffs principally argued that the Belgian State had failed to ensure that an EIA was conducted prior to authorising LTO of the Doel 1 and 2 nuclear power reactors.

In order to decide on the action for annulment of the Nuclear Life Extension Act, the Belgian Constitutional Court sought the interpretation of the CJEU on European environmental legislation applicable to LTO of nuclear power reactors. Nine questions were referred by the Belgian Constitutional Court to the CJEU, which boil down to three central issues. The first issue essentially is whether or not an EIA must be organised prior to authorising LTO of a nuclear power reactor located in the European Union (hereunder: “EIA issue”). As mentioned under Chapter 2, organising an EIA has become an obligation under international law for licensing new nuclear power reactors but there is no clarity in the European Union whether such an obligation also applies as part of LTO approval processes. The second issue is whether the obligation to perform an EIA prior to authorising LTO of nuclear power reactors also applies when such authorisation is given by the national legislature (hereunder: “statutory measure issue”). It is common practice in the nuclear field that licences and authorisations are granted by the nuclear regulator or the competent Ministry but in the Belgian case the authorisation for LTO seemed to have been granted by the national legislature. The third issue is whether overriding public interests such as national security of electricity supply could allow an exemption of EIA obligations for LTO of nuclear power reactors (hereunder: “overriding public interest issue”).

5.2 Judgment of the CJEU

A. EIA issue

On the EIA issue, the CJEU applied a two-step test to ascertain whether LTO approval of nuclear power reactors requires the prior conduct of an EIA. The Court first verified whether LTO of the nuclear power reactors qualifies as a “project” under EU legislation. It

then examined whether LTO of the nuclear power reactors is likely to have significant effects on the environment by virtue of its nature, size or location. The obligation to carry out an EIA only applies under EU legislation if both conditions are met.

Article 1 of the EIA Directive states that: "For the purposes of this directive, [...] a ‘project’ means: (i) the execution of construction works or of other installations or schemes, (ii) other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources". It follows from the case law of the CJEU that this definition refers to work or interventions involving alterations to the physical aspect of the site. Under the first step of the test, the CJEU thus examined whether the work to upgrade the nuclear power reactors and to ensure compliance with current safety standards qualifies as works or interventions that are likely to affect "the physical aspect of the site". The evidence available to the Court indicated that the work involves:

- upgrading the containment structures of the Doel 1 and Doel 2 reactors, renewal of the spent fuel storage pools, building a new pumping station and adaptation of the base to offer better protection against flooding. That work would not be limited to existing structures, but would also involve the construction of three buildings, two to host ventilation systems and a third as a fire protection structure.

According to the CJEU "work of that nature is such as to alter the physical aspect of the sites in question, within the meaning of [its] case-law". Perhaps as importantly, the CJEU considered that the aforementioned work to upgrade the Doel 1 and 2 nuclear power reactors was "inextricably linked" to the decision made by the Belgian legislature to authorise the LTO, although the challenged legislation did not explicitly refer to such work and could therefore not be "artificially dissociated" from it. This probably signals the intention of the Court to preclude any "salami-slicing" practice, where a series of decisions would be considered in isolation of their potential practical consequences.

The CJEU then passed to the second step of the test and assessed whether LTO approval of the nuclear power reactors is likely to have significant effects on the environment. While the construction and dismantling or decommissioning of nuclear power stations and other nuclear power reactors is automatically considered to have significant effects on the environment, the EIA Directive does not contain clear wording on whether this also holds true for LTO of nuclear power reactors. Annex I to the EIA Directive provides in general terms at its point (24) that "Any change to or extension of projects listed in this Annex where such change or extension in itself meets the thresholds, if any, set out in this Annex" should be considered as projects having significant impact on the environment under Article 4(1) of the Directive and is therefore automatically subject to an EIA. The CJEU thus examined “whether measures such as those at issue in the main proceedings, along with the work to which those measures are inextricably linked, may fall within the scope of point (24) of Annex I to the EIA Directive [...]”. It found that, for projects listed in Annex I without a threshold, the aforementioned provision should be understood as including "any change or extension to a project, which by virtue of, inter alia, its nature or scale, presents risks that are similar, in terms of their effects on the environment, to those posed by the project itself". In the case at hand, the CJEU concluded that the activities

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93. 2019 CJEU Judgment, supra note 84, para. 61-94.
94. Directive 2011/92/EU, supra note 16, Articles 1(2) and 2(1).
95. C-275/09 Brussels Hoofdstedelijk Gewest and Others (2009), ECR I-753.
96. 2019 CJEU Judgment, supra note 84, para. 66.
97. Ibid.
98. Ibid.
99. Ibid., para. 71.
100. Ibid.
102. 2019 CJEU Judgment, supra note 84, para. 77.
103. Ibid., para. 78.
linked with the LTO of the Doel 1 and 2 nuclear power reactors, which have the effect of extending the duration of the licence to generate electricity by ten years, combined with major renovation works made necessary due to the ageing of those plants and the obligation to bring them into line with current safety standards, must be found to be “of a scale that is comparable, in terms of the risk of environmental effects, to that when those power stations were first put into service”. The CJEU therefore found that the LTO of the Doel 1 and 2 nuclear power reactors must be considered to constitute a change or extension of the project that requires conducting an EIA.

This reasoning is perhaps one of the main innovations of this judgment. Indeed, it could have a significant impact on all other projects listed in Annex I of the EIA Directive and that are without thresholds, including integrated chemical installations, the construction of motorways and express roads or waste disposal installations. For all these projects, any change or extension that would pose “risks that are similar, in terms of their effect on the environment, to those posed by the project itself” would require the prior carrying out of an EIA. It is also interesting to note, in this regard, that the Court does not appear to have followed the opinion of its Advocate General, who had argued that an EIA should have been conducted even in the absence of any work.

Since the Doel 1 and 2 reactors are located close to the Netherlands, the Court decided that an EIA with transboundary consultation of the public and the public authorities of the Netherlands must be organised as required by Article 7 of the EIA Directive. Surprisingly, the CJEU imposed no similar obligation for Germany or any other potentially affected countries.

In summary, the CJEU decided that the deferral by ten years of the date that was initially set by the national legislature for deactivating and ceasing industrial production of electricity by nuclear power reactors together with measures that entail work to upgrade the reactors such as to alter the physical aspect of the sites, “constitute a ‘project’, within the meaning of the [EIA] Directive, and subject to the findings that are for the [national] referring court to make, an [EIA] must, in principle, be carried out with respect to that project prior to the adoption of those measures”. The CJEU arrived at the same conclusion with regard to the Habitats Directive.

**B. Statutory measure issue**

On the statutory measure issue, the CJEU recalled that the EIA must be conducted prior to development consent. The Court first analysed whether the Nuclear Life Extension Act could qualify as “development consent”. According to Article 1(2)(c) of the EIA Directive, “‘development consent’ means the decision of the competent authority or authorities which entitles the developer to proceed with the project”. The Court referred to its previous case law and repeated that if the licensing procedure takes place in several stages with one of those stages being a main decision and the other one an implementing decision, “the effects that the project is likely to have on the environment must be identified and assessed at the time of the procedure relating to the principal decision”.

104. Ibid., para. 79.
105. 2019 CJEU Judgment, supra note 84, para. 80.
106. Opinion of Advocate General Kokott, 29 November 2018, ECLI:EU:C:2018:972, para. 66. The CJEU is assisted by 11 Advocate Generals. The role of the Advocate General is to present a legal opinion to the Court. The opinion of the Advocate General is advisory and does not bind the CJEU.
107. 2019 CJEU Judgment, supra note 84, para. 81.
108. Ibid., para. 94.
109. Ibid., para. 145.
110. Ibid., para. 82.
111. C-201/02 Wells (2004), ECR I-723.
112. 2019 CJEU Judgment, supra note 84, para. 85-86.
The CJEU found that the Nuclear Life Extension Act provides, “in a precise and unconditional manner”, for the deferral by ten years of the date initially set by the national legislature for the deactivation and the end of the electricity generation by the units Doel 1 and 2.\(^{113}\) The Court therefore held that “[…] it would appear, prima facie, that the [Nuclear Life Extension Act] constitutes development consent, within the meaning of Article 1(2)(c) of the [EIA Directive], or at the very least, a first step in the process of obtaining consent for the project, as regards its essential characteristics”.\(^{114}\) The CJEU seemed to indicate that legal obligations on conducting an EIA would be meaningless if it could simply be circumvented by having the licensing decision taken by the legislature.

The Court also verified whether the Nuclear Life Extension Act could be considered to fall outside the scope of application of the EIA Directive on the basis of Article 1(4).\(^{115}\) This Article provides that “[t]his Directive shall not apply to projects the details of which are adopted by a specific act of national legislation, since the objectives of this Directive, including that of supplying information, are achieved through the legislative process”.

The CJEU emphasised that the exclusion from the scope of the EIA Directive is subject to two conditions. The first condition is that the project must be adopted by “a specific act of legislation that has the same characteristics as development consent. In particular, that act must grant the developer the right to proceed with the project”.\(^{116}\) The legislative act must thus be worded:

\[
\text{in a sufficiently precise and definitive manner, so that the legislative act adopting the project must include, like a development consent, following their consideration by the legislature, all the elements of the project relevant to the [EIA]. The legislative act must demonstrate that the objectives of the EIA Directive have been achieved as regards the project in question.}^{117}
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The second condition is that “the objectives of the [EIA] Directive, including that of making available information, are achieved through the legislative process”.\(^{118}\) The Court held that “the essential objective of the [EIA] Directive is to ensure that projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are subject to an assessment with regard to their environmental effects before consent is given”.\(^{119}\) These objectives, including the provision of information, must therefore be achieved through the legislative procedure.\(^{120}\)

Consequently, the legislature must have sufficient information at its disposal at the time when the project [ ] is adopted. [...] The minimum information to be supplied by the developer is to include a description of the project comprising information on the site, design and size of the project, a description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects, the data required to identify and assess the main effects which the project is likely to have on the environment, an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects, and a non-technical summary of the above information.\(^{121}\)

\(^{113}\) Ibid., para. 87.
\(^{114}\) Ibid., para. 91.
\(^{115}\) Ibid., para. 103-114.
\(^{116}\) Ibid., para. 105.
\(^{117}\) Ibid., para. 106.
\(^{118}\) Ibid., para. 108.
\(^{119}\) Ibid.
\(^{120}\) Ibid.
\(^{121}\) Ibid., para. 109.
According to the CJEU, “it is for the [national] court to determine whether those conditions have been satisfied”. For that purpose, it must “take[ ] account both of the content of the legislative act adopted and of the entire legislative process which led to its adoption, in particular the preparatory documents and parliamentary debates”. However, having regard to the information brought to [its] attention, it appeared to the Court that this information had not been made available to the Belgian legislature. The CJEU therefore came to the conclusion that the Nuclear Life Extension Act does not meet the conditions of Article 1(4) of the EIA Directive. Therefore, the fact that LTO approval for the Doel 1 and 2 nuclear power reactors has been granted by the national legislature instead of by a national regulator or competent Ministry does not exempt it from the EIA obligations under the EIA Directive.

C. Overriding public interest issue

On the overriding public interest issue, the CJEU referred to Article 2(4) of the EIA Directive, which authorises member states, in exceptional cases, to exempt a specific project in whole or in part from the obligations of the EIA Directive. The Court held that:

[...]

In such a case, member states must consider:

whether another form of assessment would be appropriate, make available to the public concerned the information thereby obtained, and inform the Commission, prior to granting consent, of the reasons justifying the exemption granted, and provide it with the information, if any, made available to their own nationals.

In its decision, the CJEU recalled that these obligations are not “mere formal requirements, but conditions designed to ensure that the objectives of the EIA Directive are met, as far as possible”. The Court emphasised though that Belgium had not informed the EU Commission of any planned exemption of the EIA obligation with regard to the Doel 1 and 2 nuclear power reactors. Belgium must also demonstrate “that the alleged risk to the security of the electricity supply is reasonably probable and that [the LTO of both reactors] is sufficiently urgent to justify not carrying out” an EIA.

D. Maintenance of effects of long-term operation approval that infringes EU law

The CJEU also addressed the question whether the effects of the Nuclear Life Extension Act could be maintained and thus whether units Doel 1 and 2 could continue to operate despite infringing EU environmental legislation. The Court recalled that:

under the principle of sincere cooperation laid down in Article 4(3) TEU, Member States are required to nullify the unlawful consequences of [an] infringement of EU law. The competent national authorities are therefore under an obligation to take

122. Ibid., para. 110.
123. Ibid.
124. Ibid., para. 111.
125. Ibid., para. 114.
126. Ibid., para. 97.
127. Ibid., para. 98.
128. Ibid., para. 99.
129. Ibid., para. 100.
130. Ibid., para. 101.
all measures necessary, within the sphere of their competence, to remedy the failure to carry out an [EIA], for example by revoking or suspending consent already granted in order to carry out such an assessment.\textsuperscript{131}

The Court admitted, however, that it has held in the past “that EU law does not preclude national rules which, in certain cases, permit the regularisation of operations or measures which are unlawful in the light of EU law”.\textsuperscript{132} The CJEU imposed very strict conditions for maintaining the effects of the Nuclear Life Extension Act though. It held that national authorities may:

if domestic law allows it, [...] by way of exception, maintain the effects of measures, such as those at issue in the main proceedings, adopted in breach of the obligations laid down by the EIA Directive and the Habitats Directive, where such maintenance is justified by overriding considerations relating to the need to nullify a genuine and serious threat of rupture of the electricity supply in the Member State concerned, which cannot be remedied by any other means or alternatives, particularly in the context of the internal market. The effects may only be maintained for as long as is strictly necessary to remedy the breach.\textsuperscript{133}

5.3 Potential effects of the CJEU judgment on the approach to LTO of nuclear power reactors in the European Union and personal reflections

Owing to the specificity of the case at hand and to the varying legal and regulatory frameworks for LTO among EU member states, it is a difficult task to determine the extent to which this decision will impact LTO-related procedures within the EU.

In its decision, the CJEU held that there was an obligation to conduct an EIA due to a combination of two factors, i.e.: (i) the extension “by a significant period of 10 years [for] the duration of consents to produce electricity” and (ii) “major renovation works necessary due to the ageing of [the] nuclear power stations and the obligation to bring them into line with safety standards,” which altered the physical aspect of the site.\textsuperscript{134} “The combination of these two elements is considered by the CJEU as presenting a risk of environmental effects of a comparable scale to that when the nuclear power reactors were commissioned.\textsuperscript{135} This reasoning appears to balance the perhaps contradictory effects of the two aforementioned factors. While the major renovation works, as they include safety improvements, could be regarded as lowering the general risk profile of the concerned installations, the extension of operation of the reactors logically extends the time period during which these installations create a risk for the environment, in addition to the generation of additional radioactive waste and spent fuel.

Looking at the situation in EU member states, it appears very likely that the LTO of most nuclear power reactors will involve major renovation works. Indeed, LTO programmes generally consist of large-scale investments in the safety and operational features of the concerned reactors, often aimed at enabling these reactors to continue operating under up-to-date regulatory requirements and improved financial conditions for considerable periods of time. However, the situation appears slightly more difficult when it comes to identifying whether there has been an extension of time. In the aforementioned Doel 1 and 2 case, there was a prior decision by the Belgian legislature to limit the operation of those two reactors in time, such that there was no difficulty in identifying an extension by ten years of the consent to generate electricity when the same legislature decided to revisit its decision. In many – if not most – EU member states, this does not appear to be the case, as licences granted by the nuclear regulators are not limited in time and there appears to be no

\textsuperscript{131} Ibid., para. 170.
\textsuperscript{132} Ibid., para. 173.
\textsuperscript{133} Ibid., para. 182.
\textsuperscript{134} Ibid., para. 79.
\textsuperscript{135} Ibid.
legislative or regulatory provision stating an end date for the operation of nuclear power reactors (with the noticeable exception of EU member states currently phasing out nuclear energy). For these countries, there remains legal uncertainty as to whether other types of decisions – typically decisions made by nuclear regulatory bodies to approve the major renovation works, notably following a PSR – could be seen by courts, including the CJEU, as extending the operation of the concerned nuclear power reactor, even in the absence of a prior end date. While some national courts in EU member states have held in the past that such decisions were only approving renovation works and not authorising the operation of reactors,136 it remains uncertain whether the present judgment of the CJEU will change this situation.

The Court’s judgment also had an important influence on discussions held within the framework of the Espoo Convention regarding its applicability to the LTO of nuclear power reactors, even though the judgment did not consider the applicability of the Convention to LTO per se. In this regard, it is interesting to note that the “Guidance on the applicability of the [Espoo] Convention to the lifetime extension of nuclear power plants” makes reference to several criteria identified by the CJEU in that case. These references mostly concern the actual works foreseen as part of the LTO programme for the Doel 1 and 2 reactors as well as their cost, which could also be considered as a factor to identify the scale of the intended change under the Espoo Convention.137 The CJEU decision also influenced the content of the Guidance regarding the possibility for the LTO of a nuclear power reactor to cause significant adverse transboundary impacts, as the Court held – in the context of the EIA Directive – that the LTO of the Doel 1 and 2 reactors presented, by virtue of its nature or scale, risks that are similar to the initial commissioning of the reactors.138 However, it is noteworthy that the section of the Guidance dedicated to “lifetime extension per se” (i.e. lifetime extension without any works) does not refer to the CJEU decision. While the Guidance appears to open the door to the possibility that a “changing environment that occurs over the course of [a nuclear power plant’s] lifetime and that may not have been considered in the initial authorization to operate” could justify classifying the lifetime extension as a major change,139 such an option appears to have been ruled out by the CJEU in the context of the EIA Directive. Indeed, the Court reaffirmed its case law that under the EIA Directive a “project” must involve physical alterations to the site.140 As noted in the Guidance, such a scenario of an LTO without any physical works appears rather unlikely.141 Nonetheless, in such case there could be a discrepancy between the interpretation of the Espoo Convention under the Guidance and the interpretation of the EIA directive by the CJEU.

6. Conclusion

There is, at present, a grey area in existing international and EU environmental law on whether or not an EIA must be performed prior to the LTO of nuclear power reactors located in the European Union. This grey area owes a lot to the fact that LTO is essentially not a legal concept with an agreed meaning, either in international, EU or domestic laws. Some EU member states have adopted national legislation or regulations that clearly require the conduct of some form of environmental review prior to making decisions that could be qualified as approving LTO. That review will generally address the impact of the required works and of extending the concerned reactor’s operation on the environment,

137. UNECE (2020), Guidance, supra note 6, para. 46.
138. Ibid.
139. Ibid., para. 49.
140. 2019 CJEU Judgment, supra note 84, para. 62.
141. UNECE (2020), Guidance, supra note 6, para. 49.
often including human health. However, most EU member states have no such clear provisions in their legislation or regulations, thereby raising questions as to whether such an assessment is required or not. This situation is the source of increased legal uncertainty, at a time when a large part of the nuclear power reactors currently operating within the EU are expected to soon enter the stage of LTO. Consequently, such legal uncertainty generates a growing number of disputes, be it in front of courts or other types of bodies, such as the Espoo Implementation Committee, involving additional costs and introducing further delays in important decisions for the energy policy of the concerned countries.

Although several countries in the EU have expressed the view that the requirement to conduct an EIA prior to the LTO of a nuclear power reactor is not provided for under the applicable international and EU legal frameworks, there has been a growing tendency in the regulatory and judicial environment over the last decade towards increased environmental scrutiny over the continued operation of nuclear reactors. In 2014, the Meeting of the Parties to the Espoo Convention decided in one specific case that an EIA should have been organised prior to renewing the licence of a nuclear power reactor, thereby extending its lifetime. Six years later, facing a rapidly increasing number of communications from NGOs and members of the public regarding LTO, the Meeting of the Parties completed a three-year long effort by endorsing the “Guidance on the applicability of the [Espoo] Convention to the lifetime extension of nuclear power plants”. And, in 2019, an equally important evolution was marked by the CJEU in the Doel 1 and 2 case. By deciding, owing to the specifics of this case, that an EIA should have been conducted prior to deciding to postpone the shutdown of these two reactors by ten years, the CJEU confirmed an ongoing trend: environmental procedural requirements for the LTO of nuclear power reactors are increasingly important. Whether this CJEU judgment will be fully applicable to LTO processes in other EU member states remains to be seen, taking into account the varying national legal frameworks. Similarly, the Guidance adopted under the auspices of the Espoo Convention does not provide definitive legal certainty as to whether specific LTO cases will require carrying out a transboundary EIA; but – at the very least – this non-binding instrument provides avenues for parties or domestic courts to reach such conclusion. The trend of increased environmental transparency will likely continue throughout the EU in the next decades.

Finally, from a broader perspective, the question of whether or not the environmental impacts of operating a facility should be reassessed after a certain period of operation should not be seen in the sole context of nuclear energy-related activities. At a time when combating climate change is at the forefront of public policy objectives in the field of environmental protection, especially within the EU, it will be interesting to see whether members of the public and other stakeholders could make use of the same notions and case law to reassess the environmental impacts of already licensed projects and activities at the source of large-scale carbon emissions or significant air pollution, such as coal and gas-fuelled power plants.