



Economic Commission for Europe

Meeting of the Parties to the Convention
on Environmental Impact Assessment
in a Transboundary Context

Meeting of the Parties to the Convention
on Environmental Impact Assessment in
a Transboundary Context serving as the
Meeting of the Parties to the Protocol on
Strategic Environmental Assessment

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**Draft guidance on the applicability of the Espoo Convention to
the lifetime extension of nuclear power plants¹**

**Note prepared by the Co-Chairs of an ad hoc working group based on
inputs from members of this group.**

Summary

This note contains draft guidance on the applicability of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) to the lifetime extension of nuclear power plants. As requested by the Meeting of the Parties to the Convention at its intermediary session (Geneva, 5–7 February 2019, ECE/MP.EIA/27/Add.1–ECE/MP.EIA/SEA/11/Add.1, decision IS/2, para. 9), the draft is presented for consideration of the Working Group on Environmental Impact Assessment and Strategic Environmental Assessment before its submission to the Meeting of the Parties for adoption at its eighth session (Vilnius, 8–11 December 2020).

The present draft has been prepared by Co-Chairs of an ad hoc working group established at the seventh session of the Meeting of the Parties, based on earlier working documents and inputs from members of the ad hoc group. It does not reflect the consensus of the group and therefore has not been validated at this stage. The document is not formally

¹ The views expressed in the note are those of the authors and do not necessarily reflect the opinion of the United Nations Economic Commission for Europe secretariat.

edited nor formatted. An informal Russian translation of the document has been made available by Germany.

The Working Group is invited to review and comment on the draft considering also feedback submitted by delegates in advance of the meeting. It is expected to invite the ad hoc group to reflect its comments and recommendations in a revised draft to be forwarded to the Meeting of the Parties to the Convention for adoption at its next session, through decision VIII/6 (available for the Working Group in document ECE/MP.EIA/WG.2/2020/4).

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[I. Introduction

A. Rationale of the guidance

1. The present guidance has been developed in the framework of the United Nations Economic Commission for Europe (ECE) Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention).² Its objective is to clarify whether and in what circumstances lifetime extensions of nuclear power plants³ require a transboundary environmental impact assessment in accordance with the Convention. Thus, the guidance aims to assist Parties in the practical application of the Convention. Furthermore, it aims to anticipate and avoid related disputes among Parties and to support the Implementation Committee in reviewing compliance by Parties with their obligations under the Convention. The Convention requires Parties to apply its provisions to prevent, reduce and control likely significant adverse transboundary environmental impact of proposed activities listed in its appendix I. With respect to the lifetime extension of nuclear power plants, guidance is needed since the text of the Convention is not sufficiently specific: The list of activities in its appendix I refers to “nuclear power stations” themselves (point 2 (b)) but “lifetime extensions” are not specifically mentioned. Currently the Parties to the Convention have diverging views regarding the Convention’s application to the lifetime extension of nuclear power plants, which has created uncertainty.

2. At its sixth session (Geneva, 2-5 June 2014), the Meeting of the Parties endorsed through decision VI/2 the findings of the Implementation Committee that the extension of the lifetime of the Ukrainian Rivne nuclear power plant, after the initial licence had expired, should be considered as a proposed activity under article 1, paragraph (v), of the Convention, and is consequently subject to the provisions of the Convention. However, in view of the various positions of the Parties on the topic, the Meeting of the Parties did not endorse the Committee’s opinion on the general applicability of that finding to lifetime extensions of nuclear power plants, notably even in the absence of any works.⁴ Decision VI/2 is thus not considered to be applicable to other cases of lifetime extension of nuclear power plants that do not share identical characteristics.

3. At the time of their construction, many nuclear power plants were typically designed for a lifetime of 30 or 40 years. In the coming years, the design life of a significant number of nuclear power plants in the ECE region will be reached. Many of them have a time-unlimited licence whilst others have a time-limited licence, the validity of which will expire⁵. Faced with this situation, Parties that plan to continue the operation of such plants need guidance on whether a transboundary environmental impact assessment procedure is required.⁶ Currently, several cases of the lifetime extension of nuclear power plants are pending before the Implementation Committee each with their own distinctive features (ECE/MP.EIA/WG.2/2018/2, annex IV, para. 3). The Implementation Committee has expressed the urgent need for guidance for the consideration and the development of findings regarding these and any future cases.

B. Mandate of the ad hoc working group

4. Prompted by the Implementation Committee’s call for guidance, at its seventh session (Minsk, 13-16 June 2017), the Meeting of the Parties to the Convention decided to establish

² The Espoo Convention was adopted in 1991 in Espoo, Finland. In force since 2017, it has currently 45 Parties in the UNECE region: <https://www.unece.org/env/eia/ratification.html>. It is in the process of being opened for accession by all Member States of the United Nations.

³ Nuclear power plants is the term used in the guidance. It carries the same meaning as “nuclear power stations and other nuclear reactors” found in appendix I, point 2 (b) of the Convention.

⁴ See annex to ECE/MP.EIA/IC/2014/2, para. 59 and ECE/MP.EIA/2014/L.3, para. 5 (f).

⁵ OECD-NEA, 2019, Legal Frameworks for Long-Term Operation of Nuclear Reactors, NEA No. 7504, pp. 26-27, <https://www.oecd-nea.org/law/pubs/2019/7504-long-term-operation-npp.pdf>.

⁶ The approach of this guidance to the term “lifetime extension” is reflected in chapter II.

an ad hoc working group to draft terms of reference for possible guidance on addressing the applicability of the Convention with regard to decisions on the lifetime extension of nuclear power plants (Decision VII/3-III/3, annex, item I.9)⁷.

5. The terms of reference were adopted by the Working Group on Environmental Impact Assessment and Strategic Environmental Assessment at its seventh meeting (Geneva, 28-30 May 2018). They list relevant criteria for determining the applicability of the Convention as well as topics and related discussion points to be considered by the ad hoc working group (ECE/MP.EIA/WG.2/2018/2, annex IV) when drafting guidance. The Working Group also extended the mandate of the ad hoc working group and invited it to work on the draft guidance based on the terms of reference, taking into account the outcomes of a stakeholder workshop held during the Working Group's meeting (ECE/MP.EIA/WG.2/2018/2, paras. 26 and 28).

6. In its intermediary session (Geneva, 5–7 February 2019), the Meeting of the Parties to the Convention confirmed that the work should be continued by the ad hoc working group and decided to include in the workplan for 2017–2020 the preparation of draft guidance on the applicability of the Convention to the lifetime extension of nuclear power plants (Decision IS/2, para. 6). It also decided that the draft guidance should be finalized for consideration by the Working Group during its ninth meeting, before its submission to the Meeting of the Parties for adoption at its eighth session to be held in Vilnius from 8 to 11 December 2020 (Decision IS/2, paras. 8–9).

7. [Text on ninth meeting of the Working Group]

C. Preparatory process for the guidance

8. The ad hoc working group drafted the guidance in consultation with the Working Group on Environmental Impact Assessment and Strategic Environmental Assessment. The ad hoc working group consulted past decisions adopted by the Meeting of the Parties as well as relevant guidance documents and good practice recommendations. It also took into account input provided by the Implementation Committee as well as the views of relevant international organisations and non-governmental organisations.

9. The following Parties to the Convention nominated representatives to the ad hoc working group: Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, Croatia, Czechia, European Union, Finland, France, Germany, Greece, Italy, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom of Great Britain and Northern Ireland. The ad hoc working group was co-chaired by Germany and the United Kingdom of Great Britain and Northern Ireland. The secretariat to the Convention supported the work of the ad hoc working group.

10. The ad hoc working group held eight meetings in 2017-2019.⁸ In 2020, due to the COVID-19 pandemic, three further meetings were cancelled,⁹ and work was continued via written procedure and on-line meetings.

11. The ad hoc working group reported on its progress to the intermediary session of the Meeting of the Parties in February 2019 (ECE/MP.EIA/2019/10) and to the Working Group at its eighth meeting (ECE/MP.EIA/WG.2/2019/INF.6) in November 2019. Three workshops were held to inform and consult representatives from international organisations and non-

⁷ ECE/MP.EIA/23.Add.1-ECE/MP.EIA/SEA/7.Add.1.

⁸ During its meetings in Luxembourg (27–28 November 2017) and in Brussels (20–21 February 2018), the ad hoc working group developed the terms of reference. During the subsequent meetings in Berlin (20–21 June 2018), London (2–3 October 2018), Geneva (25–26 March 2019), Lisbon (3–4 June 2019), Rotterdam (8–9 October 2019) and Vienna (3–4 December 2019), the ad hoc group concentrated on the preparation of the guidance itself. Summaries of the meetings can be accessed from the UNECE website.

⁹ Rome (March 2020), Sofia (April 2020) and Espoo (June 2020).

governmental organisations.¹⁰ Additionally, the Co-Chairs met regularly with representatives of non-governmental organizations to discuss the terms of reference and the draft guidance.¹¹

D. Input used from other fora

12. In accordance with common practice for the interpretation of legal documents, the ad hoc working group discussed and took account of relevant work conducted in other fora when preparing the guidance. It was noted that despite many commonalities across these fora, the specific legal and procedural context for their work differs from that of the Espoo Convention. However, it was also noted that Parties have to ensure consistency between their relevant international obligations. Therefore, the content of this guidance reflects the work of these other fora only to the extent to which it appears to be relevant in the context of the Convention and does so with a view to assisting Parties that are considering how the Convention is to apply to the lifetime extension of nuclear power plants.

13. There is a close relationship between the Espoo Convention and the EIA Directive. All EU Member States, and the EU itself, are Parties to the Convention. The EIA Directive was modified in 1997, *inter alia* to take account of the requirements of the Convention. Both the Espoo Convention and the EIA Directive provide for an environmental impact assessment of certain proposed activities or projects with a view to preventing, reducing and controlling their likely significant adverse transboundary impacts. Both lay down the procedural steps to be followed and for both the precautionary principle applies as a guiding principle in interpreting their provisions.

14. On 29 July 2019, the Court of Justice of the European Union (CJEU) published its judgement in case C-411/17 concerning compliance by Belgium with Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (EIA Directive)¹² in regard to measures which have the effect of extending the duration of consents for the Doel nuclear power plants to produce electricity for industrial purposes.¹³ In this judgement, the Court concluded that, in principle, under the specific conditions of the case in question, an environmental impact assessment must be carried out according to the EIA Directive. In making this ruling however, the Court did not consider the applicability of the Espoo Convention.

15. There are also links between the Espoo Convention and the Aarhus Convention. All but two of the current Parties to the Espoo Convention are also Parties to the Aarhus Convention¹⁴ and thus bound to meet the obligations of both instruments. The Aarhus

¹⁰ A first workshop held in Geneva during the seventh meeting of the Working Group on 28-29 May 2018 was on the terms of reference. A summary report of this Workshop was attached to the report of the meeting of the Working Group (ECE/MP.EIA/WG.2/2018/2, annex I). A second workshop held in Lisbon on 5 June 2019 and organised by the International Association for Impact Assessment (IAIA) and the Portuguese Association for Impact Assessment focused on environmental and health impacts of lifetime extensions of nuclear power plants. Documents of this workshop can be accessed from the UNECE website (<https://www.unece.org/index.php?id=51625>). In the third workshop held in Vienna on 2 December 2019 substantial elements of the draft guidance itself were discussed. Documents of this workshop can be accessed from the UNECE website (<https://www.unece.org/index.php?id=52767>).

¹¹ These meetings took place in Brussels (8 August 2018 and 18 December 2018) and Bonn (17 June 2019 and 16 October 2019). Due to the COVID-19 pandemic the following meeting (28 May 2020) had to be carried out on-line. Summaries of the meetings can be accessed from the UNECE website.

¹² Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, OJ L 26, 28.1.2012, p. 1.

¹³ Court of Justice of the European Union, Judgement of 29 July 2019, *Inter-Environnement Wallonie ASBL and Bond Beter Leefmilieu Vlaanderen*, C-411/17, ECLI:EU:C:2019:622.

¹⁴ Currently, the Espoo Convention has 45 Parties of which all except Canada and Liechtenstein are also Parties to the Aarhus Convention. For up to date status of ratification of the Espoo Convention see: <https://www.unece.org/env/eia/ratification.html>. For the Aarhus Convention see: <https://www.unece.org/env/pp/ratification.html>.

Convention does not contain obligations for environmental impact assessment. However, it requires access to information and public participation on decisions to permit activities which may have a significant effect on the environment, including activities subject to environmental impact assessment under the Espoo Convention. Public participation is a key aspect in the environmental impact assessment according to the Espoo Convention.

16. On 4 October 2018, the Aarhus Convention Compliance Committee adopted its findings and recommendations with regard to communication ACCC/C/2014/104, concerning the compliance by the Netherlands in relation to the lifetime extension of the Borssele nuclear power plant (ECE/MP.PP/C.1/2019/3). In this case, the Compliance Committee held that the Aarhus Convention's public participation requirements apply to a decision to amend a licence to extend the design life of the nuclear power plant.

17. In November 2019, the OECD Nuclear Energy Agency published a report on "Legal Frameworks for Long-Term Operation of Nuclear Power Reactors" prepared by its Working Party on the Legal Aspects of Nuclear Safety (WPLANS).¹⁵ It has been used as a source of factual information on the different legal frameworks in various countries. The ad hoc working group also took note of some of the work of the International Atomic Energy Agency (IAEA) notably as regards questions of terminology.¹⁶

E. Scope of the guidance

18. The guidance provides assistance to Parties in determining whether or not a transboundary environmental impact assessment procedure is required for [decisions on] the lifetime extension of a nuclear power plant as well as to the Implementation Committee in assessing whether the relevant requirements of the Convention have been met.

19. "Lifetime extension" is a term without an established legal definition under international law. The guidance follows a pragmatic approach to this issue. For this reason, certain situations will be described which are usually discussed under the topic "lifetime extension of a nuclear power plant" (see chapter II). These situations will therefore be covered by the guidance and at the same time will limit its scope. However, the inclusion of these situations in the guidance does not necessarily mean that the Convention will apply to them. The applicability of the Convention to situations considered to be a lifetime extension will be reflected in subsequent chapters.

20. The guidance includes considerations which may be regarded as relevant also in the context of other activities. The applicability of the Convention to the lifetime extension of other activities listed in appendix I to the Convention was however not within the remit of the ad hoc working group and therefore not part of its work.

21. The guidance focuses only on requirements under the Convention. It does not therefore reflect technical or legal factors which may allow for a lifetime extension of a nuclear power plant to be carried out. The Convention is a procedural instrument which, subject to certain conditions being met, requires Parties to conduct an environmental impact assessment according to its provisions. If the Convention applies to the lifetime extension of a nuclear power plant, a Party of origin must conduct a transboundary environmental impact assessment in accordance with its provisions taking due account of the outcome of this assessment in its final decision on that lifetime extension. The Convention has no other bearing upon the decision on whether or not to prolong the operating lifetime of a nuclear power plant.¹⁷ This decision is taken by Parties in accordance with their sovereign rights by applying their respective national legal frameworks, including nuclear safety requirements.

¹⁵ OECD-NEA, 2019, Legal Frameworks for Long-Term Operation of Nuclear Power Reactors, NEA No. 7504, <https://www.oecd-nea.org/law/pubs/2019/7504-long-term-operation-npp.pdf>.

¹⁶ See the glossary of terms in annex I.

¹⁷ According to decision IV/2 adopted by the Meeting of the Parties to the Espoo Convention at its fourth session (19–21 May 2008) "initiation of the transboundary procedure under the Convention does not prevent the Party from undertaking a proposed activity after having carried out the transboundary procedure, provided that due account is taken of the transboundary procedure's outcome in the final decision." (annex I, para. 55).

As such there is no need to elaborate on these issues in this guidance. Nevertheless, some parts of the guidance will touch upon nuclear safety issues with a view to providing necessary context.

22. In this respect it has to be noted that terms such as design life and periodic safety review used in the guidance have been defined by international organisations such as the International Atomic Energy Agency. The guidance lists such definitions in a glossary of terms attached as annex I.

F. Structure of the guidance

23. The guidance concentrates on the interpretation of the articles that are relevant for determining the applicability of the Convention to the lifetime extension of nuclear power plants. According to article 3, paragraph 1, the Espoo Convention applies to “proposed activities” listed in appendix I of the Convention that are “likely to cause a significant adverse transboundary impact”.

24. Article 1, subparagraph (v) of the Convention defines “proposed activity” starting with “any activity or any major change to an activity”. Chapter III elaborates the meaning of these two terms in regard to the lifetime extension of nuclear power plants. It lays out different factors the presence of which may, on a case-by-case basis, trigger the classification of a lifetime extension as a major change to the activity of the existing nuclear power plant.

25. According to article 3, paragraph 1 of the Convention, a transboundary procedure is only required if the continuation of the activity is “likely to cause significant adverse transboundary impact”. The meaning of the different terms in regard to the lifetime extension of nuclear power plants is elaborated in chapter IV.

26. A “proposed activity” as defined in article 1, subparagraph (v) of the Convention has to be “subject to a decision of a competent authority”. Chapter V outlines the characteristic features of a decision.

G. General considerations and guiding principles

27. The national legal and regulatory frameworks, including those for nuclear power plants, vary between Parties. Consequently, Parties have taken different approaches to implementing the Convention. The Convention sets out requirements for Parties to conduct transboundary environmental impact assessments of proposed activities under its scope, but allows for flexibility regarding its application within the diverse national contexts.

28. The guidance notes the different national legal frameworks and has been developed accordingly to cover the situation of all Parties. A case-by-case approach to assess possible cases of lifetime extension through the consideration of the principles and factors laid down in the guidance is recommended.

29. Notably Parties must act in keeping with the Convention’s objectives of preventing and mitigating significant adverse environmental impact¹⁸ and of enhancing international cooperation in assessing environmental impact, in particular in a transboundary context.¹⁹ They must ensure effective implementation of the Convention’s requirements to planned activities that fall under its scope. The Convention does not apply retrospectively to activities which have already been subject to a final decision²⁰.

30. Recalling decision IS/1, Parties that carry out nuclear energy-related activities should do so in accordance with the Convention, taking into consideration the precautionary

¹⁸ See article 2, paragraph 1 of the Convention.

¹⁹ See the Preamble of the Convention.

²⁰ Article 2, paragraph 3 of the Convention requires an environmental impact assessment to be undertaken *prior* to the decision to authorize or undertake a proposed activity.

principle (para. 8 (a)). This principle underlies the Convention and guides its interpretation and application. Therefore, when assessing, for the purpose of notification, which Parties are likely to be affected, the Party of origin should make the most careful consideration on the basis of the precautionary principle and available scientific evidence (para. 4 (b)). In general, even if a proposed activity appears to have a low likelihood of significant transboundary impacts, it may be advisable to notify potentially affected Parties.²¹

31. Parties are encouraged to apply the Convention in an open-minded and proactive manner in order to best serve its purpose and in case of doubt, to interpret the provisions in a way that ensures consistency with its objectives.

II. Scope of the guidance – lifetime extension of nuclear power plants

A. Factors limiting the lifetime of a nuclear power plant

32. There are factors that may limit the on-going operation of a nuclear power plant. These time-limiting factors can be political, environmental, economic, legislative, safety-related or technical and may occur individually or collectively.

33. From a technical and safety perspective, there is no fixed design life or formally established operating lifetime for a nuclear power plant in its entirety. However, during the operation of a nuclear power plant, many of its structures, systems and components are scheduled to be replaced.²² This may be because particular structures, systems and components have been engineered on the basis of a certain expected design life during which they are expected to perform according to the technical specifications to which they were produced.

34. Other reasons for the replacement of structures, systems and components include ageing, unforeseen degradation or equipment becoming obsolete.²³ Incidents and accidents can also lead authorities to demand that safety improvements are introduced within a certain period of time as a condition for continued operation. Such replacements may fall within the framework of the existing license, depending on the case in question.

35. However, there are some structures, systems and components that are considered non-replaceable or for which replacement is not technically or financially viable.²⁴ The design life of safety critical, non-replaceable structures, systems and components may therefore limit the design life of a plant as a whole.²⁵ However, design life estimates cannot be considered static or absolute; they may be subject to change and review over time.

B. Understanding of the term lifetime extension

36. The guidance does not use the term lifetime extension based on a certain definition, but rather based on a common understanding of the term. The situations which are described

²¹ See para. 28 of the Guidance on the Practical Application of the Espoo Convention, endorsed by decision III/4, para. 1.

²² Examples of such structures, systems and components are steam generators, pipes, valves, cables, and electronics.

²³ Examples of large components that have been replaced are steam generators in many PWRs due to stress corrosion in the tubes. Examples of equipment that have been obsolete and needed to be replaced are instrumentation and control equipment.

²⁴ Examples of such structures, systems and components are the reactor pressure vessel and the containment building.

²⁵ See also the definition of “design life” used by WENRA: “Design lifetime of a nuclear power plant is the minimal value of life-times of all its non-replaceable structures, systems and components.”, RHWG WENRA, 2011, Pilot Study on Long term operation (LTO) of nuclear power plants, http://www.wenra.org/media/filer_public/2012/11/05/ltoofnpps_1.pdf.

in section C ensure broad application of the guidance and seek to avoid further uncertainty that would be caused by a non-inclusive approach.

37. The term lifetime extension is a term without an established legal definition under international law. Without defining it, the term has been used by international organisations such as the International Atomic Energy Agency, the International Energy Agency, and the OECD Nuclear Energy Agency. However, other terms such as long-term operation²⁶ or plant life extensions are also used by these organisations. Such terms are not necessarily interchangeable.

38. The way in which all of these organisations use the term lifetime extension does suggest that it describes a prolongation of the operation of a nuclear power plant determined by licence term, national law, legal or regulatory framework, the design life of the plant or other factors.

39. The Parties to the Convention in accordance with their sovereign right to regulate, have chosen different approaches in regulating nuclear power plants and their lifetime under their national jurisdiction. In some Parties, nuclear power plants have a time-limited licence while in others Parties plants are licensed without any validity period.²⁷ In light of the purpose of the guidance, to provide further clarity for Parties operating nuclear power plants under different legal frameworks, the validity period of a licence represents only one of many factors indicating a lifetime extension. In Parties with unlimited licences other factors may indicate that there is a similar situation. These situations are therefore also included in the guidance as a possible lifetime extension.

40. One of these other factors is the design life of a nuclear power plant (see section A). Another factor is a specific safety review carried out according to an applicable legal or regulatory framework to explore whether the nuclear power plant meets current requirements of nuclear safety and can continue its operation.

C. Situations understood as a possible lifetime extension

41. The guidance acknowledges the technical and legal diversity across the Parties. The differing approaches applied by Parties lead to a number of different situations, which are outlined in broad terms below. Each situation may cover different cases with their own specific features, but each of them has an overarching common element.

42. These situations take account of the common understanding of the term lifetime extension as described in section B. The guidance applies where one of these situations of lifetime extension can be identified by a Party in a case-by-case analysis. The subsequent chapters of this guidance will then guide the Party in working out whether the Convention is applicable or not.

1. Situation 1: The end date of a time limited licence has been reached

43. There are different types of licences for nuclear power plants across Parties. If a licence includes an expiration date, the validity period of that licence may, from a legal perspective, establish its lifetime. A new licence or extension of the existing licence may then be called a lifetime extension.

44. The period of time covered by an environmental impact assessment may also be tied to the validity period of the time-limited licence.

45. Similar to licences including a validity period are situations in which a time-unlimited licence is linked to a national law limiting the production of electricity to a specified date or a certain volume of electricity. The period of electricity production set forth by this law may, from a legal point of view, establish the lifetime of the nuclear power plant. Prolonging that period by changing the respective law may then also be called a lifetime extension.

²⁶ See the glossary of terms in annex I.

²⁷ OECD-NEA, 2019, Legal Frameworks for Long-Term Operation of Nuclear Power Reactors, NEA No. 7504, <https://www.oecd-nea.org/law/pubs/2019/7504-long-term-operation-npp.pdf>.

[2. Situation 2: The nuclear power plant has a time-unlimited licence, but its initial design life has been reached

46. Some safety critical structures, systems and components of a nuclear power plant are non-replaceable and thus indicate its design life (see above, section A). The period of time covered by an environmental impact assessment may also be tied to the design life of the nuclear power plant.

47. An operation of a nuclear power plant beyond its design life may be called a lifetime extension.]

[3. Situation 3: A specific safety review is carried out

48. Nuclear power plants are subject to different types of specific safety reviews such as periodic safety reviews [and time limited ageing analyses].

49. According to the respective national legal or regulatory framework, periodic safety reviews²⁸ are carried out at regular intervals, typically of ten years, and aim to ensure that the nuclear power plant will be able to continue its operation at a high level of safety. The fourth periodic safety review, which may also coincide with the end of the plant's design life, may be regarded as an indicator of a lifetime extension. Some Parties carry out specific safety reviews towards the end of the design life to re-assess and update the initial design studies of non-replaceable structures, systems and components. [Time limited ageing analyses are carried out to validate the structural integrity of major components for extended operation, including the effects of ageing.]]

[4. Situation 4: The nuclear power plant has a time-unlimited licence, and is operating beyond the designed (minimum) lifetime and some comprehensive refurbishment of irreplaceable systems, structures and components is required for the plant to continue operation

50. The time limited ageing analyses, also termed safety analyses that use time limited assumptions, are plant specific safety analyses that consider time and ageing and involve systems, structures and components within the scope of ageing management programs. Some safety critical systems, structures and components of a nuclear power plant are considered irreplaceable. A [decision allowing] comprehensive refurbishment of systems, structures and components, which cannot be replaced, may be considered a lifetime extension of a nuclear power plant.]

III. Guidance on how to determine if a lifetime extension represents an activity or a major change to an activity and on the characteristics of a major change

A. Introduction

51. Before considering the applicability of the Convention to situations understood to be lifetime extensions of nuclear power plants, it is first necessary to establish *if* and *on what basis* the Convention does apply to such situations. Accordingly, this chapter will explore the terminology used in the text of the Convention, in particular the definition of “activity” and “major change to an activity”, and examine how these terms apply in the context of lifetime extensions of nuclear power plants.

B. Lifetime extension as a “proposed activity”

52. The Convention applies to proposed activities which are defined in article 1, subparagraph (v) as follows:

²⁸ See the glossary of terms in annex I.

Proposed activity" means any activity or any major change to an activity subject to a decision of a competent authority in accordance with an applicable national procedure.

53. In order to identify if a situation understood to be a lifetime extension of a nuclear power plant is a proposed activity according to this definition or not, it is necessary to determine if it constitutes an "activity" (see section C) or a "major change to an activity" (see section D) or neither.

54. If neither of these two options is applicable, accordingly, a situation understood to be a lifetime extension is not a proposed activity and therefore falls out of the scope of the Convention.

C. Lifetime extension as an "activity"

55. The Convention provides a list of activities which fall within its scope in appendix I. Point 2 (b) reads as follows:

Nuclear power stations and other nuclear reactors, including the dismantling or decommissioning of such power stations or reactors (except research installations for the production and conversion of fissionable and fertile materials, whose maximum power does not exceed 1 kilowatt continuous thermal load).

56. Whilst this description makes no specific reference to lifetime extension it does indicate that the whole lifecycle of a nuclear power plant is within the scope of the Convention. Lifetime extensions must therefore be considered to be covered by the list of activities even though they are not explicitly mentioned.

57. A lifetime extension represents a prolongation of an existing activity rather than an activity in its own right. The exception to this would be if a nuclear power plant where operation has previously been terminated (most commonly due to the expiration of its license) is subsequently brought back to operation. This may be regarded as an activity in its own right.

D. Lifetime extension as a "major change" to an activity

58. The Convention does not define the term "major change to an activity" or provide examples of relevant changes. Parties have discretion to establish their own national requirements and practices to meet their obligations under the Convention in determining whether a proposed change to an activity that falls under appendix I of the Convention is major or not.

59. This guidance describes possible changes related to a lifetime extension of a nuclear power plant which may, depending on their nature or scale, be classified as a major change to an existing activity according to the Convention. Whether this is the case or not must be determined through a screening carried out on a case-by-case basis.

60. In that screening, particular attention should be given to the Convention's objective of preventing, reducing and controlling significant adverse environmental transboundary impact²⁹. An important factor to consider in this respect is whether the lifetime extension in question, taking account of its specific features, may cause significant adverse environmental impact. In particular where a lifetime extension is accompanied by physical works or operational changes which by virtue of, *inter alia*, their nature or scale, may have effects on in the environment that are similar to those posed by the original activity itself, it should be regarded as a major change.³⁰

²⁹ See article 2, paragraph 1 of the Convention.

³⁰ Similar considerations can be found in the CJEU judgement of 29 July 2019 in case C-411/17. In this judgement, the CJEU came to the conclusion that measures which have the effect of extending, by a significant period of 10 years, the duration of consents to produce electricity for industrial purposes

61. It is important to note however, that any changes covered by the existing licence do not trigger the application of the Convention. The Convention does not apply retrospectively. This can be derived from article 2, paragraph 3 of the Convention, which requires an environmental impact assessment procedure *prior* to the decision to authorize or undertake a proposed activity.³¹

1. Physical works and modified operating conditions

62. Physical works and modifications in the operating conditions related to the lifetime extension of a nuclear power plant may result in a changed intervention in the environment that was not considered in the initial licencing procedure. They may therefore justify the classification of a lifetime extension as a major change to an activity.

63. In practice, most lifetime extensions of nuclear power plants are accompanied by physical works, notably technical changes such as renewal, replacement or updates of systems, structures and components, carried out, *inter alia*, with a view to ensure nuclear safety. A lifetime extension may also be linked with modifications in the operating conditions triggered for example by technical changes or new scientific findings.

64. Whether a lifetime extension accompanied by physical works or modified operating conditions amounts to a major change must be determined through a screening carried out on a case-by-case basis. As outlined above, an important factor in this determination is whether the lifetime extension may be expected to cause significant adverse environmental impacts taking account of the physical works or the modified operation conditions that are envisaged.

65. Where a lifetime extension is combined with major renovation works of a scale that is comparable, with regard to their potential to cause adverse environmental effects, to that when the plant was first put into service, it should be regarded as a major change. This is the case where the nuclear power plant is subject to large scale changes such as a comprehensive refurbishment of systems, structures and components.³² A factor which may indicate the scale of the works are the costs associated with their implementation.³³

66. Where a lifetime extension is accompanied by works or operational modifications of a smaller scale, certain internal or external factors may indicate whether the operation of the modified plant may amount to a major change. One of the factors relevant in this context is changes in the surrounding area or in the environment which may have an effect on the operation of the nuclear power plant and its environmental impact.³⁴ The duration of the lifetime extension is another factor to reflect [(see section D.2)]. A non-exhaustive list of factors to be considered when determining whether a lifetime extension may amount to a major change can be found in annex II to the present guidance.

67. Regarding the broad variety of lifetime extension cases and their specific features, and taking account of the different legal and regulatory frameworks applied by the Parties to the Convention, it is not feasible for this guidance to draw up a specific and detailed list of works

combined with major renovation works 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, must be subject to an assessment of its environmental impact according to article 4 (1) and point 24 of annex I to the EIA Directive (para. 79–80). In making this ruling, the Court did however not consider the applicability of the Espoo Convention.

³¹ See also chapter I, section G.

³² In its judgement of 29 July 2019 in case C-411/17, the CJEU found that some facilities were replaced due to ageing and other facilities were updated. This included upgrading the containment structures of the power stations, renewal of the spent fuel pools, building a new pumping station and adaptation of the base to offer better protection to the power stations against flooding. The work also involved the construction of three buildings, two to host ventilation systems and a third as a fire protection structure (see para. 65–66).

³³ The costs have also been a factor in the CJEU judgement of 29 July 2019 in case C-411/17. The CJEU found that “the evidence available to the Court indicates that the measures at issue in the main proceedings entail major work on the Doel 1 and Doel 2 power stations to upgrade them and ensure that current safety standards are met, as demonstrated by the EUR 700 million investment budget earmarked for those power stations” (para. 64).

³⁴ See chapter IV, section C.1.

and operational modifications which should generally not be considered as major changes. It should be noted however, that physical works undertaken as part of regular maintenance work or ageing management are usually not regarded as major changes. Accordingly, they will usually not trigger the classification of a lifetime extension as a major change. The same applies to the renewal of components and other works or operational modifications for which significant adverse impacts on the environment can be reasonably excluded. Such measures are in any case typically covered by the existing licence.

[2. “Lifetime extension per se”

68. It is unusual for lifetime extensions to be carried out without any associated physical works or operational modifications. Nevertheless, irrespective of whether or not there are physical works or modified operating conditions, the operation of a nuclear power plant beyond its initially envisaged lifetime may result in a changed intervention in the environment that has not been considered in the initial licencing procedure and may represent a major change.

69. Whether the duration of the lifetime extension constitutes a major change in the respective case depends primarily on its length. It is the practice in many countries to extend the lifetime of their nuclear power plants by 10 or 20 years, either as a rule or on a case-by-case basis.³⁵ The screening described in the previous sections may then determine whether or not such a “lifetime extension per se” should be classified as a major change.³⁶

70. [Option to add: A lifetime extension of 10 years or more may be regarded as an indicator of a major change as it may be assumed to have significant different and/or additional impacts on the environment compared to the original operation of the nuclear power plant. The same applies in cases where the lifetime extension has been split into multiple short-term extensions totalling 10 years or more.]

71. [However, short lifetime extensions of a nuclear power plant may, in a case-by-case determination, not result in a significant changed impact on the environment.]

[3. Multiple minor changes

72. During their operational life, nuclear power plants undergo continuous technical changes or operational modifications, inter alia to comply with findings of regular routine inspections or periodic safety reviews. Such changes or modifications are typically not major when considered in isolation. However, where a number of them occur, either in parallel or over a period of time, they may be regarded, for the purposes of a screening on a case by case basis, as one major change which has been split up into multiple minor changes.

73. A lifetime extension linked with multiple minor changes may amount to a major change if the following conditions are met:

74. There must be 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 view to extend the lifetime of the nuclear power plant. Technical documents, management plans, investment plans, administrative acts or laws as well as explanatory memorandums related to administrative acts or laws can be helpful in establishing whether this is the case.

75. Legally, an environmental impact assessment cannot be undertaken retrospectively and must therefore not include minor changes already conducted. It also has to be noted that changes covered by the existing licence do not trigger the application of the Convention (see above, section D).]

³⁵ OECD-NEA, 2019, Legal Frameworks for Long-Term Operation of Nuclear Reactors, NEA No. 7504, pp. 26-27, <https://www.oecd-nea.org/law/pubs/2019/7504-long-term-operation-npp.pdf>.

³⁶ In its findings and recommendations in the case concerning Ukraine (ECE/MP.EIA/IC/2014/2, para. 59), the Espoo Convention Implementation Committee concluded that a major change does not necessarily require physical works. This conclusion was however not endorsed by the Meeting of the Parties (see chapter I, section A).

IV. Guidance on how to determine if a lifetime extension is likely to cause significant adverse transboundary impact

A. Introduction

76. Having established if a particular situation understood to be a lifetime extension of a nuclear power plant is considered as a proposed activity according to the Convention, one must then consider if that lifetime extension is likely to cause significant adverse transboundary impact. Accordingly, this chapter will examine each element of this term, considering a range of aspects which should be taken into account (see section C). It also elaborates on the meaning of a notification in line with article 3 of the Convention (see section D).

B. The Espoo Convention framework

77. In accordance with article 3, paragraph 1 of the Convention, the extension of the lifetime of an existing nuclear power plant would only require a transboundary procedure if such extension was likely to cause significant adverse transboundary impact:

For a proposed activity listed in Appendix I that is likely to cause a significant adverse transboundary impact, the Party of origin shall, for the purposes of ensuring adequate and effective consultations under Article 5, notify any Party which it considers may be an affected Party as early as possible and no later than when informing its own public about that proposed activity.

78. Unlike many national legislative requirements on environmental impact assessment and administrative practices which establish *a priori* a list of activities that are regarded to be likely to have significant adverse impact on the environment³⁷, any determination to apply the Convention includes a consideration of the likelihood and significance of the adverse transboundary impact of the particular proposed activity in question.³⁸

79. Accordingly, under the Convention, a transboundary procedure will only be required for a lifetime extension if a set of cumulative criteria is fulfilled. In determining whether the criteria apply to a lifetime extension, Parties should consider the following, in no particular order:

- (a) What are the possible “adverse environmental impacts” of the lifetime extension?
- (b) Is the lifetime extension “likely” to cause these adverse environmental impacts?
- (c) Are these likely adverse environmental impacts “significant”?
- (d) Are these likely significant adverse environmental impacts “transboundary” and which Parties would be affected?

80. This chapter gives guidance on the interpretation of these criteria in regard to the situations understood to be a lifetime extension of a nuclear power plant outlined in

³⁷ See also Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, OJ L 26, 28.1.2012, pp.1-21, as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014, OJ L 124, 25.4.2014, pp. 1-18. Annex I contains a list of projects for which an environmental impact assessment is required. For projects in annex II the Member State will determine whether the project is subject to an environmental impact assessment.

³⁸ It is noted that the Court of Justice of the European Union (CJEU), in its judgement of 29 July 2019 for Case C-411/17, which provided an interpretation of the EU EIA Directive with a focus on its annex I activities, found in para. 78 that “As regards point 24 of annex I to the EIA Directive, it is evident from the wording and general scheme of that provision that it applies to 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”.

chapter II. As a general rule, the same principles which apply to an assessment of the significant adverse transboundary impacts of a nuclear power plant that is planned to be constructed also apply when considering a planned lifetime extension.

81. When drawing up this guidance, due account has been taken of relevant developments under the Convention. The ECE periodically publishes guidance documents and good practice recommendations to facilitate the application of the Convention as agreed by the Meeting of the Parties. These documents aim to promote the effective application of the Convention by its Parties in assessing environmental impact, in particular in a transboundary context. Some of these documents include advice to the Parties on how to read and apply the term “likely to cause significant adverse transboundary impact”. Another important source are decisions adopted by the Meeting of the Parties. These decisions may include an agreed interpretation of the Convention, and thus contribute to promoting the effective implementation of the Convention. Some of them include text related to identifying and notifying likely significant adverse transboundary impact.

C. Likely to cause significant adverse transboundary impacts

1. Adverse impacts of lifetime extensions of nuclear power plants

82. The Convention defines the term impact, but not the term adverse impact. Article 1, subparagraph (vii) reads as follows:

Impact means any effect caused by a proposed activity on the environment including human health and safety, flora, fauna, soil, air, water, climate, landscape and historical monuments or other physical structures or the interaction among these factors; it also includes effects on cultural heritage or socioeconomic conditions resulting from alterations to those factors.

83. In order to identify the possible adverse impacts of a lifetime extension it is necessary to undertake an environmental impact assessment prior to the decision on lifetime extension. That assessment must consider the current state of the nuclear power plant and the proposed modifications to be implemented in the framework of the lifetime extension as well as the current state of the environment, including the environment of areas under the jurisdiction of other Parties likely to be affected.

84. All relevant adverse environmental impacts arising from the lifetime extension of the nuclear power plant have to be taken into consideration. In this context it must be noted that changes in the environment of potentially affected areas may have occurred over time that will have to be considered, inter alia an increase in population density or an effect of climate change. On the other hand, certain technical changes and operational modifications implemented during the lifetime of the plant, including in the framework of any lifetime extension, may also have a positive effect as compared to the impacts caused by the initial operation.

85. Generally, the types of impact caused by the extended operation of a nuclear power plant are similar to those of a “new” nuclear power plant considered in its initial operation. These impacts include all of the following:

- (a) Impacts resulting from operational states;
- (b) Impacts resulting from design-basis accidents;
- (c) Impacts resulting from design extension conditions; and
- (d) Impacts resulting from beyond design basis accidents, including major severe accidents.

86. When considering significant adverse transboundary impacts, the Meeting of the Parties in its intermediary session of 2019 focused – as laid down in decision IS/1, paragraph 4 (b) – on the likelihood of a major accident, an accident beyond design basis and a disaster:

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 a 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.

87. In paragraph 8 (a) of the same decision, the Meeting of the Parties emphasized that:

Parties to the Convention that carry out nuclear energy-related activities should do so in accordance with the Convention, in a sustainable manner, taking into consideration the precautionary and polluter pays principles, and respecting international nuclear safety standards and relevant environmental legislation.

88. Furthermore, in paragraph 8 (b) of the same decision, the Meeting of the Parties emphasized that:

Close cooperation and improved mutual understanding of the practices and needs of other Parties in the field of nuclear energy will facilitate the application of transboundary environmental procedures in full compliance with the Convention and the Protocol.

89. According to these principles, when considering the possible adverse impacts of the lifetime extension of a nuclear power plant, notably accidents, attention must be given to various factors including available scientific evidence and international nuclear safety standards, as well as the precautionary principle and the objective of enhancing international cooperation and mutual understanding between Parties.

90. [Option 1 to add: On this basis, the Party of origin should also apply the Convention and notify potentially affected Parties in cases in which the competent authority comes to the conclusion that the likelihood of certain types of accidents is very low. Whether these types of accidents can be excluded from the scope of the environmental impact assessment or not may then be discussed with the potentially affected Parties to reach a mutual understanding.]

91. [Option 2 to add: On this basis, all types of accidents, except the ones that can be considered with a high degree of confidence to be extremely unlikely to occur, are taken into consideration when determining whether the decision on extension of the nuclear power plant is likely to cause significant adverse transboundary impact on the environment. However, it is not within the scope of this guidance to define precisely which accidents must be considered. It is rather the responsibility of the relevant competent authorities to assess which accident scenarios and significant adverse transboundary impacts relevant to the nuclear power plant in question have to be considered.]

92. [Option 3: Add neither option 1 nor option 2]

2. Likely

93. Although the term “likely” is used throughout the Convention, it is neither defined nor are criteria provided for doing so.

94. With respect to the consideration of the risk of major accidents, the 2017 Good Practice Recommendations on the Application of the Convention to Nuclear Energy-related Activities, endorsed by the Meeting of the Parties through paragraph 17 of decision VII/6 recommended the following:

Parties of origin are invited to consider the risk of major accidents and/or disasters which are relevant to the project when determining the likelihood of significant transboundary impact.

95. However, major accidents and disasters are not defined.

96. Decision IS/1 of the Meeting of the Parties quoted above in section C.1 highlighted that the likelihood of a significant adverse transboundary environmental impact can be very high, if the accident occurs, although the likelihood of a major accident, an accident beyond the design base or a disaster occurring, is very low. Therefore, when assessing 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.

97. According to this decision both aspects – the probability of accidents as well as the significance of the impacts – must be taken into account when considering whether the activity is likely to cause significant adverse transboundary impact. Consequently, the assessment must not only concentrate on the probability but also consider the potential impact to the environment of another Party.

3. Significance

98. Significance is a core concept in the process of transboundary environmental impact assessment. However, the term is not defined; nor are any thresholds or criteria provided for doing so.

99. The Parties to the Convention have discretion in determining the significance of adverse environmental impacts. At the national level there are various approaches used to determine such significance. For the purpose of this guidance, it is recommended that significance is assessed in the light of the specific characteristics of the proposed activity in question and its possible impact. This assessment should be conducted on the basis of technical expertise and available scientific evidence, taking into account *inter alia* the objectives of the Convention as described in Decision IS/1, and the views of the public. The assessment should be as objective as possible although there will always be an element of judgement involved.

100. Many risks related to the significant adverse transboundary impacts are characterized by a low likelihood. Deriving from decision IS/1 of the Meeting of the Parties, quoted above in section C.1, a systematic evaluation of potential significant adverse transboundary impacts of low likelihood, including from accidents beyond the design basis, is important when assessing the impacts of nuclear power plants. Parties must also take into account impact accumulation from different events which when considered individually may appear insignificant.

101. Although the Convention does not directly provide any definition of the term significant, appendix III should be applied in this context. The criteria listed in this appendix are also valid for activities listed in appendix I and provide for some general guidance which may serve as a suitable framework to determine the significance of adverse impacts deriving from lifetime extensions.

4. Transboundary

102. The term “transboundary impact” is defined by the Convention in article 1, subparagraph (viii) as follows:

Transboundary impact means any impact, not exclusively of global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party.

103. The transboundary nature of an impact will generally vary depending on both the impact itself and the location of the nuclear power plant in question. Some impacts may not be relevant for any other state, others may only be relevant for neighbouring states, whilst others may have a more extensive reach. Similarly, whilst impacts from normal operation will often only be of a local nature, impacts from accidents can also be transboundary.

104. As regards the location of the nuclear power plant, a plant which is located close to an international border or a transboundary watercourse is more likely to have a transboundary impact than one located elsewhere. As discussed in section C.1, the assessment of impacts must consider relevant aspects of the current state of the environment, including the environment of areas under the jurisdiction of another Party. Changes in the environment of these areas which have occurred since the activity began may affect the transboundary nature of the impacts.

D. Notification

105. The individual criteria for “likely significant adverse transboundary impact” are closely linked with the question of who to notify about a proposed activity. The 2017 Good Practice Recommendations on the Application of the Convention to Nuclear Energy-related Activities, endorsed by the Meeting of the Parties through paragraph 28 of decision VII/6, emphasized the importance of a wide notification:

Given the great public concern and national interests involved when it comes to nuclear energy-related activities, a wide notification, i.e., beyond neighbouring Parties, could prevent later misunderstandings and potential disputes. In this context, willingness to involve Parties that were at first not notified but proactively requested notification in accordance with article 3, paragraph 7, of the Convention could prevent potential disagreements later.

106. In 2019, the intermediary session of the Meeting of the Parties adopted decision IS/1 on “General issues of compliance with the Convention”. In its paragraph 4, the decision includes text related to notification:

(a) Early and appropriately wide notification in accordance with the Convention, regardless of the number of the affected Parties, plays an essential role in the transboundary procedure, in keeping with the precautionary approach and the principle of prevention enshrined in the Convention and with the Convention’s objective of enhancing international cooperation in assessing environmental impact, in particular in a transboundary context, as mentioned in its preamble;

[...]

(c) Where no notification has taken place in accordance with article 3, paragraph 1 of the Convention, but where a Party that considers that it would be affected by a likely significant transboundary environmental impact of a proposed activity listed in appendix I to the Convention enters into discussions on the application of the Convention with the Party of origin, that discussion should be conducted under article 3, paragraph 7, of the Convention. It may also be regarded as good practice to offer Parties that have indicated their wish to be notified under article 3, paragraph 1, an opportunity to receive a notification in line with the provisions of the Convention.

107. The Party of origin should take both the recommendations³⁹ and decision IS/1 into account when determining which Parties it notifies about a lifetime extension. Such notification may result in the conclusion that a transboundary procedure is not necessary. There is a close connection between the assessment of the likely significant adverse transboundary impact and the obligation to notify. In line with decision IS/1, Parties should make the most careful consideration on the basis of the precautionary principle and available scientific evidence when determining for the purpose of notification which adverse impacts are likely, significant and transboundary.

108. Article 3, paragraph 7 of the Convention allows for the opinion of any party which considers itself to be affected to be taken into account by the party of origin. In a situation where neither specific information on the likely significant adverse transboundary impacts nor any other general characteristics of the proposed activity are considered sufficient to arrive at a definite conclusion, the Party of origin is encouraged to notify widely in order to reach a mutual understanding. A wide notification may thus help to avoid long and burdensome procedures.

³⁹ These recommendations were adopted by decision VII/6.

V. Lifetime extension of nuclear power plants subject to a decision of a competent authority in accordance with an applicable national procedure

A. Introduction

109. The previous chapters analysed if and when a particular lifetime extension of a nuclear power plant is to be treated as an activity or a major change to an activity, and if that extension is likely to cause a significant adverse transboundary impact. This chapter will consider how a lifetime extension may amount to a “proposed activity” subject to a “decision” in accordance with the Convention and the characteristics of a decision made by a “competent authority”.

110. In this chapter the following topics will be examined:

- (a) Characteristic features of a “decision” (section C);
- (b) Multi-stage authorization procedures (section D); and
- (c) Lifetime extension by a specific domestic law (section E).

B. The Espoo Convention framework

111. This chapter deals with the decision element of the definition of “proposed activity” as provided in article 1, subparagraph (v) of the Convention:

Proposed activity means any activity or any major change to an activity subject to a decision of a competent authority in accordance with an applicable national procedure;

112. Article 2 of the Convention contains general provisions regarding the obligations of the Parties under the Convention. Article 2, paragraph 2 addresses the requirement to take the necessary legal, administrative or other measures to implement the Convention:

Each Party shall take the necessary legal, administrative or other measures to implement the provisions of this Convention, including, with respect to proposed activities listed in Appendix I that are likely to cause significant adverse transboundary impact, the establishment of an environmental impact assessment procedure that permits public participation and preparation of the environmental impact assessment documentation described in appendix II.

113. Article 2, paragraph 3 states that the environmental impact assessment must be undertaken prior to a decision to authorize or undertake a proposed activity:

The Party of origin shall ensure that in accordance with the provisions of this Convention an environmental impact assessment is undertaken prior to a decision to authorize or undertake a proposed activity listed in Appendix I that is likely to cause a significant adverse transboundary impact.

114. Any interpretation of article 2, paragraphs 2 and 3 must be made in line with other provisions of the Convention such as article 1, subparagraph (v), as well as with the purpose of the Convention.

115. [Option 1: Article 2, paragraphs 2 and 3 of the Convention require Parties to establish decision-making procedures for all activities listed in Appendix I as well as major changes to these activities. This chapter outlines the characteristic features of a decision.]

116. [Option 2: Without anticipating a specific interpretation of article 2, paragraphs 2 and 3 of the Convention, the outcome of an environmental impact assessment must be taken account of in a decision. This chapter outlines the characteristic features of a decision.]

C. Characteristic features of a “decision”

117. In practice, all nuclear power plants are subject to an authorization⁴⁰ regime and undergo continuous safety assessment, monitoring (including environmental monitoring) and inspection throughout their entire lifecycle overseen by the relevant competent authority. In addition to this, it is the responsibility of the competent authorities to ensure that operation complies with the conditions of the relevant authorization and that the operator takes any required action to ensure compliance and nuclear safety. Depending on the specific procedure of the Party in question, a competent authority has to carry out assessments and evaluate the operation of a nuclear power plant at various points, inter alia in the context of a lifetime extension. Such considerations include the question of whether the nuclear power plant will be allowed to continue its operation unchanged (or without any major changes); whether an intervention, such as measures related to improving nuclear safety, are required in order for the operation to continue; or whether the operation has to cease. The conclusions drawn by a competent authority may be viewed as an administrative decision or be the triggering factor for the initiation of an administrative procedure leading to a decision. However, it is important to note that not all such decisions taken by a competent authority on activities mentioned in appendix I of the Convention serve the purpose of an authorizing function within the meaning of the Convention (see section C.3).

1. Subject of the decision

118. The term “decision” may apply in national procedures to authorizations which have the purpose of allowing the operator to carry out (or continue to carry out) a certain proposed activity. A final decision in the sense of the Convention therefore is typically related to the initial permitting of the proposed activity or an authorization to carry out major changes in the operation of the nuclear power plant.

119. According to article 2, paragraph 3 of the Convention environmental impact procedures are carried out to inform “decisions to authorize or undertake a proposed activity”. Furthermore, the definition of “proposed activity” in article 1, subparagraph (v) of the Convention puts the focus on decisions taken in the framework of an “applicable national procedure”. Each Party has the responsibility to determine what could be, according to its national legislation, a final decision of lifetime extension relating to the extension, continuation, renewal or modification of authorizations allowing previous operation.

120. In this case, and if the criteria outlined in the previous chapters are met, a transboundary environmental impact assessment in accordance with the Convention must be carried out to inform that final decision on lifetime extension.

2. Characteristics of the final decision

121. What counts when determining a final decision is not the title (e.g. “license” or “permit”) but rather the authorizing function with regard to the rights or duties of the operator, equivalent to that of a license, a consent or a permit. Internal procedures or considerations of a competent authority not followed by an authorization to extend the lifetime of the nuclear power plant would therefore not be sufficient to meet the criteria of a “decision” as laid down in the Convention.

122. In addition, article 6, paragraph 1 of the Convention requires Parties to take account of the outcomes of the environmental impact assessment in the final decision on the proposed activity:

The Parties shall ensure that in the final decision on the proposed activity, due account is taken of the outcome of the environmental impact assessment, including the environmental impact assessment documentation, as well as the comments thereon received pursuant to article 3, paragraph 8, and article 4, paragraph 2, and the outcome of the consultations referred to in article 5.

⁴⁰ In this chapter, the term “authorization” is used as an umbrella term for authorizations, permits, licences and other permissions.

123. Indeed, as laid out in the preamble of the Convention, the transboundary environmental impact assessment is related to the decision procedure as it is a tool designed for decision makers to have more knowledge about the environmental impacts of projects and the public's opinion. It therefore has to be undertaken prior to the final decision.⁴¹

3. Findings after daily operational routines and specific safety reviews

124. In the context of a nuclear power plant, findings related to daily operational routines, are not to be considered decisions within the meaning of the Convention. In the same way, a specific safety review, such as a periodic safety review⁴², is in itself, due to its nature and purpose, neither a decision according to the Convention nor a decision on a lifetime extension. The same is true of any findings which may result from a specific safety review.

125. Such findings include:

(a) The situation when a competent authority finds that the nuclear power plant is operating within its license conditions or regulatory requirements and can continue operation unchanged, or that there are license conditions that ought to be fulfilled to operate within the permit⁴³;

(b) The situation when a competent authority may order the operation to be provisionally suspended for a certain period of time in order to allow the operator to come into compliance with its license conditions or regulatory requirements;

(c) The situation where there are inspection findings which require subsequent measures to be applied.

126. Both daily operational routines and specific safety reviews may be followed by an authorization issued in order to transpose the findings of that review. Depending on the findings, the authorization may require the operator to carry out safety improvements at the plant before continuing its operation or in parallel with its continued operation. In some countries the operator must receive such an authorization from the competent authority in order to be allowed to operate following the review. In such cases this authorization may meet the criteria of a decision. It is also sometimes the case that a specific safety review is used in support of the decision-making process for a licence extension or renewal. However, there is no systematic correlation between periodic safety reviews and the authorization regime.

D. Multi-stage authorization procedures

127. In some Parties, the authorization procedure for a lifetime extension could take place in a series of stages, where one of those stages is a principal decision and another is an implementing decision.

128. The transboundary environmental impact assessment in respect of any proposed activity should, in principle, be carried out as soon as it is possible to identify and assess all possible significant adverse transboundary impacts that the proposed activity is likely to have on the environment. As an implementing decision cannot extend beyond the parameters set by the principal decision, the effects which the project may have on the environment should be identified and assessed prior to the principal decision.⁴⁴ Only if those impacts are not

⁴¹ Also, article 2, paragraph 3 of the Convention requires the Party of origin to ensure that an environmental impact assessment is undertaken *prior* to a decision to authorize or undertake a proposed activity listed in Appendix I that is likely to cause a significant adverse transboundary impact.

⁴² See the glossary of terms in annex I.

⁴³ For example, the need to clarify certain aspects of the management system and measures related to waste management.

⁴⁴ In its judgement of 29 July 2019 in case C-411/17 the CJEU found that the environmental impact assessment needs to be conducted before the principal decision in a multi-tier decision making process (paras 85-86). The CJEU based its findings on the EIA Directive and did not interpret the Espoo Convention.

identifiable at that time can the environmental impact assessment be carried out prior to the later implementing decision.

E. Lifetime extensions by a specific domestic law

129. The Convention does not provide a definition for “decision” but by referring to a “competent authority” and a “national procedure” in the article 1 subparagraph (v), it seems to place the focus primarily on administrative decisions:

Proposed activity” means any activity or any major change to an activity subject to a decision of a competent authority in accordance with an applicable national procedure.

130. This interpretation is also compatible with the definition of “competent authority” in article 1, subparagraph (ix), which refers to national authorities “responsible for performing the tasks covered by the Convention” or “entrusted by a Party with decision-making powers”:

Competent authority” means the national authority or authorities designated by a Party as responsible for performing the tasks covered by this Convention and/or the authority or authorities entrusted by a Party with decision-making powers regarding a proposed activity.

131. Both definitions strengthen the argument that the Convention, in this respect, applies to administrative processes and resulting decisions.

132. However, in some States, the lifetime of a nuclear power plant is not extended by an administrative decision of a competent authority but rather by a specific domestic law adopted by a legislative body such as Parliament or another competent institution. The relevant provisions of the Convention quoted above refer to authorities and administrative decisions, but do not specifically mention legislative or judicial bodies, nor however do they explicitly exclude them.

133. In this respect, it is relevant to consider not the title of the body or institution, but rather the authorizing function. Indeed, in accordance with an applicable national procedure, it is possible for a legislative or judicial body to operate in an authorizing capacity for a proposed activity. In this case the lifetime extension may in fact be considered to have been granted by a legislative or judicial body acting in an authorizing capacity, therefore requiring the Convention to be applied. This may, however, only be assumed if the domestic law is precise and unconditional and defines the essential characteristics of the lifetime extension, so that these are no longer a matter for reconsideration in the implementing decision.⁴⁵

134. This specific domestic law could be a stage in a multi-stage authorization procedure as discussed in section D.

⁴⁵ In its judgement of 29 July 2019 in case C-411/17 the CJEU found that a legislative act fulfils the characteristics of the decision of a competent authority if it (1) provides, in a precise and unconditional manner for the lifetime extension, and (2) defines the essential characteristics of the lifetime extension, so that, a priori, these should no longer be a matter for debate or reconsideration (paras. 87-88). The CJEU based its findings on the EIA Directive and did not interpret the Espoo Convention.

Annex I: Glossary of terms

1. Throughout the guidance some terms of cross-cutting nature are referenced. This annex lists definitions given by the International Atomic Energy Agency⁴⁶:
2. Beyond design basis accidents:
Postulated accident with accident conditions more severe than those of a design basis accident.
3. Design life:
The period of time during which a facility or component is expected to perform according to the technical specifications to which it was produced.
4. Design-basis accidents:
A postulated accident leading to accident conditions for which a facility is designed in accordance with established design criteria and conservative methodology, and for which releases of radioactive material are kept within acceptable limits.
5. Design extension conditions:
Postulated accident conditions that are not considered for design basis accidents, but that are considered in the design process of the facility in accordance with best estimate methodology, and for which releases of radioactive material are kept within acceptable limits. For nuclear power plants, design extension conditions comprise conditions in events without significant fuel degradation and conditions in events with melting of the reactor core.
6. Long-term operation:
Operation beyond an established time frame set forth by, for example, licence term, design, standards, licence and/or regulations, which has been justified by safety assessment, with consideration given to life limiting processes and features of systems, structures and components (SSCs).⁴⁷
7. Normal operation:
Operation within specified operational limits and conditions. For a nuclear power plant, this includes startup, power operation, shutting down, shutdown, maintenance, testing and refuelling.
8. Periodic safety review:
A systematic reassessment of the safety of an existing facility (or activity) carried out at regular intervals to deal with the cumulative effects of ageing, modifications, operating experience, technical developments and siting aspects, and aimed at ensuring a high level of safety throughout the service life of the facility (or activity).
9. Severe accident:
Accident more severe than a design basis accident and involving significant core degradation.
10. Time limited ageing analysis:
Time limited ageing analyses are plant calculations and analyses that consider the effects of ageing, involve time-limited assumptions defined by the current operating term (for example, 40 years) and generate conclusions or provide the basis for

⁴⁶ Definitions without further reference are taken from IAEA, 2018, Safety Glossary, https://www-pub.iaea.org/MTCD/Publications/PDF/PUB1830_web.pdf.

⁴⁷ IAEA, 2008, Safe Long Term Operation of Nuclear Power Plants, Safety Reports Series No. 57, https://www-pub.iaea.org/MTCD/publications/PDF/Pub1340_web.pdf.

conclusions related to the capability of a structure or component to perform its intended function.⁴⁸

⁴⁸ IAEA, 2006, Long-term Operation – Structures and Structural Components, p. 8, <https://www-ns.iaea.org/downloads/ni/salto/iaea-ebp-lto-23.pdf>.

[Annex II: Factors determining lifetime extension as a “major change”

1. The following factors may be relevant when considering whether a lifetime extension of a nuclear power plant may result in a changed intervention in the environment which has not been considered in the initial licencing procedure. They should be taken account of when determining on a case-by-case basis whether a lifetime extension amounts to a major change.

- (a) Increased use of natural resources;
- (b) Increased production of waste or spent fuel;
- (c) Increased emissions including of radio-nuclides and discharge of cooling-water;
- (d) Increased risks deriving from ageing components;
- (e) Changes in the surrounding area and in the environment;
- (f) Adaptation and mitigation measures to climate change;
- (g) Duration of the lifetime extension; and
- (h) Lack of a transboundary environmental impact assessment in the past.

2. It should also be considered that certain impacts of nuclear power plants on the environment may have decreased over the years due to modifications of the licence or changes made within the limits of the existing licence.]]
