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Promemoria

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Interim report 2: Report on the National Nuclear New-build Coordinator's mission regarding the expansion of nuclear power in Sweden – January 2025

Summary

The National Nuclear New-build Coordinator's second interim report provides a clarified recommendation on how a programme organisation may be designed. The coordinator recommends the establishment of a state-owned company that invests in new nuclear power capacity. By investing in several projects that get financial support from the state's financing model, lock-in effects regarding learning can be avoided. In this way, a higher cost-efficiency and a more responsible use of tax-payers money can be achieved.

The coordinator also proposes regional cooperation with neighbouring countries regarding skills and supply chains.

The report also provides a follow-up of activities of the National Nuclear New-build Coordinator since the previous interim report (June 2024), a summary of ongoing activities for new nuclear power and an assessment of the possibility to fulfil the goals in the Swedish Government's roadmap for new nuclear power.

1. Introduction

In this interim report, the public inquiry "A national coordinator for the expansion of nuclear power"[1] (hereinafter referred to as the "National Nuclear New-build Coordinator" or "the inquiry") gives an overview on the

[1] Terms of reference (in Swedish).

ongoing work and provides some clarifications and new conclusions regarding the preparations for new nuclear power in Sweden. The report also provides a brief description of the work carried out since the last interim report[2], which was published in June 2024.

2. The work of the nuclear new-build coordination office

The work during the first six months of the inquiry was characterised by meetings with external stakeholders and an orientation into the challenges for various actors in relation to the expansion of nuclear power in Sweden. In contrast, the second half of 2024 has been characterised by more internal work linked to the activities within the Swedish Government Offices. It has been about initiating processes and following up on the work of the Government Offices, state agencies and ongoing public inquiries. Furthermore, continued search for obstacles to the expansion has been conducted. Some of the activities are described below in the section on follow-up of interim report 1.

Since 28 October, the office has been expanded with one employee.

3. Follow-up on interim report 1

In the interim report 1 published in June 2024, the inquiry presented eight specific recommendations to the government regarding measures to simplify the expansion of nuclear power in Sweden. Three of them are currently being assessed within the Government Offices and have not yet resulted in concrete assignments or measures. These are the establishment of a programme organisation, the implementation of a system study and the establishment of a national value chain. The recommendation regarding the need for a programme organisation is clarified in section 4.

The recommendations in interim report 1 on an analysis of building regulations and work environment requirements have resulted in governmental assignments to the National Board of Housing, Building and Planning's and to the Swedish Work Environment Authority's. The Swedish Radiation Safety Authority has been instructed by the Government to carry out a mapping of requirements related to the licensing of new nuclear power

[2] Swedish Government Inquiries (2024): Interim report: The nuclear new-build coordinator's recommendations regarding the expansion of new nuclear power in Sweden – June 2024, (Komm2024/00450/KN 2024:01-1/)

plants and to carry out the work in dialogue with the National Board of Housing, Building and Planning.

Regarding the granting of building permits for nuclear facilities, which was briefly mentioned in interim report 1, the coordinator has chosen not to proceed with the recommendation to lift the process from the municipalities. Municipalities with experience in nuclear activities have stated that such permitting processes are admittedly extensive, but manageable.

To strengthen the local planning of new nuclear power plants, the nuclear new-build coordination office has established a collaboration platform for public actors. The first meeting of the platform took place in Jönköping on November 6 with around 50 participants from municipalities, regions, county administrative boards and relevant authorities. The aim was, among other things, to exchange knowledge and experiences from early activities undertaken in certain municipalities and from experienced nuclear power municipalities. A total of 14 municipalities participated in the meeting. In the autumn of 2024, the Swedish Environmental Protection Agency, on behalf of the Ministry of Climate and Enterprise, announced funding for municipal pilot projects with the aim of developing effective operational procedures for nuclear energy permitting. In the first call, 11 municipalities received a total of SEK 10 million for such development work. Additional funding is intended to be distributed early 2025.

In interim report 1, the importance of better understanding the need for nuclear expertise was emphasized. In December 2024, the Swedish Energy Agency presented a report regarding the competence needs for the electrification.[3] The report contains an analysis of the need of competences for the nuclear expansion but does not provide any numerical estimates. The Swedish Energy Agency proposes a further developed analysis similar to that carried out in France and the United Kingdom, and that the Swedish Energy Agency should be tasked with carrying out such an analysis. The National Nuclear New-build Coordinator agrees that such an analysis would be valuable. In 2025, the coordinator's office intends to carry out its own analyses in the area of competence in order to identify potential measures as soon as possible.

[3] Energimyndigheten (2024): Kompetens för samhällets elektrifiering - Slutrapportering av regeringsuppdrag att samordna en nationell kraftsamling. ER 2024:28.

In interim report 1, the coordinator described the IAEA's INIR process[4] as a possible tool for structured preparations for new nuclear energy. A full-fledged INIR process extends further in time than the investigation has at its disposal, but an initial self-evaluation will be performed. The current plan is to have an external consultant conduct the analysis to obtain an independent assessment of the status of the Swedish national nuclear infrastructure and the level of preparedness to handle a formal process for establishing new nuclear power in Sweden. The goal is to carry out the analysis in 2025 to capture any additional measures before the final phase of the inquiry in 2026. The nuclear coordination office has carried out an initial rough evaluation of the IAEA's 19 assessment criteria and found that at least seven of them may require some form of additional action.

In addition to the eight recommendations summarised above, interim report 1 underlined the conclusions of an already conducted inquiry, namely the public inquiry on the review of the tasks and responsibilities of state authorities in the energy sector.[5] At the time of writing, the ordinances with instructions for the energy-related authorities have not changed in line with the inquiry's proposals. The coordinator notes that several of the proposals may affect how the authorities manage nuclear power and still recommends that the conclusions to be put into practice.

In the national budget for 2025[6], SEK 30 million has been allocated for initiatives linked to the National Nuclear New-build Coordinator's recommendations and to get a risk-sharing model in place. For 2026, SEK 35 million is proposed for the same purposes and SEK 25 million for 2027.

4. Clarification regarding programme organisation

In interim report 1, a structure between central government and industry was proposed. The structure would be able to handle programme-wide issues and ensure a cost-effective implementation of a nuclear power programme that goes beyond a first new construction project. Over the past six months, the inquiry is even more confident in its conclusion on this need. Given the design of the proposed Swedish model for financing and risk sharing, there

[4] Integrated Nuclear Infrastructure Review (INIR) | IAEA

[5] Uppdrag att se över myndigheters uppgifter och ansvar inom energiområdet

[6] Regeringskansliet (2024): Budgetpropositionen för 2025, Utgiftsområde 21 – Energi. Prop. 2024/25:1.

is reason to clarify the implementation and scope of such a programme organisation.

In the foreseen expansion of new nuclear power in Sweden, individual utilities are expected to choose vendor, apply for a permit and make investment decisions. The role of the Government is to ensure an effective regulatory framework, a financing solution and overall favourable conditions for investments in nuclear power. In several countries, the state takes a more active role, for example by choosing technology and location. In Sweden, this would require a formal procurement procedure. The National Nuclear New-build Coordinator believes that the Swedish model has several advantages because it enables a rapid and distributed expansion since the contracting expertise is already established in multiple companies. In addition, the private sector is not subject to public procurement requirements and can set up the commercial process that is best suited to each individual case. The formal procedure for procuring a nuclear power plant is extremely extensive and time consuming. There is also a risk that the procurement will be appealed, which leads to delays. According to the coordinator's assessment, the Swedish model is a prerequisite for getting new nuclear power in place in line with the Government's roadmap for new nuclear power.

However, the set-up with decentralised projects by competing companies also entails challenges. There is a risk that the expansion as such will be inefficient if the individual construction projects do not take into consideration design conditions of the following projects with other project owners at other locations. It would be beneficial if project owners of the subsequent projects could benefit from work done in the first projects. Important learning effects between the projects will inevitably take place through the supply chain, whose actors will have the chance to carry out similar assignments on several occasions. On the other hand, there is probably no, or low, corresponding effect at the ownership level regarding project management et cetera. In addition, issues related to project scheduling can be challenging if the extensive supply chains are not coordinated in any way. There is a risk that the so-called learning curve, which makes the subsequent projects less costly, will be less pronounced and that lock-in effects will arise regarding lessons learned. Since the Swedish Government, according to the proposal in the memorandum *Financing and*

risk sharing in investments in new nuclear power[7], has an extensive financial interest in the expansion, it should also take responsibility in ensuring that the state supported financing is used in an efficient manner and that a learning curve can be promoted.

Furthermore, the proposed financing model is based on state aid that must be approved by the European Commission. It is an extensive and complex process to get such an approval. For time reasons, this process should be kept as stripped as possible from other government initiatives that may constitute state aid. Therefore, an effort to secure a cost-effective programme should be driven by commercial incentives that do not constitute state aid. One way to achieve a commercial incentive that might contribute to replicable project-specific decisions is to establish a programme organisation in the form of a state-owned nuclear power investment company that invests in all projects that receive support through the financing model. The Government could be the owner of such a company, but it could also be the private sector that contributes with such participation. Given the state's presumed interest in securing a cost-effective programme, and thereby reducing the need for future support mechanisms, the inquiry believes that the Government should form a company that becomes a partner in all projects that receive financial support.

For such a company, which has the stated goal of investing in several nuclear power projects, it makes sense business-wise to contribute to replicable project decisions and solutions. Given that the company's actions are based on commercial grounds, such a solution should not interfere with the state aid processes. With a company that actively participates in all projects, there would be a momentum in the expansion that fosters higher cost-efficiency.

One task of the investment company may be to define design parameters that can be well suited not only for the first reactor, but also for the subsequent ones. The additional cost for the first project may be very small, but the gain for the entire expansion may be very large. Such a company can also, through negotiations with the other partners in each project, ensure ownership of the intangible assets that may be needed for future reactor construction, such as licensing documents and experience databases.

[7] Finansiering och riskdelning vid investeringar i ny kärnkraft (Fi 2023:F)

This company, as briefly described above, must have the necessary expertise to assess the feasibility of the projects in which an investment may be relevant. The possible involvement of the investment company, and its scope, in each individual project must be determined on a case-by-case basis and should not be predetermined.

It is of course good to have an idea, already from the start, of the long-term nature of the investments that the state, through its company, makes in these nuclear power projects. The nuclear new-build coordinator believes that the starting point should be that the Government sells off its ownership shares when the power plant gains its own earning capacity after commissioning. The shares can then be sold to new partners or to other existing owners as they can financially manage a higher ownership share in the project.

Through the establishment of a programme organisation in the form of a state-owned nuclear power investment company, the state contributes to a security in the expansion of nuclear power that provides better conditions for suppliers to make their investments required to create the necessary capacity for an efficient expansion.

5. New recommendation: Developed regional cooperation with neighbouring countries

The establishment of new nuclear power is very competence and resource intensive. It is currently impossible for a country of the size of Sweden to cope with such a task on its own. The same applies to countries in our vicinity that are also planning to build new reactors. Therefore, it is reasonable to establish cooperation between neighbouring countries at an early stage to deal with common challenges linked to competence development and supply chains, in particular. Sweden should take the initiative to cooperate with neighbouring countries with similar interests in new nuclear power and with countries that can contribute to the construction of new reactors in Sweden. The aim should be to enable an efficient exchange of resources in terms of competence development and supply chains. To begin with, cooperation should be established at the political level with the aim of ensuring that the countries involved seek cooperation between each other's industries and that bottlenecks in supply chains are avoided. In the next steps, cooperation should be developed at the industrial level and in the education system.

6. Summary of ongoing activities

The period 2024–2025 can be characterised as a preparatory phase for the submission of a first permit application. During this period, several activities are underway within the Government Offices of Sweden, in public inquiries and at the relevant state authorities. These activities aim to lower the thresholds for nuclear investments by, for example, establishing efficient permitting processes and defining a financing strategy. During this time, there is also an opportunity for the authorities, primarily the Swedish Radiation Safety Authority, to prepare the extensive work initiated by a first licence application. The efforts during the preparation phase are crucial to ensure that the future permitting of new nuclear power will be efficient and for the expansion to be carried out to the lowest cost possible. The table below summarizes finalized, ongoing and planned activities to create the right conditions for new nuclear power development in Sweden.

Promotional measures		
Activity	**Type of event**	**Date**
New energy policy goal of 100% fossil-free energy by 2040	Parlament decision	2023-06-20
Bill on the long-term direction of energy policy[8]	Parlament decision	2024-05-29
Assignment to review the tasks and responsibilities of government agencies in the energy sector	Inquiry within the Ministry of Climate and Enterprise	2024-03-29
Development of financing model for new nuclear power Bill with legislative proposals to Parliament and amendments to ordinances	Inquiry within the Ministry of Finance Government decision	2024-08-12[9] Spring 2025
Assignment on national interest claims for fossil-free electricity production and distribution	Government assignment to the Swedish Energy Agency	2024-10-25 2025-10-25
Increased investments in nuclear power research in the 2025 Budget Bill, the Research Bill and the Energy Research Bill	Government decision Parlament decision	Multiple dates
Assignment to coordinate skills supply for electrification.	Government assignment to the Swedish Energy Agency	2024-12-02[10]
Financing of pilot and demonstration projects in nuclear power development	Government assignment to the Swedish Energy Agency	
Planning for increased electricity use, making places for connection visible	Government assignment to Svenska kraftnät	2025-02-22

[8] Regeringens proposition 2023/24:105

[9] Finansiering och riskdelning vid investeringar i ny kärnkraft (Fi. 2023:F).

[10] Kompetens för samhällets elektrifiering (ER 2024:28).

The Electricity Market Inquiry. Investigation to develop investment conditions in the electricity market[11]	Inquiry under the Ministry of Climate and Enterprise	2025-04-25
Assignment on how the government can reduce programme risk in the decommissioning phase	Government assignment to the Swedish National Debt Office	2025-08-29
Assignment to take preparatory measures to be able to issue government credit guarantees for investments in new nuclear power	Government assignment to the Swedish National Debt Office	-
A national coordinator for the expansion of nuclear power[12]	Inquiry under the Ministry of Climate and Enterprise	2026-12-31
Regulatory measures		
Activity	**Type of event**	**Date**
Assignment for preliminary evaluation of reactors	Government assignment to the Swedish Radiation Safety Authority	2024-06-11
The Nuclear Power Permitting Inquiry[13]	Inquiry under the Ministry of Climate and Enterprise	2024-01-15[14] 2025-08-292026-02-27
Organisation of technical support for nuclear safety and radiation protection	Government assignment to the Swedish Agency for Public Management	2025-01-15[15]
Environmental permit inquiry[16]	Inquiry under the Ministry of Climate and Enterprise	2025-01-21[17] 2025-07-01 2025-12-31 2026-03-31
Assignment to review the need to develop its planning and permitting processes for new nuclear power	Government assignment to the county administrative boards of Halland, Kalmar and Uppsala	2025-03-28
Financing of disposal of waste in connection with the establishment of new nuclear power	Government assignment to the Swedish National Debt Office	2025-02-28 2025-08-29
Mapping of regulations for the permitting and construction of new nuclear power plants	Government assignment to the National Board of Housing, Building and Planning	2025-06-27
Mapping of regulations for the permitting and construction of new nuclear power plants	Government assignment to the Swedish Radiation Safety Authority	2025-06-27
New act on nuclear activities	Inquiry within the Ministry of Climate and Enterprise	2025-09-30
Assignment for an inventory of labour safety requirement that are relevant to the design of a nuclear power plant	Government assignment to the Swedish Work Environment Authority	2025-10-31

[11] Kommittédirektiv 2024:12. Ett elsystem med tydligt systemansvar, hög leveranssäkerhet och långsiktiga planeringsförutsättningar

[12] Kommittédirektiv 2024:1: En nationell samordnare för utbyggnad av kärnkraft

[13] Kommittédirektiv 2023:155: Ny kärnkraft i Sverige – ett andra steg

[14] Ny kärnkraft i Sverige – effektivare tillståndsprövning och ändamålsenliga avgifter (SOU 2025:7)

[15] Utvecklat stöd för kärnsäkerhet och strålskydd – En ny teknisk stödorganisation på Strålsäkerhetsmyndigheten

[16] Kommittédirektiv 2023:78: Förenklade och förkortade tillståndsprocesser enligt miljöbalken

[17] En ny samordnad miljöbedömnings- och tillståndsprövningsprocess (SOU 2024:98)

Strengthened expertise within radiation safety	Government assignment to the Swedish Radiation Safety Authority	2025-02-28 2025-12-20
Assignment on knowledge-enhancing dialogue for new nuclear power	Government assignment to the Swedish Radiation Safety Authority	-
Develop efficient planning and permit processes for new nuclear power	Government assignment to the Swedish Environmental Protection Agency	2025-11-30
Guidance to an efficient permit process for new nuclear energy plants under the Environmental Code	Government assignment to the Swedish Environmental Protection Agency	2027-05-31

7. Assessment of current possibilities to reach the goal of the Swedish nuclear power roadmap

The government's roadmap for new nuclear power aims at enabling new nuclear power of 2,500 MW by 2035 and then an extensive expansion, up to 10,000 MW, by 2045. The task of the National Nuclear New-build Coordinator is to guide and support the Government's efforts to achieve such an expansion. The Government's scope for action concerns ensuring the conditions required to enable an expansion in line with the roadmap for new nuclear power. Whether these conditions are then fully utilised by market players is a factor out of control of the Government. The actors' own commitments and the commercial processes are outside the Government's scope for responsibility and action.

The Government's ongoing efforts are largely in line with the objectives of the roadmap. The most challenging aspect from a regulatory perspective is to achieve a sufficiently efficient permit process that secures an early start of construction that allows for 2,500 MW of new nuclear power by 2035. The Nuclear Power Permitting Inquiry recently proposed a new permit process that is estimated to take ten years from the time of application submission to grid connection of the plant. There are some uncertainties about the efficiency of the process when it is used for the first few times. At present, there is also uncertainty about how the proposal will be taken forward by the Government after the consultation period has expired.

Given the somewhat clearer picture that now exists regarding the length of the possible permit process for new nuclear power, it is probably not possible for any player to achieve electricity production equivalent to two large reactors in a first project by 2035. However, there are conceivable scenarios where the goal is achieved through parallel expansion at at least

two sites. This means that construction needs to start as soon as possible in more than one location and that conditions are created for new construction sites. It is also important that the relevant authorities, in the long term, have the ability and resources to handle parallel projects and that a programme organisation is established as soon as possible.

8. The inquiry's continued work

In 2025, work will continue to follow up the ongoing activities and, if necessary, propose complementary measures. The Nuclear New-build Coordination Office intends to continue the dialogue with public stakeholders, especially municipalities, through the collaboration platform and in other ways. Work on the INIR screening will also continue. During the year, initiatives are planned in the areas of competence development and supply chains.