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CAPTURING THE NUCLEAR REVIVAL

How Swedish companies can tap into the global nuclear energy renaissance and seize opportunities in new build

A NEW HORIZON IN NUCLEAR ENERGY

The global energy landscape is experiencing a resurgence of nuclear power. This shift is driven by concerns over energy security, rapidly growing energy demand from industries such as AI and green steel production, and the urgent need to transition to low-carbon energy sources. Today's nuclear renaissance unlocks promising opportunities for Sweden to leverage its industrial strengths and contribute to the global nuclear value chain.

In recent decades, Sweden's expertise has been concentrated on the operation and decommissioning of nuclear plants, as well as management of nuclear waste. However, as plans for investments in new nuclear capacity are gaining momentum in Europe and globally, Swedish companies are now also exploring opportunities related to the new build of nuclear reactors. With a strong foundation in advanced manufacturing, engineering, technology, and innovation, Sweden is well-positioned to support international nuclear projects.

This report provides an overview of the global nuclear market for new builds and identifies opportunities for Swedish companies in Europe, Asia and North America. Drawing on data from established sources and insights gathered through interviews with industry representatives and academic experts, it offers a basis for a careful analysis of factors such as market availability, ease of entry, geographic proximity, and scale of potential opportunities. Countries such as Poland and the United Kingdom have been identified as high-potential markets due to their supportive regulatory environments, openness to international cooperation and ambitious nuclear expansion plans.

Meanwhile, other European markets, including the Czech Republic, France, and Bulgaria, present moderate potential, offering opportunities for Swedish companies in areas such as engineering consultancy, equipment supply, and project management within their expanding nuclear programmes.

KEY TAKEAWAYS

- Swedish companies' competitive strengths are particularly evident in areas such as Balance of Plant and Switchyard components, making them well-suited for these procurement needs. Opportunities can also be found in the construction value chain, especially in civil engineering, project management, and safety systems. By leveraging their expertise in sustainability and digitalisation, Swedish suppliers can offer valuable solutions in international nuclear projects.

- Swedish suppliers could meet 15–30% of equipment procurement needs – particularly in Balance of Plant and Switchyard areas; and 20–25% of construction needs in projects close to Sweden, focusing on civil engineering, project management, and safety systems.

- Swedish companies have accessible opportunities in nearby markets such as the UK and Poland, where nuclear energy projects are expanding, alongside more complex but promising prospects in markets such as the United States, France, and even China. The UK and Poland are planning significant nuclear expansions with investments estimated between $65 billion and $208 billion.

- The market is dominated by Pressurized Water Reactors (PWRs), which account for over 70% of all operable nuclear reactors worldwide and 51 of the 65 reactors currently under construction. Small Modular Reactors (SMRs) are emerging as promising future opportunities for flexible, cost-effective solutions.

- Swedish companies should focus on forming strategic partnerships, expanding into aligned markets, and leveraging their strengths in low-carbon manufacturing and digital innovation. This approach will help navigate complex regulations, address geopolitical risks, and meet stricter sustainability criteria. Prioritising markets and clients that align with Swedish capabilities, particularly in Europe and Eastern Europe, while preparing to meet evolving standards in decarbonised supply chains, advanced safety systems, and digital transformation, will position Swedish companies for success in the global nuclear sector.

INTRODUCTION

NUCLEAR RENAISSANCE PICKS UP SPEED

Governments worldwide are increasingly embracing nuclear energy as a critical solution to decarbonise and fight climate change. Key developments in Europe, Asia, and North America underscore the growing momentum of nuclear projects globally.

Nuclear energy is experiencing renewed global momentum as countries seek reliable, low-carbon solutions to meet ambitious climate goals under the Paris Agreement. Strengthened by commitments at subsequent COPs and reinforced by developments at COP29, nuclear power is increasingly viewed as a key component in the green transition. It provides stable, large-scale, low-carbon electricity as the world accelerates the shift away from fossil fuels to achieve net-zero emissions by mid-century.

Global investments in nuclear energy are projected to reach $75 billion by the end of 2024, with annual investments needing to increase to $125–150 billion from 2030 onwards to meet climate targets and expand nuclear capacity.

In Europe, the urgent need to decarbonise is driving nuclear energy expansion, particularly in countries like Poland and the Czech Republic, where nuclear power is being introduced to phase out coal and meet the targets of the EU's Fit for 55 package which stipulates a 55% reduction in emissions by 2030. These efforts are further reinforced by the Glasgow Climate Pact, which underscores the need to transition to cleaner energy sources to fulfil global climate commitments.

Meanwhile, in Asia, countries such as China and South Korea are leading the way in nuclear expansion. China plans to build 150 reactors by 2050, positioning nuclear energy as a central pillar of its strategy to reduce emissions and strengthen energy security. South Korea is also actively advancing its nuclear energy programme, concentrating on both domestic and international reactor construction.

In North America, the United States is focused on revitalising its nuclear energy sector to meet rising energy demands while reducing emissions. The US is also investing in the development of advanced reactors and Small Modular Reactors (SMRs), which are expected to diversify the energy mix and provide stable, low-carbon energy to both urban centres and remote regions.

KEY INVESTMENT AND MARKET TRENDS

The International Atomic Energy Agency (IAEA) reports that approximately 65 reactors are under construction worldwide, with around 90 more planned as governments invest in nuclear energy to support clean energy transitions. Global investments in nuclear energy were estimated at $75 billion by the end of 2024, with annual investments needing to increase to $125–150 billion from 2030 onwards to meet climate targets and expand nuclear capacity.

WHAT ARE THE DOMINATING TECHNOLOGIES?

The global nuclear energy landscape remains largely centered around Pressurized Water Reactors (PWRs), which have demonstrated safety, efficiency, and reliability over many decades of operation. As the most widely adopted reactor type historically, PWRs remain the most frequent choice for new nuclear projects globally. Currently, there are over 300 operable PWRs worldwide, accounting for over 70% of all operable reactors. Additionally, there are 51 reactors under construction.

While PWRs continue to dominate, other reactor technologies such as Boiling Water Reactors (BWRs) and Fast Breeder Reactors also play a significant role in the global nuclear landscape. Sweden offers expertise in both PWR and BWR technologies, positioning it well within this evolving field.

GOING MODULAR

In addition to the established technologies, Small Modular Reactors (SMRs) are attracting strong interest in many markets as they offer flexible and scalable options for future energy needs. Still in their infancy and requiring further development, SMRs represent a critical area of growth in nuclear development.

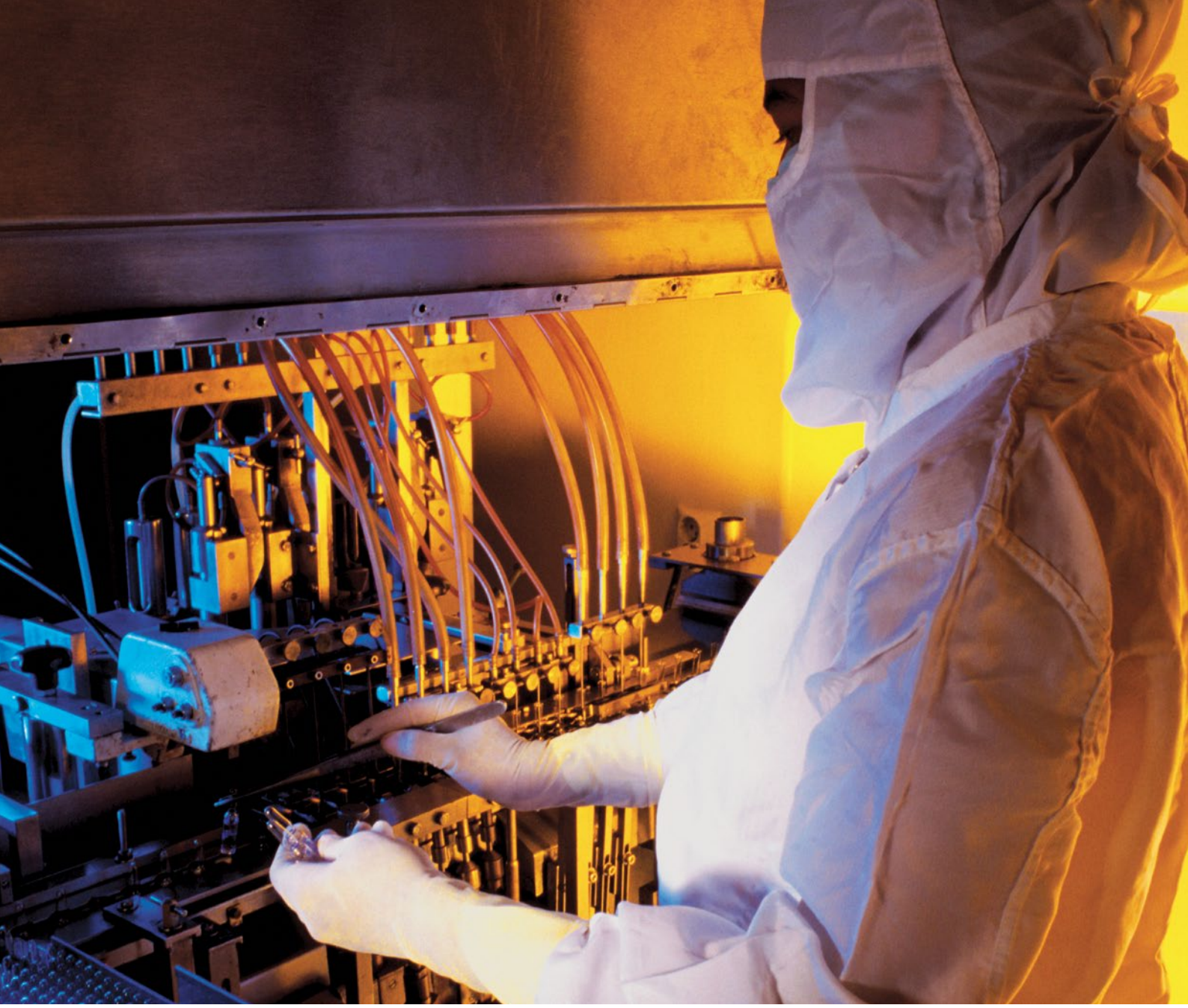
With over 80 different designs currently under development across 18 countries, SMRs vary considerably in terms of technology, size, and maturity. Designs range from smaller models producing around 5 MWe to larger variants exceeding 300 MWe, reflecting the diverse needs of different regions. To provide context, a 300 MWe reactor could supply enough electricity for a city roughly the size of Uppsala. Leading companies in this space include NuScale Power (USA), GE Hitachi (USA), Rosatom (Russia), Rolls-Royce SMR (UK), and China National Nuclear Corporation (China), all driving the global SMR project pipeline, which reached 22,000 MWe capacity as of early 2024.

SMRs are flexible due to their modular design, which allows deployment in smaller grids and scalability based on local needs. They offer reduced capital costs as they are manufactured in smaller units and assembled on-site, and they incorporate advanced safety features requiring minimal operator intervention.

While SMRs hold great potential, they are still in the development and regulatory approval stages. The designs most likely to be deployed in the near term are largely based on conventional nuclear technology, repackaged into smaller, more flexible systems given their maturity and established safety profiles. However, there is also fast-paced development in more novel SMR designs, which could bring advanced capabilities as technical validation progresses.

Due to the wide variety of designs and early stages of implementation, assessing a standardised value chain for SMRs remains challenging. Modular reactors are expected to play an increasingly important role in global nuclear energy development, although widespread commercialisation may not occur before 2030. Further technical validation and regulatory approvals are needed to establish market-preferred technologies.

Despite these timelines, countries in both Europe and North America are actively investing in SMR research and development, recognising their potential to complement larger reactors and support energy security and climate goals.



STRATEGIC ANALYSIS

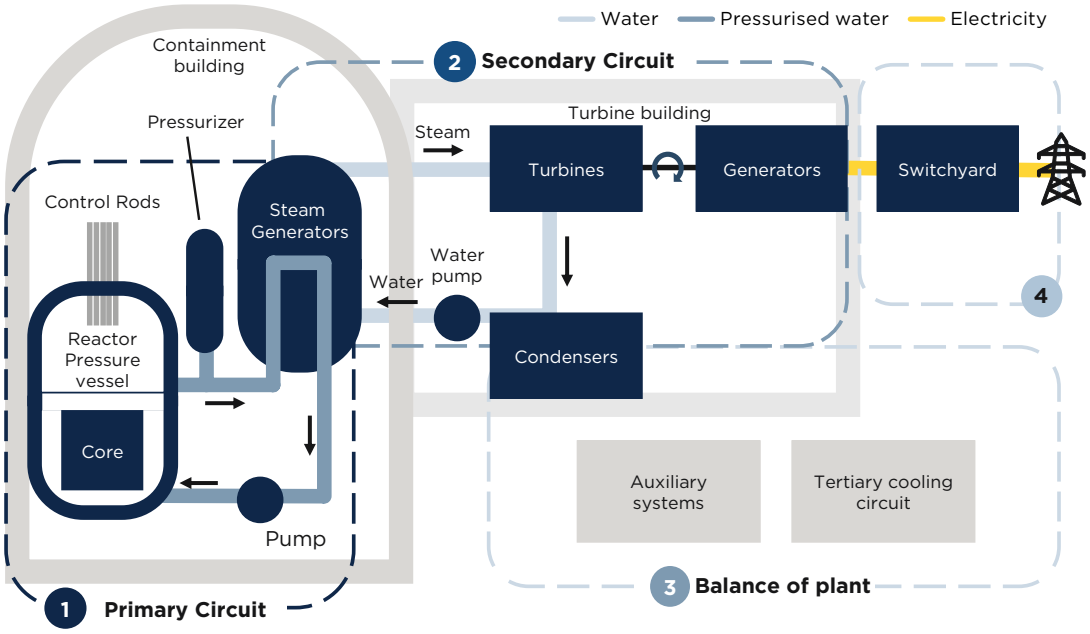
MAPPING THE VALUE CHAIN

Safe and efficient operation of nuclear power plants relies on a value chain that is divided into four major groups. Here's an overview of the key components, functions and responsibilities followed by an outline of capital costs.

Given that Pressurized Water Reactors (PWRs) make up the largest portion of the global construction pipeline, this chapter maps out the nuclear value chain by centering on PWRs and presents a generalised breakdown of the associated costs of building a new nuclear power plant.

There are four major groups in the value chain, each representing different responsibilities and components – outlined below – that are essential for safe and efficient transfer of heat from the reactor core to generate electricity, and eventually to deliver power to the grid.

OPERATING PRINCIPLES OF PRESSURIZED WATER REACTOR PLANTS



Note: Diagram based on a Pressurized Water reactor plant (PWR), but also applicable to Pressurized Heavy-Water Reactors (PHWR) and Bowling Water Reactors (BWR)

1. PRIMARY CIRCUIT/NUCLEAR ISLAND

The Primary Circuit, or Nuclear Island, houses and controls the nuclear reaction, using a closed-loop system with radioactive coolant to transfer heat from the reactor core to produce steam while containing radiation.

Key components:

- Reactor Pressure Vessel (RPV): Holds the reactor core.
- Steam Generators: Produce steam using reactor heat.
- Coolant Pumps: Circulate coolant to regulate temperature.

2. SECONDARY CIRCUIT/TURBINE ISLAND

The Secondary Circuit, or Turbine Island, uses heat from the primary circuit to produce steam, which drives turbines connected to generators to produce electricity. Importantly, this loop remains free of radioactive contamination, as the steam is generated through heat transfer rather than direct contact with reactor coolant.

Key components:

- Turbines: Powered by steam, turbines convert thermal energy into mechanical energy.
- Generators: Connected to turbines, generators convert mechanical energy into electrical energy.
- Condensers: After steam passes through the turbines, it is condensed back into water to be reused in the cycle.

3. BALANCE OF PLANT (BOP)

The Balance of Plant (BoP) includes all supporting and auxiliary systems essential for the nuclear power plant's operation, ensuring smooth functioning of non-reactor processes such as cooling, safety, and backup systems. It includes auxiliary power supplies, emergency cooling, safety systems, and the tertiary cooling circuit to meet operational needs beyond the reactor core.

Key components:

- Auxiliary Systems: Support emergency conditions and ensure continued safe operations.
- Tertiary Cooling Circuit: Removes heat from the secondary circuit and dissipates it, often through cooling towers.

4. SWITCHYARD AND GRID CONNECTION

The Switchyard and Grid Connection is the final stage that transfers electricity from the plant to the grid for public and industrial use. It manages the transmission of power from the generator and ensures it is converted appropriately for the electrical grid.

Key components:

- Transformers: Adjust voltage levels to ensure the generated electricity is compatible with the grid's requirements.
- Switchgear: Controls the flow of electricity and protects the circuit from overloads.
- Transmission Lines: Deliver the electricity from the switchyard to the broader electrical grid.

PRESSURIZED WATER REACTOR PLANT SYSTEMS

1	2	3	4
Primary circuit Nuclear Island	**Secondary circuit** Turbine Island	**Balance of plant** Cooling towers, Auxiliary buildings	**Switchyard** Grid connection
Reactor pressure vessel (RPV)	Steam turbines	Cooling Towers / Heat Exchangers	Transformers
Reactor internals (core)	Condenser	Pumps	Switchgear
Steam generators	Moisture Separator Reheaters	HVAC systems	Transmission lines
Pressurizer	Feedwater System	Auxiliary systems	Miscellaneous
Reactor coolant pumps	Instrumentation and Control	Instrumentation and Control	
Containment Structure	Miscellaneous	Miscellaneous	
Fuel supply system			
Miscellaneous			

Note: Diagram based on a Pressurized Water reactor plant, but also applicable to Pressurized Heavy-Water Reactors (PHWR) and Bowling Water Reactors BWR

NAVIGATING THE COSTS OF PWR

Estimating the capital cost of a new PWR is complex, as costs vary significantly depending on factors such as geographic location, regulatory frameworks, labour costs, and supply chain maturity. While a generalised cost breakdown can provide insights, nuclear projects differ widely across regions.

Regions with established nuclear industries and streamlined regulatory processes may experience lower costs due to efficient permitting, developed supply chains, and experienced local labour. In contrast, newer nuclear markets or countries with strict regulatory environments may face higher costs because of longer approval timelines and the need for specialised imports. Financing arrangements, currency fluctuations, and local market conditions also play a role in determining overall costs.

Globally, PWR capital costs typically range from $2 billion to over $11 billion per reactor, with average reactor sizes between 900 MWe and 1,650 MWe. While there isn't a strict "standard" size, a commonly referenced nuclear power plant is a PWR of approximately 1,200 MWe. These costs remain highly context-dependent, varying with technology, site characteristics, and regulatory factors.

A significant proportion of the costs – up to 70% – is not related to nuclear-specific products or engineering but rather to broader construction and supporting services. This highlights opportunities for a wide range of contributors, including those outside the nuclear-specialist segment.

A THREE-STEP COST BREAKDOWN

Despite these complexities, a generalised cost breakdown provides a useful framework for understanding the key components of constructing a PWR. This analysis uses overnight costs, which estimate capital expenses as if the project were completed in one day, excluding financing. These costs include direct expenses like site development, design, engineering, equipment, and construction, offering a consistent basis for comparing projects by eliminating variability due to financing and timelines.

It is important to note that financing costs, including interest during construction and potential delays, can account for a substantial portion of the budget, depending on the project's financial structure, credit terms, and regional economic conditions.

Based on industry trends and data from ongoing and planned projects, the approximate distribution of capital costs for a 1,200 MWe PWR ranges from $2.6 billion to $8.3 billion.

1. Construction costs

Construction expenses typically account for 40–45% of the total capital cost, equating to approximately $1 billion (low estimate) and $3.4–3.8 billion (high estimate). These costs include site development, design, architecture, and engineering. In many cases, foreign Engineering, Procurement, and Construction (EPC) companies handle a large portion of the work, particularly in regions with limited local expertise.

Foreign EPC services generally represent 75–80% of construction costs, while local companies contribute 20–25%, primarily in on-site labour and project management. Costs may vary due to factors such as labour availability, construction standards, and site-specific conditions, with higher costs observed in areas with high living costs or significant environmental mitigation requirements.

2. Equipment costs

Equipment costs typically constitute 50–55% of total capital expenditures, amounting to approximately $1.3 billion to $1.4 billion (low estimate) and $4.2 billion to $4.6 billion (high estimate), and are divided among the plant's primary circuits:

Primary Circuit/Nuclear Island

This includes critical reactor components such as the reactor pressure vessel, steam generators, and containment structure, representing about 25% of the equipment costs. These components are subject to stringent safety and regulatory standards.

Secondary Circuit/Turbine Island

Around 25% of equipment costs are allocated to systems that convert thermal energy into electrical energy, including steam turbines and condensers.

The Balance of Plant (BoP)

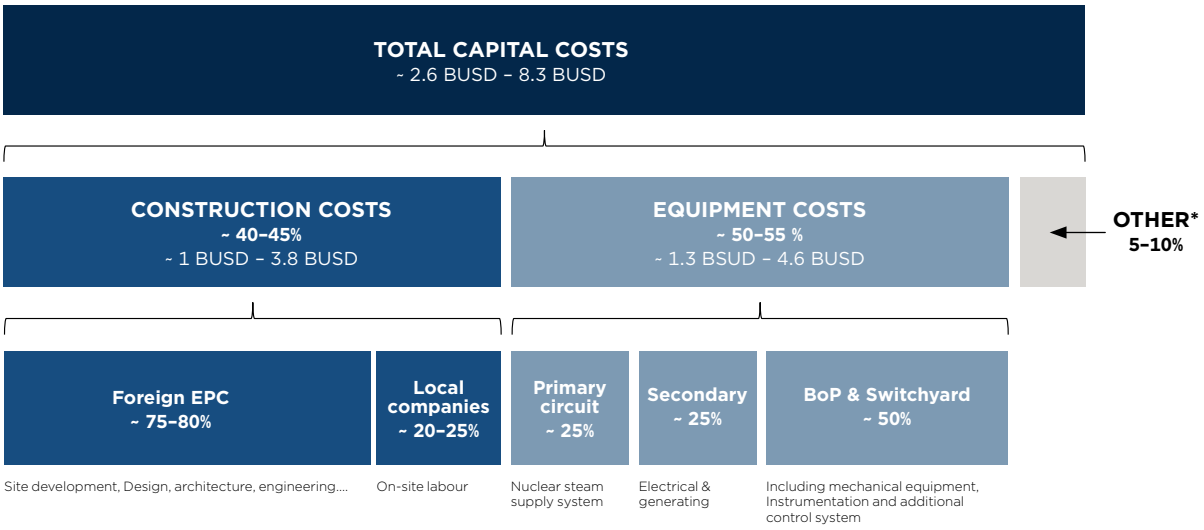
BoP accounts for approximately 25–30% of equipment costs and includes essential systems such as cooling towers, pumps, and HVAC systems. Auxiliary services, such as emergency safety systems and backup power supplies, are also part of BoP, which ensures reactor efficiency and safety.

Switchyard/Grid Connection

The switchyard and grid connection, which account for around 10–25% of equipment costs, include infrastructure such as transformers, switchgear, and transmission lines to ensure efficient integration of electricity into the grid.

3. Additional costs

Beyond construction and equipment, additional costs such as transportation, commissioning, and fuel load account for 5–10% of the total. These costs ensure the plant's operational readiness once the physical infrastructure is in place. Factors such as the distance of transportation, logistical challenges, and country-specific fuel procurement policies can cause variability in this category.



Note: According to this breakdown, construction materials are categorized under construction costs rather than equipment costs
Note: *Transportation, commissioning and fuel load costs. These estimates are based on current data and industry trends and should be viewed as indicative rather than exact

THE OUTLOOK

TEN MARKET OPPORTUNITIES

Swedish companies are well-positioned to explore growing opportunities in the nuclear energy sector abroad. Find out where – and how to maximise your potential for success.

A new horizon of opportunity is opening up in global markets for Swedish technology providers, engineers and experts in nuclear energy. But local regulations, competition levels, geographic proximity and ease of market entry are all key success factors that will determine their potential.

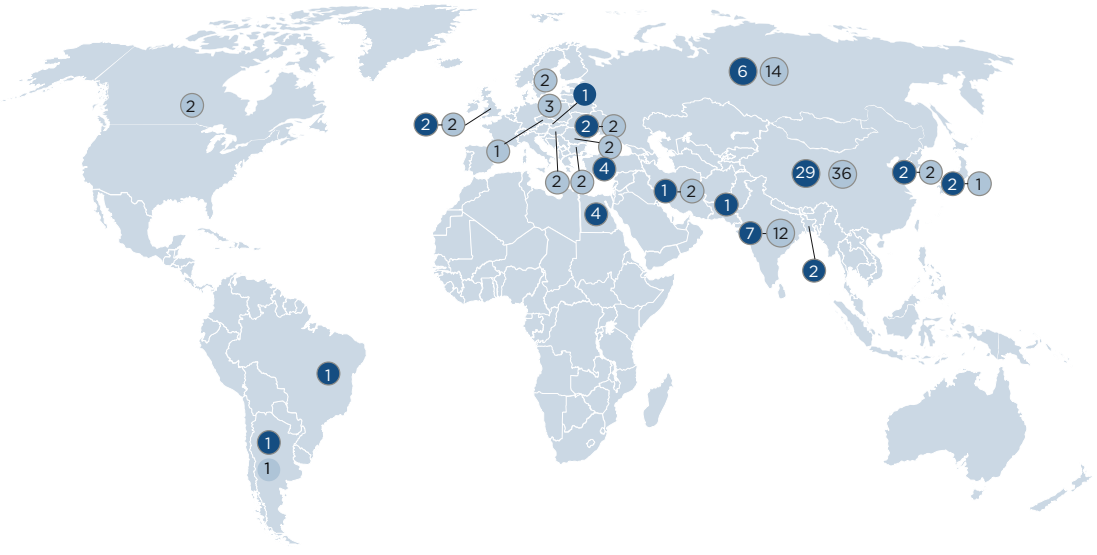
Globally, nuclear energy development continues to progress, with 65 reactors currently under construction, 86 planned, and 344 proposed. These figures are subject to change as projects advance and new initiatives are introduced, reflecting the dynamic nature of the industry.

In this chapter, we explore the scale and availability of ten identified opportunities based on insights gathered from interviews with industry representatives and experts in academia. Data has been sourced from reputable organisations including the International Atomic Energy Agency (IAEA), the World Nuclear Industry Status Report (WNISR) and the International Energy Agency (IEA).

This assessment provides a snapshot of current opportunities, as the nuclear energy landscape is constantly shifting with policy changes, construction progress, and operational updates.

Some details on future plans and projects are based on current announcements or stated intentions, which may evolve.

WORLD MAP OF NPP PROJECTS
Under construction, planned and proposed projects



65 Reactors under construction 86 Planned Reactors 344 Proposed Reactors

HIGH POTENTIAL MARKETS

Both the UK and Poland offer promising opportunities for Swedish companies due to ambitious expansion plans, geographic proximity, EU ties (in Poland's case), and market accessibility.

1. Poland

Poland is planning its first nuclear power plants, targeting 6,000 to 9,000 MWe of capacity by 2043 with an estimated investment of $40 billion. The first reactor is projected to be operational by 2033. This ambitious expansion unlocks major opportunities for Swedish suppliers, particularly in nuclear infrastructure, engineering consultancy, and safety systems.
Sweden's proximity to Poland, along with EU regulatory alignment, provides Swedish companies with a distinct advantage in terms of market entry. By leveraging their expertise in specialised fields, Swedish companies are well-positioned to support Poland's new nuclear programme.

2. UK

Nuclear projects such as Sizewell C are set to significantly contribute to the UK's electricity supply. With an estimated capacity of 3,200 MWe and an investment of $26 billion, this project involves constructing two EPR reactors (European Pressurized Reactor) in Suffolk.

In addition, Hinkley Point C, with a capacity of 3,200 MWe and projected costs of nearly $65 billion, underscores the UK's commitment to expanding its nuclear capacity. Both these projects present opportunities for Swedish companies in construction, safety systems, and equipment manufacturing. The UK's transparent regulatory framework and focus on low-carbon energy create favourable conditions for Swedish companies looking to support these nuclear developments.

MODERATE POTENTIAL

3. Czech Republic

The Czech Republic plans to expand its nuclear capacity by at least 1,200 MWe by 2036, with the potential for further expansion up to 2,500 MWe by 2035. This expansion is part of a broader strategy to increase the share of nuclear power in the country's electricity production to 46–58% by 2040.

Swedish companies with expertise in nuclear infrastructure and consultancy services could play a role in supporting the Czech Republic's expansion. Geographical proximity and EU membership facilitate regulatory compliance and ease of doing business. Opportunities are emerging when it comes to supplying equipment, providing engineering services, and contributing to safety and control systems.

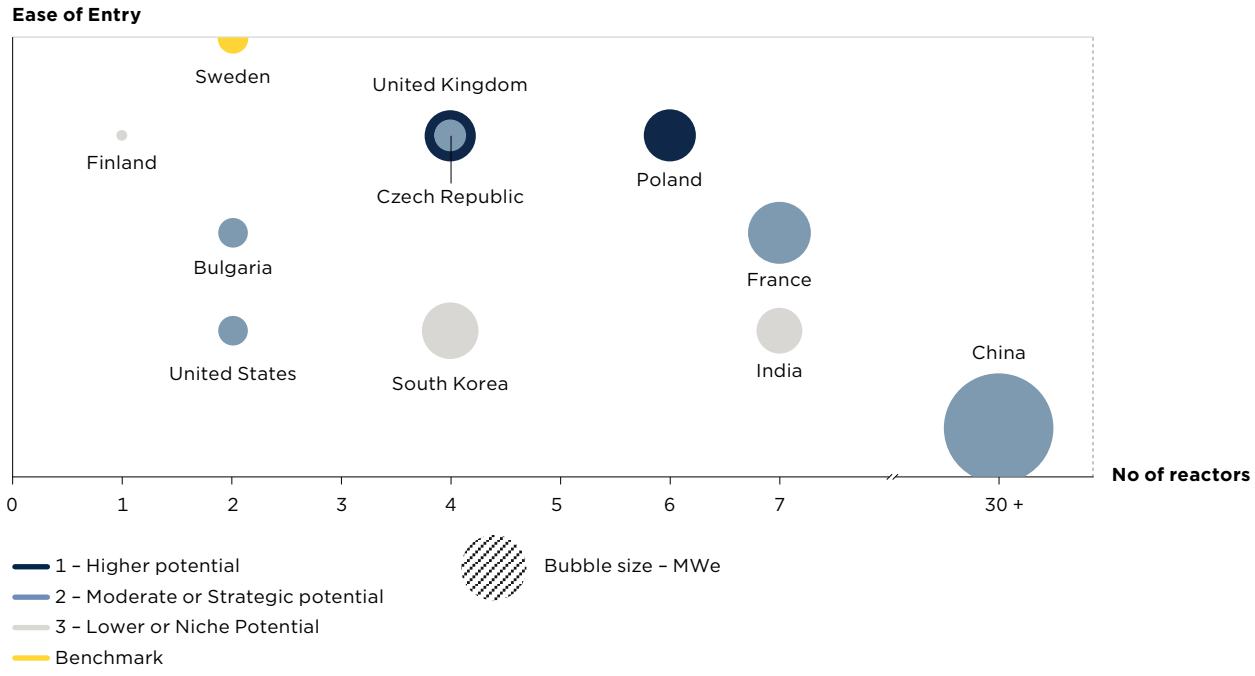
4. France

With its extensive nuclear experience and forward-looking development plans, France offers promising potential for Swedish companies. Currently operating 56 reactors, with one under construction, France aims to add six new EPR2 reactors (advanced PWR type), expanding its capacity by 9,900 MWe by 2035. Despite its strong domestic nuclear industry, France is open to international partnerships in specialised fields.

Swedish suppliers can find opportunities in providing critical components, modernisation technologies and specialised services that enhance France's nuclear capabilities. The alignment of EU standards and regulatory frameworks also facilitates compliance for Swedish companies. Additionally, collaboration in research and development, safety advancements, and advanced control systems could be valuable areas where Swedish expertise supports France's nuclear ambitions.

TOP 10 MARKETS – ESTIMATES

Total Net Electrical Capacity, MWe; Number of Reactors under construction and planned & Ease of entry



Note: Estimates are based on the latest available information and are subject to change. Planned and proposed projects are included in some markets to highlight potential, except in China, where they are excluded.

MODERATE POTENTIAL (Cont.)

5. Bulgaria
Bulgaria has ambitious plans to expand its nuclear capacity to enhance energy security and maintain its position as a leading electricity producer and exporter in Southeastern Europe. The country currently operates two VVER-1000 pressurized water reactors (PWRs) at the Kozloduy Nuclear Power Plant, generating approximately 2,000 MWe. Two new PWR units are planned for Kozloduy, likely also VVER-1000s, adding 2,400 MWe. The first unit is expected online by 2035, the second by 2037. A separate project to build a new nuclear power plant at Belene faces ongoing delays.

Swedish companies could find opportunities in engineering, safety systems, and supply chain integration for Bulgaria's expanding nuclear programme. Collaboration with international firms like Westinghouse and Hyundai is also possible. Bulgaria's EU membership ensures regulatory alignment, creating favourable conditions for Swedish suppliers.

6. USA
The United States, operating 93 reactors with two under construction and three planned, is a major nuclear market. Although characterised by strong domestic competition and a complex regulatory landscape, the market's size and openness to international technology create substantial opportunities.

Swedish companies can explore opportunities in advanced reactor technologies, small modular reactors (SMRs), and modernisation of existing plants. With over $60 billion allocated for reactor upgrades and innovative solutions, Swedish expertise in automation, safety systems, and advanced engineering can add value. A strategic approach, potentially through partnerships with local entities, is essential for navigating US regulatory requirements.

7. China
Despite challenges around market accessibility and strong domestic competition, China's massive scale of nuclear development cannot be overlooked. China operates 55 reactors, has 23 under construction, and plans for multiple additional units. With 32,000 MWe under construction and a target of 200,000 MWe by 2035, China represents the largest nuclear expansion globally.

While market entry may be limited for foreign companies, there is potential for Swedish suppliers in niche technologies or specialised components where Chinese capabilities are still developing. Strategic partnerships and joint ventures could provide pathways for Swedish firms to participate in China's nuclear growth, particularly in areas requiring advanced technology and expertise.

NICHE POTENTIAL

8. India
India is pursuing ambitious nuclear energy goals, aiming for 75,000–95,000 MWe capacity by 2047. The country operates 22 reactors, has eight under construction, and multiple facilities planned. The regulatory environment is becoming more supportive, with the private sector gaining opportunities in nuclear energy.

However, market access remains limited, and strong domestic competition poses challenges for foreign companies. Swedish suppliers could focus on niche areas or specific partnerships where their advanced technologies and expertise bring unique value. Areas such as safety systems, advanced materials, and specialised engineering services could present opportunities.

9. South Korea
South Korea operates 26 reactors and has four under construction. While the country has a strong domestic nuclear industry and offers limited market access for foreign companies, opportunities may be found in specific high-tech niches or through strategic partnerships.

Swedish companies should explore prospects for collaboration on advanced technologies, safety enhancements, or components where expertise aligns with South Korea's needs. Engaging with South Korean firms on international projects or contributing to research and development initiatives might also be viable pathways.

10. Finland
Finland offers niche potential for Swedish companies, particularly in planned nuclear projects. The Finnish company Steady Energy plans to begin construction on its first small modular reactor (SMR) pilot plant by 2025, with potential operational units by 2030. The investment for the pilot plant is estimated at $16–22 million.

Although these developments are in early stages, they could open up avenues for Swedish companies and suppliers offering expertise in engineering, automation systems, and nuclear safety solutions. Nordic regulatory alignment could help simplify market entry for Swedish companies as Finland continues to explore advanced nuclear technologies.

NOW IS THE TIME TO ENGAGE

Swedish players are well-positioned to contribute both equipment and construction expertise as nuclear energy projects accelerate worldwide. But building strategic partnerships is key for progress.

With its pivot towards opportunities in new nuclear builds, Sweden has the potential to contribute meaningfully both in the equipment supply chain and in construction-related activities. With recognised strengths in engineering, advanced manufacturing, and project management, Swedish companies are in a prime position to support the construction of new nuclear power plants.

An assessment of over 160 Swedish companies, prioritised and classified based on their alignment in the nuclear value chain, confirms their strong potential in this sector. By evaluating factors such as turnover, size, and specialised expertise, and incorporating insights from targeted interviews, we identified key areas where Swedish companies can play a decisive role and capture new business. These are outlined below.

The estimates are based on a framework that calculated averages across low, medium, and high scenarios, providing an indication of where Swedish companies have the greatest potential to contribute. The estimates are illustrative and based on indicative assumptions and should not be seen as precise forecasts. They highlight potential engagement areas, showing where companies are concentrated and larger actors are positioned in the value chain.

POTENTIAL IN THE EQUIPMENT SUPPLY CHAIN

Swedish companies have considerable expertise in Balance of Plant (BoP) and Switchyard components, which are critical for ensuring the safe and efficient operation of nuclear power plants. These areas account for a substantial share of total equipment investments. In a typical new PWR build, equipment costs can range from approximately $1.3 billion to $4.7 billion, with BoP and Switchyard components constituting a significant share, illustrating the scale of opportunity.

Transformers, switchgear, and transmission lines (Switchyard)

Sweden is home to reputable suppliers of transformers, switchgear and transmission lines, all of which are essential for the Switchyard segment. ABB and Hitachi Energy Sweden specialize in transformers and power transmission equipment, while NKT produces high-voltage transmission lines. The Switchyard/Grid Connection accounts for approximately 10–25% of the total equipment costs, translating to potential market opportunities of approximately $130 million to $1.2 billion per project.

These components are critical for transferring the electricity generated in the power plant to the national grid, ensuring the stable and efficient distribution of power.

With a focused strategy and engagement, and by leveraging their experience in electrical infrastructure and power transmission systems, Swedish companies could potentially capture 20–40% of equipment costs for switchyard, amounting to approximately $26 million to $480 million per project, depending on the project's size and value.

Pumps, heat exchangers, and HVAC systems (Balance of Plant)

Swedish companies are well-positioned to supply pumps, cooling towers, heat exchangers, and HVAC systems within the Balance of Plant (BoP) category. Leading firms such as Alfa Laval bring expertise in heat exchangers and cooling systems, while Atlas Copco provides advanced air and gas systems. Trelleborg and Alleima add capabilities in industrial sealing solutions and advanced materials.

The field of BoP typically represents around 25–30% of total equipment costs, offering potential opportunities of approximately $325 million to $1.4 billion per project. With established expertise in industrial pumps and cooling systems, Swedish suppliers could capture an estimated 15–30% of BoP equipment investments, equating to approximately $49 million to $420 million per project. This contribution would help ensure efficient plant operation through reliable auxiliary systems.

Instrumentation and control systems (BoP and Switchyard)

Swedish companies have recognised strengths in automation and control systems, which are essential for monitoring and regulating the performance of nuclear power plants. Firms such as Ahlberg Cameras offer specialised camera systems for nuclear facilities, while Camfil provides air filtration solutions. These systems ensure that the plant operates efficiently and safely, minimising human error and ensuring

compliance with stringent safety regulations.

With strong capabilities in automation and digitalisation, Swedish suppliers could capture 10–25% of equipment costs related to instrumentation and control systems. Given that instrumentation and control systems can represent a portion of BoP and Switchyard costs, this could amount to approximately $13 million to $350 million per project.

Estimated contribution

Overall, Swedish companies have the potential to capture 15–30% of the equipment investments in new nuclear builds, particularly in transformers, switchgear, transmission lines (switchyard), pumps, cooling systems, and instrumentation (BoP).

This could translate to approximately $195 million to $1.9 billion per project, depending on the size and scope of the nuclear build. Strong expertise in these areas means that Swedish companies can make valuable contributions to international nuclear projects.

POTENTIAL IN THE CONSTRUCTION VALUE CHAIN

Swedish companies can also play a supportive role in the construction phase of nuclear power plants, leveraging their expertise in civil engineering, project management, and system integration. This sector presents important opportunities as construction accounts for a significant portion of the overall project costs. Construction expenses typically represent 40–45% of the total capital expenditure, amounting to approximately $1 billion to $3.8 billion per project.

On-site labour and infrastructure development

With strong backgrounds in civil engineering and project management, as well as project system engineering, Swedish companies such as Skanska, AFRY, Sweco and NCC are well-suited to support construction investments, particularly for containment structures, auxiliary facilities, and safety systems. Companies like Sandvik Coromant and SKF add further value with specialised tooling and rotation technology, while ESAB provides welding and cutting equipment crucial for construction processes.

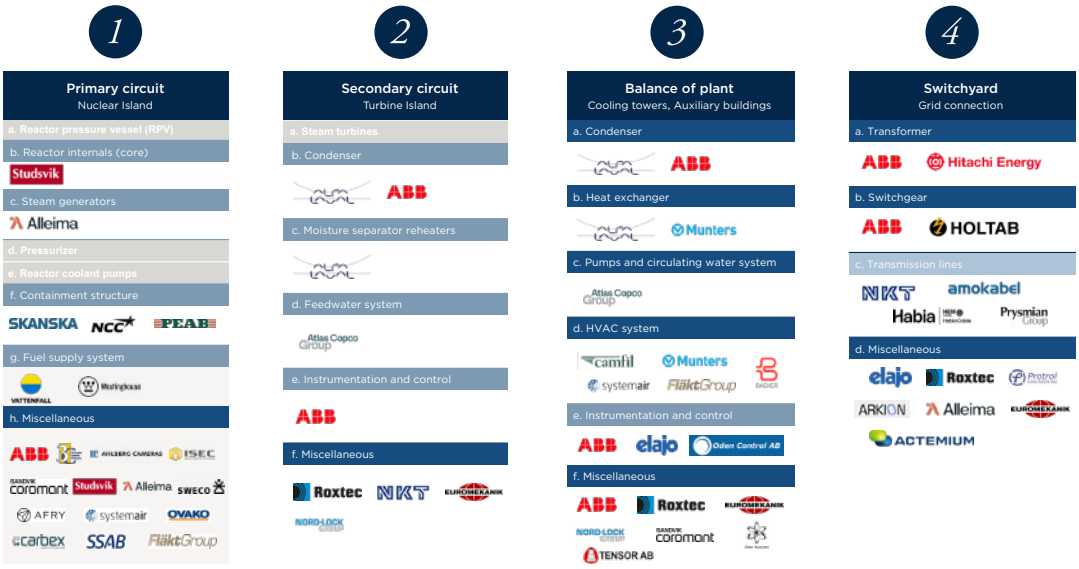
Additionally, Studsvik offers advanced technical services that span various stages of the nuclear lifecycle, including construction, waste management, and final disposal, reducing risks and costs for nuclear facilities.

Swedish expertise in heavy infrastructure and containment construction is important for building the reactor's protective structures to ensure compliance with strict safety standards. Companies specialising in concrete works, foundation engineering, and safety barrier construction could contribute in this area.

Strategic collaboration could open up prospects to capture 20–25% of construction-related investments, focusing on civil works, containment buildings, and on-site project management. This represents a potential opportunity of approximately $200 million to $950 million per project.

The ability of Swedish companies to secure construction contracts will depend on their regional presence, the specific EPC firms overseeing the project, and the nature of collaboration with local entities. This collaboration is crucial for securing roles in projects, especially in countries with well-established nuclear markets.

EXAMPLES OF RELEVANT SWEDISH SUPPLIERS IN NUCLEAR PLANT CONSTRUCTION



KEY RECOMMENDATONS

In all, our analysis suggests that Swedish suppliers are well-positioned to capture up to 30% of equipment investments, particularly in areas such as transformers, cooling systems, and automation.

Besides this, Swedish companies can capture 20–25% of construction investments in civil works and system integration, with success depending on regional presence, partnerships with EPC firms, and local collaboration.

Strategic pathways
To seize the momentum and make the most of these opportunities, Swedish companies need to:

- *Build partnerships with global nuclear leaders:* Collaborating with leading EPC and nuclear technology firms is essential to access large-scale projects, navigate regulations and exchange knowledge.
- *Target aligned markets:* Expansion in markets with compatible regulatory frameworks, particularly in Europe and Eastern Europe, can improve market integration and ease of entry. Since Swedish companies are primarily equipment and component suppliers further down in the contracting structure, collaborating with leading EPC and nuclear technology firms is essential to access large-scale projects, navigate complex regulations, and integrate seamlessly into the nuclear value chain.
- *Emphasise sustainability and digital innovation:* Swedish companies can highlight their commitment to sustainability and digital transformation, aligning with global clean energy transition objectives. Swedish companies should leverage Sweden's attractive conditions for low-carbon manufacturing of materials and equipment to strengthen their positioning. By building green supply chains and highlighting their commitment to sustainability and digital transformation, Swedish firms can align more effectively with international sustainability goals and the clean energy transition.

RISING DEMAND ON THE HORIZON

As nuclear energy plays a greater role in meeting global decarbonisation targets, Swedish companies can anticipate rising demand for components such as cooling and safety systems. However, geopolitical factors, including local content requirements, need to be carefully considered while at the same time striving to build green supply chains that align with international sustainability goals.

By focusing on forging new partnerships, targeted market entry, and sustainable innovations – and with the right strategic approach – Swedish companies can play a key role as global nuclear energy investments ramp up. In conclusion, here are a few key questions to guide your competitive positioning and further explore untapped opportunities in the global nuclear energy boom:

1

Regulatory alignment:
What further steps can you take to streamline participation in markets with complex regulations?

2

SMR development:
What role can you play in Small Modular Reactor (SMR) development, expected to gain commercial viability post-2030?

3

Advanced technologies:
How can your company remain competitive as nuclear technology continues to advance?

4

Dismantling and scrap storage opportunities:
Are there growth prospects in nuclear decommissioning and waste management?

5

Non-nuclear-specific products:
If the scope of nuclear projects expands to non-nuclear-specific products, what additional market value could your company capture?

BUSINESS SWEDEN CAN SUPPORT YOU

Business Sweden's team of industry experts can help you capture emerging opportunities in the global nuclear energy sector and navigate your way to success.

By offering tailored consultancy services and a vast contact network, we can facilitate connections with key stakeholders and help you establish strategic partnerships and alliances.

With a unique mandate from the Swedish government and the business sector, our global advisors offer strategic advice and practical support in more than 40 markets worldwide.

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We help Swedish companies grow global sales and international companies invest and expand in Sweden.

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