

Responsibility Report 2018

FENNOVOIMA



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Looking ahead to the Future

The climate report from the Intergovernmental Panel on Climate Change (IPCC), published last fall, was for many a wake-up call about the serious consequences of climate change. Rapid action on a global scale and above all, large-scale electrification of the society is required to stop emissions that are having an adverse effect on the climate.

After nearly ten years of silence, nuclear energy has returned to the climate and energy policy discourse also in the European Union. The net-zero target for 2050 proposed by the European Commission at the end of the year will require, according to the Commission's estimate, doubling the European electricity production capacity. This objective cannot be reached by increased use of renewable energy alone. Instead, a considerable amount of new nuclear power capacity must be built to replace the plants that are to be decommissioned. The need for additional construction

is equivalent to the investment value of 66 Hanhikivi 1 nuclear power plants, totaling some EUR 400 billion by 2050. Even if all the investments were fully realized, the share of nuclear power in European electricity production would fall from 25% to 15%.

In Finland, attitudes towards nuclear energy are more positive than ever. According to a survey ordered by Finnish Energy, 41% of Finns support the construction of nuclear power. To my mind the debate on nuclear energy has become more rational and solution-oriented than before. It seems that nuclear base load energy is recognized as an important part of the emission-free energy solution also in the future, together with renewable energy.

CLEAR VISION TO THE FUTURE

For me personally, and surely for all who are working on the Hanhikivi 1 project, the progress of the project in 2018 was

a disappointment. The new estimated schedule received from the plant supplier at the end of the year postpones the launch of CO₂-free power production in Pyhäjoki by several years.

However, the new schedule also gives us clarity: it makes it easier to plan and manage the work, and prepare for the next project phases. We have also begun revamping our organization to smooth the way for swifter progress of the project.

WE ENSURE THE SAFETY OF THE PLANT DESIGN

Safe nuclear energy is the foundation of all our operations. When considered in proportion to the production volume, nuclear energy is the safest form of energy production. However, safety is not something that appears spontaneously; it takes meticulous work over the long term.

At the moment, we are making sure that the plant can be built to meet all the strict statutory safety requirements. During the spring, our goal is to address the final technical design issues that are central for plant safety and the design documentation required for the safety assessment will be completed by the end of 2019.

WE LEAD THE SUPPLY CHAIN CLOSELY

The scale of the Finnish constantly updated nuclear safety requirements and their detailed nature become concrete to the parties involved in the project as the work proceeds. Challenges have been faced when interpreting the requirements and when assigning them at the appropriate supply chain parties. We have found that we need to engage in closer cooperation with RAOS Project in the area of supply chain management, and together lead the supply chain closer.





WE PROMOTE EMPLOYEE COMMITMENT

A total of 52 new experts joined us during the year, but many left us as well. In addition to natural turnover, the upcoming move to Pyhäjoki had an effect on the employee turnover rate. The slow progress of the project and the differences between the operating cultures of Fennovoima and the plant supplier have undoubtedly caused frustration in our personnel.

I believe that with the right measures, we influence the work satisfaction of our most valuable asset, our personnel - and thus strengthen the commitment to the Fennoway spirit of Fennovoima. The key factors to ensure commitment are harmonization of the practices, high quality management, and continuous investment in occupational well-being.

WE CREATE PROSPERITY FOR PYHÄJOKI AND THE WHOLE OF FINLAND

We are happy to know that the people of Pyhäjoki trust the Hanhikivi 1 project and believe in it; the fact that 70% of people support it provides ample proof of this.

The municipalities in the region are looking forward to welcoming us when we move our operations there. Last fall, we held an event in Salmisaari where 15 municipalities of the region introduced themselves and told our personnel about life in Northern Ostrobothnia.

The locals know that the Hanhikivi 1 project improves the predictability of the municipal economies in the region for decades to come, and allows long-term investment in social and health services and

infrastructure that benefit the local residents. When the cascade effect on the local economy is taken into account, the project will provide approximately 1,300 person-years of work in Northern Ostrobothnia in the preparatory construction work phase alone, as well as increasing the public tax income for the region by EUR 30 million. The scale of benefits will increase considerably when the actual plant construction begins.

The indirect employment and economic effect is not limited to Pyhäjoki, but will be substantial throughout Finland. Approximately 20,000 person-years of employment, including cascade effects, will be provided during the entire construction project, as well as notable additional investments. These will benefit households throughout Finland.



Toni Hemminki
President and CEO, Fennovoima

Looking ahead to the future	Fennovoima Reprogrammed	We are part of the solution	Responsible business practices	Economic responsibility	Nuclear safety	Organizational development and employment	Responsible supply chain management	Occupational health and safety	Environment	Local engagement	Reporting principles
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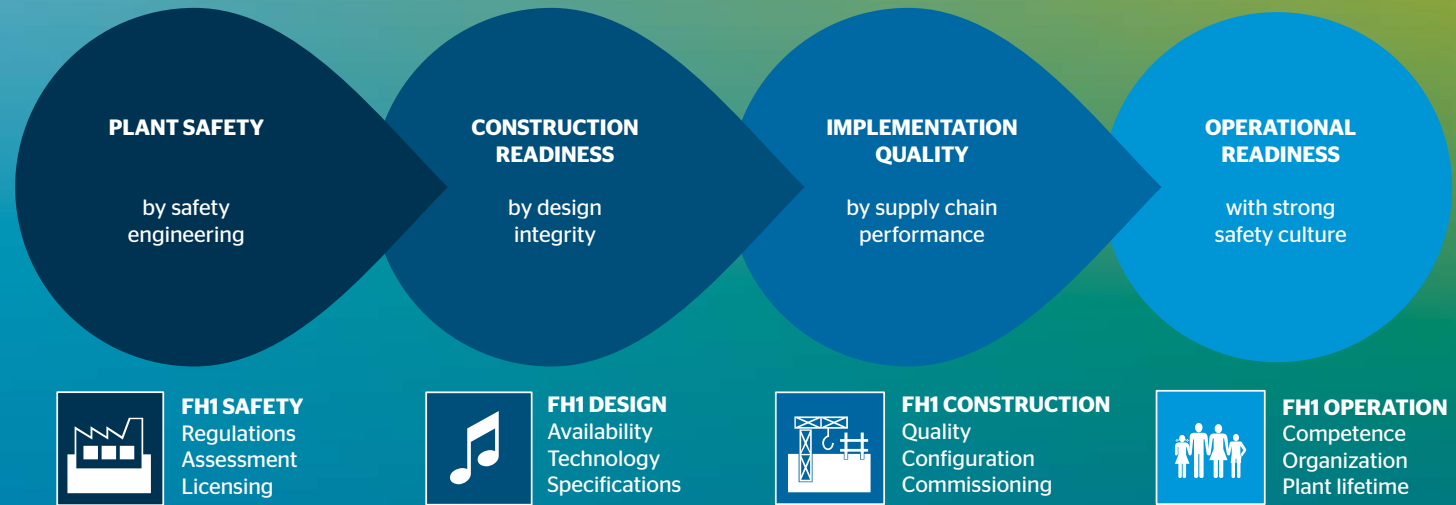
Fennovoima Reprogrammed

At the end of 2018, we prepared a development plan for 2019-2020 called "Fennovoima Reprogrammed." This plan is based on the current stage of the Hanhikivi 1 (FH1) project, the joint project experiences with our plant vendor RAOS Project Oy, and the regulatory oversight findings and requirements of STUK.

Our target is to improve the progress of the FH1 project by leading our own work more proactively and by co-operating more efficiently with our plant vendor.

In effect, 2019 starts with concrete actions to reprogram our operations. These actions are divided into four main targets and four enabling factors, with the key targets for 2019-2020 summarized in the following.

Plant safety and solid safety engineering form our number one target. We are currently working on the resolution of the



main plant-level design issues, with the target schedule being spring 2019. These issues are related to bedrock investigations, design solutions against internal and external hazards, as well as defense-in-depth design of systems architecture. Many of

these issues are cross-disciplinary and require strong experience and team work, and the resolution of these issues will create a strong basis for systems and buildings design.

Construction readiness and design integrity require finalization of systems and buildings design. For this, we need both the basic design and a preliminary safety analysis report (PSAR) consistent with the basic design. The PSAR localization team of the



Fennovoima Reprogrammed

plant vendor is working actively in Helsinki to prepare a high-quality PSAR during 2019, forming the key documentation required for the construction license. This is an important stage in the project and focuses our attention on the design solutions.

In 2020, the most important target is to interact with the plant vendor for bringing the basic design to a level that enables plant construction to be prepared.

Implementation quality and supply chain performance form the most important target for the plant construction stage. During 2019, our target is to prepare, together with the plant vendor, the design and quality specifications depending on the safety and quality classification. In 2020, we will ensure plant vendor's capability of controlling the implementation of all plant items; and we will also build our own supervision model and associated partnerships.

We want to ensure these capabilities well in advance before the start of construction of the Hanhikivi 1 (FH1) nuclear power plant, which depends on the granting of the construction license by the Finnish Government and a favorable safety assessment from STUK.

Operational readiness and a strong safety culture evolve stepwise via technical work and organizational development – especially in a new utility organization like Fennovoima. During 2019, we will prepare our operational organization view, to guide us in building our functions and competences in a systematic and proactive way. We will also pay attention to our utility operations and design ownership over the FH1 plant life cycle so that this long-term perspective is managed in balance with the project-oriented objectives. During 2020, we also want to expose ourselves to a thorough external evaluation concerning all our

preparations to become a nuclear utility. In addition to the aforementioned targets related to plant design, construction and operation, we have identified four key enabling factors: plant vendor and suppliers, people and leadership, processes and tools, and organization and management. We will be working hard to create the right preconditions for all actors to succeed, now especially concerning our own experts and those of the plant vendor, and later on, a large number of subcontractors. This requires continuous recalibration of the situation view and strong leadership and presence in the middle of all the complexity.

When our own organization and our plant vendor start working well together, we will know that we are on the right track to sustainable energy production. That is why we are now reprogramming.



Timo Okkonen
D.Sc. (Tech.), Chief Development Officer,
Fennovoima Oy





We are part of the solution

Looking ahead
to the future

Fennovoima
Reprogrammed

**We are part
of the solution**

Responsible
business
practices

Economic
responsibility

Nuclear
safety

Organizational development
and employment

Responsible
supply chain
management

Occupational
health
and safety

Environment

Local
engagement

Reporting
principles





FOR THE BENEFIT OF THE CLIMATE

Climate change is a global threat, the effects of which are not limited to individual countries but equally apply to everyone.

Climate emissions must be sharply cut to avoid serious damage to the environment and mankind caused by global warming. At the same time, efforts must be made to improve energy security, maintain economic growth and secure energy supply. Sustainable and reliable solutions are needed.

Emissions related to the production and consumption of energy account for two thirds of all greenhouse gas emissions and 80% of CO₂ emissions. In practice, reducing emissions from the energy sector requires abandoning fuels that need to be burned to produce energy, strong electrification of society, energy efficiency and new intelligent solutions for energy production and storage.

Electrification of society requires a significant increase in the production of clean

electricity. In practice, however, emission-free electricity can only be produced with limited means, that are renewable energy sources and nuclear power, both of which are needed.

RESPONSIBILITY PROGRAM

We work for clean electricity production. We build more carbon-neutral electricity production in Finland with respect for society, people and the environment.

The principles of responsibility are embodied in Fennovoima's Corporate Policy and Code of Conduct. The Sustainability Program supports the implementation of these principles and the sustainable development of Fennovoima and the entire Hanhikivi 1 project.

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Our focus areas



Responsible business practices: We want to make Fennovoima a top-class nuclear power company with a high safety culture and integrity. By complying with laws, regulations and our Code of Conduct, we safeguard our ability to operate in the Finnish society.



Economic responsibility: We build the Hanhikivi 1 nuclear power plant because our owners need reliable, stable and emission-free electricity to operate and succeed in Finland. The economic impact of the large-scale investment is extensive.



Nuclear safety: We ensure the nuclear safety during the whole life cycle of the power plant.



Organizational Development and employment: We ensure that we have sufficient expertise and competence at all stages of the project. We offer our employees a workplace where well-being is considered important and where conditions for success are provided.



Supply Chain Management: We require all subcontractors to commit to nuclear safety and ethical practices.



Occupational health and safety: No one's health or safety shall be compromised in the Hanhikivi 1 project.



Environmental management: The environmental footprint of the nuclear energy life cycle is small. We ensure that the local impact of the construction is minimized as well.



Effective management of the Hanhikivi 1 project: A successful project requires functional processes, systematic practices and a functioning management system that support the implementation of the Hanhikivi 1 project also in accordance with the principles of sustainable development. We do not report on the topic with a single indicator, instead we return to the topic across the report.





Stakeholder co-operation: Trust and transparency form the basis for our stakeholder cooperation; hence we are strongly present also in Pyhäjoki.

For 2018, we set a total of 50 goals for these key areas of the Sustainability Program. The goals are presented at the beginning of each chapter. We illustrate our success in achieving our goals with the following icons:

 Target achieved

 Target party achieved

 On-going

 Target not achieved





Identifying material topics

We conducted a personnel survey, interviews and a senior management workshop, assisted by an external consultant in 2014 to identify areas that are significant to responsible operations in Fennovoima. The topics

highlighted in the review form the basis for our Sustainability Program that supports our corporate strategy and policy.

In 2017, we re-grouped the topics represented in the materiality matrix to clarify the

presentation. Climate change has also been included as a material topic in the matrix.

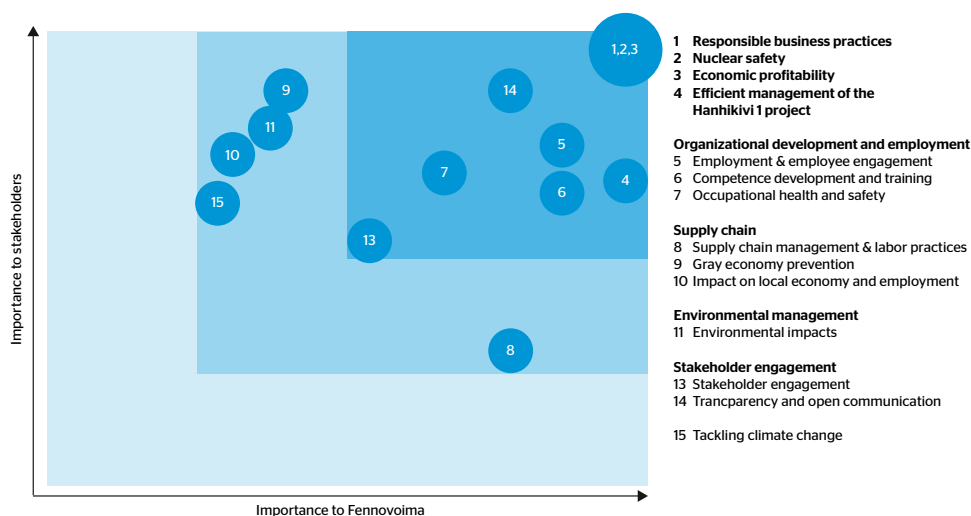
RESPONSIBILITY MANAGEMENT AND FOLLOW-UP

Our Responsibility Program is part of the Fennovoima management system that covers all our operations. The management system helps us in ensuring that our operations are in compliance with nuclear safety and legal requirements and good governance, and that the environment and occupational safety are taken into account in Fennovoima's operations. The management system meets the quality, environmental and occupational safety requirements of the ISO 9001, ISO 14001 and OHSAS 18001 standards.

Fennovoima's Board of Directors approves the policies and principles that guide the company's operations. The Management

Team in turn approves the Responsibility Program and the related objectives. The CEO approves the Responsibility Report that is published annually. For more information on Fennovoima's management and organizational structure, please visit our website: www.fennovoima.fi/en/fennovoima/organization

The primary responsibility of the practical implementation, development and follow-up of the Responsibility Program lies with departments and units that are responsible for each topic. The departments and units report monthly to the CEO. The objectives of the program are reviewed and updated annually when updating the annual work plans. The implementation of the Responsibility Program and reporting is coordinated by a designated person.





STAKEHOLDER ENGAGEMENT

We cooperate with a large variety of stakeholders at local, national and international levels.

The most important stakeholders include our employees and owners, the plant supplier and supply chain companies, authorities and decision-makers, local stakeholder groups in Pyhäjoki area, peer companies and organizations within the industry, media, public sphere and NGOs in the field. Stakeholders have different kind of expectations for Fennovoima, and that is why our

approach to stakeholder engagement is comprehensive. Our stakeholder cooperation is based on systematic cooperation. In addition, we participate in events and are actively involved in social media. We also conduct studies to collect further information on stakeholder opinions and attitudes towards the Hanhikivi 1 project and Fennovoima.

PARTNERS AND MEMBERSHIPS

Association for Finnish Work, European Nuclear Society (ENS), Federation of Finnish Enterprises, Ostrobothnia Chamber of

Commerce, FIBS Corporate Responsibility Network, Finnish Energy, FinNuclear, Foratom, Helsinki Region Chamber of Commerce, Industrial Lawyers Association, International Atomic Energy Agency (IAEA), Oulu Chamber of Commerce, Project Management Association Finland, PSK Standardisation Association, Risk Management Society of Finland, Taxpayers Association of Finland, World Association of Nuclear Operators (WANO), World Energy Council (WEC), World Nuclear Association (WNA)

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Responsible business practices

Compliance with laws, regulations and our Code of Conduct secures our ability to operate in the Finnish society. All Fennovoima employees carry the responsibility for following the law, protecting human rights and promoting justice. We operate with absolute integrity and honesty.

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Responsible business practices

	GOAL	PROGRESS
Compliance with legal requirements	Effective compliance policies and practices are in place.	✓
	No legal proceedings regarding compliance violations in Fennovoima's own organization or in the supply chain.	✓
Continuous work against corruption in all its forms	No confirmed incidents of corruption in Fennovoima's own organization or supply chain	✓





FOCUS ON LEGISLATION, NUCLEAR SAFETY AND ETHICAL PRINCIPLES

Successful operation in the nuclear industry requires that all the personnel are familiar with the applicable laws and regulations and is committed to compliance with them and with the nuclear safety principles, company policy and ethical principles that steer the organization's operations.

Compliance management

The identified key risks associated with business ethics for Fennovoima are

- Corruption
- Unjust influence and conflicts of interests
- Risks related to the supply chain
- Risks related to the neglect of legal requirements.

Fennovoima's Compliance & Ethics Program places special emphasis on these risk areas. The Compliance & Ethics Program has

been approved by Fennovoima's Board of Directors, and the CEO carries the responsibility for its implementation. In practice, the Compliance unit is in charge of the development and follow-up of the Program, processing of concerns, and providing instructions and training to the personnel. The Compliance unit also processes suspected violations and non-conformities and implements the necessary actions.

Practical implementation of the processes, procedures and instructions defined in the Fennovoima Management System is also monitored at internal audits and the management reviews that are carried out twice a year.

In an internal audit, the compliance management processes were found to be in order. However, the audit results also indicated that internal transparency should be improved. We decided to provide all



Company policy

Defines the key principles on quality, nuclear safety, occupational health and safety, human resources, environment, company security and communication.



Fennovoima Code of Conduct

Incorporates the principles that are followed in all our operations.

Instruction on prevention of money laundering and terrorist financing

Instruction on anti-bribery and corruption

Our Company Policy and the Code of Conduct follow the principles of the UN Global Compact responsibility initiative.

employees with an annual summary of the observations reported during the year, and the actions taken. This new practice aims

to improve our internal transparency in the area of compliance and ethical principles.





Compliance & Ethics training

All our employees as well as the consultants working at Fennovoima attend a compulsory Compliance & Ethics training. This aims to ensure that all employees have an adequate knowledge of legislation and appropriate practices.

Our organization has become increasingly international in recent years, and we currently have employees from around 20 different countries. In a multicultural working environment, the different cultural backgrounds of employees may result in different ways of understanding the correct ways of working and in different conceptions of what is ethical.

In 2018, we noticed that the personal backgrounds must be taken into account more closely in compliance management. For this reason, the wordings used in the training

and communication were clarified. We will share practical examples and best practices to illustrate situations where misconceptions may arise. We have also organized one targeted event where requirements that specifically apply to the participants' work were discussed.

In 2018, 97% of our own personnel and 52% of the internal consultants (total: 89%) had completed the training on our Code of Conduct within the time limit of four months. In 2017, the combined completion percentage was 88.

Compulsory Compliance and Ethics training and the discretionary targeted training will continue in 2019. We will also adopt an online training course for our personnel to support and maintain their understanding of ethical matters. According to plans, all employees will complete the course every

two years. The course also contains a compulsory test on Fennovoima's Code of Conduct.

Reporting concerns

We encourage our employees to report any suspected violations of laws, our Code of Conduct and internal regulations. These should be reported primarily to the supervisor or to the Compliance team. Fennovoima also has a so called whistleblower tool that allows anonymous reporting of all compliance-related observations. The tool is available to all Fennovoima employees.

The Compliance team assesses all reported suspicions of violations and ensures that the appropriate action is taken. Absolute confidentiality is applied to all communications related to expressing concerns, and we do not tolerate any countermeasures, harassment or discrimination of persons who have submitted reports. Even an attempt of a countermeasure will lead to disciplinary action and may even lead to the termination of employment.

SIGNIFICANT NON-COMPLIANCES WITH LAWS AND LEGAL REQUIREMENTS	2018	2017	2016
Fines or non-monetary sanctions for non-compliances	0	0	0





CONTINUOUS WORK AGAINST CORRUPTION

Corruption is one of the biggest global obstacles of development. It hinders competition and stops investments from taking place, and has serious consequences for economic and democratic development as well as employment. Corruption may also have serious consequences for nuclear safety.

Fennovoima takes corruption very seriously and does not accept it in any form. The risk of corruption has been assessed in all own operations of Fennovoima. We have identified corruption as an essential risk particularly for the international supply chain for the Hanhikivi 1 project. Also in Finland, several reviews have found the construction industry to be one of the industries with the biggest risk for corruption to occur.

Fennovoima has versatile tools to prevent corruption. These include a written Code of Conduct, instructions to prevent corruption and money laundering, which are always available to personnel online, compulsory training on prevention of corruption (as part of the Compliance & Ethics training for employees and internal consultants) and procedures for the processing of suspected and observed incidences. Any offer, promise, grant or gift must comply with applicable laws and Fennovoima's instructions.

In 2018, we identified one case in which the requirements of openness were not fulfilled. A Fennovoima employee owned shares in a company that was involved in a procurement process, but did not recuse himself from the procurement process or

report possible bias in decision-making. A warning was issued to the employee.

The practices of various units of Fennovoima were also subjected to a more extensive scrutiny in 2018. The review revealed that the company's internal procurement instructions and procedures had not been followed in some respects. As a result, internal procurement responsibilities were revised.

Companies included in the supply chain have committed to complying with Fennovoima's Code of Conduct.

Fennovoima has established contractual obligations for supply chain companies to prevent corruption in their own operations and in their supply chains. For more information on the guidance and monitoring of the supply chain, see the [Responsible Supply Chain Management](#) chapter in this report.

CORRUPTION	2018	2017	2016
Confirmed incidents of corruption	0	0	0



KEY FINANCIAL FIGURES

Fennovoima's purpose is to build a new Finnish nuclear power plant to produce electricity at a stable price for its owners.

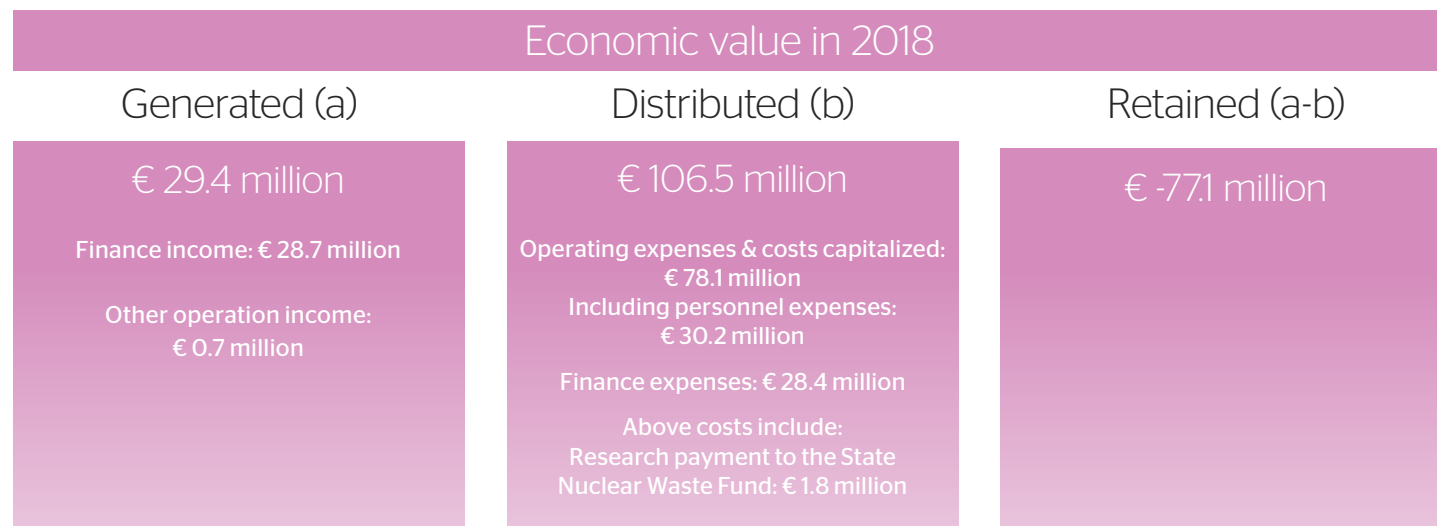
Our Finnish owners are industrial corporations and municipal power utilities that will use the generated energy for their own purposes. The emission-free electricity from Hanhikivi 1 will benefit the whole country.

When commercial operation of the nuclear power plant begins, the company will operate in line with the Mankala principle, which means that shareholders are able to purchase electricity at cost price in proportion to their shares of ownership. Fennovoima is therefore not expected to make a profit or pay dividends as traditional businesses do.

Fennovoima has two offices: the headquarter in Helsinki, and local office in Pyhäjoki. Fennovoima owns 100% of the company OOO Fennovoima Rus, which operates in Russia. The subsidiary was registered in November 2015 to control procurement that takes place in Russia. OOO Fennovoima Rus has an office in St. Petersburg.

Financial year 2018

Fennovoima is still in the project phase and owns no assets that generate revenue.



Therefore, it had no turnover in 2018. The construction of the nuclear power plant will begin when the Finnish Government grants Fennovoima a construction license. According to the current schedule, commercial operation is expected to begin in 2028.

All Fennovoima's costs are related to the design, construction and commissioning of the nuclear power plant.

The figure above describes the distribution of the financial value of Fennovoima.

Before the launch of commercial operation, Fennovoima has no expectations of any revenue. This results in the following: The economic value generated (a) remains at a modest level, consisting mainly of occasional financing income related to the loan facilities and liquidity management.

The economic value distributed (b) is significant before the commercial operation of the nuclear power plant begins, because the plant investment takes place during this period. During this period, Fennovoima will not generate revenues nor economic value that could be distributed in the sense that

companies generally do. Several stakeholder groups benefit from the capital invested; these include the personnel, external service providers, authorities and the plant supplier.

For the reasons presented above, the economic value retained (a-b) is currently negative. When the commercial operation of the plant begins, the economic value generated is going to cover the economic value distributed. Due to the cost price principle of operation, the economic value retained is expected to stay near zero, even during commercial operation.



HANHIKIVI 1 PROJECT OFFERS EMPLOYMENT AND BOOSTS GROWTH

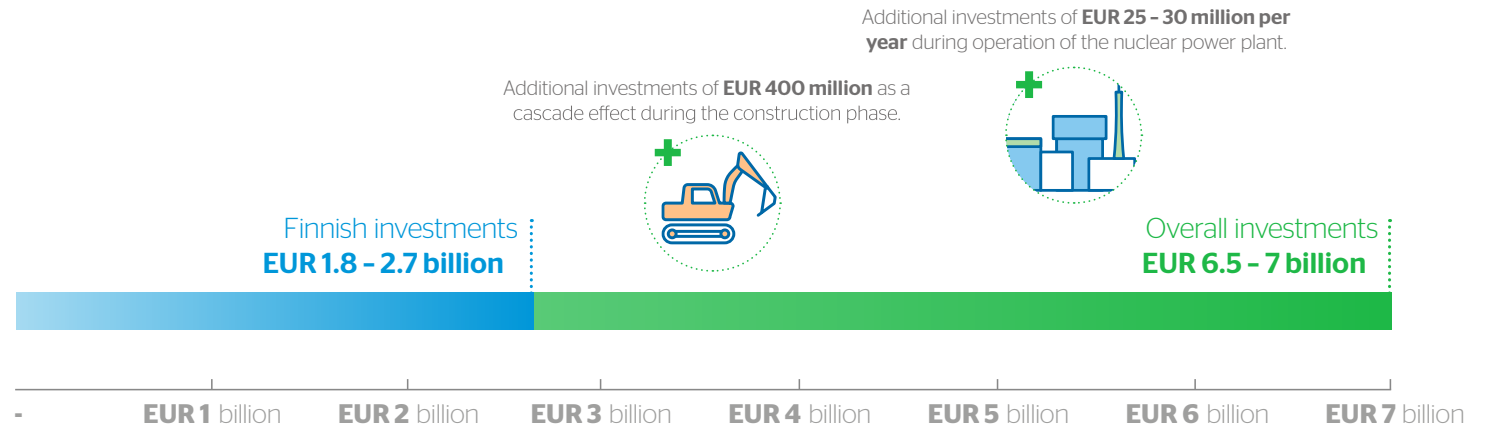
The Hanhikivi 1 project is a major investment that will benefit the whole Finland and its economy. The impact of preparatory work alone, including the construction of a harbor and auxiliary buildings, will be considerable.

The total employment impact of the construction of infrastructure and auxiliary buildings will be approximately 3,000 man-years in Finland. More than one third of this (approximately 1,300 man-years) will take place in Northern Ostrobothnia. The preparatory construction work will accumulate a total tax revenue of more than EUR 70 million, of which more than EUR 30 million will be directed to Northern Ostrobothnia.

The impact of preparatory construction work can be seen also in the region's gross regional product (GRP). With cascade effects included Hanhikivi 1 project is responsible for approximately 0.6 percent of the overall GRP of Northern Ostrobothnia. During the construction of the nuclear power plant, the project's GRP impact, cascade effects included, will increase to 3.0-4.9 percent of Northern Ostrobothnia's GRP.

The positive impact on the national economy will multiply after the plant construction begins. During the entire construction phase, the Hanhikivi 1 project will generate a non-recurring total turnover increase of approximately EUR 2.5-3.9 billion in the whole of Finland, and will bring approximately EUR 1.1-1.7 billion in added value. The indirect impact of the Hanhikivi 1 project on the national economy, presented

Investment and its cascade effect*



*For example, investments in equipment in other companies or commercial construction investments due to the increased demand caused by the construction or operation of the nuclear power plant.

in this chapter, is based on a study of resource flows in Northern Ostrobothnia, initiated in 2018 by the Council of Oulu Region and Raahel District Business Services. The impact of the Hanhikivi 1 project on the local economy was also investigated as part of the study. The study was conducted by Ramboll Finland Oy and the Natural Resources Institute Finland. The domestic content used when assessing the impact

ranged from 25 to 40 percent.

Read more about the study here (in Finnish): www.pohjois-pohjanmaa.fi/aluesuunnittelu/aluesuunnittelun_paattyneet_projektit/pohjois-pohjanmaan_alueelliset_resurssivirrat

Looking ahead to the future

Fennovoima Reprogrammed

We are part of the solution

Responsible business practices

Economic responsibility

Nuclear safety

Organizational development and employment

Responsible supply chain management

Occupational health and safety

Environment

Local engagement

Reporting principles

Employment impact and tax revenue



During the construction phase, the **Hanhikivi 1** construction site will employ more than

20,000

professionals. At the most

4,000

of these people will be working simultaneously.



Once in operation, the nuclear power plant will directly employ some

500

people. When taking into account the indirect impact (the cascade effect)**, approximately

2,600

jobs will be created.

**More jobs in several industries will be created due to the cascade effect from the direct jobs, such as service- and education-related jobs.

1,700 in North Ostrobothnia
800-900 in other parts of Finland

Different types of in direct and indirect **taxes will be paid** totally

70 million
EUR

during construction of the infrastructure

342 - 564 million
EUR

during the construction of the nuclear power plant

Furthermore

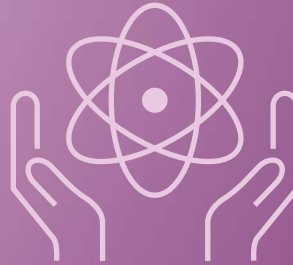
49 million
EUR

per year during operation of the nuclear power plant

During construction of the infrastructure and the power plant:

- The state will receive **EUR 289 - 421 million** in product, production, and value added tax revenue, of which **EUR 108 - 163 million** from North Ostrobothnia.
- Municipal tax revenue of the municipalities in North Ostrobothnia will increase; their share of the corporation tax revenue from companies, and real estate tax revenue will be some **EUR 60 - 90 million**.





Nuclear safety

Nuclear technology and safety culture go hand in hand in ensuring the safety of a nuclear power plant. While confirming the safety by technical design, we also develop of our safety culture in compliance with the shared safety principles established for the project.

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Responsible
business
practices

Economic
responsibility

**Nuclear
safety**

Organizational development
and employment

Responsible
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Nuclear safety

GOAL		PROGRESS
A strong safety culture	The safety culture of the key participants in the Hanhikivi 1 project has been proven to be at a good level before beginning the plant construction.	
Uncompromising nuclear safety	Strong evidence of plant safety	
Uncompromising radiation safety	Key documentation for the preliminary safety analysis is completed and of high quality.	
	Basic design, manufacture and construction of the plant have been carried out in accordance with the preliminary safety analysis report.	





ENSURING PLANT SAFETY

Plant safety is ensured in the design phase before construction of the power plant begins.

At the moment, a few issues significant for nuclear safety are still open in the plant design. Most important of these relate to plant protection against external and internal hazards, functional safety design, and to locating the plant within the plant site with respect to the fracture zones in the bedrock. The open issues will be thoroughly resolved. We aim to resolve the most important open questions during

spring 2019 in accordance with the development program.

In the preliminary safety assessment for the plant (in 2014), STUK also identified other significant issues that require clarification. Our progress in solving these issues is discussed later in this chapter.

Protection against hazards

The nuclear power plant will be protected from all conceivable hazards, including variations in sea level, extreme weather phenomena, and both intentional and unintentional human hazards. Based on the

information delivered by the plant supplier, we have not yet been able to confirm that the protection strategy fulfils all the objectives set for them.

Functional safety design

The functional safety design specifies the plant's safety functions and allows us to ensure that the principles of defense-in-depth are fulfilled in the design. Defense-in-depth means that the safety of the nuclear power plant is ensured at many levels so that a single failure or human error cannot affect plant safety.

At the moment, important issues remain open related to matters such as how certain single failures and common cause failures are taken into account.

Fractured zone and plant location

The bedrock of the Hanhikivi nuclear power plant site has certain significant fractured zones that must be taken into account when determining the appropriate location of the plant at the site and when designing the foundation structures. Further geotechnical investigations were carried out in fall 2018 to gather more information.

Progress made in the key development areas identified in STUK's preliminary safety assessment

For more information, see STUK's preliminary safety assessment (2014).

MAJOR TOPICS	PROGRESS IN 2018
<p>1. The design of nuclear power plant shall take the crash of a large commercial airliner into consideration as an external hazard.</p>	<p>We have reviewed the concept on airplane crash management. The strategy is partly based on both physical separation and structural protection. We are continuing the design work and detailed analyses to demonstrate the adequacy of the selected strategy and the structural durability.</p>
<p>2. System design shall apply the separation principle to ensure the implementation of the safety functions even in the event of a failure and during internal and external hazards.</p>	<p>Main principles applied for separation and layout are discussed. In particular, the design work and detailed analyses that relate to flooding and fire protection are ongoing.</p>
<p>3. Depressurization of the primary circuit in a severe accident</p>	<p>The objective is to prevent the reactor core from melting through the bottom of the pressure vessel under high pressure conditions during a severe accident. The design provides a separate emergency pressure reduction system that is dedicated for managing severe accident conditions. The basic design of the system is ongoing.</p>

Color codes: ● = No open issues or only minor open issues ● = Significant open issues ● = Critical open issues



Progress made in the key development areas identified in STUK's preliminary safety assessment






OTHER TOPICS	PROGRESS IN 2018
<p>● 4. Experimental substantiation of passive heat removal systems (PHRS)</p>	<p>The plant supplier has delivered the justification for the functionality of the steam generator and the passive heat removal systems of the containment. Further experiments are being planned to be carried out in the test facility at Lappeenranta University of Technology.</p>
<p>● 5. Detailed demonstration of compliance with the Finnish requirements in terms of the redundancy, separation, and diversity principles of the systems that ensure safety functions</p>	<p>The documentation is being prepared as part of the safety engineering process. Final evidence will be presented in licensing documentation and in the system requirement evaluations.</p>
<p>● 6. The effect that the material of the reactor pressure vessel has on the radiation embrittlement rate</p>	<p>We have reviewed the plant supplier's justification of the 60 years service life of the reactor. Some open issues remain, but the analysis results will be verified with a reactor material and welded joint test program that will continue for several years (in accordance with the test plan received by the plant supplier). Aging of the reactor pressure vessel materials will also be continuously monitored during operation.</p>
<p>● 7. The effects that postulated, sudden pipe breaks of the primary coolant circuit have on the durability of the internal parts of the reactor as well as the implementation, inspection and radiation protection principles of the primary coolant circuit nozzles</p>	<p>An analysis will be carried out in accordance with the YVL requirements*. Similar analyses have been performed for the reference plant with positive results.</p>




* YVL Guides are regulatory guides on nuclear safety that contain detailed requirements under the Nuclear Energy Act.

Color codes: ● = No open issues or only minor open issues ● = Significant open issues ● = Critical open issues



Progress made in the key development areas identified in STUK's preliminary safety assessment

OTHER TOPICS	PROGRESS IN 2018
<p> 8. Design of penetrations in upper part of containment building and tendon system of inner containment</p>	<p>For the penetrations in the top section of the containment, the main risk relates to how difficult they are to build. Fennovoima's construction specialists have assessed the work and consider it manageable. The constructability has also been proven in the reference plant.</p>
<p> 9. The suction strainers of the safety injection systems and experimental verification of their functionality</p>	<p>At the moment, the plant supplier's experiments for the functionality of the sump filters is based on the design of the reference plant. More testing is required using the specific materials for Hanhikivi 1 to demonstrate the reliable operation of the sump filters and thus the safety injection system.</p>
<p> 10. The technical solutions that are related to obtaining the cooling water for the systems that implement the diversity principle in residual heat removal for a 72-hour period</p>	<p>The plant supplier's justification for the adequacy of water inventory shows that residual heat removal can be continued without external supplies for a week.</p>
<p> 11. Independence of the systems used to implement the severe accident management strategy (SAM)</p>	<p>The development of the severe accident management concept continued in 2018. At the principle level, the further developed strategy meets Fennovoima's main expectations.</p>
<p> 12. A procedure and systems to reduce containment pressure to achieve a long-term safe state after a severe accident.</p>	<p>Restoration of the plant to a safe state after a severe accident can be done by using passive heat removal systems or active systems. If passive systems are used, however, restoring the plant to a safe state after an accident may take rather long time. When using active systems, a safe state will be restored in 1-2 weeks.</p>

Color codes:  = No open issues or only minor open issues  = Significant open issues  = Critical open issues



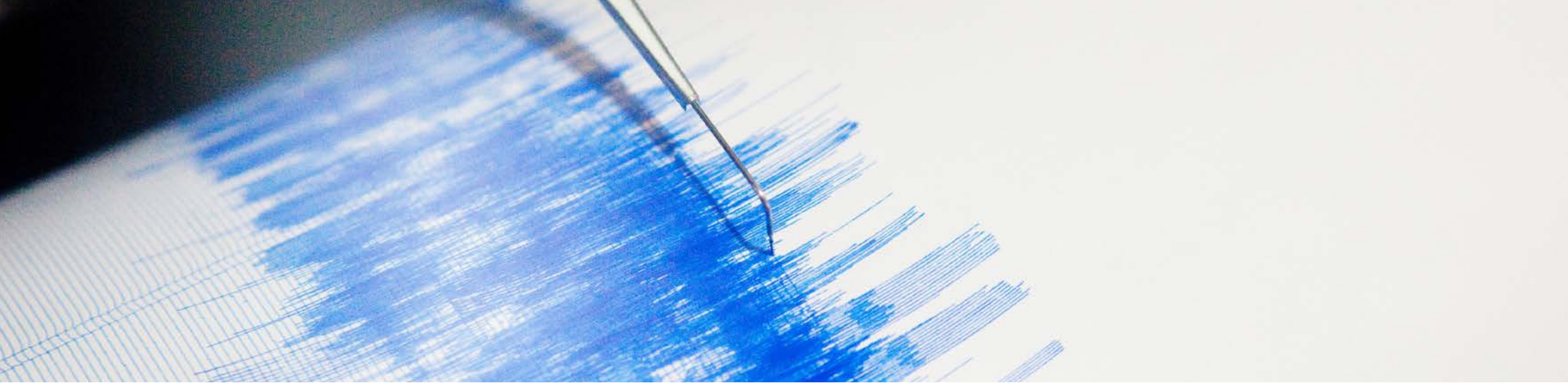
Progress made in the key development areas identified in STUK's preliminary safety assessment

OTHER TOPICS	PROGRESS IN 2018
<p>● 13. Realization of safety principles and objectives in the technical solutions of the plant with regard to I&C systems</p>	<p>These matters will be clarified in connection with the open questions related to functional design.</p>
<p>● 14. Separation principles for electrical systems</p>	<p>This is an important topic related to item 13 above.</p>
<p>● 15. Scope of the hardwired diverse I&C system</p>	<p>Current functional design solutions form the basis for utilization of hardwired diverse I&C systems that implement the diversity principle. The principles will be planned when developing the automation architecture.</p>
<p>● 16. Application of the diversity principle in the measurements of the reactor protection system and in activation of the protection</p>	<p>The issue remains undecided. Different options are considered.</p>
<p>● 17. Cooling of auxiliary and support systems and substantiation of a sufficient cooling water supply</p>	<p>The design include a cooling system for the safety systems ensuring its functionality in both normal operating conditions and in design basis accident conditions.</p>

The table on pages 24-27 shows the status at the end of 2018. The aim is to resolve critical open issues during spring 2019.

Color codes: ● = No open issues or only minor open issues ● = Significant open issues ● = Critical open issues





Seismic spectrum that guides preparation for earthquakes has been updated

The essential structures, systems and equipment of the nuclear power plant are designed to withstand the stress caused by an earthquake. An error was detected in 2017 in the horizontal and vertical ground motion prediction equations (GMPE) from the Institute of Seismology that were used to assess the seismic risk in the Hanhikivi headland.

The GMPE method has now been corrected, and the most important plant site measurements related to seismic risks have been repeated. The seismic design basis for Hanhikivi 1 was reassessed early in 2018

based on updated risk assessments and the earthquake magnitudes measured in Pyhäjoki. These assessments led to increasing the seismic design spectrum in high frequencies (10-50 Hz). In other words, the spectrum describes how plant structures attached to the bedrock vibrate at various natural frequencies. The structures of the power plant must be able to withstand higher acceleration forces in high frequencies than initially assessed.

CONTINUOUS DEVELOPMENT OF SAFETY CULTURE

All parties participating in the Hanhikivi 1 project must demonstrate a good safety culture in their operations. A good safety culture

ultimately means knowing what you are doing, and doing it in a responsible manner. Changes take place in the culture through consistent actions over the long term.

The development of Fennovoima's safety culture is based on our safety culture program that leads to safety culture being inherent in all company structures and practices, decision-making and daily work. The program sets the objectives for the work, and the management team confirms more detailed actions for the annual implementation of the program. We continually work to develop the safety culture and it is, as well as the related actions, a regular topic of management discourse.

SAFETY PRINCIPLES OF THE HANHIKIVI 1 PROJECT

COMMITMENT:

Make nuclear safety a priority, take responsibility and be an example to others.

AWARENESS:

Know what you are doing and why.

TRANSPARENCY:

Communicate and cooperate.

CONTINUOUS IMPROVEMENT:

Take the initiative and strive to learn more.





Our preparedness for ensuring our own safety culture and that of the supply chain is at an acceptable level at this stage of the project according to the independent study by VTT Technical Research Centre of Finland. All project participants must, however, take action to develop their safety culture. We will continue the systematic development work throughout the lifetime of the plant.

On a practical level, we build a good safety culture through many actions. For example, we develop our management system so that we are able to ensure thorough and appropriately scheduled assessment of safety solutions, as well as the clarity of the indicators used for monitoring the results. The safety culture is also manifested in the competence requirements for the personnel

and in the training used to ensure unified management practices.

The state of the safety culture is verified with assessments

An independent investigation concerning the handling of site survey for the Fennovoima plant site was completed in 2018. The assessment revealed deficiencies in the implementation of the nuclear safety culture. The observations concerned for example a lack of clarity in the division of responsibilities and in the structure of the organization, differences of opinion between top management and experts, and an inadequate administrative structure.

We discussed the assessment results in four personnel workshops and three top

management workshops. The results of the workshops support Fennovoima in improving the openness and transparency of decision-making. The development areas presented in the assessment as well as the new initiatives generated at the workshops will be included in Fennovoima's development program.

We have also launched a self-assessment of the safety culture; the first step being the management team's safety culture assessment. Fennovoima's safety culture ambassadors, who have received training from IAEA (International Atomic Energy Agency, a specialized agency of the United Nations) for the task, are in charge of carrying out the assessment. The assessment will include components such as interviews, a

personnel survey, document analysis, and observations, and it will be completed in spring 2019.

Safety observations

Reporting of safety observations increases the transparency of safety culture development. Therefore, we encourage employees to use the reporting system to report their observations.

In 2018, our personnel reported 69 safety observations. The importance for safety was estimated as high for three of them, significant for 34, and minor for 32. The expressed concerns dealt with many different matters. Many of them addressed occupational safety or information security. Room for improvement was also observed





in cooperation and review practices, as well as in communication. Fennovoima's safety observation team promotes the processing of the observations and monitors the implementation of corrective actions.

Reporting of safety observations has increased from previous years (42 observations in 2017, and 18 in 2016). We consider the increased number of observations a good development, as it is an indication of the motivation of the personnel to improve operations. We encourage our personnel to be even more active in reporting observations.

Hanhikivi 1 project participants who are not part of Fennovoima's personnel may report safety observations to Fennovoima's nuclear safety department by email. All concerns reported by email will also be handled confidentially.

We have adopted a shared observation mailbox system at the Hanhikivi 1 construction site. Anyone working at the site may use the mailboxes to report observations. The observations may relate to any shortcomings or suspicions. The joint job stewards of the Hanhikivi 1 site process the received observations in confidence before forwarding the observations to the related parties anonymously. This system has been developed in cooperation with RAOS Project.

SAFETY IN THE SUPPLY CHAIN

We have strengthened the monitoring of safety culture in the supply chain and emphasized the implementation of safety culture as an approval criterion for the supply chain.

To ensure that safety receives adequate attention in the the supply chain all sub-

contracting deliveries for the Hanhikivi 1 project are classified based on their safety significance. To support this work, we utilize a network model that describes the safety significance and the company's role in the supply chain. We have also adopted a safety culture register that allows systematic monitoring of safety culture in the supply chain and improves the traceability of information.

We carried out a dedicated safety culture audit of RAOS Project. We observed no non-conformities in the operations, but found that the progress of the safety culture development has been slow. RAOS Project needs to accelerate the implementation of the processes related to safety culture.

Due to the shortcomings observed in the safety culture, we have given conditional approval to the main contractor Titan-2 until

the end of 2019. To renew the approval, we require clear improvements in the safety culture of the company. Meanwhile, we are increasing our efforts to support and monitor Titan-2's safety culture development.

Realization of the safety culture principles at the construction site

Research for a thesis was carried out in fall 2018 on the state of the safety culture at the Hanhikivi 1 construction site. The study included a survey of the working atmosphere, interviews, and observations of the practical safety culture. A total of 126 people working at the construction site in different companies and positions participated in the study. The most important findings were that cooperation between the companies working at the site needs to be improved, and transparency needs to be improved in decision-making and working methods.

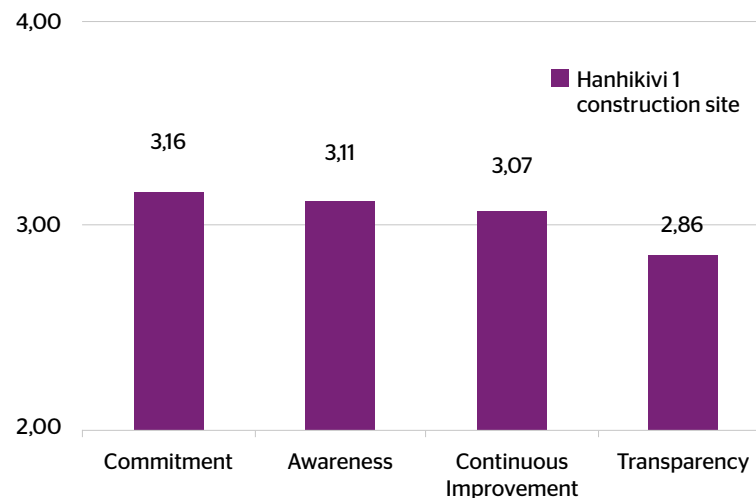




With the exception of transparency, the shared safety culture principles for the Hanhikivi 1 project were found to be implemented to a reasonably good degree at the construction site.

We intend to discuss the results with RAOS Project and Titan-2 and to decide on development measures together. We also plan to arrange another safety culture research later in 2019 to investigate the effectiveness of the development measures that will have been carried out. Fennovoima, RAOS Project and Titan-2 have all increased their resources for developing the safety culture at the construction site.

REALIZATION OF THE SAFETY CULTURE PRINCIPLES AT THE HANHIKIVI 1 CONSTRUCTION SITE



The assessment used a Likert scale of 1-4, where 1 = completely disagree and 4 = completely agree.




New safety culture guide



We have published a safety culture guide to support the development of the safety culture within the Hanhikivi 1 project. It is targeted at parties whose operations have safety significance. The guide provides practical examples to demonstrate the project's safety principles.



Organization development and employment

GOAL		PROGRESS
The organization has the ability to begin the construction phase	The personnel headcount according to plan	⊗
Continuous development of qualifications and competencies - effective training	Annual average of training 8 working days (60 hours)	⊗
High quality leadership	Leadership average in the personnel survey at 3.5 by 2020 (scale 1-5)	Next survey in 2019 
A strong corporate culture and highly engaged personnel	Voluntary employee turnover below 5%	⊗
High personnel well-being	Work motivation above 3.2 in the Työvire personnel survey (scale 1-5) Sick leave rate below 2.5%	✔



THE RIGHT PEOPLE FOR THE RIGHT POSITIONS

Currently, we are developing Fennovoima's organization to meet the needs of the construction phase.

We recruited new professionals in seven phases during the year. We also used head-hunting and searched through international networks to recruit professionals from around the globe. Experts in some specific areas are rare, which means that recruiting can take time. In some cases, we had to relaunch the recruitment process for the same positions. We have also looked for new specialists to replace those who left the organization.

Changes in project schedule are reflected in the need for new personnel, and our

organization's growth targets were updated accordingly during the year. A quarter of the open positions were filled by internal job rotation.

In a manner typical of project operations, we complemented our base of expertise with consultants who work together with our personnel.

Several factors behind turnover

The number of employees leaving Fennovoima was higher than in previous years. Several factors influenced the voluntary turnover rate. Some employees who have been with us for a long time have moved towards new professional challenges. Some have decided to leave due to Fennovoima's future relocation from the Helsinki area to the plant site. For personal reasons, some employees

are not willing to move or commute from the capital area to the north of Finland. Reasons behind the high turnover also include frustration with the project-oriented work and the challenges related to fitting together Fennovoima's and the plant supplier's operating cultures and ways of working.

We aim to increase commitment by clarifying our ways of working and the internal division of responsibilities in accordance with our development plan, and with long-term measures that support well-being.

Our recruitment needs for 2019 will be moderate, and the focus will be on long-standing nuclear power expertise. We will also continuously strengthen the automation, electrical, power plant, turbine technology, nuclear safety and project

management competencies in our organization. In organizational planning, we are already preparing for the operating phase of the Hanhikivi 1 nuclear power plant.

Competence management

We make sure that we have the right people in the right positions. We have collected information about our employees' education, previous experience and competencies in our human resources management system, and we compare these to the competence and qualification requirements when making personal development plans.

In 2019, we will adopt a new competence management system that will provide us with better tools to help our personnel to develop professionally and to monitor their performance.



Fennovoima employees **313**



Including internal consultants **383**



New permanent employees **52**
and 11 trainees



Employees who left the company **42**
in addition **1** employee retired and
10 temporary contracts ended



Organizational growth at the end of the year **10** people

Towards Pyhäjoki

Our organization is gradually preparing to relocate to the plant site in Pyhäjoki. Construction work of the new administrative building is beginning, and the organization will move to Pyhäjoki in stages. In 2018, a total of 44 Fennovoima employees worked in Pyhäjoki.

The relocation and for example the possibility to commute have raised many questions among our employees. We have discussed the matter in staff meetings and surveyed the personnel's willingness to relocate in personal development discussions. The results of these surveys and the wishes of

the different departments are taken into account when planning a more specific schedule for the relocation.

In May, we organized an information event for the personnel and their families where 15 North Ostrobothnian municipalities presented the services available in the area and talked about the way of life in their municipalities.

FENNOWAY - OUR WAY OF WORKING

The principles that guide Fennovoima's operations - commitment, awareness, transparency and continuous improvement - have been defined in our nuclear safety



principles. The Fennoway cornerstones are matters that have been jointly defined by our personnel and management to support the realization of our safety culture in our organization. We want all Fennovoima employees to represent these matters in their work and attitude towards others.

During the year, we have worked to make the Fennoway cornerstones a concrete part of our practices. We have arranged three Fennoway workshops for supervisors. In the workshops, we searched together for practical examples how Fennoway should materialize in supervisory work and the work of the teams. During the year, teams from different parts of the organization



developed concrete examples, tips and instructions based on the cornerstones. Here is an example of the ideas how to improve cooperation:

"In my experience, the best way to create a cooperation relationship based on trust is to get to know your partners personally. Trust creates efficiency, and it's easier to get things done." Henri Ormus, Project Engineer Configuration Management.

Instant Reward for excellence at work

We consider it important to value and reward success at work. In 2018, we implemented an Instant Reward program to acknowledge particular successes of our employees.

The Instant Reward amounted to 50-100% of the employee's monthly salary. It was granted when a specific goal-related task

or project had been carried out particularly well and in accordance with the Fennoway cornerstones: by building cooperation, creating solutions, making it clear and by showing that you care. Supervisors could propose their team members for Instant Rewards. The rewards were given to 13 Fennovoima employees.

HIGH-QUALITY LEADERSHIP

We support supervisors in their daily work and provide them tools to lead their teams in line with the Fennoway cornerstones.

Our leadership training program, the FennoWay Leadership Program, is targeted at all Fennovoima employees in supervisory



positions. The training addresses themes such as communication skills, goal-oriented management and the role of managers at Fennovoima. The training also includes a leadership assessment that maps the supervisor's strengths and targets for development, and improves self-knowledge.

The FV Leader program is a more advanced training course where the above-mentioned themes are explored more in detail taking into account on the participants' needs. The training program includes group and individual coaching to allow more thorough processing of the essential development targets of the participants. The program also includes a 360° feedback survey to support personal development. The FV Leader program was not organized in 2018, but it will be part of the training program again in 2019.

We carry out personnel surveys to monitor the quality of leadership performance. Based on a Työyhteisöviire survey (work community shape) charting the state of the working community, the quality of leadership is at good level at Fennovoima. On a scale of 1-5, the average of leadership quality indicators was 3.7.

We aim to continuously develop the quality of management as good management practices have a direct impact on well-being at work. We involve the supervisors and their teams in the development of the matters revealed by the Työyhteisöviire survey.

COMPETENCE DEVELOPMENT AND TRAINING

Our comprehensive training program supports continuous learning. Training

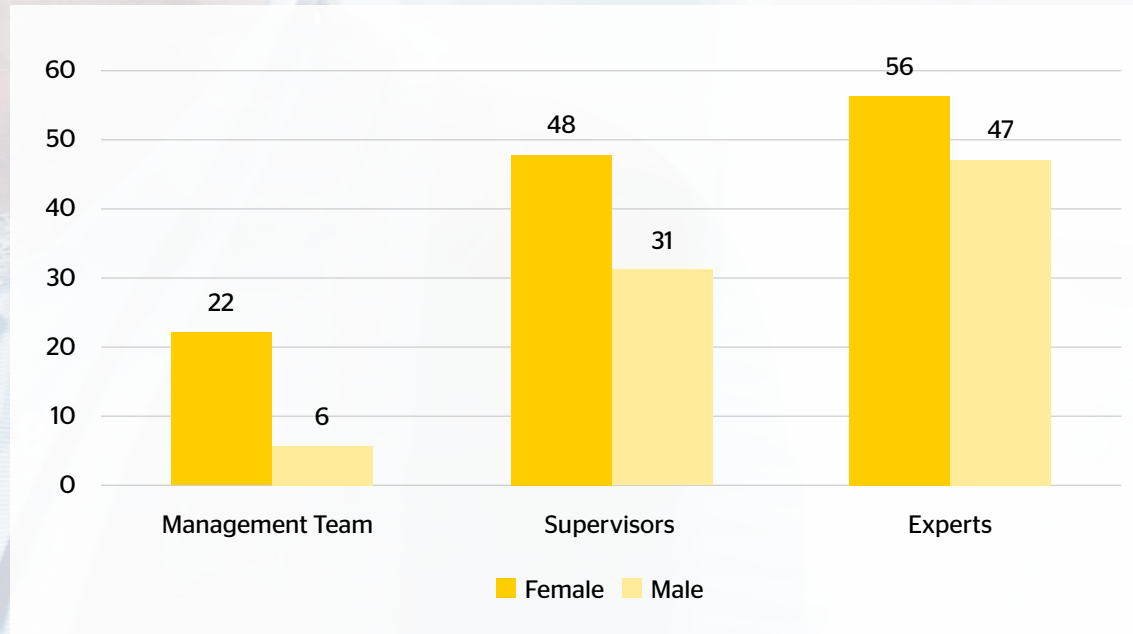
courses that are compulsory for all employees range from a two-week induction course to training related to nuclear safety guidelines and ethical conduct. We offer many voluntary training courses to support employees' professional competencies. Also, visits to the Hanhikivi plant site are an important part of getting familiar with the project.

In 2018, we placed special focus on developing project management competencies and reviewed the training provided for project managers. We conducted a competence survey of approximately 70 project managers, and we utilize the results to revise the training programs. In the training courses, we pay more attention to developing uniform practices for project management.

The personnel received an average of 50 hours of training. We did not achieve our annual goal of eight days (60 hours) of training. There was a clear decrease in training hours compared to the average number of hours spent for training in the previous year (2017: 72.8 hours, or over ten days of training). The difference is explained by the fact that unlike the previous year, RAOS Project did not organize a two-week VVER plant technology training course for engineers due to an observed need to develop the training. The training is expected to be organized again in 2019.



Average hours of training



In 2018, the personnel received an average of 50 hours of training. Differences in training hours between groups are explained, for example, by the induction training that is provided to new employees.



Learning from other nuclear operators

In addition to training courses, learning by experience is essential in the nuclear power industry. Fennovoima engineers in particular visit peer companies to observe how other nuclear power companies operate in different parts of the world. Visits are organized by WANO (the World Association of Nuclear Operators), among others. Fennovoima's Commissioning Manager, Matthew Geharty, describes his thoughts after visiting the Flamanville 3 nuclear power plant in France:

"Benchmarking visits to established nuclear power plants provide excellent opportunities to identify best practices. This was an extremely worthwhile visit, with lessons for

commissioning and many other areas in Fennovoima."

YJK training course provides complementary professional education

Each year, several Fennovoima employees participate in a complementary training course on nuclear safety and nuclear waste management that is for all operators in the nuclear industry.

The course addresses a wide range of topics related to nuclear safety and is taught by more than a hundred specialist trainers. The course is targeted at nuclear industry employees with a few years' experience and provides them with advanced competence

required in the field. In 2018, seventeen Fennovoima employees completed the intensive training that takes nearly six working weeks.

The course is jointly organized by Aalto University, Lappeenranta University of Technology, Fennovoima, Fortum, Posiva, TVO, STUK, the Ministry of Economic Affairs and Employment of Finland, VTT Technical Research Centre of Finland, Pöyry, Platom, and Saanio & Riekkola (A-Insinöörit).

HIGH PERSONNEL WELL-BEING

By investing in well-being at work and a good working atmosphere, we support

productivity, commitment and motivation. A functioning organizational structure, high-quality management practices and opportunities for professional development, among other similar factors, are key to a flourishing workplace well-being.

We develop well-being together as a shared effort between top and middle management, employees and the occupational health care services. The occupational health and safety committee and the OHS representatives that the personnel elect from among themselves are also involved in planning and executing well-being measures.

Looking ahead to the future

Fennovoima Reprogrammed

We are part of the solution

Responsible business practices

Economic responsibility

Nuclear safety

Organizational development and employment

Responsible supply chain management

Occupational health and safety

Environment

Local engagement

Reporting principles

Personel well-being



Fennovoima engages in holistic management of well-being at work.

Looking ahead
to the future

Fennovoima
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and employment

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supply chain
management

Occupational
health
and safety

Environment

Local
engagement

Reporting
principles



WE MONITOR WELL-BEING

Personal development discussions play an important role in developing competencies and monitoring well-being at work. In the annual discussions, supervisors and employees take time to discuss the employee's performance, to set goals and to give feedback to each other.

We monitor well-being in the workplace and set goals for it also with two different personnel surveys.

According to the Työvire survey, conducted for the first time in June, 72% of the personnel have good or excellent work motivation. At the company level, the survey yielded an average well-being rating of 3.8 (on a scale of 1-5). The survey provides an overall picture of occupational well-being, safety at work, and the mental and physical burden caused by the work.

Later in the year, a more extensive Työyhteisöviire survey was carried out. In this survey, well-being received an average rating of 3.7 (on a scale of 1-5), and 66% of the personnel felt that they have good work motivation. The survey includes questions on themes such as the direction that the company is taking, leadership, abilities and practices, and how these affect the employee experience, occupational well-being and the ability to work.

The Työvire survey is conducted every six months, and the more extensive Työyhteisöviire survey every other year. These surveys replace the occupational well-being surveys that had been used previously.

We also monitor the personnel's sick leave absences in accordance with the early care model. If an individual employee begins to

EMPLOYEE WELL-BEING	2018	2017	2016
PDDs completed (goal: 100%)	99 %	98 %	97 %
Well-being rating, Työvire survey (goal: 3.2, scale 1-5)	3.8	Pulse well-being index, scale 1-6 4.59	Pulse well-being index, scale 1-6 4.76 ja 4.63
Well-being rating, Työyhteisöviire survey (goal: 3.2, scale 1-5)	3.7		ParTy overall rating, scale: 0-20 14.5
Sick leave rate (goal: below 2.5%)	1.61 %	1.63 %	2.07%
Reported incidents of discrimination	No reported incidents	No reported incidents	No reported incidents

take sick leave at an increased frequency, we find out the reasons for this and provide support when necessary. The scope of our

occupational health care services exceeds the statutory requirement.



Care Week

In 2018, we organized a well-being campaign called Care Week, for all employees in Pyhäjoki and Helsinki. All through the week, the personnel had the opportunity to participate in various exercise activities, stress management classes, mindfulness therapy, nutritional counselling, massage therapy, and other similar activities. In the fall, we organized a Care Day well-being event, which also included various activities to support

mental and physical well-being. Fennovoima's sports and culture clubs and the Young Professionals club organize well-being activities around the year. We also participate together in different sports campaigns.

Cycling for charity

Each year, we participate with our own team in the Kilometrikisa cycling competition. In 2018, our team of 35 cyclists totaled

56,110 kilometers during the campaign, and collected EUR 2,245 for the Finnish Red Cross. Fennovoima doubled the sum to EUR 4,500. According to campaign data, the cyclists saved 3,927 liters of fuel and 9,817 kg of CO2 emissions.

Looking ahead
to the future

Fennovoima
Reprogrammed

We are part of
the solution

Responsible
business
practices

Economic
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Nuclear
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Organizational development
and employment

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and safety

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Local
engagement

Reporting
principles

Personnel statistics

EMPLOYMENT AGREEMENTS BY GENDER AND REGION	PERMANENT				FIXED-TERM				TOTAL	
	Helsinki		Pyhäjoki		Helsinki		Pyhäjoki		Entire organisation	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Full time	73	185	11	29	3	0	1	2	88	216
Part-time	0	2	1	0	2	4	0	0	3	6
All	73	187	12	29	5	4	1	2	91	222

A total of 29.07% of our employees are women (28.7% in 2017). Fennovoima applies mostly permanent employment contracts. Fixed-term contracts are used only for e.g. temporary positions when a permanent employee has taken parental or study leave, summer jobs, or to cover short-time project needs. The possibility to have reduced working hours (part-time employees) has mostly been used for part-time child-care leave. In Board of Director's Report 2018 the personnel headcount does not include employees who were on a parental or study leave on December 31, 2018 or those whose employment contract did not continue after December 31, 2018.

Personnel statistics

NEW EMPLOYEES	HELSINKI		PYHÄJOKI		TOTAL	
Age group	Female	Male	Female	Male	All	%
Under 30	5	8	1	3	17	27.0
30-39	7	12	1	1	21	33.3
40-49	2	7	1	2	12	19.0
50-59	1	7	1	2	11	17.5
60 and over	0	2	0	0	2	3.2
Total	15	36	4	8	63	100

A total of 63 new employees began work at Fennovoima in 2018. This number includes 11 summer employees. In 2017, the number of new employees was 75 (including summer employees). In Board of Director's Report 2018 the personnel headcount does not include employees who were on a parental or study leave on December 31, 2018 or those whose employment contract did not continue after December 31, 2018.

Personnel statistics

VOLUNTARY EMPLOYEE TURNOVER	HELSINKI		PYHÄJOKI		TOTAL	
	Female	Male	Female	Male	All	%
Age group						
Under 30	0	1	0	0	1	2.4 %
30-39	3	12	2	1	18	42.9 %
40-49	5	7	1	0	13	30.9 %
50-59	1	7	0	1	9	21.4 %
60 and over	0	1	0	0	1	2.4 %
Total	9	28	3	2	42	100 %

*Voluntary employee turnover: voluntary resignations / number of employees on December 31, 2018 × 100. Voluntary staff turnover for permanent employees in 2018 was 13.52% (2017: 9.57%, 2016: 7.04%). This number does not include people who have left due to the end of a fixed-term employment contract (10) or retirement (1).



Responsible supply chain management

Fennovoima has approved all the suppliers in the Hanhikivi 1 supply chain. All suppliers must have the prerequisites to deliver the agreed services or products in accordance with nuclear safety requirements and the contract terms.

We also require that all suppliers commit to ethical practices. Important ethical aspects of the international supply chain include human rights, labor practices, environmental management and the prevention of corruption.

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Responsible supply chain management

GOAL		PROGRESS
Qualified and well-functioning supply chain	The supply chain has been found to be of high quality and has been approved.	
Respect and promotion of human rights, fair labor practices	All our new contract partners commit to compliance with Fennovoima's Code of Conduct as part of the contract.	
Efficient prevention of corruption in the supply chain	Ethical assessments have been included in Fennovoima's audit program.	
Measures to combat the gray economy are effective at the Hanhikivi 1 construction site.	All required information regarding the supply chain companies and people working at the site are in order.	



SAFETY IN FOCUS

The most important aspect of a nuclear power project's supply chain management is ensuring safety. All deliveries for the Hanhikivi 1 project are classified based on their safety significance. Deliveries that are important for safety are subject to a higher number of requirements that are also stricter than the requirements set for deliveries that have no nuclear safety significance. Deliveries that are important for safety can only be delivered by suppliers who have the prerequisites for operations that meet the statutory safety requirements and who have adopted clear procedures for quality management and assurance.

Sub-suppliers who produce services and products that are significant in terms of safety must understand and comply with the safety requirements of the Hanhikivi 1 project. All requirements set out in the YVL Guides and the plant supply contract do not directly apply to all suppliers.

The right requirements for the right subcontractors

When developing the project's supply chain we have observed challenges in how the requirements defined for the supply chain are targeted at appropriate parties. There has been a lack of shared understanding of which requirements should be applied to each sub-supplier, which has caused delays

in the design work and in the completion of documents that are needed for licensing and the launch of construction work.

The allocation of requirements has progressed in 2018. The main designer Atomproekt defined and allocated the YVL Guides' and the plant supply contract's requirements that apply to its own organization and to its sub-suppliers. Atomproekt also produced a suggestion for how to allocate requirements for other sub-suppliers in the supply chain. After reviewing the suggestion, RAOS Project presented requirements accordingly to its own sub-suppliers who, in turn, ensure that the requirements are targeted appropriately in their supply chains.

Fennovoima has established a multi-disciplinary YVL working team to monitor and support the distribution of requirements within the supply chain, and to increase transparency and trust between different operators. Several meetings have been planned for 2019 to finalize the allocation of requirements together with sub-suppliers.

We have also undertaken to improve the supply chain management for the whole Hanhikivi 1 project by strengthening Fennovoima's human resources and by developing and harmonizing the supply chain management tools.

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Fennovoima's scope of work	2018	2017	2016
Suppliers in total	273	184	158
Suppliers by country			
Finland	83%	84%	89%
Sweden	7,5%	9%	5%
The United Kingdom	2,5%	1,5%	2,0%
The USA	2,0%	1,5%	0%
Others (in 2018: Russia, the Czech Republic, Denmark, Germany, South Africa and Switzerland, Canada, Ireland, Luxembourg and Spain)	5%	4%	4%

Includes the suppliers approved for Fennovoima's supply chain by the end of 2018.

RAOS Project's scope of work	2018	2017	2016
Suppliers in total	754	524	210
Suppliers by country			
Finland	80%	80%	72%
Russia	11%	15%	23%
Estonia	4%	1%	< 0,5%
France	1%	1%	1%
Others (in 2018: Bulgaria, the Czech Republic, Germany, Latvia, Sweden, Ukraine, the Netherlands, the United Kingdom, Italy, Japan, Lithuania, Poland, Switzerland and the USA)	4%	3%	4%

Includes the suppliers approved for RAOS Project's supply chain by the end of 2018.

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Development of the supply chain

Suppliers for products and services that are significant for safety are only approved for a fixed period of time (YVL A.3). The approval period for the two main designer companies for Hanhikivi 1, JSC OKB Hidropress and JSC Atomproekt, came to a close in summer 2018. A reassessment of these companies was carried out in the spring, and both were granted approval for a further five years.

The I&C main supply contract was meant to be signed in the spring, but due to challenges in design development, competitive tendering was launched again in the fall. Rolls-Royce Civil Nuclear SAS continued to support the licensing of the automation systems.

In summer 2018, the turbine generator supply chain was strengthened by selecting the

following companies to participate in the manufacturing of the turbine generator:

- Japan Steel Works (Japan)
- GE Wroclaw (Poland)
- Fomas S.p.A (Italy)
- Acciai Speciali Terni (Italy)

The manufacturing of the first component of the turbine generator is expected to begin in spring 2019. We prepare for the beginning of plant component manufacture by improving the performance assessment and management practices that are applied to suppliers that are significant in terms of safety.

SUPPLY CHAIN CAPABILITIES ARE ENSURED WITH AUDITS

We perform supply chain audits to ensure that the suppliers meet the requirements set

for them as well as the terms of the contracts, and that they are able to produce the ordered products or services.

Fennovoima's auditing program covers all the Hanhikivi 1 suppliers who have safety significance. In 2018, Fennovoima performed a total of 25 audits within its own and the plant supplier's supply chains. We also participated as observer in nearly all audits performed by the plant supplier and its sub-suppliers.

The plant supplier audited all the sub-suppliers who belong to its own Hanhikivi 1 supply chain. In addition to audits performed by Fennovoima and RAOS Project, sub-suppliers, external auditors and STUK also perform audits and inspections at various stages of the project. STUK has the right to participate in all audits.

In 2018, audits of the supply chain focused on the management systems, safety culture, design processes, requirement management and the ability to deliver long-lead items. The focus areas were the same as in the previous year. Most of the observations made during audits were related to deficient procedures and the inadequate implementation of documented practices.

In future audits, we will place increasing emphasis on the assessment of the safety culture, requirement management, configuration management and design assessment processes, and safety assessment of the background analyses. The beginning of the manufacture of equipment with safety significance will also have an impact on the scope of audits.



ETHICAL REQUIREMENTS APPLY TO ALL SUPPLIERS OF THE HANHIKIVI 1 PROJECT

Socially significant ethical issues that relate to the supply chain, such as corruption, human rights obligations and the management of environmental matters are guided based on contractual terms, and are also taken into account in project planning.

We require the supply chain to comply with Fennovoima’s Code of Conduct or another similar generally recognized ethical code. We also expect the suppliers and sub-suppliers to ensure promotion of Fennovoima’s Code of Conduct amongst stakeholders, especially sub-suppliers.

Our Code of Conduct requires the suppliers and sub-suppliers to ensure:

- Full compliance with all applicable laws,
- Prohibition of all corruptive behavior,
- Occupational safety in all operations,
- Respect for human rights,
- Environmental compliance and sustainability actions.

The key participants in the project must also follow an environmental management system in compliance with ISO 14001, and an occupational safety system that meets the conditions of OHSAS 18001. Key participants in the Hanhikivi 1 project, including RAOS Project, Titan-2 and GE Steam Power Systems, operate in accordance with their own Codes of Conduct and are responsible

for overseeing compliance within their own supply chains. We support different parties as necessary to develop their compliance procedures to meet the needs of the Hanhikivi 1 project.

Ethical review of ways of operation

In 2018, we strengthened our efforts to manage ethical issues within the supply chain. Fennovoima’s Code of Conduct was included in all new supply contracts that are related to Fennovoima’s direct supply chain and worth more than EUR 30,000. We also adopted a pre-evaluation for ethical conduct that is implemented as part of supplier pre-selection queries for companies who wish to be part of Fennovoima’s direct supply chain.

For the assessment, we use a questionnaire to gather information about the potential contractual partners’ policies, codes of conduct, oversight procedures and violations, among other things, with regard to matters such as corruption, securing human rights and managing occupational safety and environmental matters. In 2019, we will also carry out spot checks to assess companies already selected into Fennovoima’s supply chain.

Compliance assessments

The first Compliance & Ethics assessment has been carried out as part of a more extensive audit. The company under assessment was found to take well into account ethical requirements in its operations.



In 2019, a similar assessment will be performed in at least ten companies that are part of Fennovoima's supply chain.

In 2018, we rejected one company in the procurement phase due to their inability to fulfil our ethical requirements.

Observations from the pre-evaluation and the assessments are processed by Fennovoima's Compliance & Ethics steering group that consists of specialists in legal matters, procurement, quality and corporate responsibility.

ON-SITE OPERATIONS TO PREVENT GRAY ECONOMY

We are committed to the effective prevention of the gray economy at the Hanhikivi 1 construction site and to ensure that all the companies active at the site comply with Finnish labor legislation and respect human rights in all their operations. Cooperation with labor organizations, authorities and the plant supplier is an essential element of this work.

All companies and workers who work at the Hanhikivi 1 construction site are registered

into the site register. This way, we ensure that legal requirements are fulfilled for both companies and workers. This also secures all site workers' right to terms of employment that follow Finnish labor agreements. The system allows us to perform real-time on-site inspections.

In 2018, all required information regarding the supply chain companies and people working at the site was in order. Companies or workers who have not been registered into the site register have not been granted access permits to the construction site.



Occupational health and safety

Occupational health and safety is a joint effort where each employee carries the responsibility for their own safety as well as the safety of others.

Contractors and builders working at the site face situations that could pose risks without careful planning, correct procedures and protective gear. Identification of occupational safety risks, preventive action and training play an important role in the creation of a safe working environment.

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A healthy and safe working environment

GOAL		PROGRESS
We ensure that the working environment and the occupational safety management processes meet the statutory requirements and that cooperation with the authorities is constructive.	Information sharing meetings with the authority twice a year	After one meeting, the authority stated that the second meeting would be unnecessary as no new building projects would begin during 2018.
	No occupational safety non-compliances observed in external inspections with regard to Fennovoima's or RAOS's scope of delivery.	✔
Our working environment is healthy and safe, and nobody's health is put at risk.	No lost time injuries	Two accidents. ✘
	No accidents leading to death or permanent disabilities	✔
	The minimum requirement level of 90% is achieved in all TR and MVR measurements.	The goal has been achieved in 97% of the measurements. ✔

A strong occupational safety culture

GOAL		PROGRESS
We take care of our own and our co-workers safety.	A member of the management team performs an occupational safety inspection at the site twice a year.	✓
	Fennovoima's employees report at least 100 safety observations per year.	✓
We have active and effective joint co-operation organization for all companies operating at the project site.	Safety meetings are held weekly.	✗
	Fennovoima participates in all weekly TR and MVR inspections.	The goal has been achieved in 91.6% of the inspections. ✓
	The occupational health and safety committee meets four times a year at the Helsinki and Pyhäjoki offices.	✓
We immediately concern ourselves with incorrect and unsafe operation.	Alcohol testing and sanction procedure are in use.	✓

Efficient risk management

GOAL		PROGRESS
We use proactive risk management measures in all critical work tasks and stages.	Investigation of any lost time injuries begins within two days of the accident and is concluded within seven days.	For one of the two accident investigations, this time limit was exceeded. 
	Targeted Hazard Hunt inspections will take place 12 times a year.	
	Occupational safety risks are assessed on-site every three months and at Fennovoima's offices once a year.	9/10 of the assessments have been carried out. The assessment for the Helsinki head offices was postponed to 2019. 
We have understandable and clear instructions for the multinational working environment.	Occupational safety instructions and guides are available in Finnish and in English.	
Our safety observation practices are efficient, and they are continuously improved.	Handling of safety notices begins within two days, and an action plan is completed within 7 days of reporting the observation.	58.2% of the observations were processed within the time limit. 
	All near misses which could have caused serious consequences are investigated as occupational accidents.	There were no serious near misses.
We distribute efficiently information about occupational safety.	Toolbox Talk and Safety Flash training materials are released regularly.	

A HEALTHY AND SAFE WORKING ENVIRONMENT

Working for Fennovoima or in the Hanhikivi 1 project must not put anyone's health at risk.

Occupational safety management is based on an occupational safety management system that complies with the OHSAS 18001 standard and covers Fennovoima's internal operations in Helsinki and Pyhäjoki as well as all the work at the Hanhikivi 1 construction site that is included in Fennovoima's scope of work. Also, the occupational safety management systems that RAOS Project and Titan-2 apply at the Hanhikivi 1 construction site meet the requirements of the OHSAS 18001 standard.

Occupational safety management and monitoring responsibilities are distributed to the different levels of Fennovoima's organization from employees to the management team. The management team monitors realization of the occupational safety on a monthly basis and carries out an on-site occupational safety inspection at the Hanhikivi 1 construction site twice a year. We manage and monitor safety at the

“The most important things in life are often found outside work at home and in free time. None of us should lose health and well-being over work; this attitude benefits us all.”

Fennovoima OHS Manager Olli-Pekka Pirilä

construction site together with the plant supplier and work site supervisors. Daily occupational safety practices at the site are well established.

EFFICIENT RISK MANAGEMENT PREVENTS ACCIDENTS

Extensive risk identification and management procedures and reporting of safety observations are an important part of preventive occupational safety measures.

Fennovoima assesses occupational safety risks from the perspectives of risks targeted at the employees, facilities and the Hanhikivi 1 construction site. Central risks at the construction site include work at heights, information sharing between various actors and work in winter conditions. Fennovoima's risk register is updated four times a year.

before each construction work.

The plant supplier RAOS Project and the main contractor Titan-2 follow similar risk assessment and management procedures.

The identified risks are communicated to all contractors and builders active at the site using Toolbox Talk training materials or Safety Flash communication materials that describe best practices to avoid the risks.

Everyone working at Fennovoima or in the Hanhikivi 1 project have the right to refuse unsafe work. We remind all employees of this at the site access training.

Management of occupational safety risks	2018	2017	2016
Risk assessment before each work	100%	100%	100%
Occupational diseases	No	No	No
Investigation of accidents and near misses	Two accidents, one of which was investigated within the time limit.	No investigations, as there were no lost time injuries.	All accidents (3) investigated within 7 days.
High risk work	No	No	No

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Occupational safety observations support the continuous improvement of the safety culture

According to Fennovoima's company policy, everyone has the right to express any concern or observation related to safety, quality of other operations and to make suggestions to improve the operating procedures. We are committed to finding opportunities to learn and to improve operations without pointing fingers.

We encourage our personnel to make and report observations to improve our occupational safety culture. Reporting of observations has become more frequent, which has been the objective. In addition to the reporting systems, Fennovoima's head office in Helsinki as well as the Hanhikivi 1 construction site have traditional mail boxes that can be used to report observations. Reporting of occupational safety concerns can also be done anonymously.

Our target for 2018 was to receive at least 100 safety observations from Fennovoima's employees. A total of 2,323 observations were made at the site and at

Fennovoima's offices, of which 103 came from Fennovoima's employees. Three of these concerned the head office in Helsinki.

At the construction site, the topics of safety observations varied from road maintenance to internal fire inspections and, in some cases, to the use of unauthorized lifting aids. Positive observations were also made and reported.

We want to react to the observations without delay to ensure that any deficiencies are corrected quickly. Our objective is that all observations are taken into processing within two days, an action plan is prepared within seven days and corrective actions are carried out within the agreed schedule. This objective was achieved in 58 out of 98 cases.

Appropriate knowledge and skills from occupational safety training

With the occupational safety training we ensure that everyone working for Fennovoima or at the Hanhikivi 1 site has adequate knowledge and skills of the correct working methods and safety practices and that everyone working at the construction site uses the required personal protective equipment.

Fennovoima employees receive occupational safety training as part of the induction training provided at the beginning of employment.

The site access training is compulsory for everyone who wants to work at the site, including Fennovoima employees. The training is provided free of charge, and it takes place during working hours in Helsinki or at the

on-site training center in Pyhäjoki. After completing the training and passing the test, access permit to the site remains valid for three years. The training must then be completed again to renew the access permit.

Since the beginning of construction work, a total of 2,703 people (399 in 2018) have completed the site access training. In addition, 100 people repeated the training course to renew the access permit. The training is continuously developed based on feedback.

In addition to the access training, all builders working at the site participate in safety training organized by their work site supervisor. We also organize occupational and environmental safety training for the site supervisors. These training sessions concern essential occupational safety procedures used at the Hanhikivi 1 construction site.

The site's occupational safety guide provides workers with detailed instructions on topics such as responsibilities regarding safety, appropriate protective equipment and chemical handling. The guide is given

Occupational safety observations	2018	2017	2016
Reported observations	2,323 observations, of which 103 from Fennovoima employees	627	521



to all new workers at the site access training, and it is available in Finnish and in English.

SITE INSPECTIONS PROMOTE IMPROVEMENT OF OPERATIONS

We monitor the occupational safety performance at two levels: the procedures and the practices. The monitoring aims at continuous development of working methods and the processing of observed deficiencies at an early stage, before any harm has occurred.

Fennovoima's occupational health and safety management system was subjected to both an internal and an external audit in 2018. No deviations were discovered in the

audits. Fennovoima also audited the occupational health and safety management systems of RAOS Project and Titan-2, and participated in inspections that the authorities carried out at the construction site.

Fennovoima and RAOS Project together carried out an occupational safety inspection of the contractors at the construction site. Fennovoima also conducted targeted Hazard Hunt inspections that focus on one area at a time; examples include inspections of all lifting aids being used at the site, or the chemical storages. Observations made during the inspections are recorded and the required corrective actions are made clear to the contractors.

Handling of safety violations

Safety violations are processed in accordance with the regular safety observation or accident investigation procedure. If violation of law or safety regulations is revealed in the processing, the access permit of the worker is cancelled temporarily or permanently. For example, a safety observation was recorded in 2018 in a situation where construction workers were lifted to their working site using a loader bucket in violation of safety regulations. Investigation revealed that the workers were following instructions given by their supervisor. The supervisor lost his access permit and the right to work at the Hanhikivi 1 construction site.

Fennovoima has zero tolerance of working under the influence of alcohol. We carry out alcohol testing several times a week. A positive test result within the construction site perimeter leads to a written warning or cancelling the access permit temporarily, or, if the case is serious, cancelling the access permit permanently. Voluntary alcohol testing is possible at the gate before entering the site.

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Two lost time accidents at the construction site

In 2018, a total of 494,601 working hours were recorded at the construction site. Early in the year, two lost time accidents occurred at the site. One person hurt his foot and hand in a contact with a trailer when a car started off. The injury resulted in three days' absence. Another person suffered a mild injury to the back after slipping on snowy ground. The injury led to two days' absence. At the end of the year, 299 days had passed without accidents.

Fennovoima's own personnel suffered no injuries during working hours.

Accidents at the construction site	2018	2017	2016
Lost time injuries*	2	0	3
Lost working days	5	0	9
Average severity of accidents (as lost days)	2.5	0	3
Lost time injury frequency rate (LTIFR)**	4,04	0	8,08
TR/MVR occupational safety index (goal: minimum requirement level 90% is achieved in 100% of measurements)	Achieved in 97% of measurements (104/107)	Achieved in 94% of measurements (99/105)	Achieved in 95% of measurements (123/129)
Fatalities	0	0	0

a) First-aid-level injuries are not included in the IR; b) fatalities are included in the IR; c) "lost day" indicates the loss of one full work shift; d) "days" means scheduled work days; e) count begins from the day after the accident (one full work shift). If the injured person is treated on the day of the accident and he/she returns to work on the next day, the injury is reported as a first-aid case.

**LTIFR is calculated by number of lost-time accidents per million hours worked. A lost-time accident is an accident that causes an absence from work of at least one work shift.







Environment

Hanhikivi 1 is a project that contributes to combatting the climate change. The climate benefit of the Hanhikivi 1 materializes during the decades of electricity production without harmful greenhouse emissions. Before commissioning, Fennovoima's direct environmental impact is mostly related to the construction work carried out at the site.

Management of environmental impacts at the Hanhikivi 1 construction site is based on proactive identification of environmental risks. We ensure that all work is carried out in accordance with environmental legislation and the terms of permits and licenses, and respecting the environment and the well-being of the local residents.



Proactive prevention and mitigation of the environmental impact

GOAL		PROGRESS
Monitoring the state of the site operations	Environmental inspections are executed in accordance with the inspection program.	
	Investigation of incidents and near misses begins within two days of the event, and an action plan is defined within seven days of the event.	
	A minimum of 40 environmental observations within Fennovoima's scope of work	
Systematic environmental risk management to mitigate risks and their consequences.	All risk assessments are performed in accordance with the plan.	



Preservation of protected species and nature conservation areas

GOAL		PROGRESS
Everyone working at the site has adequate knowledge of the nearby protected areas..	The nature conservation areas are marked in the terrain.	✓
	All site workers participate in induction training that includes environmental information.	✓
Monitoring of the nature conservation areas	Monitoring of the nature conservation areas is performed in accordance with Fennovoima's environmental monitoring program.	✓

Compliance with environmental and water permits in all operations


GOAL		PROGRESS
No permit violations or other non-compliance of environmental legislation	No permit violations or other non-compliance of environmental legislation	✓



Ensuring efficient waste management at the construction site

GOAL		PROGRESS
Efficient sorting of the waste at the place of origin	At least 90% of the construction waste fractions are utilized as material or energy.	

Functioning and timely communication with environmental authorities and other external stakeholders

GOAL		PROGRESS
Timely communication of environmental matters to stakeholders	All feedback from external stakeholders is responded to within two working days.	No feedback received
	Two stakeholder events with an environmental theme per year	





WE SUPERVISE THE ENTIRE HANHIKIVI 1 CONSTRUCTION SITE

We ensure that the Hanhikivi 1 construction site as a whole operates in compliance with environmental legislation, the permit conditions and Fennovoima's environmental requirements. The environmental management system, which was certified under ISO 14001 early in 2018, is an important tool for this.

Fennovoima's environmental specialists ensure that good practices are systematically followed at the construction site. RAOS Project and the main contractor, Titan-2, also have their own persons responsible for environmental issues at the Hanhikivi headland, and we work in close cooperation with them. All subcontractors working at the construction site are responsible for continuous environmental monitoring and compliance within their own work sites.

Risk assessments are conducted before each work

We assess environmental risks for the Hanhikivi 1 construction site as a whole from the perspectives of environmental impact, legislation and permit conditions. At this stage of the construction project, important environmental risks include for example chemical and oil leaks, the spread of turbidity in the sea, and the noise caused by blasting work. Fennovoima's risk register is updated four times a year.

At the construction site, all contractors working within Fennovoima's scope of work follow an extensive risk assessment and management procedure that is based on Fennovoima's risk register. The contractors assess the environmental risks for each work site before starting the work, take the identified risks into account when planning the work, and ensure that all

Environmental impact management	2018	2017	2016
Non-compliance with environmental laws and regulations	No non-compliances	No non-compliances	No non-compliances
Instances of permit limits being exceeded (target: no such instances)	No	No	No
Environmental observations by Fennovoima's personnel (target for 2018: 40 observations with regard to Fennovoima's scope of work)	We made a total of 524 environmental observations at the construction site. Of these, 41 addressed Fennovoima's scope of work and 483 the plant supplier's scope of work.	We made a total of 159 environmental observations at the construction site. Of these, 20 addressed Fennovoima's scope of work and 139 the plant supplier's scope of work.	We made a total of 127 observations at the construction site.

workers pay attention to the risks as part of their everyday work. RAOS Project and the main contractor Titan-2 follow similar

risk assessment and management procedures in their own supply chain.





EVERYONE WORKING AT THE SITE BEARS RESPONSIBILITY FOR THE ENVIRONMENTAL IMPACT

Everyone who works at the construction site must be aware of the special characteristics of the Hanhikivi headland's natural environment and familiar with access limitations in the area as well as the environmental guidelines established for the construction site. In addition to these matters, which are discussed at the environmental training (included in the site access training), each worker must also know the requirements related to their own work site. These have been determined in the risk assessment.

The construction site is closely monitored

Fennovoima and RAOS Project monitor the progress of contracted work with weekly site monitoring rounds. We also perform monthly targeted environmental inspections that

focus on matters such as fuel storage, preparedness for oil spill control, or dust prevention methods. These allow us to ensure that environmental matters are appropriately implemented in the construction work and that all contractors work in compliance with the environmental legislation, permit conditions and site instructions.

During the inspections and site tours, we utilize concrete examples to guide contractors towards better management of environmental matters. In 2018, such concrete examples included for example deficiencies observed in contractors' waste and chemicals processing practices and prevention of minor oil leaks.

Authority inspections

The authorities also carry out regular inspections at the Hanhikivi 1 construction site. The Centre for Economic Development,

Transport and the Environment (ELY Centre) performed a periodic inspection related to the nuclear power plant's environmental permit in November. Current work and operations in the project area as well as permit processes, the implementation and results of environmental monitoring, and reports of disturbances and feedback from the public were discussed during the inspection. Also, a tour at the construction site was performed. According to the inspection, the site operations are in good condition and there were no specific comments or shortcomings.

Permit matters

Fennovoima was granted an environmental permit for the operation of the nuclear power plant and the back-up power production of the plant in June 2016. The permit also includes the construction of cooling water outlet structures, as well as

a water permit for the seawater intake and use as cooling water of the nuclear power plant. Fennovoima appealed about the permit decision to the Administrative Court of Vaasa which gave its decision in December 2017. Fennovoima decided to appeal to Supreme Administrative Court regarding transformation products of hypochlorite, noise limits and additional fishery studies concerning fry production of sea grayling and burbot.

Currently, Fennovoima is preparing the chemical permit application material. The permit concerns the large-scale industrial handling and storage of hazardous chemicals during the operation of the power plant. The chemical permit application will be processed by the Finnish Safety and Chemicals Agency (Tukes).





EXTENSIVE MONITORING OF THE ENVIRONMENTAL IMPACT

We monitor the state of the environment together with RAOS Project in accordance with the jointly agreed environmental monitoring program. In addition to the environmental monitoring required by the permit conditions, we also carry out voluntary monitoring of the environmental impact. This allows us to ensure that we have comprehensive knowledge of the state of the environment in the Hanhikivi headland. Below is an account of the essential monitoring and research results for 2018.

Air quality

Air quality has been monitored since 2015 using five measurement points located close to the construction site. Fennovoima has followed dust generation especially near the nature conservation areas.

Dust sources are usually located near the

ground, which keeps the dust close to the source. Therefore, the spread of dust is limited mainly within the construction site area. In 2018, just as in previous years, no increased dust concentrations were found outside the construction site.

Noise

The noise level in the Hanhikivi headland is continuously measured using sensors located at seven measurement points near the nature conservation areas and between the construction site and residential buildings. The measurement point closest to the residential buildings is located at an approximate distance of one kilometer from them.

The average noise level at the different measurement points was 30-68 dB in 2018 (equal to the levels measured in 2017). A level of 30 dB corresponds to the sound of a whisper, and 65 dB corresponds to normal speaking voice or laughter. Crushing work

ended in May before the busiest nesting season for birds.

The blasting carried out in the water areas by a subcontractor in 2018 was planned more carefully than previously, and the residents of the immediate vicinity were informed beforehand about the beginning of the work. All blasting was scheduled to take place before 10 pm to ensure minimum inconvenience to the residents.

Seawater quality

The impact of the construction work on seawater quality is monitored five times a year with water samples taken from ten measurement points. The analysis results of the water samples have been typical of the Bay of Bothnia.

Turbidity

Turbidity of the seawater is monitored using continuous measurement. In 2018, we

added a new sensor to monitor the spread of turbidity from the Hanhikivi headland to the northeast towards the town of Raahe. A total of five measurement points were in operation in 2018. Turbidity was not monitored at the marine spoil area, as it was not used during the year.

Construction work has only caused minor turbidity. During the year, construction work was carried out at the cooling water intake on the south side of the headland and at the cooling water discharge area in the north. In the cooling water discharge area, water construction work only took place within the protective embankment built into the sea to prevent the spread of turbidity. In the water intake area, the breakwaters still under construction limit the spread of turbidity originating from the construction work area.

Monitoring revealed a natural increase in turbidity during heavy rain and storms.





The values exceeded the limit where work must be interrupted once, but no work was in progress at the time.

Fishing

According to the fish stock survey completed in May 2018, the impact of water construction work on the fish stock has been smaller than was estimated in the permit application.

Test fishing has revealed that the fish have not moved away from the water construction work areas; instead, the catch in these areas has even increased. No changes were observed in the fry production of whitefish and Baltic herring, but the construction work may have affected the fry production of vendace.

The inconvenience that the construction work causes to commercial fishing operations has been observed to be in line with

what was expected: some fishing sites have been unavailable during construction, the number of migratory fish has decreased, and fishing nets have been in need of more frequent cleaning than before. These disadvantages are compensated to the professional fishermen in the form of fishery subsidies and financial compensation. In 2018, a total of EUR 72,000 was paid in compensation.

Oil and chemical leaks

No significant oil or chemical leaks occurred at the construction site. Due to intensified training and the good availability of spill absorbent materials, minor oil leaks have been controlled with rapid corrective action, and all cases have been dealt with appropriately. The leaked oil has been recovered with absorbent materials, and minor volumes of contaminated soil have been removed and

processed in an appropriate manner. The subcontractor responsible for the leak reports the incident to Fennovoima or RAOS Project in accordance with the division of responsibilities at the construction site.

All workers receive basic information of oil spill prevention preparedness at the site access training. The training includes information on how to report incidents, how to act when an incident takes place, and how to handle oily waste. A separate training session was also arranged for site contractors in 2018 to introduce oil spill prevention products and their use as well as different prevention solutions.

During the spring and the summer, oil spill prevention drills were held for the security company in charge of on-site security and for the contractors working in the sea area.

All contractors working in the sea area must have their own oil spill prevention plan and equipment, which RAOS Project inspects before the work begins. All oil spill prevention equipment is inspected at least once a year.

Benthic fauna

Studies of benthic fauna are carried out to monitor the state of the benthic fauna during construction work as well as the changes taking place in its state compared to the situation prevailing before the start of the construction work. The study areas are located off the Hanhikivi headland, in the marine spoil area and a reference area. Based on previous studies, the benthic fauna off the Hanhikivi headland is sparse.

In dredged areas, benthic fauna had been reduced significantly as had been





expected, and hardly any signs of recovery could be detected. Benthic fauna had also deteriorated in the marine spoil area, but the number of species had only decreased slightly. The state of reference points outside the marine spoil area had also deteriorated significantly, mainly due to the increased population of *Marenzelleria viridis*. This is a common trend found in the Bay of Bothnia. No changes that could have been the result of construction work were detected to the northeast of the Hanhikivi headland.

Normally, benthic fauna is restored within 2-4 years if the constitution of the seabed does not change significantly. Follow-up study on benthic fauna will take place after the completion of water construction work.

Aquatic vegetation

Monitoring of aquatic vegetation, carried out in summer 2018, was a continuation of the preliminary monitoring in 2014. The monitoring areas were the same locations as in the previous study: from the flada in the north-western part of the Hanhikivi headland to the Kultalanlahti area in the north, and south from Hanhikivi to the Yppäri reference area. Particular attention was paid to endangered species and habitat types.

The extensive shallow sandy seabed found on the eastern side of the headland is well suited for charophyte meadows, which have been classified as an endangered habitat type. In these areas, charophyte meadows have remained as representative as they previously were. The natural

characteristics of the observation area to the south of the Hanhikivi headland make it a less favorable growth environment than the areas on the eastern side of the headland. Some temporary impact of dredging operations were observed in the vegetation in the southern observation area.

PROTECTED SPECIES AND NATURE CONSERVATION AREAS

There are extensive protected seashore meadows, overgrowing shallow bays and gloe lakes, which have become isolated from the sea. There is a Natura 2000 conservation area approximately two kilometers from the plant site. Areas of high natural value have been left outside the plant area already in the construction planning phase.

Access to areas outside the construction site is restricted, and important conservation areas found in the immediate vicinity of the site are closed off with fences or otherwise indicated. All construction workers receive instructions to avoid going outside the plant area fences. We regularly inspect the conservation areas and their fences.

Follow-up monitoring carried out in 2018 revealed no significant changes to valuable natural environments or protected species as a result of human activity. The monitoring scope included seashore meadows, gloe lakes, and the moor frogs and yellow iris growths previously transferred from the construction site to new habitats.





Seashore meadows

No significant changes due to human activity were observed in seashore meadows. The growth of reed (paludification) has caused some regression of one occurrence of Siberian Primrose, but no changes were found in other occurrences.

Gloe lakes

Monitoring of water levels in gloe lakes began in May. No water level variation due to construction work was detected in the gloe lakes. The surface level was low in the summer due to heat, but in the autumn, the variation followed the sea level.

Relocated species

The protected moor frog population and yellow iris growth, relocated from the construction site in 2015 and 2016 according to the exemption permits, were found

to have prospered in follow-up monitoring carried out by an external consultant. The moor frog population and yellow iris growths of the Hanhikivi headland have remained at the level of previous monitoring.

WELL-BEING OF LOCAL RESIDENTS

A majority of local residents support the Hanhikivi 1 project, and we strive to be worthy of their trust. We aim to cause minimum inconvenience to the residents with the construction work. However, some inconveniences cannot be avoided. We inform the residents in the immediate vicinity of the construction site before starting construction work that may cause disturbances, and we carefully process stakeholder concerns as well as complaints. In 2018, we received no environmental complaints or reports of concerns.

We started a new practice and held two discussion events on environmental matters for the residents living close by the construction site area. The events aim to improve the flow of information and to boost genuine interaction with the people living close to the construction site. Encouraged by the positive response to these events, we will continue to arrange them in 2019.

UTILIZING CONSTRUCTION WASTE AS ENERGY OR MATERIAL

Efficient sorting and recycling as well as appropriate processing are important parts of managing the environmental impact of the waste generated at the site.

Contractors must sort the waste in their own work areas before transporting it to the site sorting locations. Contractors must also manage the processing and storage

of hazardous waste in accordance with the applicable regulations. Despite instructions, we repeatedly observed negligence in the processing and sorting of waste at the construction site. We addressed the issue in weekly site monitoring rounds and inspections, and we provided feedback and further instruction on procedures that meet the requirements set out in the waste management guidelines for the construction site.

On World Environment Day in June, we organized a waste-related event at the site. During the day, we provided the workers information and training on the waste processing and recycling methods used at the construction site. The workers also had the opportunity to test their skills in practice with a waste sorting test.



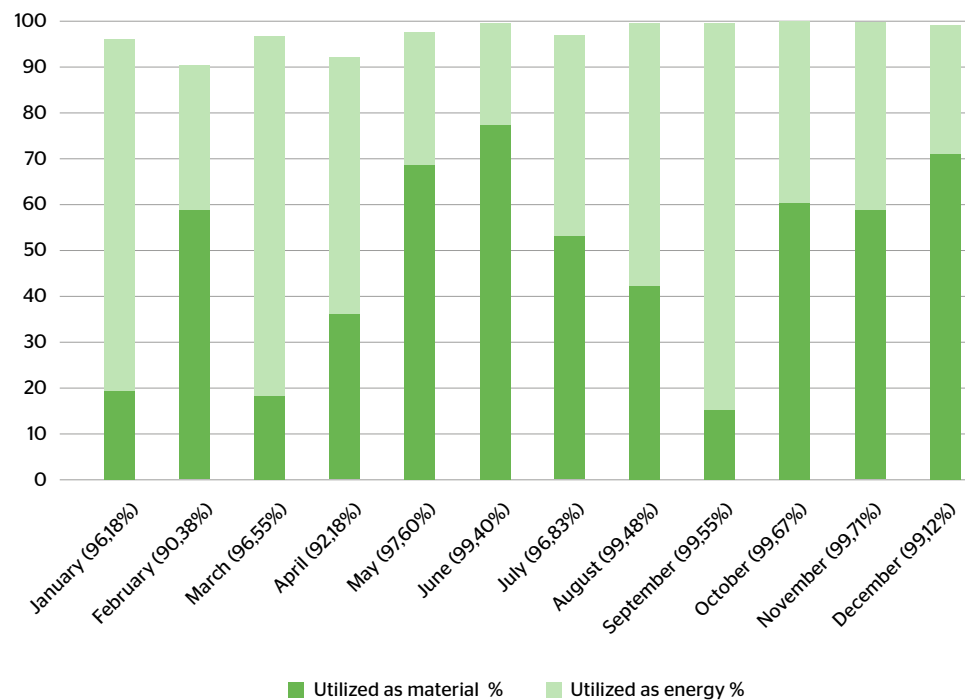


Waste generated during construction

Most of the waste generated during the construction is normal construction waste.

Our target is to recycle as much of the construction waste fractions as possible as material or in energy production. The 90% target set for 2018 was exceeded in each month of the year.

An approximate total of 686 metric tons of waste was generated at the Hanhikivi 1 construction site in 2018. Most of the waste generated at the site is regular construction waste: metal, wood, concrete, rocks, compostable waste, paper, cardboard, glass, or electrical and electronic waste. Our partner Remeo is in charge of transporting the waste from the site and processing it appropriately.



Utilization of construction waste as material or energy in 2018. The spoil and rubble generated in excavation, rock blasting and dredging are used as filling and levelling material at the construction site as far as possible.

The waste types generated during the construction of the infrastructure and auxiliary buildings

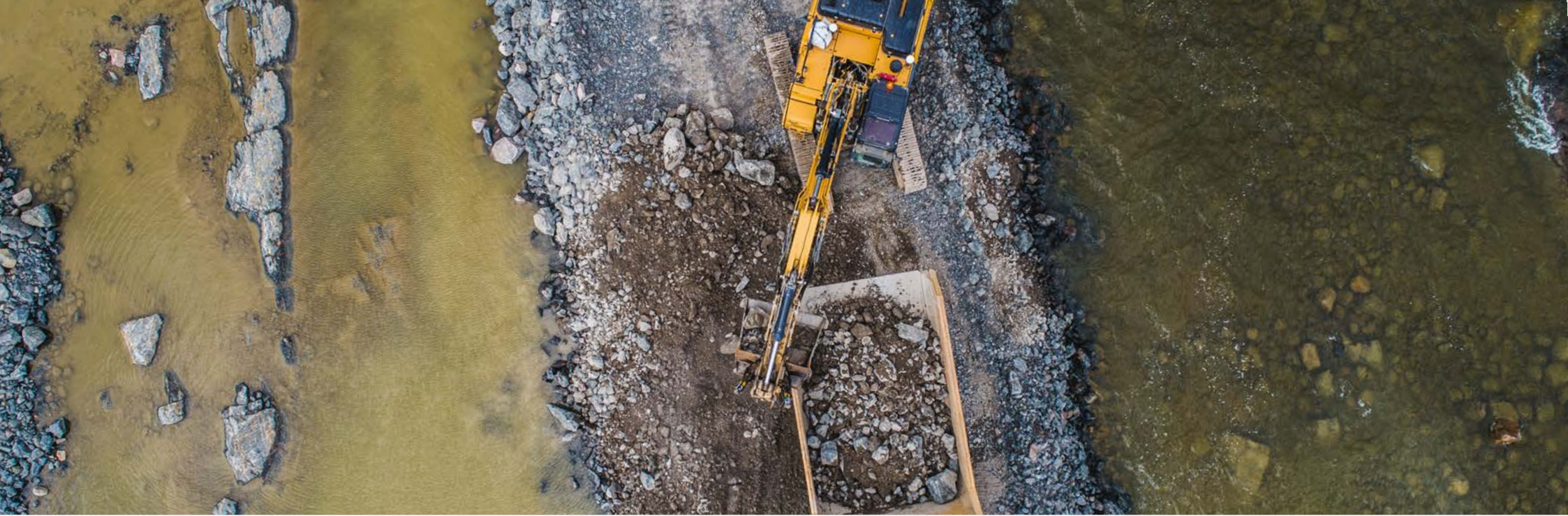
Waste	2018	2017	2016
	Metric tons (t), % of waste volume	Metric tons (t), % of waste volume	Metric tons (t), % of waste volume
Construction waste	526 (80%)	796 (90%)	208 (42%)
Demolition waste	0 (0%)	29 (3%)	259 (53%)
Hazardous waste	160 (20%)	58 (7%)	24 (5%)
Total	686 (100%)	883 (100%)	491 (100%)

Waste generated at the Hanhikivi 1 construction site. Hazardous waste includes, for example, waste oil, filters, batteries, oily rock material, and electrical and electronic waste.

Construction waste	2018	2017	2016
	Metric tons (t), % of construction waste volume	Metric tons (t), % of construction waste volume	Metric tons (t), % of construction waste volume
Waste wood	123 (23%)	82 (10%)	132 (64%)
Energy waste	120 (23%)	72 (9%)	50 (24%)
Concrete and brick waste	50 (10%)	212 (27%)	14 (6%)
Bitumen	0 (0%)	369 (46%)	0 (0%)
Mixed construction waste	63 (12%)	42 (5%)	2 (1%)
Combustible waste	9 (2%)	-	-
Other waste	161 (31%)	19 (3%)	10 (5%)
Total	526 (100%)	796 (100%)	208 (100%)

Construction waste generated at the Hanhikivi 1 construction site during 2016–2018 by type and proportion. The Combustible waste category includes paper, cardboard and compostable waste. In previous years, this category was included in Other waste category. The Other waste category includes the metal, glass and bitumen waste that is recycled as material.





Drainage water treatment

Water that had been gathered in the reactor pit (approximately 130,000 m³) was pumped into the sea via a temporary water treatment system. The treated water caused temporary turbidity when mixing with the seawater. Monthly sampling was carried out to monitor the quality of the seawater, and the turbidity was monitored visually.

The temporary water treatment system will be decommissioned when testing of the

settling basin completed in 2018 has been finalized. Another settling basin will also be built in 2019 for the treatment of the water in the reactor pit.

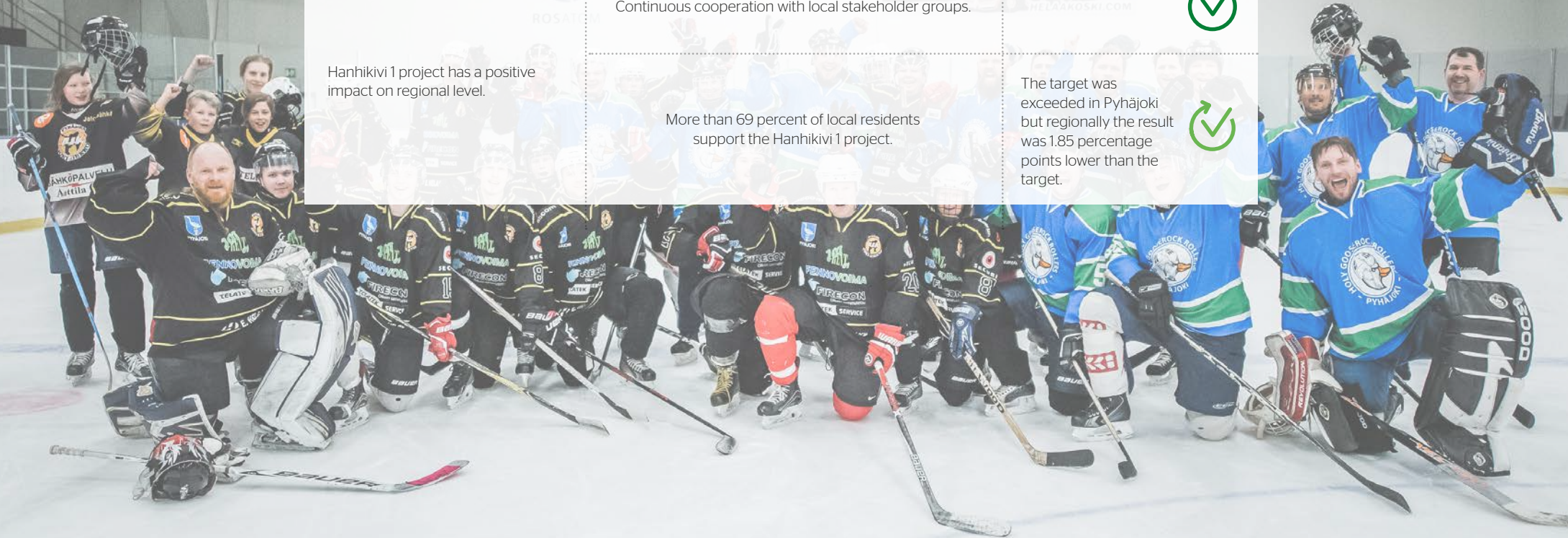
The run-off and seepage water (surface water) from Fennovoima's soil disposal area is directed to filtering ditches, where the flow of water is slowed down with wider pools and coarse gravel dams. The solid matter settles on the bottom of the ditch, reducing the environmental load caused by surface waters.

Water quality is monitored visually, and samples are taken every three years. Samples taken in 2018 revealed no significant changes when compared with samples taken three years earlier.



Local engagement

GOAL	PROGRESS
<p>Continuous cooperation with local stakeholder groups.</p>	<p>✓</p>
<p>Hanhikivi 1 project has a positive impact on regional level.</p>	<p>More than 69 percent of local residents support the Hanhikivi 1 project.</p> <p>✓</p> <p>The target was exceeded in Pyhäjoki but regionally the result was 1.85 percentage points lower than the target.</p>



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CREATING TRUST WITH OPEN COMMUNICATION

The construction of the new nuclear power plant will have a significant impact on the regional economy and employment rate. The construction of the nuclear power plant generates new investments, creates jobs and increases the tax revenue in the region (for more information, see the section [Economic Responsibility](#)). With the increasing number of residents and stable municipal economy, the selection and availability of public and private services in the region will improve, which benefits all local residents.

The construction work also has some negative impacts on the living environment. These include the increased volumes of heavy traffic and temporary turbidity of the seawater, caused by water construction work. Some of these negative impacts cannot be avoided, but we

openly communicate about the work in progress and any disturbances that it is expected to cause.

Doors are open at our offices in downtown Pyhäjoki three days a week. We answer questions from residents and visitors and provide information about the project and the ongoing construction work. Information about construction work beginning at the site is also available on our website, and the residents in the immediate region receive more information by e-mail and by post. In 2018, we organized for the first time two discussion events with an environmental theme for the people living close to the construction site.

Open doors at the construction site

The open doors event organized at the Hanhikivi 1 construction site for the fourth time in September 2018 was a success with 3,400 interested visitors. During the

day, guests had the opportunity to participate in guided bus tours of the plant site and to meet our people in an informal setting. There was something to do for the whole family.

The immediate feedback received about the event was positive. The event also offers us at Fennovoima a pleasant forum for introducing the project and meeting local people.

A total of almost 7,000 visitors at the construction site

In 2018, we arranged approximately 100 project presentations and construction site visits for different groups. In addition to the 3,400 open doors guests, about 3,500 visitors took part in these presentations and visits.

By visitors, we mean everyone who visits the construction site and has no site access permit or performs no work while at the site.

STRONG LOCAL SUPPORT FOR THE PROJECT

The Hanhikivi 1 project has enjoyed steady local support. Currently, 72.7 percent of Pyhäjoki residents support the construction of the power plant on the Hanhikivi headland. Despite a minor drop in the figures, support also continues to be steady in the neighboring municipalities of Kalajoki, Merijärvi, Oulainen and Raahе. A total of 67.2 percent of the residents in the region have a positive attitude towards the project.

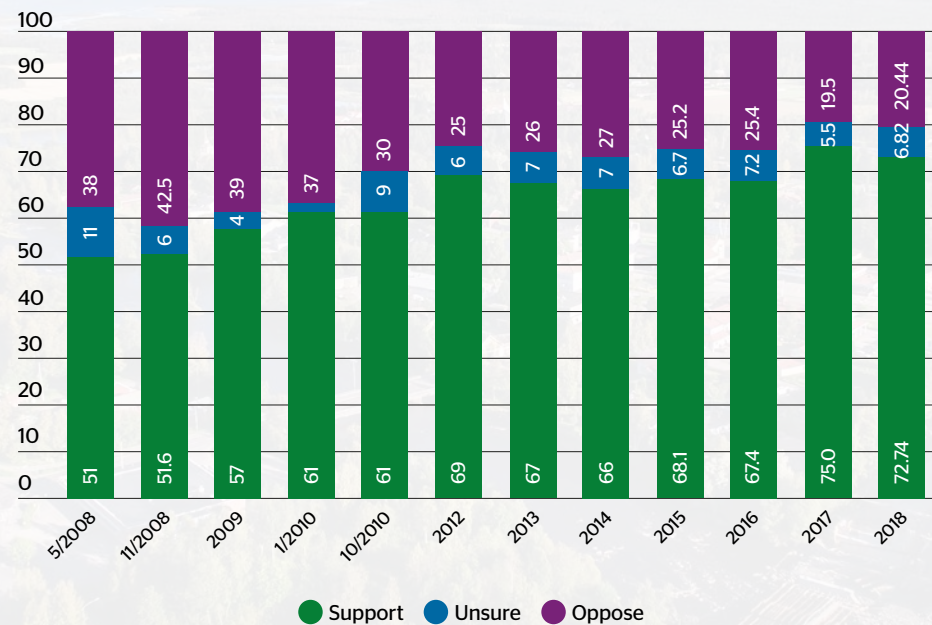
The regional support for this particular project is considerably stronger than the overall support for construction of nuclear power among the population of Finland (41 percent). The positive impact of the Hanhikivi 1 project reflects in the local support figures. Equally, the results illustrate the effectiveness of our regional operations, as well as the trust the local residents have in the project.



Local support for the project

Pyhäjoki

What is your opinion about Fennovoima building a nuclear power plant to Pyhäjoki?



Support for the project in Pyhäjoki, November 2018 (Norstat Finland Oy).

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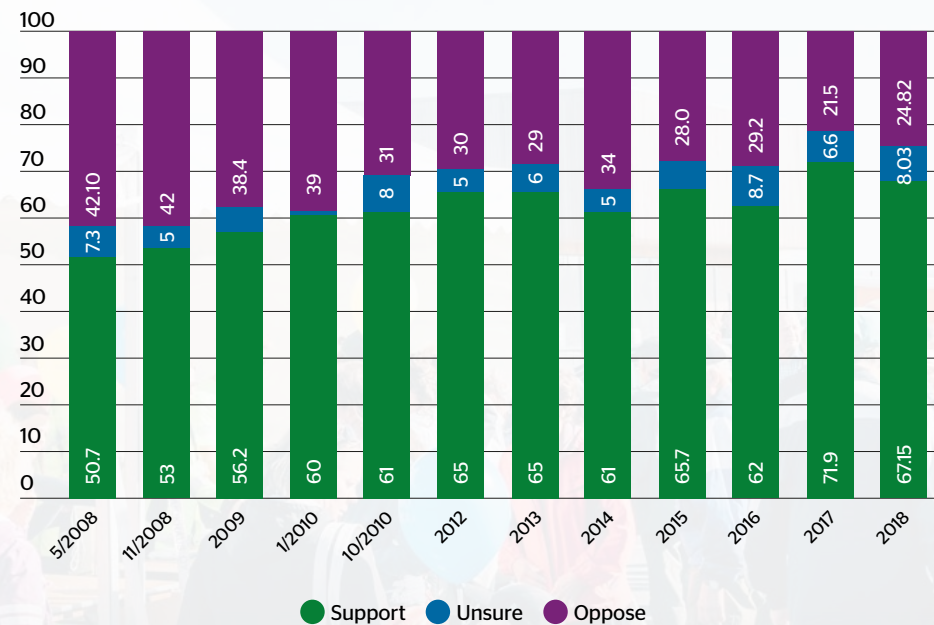
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Local support for the project

Pyhäjoki and surrounding municipalities

What is your opinion about Fennovoima building a nuclear power plant to Pyhäjoki?



Support for the project in Pyhäjoki and the neighboring municipalities, November 2018 (Norstat Finland Oy).

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INVOLVED IN LOCAL DEVELOPMENT

Several development projects are in progress in Northern Ostrobothnia to meet the needs of the Hanhikivi 1 project and accrue as many positive results from the project as possible through the coordinated and shared efforts of different actors. Our role in these working groups is to convey current information about the project to the regional stakeholders to support their preparatory efforts.

The working groups have been convened by different parties, and their constitution varies according to the topic. We are involved in the following cooperation groups, among others:

- **Municipality working group:** Exchange of information between the municipality of Pyhäjoki and the key participants in the Hanhikivi 1 project.
- **Logistics development working group**

- **Provincial steering group:** A body for the extended region with representatives from top municipal offices, government authorities, corporate organizations and the Evangelical Lutheran Church of Finland.
- **Chamber of Commerce Project committee:** The aim is to promote awareness and competencies of the companies in the region with regard to large-scale projects being planned or in progress in the area, and to improve the companies' business opportunities.
- **Entrepreneurs working group:** A working group of representatives from companies in the Raahe district. The group works to improve the preparedness of local companies to respond to demand created by large-scale projects in the area.
- **Working group for traffic safety**

Key figures for Pyhäjoki

Unemployment rate: fell by 2.1 percentage points
8.9% > 6.8% from May 2017 to May 2018

Self-sufficiency in employment: up 13 percentage points
62% > 75% from 2015 to 2017

Municipal, real estate and corporate tax revenue up 8.4%
(more than EUR 800,000) from 2015 to 2017

Approximately 150 new jobs created as a result of the Hanhikivi 1 project

(Source: Municipality of Pyhäjoki 2018)

- **Regional authority working group:** The group aims to develop operations at the construction site to make the performance of official duties easier. The group gathers together many important authorities.



ENCOURAGING LOCAL ENTREPRENEURS

A large proportion of the construction work at the nuclear power plant construction site is regular industrial construction, well suited for Finnish companies. All the construction projects within Fennovoima's scope of delivery have so far been carried out by Finnish enterprises.

The construction site offers work to companies of different sizes and in different fields. We are compiling a [supplier register](#) that is open to all enterprises interested in the contract opportunities offered by the project. The main contractor, Titan-2, is also compiling a similar [register](#) of contracting companies. In addition to us, municipalities and business services of the region provide information on work and contracting opportunities available at the Hanhikivi 1 construction site.

Coaching is offered to Finnish companies to improve their success in competitive tendering. We participate in the planning and execution of training provided by FinNuclear.

Service survey

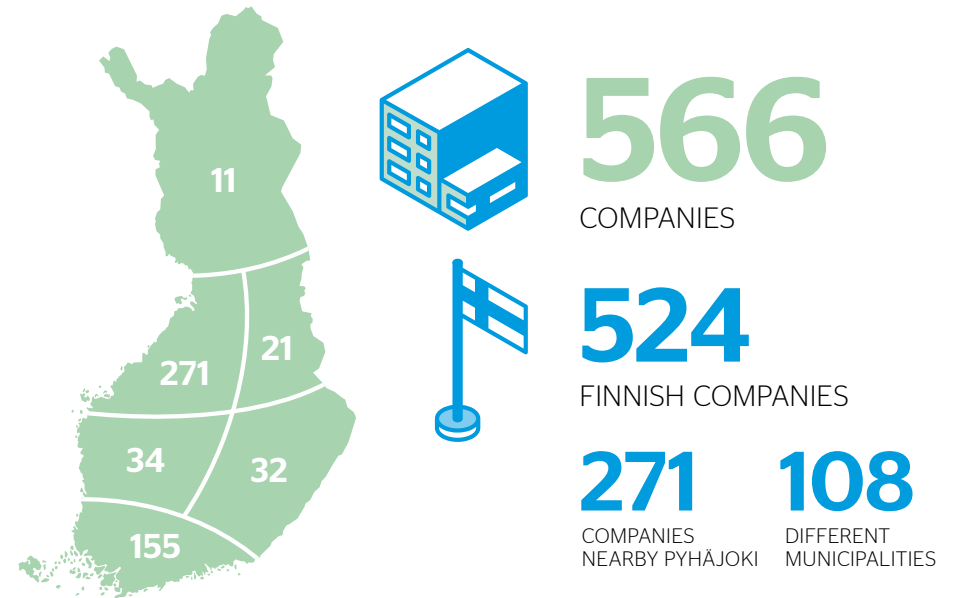
Late in 2018, we launched an extensive service survey in the municipalities of the region. The survey aims to chart the services being offered in the region so that they can be utilized to the best benefit during the construction and operation of the nuclear power plant.

In the first phase, the survey will be conducted in Pyhäjoki, Raahe, Siikajoki, Kalajoki, Oulainen and Ylivieska. Later, other municipalities in the region will also be covered.

MANY NEW RESIDENTS

During the construction phase, Northern Ostrobothnia will receive a lot of new residents from other parts of Finland as well as from abroad. Some will remain in the region, but others will only stay for a certain construction phase or later during the operating phase of the plant, during annual outages.

At the peak of construction, more than 4,000 workers will be employed at the construction site. This is more than the current number of residents in Pyhäjoki.



Companies at the site register by November 28, 2018.

Fennovoima's organization will also gradually move to the plant site. The increased number of residents stimulates the economy and will have a lasting impact on the service production in the area.

New residents will improve the well-being in the region with increased tax revenue, new services and a wider

selection of free-time activities. The municipalities of the region have prepared for the new residents by updating land use plans to allow the building of new homes and by developing services and infrastructure. Systematic preparations also aim to help newcomers to adjust and integrate to the local way of life.



We support local actors in their preparations for the increasing number of residents, and we provide as much information as possible on when and how many people may be coming. In fall 2018, we also discussed integration of the newcomers with students as part of the Demola project run by the University of Oulu. Within the Demola project, multi-disciplinary student teams develop solution models for businesses and organizations.

Fennovoima employees are new residents in the area

The relocation of operations and employees from Helsinki to Pyhäjoki is a big change for Pyhäjoki and the neighboring municipalities, as well as for us at

Fennovoima. The relocation is being carefully prepared for both internally and together with the municipalities.

The Municipal Fair organized at our Salmisaari facilities in May gathered 15 municipalities in the region to introduce themselves and to tell our personnel about life in Northern Ostrobothnia. At a housing event in the fall, constructors, municipalities and other service providers related to housing solutions met Fennovoima employees who will relocate to the region.

SUPPORTING LOCAL PROJECTS AND ACTIVITIES

We support local activities by participating in events and by providing financial support

especially for recreational activities for children and young people, and for general interest projects in Pyhäjoki and in the region.

We are involved in organizing the Parhalahti Day event together with the Parhalahti village association and the municipality of Pyhäjoki. The event is an informal village celebration with a warm atmosphere and approximately 400 people, and it takes place on the Parhalahti school grounds in early June.

Every year, we also take part in the Pyhäjoki Fair organized by the second-grade students at Pyhäjoki upper secondary school. Approximately 2,000 people visit the fair each year. Organizing the event provides the

students with important experience in various skills that they will need in their future careers. It is also a way of collecting money for a class trip.

In 2018, we invested a total of some EUR 165,000 in supporting local activities and events (2017: EUR 146,000, 2016: EUR 168,000). Support was provided to approximately 70 local organizations and public actors.

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Effects of the Hanhikivi 1 project are visible in the area

“Some residents have lost their summer cottage plots, some others are delighted with financial success.”

Over 60 years old woman from Raahe

“Yes, this has greatly increased the activity, many other investments in the area, work and vitality.”

45-59 years old man from Pyhäjoki.

“Vitality. The local residents believe in the future.”

15-29 years old woman from Pyhäjoki

“Overall, it is a positive stimulus at the Raahe region.”

30-44 years old man from Pyhäjoki

“It has a lot of effect. For example, in Pyhäjoki, work machines started up and the renovation of the streets began. Otherwise the municipality would have lost its vitality.”

Over 60 years old man from Pyhäjoki

Excerpts from the open responses to the opinion poll conducted by Norstat Finland Oy in November 2018.

Reporting principles

This Responsibility Report covers the financial year 2018. Fennovoima's Corporate Responsibility Report references to Disclosures of GRI Standards 2016 are presented in the GRI index. In addition, the report includes Fennovoima's own disclosures that we have defined as material to our corporate responsibility. These disclosures are also presented in the GRI index.

When defining the materiality of issues impacting our operations, we consider the expectations of significant stakeholders inside and outside the company.

The report has been prepared in accordance with the GRI Standards: Core option.

DATA BOUNDARIES AND INFORMATION SOURCES

The data presented in this report covers Fennovoima Oy's functions in Helsinki and

Pyhäjoki and in the Hanhikivi 1 nuclear power plant construction site, if not otherwise stated.

Fennovoima's subsidiary Fennovoima RUS controls procurement in Russia and has only one employee. The subsidiary is not included in Fennovoima's corporate responsibility and performance targets and thus not included in this report.

To cover the material aspects of the Hanhikivi 1 construction site operations, the matters that relate directly to the material aspects of Fennovoima's corporate responsibility, also regarding the plant supplier RAOS Project and main contractor Titan-2, are included in this report.

The financial data presented in the document are from Fennovoima's audited financial statement. Supply chain data

includes information from the Fennovoima Management System (FMS) and the Hanhikivi 1 site register. EPC (engineering, procurement and construction) scope related supply chain data is supplied by RAOS Project Oy.

Environmental data provided in this report covers the Hanhikivi 1 construction site. The information is collected from the management systems, monthly reports and from independent experts' studies conducted at the plant site area. The construction waste data is from Fennovoima's own systems and from Fennovoima's waste management partner Remeo Oy.

Human resources related data in this report covers Fennovoima's organization in Helsinki and Pyhäjoki. Occupational health and safety data describes the Hanhikivi 1 construction site.

EXTERNAL ASSURANCE

An independent third party, KPMG Oy Ab, has provided limited assurance for the specific performance indicators on environmental, social and economic disclosures in the Finnish language corporate responsibility report 2018 as indicated in the GRI Index and KPMG's assurance report. The assurance report is available at: www.fennovoima.fi/en/reports-and-assurance

GLOBAL COMPACT COMMUNICATION ON PROGRESS

Fennovoima supports the ten principles of the United Nations' Global Compact sustainability initiative. We respect and promote these principles throughout our operations, and report on our progress in this report.

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