



Sustainability Report of the GEN Group 2012

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Energy is life.

The GEN Group provides a responsible and reliable supply of electricity from sustainable and renewable sources. To drive activities that enrich the quality of life.



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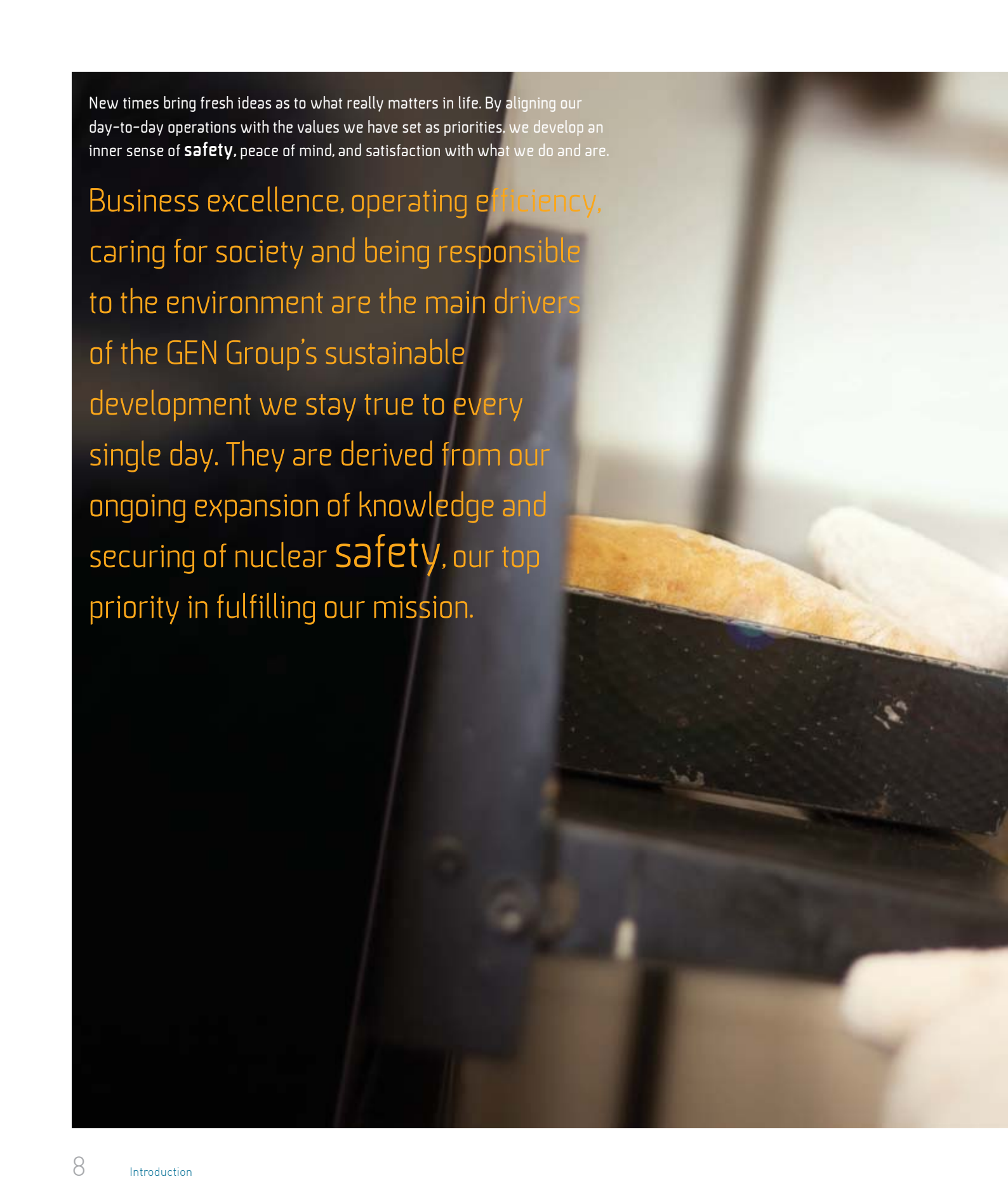
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New times bring fresh ideas as to what really matters in life. By aligning our day-to-day operations with the values we have set as priorities, we develop an inner sense of **safety**, peace of mind, and satisfaction with what we do and are.

Business excellence, operating efficiency, caring for society and being responsible to the environment are the main drivers of the GEN Group's sustainable development we stay true to every single day. They are derived from our ongoing expansion of knowledge and securing of nuclear **safety**, our top priority in fulfilling our mission.



▶ 1 introduction

1.1 About the GEN Group and the company GEN

1.1.1 About the GEN Group

The mission shared by all the companies in the GEN Group is to provide a reliable, safe and competitive electricity supply to various consumer profiles.

The GEN Group companies annually produce between 5,600 and 6,300 gigawatt-hours (GWh) of electricity, which makes up 40–45% of the total demand for electricity in the national electric power grid of the Republic of Slovenia.

Giving the freedom of choice. This way we add our share to increasing competitiveness in Slovenia's electricity market and to strengthening the entire national economy.

A reliable producer of electricity. We create synergic effects by harnessing various sustainable, low-carbon energy sources, predominantly:

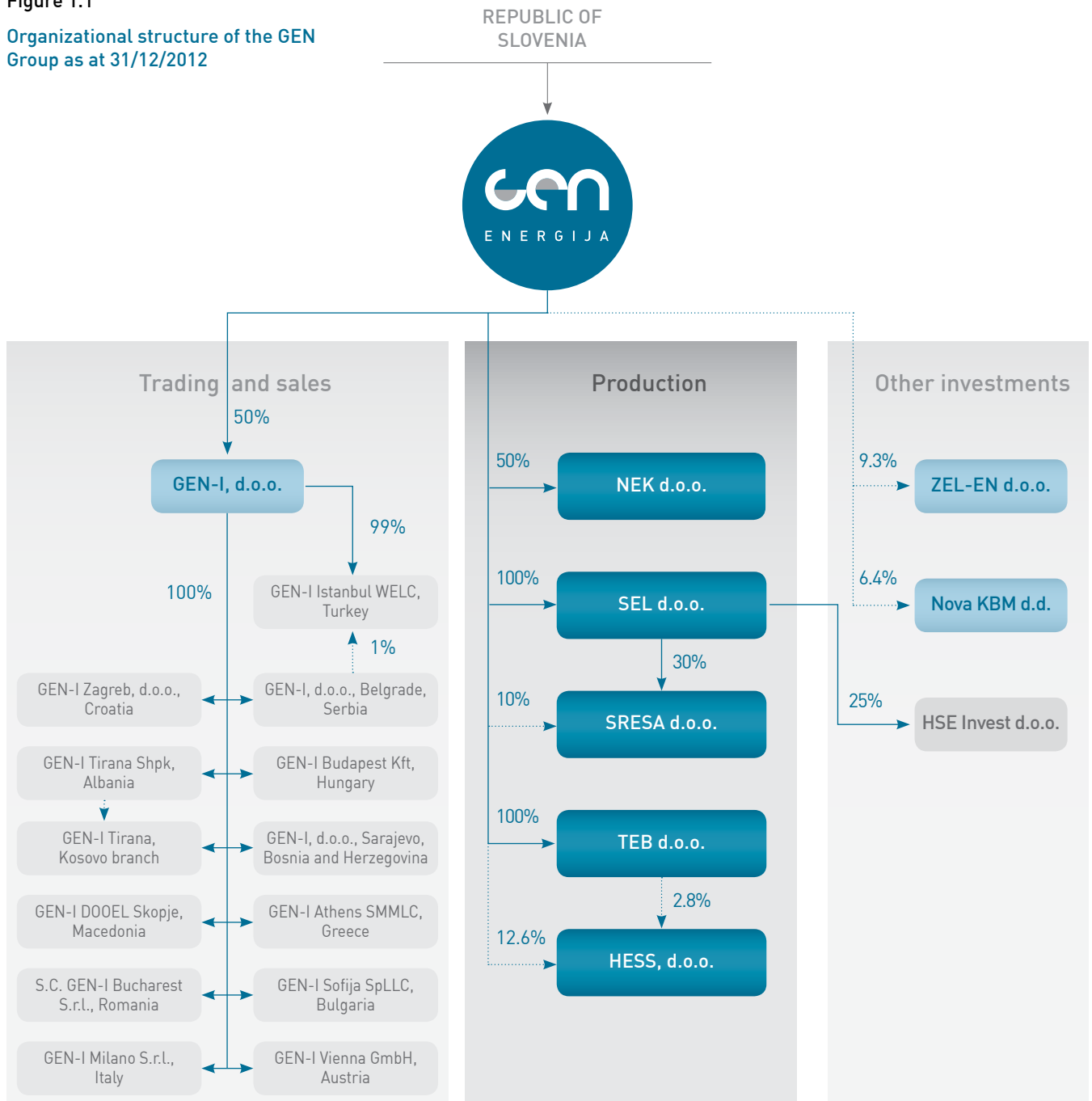
- nuclear power,
- hydropower, and
- solar power.

Efficient electricity trader. We rely on our knowledge, professional approach and creative energy. We boast an effective array of functions for effective management of risks associated with electricity purchases, trading and sales. Thanks to a guaranteed provision of power and electricity, we give the Group's production sources access to reliable and steady income, while the parent company sees to the optimal sale of power and electricity all the way to consumers. Consumers receive a quality service in the form of a comprehensive supply of electricity and optimized purchase channels.

Investment in the maintenance and optimization of existing, as well as the development of new, production facilities is an important strategic focus of the GEN Group. This is the only way we can provide enough electricity to help reduce Slovenia's dependence on imported energy. Co-investing in various new energy projects presents both a challenge and an opportunity for the Group companies.

1.1.2 Organizational structure of the GEN Group

Figure 1.1
Organizational structure of the GEN Group as at 31/12/2012



1.1.3 General information on the company GEN

Registered name:	GEN energija d.o.o.
Short registered name:	GEN d.o.o.
Legal form:	limited liability company
Registered office:	Vrbina 17, 8270 Krško
Telephone:	+386 7 49 10 112
Fax:	+386 7 49 01 118
Website:	www.gen-energija.si
E-mail:	info@gen-energija.si
Year of foundation:	2001
Founder and sole partner:	Republic of Slovenia
VAT ID number:	SI44454686
Registration number:	1646613
Bank accounts:	NLB 02924-0090457150 Banka Celje 06000-0904571665 SKB banka 03155-1000503323
Activity:	K/64.200 Activities of holding companies, D/35.140 Electricity trading, and other registered activities.
Share capital:	EUR 26,059,796.00
CEO - director:	Martin Novšak
Chairman of the Supervisory Board:	Martin Bratanič
Number of employees:	53

1.1.4 Governance and bodies of the company GEN

Pursuant to the Articles of Incorporation of the limited liability company GEN energija d.o.o., the company is managed by the founder (the Republic of Slovenia) directly and through the company bodies: Supervisory Board and CEO - director.

The company is headed by the CEO - director, who is appointed and removed by the Supervisory Board. After the term of five years, the CEO - director may be reappointed.

The company has a Supervisory Board, which is made up of five members, who are appointed by the founder for a term of four years and can be reappointed after the term expires.

CEO - DIRECTOR:

Martin Novšak

SUPERVISORY BOARD:

From 01/01/2012 until 28/11/2012:

Chairman:
dr. Tomaž Savšek (from 10/02/2012)

Vice Chairman:
Uroš Saksida, MSc (from 10/02/2012)

Board members:
Andro Ocvirk, PhD
Davorin Dimič, MSc

From 29/11/2012:

Chairman:
Martin Bratanič (from 30/11/2012)

Vice Chairman:
Prof Leon Cizelj, PhD (from 30/11/2012)

Board members:
Goran Udovč
Prof Marko Čepin, PhD
Rastislav Jože Reven

The company's financial statements for 2012 have been audited by the auditing firm Ernst & Young d.o.o.

1.1.5 Holding activities of the company GEN

The principal area of operation of the company GEN is activities of holding companies, that is, governing other legally independent companies through equity interests held in them by the company GEN as the controlling company.

As a holding company, GEN carries out management operations through equity interests in subsidiaries and jointly controlled entities by participating in annual general meetings and by managing financial results of the subsidiaries, pursuant to relevant articles of incorporation or memorandums of association. It also approves relevant documents and appoints representatives into supervisory boards of subsidiaries and jointly controlled entities. GEN's management regularly coordinates its actions with the managements of subsidiaries and jointly controlled entities.

Based on the business results of individual companies within the GEN Group and the Group as a whole, we find that the company GEN steers the Group well, that the companies are successful in keeping costs under control, and that they fully follow their respective business plans.



1.2 Letter from the Director

The GEN Group continued to maintain its sustainable focus in 2012 by fulfilling its mission of providing a reliable supply of electricity generated in an environmentally friendly way and at competitive prices. Some of the central events, achievements and milestones which marked our sustainability-focused operation in 2012 were as follows:

- As much as **99.6%** of all the electricity generated by the GEN Group power plants came **from sustainable and renewable sources**. Having accounted for 89% in 2012, the nuclear power from Krško Nuclear Power Plant (NEK) is the primary source, followed by hydropower from HESS and SEL, which made up 11% of the GEN Group's total annual electricity output.
- **Electricity production at NEK was almost 99% on target.** The hydroelectric power plants missed their production targets (SEL 91%, HESS 88%) due to subnormal hydrological conditions. Still, thanks to optimized management and control via the GEN Control Centre, the **production figures for the entire Group were good**, meeting **nearly 95%** of its production target. Taking into account the persistently tense situation in the market, manifested as sluggish economic recovery in the aftermath of the global recession and the resulting decline in electricity consumption, among others, we believe our business results in 2012 were successful.
- **NEK** continued to undergo comprehensive **technological modernization** in 2012 in accordance with its long-term investment plan. The total value of investments was EUR 58 million. Two essential components were replaced during the modernization of the power plant: reactor head and main power generator rotor. In addition, NEK made further investments in improving the AC backup power supply and increasing the power plant's flood safety based on a newly set probable maximum flood. June saw the completion of an extensive and exhaustive technical procedure whereby the Slovenian Nuclear Safety Administration issued a decision approving NEK's comprehensive equipment ageing management programme. This is one of the most

crucial prerequisites for the safe operation and planned life extension of NEK, which celebrated 30 years of safe, reliable and environment-friendly commercial operation at the end of 2012.

- As far as the **JEK 2 project** is concerned, in 2012 the project entered the stage where the owner, the Republic of Slovenia, is going to have to make a clear decision on how to proceed. A strategic decision will have to be made in the form of an approval of the National Energy Programme, the Spatial Planning Strategy of Slovenia, and Slovenia's Development Strategy for the 2014–2020 period.
- In 2012 we also made a number of important **investments in the area of promoting electricity production from renewable sources, primary hydropower**. Of key importance here are investments in SEL's existing facilities (particularly Vrhovo and Moste HPPs) and in the hydroelectric power plants on the lower Sava River (HESS) and the middle course of the Sava River (SRESA).
- **Expertise** is the common thread that runs through all the GEN Group companies and makes it possible for us to achieve good business results. We fully recognize the value of educated, knowledgeable, committed and responsible employees. 18 new experts joined the GEN Group companies in 2012, increasing the total number of employees to 1044, more than half of which hold at least a higher education qualification. New jobs are going to be added in 2013 as well.

You are invited to read and comment on this report, which highlights, in words and pictures, the key aspects of the GEN Group's path towards achieving sustainable development. We are confident that the socially beneficial, environmentally responsible, professionally excellent and operationally efficient activities of the GEN Group companies make an undeniable contribution to shaping a positive, responsible, active and thoughtful broader social environment in Slovenia. We hope to continue our contribution also in the future.



Martin Novšak
Director, GEN energija d.o.o.

1.3 GEN and sustainable development

The 2012 report on the achievement of sustainable development in the GEN Group and its companies (hereinafter: Sustainability Report) is the **fourth consecutive yearly report of its kind**. The report assesses and evaluates the impacts the operation of our power plants, the planning and implementation of development and strategic projects and the relationships with consumers and other key stakeholders in the local and the national environment have on the three core dimensions of sustainable development: economic, environmental and social.

Much like in previous years, the key topics of this year's Sustainability Report are divided into **seven main sections**, outlining the environmental, economic or technical and social impacts of our operation. The report provides information on the entire GEN Group and its constituent companies: GEN energija as parent, NEK, SEL, HESS, GEN-I and TEB. Individual sections of the report contain clear references as to which information refers to the entire Group and which to one or more of its constituent companies.

Despite preserving its structure of seven main sections, this year's report introduces the following changes:

- Topics in connection with **energy efficiency awareness-raising campaigns, measures and projects**, which were given a separate heading in last year's report, have been revised. Relevant information was incorporated into the other main sections, primarily the one on promoting the knowledge of energy and the energy industry.
- The section on **the activities in the World of Energy**, the interactive multimedia centre on energy and energy technologies that opened in July 2011 as part of the GEN Information Centre in Krško, was also merged into the section on promoting the knowledge of energy and the

energy industry. The activities and projects taking place in the context of the World of Energy are indeed an integral part of our comprehensive strategic efforts to promote the understanding of the energy industry and energy projects among various stakeholders.

- This year's report introduces a new main section on **quality policy and ensuring nuclear safety**. This section underlines that quality of operations and efforts to ensure safety lie at the very heart of our responsibility, at all levels:
 - in showing a sense of responsibility towards the local people and the environment in which we operate,
 - in ensuring occupational health and safety for our employees, both in production and office settings, and
 - in achieving operational efficiency of the GEN Group's production facilities and the resulting business excellence.
- Also, in order to provide **relevant information and establish a clear link between sustainable focuses and GEN's principal activity**, some of the sections in this year's report have been either abridged or expanded as appropriate.

We are going to continue the practice of releasing annual sustainability reports in the future, while upgrading the process of preparing financial and non-financial information in connection with our operation and striving to combine this information into a more closely integrated whole. We will endeavour to maintain, or even improve, the relevance, coherence and understandability of the information presented in the report for the sake of our readers.

Enjoy the read.

We will be pleased to receive any questions, suggestions or comments you may have in connection with this report.

GEN Group Sustainability Report
editorial team

E-mail: info@gen-energija.si

1.4 Report's compliance with GRI guidelines

The GEN Group follows the guidelines on reporting on sustainable development, so the substance and structure of this Sustainability Report are compliant with the GRI guidelines (*Global Reporting Initiative* – www.globalreporting.org). This way we provide a clear and transparent view of our operations, results and plans and ensure their comparability at the national and the international level.

The table below includes an overview of relevant GRI indicators by section and by page of the Sustainability Report 2012. The table also lists compliance of this report's contents with standard sustainability reporting guidelines (*GRI: Sustainability Reporting Guidelines, Version 3.1*) and sector-specific guidelines for the electric utility sector (*GRI: Sustainability Reporting Guidelines & Electric Utility Sector Supplement, RG Version 3/EUSS Final Version*).

Table 1.1
Report's compliance with GRI G3.1 and GRI RS & EUSS guidelines

Chapter (Item) in the report	Page	Applicable standard GRI G3.1 indicators (Standard Disclosure) ¹	Applicable sector-specific GRI RG & EUSS indicators ²
1. Introduction	9		
1.1 About the GEN Group and the company GEN	10	2.1, 2.3, 2.4, 2.6, 4.1, 4.2	
1.2 Letter from the Director	15	1.1	
1.3 GEN and sustainable development	16	3.1, 3.3, 3.4, 3.5	
1.4 Report's compliance with GRI guidelines	17	3.12	
1.5 Outline of the main highlights of 2012	18		
2. Main topics	21		
2.1 Portfolio of sustainable and renewable energy sources: 99.6 percent	22	EN16	EU2, EU5
2.2 Efficient operation: NEK reaches nearly 99% of its electricity generation target, the GEN Group nearly 95%	25		EU2, EU6
2.3 Investments in renewable energy sources: EUR 3 million	30		EU2, EU6, EU8
2.4 JEK 2 project: technical bases and studies ready	34		EU6, EU8
2.5 Promoting the knowledge of energy and the energy industry	39	4.14, 4.16, EN6, EN7	EU8
2.6 Knowledgeable people: 1044 employees, more than half with higher education qualifications	42	4.16, LA1	EU14
2.7 Quality policy and ensuring nuclear safety	46		EU16, EU21
3. Key performance indicators	51	EC1	EU2, EU8, EU14

1. *Global Reporting Initiative: Sustainability Reporting Guidelines, Version 3.1, GRI 2000–2011* (www.globalreporting.org).

2. *Global Reporting Initiative: Sustainability Reporting Guidelines & Electric Utilities Sector Supplement, Version 3.0/EUSS Final Version, GRI 2000–2011* (www.globalreporting.org).

1.5 Outline of the main highlights of 2012

Here is a brief summary of the topics examined in more detail inside the report:

99.6% of electricity we produced came from sustainable and renewable sources

As much as 99.6% of electricity generated by the GEN Group power plants comes from sustainable and renewable sources. Having accounted for 89% in 2012, the nuclear power from Krško Nuclear Power Plant (NEK) is the primary source, followed by hydropower, which made up nearly 11% of the GEN Group's total annual electricity output.

[Read more on page 22.](#)

Through efficient operation of the nuclear power plant (reaching nearly 99% of its production target) and hydroelectric power plants, the GEN Group as a whole managed to meet nearly 95% of its overall electricity production target despite drought.

2,955 GWh of electricity was available to the GEN Group in 2012. Our production units operated efficiently. NEK met nearly 99% of its production target. As the Sava River flow rates were again subnormal in 2012, large hydroelectric power plants missed their electricity production targets on account of poor hydrology.

[Read more on page 25.](#)

The GEN Group companies made EUR 3 million worth of investments in renewable energy sources

In 2012 the GEN Group channelled most of its EUR 3 million renewable energy sources (RES) investment resources into hydropower projects. Of key importance here are investments in SEL's existing facilities (particularly Vrhovo HPP and Moste HPP) and in the hydroelectric power plants on the lower Sava River (HESS) and the middle course of the Sava River (SRESA).

[Read more on page 30.](#)

JEK 2 project: investment in a sustainable energy source

The JEK 2 project meets the criteria for sustainable development in all its three dimensions: social, environmental and economic. In 2012 the project entered the stage where the owner, the Republic of Slovenia, is going to have to make a clear decision on how to proceed.

[Read more on page 34.](#)

Promoting the knowledge of energy and the energy industry

Since the fulfilment of our mission is closely connected to the knowledge and understanding of energy and the energy industry and associated projects among various stakeholders, the GEN Group places a strong focus on promoting knowledge and raising awareness. We promoted or sponsored energy-related awareness-raising campaigns and expert business events in a number of ways in 2012.

[Read more on page 39.](#)

Knowledgeable people: 1044 employees, more than half with at least higher education qualifications

We recognize the value of the knowledge of our 1044 employees. We interconnect and exchange the knowledge and experience in a number of ways: among generations and various spheres of our operation, as well as among the Group companies.

[Read more on page 42.](#)

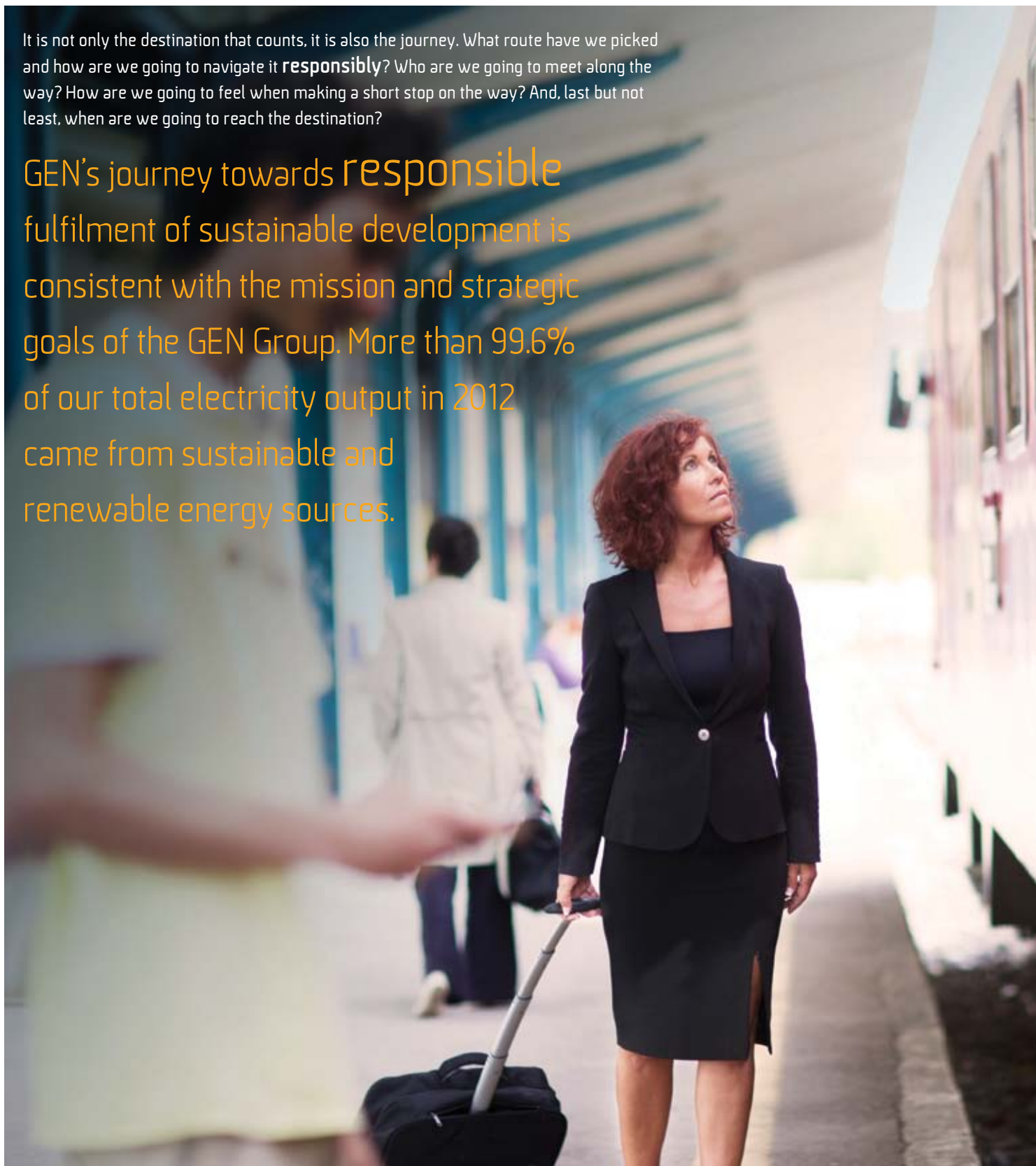
Quality policy and ensuring nuclear safety

Commitment to ensuring safety lies at the heart of responsible operations of the GEN Group companies at all levels. Our adherence to standards and conservative approach enable us to deliver high quality and, in turn, meet our reliability requirements and ensure a high level of safety.

[Read more on page 46.](#)

It is not only the destination that counts, it is also the journey. What route have we picked and how are we going to navigate it **responsibly**? Who are we going to meet along the way? How are we going to feel when making a short stop on the way? And, last but not least, when are we going to reach the destination?

GEN's journey towards **responsible** fulfilment of sustainable development is consistent with the mission and strategic goals of the GEN Group. More than 99.6% of our total electricity output in 2012 came from sustainable and renewable energy sources.





› **2** main topics

2.1 Portfolio of sustainable and renewable energy sources: 99.6 percent

More than 99.6% of the electricity generated by the GEN Group power plants comes from sustainable and renewable sources. Having accounted for 89% in 2012, the nuclear power from Krško Nuclear Power Plant (NEK) is the primary source, followed by hydropower, which made up nearly 11% of the GEN Group's total annual electricity output.

The GEN Group in 2012 again made a significant contribution towards the achievement of low- or zero-carbon electricity production. Efficiently, safely and, most importantly, with a focus on preserving the environment and preventing climate change.

The largest generators of electricity in 2012 were the nuclear power plant (NEK) and the large hydroelectric power plants (SEL and HESS). The electricity output of the gas-steam power plant (Termoelektrarna Brestanica – TEB), which does not count as production from sustainable sources, is not included in the above table. The principal function of this production unit within the GEN Group is to make up for outages of larger production units in the Slovenian electric power grid. In 2012 the output from this power plant accounted for less than 0.4% of the Group's total production.

Table 2.1

The electricity production portfolio of the GEN Group is based primarily on sustainable and renewable energy sources (data for 2012)

Form of energy	GEN Group power plant	Electricity production in 2012* (GWh)	Electricity production in 2012* (% of the GEN Group's total output)
Nuclear power	Krško Nuclear Power Plant – NEK	2,622**	89%
Hydropower (large HPPs)	Hidroelektrarne na Spodnji Savi – HESS	37	11%
	Savske elektrarne Ljubljana – SEL	286	
Total		2,945	100%

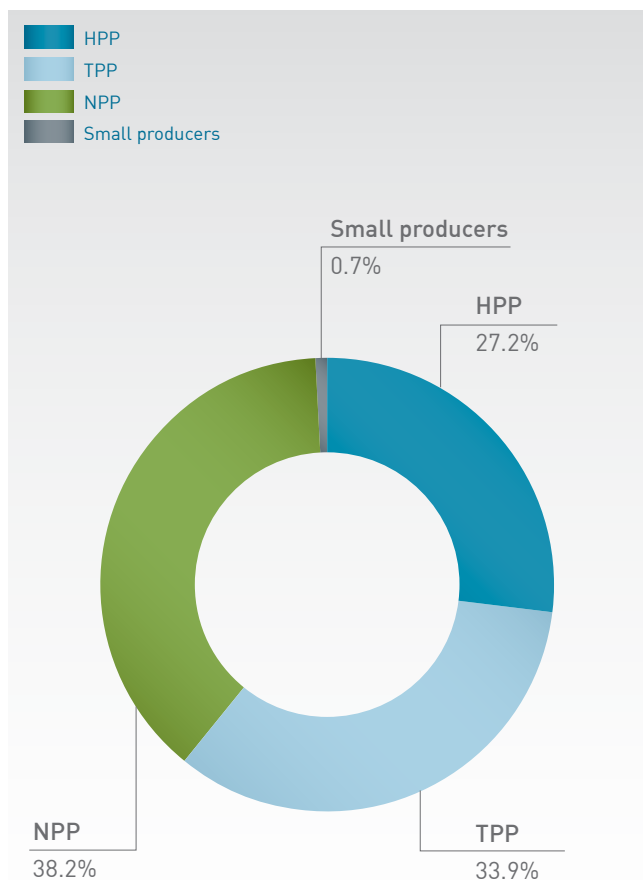
* The table does not include the electricity produced by small-scale hydroelectric power plants (SHPs) and small-scale solar/photovoltaic power plants (SPPs) because, compared to the output from the nuclear power plant and the large hydroelectric power plants, it accounts for only a small share (a total of 0.03% of the GEN Group's total electricity production).

** NEK generated 5,243 GWh of electricity in 2012. Under the Intergovernmental Agreement on NEK, the company GEN was entitled to one-half of the total amount, that is, 2,622 GWh of electricity (the halves do not sum to the total due to rounding).

Structure of electricity production sources in Slovenia in 2012

Figure 2.1

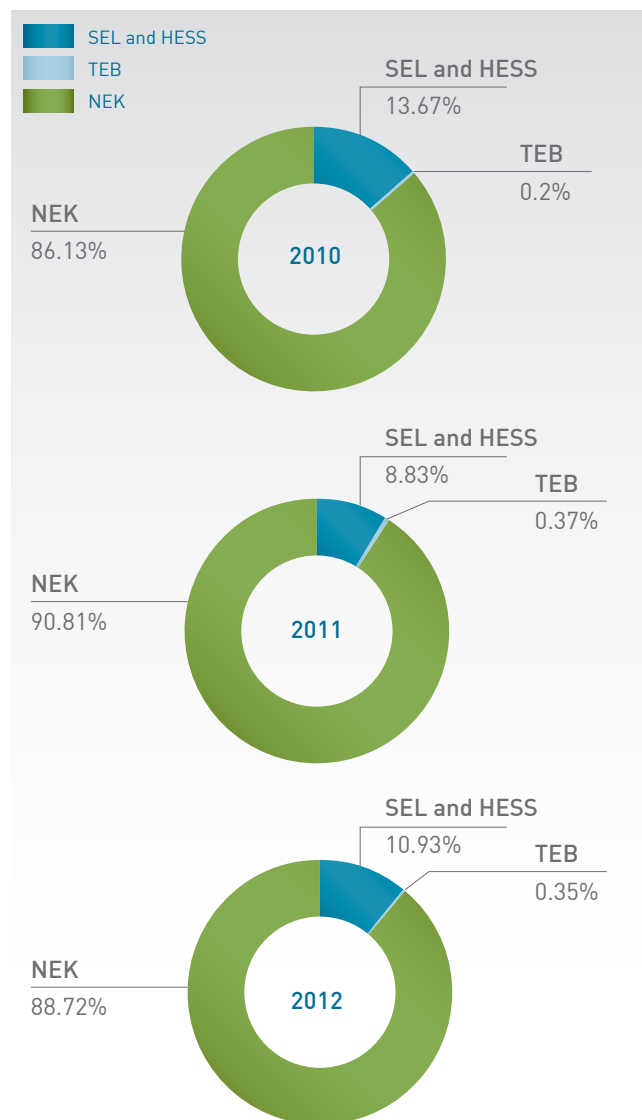
Structure of electricity production sources in Slovenia in 2012



Source: Annual Report on Transmission Network Operation for 2012 (available at www.eles.si, February 2013)

Figure 2.2

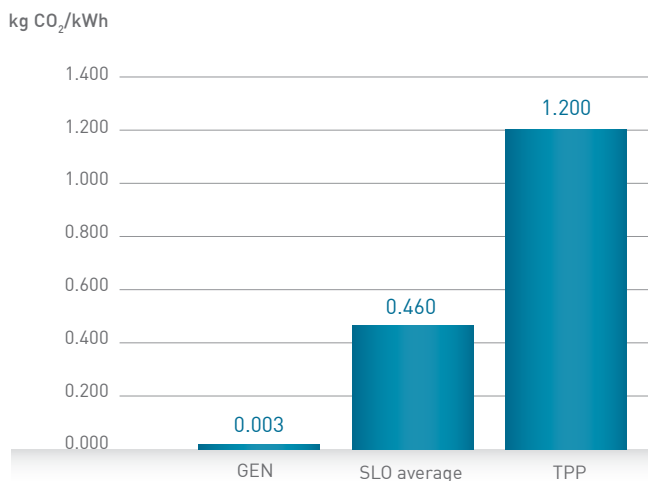
Structure of electricity production sources in the GEN Group in 2010, 2011 and 2012



In terms of CO₂ emissions, the GEN Group's production portfolio, compared to the Slovenian (national) portfolio of electricity production sources, is environmentally acceptable and focused on sustainability. Figures 2.1 and 2.2 compare the structure of electricity production sources in Slovenia in 2012 (source: "Annual Report on Transmission Network Operation for 2012", February 2013, available at www.eles.si) against that of the GEN Group in 2010, 2011 and 2012 (source: GEN annual reports for respective years). The structure of the GEN Group's production sources does not include data on the electricity production of small-scale hydroelectric power plants and small-scale solar/ photovoltaic power plants (to learn more, see chapter 2.3).

Figure 2.3

Comparison of CO₂ emissions per kWh produced in 2012 (2010, 2011 and 2012 average)



Outstanding electricity production results of the GEN Group (Fig. 2.3) in terms of CO₂ emissions can be credited to the fact that the production almost entirely relies on sustainable and renewable sources, mostly nuclear and hydropower. The percentage of electricity generated from fossil fuels (extra light fuel oil and natural gas, which TEB uses for fuel) is minimal, as it accounts for less than 0.4% of the GEN Group's total annual electricity production and is used merely as backup energy in the event of outages of larger production units in the national electric power grid.

The total CO₂ emissions created in the generation of electricity in the GEN Group, which are only caused by TEB, amounted to 8,843 tonnes in 2012. This equals as low as 0.003 kg (3 grammes) of CO₂ emissions per kWh generated. Slovenia's national average, however, factoring in the production of electricity from fossil fuels, is 0.46 kg or 460 g of CO₂ emissions per kWh generated.

Accounting for as much as 88.72%, NEK makes the largest contribution towards low-carbon electricity production at the GEN Group's power plants.

NEK generated 5,243 GWh of electricity in 2012, and GEN is entitled to one-half of it, which is 2,622 GWh.



2.2 Efficient operation: NEK reached nearly 99% of its electricity generation target, the GEN Group nearly 95%

Our own production sources generated 2,955 GWh of electricity in 2012. Our production units operated efficiently. NEK, the largest production unit in the GEN Group, met nearly 99% of its production target.

Much like the previous year, flow rates of the Sava River were below average due to poor hydrological conditions, with the exception of the last four months of the year. This is why the large hydroelectric power plants only reached 91% of their electricity production targets. Still, thanks to optimized management and control via the GEN Control Centre, the production figures for the entire Group were good, meeting nearly 95% of its production target.

Table 2.2

GEN's performance – electricity production target and results of the GEN Group for 2010, 2011 and 2012 (GWh)

Year	Target	Result	Ratio
2012	3,111	2,955	0.9498
2011	3,405	3,250	0.9543
2010	3,142	3,123	0.9942

2.2.1 Having generated 5,243 GWh of electricity in 2012, NEK met nearly 99% of its production target

Operating results

NEK, which delivers base-load electricity on the daily load curve throughout the year, generated 5,243 GWh of electricity in 2012, reaching nearly 99% of its production target. Compared to previous years, production was slightly lower due to the extended scheduled maintenance outage and the unplanned shutdown in October.

NEK safety assurance and investments in 2012

NEK continued to undergo comprehensive technological modernization in 2012 in accordance with its long-term investment programme. The total value of investments was EUR 58 million.

Scheduled maintenance outage

The scheduled annual maintenance took place from 14/04 until 27/05/2012, a bit longer than was originally planned. The major maintenance was the most complex and demanding to date in terms of scope and depth. Two vital components were replaced during the upgrading of the power plant:

- **the reactor head**, fulfilling the basic prerequisite for ensuring the integrity of the reactor coolant and improving three important NEK performance indicators related to work safety, the duration of the scheduled maintenance outage, and the radiological exposure of personnel. The modification further enhanced the power plant's level of operational safety. The replacement of the reactor head was the central activity during the major maintenance work; and
- **the main power generator rotor**, where the old rotor, when fully reconditioned, will serve as a spare component.

Other key investments

Other key investments made in 2012 include:

- **Improvement to the AC backup power supply**, providing an alternative source of power in the event the system-wide AC power supply is disrupted.
- **Increased flood safety** based on a newly set probable maximum flood, an input used for determining the required increase in the existing flood protection. Embankments along the Sava River and the Potočnica were raised above the elevation mark designed to keep NEK safe from flooding in the event of probable maximum flood.
- **Upgrades to the 400kW switching substation of NEK and the transformer substation RTP 400/110** between NEK and ELES, which increased the flexibility of the substation and the reliability of the system in distributing the energy from the power plant. In addition, the substation monitoring and control panel in the NEK Control Room was reconditioned, and the enterprise resource planning (ERP) system was upgraded.

In commercial operation for 30 years

NEK reached an important milestone at the end of 2012: precisely 30 years of commercial operation. This marks 30 years of safe, reliable and environmentally friendly provision of a significant share of electricity at competitive prices.

Planned technological modernizations in 2013

Ongoing investments in technological upgrades will continue in 2013. NEK's plans include more than 40 upgrades to systems, structures and components to ensure safe and reliable operation in the future.

Also implemented will be the first two projects under the long-term Safety Upgrade Programme: a project to upgrade the integrity of the containment building and a project to install a protection system for safeguarding the containment building against high pressures.

In the context of the first investment, that is, the upgrading of the containment building integrity, the recombiners, which facilitate the burning of hydrogen and oxygen in the event of major accidents, will be replaced with new, passive autocatalytic hydrogen recombiners. The latter function without the need for any power supply. As for the second investment, that is, the project to install a protection system to safeguard the containment building against high pressures, pressure will be automatically released through the filtration system in the event of rising pressure. This will allow complete filtration of all fission products.

The resources earmarked for technological upgrades in 2013 total EUR 72.7 million. EUR 52.4 million of the planned investment cost will be financed internally with depreciation allowances, and the rest will be secured by NEK from an external source.

NEK's unit capability factor (according to WANO): 87%

Performance Indicators as defined by the World Association of Nuclear Operators (WANO) confirm that in 2012 NEK once again met its key operating targets.

Table 2.3

NEK electricity production (GWh) in 2012

	Target/50% target	Result/50% result	Ratio
NEK	5,310/2,655	5,243/2,622*	0.9874

* Values do not sum to 100% due to rounding.

NEK’s production target for 2012 was set at 5,310 GWh, and its total annual output was 5,243 GWh, so the power plant’s performance rate stood at 98.74%. In the reporting period GEN was entitled to one-half of the total amount, 2,622 GWh, which is down by 33 GWh from the planned total electricity output. This can be put down to the extended scheduled maintenance outage in May and the unplanned shutdown of NEK in October due to driftwood and other materials carried along by the Sava River and the consequent clogging of condenser filters.

GEN supplied NEK with 9.6 GWh of electricity for on-site use during the scheduled maintenance outage and 0.5 GWh during the unplanned October shutdown, which amounted to an annual total of 10.1 GWh.

URSJV approved NEK modifications to extend the power plant’s operating life until 2043

The Slovenian Nuclear Safety Administration (URSJV) issued in June 2012 a decision approving the modifications made in accordance with NEK safety report that will facilitate the extension of its operating life. This marked the end of an extensive and exhaustive technical procedure which started after the first periodic safety inspection of the nuclear power plant back in 2003. At that time NEK started preparing and implementing a special ageing management programme for safety-critical systems, structures and components, which is one of the prerequisites for a life extension beyond the originally planned 40 years.

Based on the positive practical experience in the nuclear industry worldwide, a decision was made for NEK to launch the procedure for extending the power plant’s operating life for a further 20 years beyond the original design life, which is 40 years.

URSJV formally agreed for the entire procedure to be subject to the requirements of the applicable US legislation, which is the most comprehensive in terms of methodology and substance. Also, the USA has the strongest track record of operating life extensions, as it has extended the operating lives of as many as 60 power plants to date, and a further 20 are currently pending approval.

The approved regular ageing management procedure for nuclear power plant components is one of the formal prerequisites for extending its operating life beyond 2023. Before that, NEK has to complete an extensive second periodic safety inspection by mid-2013, and then a third one in 2022 and 2023. In addition, in the coming years NEK will make a series of additional safety improvements and continue with its strategy of deploying ongoing technological upgrades. The basic prerequisites are: implementation of the ageing management programme for safety-critical systems, structures and components, regular and proper maintenance of operating equipment, and the preservation of high operator skill level and adequate safety culture of all employees.

All the above requirements have to be met in order for NEK to remain in commercial operation for 60 years, which is, according to plans, until 2043. For the past 15 years NEK has been following its technological upgrading strategy and investing substantial resources in securing high levels of operational readiness and nuclear safety and an operating life extension.

Operating life extension procedure of NEK

In June 2012 the Slovenian Nuclear Safety Administration completed an extensive and exhaustive technical procedure by issuing a decision approving NEK’s comprehensive equipment ageing management programme, which is one of the basic prerequisites for the safe operation and planned extension to the operating life of NEK.

Suitability of NEK’s proactive safety policy confirmed

In compliance with the requirements of the European Commission, a special safety inspection (stress test) was conducted in 2012 in response to the serious incidents that shook the nuclear industry, particularly Japan’s natural disaster and the resulting nuclear accident at Fukushima. NEK achieved outstanding results in the report, which confirms its high level of preparedness even in the event of extreme external events. But most of all, it confirms the suitability of NEK’s proactive safety policy.

NEK is making intense efforts to draw a long-term action plan as part of its Safety Upgrade Programme, which foresees the upgrading of solutions for preventing potential accidents or mitigating their consequences. The activities under this Programme will run until 2016.

2.2.2 SEL and HESS unable to meet production targets in 2012 due to poor hydrology

SEL: 286 GWh

SEL, which generates electricity exclusively from renewable sources (predominantly hydro- and solar power), only met 91% of its production targets for large hydroelectric power plants in 2012 due to subnormal hydrology in the first eight months of the year. This result, however, is an improvement from 2011, when the fulfilment rate was as low as 83% due to even worse hydrological conditions.

Table 2.4

SEL large HPP electricity production (GWh) in 2012

	Target	Result	Ratio
SEL - large HPP	314	286	0.9099

HESS: 37 GWh

Based on its equity interests, GEN was entitled to 37 GWh of electricity from the company HESS (Hidroelektrarne na Spodnji Savi, d.o.o.) (15.4% of HESS's total annual electricity output). This means that only 88% of the production target was met. As was the case with SEL, HESS too was unable to meet its production targets due to poor hydrology, that is, subnormal flow rates of the Sava River in the first and the second four months the year.

In accordance with the amended Rules on the Operation of the Electricity Market, a meter point can belong to several balance groups, as a result of which GEN is entitled to manage margins totalling 15.4% of HESS electricity production for its own account.

Table 2.5

HESS electricity production (GWh) in 2012

	Target	Result	Ratio
HESS	42	37	0.8798

Hydrological drought continued in 2012

Hydrologically speaking, 2012 was a particularly dry year. The hydrological drought, which began in the autumn of 2011, took its toll on numerous economic and social segments. From the autumn of 2011 and up until the end of September 2012, flow rates of Slovenian rivers were subnormal, which was mainly manifested in low water levels due to precipitation well below the several-year average. Drought conditions on surface waters were at their most severe already early in the spring (February and March) and in the summer (June, July and August) of 2012. Due to low snowfall in the winter of 2011/12 and the resulting lack of spring snowmelt to fill up the watercourses, the amount of water in the rivers at the end of March was about 35% of the volume normal for that time of the year.

The April and May rainfall caused the hydrological conditions to temporarily improve, and the river water levels returned to normal across most parts of the country. Due to a long spell of summer heat and a lack of significant precipitation, the drought conditions on surface waters worsened even further in the period from June to the beginning of September (source: "Development of the 2012 Drought in Slovenia", Slovenian Environment Agency, Meteorological Office, Hydrology and State of Environment Office).

Figure 2.4

Electricity production units of the GEN Group

Despite a quite severe hydrological drought in 2012, the GEN Group's large hydroelectric power plants yielded good production results, with performance rates of 91% (SEL) and 88% (HESS). Their combined annual output was 323 GWh of electricity. Their production control and supervision have been optimized through the GEN Control Centre.



2.3 Investments in renewable energy sources: EUR 3 million

In 2012 the GEN Group channelled most of its EUR 3 million renewable energy sources (RES) investment resources into hydropower projects. Of key importance here are investments in SEL's existing facilities (particularly Vrhovo and Moste HPPs) and in the hydroelectric power plants on the lower Sava River (HESS) and the middle course of the Sava River (SRESA).

2.3.1 Hydropower – key projects and investments

SEL investments in 2012

SEL consistently carries out periodic major maintenance work on its facilities and makes intense development efforts in terms of tapping renewable energy sources, particularly hydropower. In 2012 SEL spent EUR 2.2 million in depreciation allowances and other own resources on investments and development.

Below is an overview of some of the major investments made by SEL in 2012.

Moste HPP reconditioning: stage 2, bottom outlet reconstruction work

Stage 2 of the Moste HPP reconditioning in 2012 mostly involved reconstruction work on the bottom outlet with prior removal of silt upstream of the bottom outlet. Immediately after ARSO issued a watercourse alteration permit in June, the contractor commenced preparatory and then operational work. Due to technical problems, that is, major failure of the ejector pump, and later also harsh weather conditions (first a flood wave in November 2012, which flooded the electric motor and deposited a substantial amount of new sediment at the site where partial dredging had already been carried out, then came a considerable drop in temperatures and the first frost, all of which caused the reconstruction work to halt), SEL is planning to resume the bottom outlet reconstruction in the spring of 2013.

Vrhovo HPP replacements and upgrades

A project to replace and upgrade the relay protection at Vrhovo HPP was completed successfully and on schedule in 2012. The turbine generator was replaced on the last of their three generating units, which marked a successful completion of the project to replace turbine controls on all their generating units.

SRESA project: analysis of energy generation and socioeconomic impacts of the project

By signing the Deed of Partnership for the establishment of the company SRESA at the end of November 2011, the companies GEN and SEL joined the project as respective holders of 10% and 30% interests in the company. With regard to the construction of hydroelectric power plants on the middle course of the Sava River, the companies GEN and SEL carried out activities in 2012 involving the coordination of the concession agreement with the competent minister and the preparation of the company's strategic development programme, which is to be adopted at SRESA's first annual general meeting.

The procedure for laying down a national spatial plan for the first three hydroelectric power plants on the lower middle course of the Sava River (Renke HPP, Trbovlje HPP and Suhadol HPP) continued in January 2012 and included the collection and analysis of guidelines by spatial planning regulators and the general public.

In 2012 the companies SEL and GEN commissioned a study „Analysis of energy generation and socioeconomic impacts of a broken chain of hydroelectric power plants on the lower and the middle course of the Sava River“, whose findings will be helpful to the competent ministries and partners of the company SRESA in determining how to proceed with the project to build hydroelectric power plants on the middle course of the Sava River.

Purchase of a small hydroelectric power plant

In October 2012 SEL decided to buy a small hydroelectric power plant Borovlje, located on the Javornik sediment retention structure. The owner has been granted a concession valid until 2034, on the basis of which he can harness the potential energy of the watercourse in the annual amount of 823 MWh. Fitted with a generating unit with a capacity of a mere 15 kW, Borovlje SHP now produces slightly less than 100 MWh a year. However, given the water potential available to be tapped, it would be feasible to install a generating unit with a capacity of at least 200 kW. To SEL, the installation of a new, larger SHP is also important because it would open up the possibility of building a bottom outlet to facilitate draining of the reservoir before removing gravel from behind the sediment retention structure, something which is now very hard to do.

Contract signed, the procedure for transferring the concession right to SEL was immediately started.

At the end of 2012, they announced a call for bids for developing a conceptual design for Borovlje SHP, including various conceptual design variations, which would be used as the basic criteria for selecting the most suitable option for a new SHP. The winning bid is going to be selected at the start of 2013.

Upgrade of control centre software at all SEL hydropower plants

In 2012 SEL carried out a series of activities to unify the local and remote control systems at its hydroelectric power plants and established the following:

- a uniform engineering environment for all its hydroelectric power plants,
- unification of all engineering tools and solutions, and
- deployment of a single, uniform user interface in the control centre and at individual operator stations around the hydroelectric power plants.

In addition to optimizing the production at the hydroelectric power plants, this also raises the level of IT security and extends the operating life of the power plants.

The control system upgrade was first deployed at Vrhovo HPP in April, followed by Moste HPP in September and Medvode HPP in October.

In 2013 SEL plans to channel its financial resources into investments and the development of its existing production units, as well as into searching for new opportunities in the area of harnessing renewable energy sources for generating electricity. The total sum earmarked for investments and development is EUR 7.52 million.

SEL and HESS hydroelectric power plants contributed 323 GWh of electricity to the GEN Group's production portfolio in 2012.

The GEN Group operates seven large hydroelectric power plants on the Sava River (photo showing Vrhovo HPP).



HESS project

GEN put EUR 0.76 million into the HESS project in 2012, and the investment of the entire GEN Group in HESS totalled EUR 0.92 million. Payments began in April and ended in August. The sum to be paid in by the partners in 2012 was originally higher, but the planned September, October and November instalments were deducted due to a considerable delay in the construction of the Krško HPP reservoir and the preparation of the national spatial plan for Brežice HPP, as well as legislative changes.

Production at hydroelectric power plants

SEL and HESS's large hydroelectric power plants generated a combined total of 323 GWh of electricity in 2012. The figures are presented in more detail in chapters 2.1 (electricity production volumes) and 2.2.2 (large hydroelectric power plants' production results against targets).

Below is an overview of electricity production figures of SEL's small-scale hydroelectric power plants (Mavčiče and Vrhovo SHPs), which generated a combined total of 0.441 GWh in 2012. This is 0.015 GWh below the target, the reason for it being particularly poor hydrology in the first eight months of the year.

Table 2.6

Electricity production (GWh) of SEL small-scale hydroelectric power plants in 2012

	Target for 2012 (GWh)	Result in 2012 (GWh)	Ratio
SEL SHPs	0.456	0.441	0.9664

2.3.2 Solar energy

Production capacities of photovoltaic power plants are limited compared to the rest of zero-carbon sources in the Group (mostly nuclear and hydropower). Still, investments in the development of knowledge and human resources and in the expansion of technologies for tapping solar energy to generate electricity represent an important area of development for the GEN Group. In this area, most of our targets for 2012 were met, some even exceeded.

SEL has four small-scale photovoltaic power plants (SPPs), Mavčiče SPP, Medvode SPP, Vrhovo SPP and Vrhovo 2 SPP, and one micro photovoltaic power plant, Medvode 2 SPP, with a combined nominal capacity of 589 kW. These power plants together generated a total of 0.660 GWh of electricity in 2012, which is 0.020 GWh above the production target.

TEB operates three SPPs, TEB 1 SPP, TEB 2 SPP and TEB 3 SPP, with a combined nominal capacity of 170 kW. These power plants generated a total of 0.167 GWh of electricity in 2012 and exceeded the target, which was set at 0.159 GWh.

Taking into account the SPP on the roof of the GEN Information Centre (installed capacity of 40.32 kW, electricity production totalling 0.049 GWh in 2012), all the GEN Group's SPPs generated a total of 0.876 GWh of electricity from solar energy in 2012.

Table 2.7

Overview of small-scale and micro (up to 50 kW) photovoltaic power plants by GEN Group company (installed capacity, electricity output in 2012, output targets for 2013)

GEN Group company/ Production facility	Installed capacity (kW)	Total production in 2012 (GWh)	Result in 2012 (%)	Production target for 2013 (GWh)
1. SEL (total)	588.6	0.660	103	0.640
2. TEB (total)	169.8	0.167	105	0.159
3. GEN	40.32	0.049	112	0.044
TOTAL	798.72	0.876	320	0.843

Purchasing electricity from producers holding a declaration for their production facility (RES and CHP)

The GEN Group places a special focus on purchasing electricity from producers with approved and registered production facilities (declaration) for the production of electricity from renewable energy sources (RES) and through combined heat and power (CHP or cogeneration). In this segment the GEN Group, together with its partner with which it jointly controls the company GEN-I, is the market leader in Slovenia. We support these

producers of electricity by offering them prices that are higher than those set by the law, which in effect represents a direct financial incentive.

In 2012 GEN-I purchased 161 GWh of electricity from Slovenian RES and CHP producers, which is 7.4% less than in 2011. Having increased the number of producers from 249 (in 2011) to 955, the company expects the electricity production from these sources to rise in 2013. In terms of purchases of electricity generated from renewable sources (RES and CHP), GEN-I holds a 40% share of the market in Slovenia. The company's plan for 2013 is to provide grants in the amount of EUR 1 million.

Figure 2.5
Number of RES and CHP producers

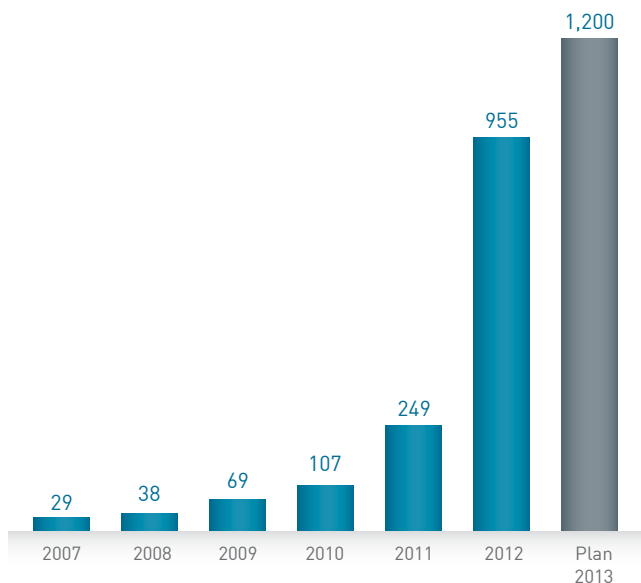
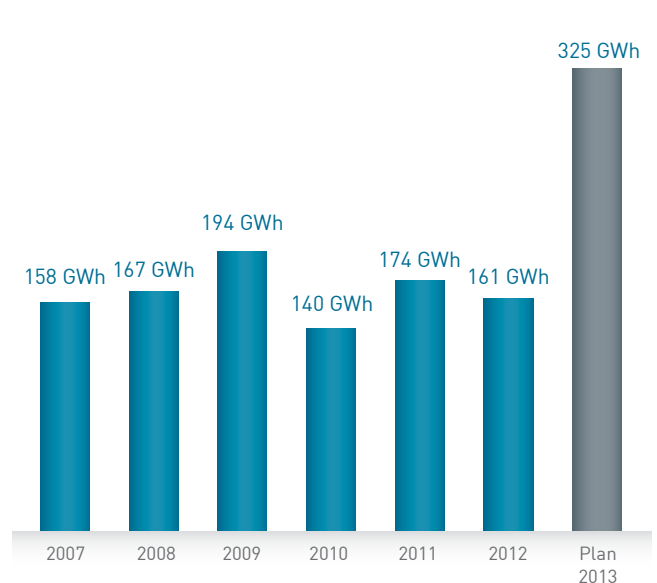


Figure 2.6
Purchased electricity generated from RES and CHP



2.4 JEK 2 project: technical bases and studies ready

The GEN Group fulfils its mission first and foremost through investments in clean, sustainable and renewable energy sources for supplying Slovenia with electricity. We place the greatest emphasis on maintaining and expanding our nuclear capacities as one of the cornerstones of the sustainable development of Slovenia's energy industry.

JEK 2 can contribute substantially to the development of a modern, forward-looking, reliable, safe and environmentally friendly nationwide electricity supply at stable and competitive prices. With this in view, the company GEN is pushing for a technically sound, efficient, transparent and responsible implementation of the JEK 2 project.

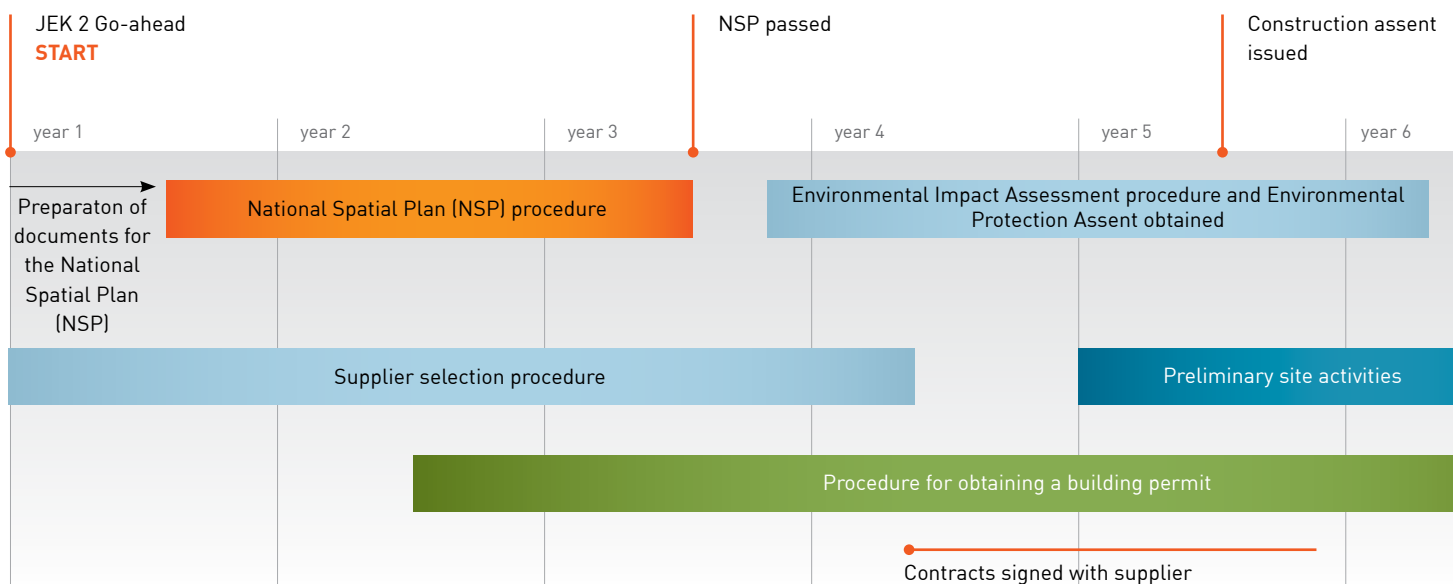
In 2012 the project entered the stage where the owner, the Republic of Slovenia, is going to have to make a clear decision on how to proceed. A strategic decision will have to be made in the form of an approval of the National Energy Programme, the Spatial Planning Strategy of Slovenia, and Slovenia's Development Strategy for the 2014–2020 period.

The JEK 2 project meets all the criteria for sustainable development, in all its three dimensions:

- **social:** reliable and safe production and supply of electricity in the long run by using the ultimate, most advanced and safest technologies;
- **environmental:** minimal impacts on the environment and optimal utilization of space; and
- **economic:** stable prices and a competitive range of products and services, both for households and the Slovenian economy.

Figure 2.7

Timeline of the JEK 2 project



2.4.1 Current progress of the JEK 2 project

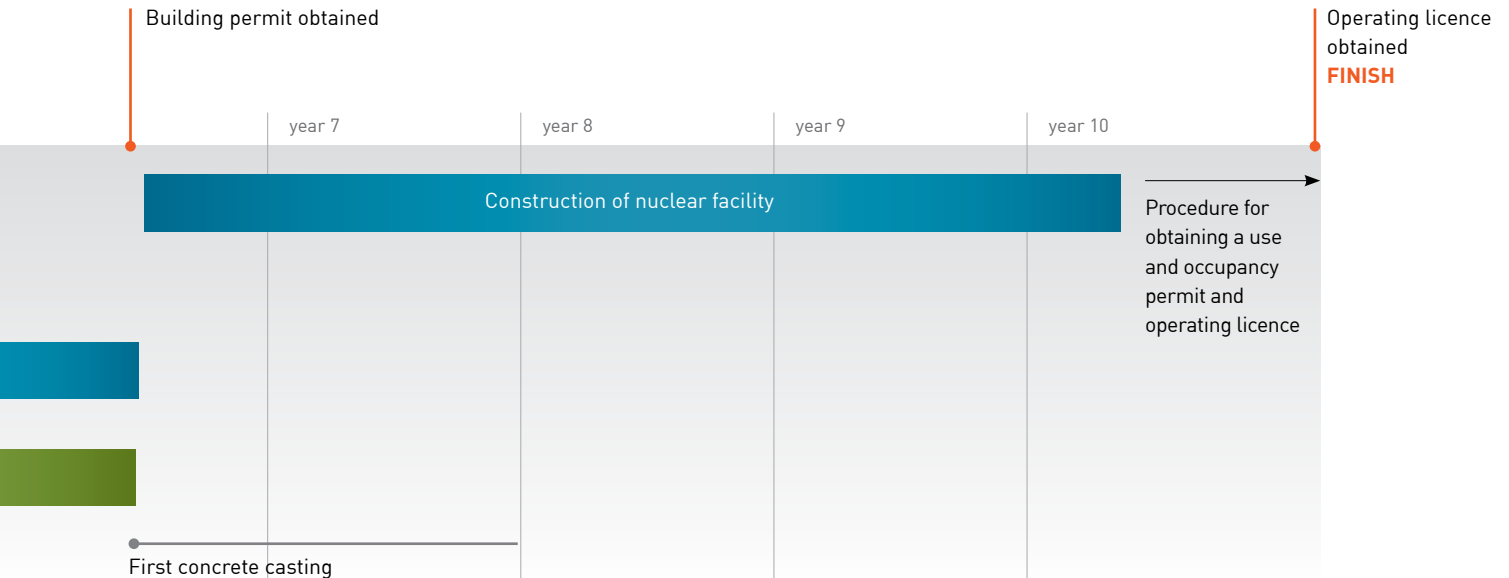
To date, GEN has conducted the expert studies in the framework of the JEK 2 project that allow a well-grounded, broader political and social discourse on the future of energy in Slovenia and on the future role of nuclear energy. In doing so, all the bases have been covered to go ahead with the siting procedure and to defend the preservation and expansion of the nuclear option in a new national strategic document to be passed in 2013.

In the preliminary stage of the project, ever since 2006, we have involved in a number of activities that led, among others, to the completion of project feasibility and viability studies. The purpose of the studies was to examine the energy generation, environmental, technological and economic feasibility and viability of the project. The project feasibility and viability studies and analyses have been joined together in a single, comprehensive document titled „Prefeasibility Study of the JEK 2 Project“.

In January 2010 we submitted to the Ministry of the Economy an application to obtain an energy licence, complete with all the required supplemental documentation and supported by a comprehensive, revised prefeasibility study, which was also accompanied by an opinion of principle issued by ELES on the connection of the planned facility to the transmission system of the Republic of Slovenia.

In addition, the following key documents have already been prepared:

- **conceptual design** of the JEK 2 project, which includes technological solutions developed to accommodate for specific needs of various possible power plant suppliers;
- **assessment of the project’s impacts on the economic and social indicators** in the local and wider areas;
- **strategic assessment of environmental impacts** (for siting purposes);
- **draft environmental report** for the overall environmental impact assessment of the new JEK 2 unit at the planning level (for the process of drawing up the National Energy Programme).



- **detailed safety analyses**, including evaluations of safety issues that needed to be addressed after Japan's earthquake, and including a safety report needed for the National Energy Programme;
- **analysis of the legal framework** for the construction and operation of JEK 2, including an expert analysis of the relevant national, European and international laws that should be adhered to during project implementation.

The expansion of the nuclear option was briefly described and defended in a consultative document entitled „The Green Book on the National Energy Programme of Slovenia“, on the basis of which concepts and scenarios for the National Energy Programme (hereinafter: NEP) were later developed. It should be noted here that all the scenarios of the proposed NEP include further use of nuclear power as a major energy source for the generation of electricity.

The public unveiling of NEP, which started in 2011 in Slovenia, continued in the neighbouring countries in 2012.

2.4.2 Project viability in terms of safety

In 2012, social acceptability of nuclear energy was still affected by the devastating earthquake and tsunami that hit the eastern coast of Japan in 2011, claiming the lives of more than 20 thousand people. This natural disaster also damaged Japan's Fukushima nuclear power plants, causing the release of radioactive materials into the environment, luckily without any loss of human life.

In the aftermath of the incident in Japan, stress tests were conducted at Europe's nuclear power plants, whereby EU member states and some neighbouring countries (e.g. Switzerland and Ukraine) tested the resilience of Europe's nuclear power plants in the event of highly unlikely yet devastating natural disasters and other harmful events. Analyses have shown that Europe's nuclear power plants are well prepared to withstand such highly unlikely events. At the same time, the analyses revealed numerous areas where safety measures would have to be further enhanced. NEK achieved particularly good results and passed the stress tests with flying colours (to learn more, see Chapter 2.2).

The results of the safety analyses confirmed that Krško Nuclear Power Plant as it is today maintains a high level of safety and that the JEK 2 project is viable from the safety standpoint as well.

2.4.3 Activities planned for 2013

In addition to the studies already completed (see Chapter 2.4.1), analysis and studies in the following areas are currently under way on the JEK 2 project:

- **financing** (a preliminary analysis of the investment programme and a study of various financing options are being conducted),
- **detailed environmental report** (for environmental impact assessments and strategic environmental impact assessments), and
- **geological and geotechnical site surveys.**

In 2013 a lot of attention will be focused on activities whose aim will be to support the decision-making process at the national level, in expert circles and among developers, investors and citizens. One of the priorities is to identify any shortcomings of the existing legislation and to lay down suggestions on the elimination of any conflicting legal requirements and on providing a starting point for making a realistic and optimally scheduled plan for the siting and construction of JEK 2, which will be presented to prospective developers and investors.

Also, site surveys are expected to continue, and the decision-making process is set to start at the national level and inside local communities.

Creating a synergy between the JEK 2 project and the existing NEK

Slovenia has extensive experience in using nuclear energy. Krško Nuclear Power Plant (NEK) has been in commercial operation ever since 1983 and ranks among the best-performing power plants in Europe and the world in terms of operational reliability.

For Slovenia's electric utility business, NEK is one of the most important pillars of the national power grid. It is the only nuclear power plant in the country and the largest electricity generation facility in terms of installed capacity. Also, it plays a crucial part in maintaining the stability of the national electric power grid through 400 kV voltage control at a very important junction for the electricity industry. Given its operating characteristics, the power plant is primarily designed to supply base load electricity (to learn more about NEK's 2012 operation, see Chapter 2.2).

The construction of JEK 2 would create a synergy between the two nuclear power facilities, which would in turn increase the positive results also for the existing nuclear power plant. With the many years of successful operation of NEK, the country has in place all the necessary infrastructural organizations and facilities, which will be better utilized and will create additional environmental and social benefits once the second unit of the nuclear power plant has been built. Also, by building the new unit we would be able to make better use of the extensive experience we have in operating a nuclear installation.

Technologically speaking, JEK 2 would create the possibility of optimizing the use of spent nuclear fuel from both the first and the second unit. Spent nuclear fuel is being accumulated and represents an additional domestic source of energy, which can be reprocessed into fresh fuel. With the construction of the new unit, we would also be able to better utilize the low- and intermediate-level radioactive waste (LILW) repository, particularly with regard to freeing up repository space and, as a result, reducing the mandatory financial resources associated with each unit of generated electricity.

JEK 2 can contribute substantially to the development of a modern, forward-looking, reliable, safe and environmentally friendly nationwide electricity supply at stable and competitive prices.



Nuclear energy after Fukushima

European and other countries had mixed reactions to the Fukushima incidents. Inside the EU, Germany was the only country to immediately change its energy policy. Germany's new energy policy envisages the decommissioning of all its nuclear power plants by the end of 2022. Belgium too announced in 2012 its decision to shut down all its nuclear power plants by 2025. Italy and Switzerland put on hold all their nuclear capacity expansion activities, while most of the other countries with advanced nuclear programmes decided to stick to their policies.

Japan temporarily took all its nuclear power plants off-line in order to review them and determine whether all the relevant safety requirements are met. Two years after the accident, Japan has two nuclear power plants in operation, Ohi 3 and 4. Japan's Prime Minister is calling for a large number of nuclear power plants to be put back on-line because the nation's macroeconomic situation is growing worse very quickly with the nuclear power plants out of commission. More than half the mayors of the municipalities with nuclear power plants approve of and support the resumption of operation of nuclear reactors as soon as Japan's Nuclear Regulation Authority has confirmed the safety of these nuclear reactors.

In many countries, for example the USA, UK, Finland, Poland, Sweden, France, China and India, the general public are in favour of building new nuclear power plants. This is because they are fully aware of the fact that the benefits of nuclear energy outweigh its dangers, especially in contrast to other electricity generation technologies. Based on this consideration, there is widespread support for nuclear energy and its further utilization under the well-established criteria for providing stable, reliable and affordable energy. In environmental terms, it is one of the most acceptable electricity generation technologies.

Up until 2012, the JEK 2 project was on schedule. Project feasibility studies have been completed, and the required technical documents to support the decision-making process at the level of the National Energy Programme and the technical bases for the preparation of the national site plan have been prepared. This includes conceptual design specification, prefeasibility study, conceptual designs, project requirements and preliminary environmental and safety reports. How the project will continue in the future, though, is up to the owner, the Republic of Slovenia, to decide.

Why Slovenia needs nuclear energy

The electricity supply situation in Slovenia has been growing increasingly intense over the last decade. As gross domestic product grew and the standard of living moved closer to that of developed EU Member States, power consumption increased as well. Because domestic production could no longer keep up, Slovenia experienced a shortage in electricity as high as 25%.

With the onset of the global economic crisis, which struck in 2008, the situation has changed dramatically. The demand for electricity was lower due to shrinking economic activity; however, given the nature of the decrease in consumption, it can safely be concluded that this will only be a temporary state of affairs. Once the economy has recovered, the consumption will again rise in line with the long-term trends and projections.

Apart from these general trends in the projected growth in electricity consumption, in Slovenia we are also faced with the issue of relatively old energy production facilities, which will have to be eventually replaced. At the same time, we are growing increasingly aware of the impacts of the energy industry and other economic activities on the environment and the importance of delivering on the EU climate and energy commitments.

Nuclear energy plays a central role here since it can make a substantial contribution towards reducing greenhouse gas emissions (compared to producing the same amount of electricity using other known technologies). Based on the above, careful and thorough consideration should be given to using nuclear energy in Slovenia in the long run, which can be achieved by extending the life of Krško Nuclear Power Plant (NEK) and by planning and going ahead with the expansion of NEK's production capacity, that is, by building a new unit, JEK 2.

JEK 2 can contribute substantially to the development of a modern, forward-looking, reliable, safe and environmentally friendly nationwide electricity supply at stable and competitive prices.

Key benefits of the planned JEK 2 project

- a safe and reliable supply of electricity (8–12 TWh per year, depending on the size of the plant);
- a domestic energy source: reduced reliance on imported electricity;
- a competitive energy source: affordable, predictable and stable prices of electricity;
- an optimal solution in response to the environmental requirements and standards, reduced CO₂ emissions on the national scale;
- third-generation reactor: improved technology, enhanced safety, higher economic competitiveness;
- reduced amounts of existing and future radioactive waste (mostly due to the possibility of reusing or re-processing up to 96% of the mass of the nuclear fuel);
- base and peak load operation;
- compliance with the highest international safety requirements and standards;
- possibility of recovering useful heat (district heating – locally and on a wider scale);
- opportunity for the Slovenian economy to participate in all the development stages (design, construction, equipment manufacturing, outfitting and installation, co-financing);
- positive effects on the nation's economic development and standard of living, highly skilled jobs.

JEK 2 project – a look ahead

In order for the JEK 2 project to go ahead, the following will be of particular importance in the future:

- equal consideration of all electricity generation technologies at the national and the local level, setting priorities,
- making a clear and timely decision in favour of the sustainable use of nuclear energy in Slovenia (a new National Energy Programme, legislative amendments),
- establishment of a dedicated interdepartmental government body for steering and coordinating activities in the field of nuclear energy.

2.5 Promoting the knowledge of energy and the energy industry

We are mindful of the fact that the fulfilment of our mission, which is to provide a reliable supply of electricity from clean, sustainable and renewable sources, is largely dependent on the knowledge and understanding of energy and the energy industry and associated projects among various stakeholders. Knowledge and understanding have a strong impact on how challenges connected with the future electricity supply are seen and met.

This is why we work to increase the awareness of energy and raise interest in energy topics among school children and youth, local communities, electricity consumers, expert circles, decision-makers and others. We continued to actively engage in this area in 2012.

2.5.1 The World of Energy: GEN fosters close relations with schools

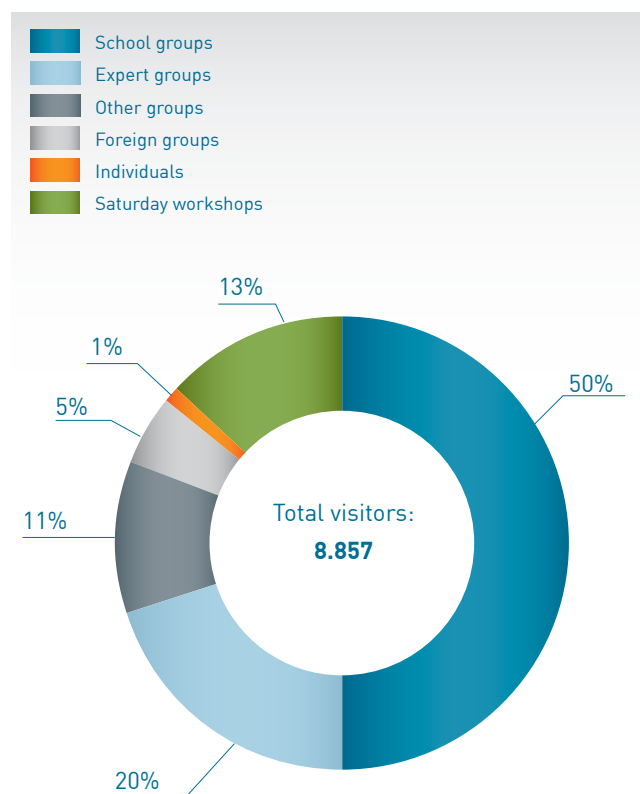
In July 2011, as part of the GEN Information Centre, we opened the door to the World of Energy, an interactive multimedia learning centre on energy and energy technologies, the first-ever institution of its kind in Slovenia. The company GEN was joined on the project by NEK, the ICJT Nuclear Training Centre of the Jožef Stefan Institute, and the Agency for Radwaste Management (ARAO).

The World of Energy recorded 8857 visitors in 2012. About half were school groups (of which nearly 90% from primary schools), and there were many different expert groups from businesses and education and research organizations, as well as individuals.

The World of Energy recorded more than 8800 visitors in 2012. They were given expert guided tours tailored to their age and interests.

Figure 2.8

Structure of visitors to the World of Energy in 2012



The turnout and the intense interest shown by school groups can be credited to the fact that the World of Energy offers knowledge that coincides with primary and secondary school curricula in the fields of physics, energy generation, natural sciences, and ecology, while shedding light on topics that are inadequately covered by the curriculum or even omitted from it altogether. The education centre runs expert-led tours tailored to various age groups of children and youth. In addition, we prepared various materials and organized various activities for teachers and mentors in 2012, including:

- worksheets for primary and secondary school students on various topics connected with energy and the energy industry,
- technical and natural sciences days,
- collaboration with mentors working with talented primary and secondary school students,
- collaboration with mentors and primary and secondary school students on building experiments, scale models or working models, and
- educational workshops for mentors.

Cooperation with the Krško-Sevnica School Centre on the “Technical Wizardry” project: Secondary school students with mentors showcased their innovative technical products at this traditional event held in October 2012.



2.5.2 The Young in the World of Energy project: youths' content-rich, interesting and creative thoughts on energy and the energy industry

The mission of The Young in the World of Energy project, run by GEN energija in collaboration with the Eco-School as a Way of Life programme, is to educate, raise awareness and pique interest in sustainable energy sources and the different ways of generating electricity and to promote energy efficiency among school children and youths. The Young in the World of Energy contest has been aligned with the contents of the World of Energy in the 2011/12 school year, giving all project participants access to interactive learning space and to interesting, reliable information on energy and the energy industry.

Four workshops or meetings took place as part of The Young in the World of Energy project in 2012:

- nationwide meeting of Eco-school programme eco-coordinators, featuring a workshop on energy literacy (February),
- meeting of secondary school eco-coordinators (May),
- meeting of eco-coordinators from the Dolenjska and Posavje regions' primary schools (May),
- closing meeting of The Young in the World of Energy project prize-winners in the 2011/12 school year (June).

By the project closing date, in May 2012, 37 interesting and creative entries were submitted to The Young in the World of Energy contest, in which primary school pupils expressed, in a variety of ways, their thoughts on energy and the energy industry. The entries included a wide array of drawings, comic strips, posters, presentations, radio shows, short video clips, scale models, and various other forms of creative expression. A panel of experts, made up of Gregor Cerar, MSc (a national Eco-School programme coordinator), Ivana Tršelič (The Faculty of Energy Technology) and Garsia Kosinac (GEN energija), selected from among a host of interesting and diverse entries winners in two age groups based on the primary school grades.

2.5.3 Supporting industry, business and educational events and projects

In 2012 we provided organizational, expert or financial support to various national, regional and local industry, business and educational events and projects associated with the energy industry (see the table below).

Table 2.8

An overview of industry events and projects that received our organizational, expert or financial support in 2012

Conferences, industry conventions, educational events, and contests	Location	Focus group
Energy conference »Corporate Governance in the Energy Sector«	Ljubljana, Slovenia	Energy industry professionals
Strategic energy conference »En.odmev 012«	Ljubljana, Slovenia	Energy industry professionals, decision-makers
Expert meeting »Energy Sector and the Environment '12: Integration of Energy and Environmental Solutions«	Brdo pri Kranju, Slovenia	Energy industry professionals
4 th strategic meeting „Energy Innovations .12: Bold, Sustainable, Competitive“	Brdo pri Kranju, Slovenia	Energy industry professionals, business professionals
Microsoft NT Conference	Portorož, Slovenia	Slovenia's central technological and business meeting on IT
14 th Meeting of Energy Managers: Efficient Use of Natural Resources	Portorož, Slovenia	Energy industry professionals
Expert meeting »ENERGY SECTOR and the ENVIRONMENT '12«	Brdo pri Kranju, Slovenia	Energy industry professionals
Interactive World Engineering Forum (i-WEF)	Ljubljana, Slovenia	Industry and business professionals
International energy conference »En.regional 012«	Ljubljana, Slovenia	Energy industry professionals
Conference »Knowledge Market & New Business Models«	Ljubljana, Slovenia	Knowledge market professionals
Bled 2012 Strategic Forum	Bled, Slovenia	Political circles, industry and business professionals, decision-makers
International expert conference »Workshop REM00: Nuclear Energy Development and New Build Prospects«	Ljubljana, Slovenia	Energy industry professionals
21 st international conference »Nuclear Energy for New Europe«, Ljubljana 2012	Ljubljana, Slovenia	Nuclear energy industry professionals
Project Reaktor: prize contest »Nuclear energy today and tomorrow«	Ljubljana, Slovenia	Individual students and student groups
Krško-Sevnica School Centre: »Technical Wizardry« (»Tehnologij si ti – tehnogenij svet vrti«)	Krško, Slovenia	Secondary school students
EKO quiz	Velenje, Slovenia	Primary and secondary school students
Konferenca koordinatorjev programa Ekošola	Brdo pri Kranju	Strokovna javnost (učitelji)

2.6 Knowledgeable people: 1044 employees, more than half with higher education qualifications

The knowledge of our employees is one of the essential building blocks of our sustainable focus. What is more, it is in the central factor in our fulfilment of sustainable development in all three aspects: business and operation, social, and environmental.

We make ongoing efforts to provide education and training to all the employees of the GEN Group companies and to promote their professional and personal growth. In all, there were 1044 employees in 2012, 18 more than in the previous year.

2.6.1 Number and qualification structure of employees

Due to the complexity and scope of work in the GEN Group companies, more than half of the 1044 employees hold at least a higher education degree.

Table 2.9

Number of employees in the GEN Group companies as at 31/12/2012 by level of qualification

GEN GROUP	Level 1-4	Level 5	Level 6/I (3-yr High. Ed.)	Level 6/II (4-yr High. Ed. & BA/BSc Bologna)	Level 7 (BA/BSc & MA/MSc Bologna)	Level 8/I (MA/MSc)	Level 8/II (PhD)	TOTAL
GEN	0	4	7	7	31	0	4	53
GEN-I (group)*	0	34	5	32	65	9	7	152
NEK	35	248	79	48	185	13	7	615
SEL	28	36	20	7	18	1	0	110
TEB	29	35	16	14	19	1	0	114
TOTAL	92	357	127	108	318	24	18	1,044

The data in the table refer to whole companies, not taking into account GEN's equity interests in individual companies and the rules of consolidation.

* Data refer to the whole GEN-I Group, not just the company GEN-I.

Table 2.10

Number of employees in the GEN Group companies: comparison of 2011 against 2012 (as at 31/12 for both years) and plan for 2013

Year	2011	2012	Plans for 2013
No. of employees	1,026	1,044	1,072

The number of employees in the GEN Group went up by 18 in 2012 over 2011. In 2012 the number of employees increased in the companies GEN and GEN-I. The reasons for the increase in the number of employees in 2012 were:

- rapid growth of the companies, and
- employer's obligations under scholarship agreements.

The only companies where the number of employees went down in 2012 from 2011 were SEL, NEK and TEB, on account of retirements and expiration of fixed-term employment contracts.

Such a low employee turnover rate undoubtedly goes to show that our employees are motivated to work in an environment that stimulates knowledge, responsibility and connecting.

The GEN Group recognizes that, in today's world of constant changes, knowledge and competence of employees are among the essential resources for securing the development, success and competitiveness of the Group. This is particularly true in the case of energy investments, where specific areas of expertise are required. All the Group companies provide training for their existing employees and see to their professional development. At the same time the need for new highly skilled workforce is increasing as the existing employee pool is getting older and has to be replaced in due course.

The GEN Group companies had 1044 employees in 2012. Through scholarships, we contribute to the development of human resources in key areas for the future of the energy sector.

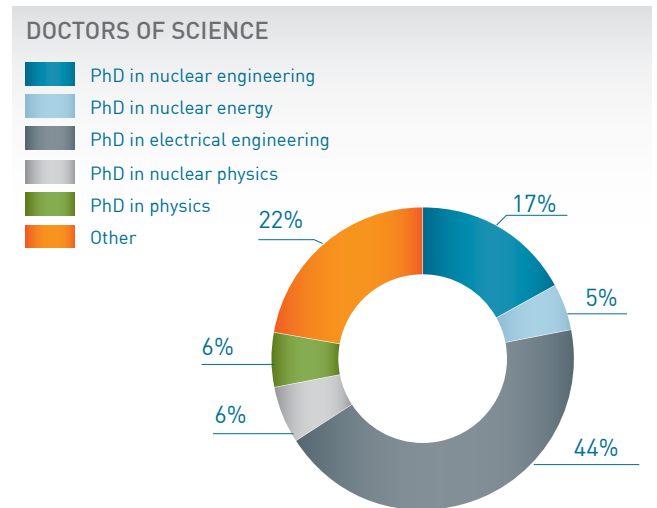


The key areas of expertise covered by the GEN Group employees with Level 8 academic qualifications (Masters and Doctors of Science) are:

- nuclear engineering,
- nuclear energy,
- electrical engineering,
- nuclear physics,
- physics,
- mechanical engineering, and
- economics.

Figure 2.9

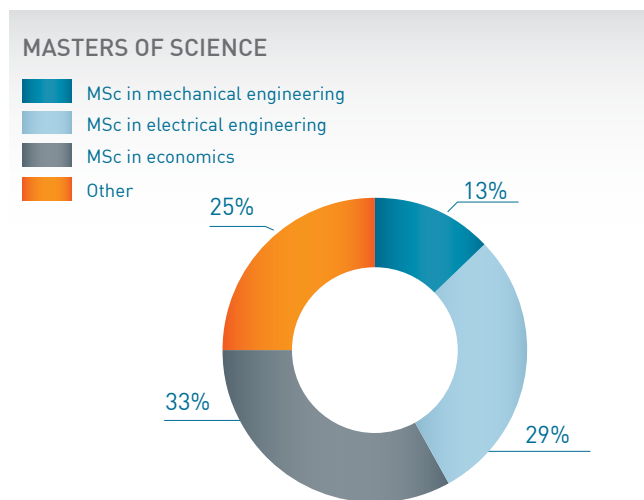
Qualification level: Doctors of Science



The GEN Group employs 18 Doctors of Science.

Figure 2.10

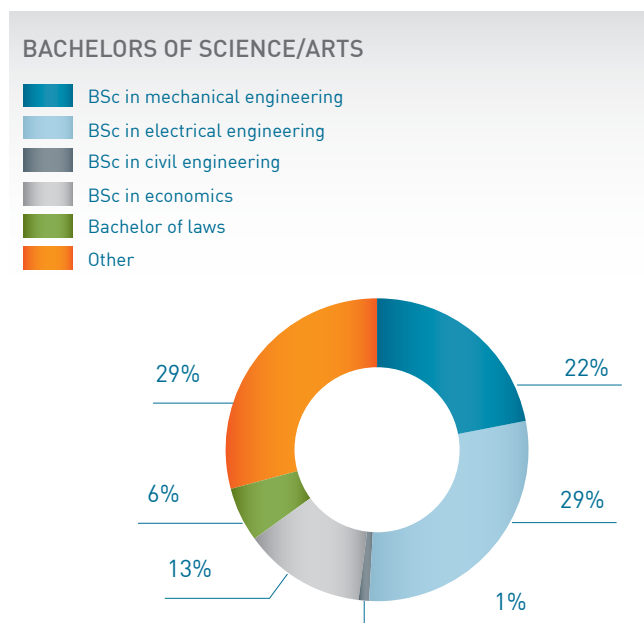
Qualification level: Masters of Science



24 GEN Group employees hold a master's degree.

Figure 2.11

Qualification level: Bachelors of Science/Arts



318 GEN Group employees hold Level 7 qualifications.

2.6.2 Systematic professional training

In the GEN Group we wisely and strategically invest resources into training of the executive and management staff and other key employees across all our areas of activity. The Group companies carry out professional training programmes in simulators at NEK and TEB, at the NEK Maintenance Training Centre, and the ICJT Nuclear Training Centre of the Jožef Stefan Institute, Ljubljana.

Employee training investments by the GEN Group companies

GEN:

- Technical Sector & Investments employees working on the JEK 2 project take part in extensive training programmes. As a rule, all new engineers must complete compulsory training at the ICJT Nuclear Training Centre of the Jožef Stefan Institute: in 2012 one employee attended the two-month course Basics of Nuclear Power Plant Technology and six employees the longer, six-month course Nuclear Power Plant Technology.
- Our employees regularly attend expert conferences, seminars, consultations and meetings in their respective areas of expertise, both at home and abroad.
- GEN organized periodic functional training and coaching sessions and workshops, particularly in order for the employees to gain new knowledge in the areas of information technology, project management, business administration, organization of work, and public speaking.

NEK:

- Employees holding a Reactor Operator or Senior Reactor Operator licence receive a minimum of 160 hours of training per year under the ongoing professional training programme.
- Employees with a Shift Engineer licence receive a minimum of 80 hours of training per year.
- The rest of the technical staff each receive a minimum of 32 hours of training per year in the form of theoretical (lecture room) and practical (simulator) sessions, excluding on-site training.
- In all, around 4800 hours of introductory and ongoing professional training was provided to licensed staff in 2012.

- As many as 151 courses, attended by 2630 NEK employees, were organized for the rest of the employees in 2012. On average, each employee attended at least four courses.
- There were 22 courses for external contractors organized in 2012, which were attended by a total of 2565 people.

SEL:

- In 2012, 80 employees attended various seminars, lectures, exhibitions and trade fairs.
- A total of 1056 hours were logged for training (excluding periodic training of operating personnel and in-service education to obtain formal qualifications).

TEB:

- In 2012 each employee received an average of 25 hours of professional training in various areas and forms.

GEN-I:

- In 2012 the focus was on middle management training (department and division heads): 25 people completed training programmes in the areas of team leadership, achievement of common goals, effective communication, motivation, leadership by example, etc.
- Employees receive training in their respective areas of specialization. They also attend conferences and meetings not only in Slovenia but also, and particularly, abroad, where they upgrade their expert knowledge, exchange best practices and interact with professional peers.

2.6.3 Scholarships – investment in the development of future human resources

The rapid growth and expansion of individual companies in the Group and our ambitious development projects, notably the JEK 2 project and projects to promote renewable energy sources, demand that we systematically plan for future recruitment of highly skilled human resources with specialist knowledge. Human resource planning is one of the major management challenges for the GEN Group.

Unfortunately, Slovenia has been facing a shortage of suitable human resources in recent years, which is especially true for the Posavje region. By providing scholarships to secondary school students and undergraduates, the GEN Group has taken an active approach towards developing human resources in expert areas crucial for the development and future success of our Group and its individual companies. These areas comprise mainly the following natural and technical sciences:

- physics,
- electrical engineering,
- energy technology,
- computer and information science,
- mechanical engineering, and
- construction and civil engineering.

The GEN Group runs its own scholarship scheme, which at 31/12/2012 included 56 students (higher and secondary education) on company scholarships at the national level and on scholarships under the Posavje Scholarship Scheme at the regional level.

Table 2.11

Number of scholarship recipients in GEN Group companies as at 31/12/2012

Company	No. of scholarship recipients 2010	No. of scholarship recipients 2011	No. of scholarship recipients 2012
GEN energija	28	24	19
GEN-I	1	1	0
NEK	29	24	24
SEL	9	10	9
TEB	7	5	4
Total	74	64	56

Group-wide, there were 8 fewer scholarship recipients in 2012 over 2011. Some of the scholarship recipients finished study programmes for which they received scholarships, and some of them lost their scholarship for failing to complete their study requirements.

2.7 Quality policy and ensuring nuclear safety

GEN's quality policy is based around the vision and mission of the Group and is consistent with the modern requirements and standards, core values and strategic goals of the GEN Group.

Also, it is aligned with the strategic pillars of the GEN Group's fulfilment of sustainable development, which extend into three areas of our responsible operations:

- operational performance and business excellence,
- environmental responsibility, and
- caring for society.

In the section where these three areas of sustainable development overlap lie **knowledge** and **safety**, nuclear safety in particular as the highest priority of GEN's mission.

Figure 2.12

Pillars of GEN's sustainable development



2.7.1 Importance of gaining and promoting knowledge

Knowledge is the common denominator of our responsibility in the business, environmental and social spheres. Only with professionally trained employees with proper formal qualifications and functional competences, experience and skills can we achieve our strategic goals responsibly and at the same time ensure safety at all levels.

The motivation to gain knowledge and spread it among co-workers and external stakeholders is essential to our business. We are mindful of the importance of living in a society built on knowledge and professionalism and of the central part it plays in shaping the future of energy in Slovenia.

To learn more about the professional qualifications of the GEN Group employees and our activities in connection with promoting knowledge and raising awareness of energy and the energy industry among various stakeholders, see chapters 2.5 and 2.6 in this report.

2.7.2 Top priority: nuclear safety

Our commitment to ensuring safety lies at the heart of all levels of our responsible operations:

- in showing a sense of responsibility towards the local people and the environment in which we operate,
- in ensuring occupational health and safety for our employees, both in production and office settings, and
- in achieving operational efficiency of the GEN Group's production facilities and the resulting business excellence.

Ensuring nuclear safety is our top priority. The safety culture has been incorporated into all our decision-making and work processes. The safety aspects of NEK's operation are given the highest priority on all levels of planning and executing decision-making and work activities, carrying out NEK's technological upgrading and allocating resources in the GEN Group.

To learn more about our completed (2012) and planned (2013) activities concerning nuclear safety, see Chapter 2.2.

2.7.3 Quality management system

The quality management system of the company GEN complies with the requirements of the international standard ISO 9001:2008. Quality assurance activities are carried out by the Quality Department in accordance with the company GEN's Quality Policy.

All employees are required to adhere to the safety culture principles and standards of quality and business ethics. Head personnel are personally responsible for adherence monitoring, and every employee may be held personally accountable for their actions.

2.7.4 Integrated nuclear safety management system

Nuclear safety is our top priority in fulfilling the GEN mission. The human factor is a critical consideration for ensuring nuclear safety, so it is very important to expand knowledge and promote systematic training (to learn more about employee knowledge and training, see Chapter 2.6). Our adherence to standards and conservative approach allow us to deliver high quality and to meet our reliability requirements and ensure a high level of safety.

The integrated nuclear safety management system and the quality management system comply with the requirements and guidelines laid down by:

- Slovenian laws and regulations,
- the Slovenian Nuclear Safety Administration (URSJV)
- the International Atomic Energy Agency (IAEA),
- the international standard ISO 9001:2008,
- the Western European Nuclear Regulators Association (WENRA), and
- as decided by the company GEN energija, also technical regulations and standards and guidelines for nuclear energy applicable in the country of the technology supplier (USA).

2.7.5 Oversight and ongoing quality and safety improvements

GEN energija is required to perform monitoring, measuring and reporting on its processes and fulfilment of requirements and to continually improve the overall performance rate of its quality management system, all of which leads to a high level of safety culture. The GEN Group companies are committed to fostering mutually beneficial and positive relationships among employees, the individual companies in the Group, and external business partners so as to lay the groundwork needed for ensuring quality and safety.

2.7.6 Certification: environmental management and occupational health and safety in the GEN Group companies

The GEN Group companies have held ISO 14001 (environmental management system) and OHSAS 18001 (occupational health and safety) certification for a number of years.

Below is an overview of some of the main activities carried out in 2012 and planned for 2013 in the areas of environmental management and occupational health and safety.

Table 2.12

Overview of environmental management and occupational health and safety activities in 2012 and plans for 2013

Company	Certificate	Completed activities	Key plans for 2013
NEK			
	ISO 14001	<ul style="list-style-type: none"> • first check in the second certification cycle (December 2012). 	<ul style="list-style-type: none"> • implementation of recommendations made during the 2012 check.
	OHSAS 18001	<ul style="list-style-type: none"> • first check (concurrent with the environmental management system check, December 2012). <p>In 2012 special attention was paid to:</p> <ul style="list-style-type: none"> • preparations for the scheduled annual maintenance outage, • ensuring work safety, • employee training in occupational health and safety, fire safety, administration of first aid, • providing safety equipment, and • collaboration with and among employees. <p>To learn more about the 2012 annual maintenance outage, see Chapter 2.2.</p>	<ul style="list-style-type: none"> • Implementation of recommendations made during the 2012 check. • An annual occupational health and safety operational plan for 2013, including an action plan for improvement, was laid down. <p>The central focus was on the preparations for the maintenance outage scheduled for 2013, and on training and ensuring work safety.</p> <p>To learn more about the planned technological upgrades of NEK, see Chapter 2.2.</p>

Company	Certificate	Completed activities	Key plans for 2013
SEL			
	ISO 14001	<ul style="list-style-type: none"> environmental programme for improving the conditions in connection with noise pollution at the Medvode HPP generating unit. <p>Continuation of three environmental programmes at Moste HPP (areas: gradual restoration of the natural flow regime downstream of the dam, putting the outlet works into commission, sewage and wastewater disposal) and one at Vrhovo HPP (adaptation of the right bank of the Sava River at Radeče).</p>	<ul style="list-style-type: none"> continuation of three environmental programmes at Moste HPP and one at Vrhovo HPP.
	OHSAS 18001	<ul style="list-style-type: none"> device and equipment checks, tours of inspection of work stations, active fire safety systems checks, preventive medical examinations, purchase of personal protective equipment, etc. <p>Further validity of the certification as per standard was approved.</p>	<ul style="list-style-type: none"> periodic checking and testing of work equipment, fire alarm systems, emergency lighting, and work environment (brightness, microclimate, noise); installation of fall protection equipment in high risk areas etc.
TEB			
	ISO 14001	<ul style="list-style-type: none"> regular monitoring and measuring of key operating parameters of processes and systems; preparation of an environmental report in connection with the project to replace old gas turbines; continuing to adhere to the requirements of the Decree on Limit Values for Light Pollution of the Environment. 	<ul style="list-style-type: none"> obtained the SEVESO environmental protection permit; activities related to the project to replace old gas turbines; updated environmental protection approval based on the prepared Environmental Impact Report, obtained environmental protection permit as per the IPPC Directive.
	OHSAS 18001	<ul style="list-style-type: none"> revised safety statement with risk assessments; operating procedure for working on power plants' hot parts; amended operational and tactical fire emergency plan; theoretical and practical training, etc. o usposabljanje itd. 	<ul style="list-style-type: none"> implementation of risk management measures; activities for promoting health in the workplace; employee training and awareness raising, etc.

Unity brings power, concerted effort and teamwork bring victory.
Yet victory is not a goal in its own right; rather, it provides fresh motivation to make
the concerted effort and teamwork even more **successful** and stronger in the future.

The common denominator of the GEN Group's
good business results is the knowledge
of people whose constructive collaboration
helps us achieve new **SUCCESSES** and victories.
The whole Group had as many as **1044 employees**
in 2012, more than half of which hold at least a
higher education qualification.





▶ **3** key performance indicators

3.1 Business results

Table 3.1

Business results

GEN Group	2010	2011	2012	target 2013
Assets in EUR million	679.90	719.84	713.57	772.28
Equity in EUR million	525.26	528.64	505.68	520.41
Revenues in EUR million	385.09	573.97	826.92	579.32
EBIT in EUR million	32.93	25.93	23.83	16.08
EBITDA in EUR million	64.23	74.78	67.21	58.08
Net profit in EUR million	31.74	20.72	20.06	13.81
Value added in EUR million	92.53	105.29	98.74	91.84
Return on equity	6.06%	3.93%	3.88%	2.69%
Electricity sold in GWh	7,239	9,509	13,303	9,588
Equity financing rate	77.26%	73.44%	70.87%	67.39%
Long-term financing rate	88.45%	84.79%	84.38%	88.63%
Operating fixed assets rate	54.52%	50.92%	51.15%	49.25%
Long-term investment rate	60.73%	58.82%	59.95%	70.94%
Equity to operating fixed assets	1.42	1.44	1.39	1.37
Long-term financing of fixed assets	1.43	1.41	1.38	1.23
Immediate solvency ratio – acid test ratio	2.04	1.47	1.42	0.81
Quick ratio	2.92	2.65	2.47	2.02
Current ratio	3.43	3.26	3.07	2.45
Operating efficiency ratio	1.10	1.05	1.03	1.03
Net return on equity ratio	0.06	0.04	0.04	0.03

The GEN Group's key performance indicators reveal that business was good in the period from 2010 to 2012. Still, it may be noted that the global recession is also reflected in the selling prices of electricity and the falling rate of profit as a result. The GEN Group is nonetheless healthy and ready to take on new challenges brought about by the fierce competition in the open market. We have sufficient assets and equity to make new investments in those electricity generation projects that will help us fulfil our mission and strategic goals.

3.2 Production of electricity

Table 3.2

Electricity production targets and results (GWh)

Electricity production targets and results (GWh)	target 2011	result 2011	ratio 2011	target 2012	result 2012	ratio 2012	target 2013
NEK*	2,950	2,951	1.000	2,655	2,622	0.988	2,659
SEL	313	259	0.828	315	286	0.908	315
TEB	100	12	0.119	100	10	0.100	40
HESS	42	28	0.656	42	37	0.881	57
SHP and SPP	1.2	1.3	1.077	1.3	1.3	1.018	1.3
GEN Group total	3,406	3,251	0.954	3,113	2,956	0.950	3,072

* The ratios for NEK (2011 and 2012) are calculated based on the proportion of the targets (50%) to the results for the years in question.

Table 3.3

Produced electricity available to the GEN Group

Produced electricity available to the GEN Group* (GWh)	2010	2011	2012	target 2013
GEN Group	3,123	3,250	2,955	3,071

* GEN is not entitled to the electricity generated at the GEN Group's SHPs and SPPs – it belongs to respective companies.

The large production units in the GEN balance subgroup generated a combined total of 2,955 GWh of electricity in 2012. As much as 88.72% of the combined total was generated at the nuclear power plant. Hydroelectricity accounts for 10.93%, and 0.35% was generated at the natural gas-fired power plant. Thanks to the GEN Control Centre, which coordinates the operation of the entire GEN balance subgroup, the production units operated in sync, and the effects of any unpredictable events were effectively mitigated, which is clearly reflected in the Group's business results.

3.3 Electricity trading and sales

Electricity purchase and sales figures in the GEN Group have been consistently going up over the past three years.

Table 3.4

Electricity purchased and sold (GWh)

Electricity purchased and sold	2010	2011	2012	target 2013
GEN Group (GWh)	13,645	18,094	25,804	18,568

The table above presents full amounts of electricity purchased and sold (in GWh). The figures do not reflect GEN's equity interests in individual companies and are not disclosed in accordance with rules of consolidation.

The purchase portfolio of the GEN Group comprises electricity generated in the Group's own production units and electricity purchased from other domestic and foreign producers and energy brokers.

Nuclear energy is the prevailing energy source in the portfolio, and a significant share in the composition of the portfolio is also occupied by renewable energy sources and the possibility of providing ancillary services, particularly tertiary frequency control.

The Group's electricity purchases and sales grew by 39.89% in 2012. The GEN Group companies purchased a combined total of 25,804 GWh of electricity, up by 42.61% from the previous year.

3.4 Capital expenditures and investments, R&D

Table 3.5

Capital expenditures and investments, R&D of the GEN Group companies (in EUR million)

Capital expenditures and investments of the GEN Group companies	2010 (in EUR million)	2011 (in EUR million)	2012 (in EUR million)	Plan 2013 (in EUR million)
GEN	6.83	49.32	6.82	112.67
RESEARCH & DEVELOPMENT	1.76	0.65	1.15	2.19
JEK 2-related and other studies	1.76	0.65	1.15	2.19
CAPITAL EXPENDITURES	3.24	9.40	2.91	2.54
JEK 2 construction project	0.37	1.10	2.50	1.89
GEN IC construction project	2.24	4.91	0	0
Miscellaneous investments	0.63	3.39	0.41	0.65
INVESTMENTS	1.83	39.27	2.76	107.94
HESS construction project	1.83	2.23	0.76	1.01
SRESA	0	0.01	0	0.40
Acquisition of capital shares, capital injections	0	37.03	2.00	106.53
NEK	17.65	27.10	29.14	36.35
SEL	6.57	5.22	2.24	7.52
TEB	1.87	0.82	6.2	8.66
GEN-I	0.59	0.43	0.92	0.96
GEN Group	33.51	82.89	45.31	166.16

The areas of research and development and capital expenditures and investments are essential to the long-term operating stability and future growth of the GEN Group and its constituent companies. The financial resources allocated to this end totalled EUR 45.31 million in 2012. The majority of these resources went to NEK, for technological upgrades.

3.5 Employees and development of human resources in the GEN Group companies

Table 3.6

Number of employees in the GEN Group companies

Number of employees	2010	2011	2012	Plan for 2013
GEN Group	963	1,026	1,044	1,072

Table 3.7

Structure of employees of the GEN Group companies by level of education

Level of education	2010	2011	2012	Plan for 2013
Levels 1–4	115	106	92	97
Level 5	351	372	357	367
Level 6/I	116	121	127	121
Level 6/II	83	94	108	113
Level 7	267	297	318	329
Level 8/I	21	23	24	28
Level 8/II	10	13	18	17
Total	963	1,026	1,044	1,072

Table 3.8

Number of scholarship recipients in the GEN Group companies

No. of scholarship recipients	2010	2011	2012	Plan for 2013
GEN Group	74	64	56	52

The data refer to whole companies or the Group, disregarding GEN's equity interests in individual companies and the rules of consolidation.

ACRONYMS AND ABBREVIATIONS

ARAO	Agency for Radwaste Management	m	million
ARSO	Slovenian Environment Agency	MSc/MA	master's degree
CHP	combined heat and power	MW	megawatt
CO₂	carbon dioxide	MWh	megawatt-hour
d.o.o.	limited liability company	NEK	Nuklearna elektrarna Krško d.o.o. (Krško Nuclear Power Plant)
ELES	Elektro-Slovenija d.o.o.	NEP	National Energy Programme
ERP	enterprise resource planning	NKBM	Nova kreditna banka Maribor d.d.
EU	European Union	NSP	national spatial plan
EUR	euro	OHSAS	Occupational Health and Safety Advisory Services
EUSS	Electric Utility Sector Supplement	PC	professional college degree
GEN	GEN energija d.o.o.	PhD	doctoral degree
GEN IC	GEN Information Centre	R&D	research and development
GEN-I	the company GEN-I, d.o.o.	RES	renewable energy sources
GRI	Global Reporting Initiative	RH	Republic of Croatia
GWh	gigawatt-hour	RS	Republic of Slovenia
HESS	Hidroelektrarne na spodnji Savi, d.o.o.	SEL	Savske elektrarne Ljubljana d.o.o.
HPP	hydroelectric power plant	SHP	small-scale hydroelectric power plant
HSE	Holding Slovenske elektrarne d.o.o.	SPP	small-scale solar or photovoltaic power plant
HSE Invest	HSE Invest d.o.o.	SRESA	Srednjesavske elektrarne d.o.o.
IAEA	International Atomic Energy Agency	TEB	Termoelektrarna Brestanica d.o.o. (Brestanica Thermal Power Plant)
ICJT	ICJT Nuclear Training Centre	TPP	thermal power plant
Intergovernmental Agreement on NEK	The agreement between the Government of the Republic of Slovenia and the Government of the Republic of Croatia governing the status and other legal relationships regarding investments in Krško Nuclear Power Plant, its operation and decommissioning	TWh	terawatt-hour
ISO	International Organization for Standardization	U.S. NRC	U.S. Nuclear Regulatory Commission
IT	information technology	UNI	university degree
JEK 2	Krško Nuclear Power Plant – Unit 2	URSJV	Slovenian Nuclear Safety Administration
kW	kilowatt	USA	United States of America
kWh	kilowatt-hour	WANO	World Association of Nuclear Operators
kWp	kilowatt-peak	WENRA	Western European Nuclear Regulators Association
LILW	low- and intermediate-level radioactive waste	ZEL-EN	ZEL-EN, razvojni center energetike d.o.o.
		ZVO-1	Environmental Protection Act

