2013

Operation and safety report of Mochovce and Bohunice V2 nuclear power plants

SLOVENSKÉ ELEKTRÁRNE

Enel

ENERGY FOR LIFE

The company has certified the three following systems:

Certificate STN EN ISO 9001:2008 – quality management system

Certificate STN OHSAS 18001:2009 – Occupational health and safety management certificate

Certificate STN EN ISO 14001:2005 – Environmental management system

Issued by the company

BUREAU VERITAS

2013 - Highlights

Bohunice V2 NPP (EBO)

1 March 2013

Opening of the practical training centre in the Bohunice V2 nuclear power plant

12 – 14 March 2013

Technical supporting mission of the World Association of Nuclear Operators (WANO) – "practical personnel training"

15 March 2013

Visit of Mr. **Akiro Takamtsu**, Ambassador of Japan, and Mr. **Kenkichi Hirose**, the professor of the Tokyo University, and Mr. **Takyeo Hattori**, President of the Japan Atomic Industrial Forum

13 June 2013

Visit of representatives of the Economical Board for eastern Flamsko

16 July 2013

Visit of Mr. **Theodore Sedgwick**, Ambassador of the U.S.A.

18 Sept. 2013

Visit of ambassadors of Canada, U.S.A., France, Germany, Croatia, Turkey, Finland and Italy

3 – 18 Oct. 2013

WANO Peer-review

Mochovce NPP (EMO)

22 Feb. 2013

Visit of Mr. Jong Kyun Park, Division Director of the International Atomic Energy Association (IAEA)

6 May 2013

Visit of representatives of the National Council of SR, visit of representatives of UKF and CERN Switzerland

6 – 21 June 2013

WANO peer-review)

22 Oct. 2013

Visit of Mr. **Jukij Amano**, IAEA General Director

30 Oct. 2013

Visit of Mr. **Pavel Kuznecov**, Ambassador of the Russian Federation, and Mr. **Roberto Martini**, Ambassador of Italy

General data

	1st criticality *	Start of permanent operation
EMO 1	9 June 1998	29 Jan. 1999
EMO 2	1 Dec. 1999	11 July 2000
EBO 3	7 Aug. 1984	14 Feb. 1985
EBO 4	2 Aug. 1985	18 Dec. 1985

EMO – Mochovce Nuclear Power Plant (units 1&2)
EBO V2 – Bohunice Nuclear Power Plant V2 (units 3&4)

* 1st criticality – first reach of minimal controlled power

EMO	Units 1&2
Probability of the reactor core damage at full power (according to PSAL 1 – probabilistic safety assessment level 1)	7.39E-6
Probability of the reactor core damage at shutdown reactor (SD PSAL 1)	7.92E-6

EBO V2	Unit 3	Unit 4
Probability of the reactor core damage at full power (according to PSAL 1 – probabilistic safety assessment level 1)	3.688E-06	3.706E-06
Probability of the reactor core damage at shutdown reactor (according to PSA)	6.15E-06	6.15E-06

Basic technical data

Reactor type	VVER 440/V-213 – Pressurized water reactor / PWR
Reactor thermal power	1,471MWt
Reactor rated power	470MWe (EMO) / 505MWe (EBO V2)
Home consumption	~7.2% (EMO) / ~6.8% (EBO V2)
Fuel	UO2 (42 t)
Fuel enrichment	4.87 % U-235
Primary circuit	
Number of cooling loops	6
Coolant flow rate	42,600m^3/h
Total volume	242m^3
Working pressure and temperature	12.26MPa / 267.9°C – 297.3°C
Reactor pressure vessel	
Internal diameter	3,542mm
Wall thickness	140 + 9mm
Height	11,805mm
Steam generator	6 per unit
Type	PGV - 213
Volume of steam generated	450 t/h
Outlet steam pressure and temperature	4.61MPa / 255°C
Turbo generator	2 per unit
Type	ŠKODA 220MWe (EMO)/ ŠKODA 250MWe (EBO V2)
Number of stages	1 HP, 2 LP
Rated speed	3,000 rpm
Generator rated apparent power	259MVA (EMO) / 273MVA (EBO V2)
Terminal voltage	15,75 kV
Rated current	3 x 9,500A (EMO) / 3 x 10,007A (EBO V2)
Condenser	
Cooling water volume	35,000m^3/h
Maximal cooling water temperature	33°C
Cooling towers	
Number	4 (per 2 units)
Height	125m (EMO) / 120m (EBO V2)

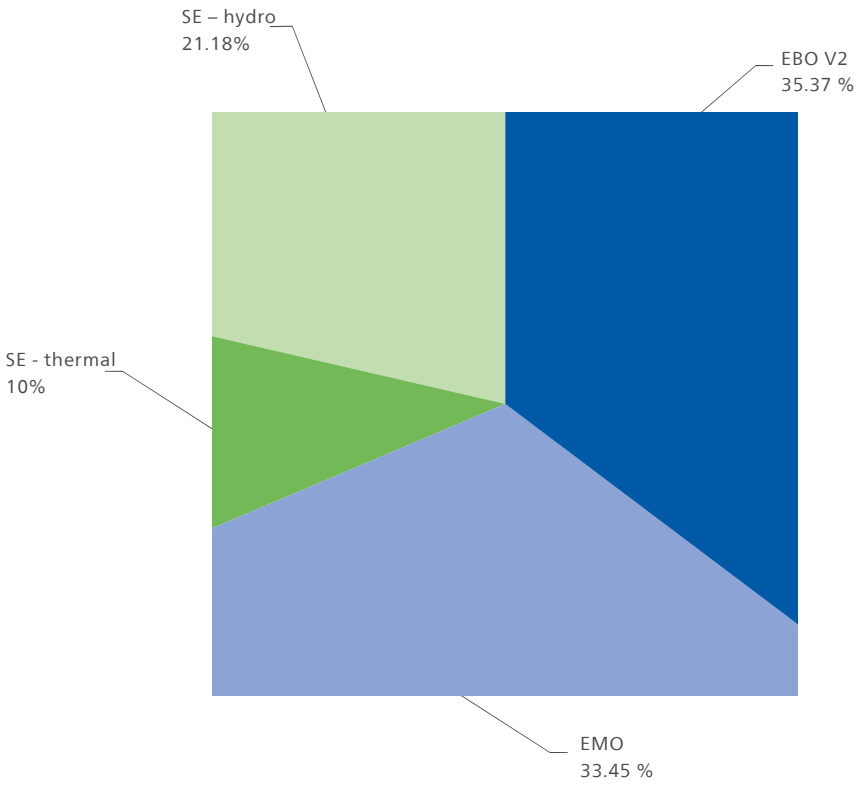
Share in electricity generation

Share in total SE electricity generation (2013)

	GWh	%
EBO V2	8,080	35.37
EMO	7,640	33.45
SE – nuclear power plants	15,720	68.82
SE – thermal power plants	2,285	10.00
SE – hydro power plants	4,836	21.18
SE – photovoltaic plants	1.96	0.0001
SE total	**22,843**	**100**

SE – Slovenské elektrárne, a.s.

90% electricity generated without CO_2 emissions



Electricity & heat generation

Basic operation indicators

Indicator		Unit	2008	2009	2010	2011	2012	2013	Since start of operation
Electricity generation	MWh	1	3,582,797	3,347,690	3,717,452	3,820,511	3,807,209	3,801,879	50,516,611
		2	3,308,170	3,662,899	3,426,814	3,733,587	3,731,814	3,838,205	45,230,456
		EMO	6,890,967	7,010,589	7,144,266	7,554,098	7,539,023	7,640,084	95,747,067
		3	3,296,687	3,574,656	3,653,067	3,851,256,	4,045,086	4,008,543	85,658,177
		4	2,965,669	3,495,620	3,776,336	4,005,414	3,910,497	4,070,951	84,228,969
		EBO V2	6,262356	7,070,276	7,429,403	7,856,670	7,955,583	8,079,494	169,887,146
Electricity supply	MWh	1	3,321,322	3,094,034	3,446,788	3,542,880	3,532,605	3,526,153	46,591,657
		2	3,068,973	3,411,518	3,187,838	3,480,325	3,476,421	3,581,834	41,909,708
		EMO	6,390,295	6,505,552	6,634,626	7,023,205	7,009,026	7,107,987	88,501,365
		3	3,038,401	3,320,341	3,398,030	3,595,925	3,773,707	3,726,975	79,426,028
		4	2,734,861	3,252,219	3,526,718	3,745,795	3,651,241	3,788,681	78,223,906
		EBO V2	5,773,262	6,572,560	6,924,748	7,341,720	7,424,948	7,515,656	157,649,934
Heat supply	GJ	1	74,953	180235	98,416	216,451	199,153	204,771	2,294,755
		2	136,481	37457	171,788	24,404	55,651	86,332	1,619,724
		EMO	211,434	217692	270,204	240,855	254,804	291,103	3,914,479
		3	922,497	1,019,628	1,045,268	992,108	976,617	925,073	19,554,884
		4	869,839	1,028,350	1,183,447	977,344	945,533	930,598	19,142,407
		EBO V2	1,792,336	2,047,978	2,228,715	1,969,452	1,922,150	1,855,671	38,697,291
Operation period	h	1	8,070	7,467	8,074	8,238	8,191	8,197	119,325
		2	7,795	8,129	7,574	8,198	8,126	8,277	107,887
		3	7,679	8,227	8,194	7,901	8,295	8,246	207,975
		4	7,254	8220	8,239	8,225	7,953	8,313	204,677
General overhaul period	days	1	29.0	51.5	23.3	21.6	23.2	23.55	601.3
		2	23.2	26.4	49.4	22.1	24.9	20.00	512.5
		3	45.3	37.6*	36.1*	35.79	20.36	19.18	1,424.94
		4	63.5	37.9*	35.4*	22.31	33.98	18.62	1,371.3
Gross efficiency	%	1	32.10	32.16	33.04	32.64	32.51	32.64	34.86
		2	31.66	31.69	31.60	32.06	32.12	32.24	34.66
		EMO	31.88	31.91	32.33	32.35	32.32	32.43	34.77
		3	32.29	32.85	33.63	34.31	34.17	31.71	31.79
		4	32.14	33.31	34.23	34.48	34.56	31.72	31.81
		EBO V2	32.22	33.08	33.93	34.4	34.36	31.71	31.8

General overhauls (refuelling outages) in 2013

Unit	from	to	Days
EMO 1	06.04.13 at 03:00 a.m.	29.04.13 at 4:14 p.m.	23.55
EMO 2	26.10.13 at 03:00 a.m.	15.11.13 at 01:57 a.m.	20.00
EBO 3	22.06.13 at 03:33 a.m.	11.07.13 at 07:56 a.m.	19.18
EBO 4	04.05.13 at 03:40 a.m.	22.05.13 at 6:37 p.m.	18.62

* Excluding reconstruction TG31 and TG42

Human resources

Headcount

	2008	2009	2010	2011	2012	2013
EMO	1,505	1,515	1,474	1,519	1,489	1,429
EBO V2	1,555	1,493	1,394	1,335	1,318	1,225

Education level of staff

	EMO	EBO V2
Primary school	0	1
Secondary school	874	813
University	555	411

Public relations

Number of Information centre visitors

	2008	2009	2010	2011	2012	2013
EMO	8,762	7,501	9,906	9,359	7,872	10,359
EBO V2	7,790	6,511	5,671	6,309	3,489	3,284

Assessment of operational safety of SE nuclear installations

Foreword

This chapter fulfils requirements defined in the Atomic act No. 541/2004 Coll., Section 10 /1) (l).

Pursuant to the Act, nuclear safety shall mean technical conditions and capability of the nuclear installation of transport equipment, as well as capability of their operating staff to prevent uncontrolled release of radioactive substances or ionizing radiation to the working or natural environment and the ability to prevent events and to mitigate consequences of events in nuclear installations or during transport of radioactive materials.

Slovenské elektrárne, subsidiary of the Enel Group, and holder of the operational license for nuclear installations issued by the Nuclear Regulatory Authority of the Slovak Republic pursuant to the Act No. 541/2004 Coll. define safety and namely nuclear safety and radiation protection as the top priority in their strategic vision permanently superior to production requirements and commercial profit.

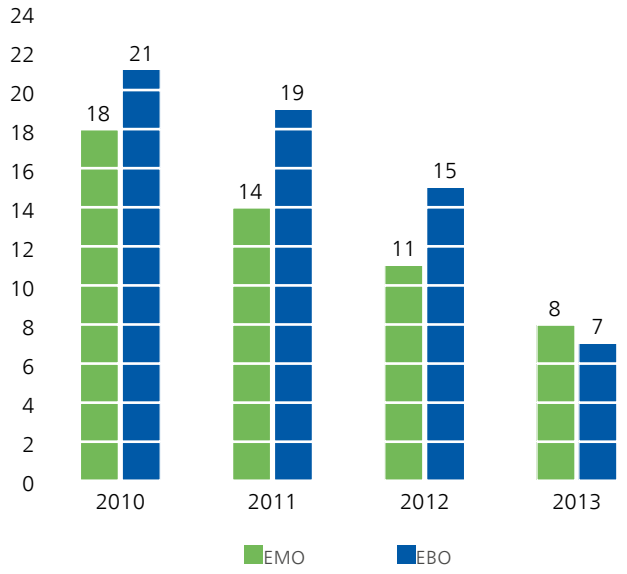
Based on legislative requirements and international recommendations, Slovenské elektrárne, subsidiary of the Enel Group, established a uniform safety assessment system used as safety management tool. The complete safety management process is divided to several areas evaluated by the operational safety indicators (OSI).

Significant operational indicators and areas

1. Operational events

Nuclear installation failures described in the above mentioned Act generally include any unplanned deviations from standard conditions. Thus, they are the power plant safety and reliability indicators. Various types of events have different causes and different levels of impact on safety.

Operational events reported by SE, a.s. to NRA SR:



A total of eight events at EBO and seven events at EMO of the lowest category "failure" were subject to NRA SR reporting, which is the lowest number of reported events in the history of SE. No events of the category "incident" or "accident" were reported.

2. Assessment of operational events using the INES scale

There are seven levels for assessment of operational events with impacts on nuclear safety and environment in the nuclear installation contained in the WANO guide.

Number of operational events of INES 0 (i.e., below the scale "deviation with safety importance")

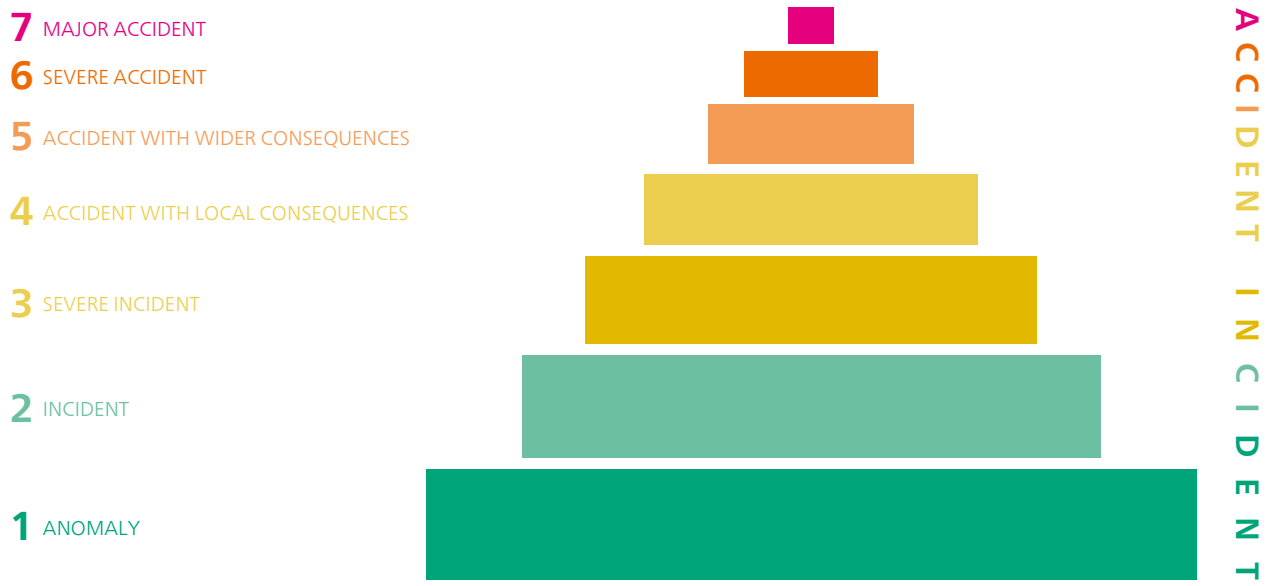
Number of INES 0 events (below the scale)

INES 0	2005	2006	2007	2008	2009	2010	2011	2012	2013
EBO V2	11	12	18	11	3	15	6	3	3
EMO	4	9	5	5	8	5	15	10	2

Number of INES 1 events (anomaly)

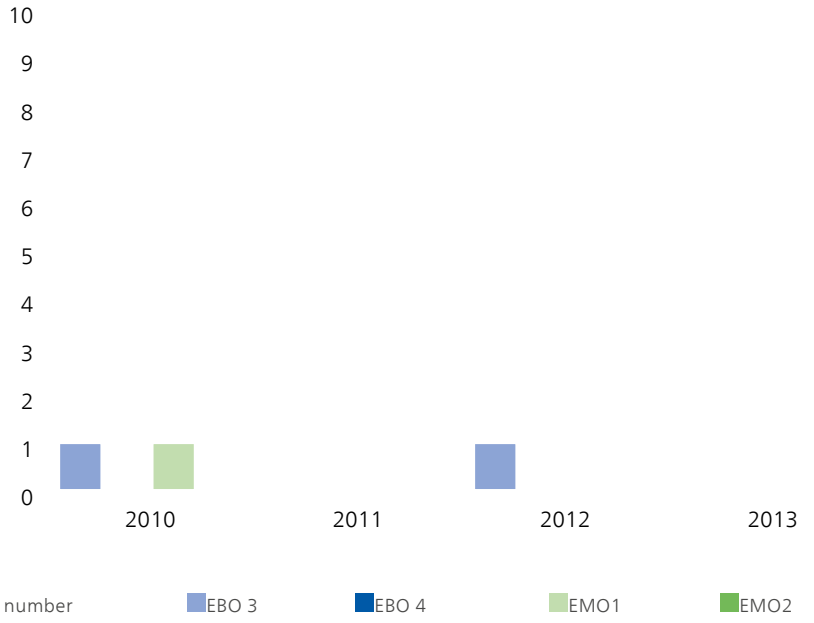
INES 1	2005	2006	2007	2008	2009	2010	2011	2012	2013
EBO V2	0	0	0	0	0	0	0	1	0
EMO	1	0	2	1	0	1	0	0	0

INES – International Nuclear Event Scale of the International Atomic Energy Agency (IAEA)



3. Violation of NI operational limits and conditions

"Limits and conditions of NPP operation" (L&C) document approved by the NRA SR is the fundamental document for operation of nuclear installations. The operator´s duty is to monitor and evaluate observance of conditions defined in this document. The indicator monitors the management level, organization of nuclear installation (nuclear power plant) operation, correctness and observance of operating instructions and regulations to meet the requirements stipulated in L&C.



No L&C violation occurred in Bohunice and Mochovce nuclear power plants in 2013.

4. Operation of nuclear installations

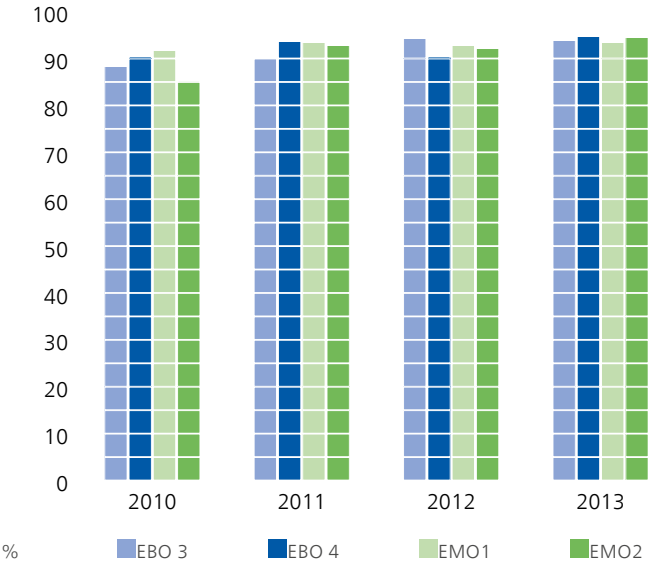
Slovenské elektrárne, subsidiary of the Enel Group, as operator of nuclear installation perform comprehensive assessment of NPP safety and reliability using specific indicators monitoring selected areas, including those defined by the World Association of Nuclear Operators (WANO), of which it is a member.

Results of individual WANO indicators:

4.1 Unit Capability Factor – UCF

The Unit capability factor is the ratio between the electricity the power plant is capable to generate over monitored period, and reference energy production expressed as percentage considering external limiting factors (e.g., dispatcher ordered power regulation, etc.).

2012 WANO PWR, median 85.99%, best quartile 90.15%, best decile 92.58%



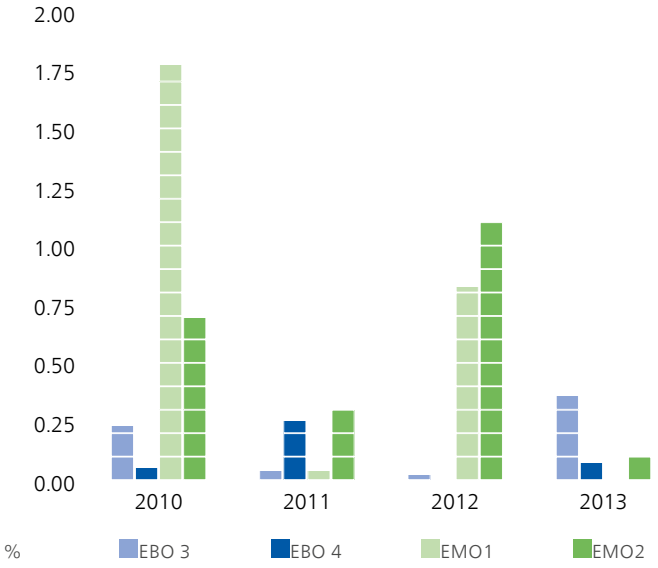
	2010	2011	2012	2013
EBO3	88.11	89.94	94.17	93.71
EBO4	90.33	89.94	90.30	94.54
EMO1	91.55	93.27	92.63	93.33
EMO2	85.27	92.50	91.96	94.23

* Median – average 50% of all monitored cases
** Quartile – 25% of the best in monitored group
*** Decile – 10% of the best in monitored group

4.2 Unplanned Capability Loss Factor – UCLF

This coefficient monitors progress in minimization of outages and unit power reductions resulting from equipment failures and other unplanned events. The indicator is defined as the ratio between the mean value of unplanned power reductions and reference production.

2012 WANO PWR, median 0.81%, best quartile 0.0%

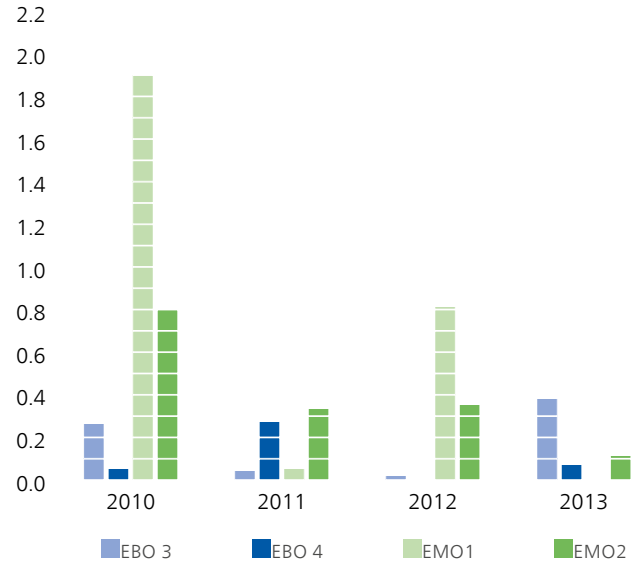


	2010	2011	2012	2013
EBO3	0.23	0.04	0.02	0.36
EBO4	0.05	0.25	0	0.07
EMO1	1.77	0.04	0.82	0
EMO2	0.69	0.30	1.1	0.1

4.3 Forced Losses during Operation – FLR

This coefficient is defined as the ratio between unplanned power generation failures minus production losses caused by unplanned outage extensions, while considering only the operational period to reference production minus production losses corresponding with planned outages and their eventual unplanned extensions.

2012 WANO PWR, median 0.13%, best quartile 0.0%

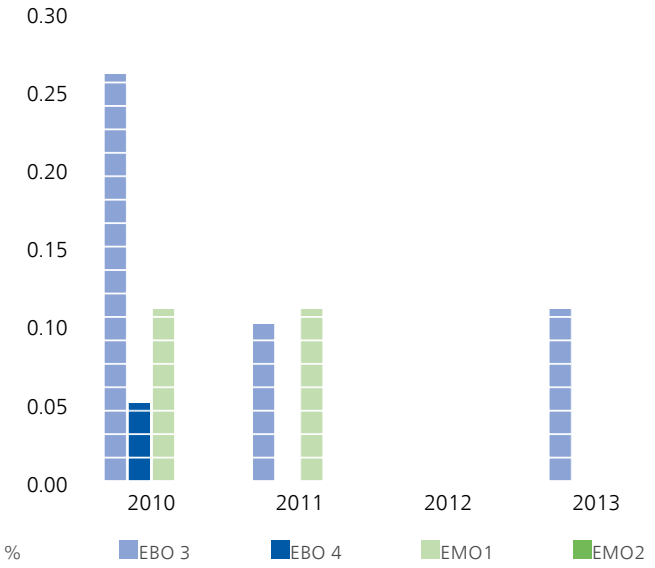


	2010	2011	2012	2013
EBO3	0.26	0.04	0.02	0.38
EBO4	0.05	0.27	0	0.07
EMO1	1.9	0.05	0.81	0
EMO2	0.80	0.33	0.35	0.11

4.4 Grid Related Loss Factor – GRLF

This indicator is defined as the ratio between the production losses caused by grid instability or failure without the control possibility by the power plant during the monitored period, and reference production in given quarter expressed in percentage.

2012 WANO PWR, median 0.0 %, best quartile 0.0 %



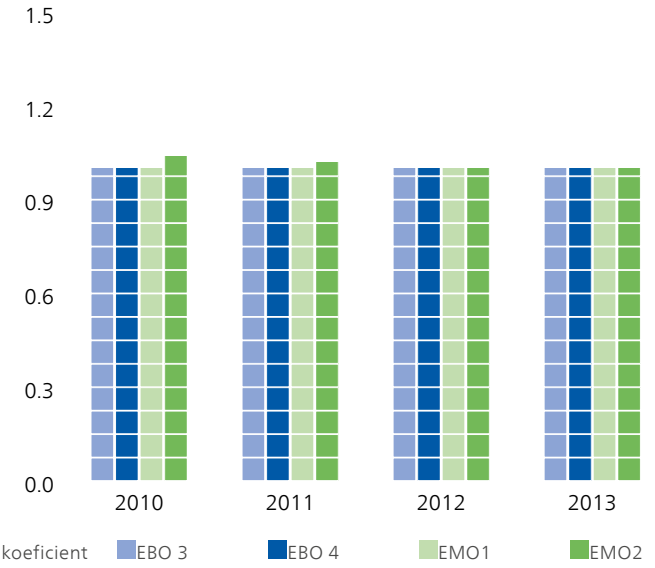
	2010	2011	2012	2013
EBO3	0.26	0.1	0.0	0.11
EBO4	0.05	0.0	0.0	0.0
EMO1	0.11	0.11	0.0	0.0
EMO2	0.0	0.0	0.0	0.0

Indicator value in unit 3 was affected by one event – unit shutdown due to repair of external line V043

4.5 Chemical index

This indicator assess the efficiency of chemical mode management in the steam generators. The best reachable chemical index value is 1.0. The indicator compares the concentration of selected impurities with limit values. Each value is divided by the limit value and their sum is normalized to one.

2012 WANO PWR, best quartile 1.0%, median 1.0%

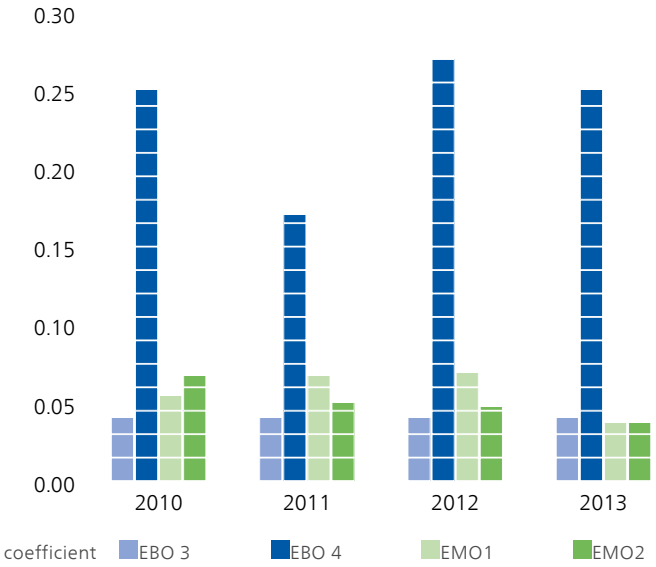


	2010	2011	2012	2013
EBO3	1	1	1	1
EBO4	1	1	1	1
EMO1	1	1	1	1
EMO2	0.04	1.02	1	1

4.6 Fuel reliability

This indicator monitors increase and preservation of high fuel tightness. It is a general fuel leakage benchmark. The indicator is defined as balanced activity of the primary circuit given by 131I activity in kBq/l and corrected by the uranium contribution and normalized by the coolant purification rate.

2012 WANO PWR, best quartile 0.037% median 0.125%

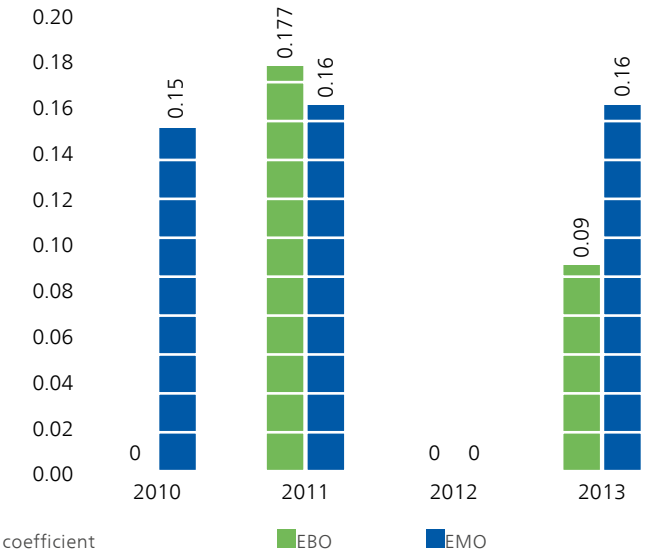


	2010	2011	2012	2013
EBO3	0.04	0.04	0.04	0.04
EBO4	0.25	0.17	0.27	0.25
EMO1	0.054	0.067	0.069	0.037
EMO2	0.091	0.05	0.047	0.037

4.7 Industrial Safety Accident Rate – ISA

This indicator is defined as number of accidents per 200,000 man-hours worked by the NPP personnel. Contractor´s employees are not included in this indicator.

2012 WANO PWR, best quartile 0.0% median 0.0%

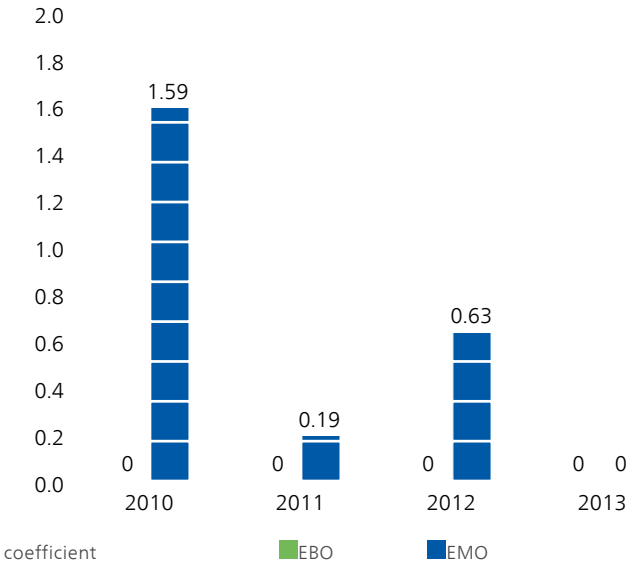


There were totally three registered work accidents in 2013: one in the Bohunice NPP and two in the Mochovce NPP.

4.8 Contractor Industrial Safety Accident Rate – CISA

This indicator is defined as number of accidents of all employees of all contractors working in the nuclear installation resulting in lost work time of one or more days (except for the date of the accident) or fatalities per 200,000 worked man-hours

2012 WANO PWR, best quartile 0.037%, median 0.125%



4.9 Collective Radiation Exposure – CRE

This indicator monitors the decreasing trend of the overall radiation exposure of both NPP personnel and contractors. The indicator is a benchmark of radiation protection efficiency and application of the ALARA system (As Low As Reasonably Achievable) aimed at exposure minimization.

2012 WANO PWR, median 510, best quartile 150

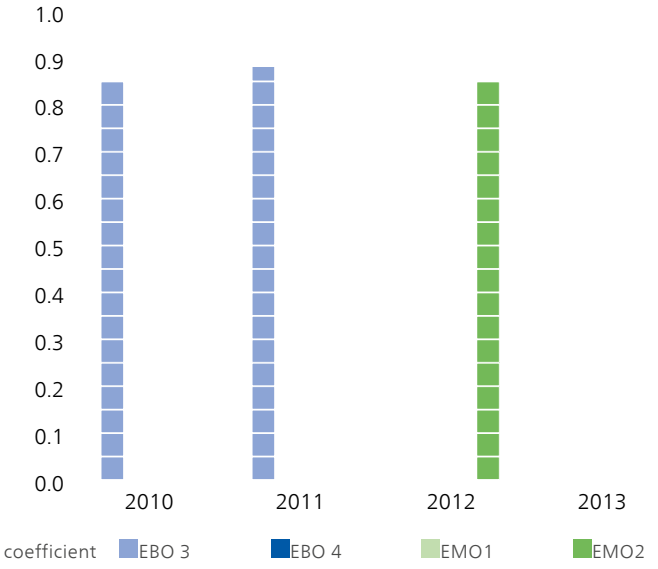
Note: WANO values apply per unit. Data given in the chart are average per unit

There was no registered contractor´s accident in Bohunice or Mochovce nuclear power plants in 2013.

4.10 Unplanned automatic scrams per 7,000 critical hours

This indicator shows number of unplanned automatic unit scrams caused by AO-1 activation per 7,000 critical reactor hours.

2012 WANO PWR, median 0, best quartile 0



	2010	2011	2012	2013
EBO3	0.85	0.88	0	0
EBO4	0	0	0	0
EMO1	0	0	0	0
EMO2	0	0	0.85	0

There was no recorded automatic reactor scram recorded in Bohunice and Mochovce nuclear power plants in 2013.

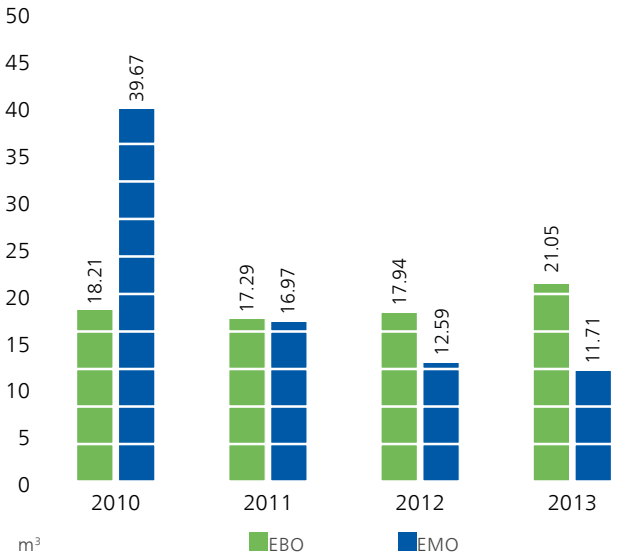
5. Waste production and releases to the atmosphere and hydrosphere

Minimization of generated liquid and solid radioactive waste (RAO) is the main goal of Slovenské elektrárne, subsidiary of the Enel Group. The indicators are used to monitor and evaluate operational efficiency of individual units and to evaluate the efficiency of measures adopted to minimize RAW generation, in particular during general overhauls involving refuelling. Decreasing of waste volume also decreases demands on the storage, transport and permanent deposition, thus reducing the NPP impact on the environment. RAW generation is monitored separately for liquid and for solid waste. NPP operation is connected with emissions of liquid and gaseous radioactive material into the environment. Operator´s objective is to minimize such emissions to the environment. Emission values, types of substances and their limit values are defined by the state regulatory authorities.

The waste and emissions management process reviews performed during the year by internal and external environmental inspections confirmed fulfilment of legislative requirements and decisions of the environmental offices.

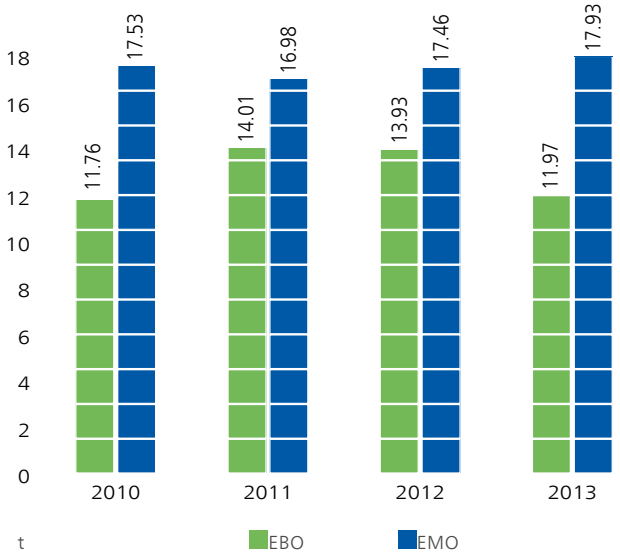
5.1 Production of liquid RAW

This indicator is defined as volume of liquid RAW in cubic metres generated by the nuclear installation operation converted to the boric acid content of 120g/kg.



5.2 Production of solid RAW

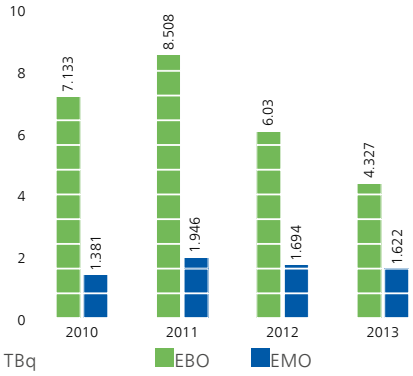
This indicator is defined as volume of solid RAW in tonnes generated by the nuclear installation operation.



5.3 Emission to atmosphere

Installation	Type of release	Activity	Unit	Share on target value for 2013 (%)
EBO	Noble gases	4.327	TBq	0.21635
EBO	Aerosols	6.194	MBq	0.0077425
EBO	Iodine 131	0.402	MBq	0.000618
EMO	Noble gases	1.622	TBq	0.0395
EMO	Aerosols	9.447	MBq	0.0055
EMO	Iodine 131	0.325	MBq	0.000485

Noble gases



Aerosols

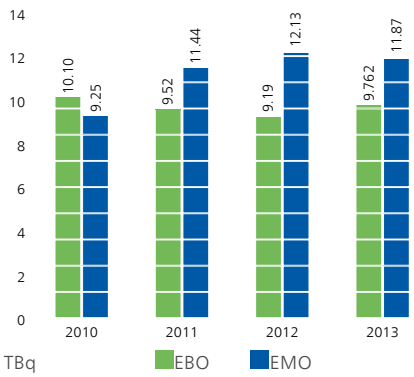
Iodine

5.4 Releases to hydrosphere in 2013

Installation	Type of release	Activity	Unit	Share on target value for 2013 (%)
EBO V2	Activation and fission products	25.071	MBq	0.192
EBO V2	Tritium	9.762	TBq	48.81
EMO	Activation and fission products	15.960	MBq	1.451
EMO	Tritium	11.870	TBq	98.92

Activation and fission products

Tritium



NPP operation has minimal impact on the environment. This impact is verified by calculation of annual doses to public living in the power plants vicinity using approved conservative method.

Calculated maximal values are approximately one hundred times lower than the limit value of 50 micro Sievert defined by the Public Health Authority of SR.

5.5 Surface water extraction (m³)

	EMO	EBO V2
2008	20,626,000	17,300,034
2009	20,759,000	19,247,895
2010	21,012,188	19,456,871
2011	22,956,812	20,192,550
2012	23,003,000	20,963,176
2013	22,491,000	21,096,662

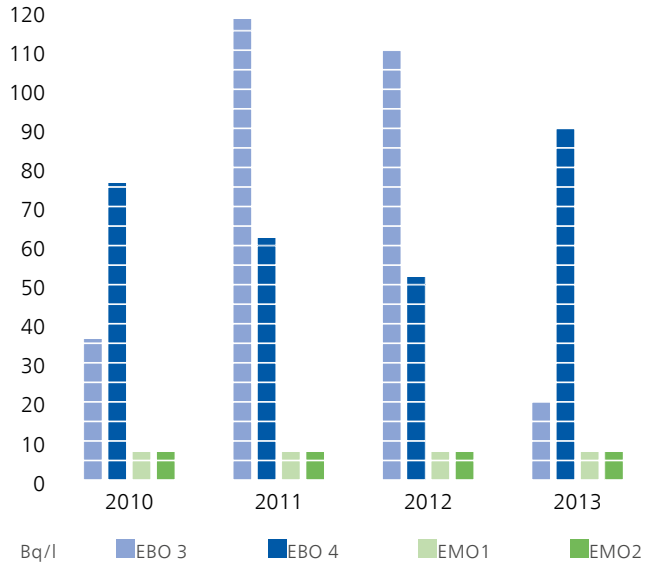
5.6 Wastewater discharge (m³)

Year		2008	2009	2010	2011	2012	2013
Total volume	EMO	4,812,000	4,818,835	5,426,855	5,679,231	5,628,735	4,874,075
	EBO V2	2,808,004	3,150,973	3,326,105	3,249,542	3,544,966	3,615,684
Industrial wastewater	EMO	4,721,000	4,818,835	5,315,940	5,577,398	5,528,028	4,769,165
	EBO V2	2,792,529	3,133,12	3,254,693	3,192,615	3,494,207	3,552,310
Treated sewage water	EMO	91,000	83,825	110,915	101,833	100,707	104,910
	EBO V2	15,475	17,852	71,412,*	56,927	50,759	63,374
Allowed annual water discharge limit for 2 units	EMO				6,000,000		
	EBO V2				3,626,640		

6. Barrier tightness

6.1 Steam generator blowdown water activity

This indicator is defined as the maximum value of total β-activity of blowdown water dry residue from individual steam generators.

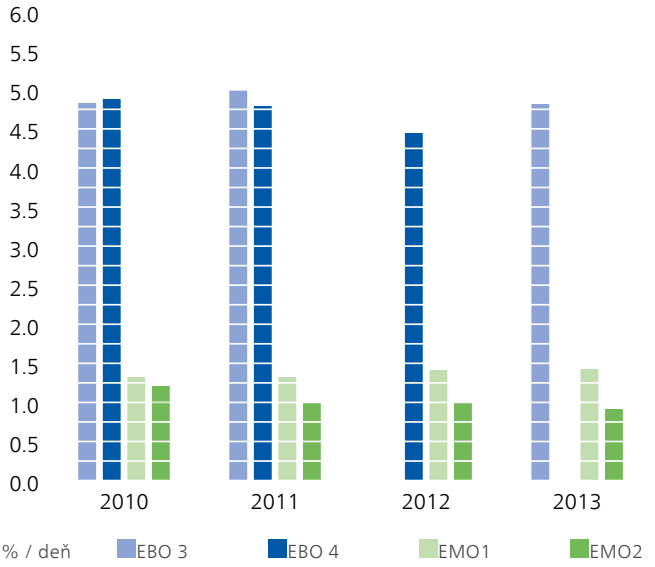


	2010	2011	2012	2013
EBO3	36	118	110	20
EBO4	76	62	52	90
EMO1	7	7	7	7
EMO2	7	7	7	7

Small controlled leaks of steam generator tubes were recorded and subsequently removed in both Bohunice NPP units. Activity in the secondary circuit was slightly increased below the value permitted by the NPP L&C which is 370 Bq/l.

6.2 Containment tightness

This indicator monitors the containment tightness as the third physical barrier against release of the fission products. The indicator is defined as resulting air lost value from the containment for 24 hours given as percentage of the containment volume at over-pressure of 150kPa.



	2010	2011	2012	2013
EBO3	4.82	5.01		4.81
EBO4	4.87	4.79	4.44	
EMO1	1.33	1.33	1.41	1.424
EMO2	1.21	0.98	0.996	0.915

Containment tightness is prescribed by NPP L&C.
Containment leak rate prescribed for both Bohunice NPP units mustn't exceed the value of 13% / 24 hours.
For Mochovce NPP, this value is 5% / 24 hours.

Note: In 2013, it was not necessary to perform the leak test in EBO V2 unit 4 required by defined containment criteria.

7. Emergency planning and preparedness (EPP)

The company Slovenské elektrárne meets the requirements for permanent preparedness in the emergency planning area in case of an incident or accident, which both have extremely low probability of occurrence. The emergency preparedness system in the company is continuously maintained and tested.

The main goals in the emergency preparedness area include provision of technical, personnel and documentation preparedness or employees and external persons for successful management of emergencies – are conducting emphasizing minimisation of the incident or accident occurrence risk or mitigation of their consequences, prevention of serious threats to health and reduction of probability of stochastic effects of emergencies on human health.

Activities of the company Slovenské elektrárne in 2013 forming assumptions for further development and improvement of the emergency planning and preparedness process:

1. Peer-reviews performed by the World Association of Nuclear Operators (WANO) in both nuclear power plants positively assessed the emergency planning and preparedness status compared with the best international practice. The reviews haven't identified any shortcomings compared with the international standards; on the contrary, they highlighted good excellence in several emergency planning areas.
2. Emergency response organization and emergency preparedness was practised during the plant emergency drills in both power plants. They also verified the cooperation and relations with the municipality authorities and state authorities on the national level.
3. In December 2013, new procedures and guides for management of so called severe accidents (SAMG) were introduced in Bohunice NPP after completion of all related hardware improvements.
4. In relation with the Fukushima Daichi nuclear power plant, the stress tests performed in 2011 – 2012 included also the emergency planning area and defined actions to contribute to even higher emergency preparedness of Slovak nuclear installations. Some of them were already implemented in 2013, the others are scheduled for 2014 – 2015.

Long-term strategic goal of Slovenské elektrárne, in the emergency preparedness is to ensure continuous process improvement using own experiences and experiences of other power plant operators around the world by monitoring the criteria and indicators of emergency preparedness process activities and by following the rules defined in the process in line with the safety culture principles and characteristics.

8. Safety improvement

The following investment projects and modifications aimed at safety improvement were implemented at **EBO V2 and Mochovce** in 2013:

Bohunice NPP V2 (EBO)

- Completion of the severe accident management project (SAM) by implementation of the following improvements:
  - Emergency coolant source
  - Long-term heat removal from the containment
  - SAM I&C systems
  - Modification of emergency steam removal from the reactor cavity to room A201
- Other projects:
  - Added barrier to prevent ion exchanger content leak to the make-up pump suction
  - Monitoring of batteries conditions
  - Installation of mobile diesel generators for power supply of 0.4kV sections

Mochovce NPP (EMO)

- The following improvements were performed as part of SAM project:
  - Addition of hydrogen recombiner to the containment
  - Modification of emergency steam removal from the reactor cavity to room A201
- Other projects:
  - Replacement of servo drives on the dump steam valves to atmosphere
  - Commencement of gradual reconstruction of DG 5 automations

9. Overall assessment of NI nuclear safety

Based on assessment of set of operational safety indicators, operation of nuclear installations – NPP of Slovenské elektrárne, a.s., in 2013 can be considered safe and complying with legislation concerning use of atomic energy, while fulfilling the conditions defined in valid permits issued by regulatory authorities.

Corrective actions were adopted for events and indicators with negative trend. Operation of Slovenské elektrárne, nuclear installations had minimal impact on the environment and minimal radiation loading of personnel and public.

Issued by:

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