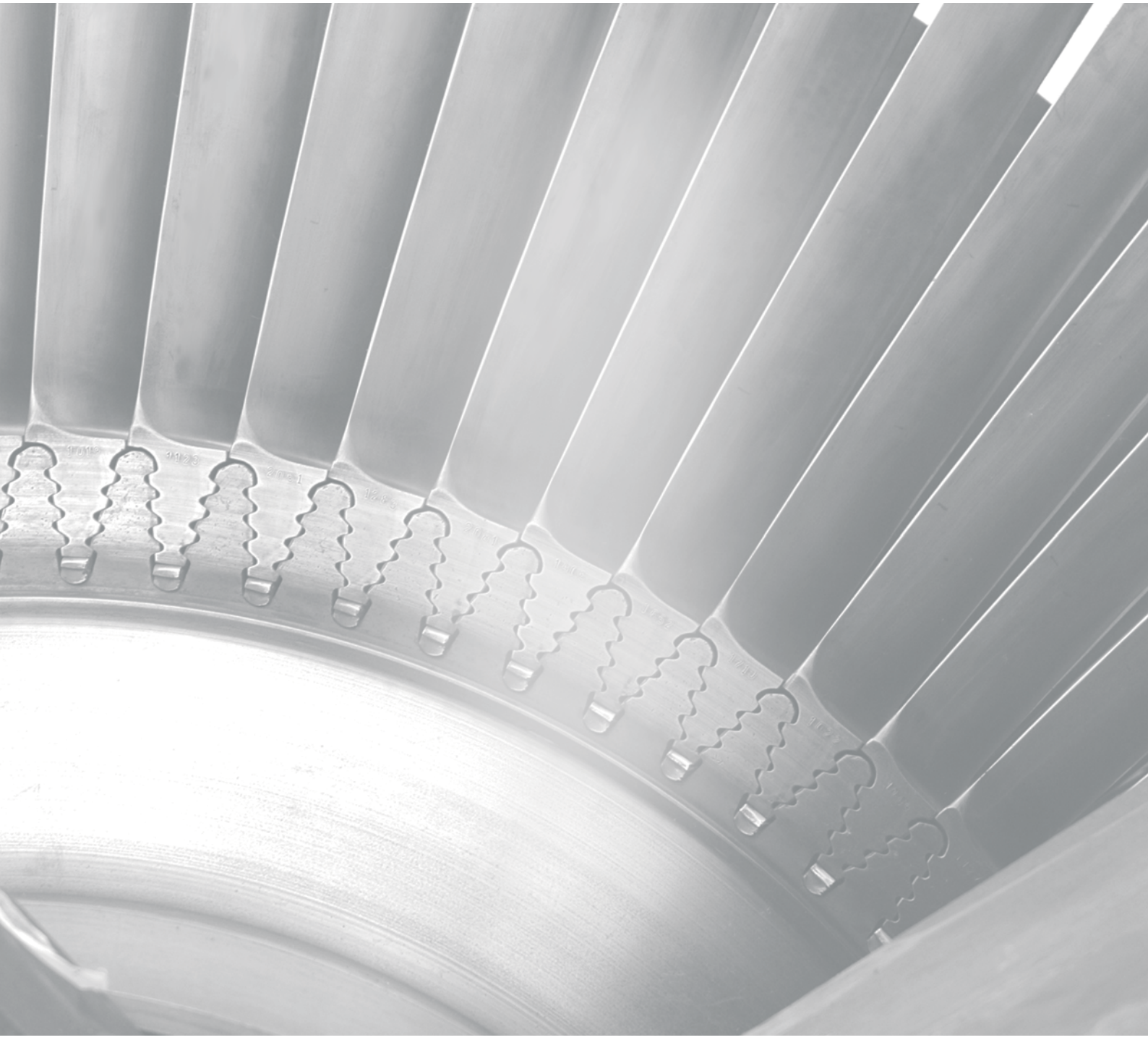
2014
OPERATION AND SAFETY REPORT OF MOCHOVCE AND BOHUNICE V2 NUCLEAR POWER PLANTS



SLOVENSKÉ ELEKTRÁRNE

Enel

Slovenské Elektrárne is an Enel Group Company

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

2014 – Highlights

AE Bohunice V2 (EBO)

The 30th anniversary of the EBO commissioning

Total 186 TWh produced from the beginning of EBO Units operation that means 186 million tonnes of CO2 emissions prevented

July – supervisory integrated management system audit

October and November – modification of winter spraying in the circulation cooling tower

June – EBO Open Plant Day

September – WANO Technical Support Mission (TSM) in EBO – Monitoring and supervision of technological systems and early solving of deficiencies at the equipment and degradation of equipment condition

September – Inspection of nuclear insurance pool EMANI

September – October – WANO TSM in EBO – Leadership

December – completion of implementation of severe accident management measures

AE Mochovce (EMO)

Total 103 TWh produced from the beginning of EMO Units operation, that means 103 million tonnes of CO_2 emissions prevented

April – visit of directors and other representatives of the World Association of Nuclear Operators' Moscow Centre (WANO Board Meeting) from Armenia, Bulgaria, Czech Republic, China, Iran, Hungary, Slovakia and Ukraine

September – visit of IAEA Governor Board members

June – inspection of the EMANI nuclear insurance pool

October – opening of the new information centre Energoland

October – visit of the U.S. nuclear regulatory authority commissioner Villiam Ostendorff

October – visit from the Hungarian Paks NPP led by the WANO MC Chairman and the Units 5&6 Project Director

November – the first inspection day of the Minister of Economy Mr. Pavol Pavlis in MO34

November – ceremonial event related to the anniversary of the EBO and EMO commissioning in Energoland in attendance of the FORATOM General Director, Mr. Jean-Pol Poncelete

General data

	1st criticality *	Start of permanent operation
EBO 3	07.08.1984	14.02.1985
EBO 4	02.08.1985	18.12.1985
EMO 1	09.06.1998	29.01.1999
EMO 2	01.12.1999	11.07.2000

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

* 1st criticality – first reach of minimal controlled power

EBO	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

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

Basic technical data

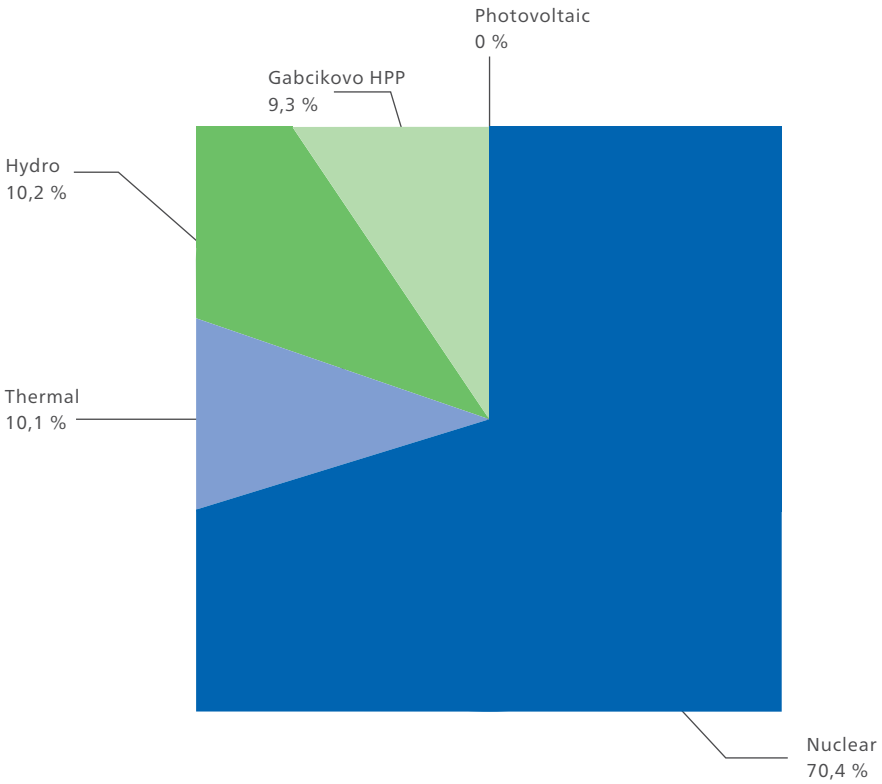
Reactor type	VVER 440/V-213 – Pressurized water reactor / PWR
Reactor thermal power	1.471MWt
Reactor rated power	470MWe (EMO) / 505MWe (EBO)
Home consumption	~7.2% (EMO) / ~6.8% (EBO)
Fuel	UO2 (42 t)
Fuel enrichment	4.87 % U-235
Primary circuit	
Number of cooling loops	6
Coolant flow rate	42.600m^3/h
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)
Number of stages	1 HP, 2 LP
Rated speed	3.000 rpm
Generator rated apparent power	259MVA (EMO) / 273MVA (EBO)
Terminal voltage	15.75 kV
Rated current	3 x 9.500A (EMO) / 3 x 10.007A (EBO)
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)

Share in electricity generation

Share in total SE generation (2014)

	GWh	%
EBO	8,056,250	36.60
EMO	7,443,064	33.81
SE – nuclear power plants	15,499,314	70.41
SE – thermal power plants	2,216,340	10.07
SE – hydro power plants	4,297,077	19.52
SE – photovoltaic plants	1,918	0.0
SE total	**22,014,650**	**100**

90% electricity generated without CO_2 emissions



Electricity & heat generation

Basic operation indicators

Indicator		Unit	2010	2011	2012	2013	2014	Since start of operation
Electricity generation	MWh	3	3,653,067	3,851,256	4,045,086	4,008,543	4,010,463	93,677,183
		4	3,776,336	4,005,414	3,910,497	4,070,951	4,045,787	92,345,707
		EBO	7,429,403	7,856,670	7,955,583	8,079,494	8,056,250	186,022,890
		1	3,717,452	3,820,511	3,807,209	3,801,879	3,803,613	54,320,224
		2	3,426,814	3,733,587	3,731,814	3,838,205	3,639,452	48,869,908
		EMO	7,144,266	7,554,098	7,539,023	7,640,084	7,443,065	103,190,132
Electricity supply	MWh	3	3,398,030	3,595,925	3,773,707	3,726,975	3,740,880	86,904,056
		4	3,526,718	3,745,795	3,651,241	3,788,681	3,778,751	85,803,291
		EBO	6,924,748	7,341,720	7,424,948	7,515,656	7,519,631	172,707,347
		1	3,446,788	3,542,880	3,543,121	3,537,615	3,542,009	50,265,334
		2	3,187,838	3,480,325	3,481,044	3,563,930	3,395,671	45,344,271
		EMO	6,634,626	7,023,205	7,024,165	7,101,545	6,937,680	95,609,605
Heat supply	GJ	3	1,045,268	992,108	976,617	925,073	744,462	20,604,594
		4	1,183,447	977,344	945,533	930,598	819,031	20,282,066
		EBO	2,228,715	1,969,452	1,922,150	1,855,671	1,563,493	40,886,660
		1	98,416	259,680	206,105	204,771	212,205	2,506,960
		2	171,788	24,404	57,594	86,332	18,997	1,638,721
		EMO	270,204	284,084	263,699	291,103	231,202	4,145,681
Operation period	h	3	8,194	7,901	8,295	8246	8254	224,505
		4	8,239	8,225	7,953	8313	8314	221,380
		1	8,074	8308	8,191	8,197	8,262	127,586
		2	7,574	8254	7,940	8,277	7,844	115,731
General overhaul period	Dni	3	23	35.79	20.36	19.18	21.18	1,455.4
		4	22.8	22.31	33.98	18.62	18.6	1,387
		1	23.3	21.6	23.2	23.55	20.6	624.9
		2	49.4	22.1	24.9	20.00	38.3	532.5
Gross efficiency	%	3	33.63	34.31	34.17	31.71	33.73	31.75
		4	34.23	34.48	34.56	31.72	34.0	31.77
		EBO	33.93	34.4	34.36	31.71	33.87	31.76
		1	33.04	32.64	32.51	32.64	32.71	32.29
		2	31.60	32.06	32.12	32.24	32.48	31.87
		EMO	32.33	32.35	32.32	32.43	32.60	32.09

General overhauls (refuelling outages) in 2014

Unit	from	to	Days
EBO 3	14.06.14 at 02:56	05.07.14 at 05:02	21.2
EBO 4	26.04.14 at 03:02	14.05.14 at 17:27	18.6
EMO 1	29.03.14 at 13:06	19.04.14 at 03:31	20.6
EMO 2	20.09.14 at 03:00	28.10.14 at 08:09	38.3

Human resources

Headcount

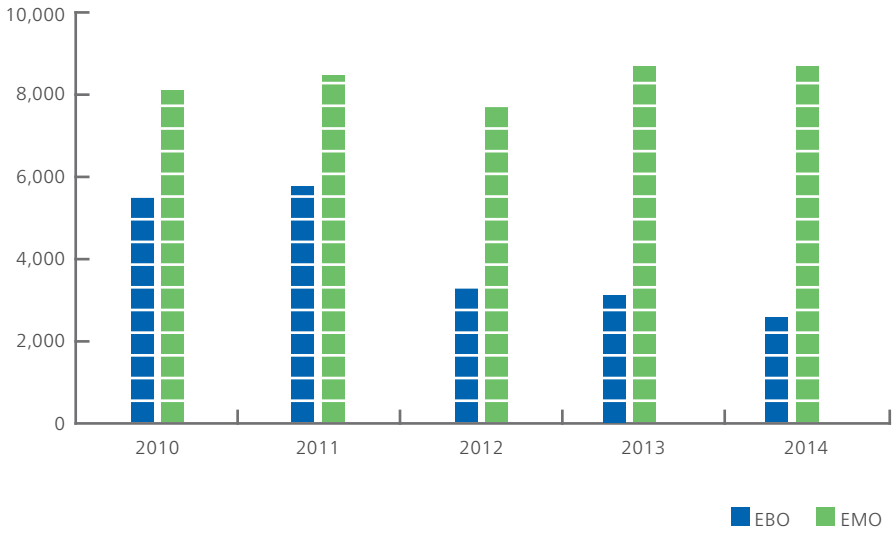
	2010	2011	2012	2013	2014
EBO	1,394	1335	1318	1,265	1083
EMO	1474	1519	1489	1429	1343*

* including MO34 operation staff in preparation

Education level of staff

	EBO	EMO
Secondary school	674	758
University	409	585

Public relations



Number of Information centre visitors

	2010	2011	2012	2013	2014
EBO	5,579	5,647	3,489	3,284	2,477
EMO	8,106	8,339	7,872	8,759	8,663

Assessment of operational safety of SE nuclear installations

Foreword

This chapter fulfils requirements defined in the Atomic act No. 541/2004, 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, an Enel Group company, and holder of the operation license for nuclear installations issued by the Nuclear Regulatory Authority of the Slovak Republic pursuant to the Act No. 541/2004 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.

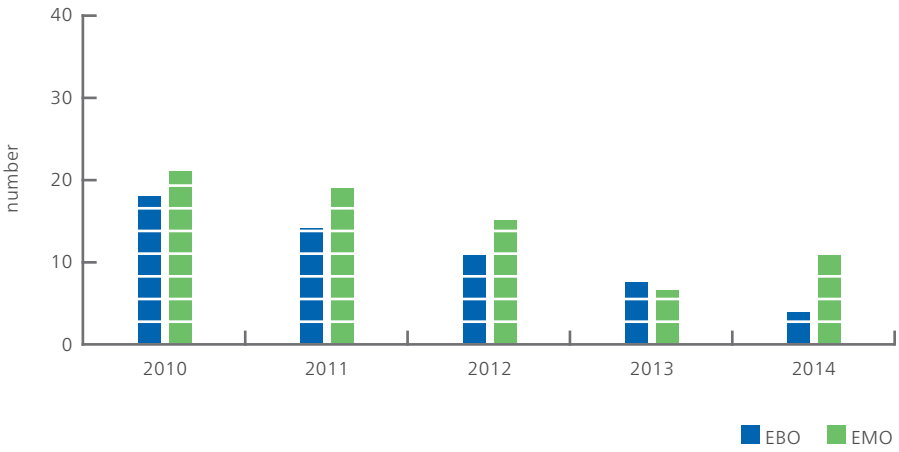
Based on legislative requirements and international recommendations, Slovenské elektrárne, an Enel Group company, established a uniform safety assessment system used as safety management tool. The complete safety management process is divided to several areas evaluated by the operational safety indicators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



	2010	2011	2012	2013	2014
EBO	18	14	11	8	4
EMO	21	19	15	7	11

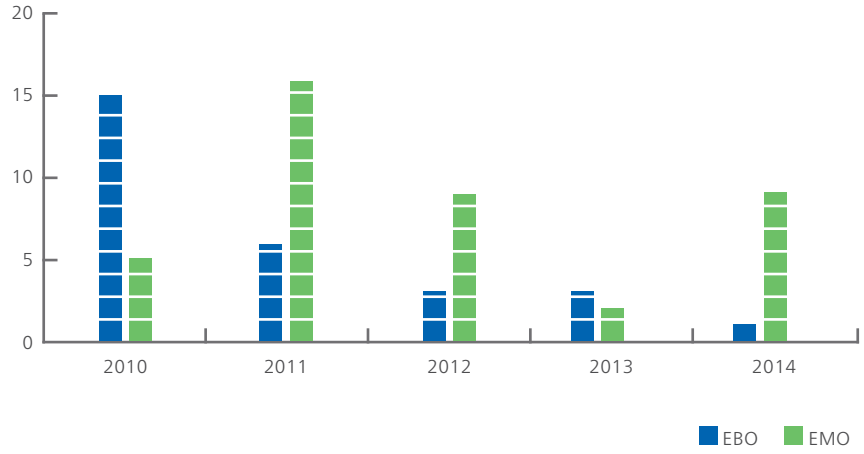
Total 4 events in EBO and 11 events in EMO of the lowest category "failure" subject to reporting to UJD SR were registered. In case of EBO, it is the lowest number of reported events in its history. No events of "incident" and "accident" categories occurred.

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	2010	2011	2012	2013	2014
EBO	15	6	3	3	1
EMO	5	16	9	2	9

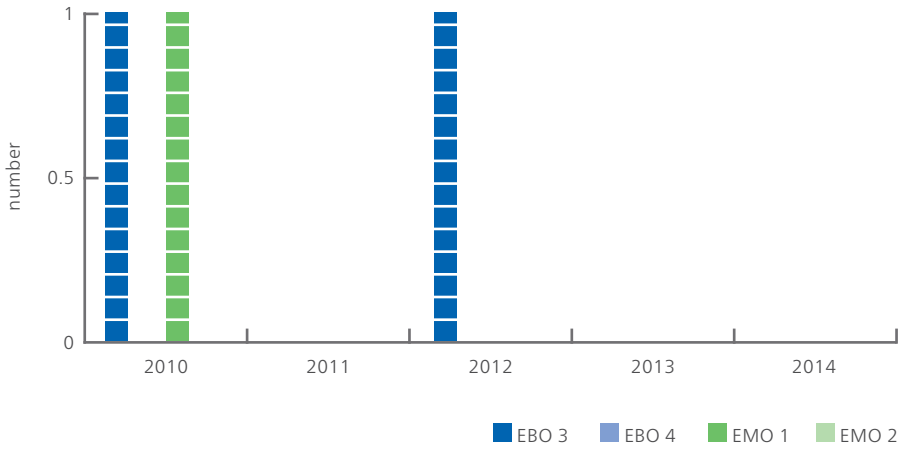


Number of INES 1 events (anomaly)

INES 1	2010	2011	2012	2013	2014
EBO	0	0	1	0	0
EMO	1	0	0	0	0

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.



	2010	2011	2012	2013	2014
EBO3	1	0	1	0	0
EBO4	0	0	0	0	0
EMO1	1	0	0	0	0
EMO2	0	0	0	0	0

No L&C violation occurred in Bohunice and Mochovce nuclear power plants in 2014.

4. Operation of nuclear installations

Slovenské elektrárne, an Enel Group company, 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.).

2014 WANO PWR, 3-yr., median 85.95, best quartile 90.13, best decile 92.524.*

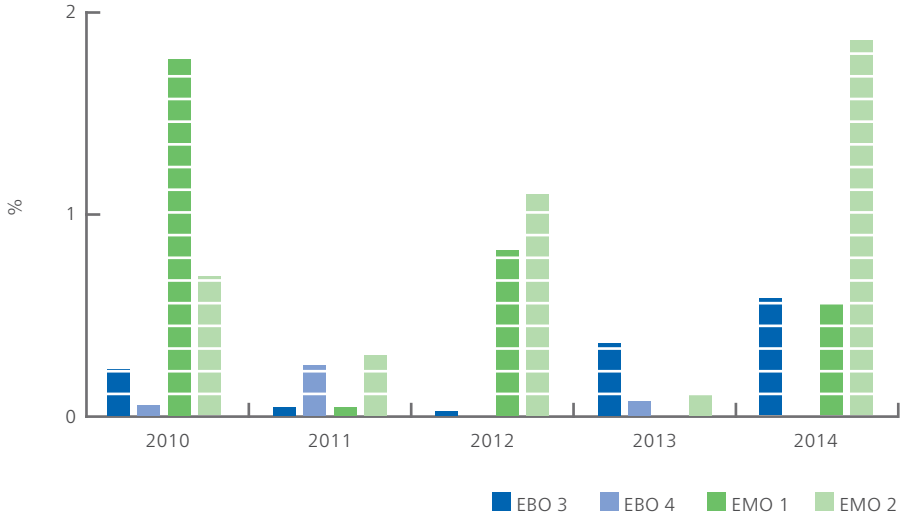
	2010	2011	2012	2013	2014
EBO3	88.11	89.94	94.17	93.71	93.9
EBO4	90.33	93.43	90.3	94.54	94.56
EMO1	91.55	93.27	92.63	93.33	92.55
EMO2	85.27	92.5	91.96	94.23	89.18

* 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.

2014 WANO PWR, 3-yr., median 2.67, best quartile 0.77, best decile 0.164.

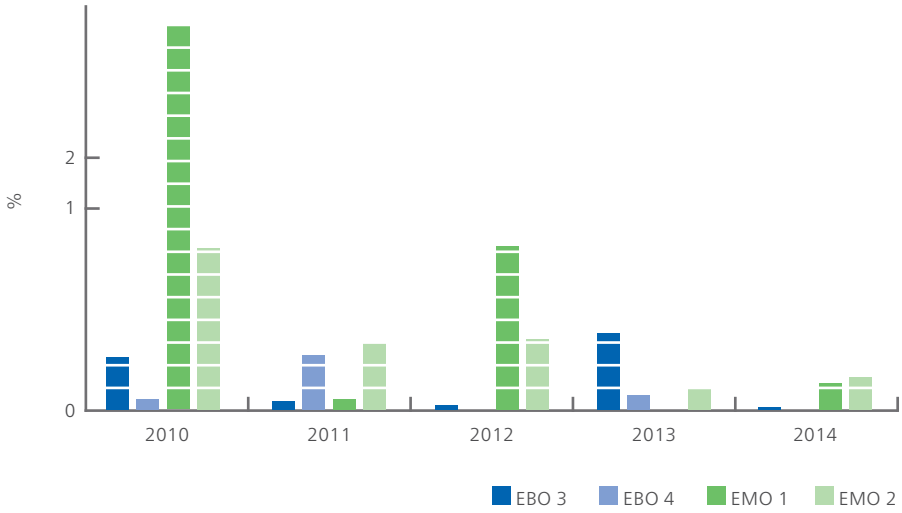


	2010	2011	2012	2013	2014
EBO3	0.23	0.04	0.02	0.36	0.58
EBO4	0.05	0.25	0	0.07	0
EMO1	1.77	0.04	0.82	0	0.55
EMO2	0.69	0.3	1.1	0.1	1.86

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.

2014 WANO PWR, 3-yr., median 1.42, best quartile 0.56, best decile 0.118.

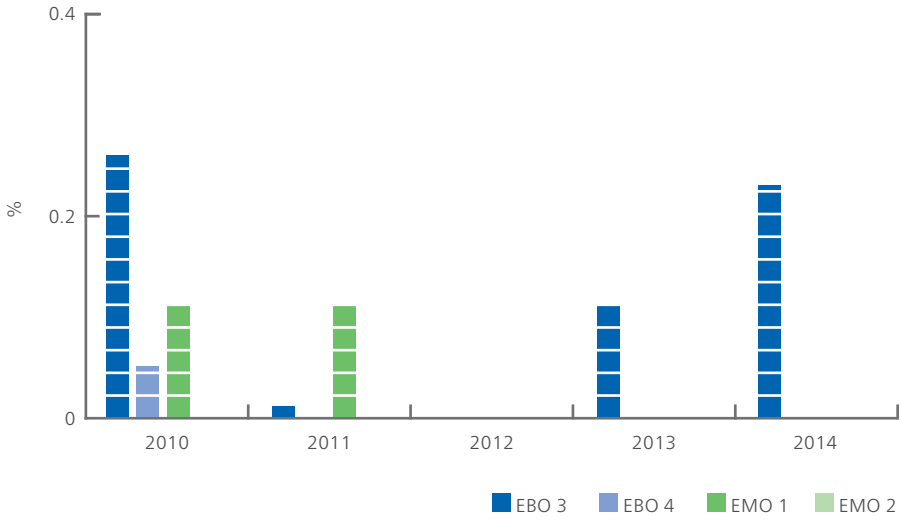


	2010	2011	2012	2013	2014
EBO3	0.26	0.04	0.02	0.38	0.01
EBO4	0.05	0.27	0	0.07	0
EMO1	1.9	0.05	0.81	0	0.13
EMO2	0.8	0.33	0.35	0.11	0.16

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.

2014 WANO PWR, 3-yr., median 0.00, best quartile 0.00, best decile 0.00.



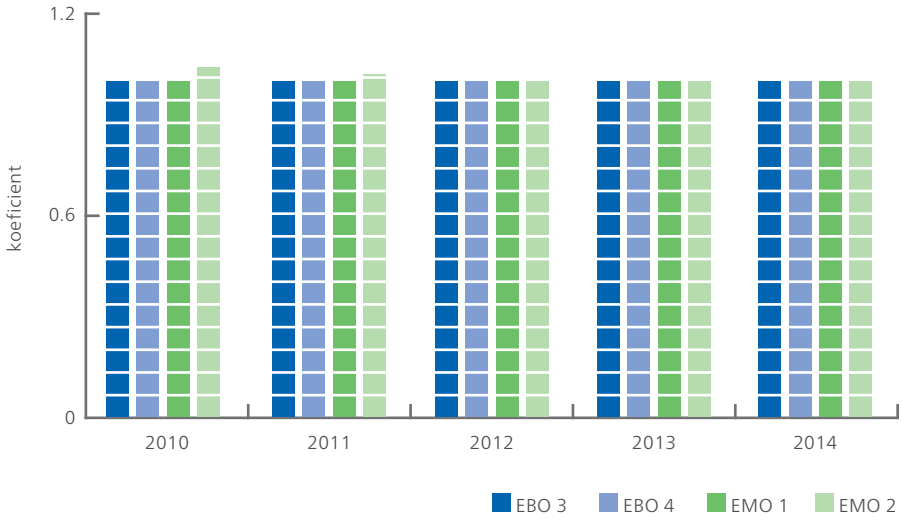
	2010	2011	2012	2013	2014
EBO3	0.26	0.1	0	0.11	0.23
EBO4	0.05	0	0	0	0
EMO1	0.11	0.11	0	0	0
EMO2	0	0	0	0	0

The value of the indicator in EBO Unit 3 was affected by a single event – regulation of the Unit to home consumption after disconnection of the 400 kV circuit breaker by actuation of protections in the V043 line (strong wind, ice formation).

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.

2014 WANO, PWR, 3-yr., median 1.01, best quartile 1.00, best decile 1.00.

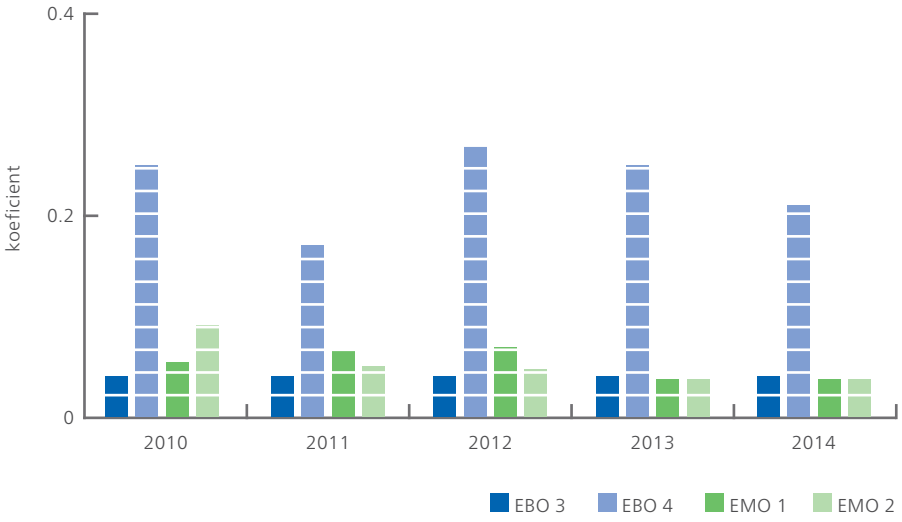


	2010	2011	2012	2013	2014
EBO3	1	1	1	1	1
EBO4	1	1	1	1	1
EMO1	1	1	1	1	1
EMO2	1.04	1.02	1	1	1

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.

2014 WANO PWR, 3-yr., median 0.0586, best quartile 0.037, best decile 0.037.

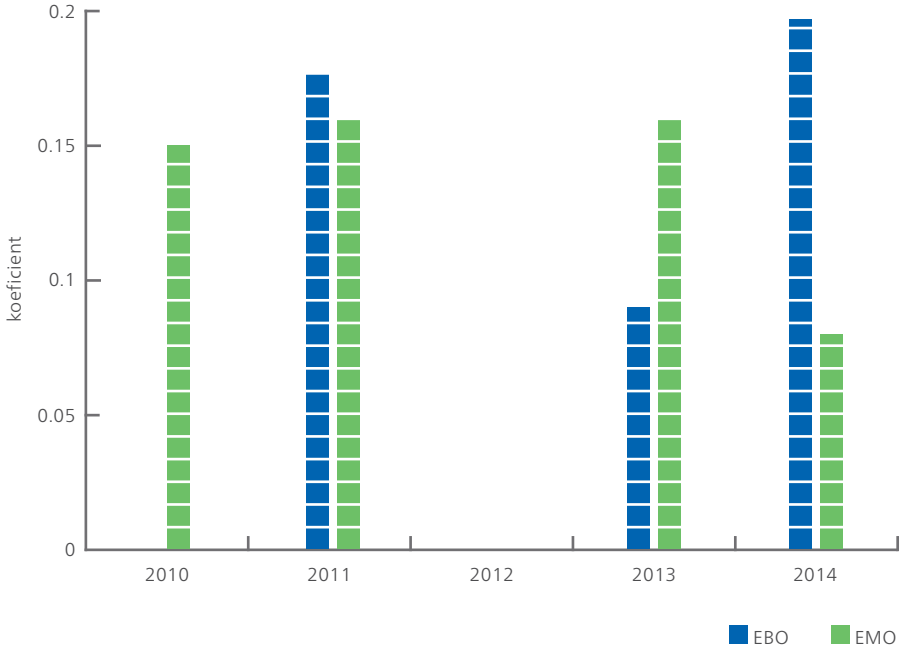


	2010	2011	2012	2013	2014
EBO3	0.04	0.04	0.04	0.04	0.04
EBO4	0.25	0.17	0.27	0.25	0.21
EMO1	0.054	0.067	0.069	0.037	0.037
EMO2	0.091	0.05	0.047	0.037	0.037

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.

2014 WANO PWR, 3-yr., median 0.07, best quartile 0.00, best decile 0.00.



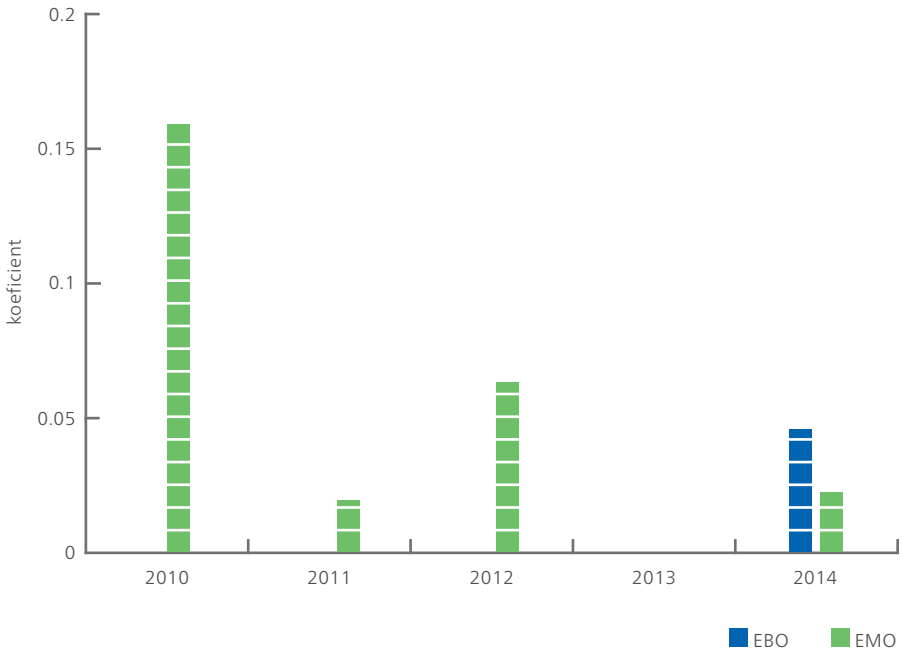
	2010	2011	2012	2013	2014
EBO	0	0.177	0	0.09	0.197
EMO	0.15	0.160	0	0.16	0.08

In 2014, total three registered industrial accidents occurred in SE. Two industrial accidents in SE-EBO and one industrial accident in SE-EMO.

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

2014 WANO PWR, 3-yr., median 0.06, best quartile 0.00, best decile 0.00.



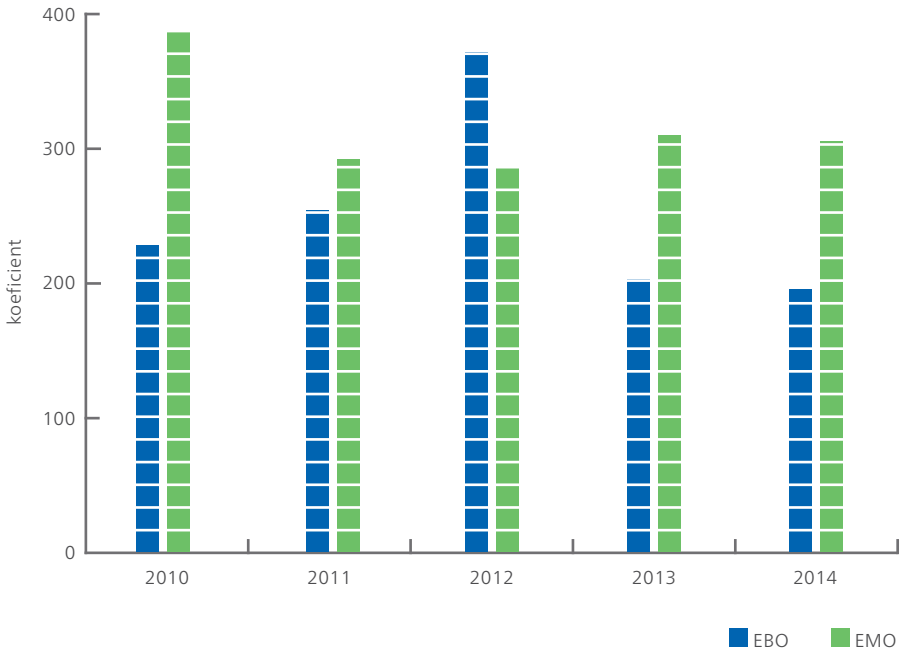
	2010	2011	2012	2013	2014
EBO	0	0	0	0	0.456
EMO	1.59	0.19	0.63	0	0.22

In 2014, two registered industrial accidents of contractor's workers occurred in SE. One industrial accident in SE-EBO and one industrial accident in SE-EMO.

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.

2014 WANO, PWR, 3-yr., median 460, best quartile 340, best decile 180.



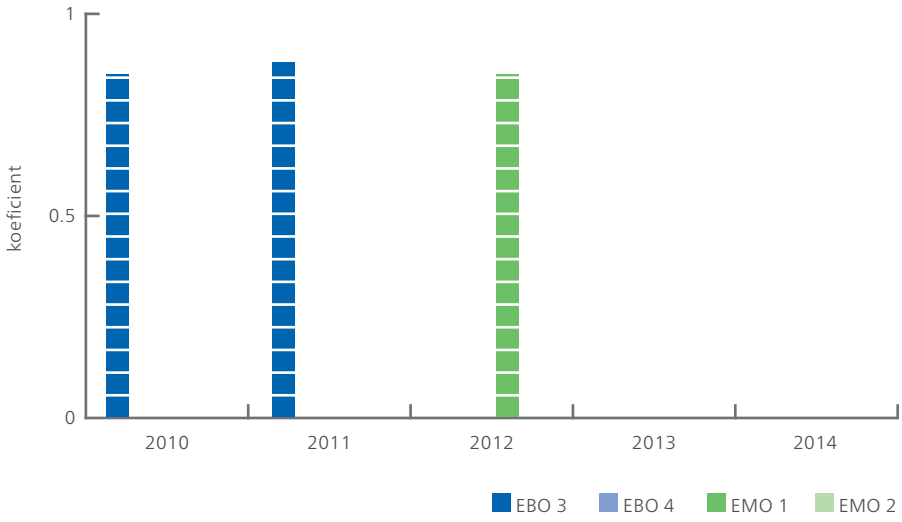
	2010	2011	2012	2013	2014
EBO	228	254	372	203	194
EMO	388	292	286	318	311

Note – KED values for EBO and EMO refer to the entire power plant (two units). WANO values refer to a separate unit.

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.

2014 WANO PWR, 3-yr., median 0.32, best quartile 0.00, best decile 0.00.



	2010	2011	2012	2013	2014
EBO3	0.85	0.88	0	0	0
EBO4	0	0	0	0	0
EMO1	0	0	0	0	0
EMO2	0	0	0.85	0	0

There was no recorded automatic reactor scram recorded in Bohunice and Mochovce nuclear power plants in 2014.

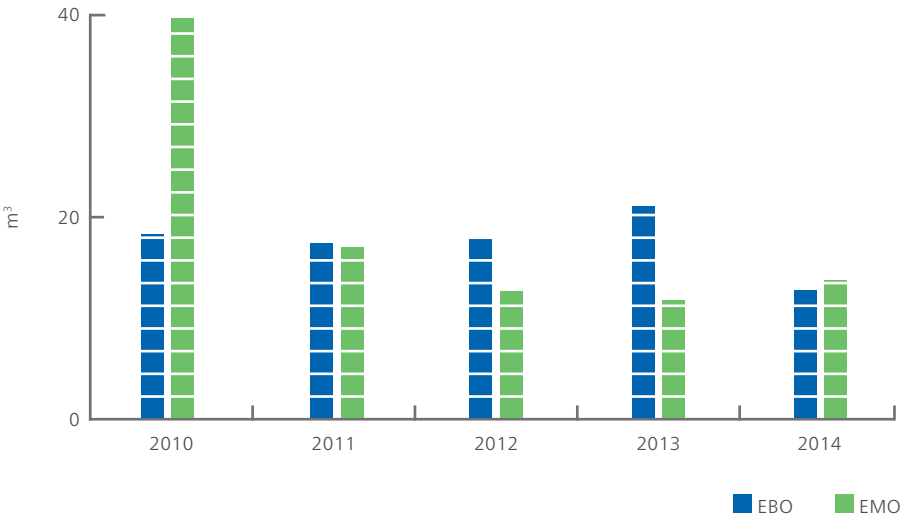
5. Waste production and releases to the atmosphere and hydrosphere

Minimization of generated liquid and solid radioactive waste (RAO) is the main goal of Slovenské elektrárne, an Enel Group company. 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

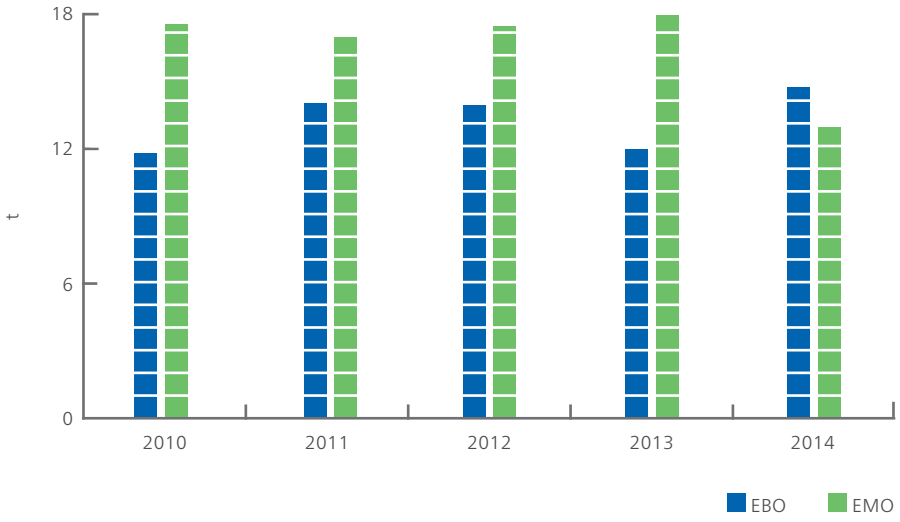
This indicator is defined as volume of liquid RAW in cubic metres generated by the nuclear installation operation converted to the boric acid content of 120g/kg.



	2010	2011	2012	2013	2014
EBO	18.21	17.293	17.944	21.052	12.687
EMO	39.67	16.97	12.585	11.714	13.672

5.2 Production of solid RAW

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

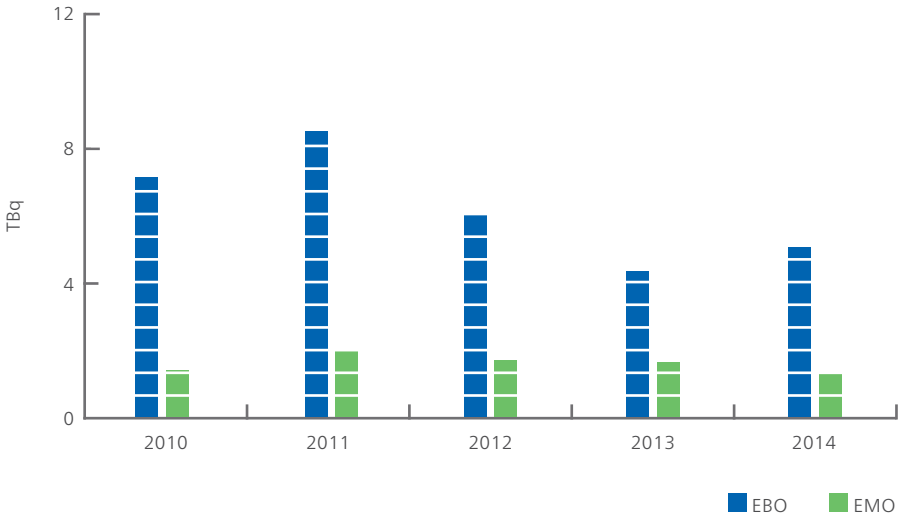


	2010	2011	2012	2013	2014
EBO	11.76	14.01	13.93	11.97	14.72
EMO	17.53	16.98	17.46	17.93	12.95

5.3 Emission to atmosphere in 2014

Installation	Type of release	Activity	Unit	Share on target value for 2014 (%)
EBO	Vzácne plyny	5.0390	TBq	0.252
EBO	Aerosóly	8.8540	MBq	0.0111
EBO	Jód 131	0.3790	MBq	0.00058
EMO	Vzácne plyny	1.2770	TBq	0.0311
EMO	Aerosóly	10.5300	MBq	0.0062
EMO	Jód 131	0.4547	MBq	0.000678

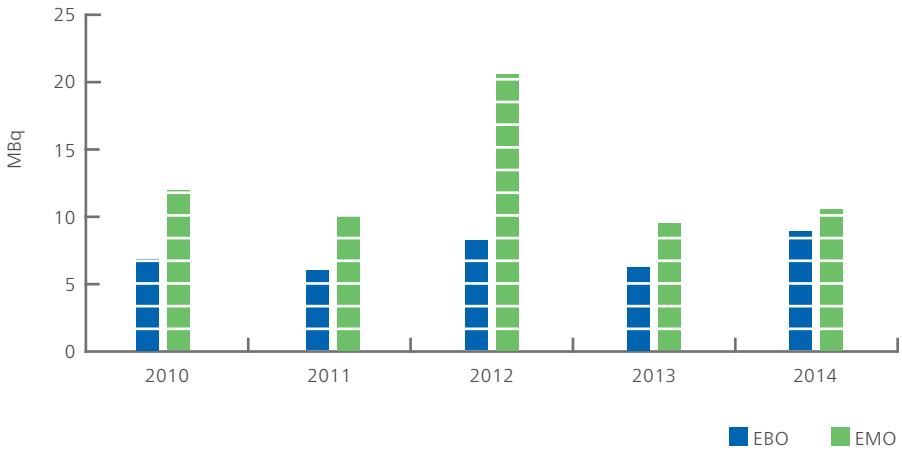
Emission to atmosphere - Noble gases



	2010	2011	2012	2013	2014
EBO	7.133	8.508	6.03	4.327	5.039
EMO	1.381	1.946	1.694	1.622	1.277

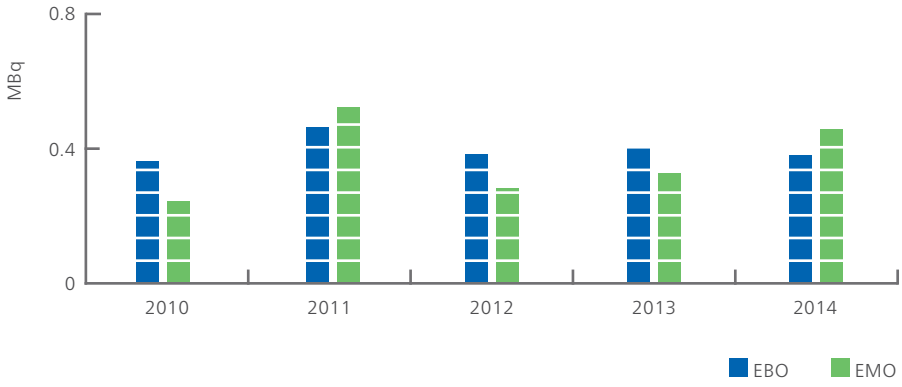
Aerosols and Iodine

Emission to atmosphere - Aerosols



	2010	2011	2012	2013	2014
EBO	6.80	5.93	8.17	6.194	8.854
EMO	11.91	10.09	20.575	9.447	10.53

Emission to atmosphere - Iodine

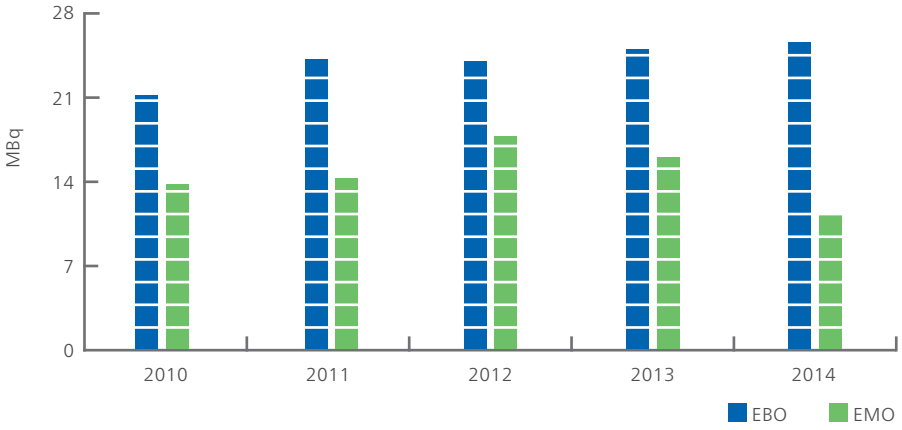


	2010	2011	2012	2013	2014
EBO	0.36	0.46	0.38	0.402	0.379
EMO	0.24	0.75	0.28	0.325	0.455

5.4 Releases to hydrosphere in 2014

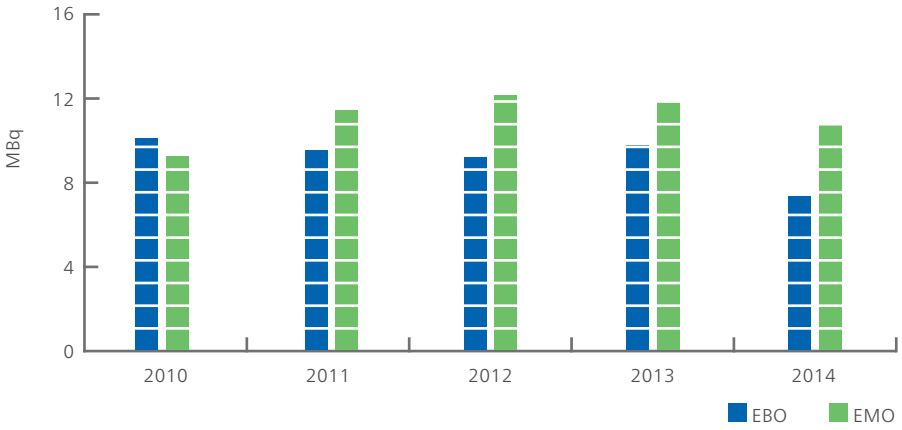
Installation	Type of release	Activity	Unit	Share on target value for 2014 (%)
EBO	Activation and fission products	25.596	MBq	0.197
EBO	Tritium	7.337	TBq	36.685
EMO	Activation and fission products	11.330	MBq	1.03
EMO	Trícium	10.750	TBq	89.58

Releases to hydrosphere – activation and fission products



	2010	2011	2012	2013	2014
EBO	21.130	24.177	23.994	24.970	25.596
EMO	13.770	14.270	17.710	15.960	11.330

Releases to hydrosphere - tritium



	2010	2011	2012	2013	2014
EBO	10.1	9.52	9.19	9.762	7.337
EMO	9.25	11.44	12.13	11.87	10.75

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 intake (m^3)

Rok	EBO	EMO
2010	19,456,871	21,012,188
2011	20,192,550	22,956,812
2012	20,963,176	23,003,000
2013	21,096,662	22,491,000
2014	21,567,885	22,921,000

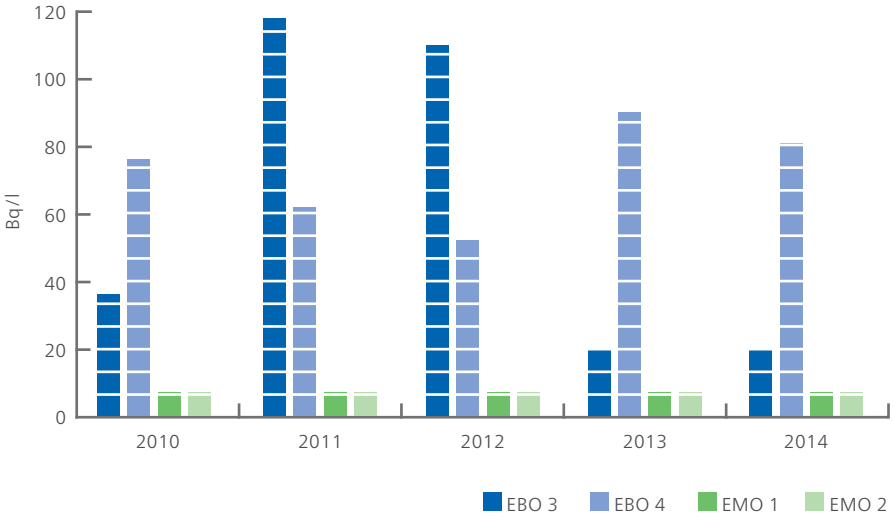
5.6 Wastewater discharge (m^3)

Year		2010	2011	2012	2013	2014
Total volume	EBO	3,326,105	3,249,542	3,544,966	3,615,684	3,623,622
	EMO	5,426,855	5,679,231	5,628,735	4,874,075	5,733,029
Industrial wastewater	EBO	3,254,693	3,192,615	3,494,207	3,552,310	3,577,689
	EMO	5,315,940	5,577,398	5,528,028	4,769,165	5,662,984
Treated sewage water	EBO	71,412	56,927	50,759	63,374	45,933
	EMO	110,915	101,833	100,707	104,910	70,045

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.

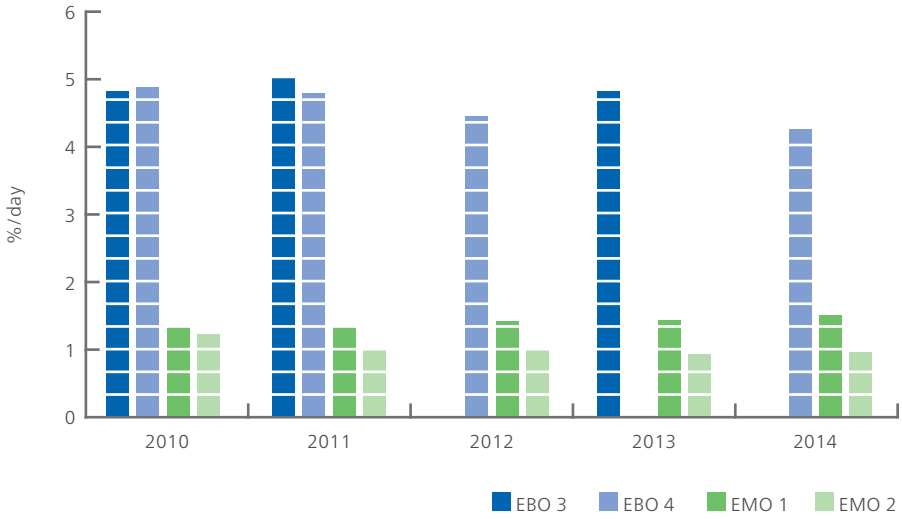


	2010	2011	2012	2013	2014
EBO3	36	118	110	20	20
EBO4	76	62	52	90	81
EMO1	7	7	7	7	7
EMO2	7	7	7	7	7

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	2014
EBO3	4.82	5.01		4.81	
EBO4	4.87	4.79	4.44		4.25
EMO1	1.33	1.33	1.41	1.424	1.491
EMO2	1.21	0.98	0.996	0.915	0.946

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 2014, it was not necessary to perform the leak test in EBO unit 3 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.

The following activities performed in 2014 create assumptions for further development and improvement of quality of emergency planning in Slovenské elektrárne:

1. Both NPPs made self-assessments of the emergency planning in relation to the international best practice defined in the performance objectives and WANO criteria. To achieve excellence in the emergency preparedness and to comply with the international standards, measures resulting from these self-assessments are being implemented.
2. The emergency response organisation and the emergency preparedness were exercised during all-plant emergency exercises in both power plants. Within the Bohunice NPP exercise, cooperation with the Ministry of Defence of the Slovak Republic and the Ministry of Interior of the Slovak Republic concerning a request for technical or human resources of the Slovak Armed Forces was tested.
3. In 2014, the Bohunice NPP put into practice a training process of employees, emergency response organisation members and severe accident management members. Theoretical knowledge is tested in practice within regular drills and exercises of the emergency response organisation.
4. In EMO NPP, the process of implementation of hardware improvements in relation to implementation of new procedures and guidelines for severe accident management (SAMG) has started.
5. In relation to the accident in the Japanese Fukushima Daiichi power plant, the emergency planning was covered by the stress tests made in 2011 - 2012. In this relation some measures were defined that will contribute to even higher level of the emergency preparedness in the Slovak nuclear units. These measures are being implemented from 2013 and they have been scheduled to the end of 2015.

8. Safety improvement

In 2014, the following major investment projects and modifications were implemented in EBO and EMO to enhance safety:

AE Bohunice V2 (EBO)

- Severe accidents – I&C;
- Severe accidents – long-term heat sink from the containment – I&C;
- Enhancement of efficiency of venting of selected rooms in the SG compartment during major overhauls of units;
- Modification of control cabinets of safety valves;
- Monitoring of accumulation battery condition;
- Modification of RCP steel structure;
- Modification of rectifiers of the emergency power supply of the category I;
- Mobile rectifiers.

AE Mochovce (EMO)

- Modification of pipelines and flange joints at inlet and outlet pipelines of fluids to/from RCP;
- Modification of signalisation on MCR1 panels and boards;
- Replacement and sealing of the reactor cavity cap counter-flange segment;
- Modification of RCP electric drive oil pipe;
- Reconstruction of DGS automatics;
- Manufacture, supply, installation and reconstruction of 0.4 kV section switchboards; construction of the new data collection system to DSE, and extension of the DSE system;
- Replacement of steam dumping valve to atmosphere servo drives;
- Replacement of H2 and O2 measurement in the hydrogen combustion system KPL in Units 1&2;
- Assurance of functionality of check valves in ESW pipeline;
- Mobile power sources and feedwater sources to steam generators.

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 2014 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:

Slovenské elektrárne, an Enel Group company
External relations – NPP communication
Phone / fax: +421-36-6391102
e-mail: infocentrum@enel.com
www.seas.sk