

# Country Fact Sheets

**Austria**

BMNT - Federal Ministry of Sustainability and Tourism  
BMASGK - Federal Ministry of Work, Social Affairs, Health and Consumer Protection

**Belgium**

FANC - Federal Agency for Nuclear Control  
BEL V - Subsidiary of the FANC

**Bulgaria**

NRA - Nuclear Regulatory Agency  
NCRRP - National Center for Radiobiology and Radiation Protection

**Croatia**

SORNS - State Office for Radiological and Nuclear Safety

**Cyprus**

MLSI - DLI - RICS - Ministry of Labour and Social Insurance - Department of Labour Inspection - Radiation Inspections and Control Service

**Czechia**

SUJB - State Office for Nuclear Safety

**Denmark**

SIS - National Institute for Radiological Protection

**Estonia**

KESKKONNAAMET - Environmental Board

**Finland**

STUK - Radiation and Nuclear Safety Authority

**France**

ASN - French Nuclear Safety Authority  
IRSN - Institut de Radioprotection et de Sûreté Nucléaire

**Germany**

BMUB - Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety  
BfS - Federal Office for Radiation Protection

**Greece**

EEAE - Greek Atomic Energy Commission

**Hungary**

HAEA - Hungarian Atomic Energy Authority  
Department under the National Public Health Centre

**Iceland**

GR - Icelandic Radiation Safety Authority

**Ireland**

EPA/ORP - Environmental Protection Agency/Office of Radiological Protection  
HSE - Health Service Executive

**Italy**

ISIN - National Inspectorate for Nuclear Safety and radioprotection

**Latvia**

RSC - Radiation Safety Centre of State Environmental Service of Latvia

**Lithuania**

RSC - Radiation Protection Centre

**Luxembourg**

MS - Ministry of Health of Luxembourg

**Norway**

NRPA - Norwegian Radiation Protection Authority

**Poland**

PAA - National Atomic Energy Agency  
COI - Cancer Center and Institute of Oncology, Warsaw

**Romania**

CNCAN - National Commission for Nuclear Activities Control

**Slovakia**

PHA - Public Health Authority of Slovakia  
RPHA - Regional Public Health Authority

**Slovenia**

SRPA - Slovenian Radiation Protection Administration  
SNSA - Slovenian Nuclear Safety Administration

**Spain**

CSN - Spanish Nuclear Safety Council

**Sweden**

SSM - Swedish Radiation Safety Authority

**Switzerland**

FOPH - Federal Office of Public Health  
ENSI - Swiss Federal Nuclear Safety Inspectorate  
NEOC - National Emergency Operations Centre  
SUVA - Swiss Accident Insurance Fund

**The Netherlands**

ANVS - Authority for Nuclear Safety and Radiation Protection  
MINSZW - Ministry of Social Affairs and Employment  
NDRIS - National Dose Registration and Information System  
RIVM - National Institute for Public Health and the Environment

**United Kingdom**

ONR - Office for Nuclear Regulation  
DESNZ - Department for Energy Security and Net Zero  
EA - Environment Agency  
HSE - Health and Safety Executive  
UKHSA - UK Health Security Agency

# Austria

## EPR Fact Sheet

### Decision making

The Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology (Federal Ministry for Climate Action - BMK) in coordination with the Federal Ministry of Social Affairs, Health, Care and Consumer Protection (BMSGPK) are responsible for decisions on protective measures in case of a nuclear/radiological emergency. In addition, a coordinating mechanism, the National Crisis and Disaster Protection Management Board, with representatives of all involved ministries and Provinces will be activated.

### Advice

BMK is responsible for the operation of Decision Support Systems and the Austrian Radiation Early Warning System, which includes measurement data from the exchange with neighboring countries. Sampling and laboratory measurements are activated by BMK and BMSGPK.

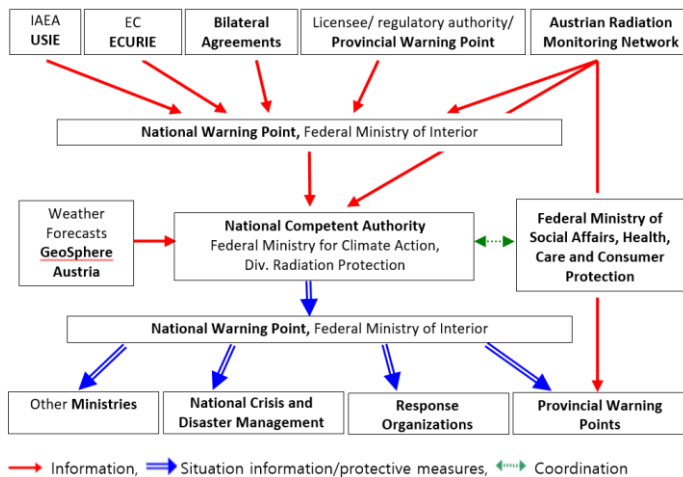
### Licensee

In case of a radiological emergency during a practice in Austria the licensee has to notify immediately and further on inform the regulatory authority on this event and take mitigation measures.

### Alarming

An Austrian wide acoustic sirens system in the frame of civil protection by the Ministry of Interior exists. In case of a nuclear emergency the population will be warned in those regions where Iodine Thyroid Blocking and sheltering will be prepared or implemented. After warning, people are expected to turn on TV and radio for more detailed information.

### Organizational structure



### Country info

Capital	Vienna
Official language (regional)	German, Croatian, Hungarian, Slovene
Population	9.0 M
Area	84 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1
Calling code	+43
Internet TLD	.at
NPPs /ele. share	0/0 %

### NWP\*

Federal Situation Centre,  
Federal Ministry of Interior

### NCA\*

Division of Radiation Protection,  
Federal Ministry for Climate Action (BMK)

### Emergency website

[www.notfallschutz.gv.at](http://www.notfallschutz.gv.at) (public)  
<https://lage.strahlenschutz.gv.at> (password protected)

### Online measurements

[www.strahlenschutz.gv.at](http://www.strahlenschutz.gv.at)

### Bilateral agreements

Belarus, Czech Republic, Germany, Hungary, Poland, Russia, Slovak Republic, Slovenia, Switzerland, Ukraine

### RANET capabilities

- Source Search and Recovery
- Radiation Survey

## Facilities and practices

The Austrian EPR arrangements are based on a national hazard assessment. Nuclear or radiological facilities of emergency category III, e.g. a research reactor and a central waste treatment and interim storage facility for low and intermediate level waste, are in operation in Austria.

In addition about 1000 partly mobile dangerous sources (emergency category IV) and potential transboundary impacts of NPP accidents in neighboring countries (emergency category V) are taken into account in the Austrian EPR arrangements.

## Emergency classification

In addition to a national classification the IAEA emergency classification is used. The following emergency classes are feasible for Austria:

- Alert for category III facilities
- Facility emergency for category III facilities
- Other nuclear or radiological emergency for category IV

## Protection strategy

Protection strategies for events with potential large-scale contamination are part of the Austrian catalogue of protective measures. Protection strategies for other radiological emergencies are part of the emergency plans. The documents are available in German language: [www.strahlenschutz.gv.at](http://www.strahlenschutz.gv.at).

## Criteria

Protective Action	Generic Criteria	Comments
Sheltering	1 mSv	Persons < 18 years, pregnant; projected eff. dose, ext. + inh.
Sheltering	10 mSv	Adults; projected eff. dose, ext. + inh.
ITB	10 mGy	Persons < 18 years, pregnant; projected thyroid dose, inh.
ITB	100 mGy	Adults < 40 years; projected thyroid dose, inh.
Evacuation	50 mSv	Whole population; avoidable effective dose, ext. + inh.
Temporary Relocation	30 mSv	Whole population; projected eff. dose, ext. for 1 month
Permanent Relocation	100 mSv	Whole population; projected eff. dose, ext. for 1 year

### Comments

- The maximum concentration levels for food- and feedstuff are based on EURATOM regulations.
- OILs/EALs have been prepared for the case that generic criteria cannot be applied.
- The reference level for the public for emergency exposure situations is 100 mSv/year (residual dose) with the requirement for optimization also below.

# Belgium

## EPR Fact Sheet

### Decision making

Off-site emergency preparedness and response is a federal responsibility. Decision taking falls under the responsibility of a Management Cell constituted by Ministers and State Secretaries with direct responsibilities in nuclear or radiological emergencies. The Management Cell is seconded by a Federal Coordination Committee responsible for drawing an holistic image (including radiation protection, social, economic... aspects) of the situation, proposing strategy options for protective action and following the implementation of the decisions.

### Advice

The technical, meteorological & radiological aspects are of the responsibility of the Evaluation Committee constituted by the Federal Agency for Nuclear Control (chair) and its TSO (Bel V), Federal Agency for the Safety of the Food Chain, Royal Meteorological Institute, research institutes (SCK CEN, IRE), and representative of the licensee of the concerned nuclear facility. The social, economic and any other relevant aspects are dealt with within the Crisis Cells of the federal and regional ministerial departments according to their legal competencies. The FANC operates the automatic monitoring network (Telerad) and organises the measurement strategy.

### Licensee

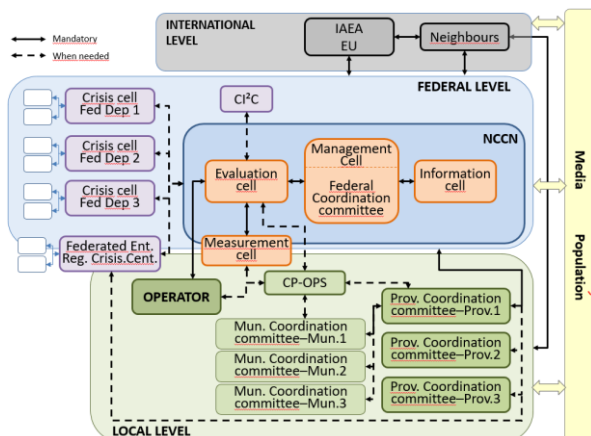
The licensee is responsible for notifying the authorities in case of abnormal event. He is also responsible of all actions taken on-site to mitigate the situation, prevent or control releases, protect its workers, off-site responders intervening on the site and any other people present on-site, and deliver relevant information and data needed to assess the situation to the authorities. The on-site response is coordinated with the national off-site response; in absence of concerted agreement, the Emergency Director of the Authorities (EDA) has the right to impose his decisions to the licensee.

### Alarming

The licensee is obliged to notify the authorities with no delay of any abnormal event.

Off-site alert of the population is of the responsibility of the authorities.

### Organizational structure



### Country info

Capital	Brussels
Official language	French, Dutch, German
Population	11 M
Area	30 528 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1
Calling code	+32
Internet TLD	.be
NPPs /ele. share	7/56%

### NWP

National Crisis Centre of the Federal Public Service Internal (NCCN)

### NCA

NCA(A): General Directorate Crisis Centre (ADCC-DGCC)

NCA(D): Federal Agency for Nuclear Control (FANC)

### Emergency website

<http://centredecrise.be/>

### Online measurements

<http://telerad.fgov.be/>

### Bilateral agreements

France, Netherlands, GD Luxemburg, Germany

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Environmental Sampling and Analysis
- Radiological Assessment and Advice
- Dose Assessment
- Decontamination

## Nuclear facilities\* and population

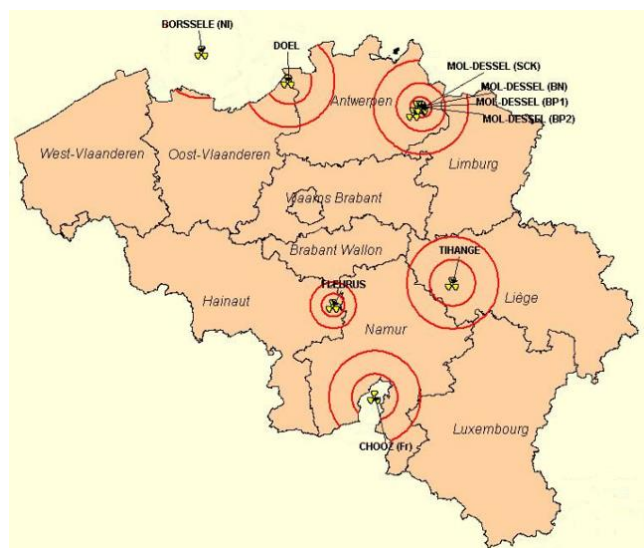
Facility	Type	MW <sub>e</sub>	GPS coordinates	10 km <sup>b</sup>	20 km <sup>b</sup>	100 km <sup>b</sup>	Comments	
Doel	KCD1	PWR	433	51.322873N 4.261114E	30.000	732.000	8.037.000	
	KCD2	PWR	433	51.322873N 4.261114E				
	KCD3	PWR	1006	51.324157N 4.257593E				
	KCD4	PWR	1039	51.325719N 4.256869E				
Tihange	CNT1	PWR	962	50.534430N 5.271625E	78.000	292.000	7.684.000	
	CNT2	PWR	1008	50.535782N 5.272862E				
	CNT3	PWR	1046	50.534940N 5.276620E				
SCK-Mol	BR1	GG	[4] <sup>a</sup>	51.216876N 5.084202E	111.000	409.000	7.743.000	Research reactor
	BR2	PWR	[120] <sup>a</sup>	51.215037N 5.095933E				Research reactor
BP-Dessel	Site1	na	na	51.224565N 5.085487E				Waste management & storage
	Site2	na	na	51.218234N 5.098547E				
IRE	na	na	na	50.450230N 4.536214E	290.000	581.000	9.018.000	Radioisotope production

\*The IAEA emergency preparedness category 1 and other relevant facilities

<sup>a</sup> MWth

<sup>b</sup> Population on the Belgian territory (data: National Register 2013 – CGCCR)

## Planning zones



## Emergency classification

### Alert:

Abnormal events not requesting protective actions either on-site or off-site. The off-site emergency plan is not implemented, unless otherwise decided by the Emergency Director of the authorities.

### Facility emergency:

Events requesting protective actions on-site only.

### Site area emergency:

Events requesting protective actions for the food chain but no direct protective action for the population.

### General emergency:

Events requesting actions for the direct protection of the population (Sheltering, ITB, evacuation).

### General emergency in reflex mode:

Events involving short-term radioactive releases (rapid kinetics) likely to lead to exposure that exceeds guideline intervention levels within a period of less than 4 hours and therefore require immediate actions for the direct protection of the population (Sheltering).

## Protection strategy

Protective Action	Guidance Level (projected Dose)	Planning zone (implementation zone may differ)
Reflex Sheltering	Rapid kinetic accident	NPP 3.5 km SCK+BP 3.8 km; IRE 1.15 km
Evacuation	50 mSv (eff., 7d ext.+inh.)	NPP 10 km SCK+BP 4 km; IRE no evacuation planning zone
Sheltering	5 mSv (eff., 24h ext.+inh.)	NPP 20 km SCK+BP 20 km; IRE 10 km
ITB < 40 a	50 mSv (thy. inh.)	NPP 20 km SCK+BP 20 km; IRE 10 km
ITB < 18 a or pregnant/breast feeding women	10 mSv (thy. inh.)	Pre-distributed in the planning zone
Food and Feed Ban	Based on Maximum concentration levels in food products and animal feeding stuffs (Euratom Directives)	Belgium

### Comments

The planning zones are divided in 12 sectors of 30 degrees numbered clockwise from 1 to 9 and A to C (with sector 1 from 0° to 30°). Outside the planning zones administrative entities (municipalities) will be used. Conform to the HWA, the response strategy foresees the possible extension of evacuation up to 20 km and of sheltering and ITB up to 100 km (i.e. the whole country).

# Bulgaria

## EPR Fact Sheet

### Decision making

Unified Rescue System (URS) is established to respond to all types of disasters, including nuclear and radiological emergency. Headquarters are established at national, regional or municipal level and are responsible for the management of all rescue activities.

HQ defines protective measures for the population in case of nuclear or radiological emergency, leads, coordinates and controls the rescue activities and protective actions for the population and environment.

### Advice

Bulgarian Nuclear Regulatory Agency provides advice and expert assistance to National Headquarters and other competent authorities in case of nuclear or radiological emergency.

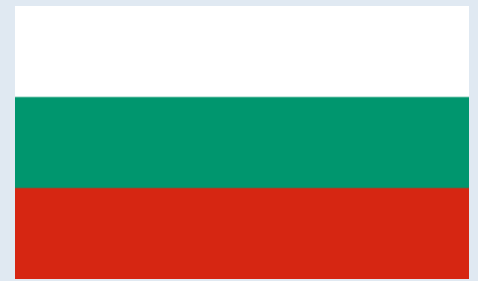
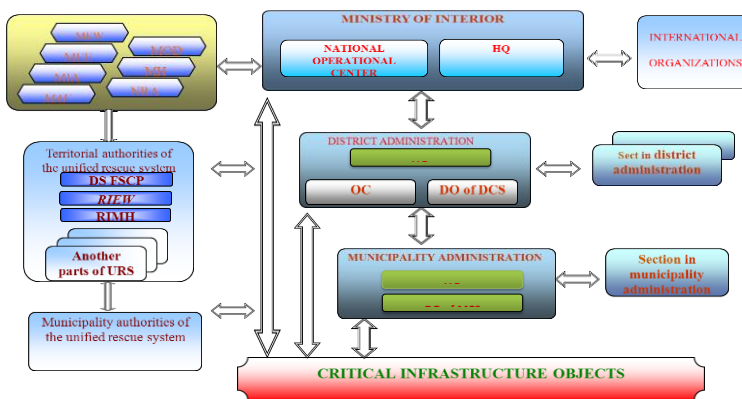
### Licensee

The licensee are obliged to notify BNRA in case of deviations from the normal operating mode, incidents and emergency. The operator is obliged to make necessary information available to the relevant competent authorities in case of nuclear or radiological emergency and also responsible for on-site emergency preparedness and response actions including early warning of the population in 12 km zone.

### Alarming

Warnings to the public are provided via the national warning system, which is universally used for all types of emergencies. The public is informed that in case of a siren they have to listen to the radio or TV for further information. Subsequent instructions are released through the media.

### Organizational structure



### Country info

Capital	Sofia
Official language	Bulgarian
Population	7.2 M
Area	111 000 km <sup>2</sup>
Currency	Lev (BGN)
Time zone	UTC+2
Calling code	+359
Internet TLD	.bg
NPPs / ele. share	1/33%

### NWP\*

NRA - Nuclear Regulatory Agency

### NCA\*

NRA - Nuclear Regulatory Agency

### Emergency website

[www.bnra.bg](http://www.bnra.bg)

### Online measurements

<https://remap.jrc.ec.europa.eu/GammaDoseRates.aspx>

### Bilateral agreements

Germany, Greece, North Macedonia, Romania, Russia, Serbia, Turkey, Ukraine, Cyprus

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Sampling and Analysis
- Radiological Assessment and Advice
- Medical Support
- Dose assessment
- Decontamination
- Nuclear installation Assessment and advice

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates		2 km pop.	5 km pop.	10 km pop.	30 km pop.	
Kozloduy	5	WWER	1000	43.745863° N	23.768321° E	0	13 000	21 000	124 000
	6	WWER	1000	43.747368° N	23.769154° E				

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



- Precautionary protective action zone: 2 km
- Urgent protective action zone: 30 km

## Emergency classification

### General emergency

Actual or potential release and exposure of the personnel and population. Requires urgent protective actions for the population and prompt actions to reduce the accident's consequences and to protect the personnel.

### Site area emergency

Significant reduction of protection level of personnel on the site. Requires immediate actions to mitigate the consequences and to protect the personnel and starts preparation for taking protective actions for the population.

### Facility emergency

Significant reduction of the protection level of personnel without any risk for the population. Requires immediate actions to mitigate the accident's consequences and to protect the personnel.

### Alert

Events with uncertain or significantly decreased level of safety. Requires actions to evaluate the situation.

### Other emergencies

Events of detection, loss or theft of a dangerous source, requires implementation of protective actions and other response actions.

### Comments

Classification is based on the IAEA recommendations.

## Protection strategy

The protection strategy is based on values below. For emergency at the NPP protective actions are predefined and based on emergency classification. The 2 km zone is not populated. The 2 km zone is used for agricultural purposes.

Evacuation of 2 km zone is ordered when general emergency is declared, which is followed by evacuation of 30 km zone.

Evacuation is accompanied by ITB. The ITB is distributed to the population within the 30 km zone. In the 30 km zone protective actions are based on field measurements and dose assessments.

For radiation emergencies protective actions are based on field measurements and dose assessments. Safety perimeters are established based on the IAEA recommendations.

## Criteria

Protective Action	Guidance levels*	Comments
Sheltering	5-50 mSv	Avertable effective dose
Evacuation	50-500 mSv	Avertable effective dose
Thyroid blocking	5-10 mSv	Avertable dose to thyroid for pregnant, breast-feeding and children (< 18)
Thyroid blocking	50-100 mSv	Avertable dose to thyroid for all the population (except the above)
Temporary relocation	10-100 mSv	Avertable effective dose for the first month
Cease the temporary relocation	10 mSv	Avertable effective dose for the next month
Permanent relocation	1000 mSv	Avertable effective dose for the lifetime

### Comments

OIL's are set in the off-site emergency response plan.

EAL's are set in the on-site emergency response plan.



# Croatia

## EPR Fact Sheet

### Decision making

In the case of a nuclear emergency, decision making and oversight of the implementation of protective actions would be performed by the Civil Protection Commander who is supported by the Civil Protection National Headquarters of the Republic of Croatia. The Headquarters is staffed by representatives of all relevant ministries, governmental bodies and other organizations included in the response.

Radiological emergencies are not considered state-level emergencies, and are handled by the licensee, MoI radiological emergency experts and local authorities.

### Advice

The Ministry of the Interior is the competent authority in the Republic of Croatia in the field of radiological and nuclear safety and security. The expert team of the MoI gives advice on protective actions to the civil protection operational headquarters (national and local) and licensee.

### Licensee

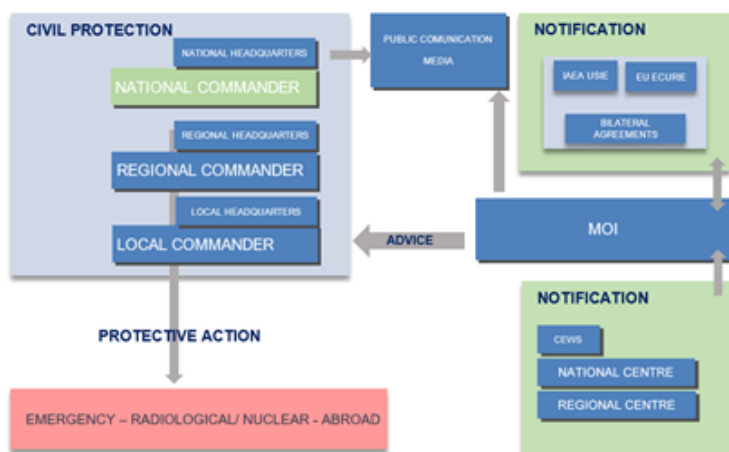
In the event of a radiological emergency, the licensee is required to inform MoI immediately.

The licensee is also required to make an initial provisional assessment of the emergency and its possible consequences and for carrying out urgent protective measures within the facility. It is not expected that urgent protective actions would need to be taken outside of the facility for operators in Croatia.

### Alarming

The licensee is required to inform the MoI and local emergency services immediately in the event of a radiological emergency. In case of a nuclear emergency in one of the neighbouring countries, alarming and informing the population is carried out by the MoI, which also coordinates the actions of all entities involved in the unified alarm system in the Republic of Croatia. Sirens, loudspeakers, electronic media are used to alert and inform the population.

### Organizational structure



### Country info

Capital	Zagreb
Official language	Croatian
Population	4.3 M
Area	56 594 km <sup>2</sup>
Currency	Kuna (HRK)
Time zone	UTC+1
Calling code	+385
Internet TLD	.hr
NPPs /ele. share	0/0%

### NWP\*

Civil Protection Directorate, under the Ministry of the Interior (MoI)

### NCA\*

Civil Protection Directorate, under the Ministry of the Interior (MoI)

<https://civilna-zastita.gov.hr/>

### Emergency website

<https://civilna-zastita.gov.hr/>

### Online measurements

<https://civilna-zastita.gov.hr/>

### Bilateral agreements

Slovenia, Hungary

### RANET capabilities

None

## Nuclear facilities\* and services

The Croatian EPR system covers emergencies in NPP Krško in Slovenia (10.6 km from Croatian border), NPP Paks in Hungary (around 75 km from Croatian border) and around 40 licensees operating open radiation sources or dangerous sealed radiation sources, some of them mobile, as well as transport of radiation sources.

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Emergency classification

- General emergency (EPC I or II)
- Site area emergency (EPC I or II)
- Facility emergency (EPC I, II or III)
- Alert at facilities (EPC I, II or III)
- Other nuclear or radiological emergency (EPC IV)

\*Emergency classification is based on the IAEA recommendations (GSR Part 7).

## Planning zones

Planning zones/distances	NPP Krško	NPP Paks
PAZ		
UPZ	20 km	
EPD	100 km	100 km
ICPD	300 km +	300 km

## Protection strategy

The Croatian protection strategy is based on a 100 mSv reference level. The predefined strategy will be implemented in the concept of operations describing the actions to be taken by different responders. For an emergency at the NPP, protective actions are predefined and based on emergency classification. Sheltering of the 20 km zone is ordered when a general emergency is declared. Sheltering is accompanied by ITB. In the EPD and the ICPD protective actions are based on field measurements and dose assessments.

For radiological emergencies protective actions are based on field measurements and dose assessments. Safety perimeters are established based on the IAEA recommendations.

## Criteria\*

Protective Action	Generic criteria	Comments
Sheltering	100 mSv / 7 days	Effective dose / equivalent dose to fetus
Evacuation	100 mSv / 7 days	
Temporary relocation	100 mSv / year	
ITB	50 mSv / 7 days	Equivalent dose to thyroid

\*Emergency classification is based on the IAEA recommendations (GSR Part 7)

# Cyprus

## EPR Fact Sheet

### Decision making

The Minister of Labour, Welfare and Social Insurance (MLWSI) is the competent authority for radiation protection and nuclear safety in the country, acting through the Radiation Inspection and Control Service (RICS) of the Department of Labour Inspection (DLI) of this Ministry.

The National General Crisis Management Plan of the Republic titled ZENON defines that the Ministerial Body for Crisis Management, which in case of a nuclear or radiological emergency is presided by MLWSI, is the decision making body in the case of a severe crisis in the country. In case of a nuclear or radiological accident or incident with severe impact to the public, the national response plan titled ELECTRA is activated.

The Ministerial Body meets at the Emergency and Crisis Centre of the Ministry of Foreign Affairs and has direct communication with all relevant emergency response stakeholders and European/International Organisations. Other Ministers, non-regular members of the Ministerial Body, may be invited to take part in the meetings, according to the nature and the development of the crisis situation. MLWSI appoints a single contact point for communication with the media and the public. Technical inputs and advice is available to the Ministerial Body as described below.

### Advice

RICS/DLI is responsible for the general organization and coordination of the radiation emergency response plan ELECTRA and provides consultation to the MLWSI and the Ministerial Body on all technical and scientific issues. RICS/DLI is also the focal point for the European Commission (EURDEP, ECURIE) and the International Atomic Energy Agency (IRMS, USIE). RICS/DLI is supported by the Inter-Scientific Committee, comprising of representatives of various stakeholders, and by various scientific committees and technical teams, each having responsibilities related to radiation emergency response (Radiological Assessment; Intervention; Medical Response; Environmental Radioactivity; Sampling; Atmospheric Dispersion Modelling).

MLWSI may consult, under certain circumstances as defined in the legislation, the Council of Radiation Protection and Nuclear Safety (comprised of 23 members from scientific and professional associations; academia; and social partners).

### Licensee

No nuclear power plants or other nuclear facilities operate in Cyprus. All authorized undertakings (licensees) conducting activities with ionising radiation have obligations under the legislation on radiation protection and nuclear safety and the conditions of the license granted to them by the competent authority. These obligations include having in place appropriate on-site emergency response plans, procedures and other arrangements, educating and training their personnel accordingly, and informing the competent authority in case of a radiological emergency.

### Alarming

First information on a radiation emergency situation may reach the competent authority through various channels. The official national warning point for emergencies abroad (European Union, International Atomic Energy Agency) is the Centre of Operations of the Civil Defense Administration, which operates 24/7.



### Country info

Capital	Lefkosia (Nicosia)
Official language	Greek / Turkish
Population	0.85 M
Area	9 251 km <sup>2</sup>
Currency	Euro
Time zone	UTC + 2
Calling code	+357
Internet TLD	.cy
NPPs /ele. share	0/0%

### NWP\*

Centre of Operations,  
Civil Defense Administration

### NCA\*

Radiation Inspection and Control  
Service; Department of Labour  
Inspection; Ministry of Labour, Welfare  
and Social Insurance

### Emergency website

[www.mlsi.gov.cy/dli](http://www.mlsi.gov.cy/dli)  
(Policy area: Radiation Protection)

### Online measurements

<https://radiation.dli.mlsi.gov.cy>

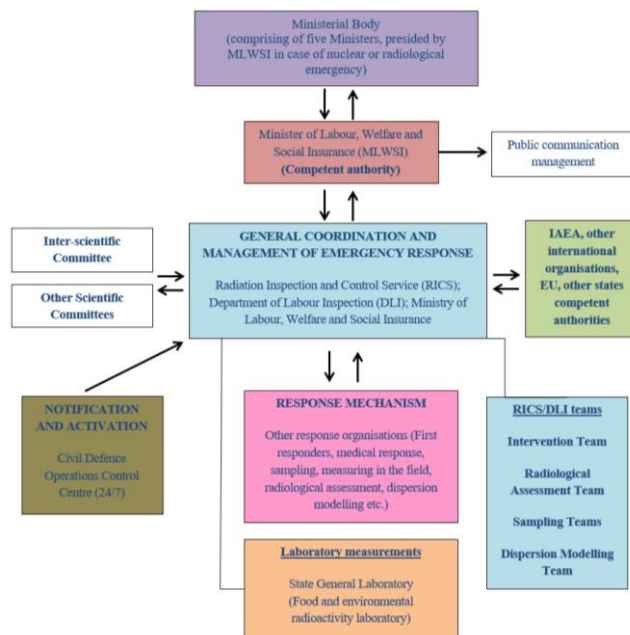
### Bilateral agreements

Greece; procedure for establishing  
bilateral agreements with other  
neighbouring countries has been  
initiated

### RANET capabilities

- Not declared

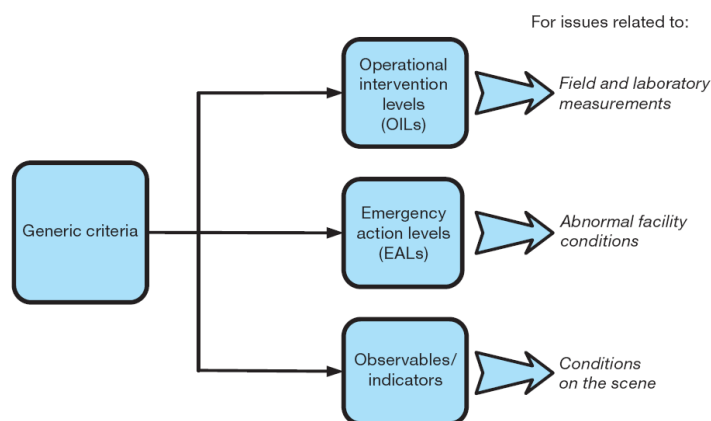
## Organizational structure



## Protection strategy

The most significant pathway of exposure of the local population in case of a nuclear emergency abroad is the consumption of radioactively contaminated food and through commodities (international trade). The contributed dose to members of the public can be averted through restrictions in the market, consumption and trade.

A protection strategy according to IAEA GSR Part 7 is implemented and this is reflected in the national radiation emergency response plan ELECTRA. A reference level of 20 mSv effective dose (within 1 year, all dose pathways) has been set. Operational Intervention Levels, Emergency Action Levels and Observables/Indicators are defined in the plan ELECTRA, as following:



## Criteria

Protective Action	OILs /EALs	Comments
Iodine thyroid blocking	50 mSv in the first 7 days ( $H_{\text{Thyroid}}$ )	Urgent, early protective and other response actions
Sheltering; evacuation; decontamination; restriction of consumption of food, milk and water; contamination control; public reassurance	100 mSv in the first 7 days (Effective dose)	
	100 mSv in the first 7 days ( $H_{\text{Fetus}}$ )	
Temporary relocation; decontamination; replacement of food, milk and water; public reassurance	100 mSv per annum (Effective dose) 100 mSv for the full period of in uterine development ( $H_{\text{Fetus}}$ )	Early protective and other response actions
Screening based on equivalent doses to specific radiosensitive organs (as a basis for medical follow-up), counseling	100 mSv in a month	If the received dose exceeds the following generic criteria (GC) are used these longer term medical actions to detect and to effectively treat radiation induced health effects
Counseling to allow informed decisions to be made in individual circumstances	100 mSv for the full period of in uterine development ( $H_{\text{Fetus}}$ )	

### Comments

- (1) Generic Criteria for protective actions and other response actions in emergency exposure situations to reduce the risk of stochastic effects.
- (2) Generic criteria are consistent with the recommended generic criteria in GSG-2.

# Czechia

## EPR Fact Sheet

### Decision making

The National Security Council is established as a standing working body of the Government, preparing proposals for measures to ensure security of the Czech Republic. Ministry of Interior unifies procedures in the field of the crisis management and establishes the Central Crisis Staff as a working body of the Government to deal with crisis situations. During a crisis situation, the main task of the Central Crisis Staff is to coordinate activities of ministries and other offices, including the Integrated Rescue System and the Regional Authorities. The Regional Authorities elaborate a plan of rescue and remedy works in the region (Regional Emergency Plan) and the Off-site Emergency Plan for the emergency planning zone (EPZ).

### Advice

The State Office for Nuclear Safety (SÚJB) receives data from the NPP operator and organizes the monitoring of the radiation situation in the affected area and on the territory of the Czech Republic. Based on this data and information, the SÚJB prepares recommendations for protective measures. The recommendations are forwarded to the Central Crisis Staff and to the Governor of the region affected by a radiation accident. The chairperson of the SÚJB is invited to the meetings of the Central Crisis Staff.

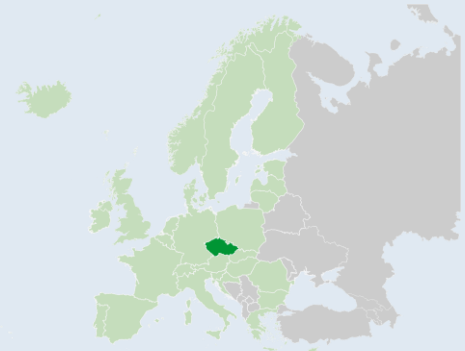
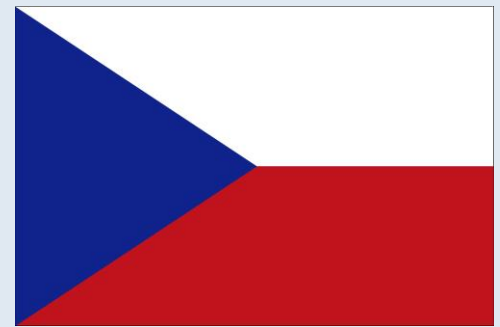
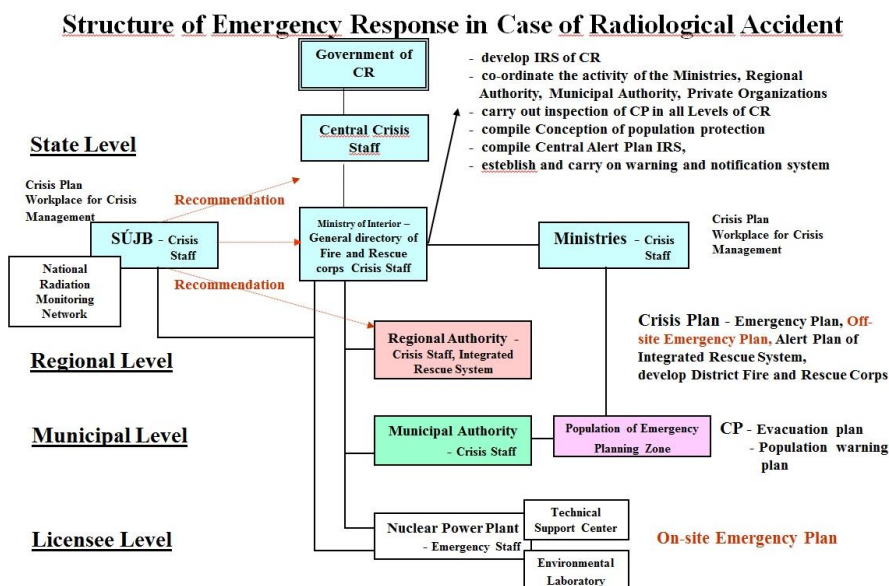
### Licensee

The NPP operator proceeds by its On-site Emergency plan approved by the SÚJB. The NPP operator is obliged to provide the authorities with available data and information to support the authorities in assessing the situation and to co-operate with them in taking decisions on protective actions for the public.

### Alarming

Warning of the population is ensured within the emergency planning zone by means of sirens with subsequent radio and television broadcasting of prepared information concerning the occurrence of radiation accident and urgent countermeasures to be implemented.

### Organizational structure



### Country info

Capital	Prague
Official language	Czech
Population	10,5 M
Area	79 000 km <sup>2</sup>
Currency	Koruna (CZK)
Time zone	UTC+1
Calling code	+420
Internet TLD	.cz
NPPs /ele. share	2/36%

### NWP\*

General Directorate of the Fire Rescue Service, Ministry of the Interior of the Czech Republic

### NCA\*

State Office for Nuclear Safety (NCA-A, NCA-D)

### Emergency website

### Online measurements

<http://www.sujb.cz/en/radiation-situation-monitoring>

### Bilateral agreements

Germany, Austria, Poland, Slovakia, USA, Hungary, Slovenia

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Environmental Sampling and Analysis
- Radiological Assessment and Advice
- Dose Assessment

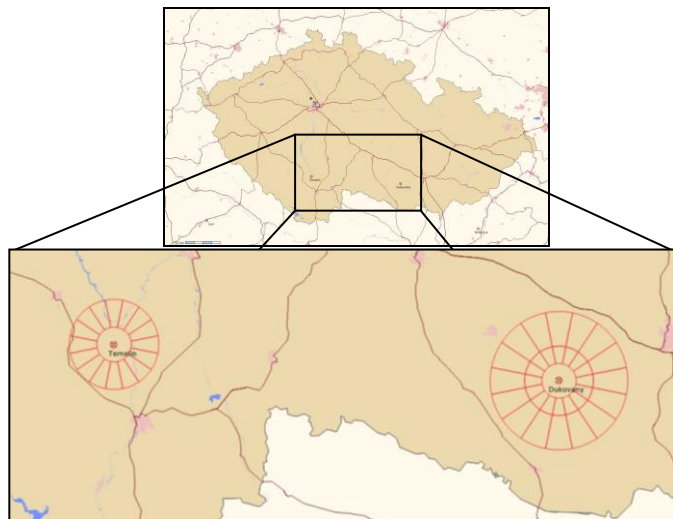
\*National Warning Point and Competent Authority under the Emergency Conventions

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates	5 km pop.	20 km pop.	Comments
DUKOVANY	EDU 1	PWR	510	49.085430 N 16.148060 E	4 078	95 805
	EDU 2	PWR	510			
	EDU 3	PWR	510			
	EDU 4	PWR	510			
TEMELIN	ETE 1	PWR	1080	49.181041 N 14.384276 E	9 519	17 482 (13km)
	ETE 2	PWR	1080			

\*The IAEA emergency preparedness category 1 and other relevant facilities

### Planning zones



### Comments

- Planning zone for Dukovany site: radius 20 km
- Planning zone for Temelin site: radius 13 km.
- The EPZs are divided into 16 sectors

### Emergency classification

**Radiation extraordinary event** – event that leads or may lead to exceeding of exposure dose limits and requires action to prevent the exceeding of the limits or deterioration of the situation from the standpoint of radiation protection assurance. Extraordinary events are classified into three levels:

**First degree radiation extraordinary event** – radiation extraordinary event that can be handled by forces and means of the operators or shift personnel of the person whose activities gave rise to the radiation extraordinary event

**Radiation incident** – radiation extraordinary event that cannot be handled by forces and means of the operators or shift personnel of the person whose activities gave rise to the radiation extraordinary event or event that has resulted from the finding, misuse or loss of a radionuclide source, and that does not require taking urgent action to protect the general public

**Radiation accident** – radiation extraordinary event that cannot be handled by forces and means of the operators or shift personnel of the person whose activities gave rise to the radiation extraordinary event or has resulted from the finding, misuse or loss of a radionuclide source, and that requires taking urgent action to protect the general public

### Protection strategy

Sheltering and ITB are automatically imposed on the basis of the announcement of a radiation accident. Evacuation and long-term protective countermeasures are adopted on the basis of the monitoring of the actual radiation situation and according to the development of the meteorological situation. The reference level for the exposure of an individual in an emergency exposure situation is 100 mSv for the sum of the effective dose from external exposure and the committed effective dose from internal exposure. Urgent protective measures are preplanned only for people living and working in the emergency planning zones of Dukovany NPP and Temelin NPP in accordance with relevant off-site emergency plan.

### Criteria

Protective Action	OILs*	Reference levels
Sheltering	0,1 mSv/h	Averted effective dose greater than 10 mSv over the period of sheltering lasting no longer than 2 days
ITB	0,1 mSv/h	Averted committed equivalent dose in the thyroid gland caused by iodine radioisotopes greater than 100 mSv
Evacuation	1 mSv/h	Sum of the effective dose so far received in an emergency exposure situation when taking into account the effect of the already implemented protective measures and the effective dose, which could be averted, greater than 100 mSv over the first 7 days
Regulation of the use of contaminated foodstuffs, water and feedstuffs		Averted annual committed effective dose greater than 1 mSv
Relocation		It is not possible to ensure an effective dose for the members of the public, after their return to the affected territory, of lower than 20 mSv over the following 12 months

\* The value of photon or ambient dose equivalent rate measured at a distance of 1 m above the ground

# Denmark

## EPR Fact Sheet

### Decision making

Off-site emergency preparedness and response in case of a nuclear accident with consequences for Denmark and/or Danish citizens abroad is the responsibility of the Danish state. The Nuclear Division at Danish Emergency Management Agency (DEMA) is responsible for emergency planning and preparedness, including online radiation surveillance and consequence assessment. In case of a nuclear incident, The National Operational Staff at the National Police will coordinate the response with DEMA and other relevant authorities. For all Danish authorities, the rule of sector responsibility applies, which means that the department or agency which has the daily responsibility for a given sector retains responsibility for that sector during a crisis.

### Advice

Nuclear Division at DEMA operate the decision support system, ARGOS, and the Nuclear Measurement System (NSM) with 14 stations throughout the country. The Danish Health Authority is responsible for radiation protection, and Danish Veterinary and Food Administration and the Danish AgriFish Agency are responsible for food supply and food safety.

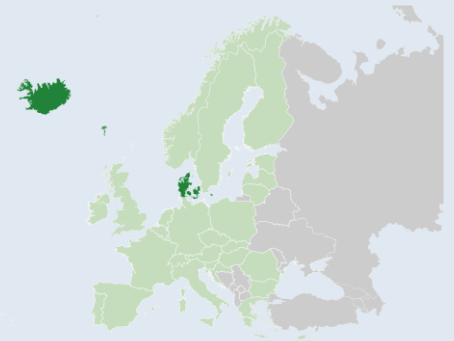
### Licensee

The Danish Health Authority (DHA) regulates and issues licenses to users of radioactive material. The Nuclear Regulatory Authority (DHA and DEMA) regulates and issues licenses for decommissioning of the research reactor facilities. DEMA regulates and issues licenses for nuclear security.

### Alarming

The National Police will alarm the public in case of a nuclear or radiological emergency

### Organizational structure



### Country info

Capital	Copenhagen
Official language	Danish
Population	5,6 M
Area	42 925 km <sup>2</sup>
Currency	DKK
Time zone	UTC + 1
Calling code	45
Internet TLD	.dk
NPPs /ele. share	0/0%

### NWP

Danish National Police  
Ejby Industrivej 135, 2600 Glostrup  
Denmark, phone +45 33148888

### NCA

Danish Emergency Management Agency  
Datavej 16, DK-3460 Birkerød  
Denmark, Phone +45 4590600

### Emergency website

<http://brs.dk/eng/operations/nuclear/Pages/nuclear.aspx>

### Bilateral agreements

Nordic Countries, Germany

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Radiological Assessment and Advice
- Dose Assessment

## Nuclear facilities

Denmark does not have nuclear power plants. The former research reactor facilities are under decommissioning at the Risø site near Roskilde.

## Protection strategy

Protective Action	Generic Criteria	Operational Criteria
Evacuation	20 mSv	Dispersion calculations, plant conditions
Sheltering	10 mSv	Dispersion calculations, dos rates >100 µSv/t measured 1 m above ground after cloud passage
ITB < 40 a	50 mSv	Dispersion calculations, plant conditions
ITB < 18 a or pregnant	10 mSv	Dispersion calculations, plant conditions

### Comments

Denmark has decided on a reference level of 20 mSv for emergency exposure situations. In special situations the level can be adjusted up to 100 mSv.



# Estonia

## EPR Fact Sheet

### Decision making

In case of an emergency caused by nuclear or radiological accident, both abroad or nationally, Environmental Board has the responsibility to lead and make decisions to protect environment and the public.

### Advice

In case of radiological or nuclear emergency, Environmental Board provides expert assistance to other authorities. It also operates the national early warning and decision support systems.

### Licensee

The licensee is responsible for notifying the authorities in case of abnormal event. The licensee is also responsible for mitigating the consequences and taking urgent protective actions to mitigate the situation and protect its workers within the facility.

### Alarming

Residents are warned by SMS messaging.

### Organizational structure

## National Coordination Unit

#### Operational Group

- Early Warning System
- Agriculture, Food and Public Health
- International Assistance Support
- Evacuation

#### Communication Group

- Media monitoring
- Public information

#### Technical Support Group

- ICT
- Other support



### Country info

Capital	Tallinn
Official language	Estonian
Population	1,3 M
Area	45 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+2
Calling code	+372
Internet TLD	.ee
NPPs /ele. share	0/0%

### NWP and NCA\*

Environmental Board

### Emergency website

<http://www.kriis.ee>

### Online measurements

<http://www.keskkonnaamet.ee/et/eesmargid-tegevused/kriisireguleerimine/varajane-hoiatamine>

### Bilateral agreements

Finland

### RANET capabilities

None

## Nuclear facilities\* and population

None

## Emergency classification

Regulatory requirements have not been developed for classifying the emergency, as there are no nuclear facilities.

## Protection strategy

Protection strategy is based on values below. For radiation emergencies, protective actions are based on field measurements and dose assessments.

## Criteria

Protective Action	OILs /EALs	Comments
Sheltering	10 mSv	Avertable dose in 48 h
Evacuation	50 mSv	Avertable dose in 1 week
Temporary relocation	30 mSv	Avertable dose in 30 days (Return shall be allowed if projected dose for the next 30 days shall be less than 10 mSv and less than 1 Sv in a lifetime)
Permanent relocation	1 Sv	If projected dose for lifetime is more than 1 Sv
Foodstuff		Maximum activity concentrations for food- and feedstuff are based on EURATOM regulations

## Comments

- Estonia has no nuclear facilities or research reactors. The nearest nuclear facility is approximately 80 km from Estonian border.
- Adopting generic criteria corresponding to the IAEA GSR Part 7 is currently in process.

# Finland

## EPR Fact Sheet

### Decision making

Decision making in case of emergency rests with those organisations normally responsible of the sector. For those protective actions that directly impact population (sheltering, evacuation), the responsible authority is the Regional Rescue Service. For other protective actions, the authorities normally responsible for ensuring safety are responsible. Depending on the action this may be a local, regional, or national authority.

The main authority responsible for coordinating the off-site emergency preparedness is the Regional Rescue Service. Finnish Radiation and Nuclear Safety Authority (STUK) works in close cooperation with the rescue services in the emergency preparedness arrangements.

STUK prepares the Operational Intervention Levels and other criteria for protective actions, which are enacted by Ministry of Interior.

### Advice

STUK provides advice and expert assistance to other authorities in case of radiological or nuclear emergency. STUK also operates the automatic radiation measurement network and would coordinate radiation measurements in case of emergency.

### Licensee

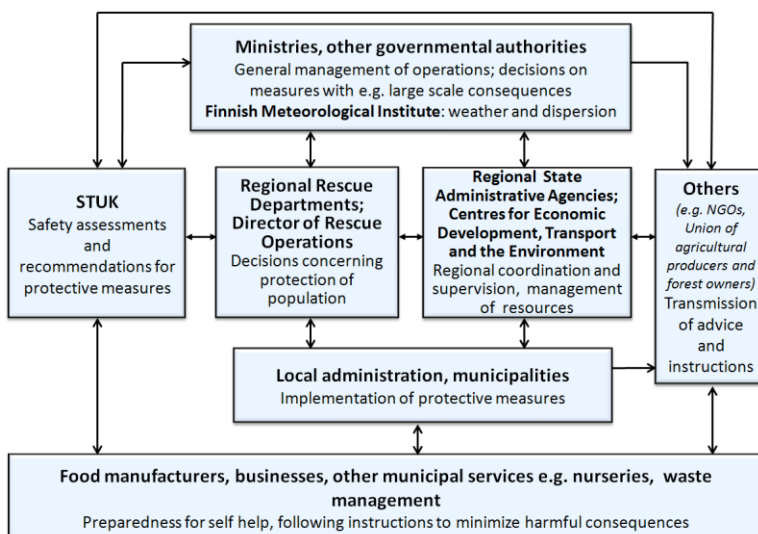
The operator is obliged to make necessary information available to the authorities to support the authorities in assessing the situation and to advise them in taking decisions on protective actions for the public.

The operator is also responsible for actions needed on-site to prevent or mitigate consequences from accident.

### Alarming

The licensee is obliged to inform the emergency dispatch centre and STUK with no delay of any on-site anomalies. The rescue authority will inform the public.

### Organizational structure



### Country info

Capital	Helsinki
Official language	Finnish Swedish
Population	5.5 M
Area	338 000 km <sup>2</sup>
Currency	Euro
Time zone	UTC + 2
Calling code	358
Internet TLD	.fi
NPPs /ele. share	2/33%

### NWP, NCA\*

Finnish Radiation and Nuclear Safety Authority (STUK)

### Emergency website

<http://www.stuk.fi> (public)

### Online measurements

[http://www.stuk.fi/sateily-ymparistossa/sateilytilanne/en\\_GB/sateilytilanne/](http://www.stuk.fi/sateily-ymparistossa/sateilytilanne/en_GB/sateilytilanne/)

### Bilateral agreements

Denmark, Germany, Estonia, Iceland, Norway, Russia, Sweden, Ukraine

### RANET capabilities

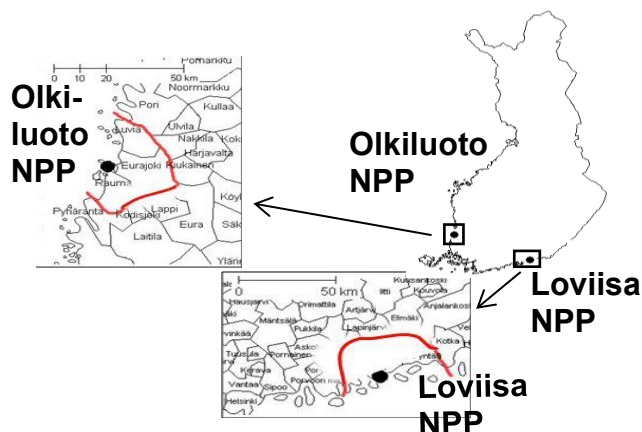
- Radiation Survey
- Sampling and Analysis
- Source Search and Recovery
- Radiological Assessment and Advice (EBS)
- Decontamination (EBS)

## Nuclear facilities\* and population

Facility	Type	MW <sub>e</sub>	GPS	5 km pop.	20 km pop.	Comments	
Loviisa	LO1	PWR	60.370844° N 26.346775° E	44	12 400		
	LO2	PWR					440
Olkiluoto	OL1	BWR	61.236421° N 21.444172° E	70	46 200		
	OL2	BWR					800
	OL3	PWR					1600

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



- precautionary action zone: 5 km
- urgent protective action zone: 20 km

## Emergency classification

- **General Emergency:** a situation when there is danger of radioactive substance releases that may require protective measures in the vicinity of the nuclear power plant
- **Site Area Emergency:** a situation when the nuclear power plant's safety deteriorates or is in the danger of deteriorating significantly
- **Alert:** a situation where the nuclear power plant's safety level needs to be ensured in an exceptional situation

### Comments

Finnish emergency classification is largely same as the IAEA's classification in GSR Part 7. However, the IAEA's Facility Emergency and Site Area Emergency are combined into single class, for which the term Site Area Emergency is used in international communications.

## Protection strategy

Reference level of 20 mSv (eff. dose all pathways, 1 year) is a target for protection strategy during nuclear or radiological emergencies. The protection strategy is described in detail [in Nordic Flag Book](#).

## Criteria in emergency planning zones

Protective Action	OILs /EALs	Comments
Evacuation of Precautionary Action Zone (5 km)	General Emergency	In addition, access and traffic restrictions (road, marine, rail, aviation).
Sheltering in Urgent Protective Action Zone (20 km downwind)	General Emergency	In addition, access and traffic restrictions (road, marine, rail, aviation).
ITB	With sheltering and/or evacuation	Iodine tablets pre-distributed within 5 km of plant

## Criteria outside emergency planning zones

Protective Action	OILs /EALs	Comments
Evacuation	Sheltering anticipated to be needed for more than 2 days	In addition, access and traffic restrictions (road, marine, rail, aviation).
Sheltering	100 microSv/h	In addition, access and traffic restrictions (road, marine, rail, aviation).
Partial Sheltering	10 microSv/h	
ITB	With sheltering and/or evacuation	
ITB for children under 18 and pregnant women	With partial sheltering	
Protection of food and livestock production	1 microSv/h	

# France

## EPR Fact Sheet

### Decision making

The Prime minister is in charge of managing a serious nuclear emergency situation at national level. He can appoint a Minister to ensure the operational management of the crisis, generally the Minister of Interior (in charge of homeland security and civil protection) or the Minister of Foreign Affairs for emergencies abroad. The Interministerial Crisis Cell is activated by the authorities in charge of the emergency management at the national level.

At the local level, the management is steered by the “Prefect of Département” who is responsible for the implementation of population protective actions, the security of the vicinities and the logistics. He acts according to an “Off-site Emergency Plan” (PPI) with the advice of ASN.

### Advice

ASN provides recommendations to the authority in charge of deciding the protective actions: the Prefect if the crisis is managed at local level and the Prime minister if the crisis is managed at national level. The recommendations of ASN deal with the safety of the accidented facility, radiation protection of the population and the environment. ASN bases its recommendations on the technical support of IRSN.

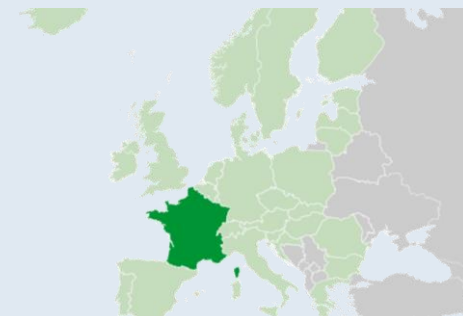
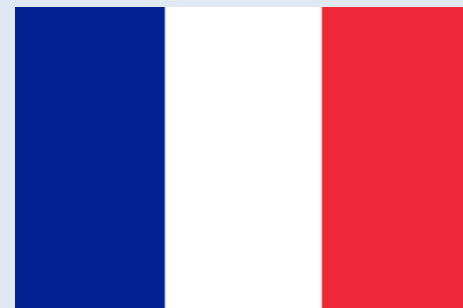
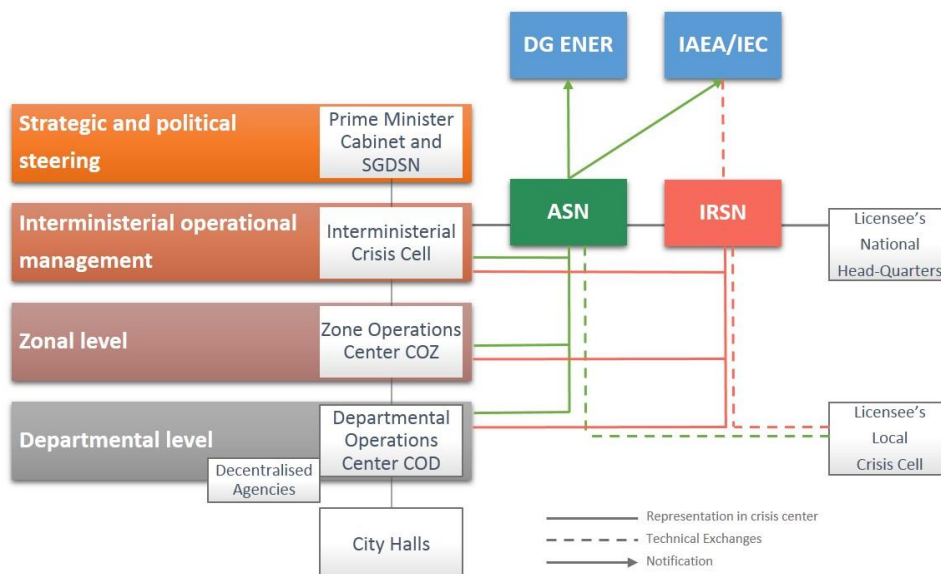
### Licensee

The licensee is responsible for the crisis management on site, based on an “On-site Emergency Plan” (PUI). He regularly informs the authorities of the evolution of the situation.

### Alarming

The main channels of alert diffusion are the followings: the licensee alerts immediately the Prefect of Département and ASN. ASN alerts IRSN. The Prefect alerts the Ministry of Interior (and the Prefect of Defense and Security Zone) who alerts the Prime Minister, if necessary.

### Organizational structure



### Country info

Capital	Paris
Official language	French
Population	70 M
Area	640 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1
Calling code	+33
Internet TLD	.fr
NPPs /ele. share	58/75%

### NWP\*

Ministry of Foreign Affairs

### NCA\*

ASN

### Emergency website

[www.asn.crise](http://www.asn.crise) \*\*

### Online measurements

[www.criter.irsn.fr](http://www.criter.irsn.fr) \*\*

[www.mesure-radioactivite.fr](http://www.mesure-radioactivite.fr)

### Bilateral agreements

Belgium, Luxembourg, Spain, Switzerland

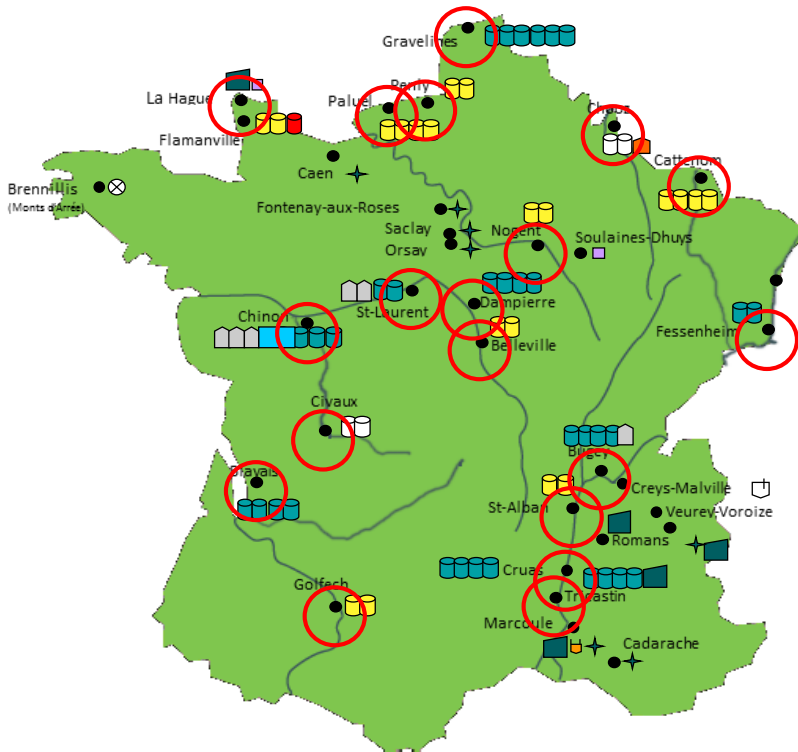
### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Environmental Sampling and Analysis
- Radiological Assessment and Advice
- Medical Support
- Dose Assessment
- Decontamination
- Nuclear Installation Assessment and Advice

\*National Warning Point and Competent Authority under the Emergency Conventions

\*\* Available only during emergencies

## Planning zones



## Reference scenarios

The French National Response Plan to a Major Nuclear or Radiological Accident, published in 2014, defines eight “Reference Situations”:

1. Situation of uncertainty,
2. Facility accident resulting in an immediate and short-term release,
3. Facility accident resulting in an immediate and long-term release,
4. Facility accident resulting in a delayed and long-term release,
5. Accident during the transportation of radioactive materials with potential release,
6. Accident occurring abroad and with a potential significant impact in France,
7. Accident occurring abroad and having little impact in France,
8. Offshore accident with a potential release.

### Comments

- France does not use the IAEA concept of “Emergency Classification”.

## Protection strategy

In an emergency, leading to a threat of radioactive release off site, the Prefect activates the PPI and decides the protective measures, based on ASN recommendations and possibly other factors. He can order sheltering, evacuation, ingestion of iodine or food restrictions. The area covered in the PPI, specific to each facility, is designed to cover the first 24 hours of an emergency. In this area, iodine tablets are pre-distributed to the population. There is also a zone of 2 km for reflex sheltering. The extension of the current radius of the PPI zone (10 km) to a radius of 20 km and the setting up of a 5 km radius area for immediate evacuation is ongoing. In case releases affect areas beyond the scope of the PPI, the Prefect implements the zonal version of the national plan and also specific organizations like ORSEC, covering the whole territory of the country.

These protective actions are decided on the foreseeable exposure to the radioactive risk and may change as the situation evolves. If necessary, radiological control measures and prohibitions on the harvesting, consumption and distribution of foodstuffs are taken.

### Post-accident phase

Policy elements for post-accident management are available on the website (<http://post-accidentel.asn.fr/Gestion-post-accidentelle/Elements-de-doctrine>). It includes the definition of the post-accident zoning (public protection zone on projected effective dose of 10 mSv or equivalent dose of 50 mSv at the thyroid for one month, heightened territorial surveillance zone if contamination exceeds European NMAs on the next month), the protective actions (consumption of foodstuffs, the placing on the market of foodstuffs, products...) and the population information and support.

## Criteria

Protective Action	Intervention levels	Comments
Sheltering	10 mSv	Immediately applicable. Public alerted by sirens or automated landline phone message sent by licensees
Evacuation	50 mSv	Also possible as an immediate protective action in particularly serious and urgent situation.
Ingestion of iodine tablets	50 mSv (thyroid)	Most effective when taken at the required dosage two hours before exposure. Stable iodine may be administered a second time after 24 hours.

### Comments

The protective actions are implemented in affected areas that are either identified as reflex zone, during the preparedness phase or proposed based on the evaluation of the projected dosimetric consequences for the population.

## Nuclear facilities\* and population

Facility	Type	MW <sub>e</sub>	GPS		10 km pop.	20 km pop.	Comments	
Belleville	BEL1	PWR	1300	47° 32' N	2° 50' E	29 000	64 000	
	BEL2	PWR	1300					
Blayais	BLA1	PWR	900	45° 08'	0° 40'	28 000	82 000	
	BLA2	PWR	900					
	BLA3	PWR	900					
	BLA4	PWR	900					
Bugey	BUG2	PWR	900	45° 50' N	5° 19' E	68 000	284 000	
	BUG3	PWR	900					
	BUG4	PWR	900					
	BUG5	PWR	900					
Cattenom	CAT1	PWR	1300	49° 26' N	6° 13' E	101 000	353 000	
	CAT2	PWR	1300					
	CAT3	PWR	1300					
	CAT4	PWR	1300					
Chinon	CHI-B1	PWR	900	47° 14' N	0° 10' E	87 000	113 000	
	CHI-B2	PWR	900					
	CHI-B3	PWR	900					
	CHI-B4	PWR	900					
Chooz	CHO-B1	PWR	1500	50° 06' N	4° 47' E	24 000	96 000	
	CHO-B2	PWR	1500					
Civaux	CIV1	PWR	1500	46° 26' N	0° 40' E	22 000	65 000	
	CIV2	PWR	1500					
Cruas	CRU1	PWR	900	44° 38' N	4° 45' E	63 000	142 000	
	CRU2	PWR	900					
	CRU3	PWR	900					
	CRU4	PWR	900					
Dampierre	DAM1	PWR	900	47° 43' N	2° 33' E	40 000	74 000	
	DAM2	PWR	900					
	DAM3	PWR	900					
	DAM4	PWR	900					
Fessenheim	FES1	PWR	900	47° 55' N	7° 33' E	62 000	379 000	
	FES2	PWR	900					
Flamanville	FLA1	PWR	1300	49° 34' N	1° 53' E	50 000	117 000	
	FLA2	PWR	1300					
Golfech	GOL1	PWR	1300	44° 07' N	0° 51' E	22 000	121 000	
	GOL2	PWR	1300					
Gravelines	GRA1	PWR	900	51° 02' N	2° 13' E	138 000	342 000	
	GRA2	PWR	900					
	GRA3	PWR	900					
	GRA4	PWR	900					
	GRA5	PWR	900					
	GRA6	PWR	900					
Nogent	NOG1	PWR	1300	48° 30' N	3° 30' E	21 000	78 000	
	NOG2	PWR	1300					
Paluel	PAL1	PWR	1300	49° 51'	0° 38'	20 000	73 000	
	PAL2	PWR	1300					
	PAL3	PWR	1300					
	PAL4	PWR	1300					
Penly	PEN1	PWR	1300	49° 57' N	1° 12' E	58 000	116 000	
	PEN2	PWR	1300					
Saint-Alban	STA1	PWR	1300	49° 51'	0° 38'	70 000	306 000	
	STA2	PWR	1300					
Saint-Laurent	STL1	PWR	900	47° 43'	1° 35'	35 000	94 000	
	STL2	PWR	900					
Tricastin	TRI1	PWR	900	44° 21' N	4° 43' E	73 000	187 000	
	TRI2	PWR	900					
	TRI3	PWR	900					
	TRI4	PWR	900					

\*The IAEA emergency preparedness category 1 and other relevant facilities

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# Germany

## EPR Fact Sheet

### Decision making

Off-site emergency preparedness and response is mostly a local responsibility. Upon request, the Federation will support and coordinate the Länder activities in disaster response.

The Federal Ministry for the Environment (BMU) is responsible for the national radiological situation report and is authorised to specify limits and measures for the public.

The implementation of disaster control measures falls under the responsibility of the authorities of the Länder and, depending on the respective *Land*, is delegated to the regional or even to the local level.

### Advice

The Federal Office for Radiation Protection ([BfS](#)) operates decision support systems and the Integrated Measurement and Information System for the Monitoring of Environmental Radiation ([IMIS](#)).

The advisory committees RSK (Reactor Safety Commission) and SSK (Commission on Radiological Protection) as well as the [GRS](#) as technical support organisation provide support for the BMU.

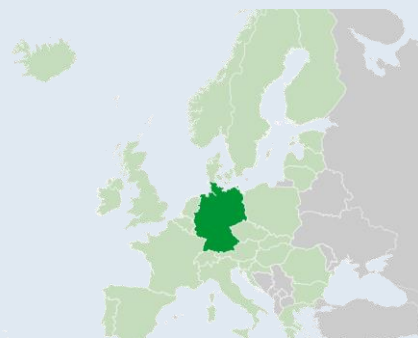
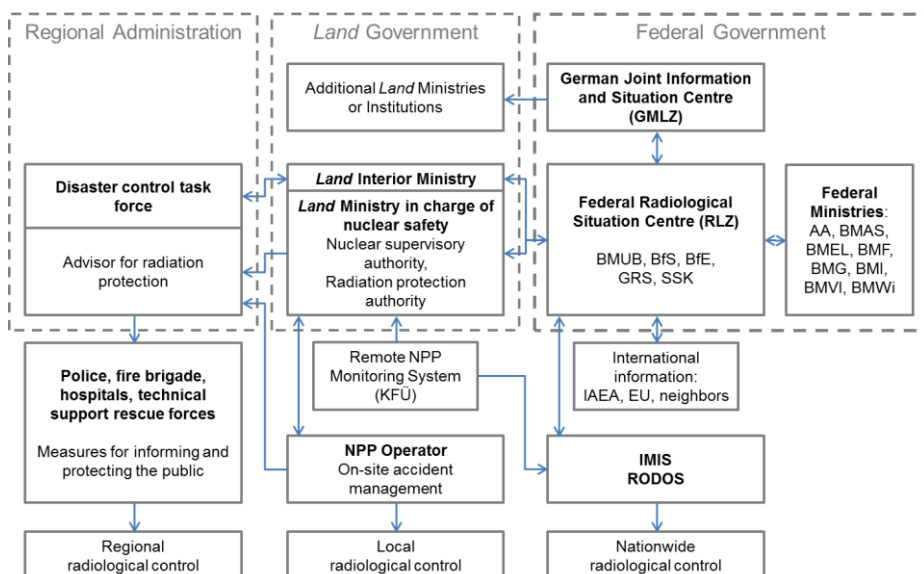
### Licensee

The licensee is obliged to make necessary information available to the authorities, to support the authorities in assessing the situation and to advise them in taking decisions on protective actions for the public.

### Alarming

The licensee is obliged to inform the civil protection authority with no delay of any event beyond design limits. The civil protection authority will inform the public.

### Organizational structure



### Country info

Capital	Berlin
Official language	German
Population	80 M
Area	360 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1
Calling code	+49
Internet TLD	.de
NPPs /ele. share	9/17%

### NWP\*

German Joint Information and Situation Center, Federal Office of Civil Protection and Disaster Assistance (GMLZ)

### NCA\*

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

### Emergency website

None

### Online measurements

<http://odlinfo.bfs.de/>

### Bilateral agreements\*\*

Austria, Belarus, Belgium, Brazil, Bulgaria, China, Czech Republic, Denmark, France, Georgia, Hungary, Japan, Kyrgyzstan, Luxembourg, Moldova, Netherlands, Norway, Russia, Slovakia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, Uzbekistan

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Environmental Sampling and Analysis
- Radiological Assessment and Advice
- Medical Support
- Dose Assessment
- Decontamination

\*National Warning Point and Competent Authority under the Emergency Conventions

\*\* Nuclear EPR only

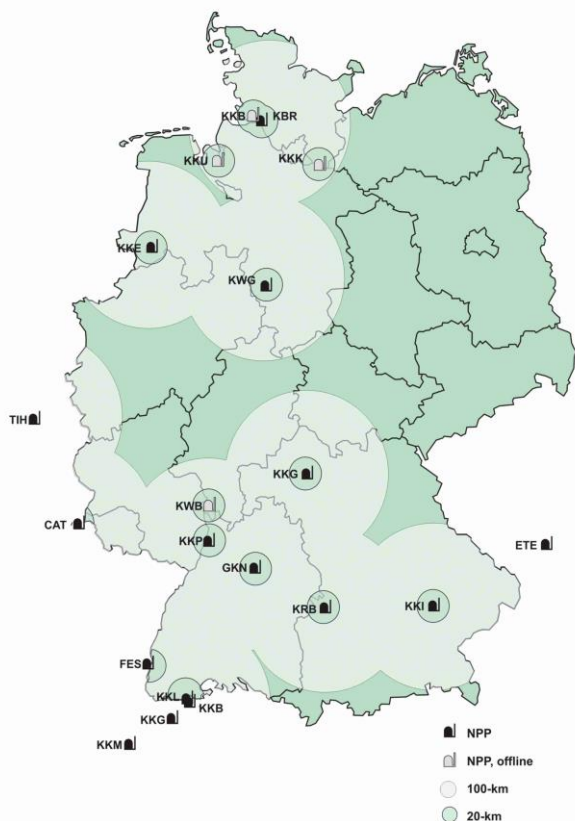
## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates		5 km pop.	20 km pop.	100 km pop.
Brunsbüttel	KKB BWR	806	53.891667° N	9.201667° E	7 000	120 000	5.8 M
Brokdorf	KBR PWR	1480	53.850833° N	9.344722° E	11 000	170 000	6.1 M
Krümmel	KKK BWR	1402	53.410000° N	10.408889° E	13 000	390 000	5.5 M
Unterweser	KKU BWR	1410	53.427778° N	8.480278° E	9 000	120 000	4.4 M
Emsland	KKE PWR	1400	52.474167° N	7.317778° E	9 000	150 000	5.4 M
Grohnde	KWG PWR	1430	52.035278° N	9.413333° E	16 000	250 000	7.3 M
Grafenrheinfeld	KKG PWR	1345	49.984167° N	10.184722° E	29 000	220 000	5.7 M
Biblis	KWB-A PWR	1225	49.710000° N	8.415278° E	32 000	570 000	10.5 M
	KWB-B PWR	1300					
Philippsburg	KKP-1 BWR	926	49.252778° N	8.436389° E	25 000	480 000	11.3 M
	KKP-2 PWR	1468					
Neckarwestheim	GKN-1 PWR	840	49.041111° N	9.175000° E	42 000	860 000	10 M
	GKN-2 PWR	1400					
Gundremmingen			48.514722° N	10.402222° E	10 000	200 000	7.5 M
	KRB-B BWR	1344					
	KRB-C BWR	1344					
Isar	KKI-2 BWR	1,485	48.605556° N	12.293056° E	16 000	210 000	5.6 M

Research Rector		W <sub>th</sub>	Actions		Type
Berlin	BER II	10 M	52.409722° N	13.128333° E	≤ 20km Swimming pool/ MTR
Garching	FRM-II	20 M	48.265833° N	11.6758333° E	≤ 2km Swimming pool/ Compact Core
Mainz	FRMZ	100 k	49.992500° N	08.237222° E	≤ 250m TRIGA Mark II

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



BMUB - RS II 5  
August 2016

## Protection Strategy

Action	Level	Radius
Reflex Evacuation	General Emergency	5 km
Evacuation	100 mSv (eff., 7d, ext.+inh.)	20 km
Sheltering	10 mSv (eff., 7d, ext.+inh.)	100 km
ITB < 45 a	250 mSv (thy., 7d, inh.)	100 km
ITB < 18 a or pregnant	50 mSv (thy., 7d, inh.)	Germany
Food/Feed Ban	General Emergency or OIL	Germany

### Comments

- In addition reference level of 100 mSv (eff. dose all pathways, 1 year) is set for emergency exposure situations.
- Any of the above measures goes along with traffic and access restrictions.
- The protection strategy is described [here](#), planning zones are discussed [here](#).
- The planning zone up to 20 km is divided in 12 sectors of 30 degrees with sector 1 to the north (except for Biblis with 12 to the north).
- ITB is pre-distributed in some *Länder*

# Greece

## EPR Fact Sheet

### Decision making

Emergency preparedness and response in case of a nuclear accident abroad are described in the recently issued Special Response Plan in Case of a Radiological or Nuclear Emergency outside the Country (ESARPEA). The Ministry for the climate crisis and civil protection through the Secretary-General for Civil Protection (GSCP), has the overall responsibility for response coordination, including the decision and the implementation of protective measures suggested by the Greek Atomic Energy Commission (EEAE).

### Advice

The responsibilities of the Greek Atomic Energy Commission (EEAE) in EPR mainly include the assessment of potential emergencies in or out of Greece, which may entail radiological risk for the country; the preparation or review of the emergency response plans; the assessment of the radiological conditions and effects during an emergency situation; the coordination of all actions to estimate the radioactive contamination in food, drinking water and environmental samples, as well as the suggestion for the most suitable strategy and means of protection to be implemented. EEAE is also responsible to provide information through appropriate channels to the public in a radiation emergency. To accomplish these responsibilities, EEAE has established an internal emergency plan, part of its integrated management system.

### Licensee

Greece is a non-nuclear country and there are no nuclear plants within its territory. According to the national radiation protection and nuclear safety regulations, all the parties involved with emergency response plans and the undertakings shall prepare internal appropriate emergency response plans and shall endeavor to ensure their preparedness, as well as all required human resources and technical means for their effective and prompt response, based on their role and duties, as specified in the emergency response plans. Moreover, the emergency organization or the undertaking shall ensure the protection of emergency workers, prior provision of information and training to emergency workers.

### Alarming

EEAE has the responsibility to inform the Secretary-General for Civil Protection to activate the ESARPEA in case of a radiological or nuclear emergency, based on the measurements of the radioactivity monitoring network and information through ECURIE, ENATOM, bilateral agreements, competent authorities of other countries and media. In case of an emergency within a licensed infrastructure, the undertaking has the responsibility to immediately activate its internal emergency plan and inform EEAE.

### Organizational structure



### Country info

Capital	Athens
Official language	Greek
Population	11 M
Area	132 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+2
Calling code	+30
Internet TLD	.gr
NPPs /ele. share	0/0%

### NWP\*

Greek Atomic Energy Commission (EEAE)

### NCA\*

Greek Atomic Energy Commission (EEAE)

### Emergency website

[www.eeae.gr](http://www.eeae.gr)

### Online measurements

[www.eeae.gr](http://www.eeae.gr)

### Bilateral agreements

Bulgaria, Romania

### RANET capabilities

None

\*National Warning Point and Competent Authority under the Emergency Conventions

## Protection strategy

Protection strategies are decided based on the reference levels set in the range of 20 to 100 mSv (acute or annual) for emergency exposure situations, following as guidelines the IAEA GSR part 7.

According to the assessment of potential emergencies, in case of a nuclear accident abroad, no significant impact is expected in the early phase of the accident during the plume passage. A potential impact might be related to public exposure through ingestion of contaminated food. To this end, an Operational Intervention Level (OIL) of 150 nSv/h above the background radiation has been established. To examine for each regional unit (74 units) whether this OIL has been exceeded, information is received from more than one station, considering appropriate weighting factors. Based on this OIL 3 groups of response measures are implemented:

- **Group A:** only for regions where the dose rate of 150 nSv/h above the background is statistically exceeded: restrictions on locally produced food, (namely, milk from grazing animals and leafy vegetables) and rainwater (if collected for drinking).
- **Group B:** for all regions: simple recommendations to the public during the plume passage; sample collection and contamination control of relevant food and feed.
- **Group C:** recommendations for Greek citizens outside the country; travel instructions; eventual rules on air navigation and maritime transport.

A crucial element of the protection strategy is considered to be the public information and the building of trust with the public which starts at the preparation stage, continues at the response phase and covers also the remediation phase.

### Comments

- There are no NPPs in Greece. The existing research reactor is in extended shutdown (All used HEU and LEU fuel elements repatriated to the USA).
- The nearest NPP is located about 250 km from the borders of Greece.

# Hungary

## EPR Fact Sheet

### Decision making

At central level, the Disaster Management Interministerial Coordination Committee (DMCC) is responsible for decision making in case of nuclear/radiological emergency situations. The DMCC consists of appointed representatives of the ministries. The head of the DMCC is the Minister of Interior. At the regional level, there are 19 County Defence Committees (CDC), according to the 19 administrative counties, plus the Budapest Defence Committee (altogether 20). At the local level, the local governments (the mayors) have the responsibility for local disaster management.

### Advice

DMCC's National Emergency Response Centre (DMCC NERC) is the professional decision support organ, which is giving advises for DMCC. For the support of the decision making process of DMCC NERC, the Hungarian Atomic Energy Authority (HAEA) operates the Nuclear Emergency Response Working Committee (DMCC NERWC). DMCC NERWC uses the analysis results of the HAEA and the Nuclear Emergency Information and Analysis Centre (NEIAC) of the National Directorate General for Disaster Management (NDGDM).

### Licensee

All licensees are responsible to initiate notification to authorities for radioprotection, nuclear safety and disaster management in case of an emergency. Also, the licensee should be prepared to handle the local emergency situations, i.e. should prepare proper emergency plans, make provisions to have enough and appropriate local resources, etc.

### Alarming

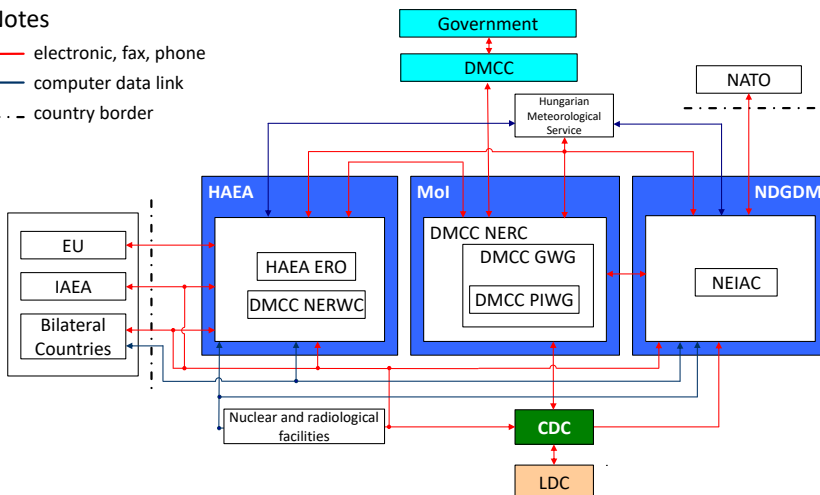
In case of a domestic emergency event, both HAEA and NDGDM are designated points of notifications. The alarm process is conducted by the NDGDM. The activation time for full response mode is 4 hours during the official working hours and 8 hours beyond the official working hours.

In case of events with potential or real international consequences, HAEA is responsible for both sending and receiving official notifications at international level.

### Organizational structure

#### Notes

- electronic, fax, phone
- computer data link
- - - country border



### Country info

Capital	Budapest
Official language	Hungarian
Population	9,604 M
Area	93,023 km <sup>2</sup>
Currency	Forint (HUF)
Time zone	GMT + 1
Calling code	36
Internet TLD	.hu
NPPs /ele. share	1/50%

### NWP\*

National Directorate General for Disaster Management

### NCA\*

Hungarian Atomic Energy Authority

### Emergency website

[www.haea.hu](http://www.haea.hu)

### Online measurements

<https://remap.jrc.ec.europa.eu/Simple.aspx>

### Bilateral agreements

Austria, Slovakia, Ukraine, Romania, Croatia, Slovenia, Germany, Czech Republic, Serbia

### RANET capabilities

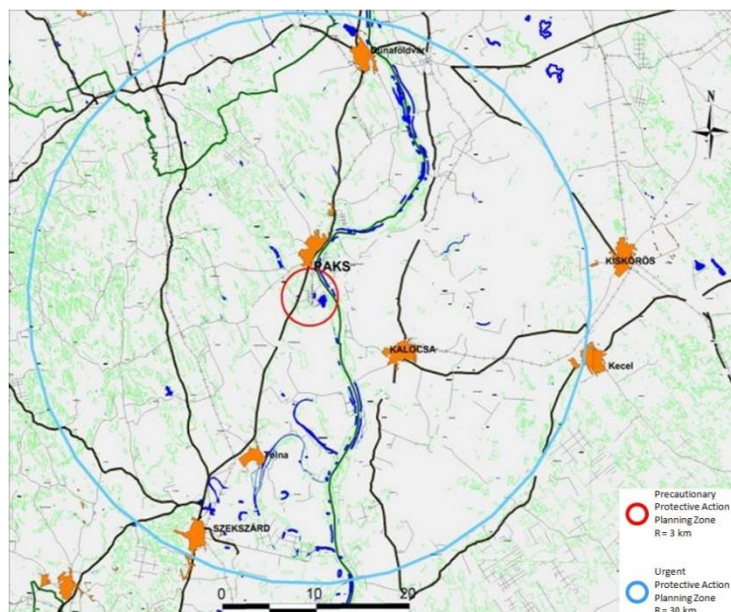
- Radiation Survey
- Sampling and Analysis
- Source Search and Recovery
- Radiological Assessment and Advice
- Medical Support
- Dose Assessment
- Decontamination
- Nuclear Installation Assessment and Advice

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates	1 km pop.	3 km pop.	30 km pop.	Comments	
NPP Paks	Unit 1	PWR	509	46,574N 18,853E	0	148	201 202	EPC-I
NPP Paks	Unit 2	PWR	506	46,574N 18,853E	0	148	201 202	EPC-I
NPP Paks	Unit 3	PWR	506	46,574N 18,853E	0	148	201 202	EPC-I
NPP Paks	Unit 4	PWR	506	46,574N 18,853E	0	148	201 202	EPC-I
Interim Storage of Spent Fuel Paks	n/a	n/a	46,570N 18,851E	0	148	201 202	EPC-II	

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



## Emergency classification

### General Emergency

Upon declaration of a General Emergency, the consequences shall be immediately mitigated, the actions required for protecting the people staying in the designated protective action zone shall be immediately implemented.

### Local Emergency

Upon declaration of Local Emergency immediate actions shall be taken for the mitigation of the consequences, protection of the persons staying in the vicinity, and preparation should be made for the implementation of the necessary public protective actions.

### Facility Emergency

Upon declaration of this class of emergency, actions shall be promptly taken to mitigate the consequences and to protect people on the site. Emergencies in this class can never give rise to an off-site hazard.

### Alerts

Upon declaration of this class of emergency, actions shall be promptly taken to assess and mitigate the consequences and to increase the readiness of the on-site and off-site response organizations, as appropriate.

## Protection strategy

The protection strategy is based on range of reference levels which are set in Decree of the President of the HAEA 2/2022. The National Nuclear Emergency Response Plan (NERP) contains reference levels, generic criteria and OILs. The NERP also allows the use of avertable doses for optimisation, in line with ICRP regulations.

The County Defence Committees around the Paks Nuclear Power Plant have elaborated the evacuation and acceptance plans. These plans include a two-step evacuation within the UPZ. After the evacuation of the PAZ, those living within the 3-9 km radius around the nuclear power plant are evacuated in the first step, while those living in the radius of 9-30 km around the nuclear power plant are evacuated in the second step, if appropriate. Around the Paks NPP (30 km radius) the iodine tablets required for the first two days are stored in the mayors' offices.

## Criteria

Case	Reference levels [residual dose]	Generic Criteria [projected dose]	Typical OILs
EPC 1&2, UPZ, first 7 days	100 mSv/case eff. dose	100 mSv eff. dose	Dose rate at 1 m
	50 mSv/case for thyroid	50 mSv for thyroid	Dose rate on the skin
Other cases	20 mSv/year	20 mSv/year	Dose rate above thyroid
			Activity concentration in foodstuff, milk and water

# Iceland

## EPR Fact Sheet

### Decision making

Civil Protection in Iceland falls under the Ministry of Justice. Civil Protection responsibilities at the national level are delegated to the National Commissioner of the Icelandic Police (NCIP). The NCIP runs a Department of Civil Protection and Emergency Management which is responsible for daily administration of Civil Protection matters, maintains a national co-ordination/command centre which can be activated at any time and is in charge of the centre in emergency situations. The NCIP takes decisions regarding civil protection alert levels at any given time, in consultation with the relevant regional police commissioner and National Competent Authorities.

### Advice

The Icelandic Radiation Safety Authority (IRSA) is a technical adviser on nuclear or radiological emergencies and has the responsibility to operate equipment and have expertise to handle or to mitigate the consequences of related emergency situations. IRSA also operates automatic radiation measurement stations around the country and would coordinate measurements in case of an emergency.

### Licensee

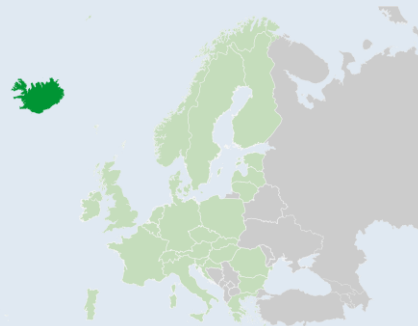
There are no nuclear facilities\* in Iceland. In the event of a radiological emergency the licensee is required by law to notify IRSA. Also to make a preliminary assessment of the accident and to limit the consequences of the accident.

\*The IAEA emergency preparedness category 1 and other relevant facilities

### Alarming

In case of a nuclear or a radiological emergency the Department of Civil Protection and Emergency Management is responsible for warning and informing the public. Mobile telephone messages (SMS) can be sent to the public in specific areas.

### Organizational structure



### Country info

Capital	Reykjavík
Official language	Icelandic
Population	0.357 M
Area	103 000 km <sup>2</sup>
Currency	Króna (ISK)
Time zone	UTC+0
Calling code	+354
Internet TLD	.is
NPPs /ele. share	0/0%

### NWP\*

Icelandic Coast Guard  
Skógarhlíð 14, 105 Reykjavík  
Iceland, phone +354 545 2000

### NCA\*

The Icelandic Radiation Safety Authority  
Rauðarárstíg 10, 105 Reykjavík  
Iceland, phone +354 4408200

### Emergency website

<http://gr.is>

### Online measurements

<https://gr.is/sivoktun/gammageislun/>

### Bilateral agreements

None

### RANET capabilities

None

## Nuclear facilities\* and population

Iceland has no nuclear facilities or research reactors. There is no operational NPP in a 1000 km radius from the coast of Iceland.

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Protection strategy

In case of a nuclear or radiological emergency Icelandic authorities would look to the Nordic Guidelines and recommendations “Protective Measures in Early and Intermediate Phases of a Nuclear or Radiological Emergency” (The Nordic Flag book) where the protection strategy is described in detail.

## Criteria

Protective Action	OILs	Comments
Evacuation	20 mSv or 100 $\mu$ Sv/h	If the projected effective dose is expected to exceed 20 mSv during one week or external dose rate is higher than 100 $\mu$ Sv/h for two days
Indoor sheltering	10 mSv or 100 $\mu$ Sv/h	If the projected effective dose is expected to be over 10 mSv in two days or external dose rate is or is anticipated to exceed 100 $\mu$ Sv/h



# Ireland

## EPR Fact Sheet

### Decision making

In the case of a nuclear or radiological emergency, the Department of the Environment, Climate and Communications (DECC) is the lead government department with responsibility for coordinating and leading Ireland's response to the emergency. Decision making and oversight of the implementation of protective actions would be performed by a National Emergency Coordination Group made up of officials from key government departments and other public authorities and chaired by DECC.

### Advice

Under the National Plan for Nuclear and Radiological Emergency Exposures, the Environmental Protection Agency (EPA) has responsibility for technical assessment, monitoring and measurement of radioactivity and for the provision of advice to the National Emergency Coordination Group on the potential consequences of any accident and on the measures to be taken.

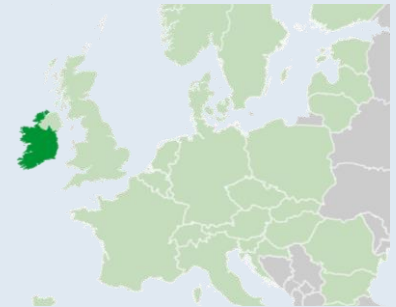
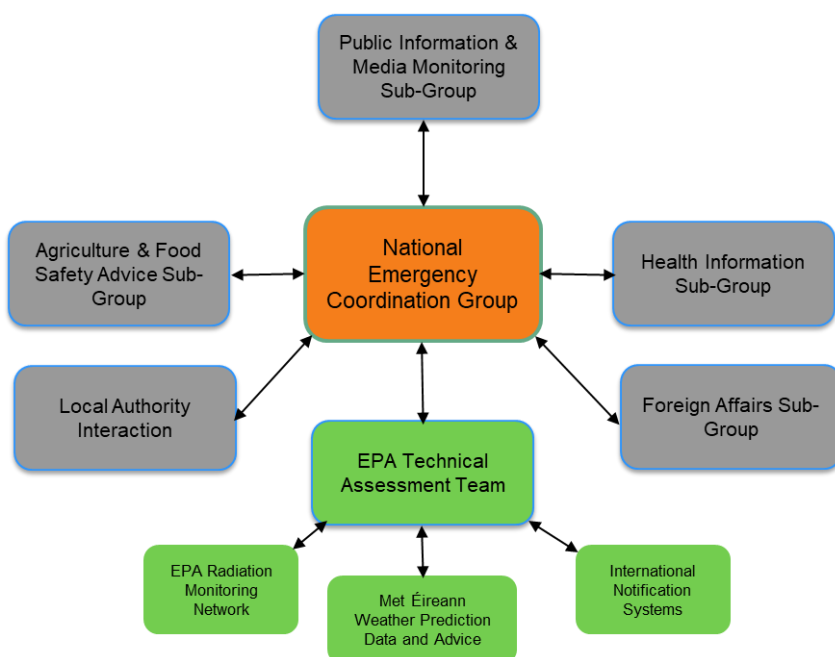
### Licensee

In the event of a radiological emergency, the licensee is required to inform EPA and the local emergency services immediately. The licensee is also required to make an initial provisional assessment of the emergency and its possible consequences.

### Alarming

The licensee is required to inform EPA and the local emergency services immediately in the event of a radiological emergency arising. The dissemination of information to the public will be done through Government Information Services in consultation with the National Emergency Coordination Group.

### Organizational structure



### Country info

Capital	Dublin
Official language	Irish, English
Population	5.1 M
Area	70 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC
Calling code	+353
Internet TLD	.ie
NPPs /ele. share	0/0%

### NWP\*

An Garda Síochána  
[www.garda.ie](http://www.garda.ie)

### NCA\*

Environmental Protection Agency  
[www.epa.ie](http://www.epa.ie)

### Emergency website

<http://www.nuclear.ie>

### Online measurements

<http://www.epa.ie/radiation/monassess/mapmon/>

### Bilateral agreements

United Kingdom

### RANET capabilities

- Sampling and Analysis
- Radiological Assessment and Advice

\*National Warning Point and Competent Authority under the Emergency Conventions

## Protection strategy

Following a nuclear accident abroad the most significant route of potential exposure for members of the Irish public would be from the consumption of radioactively contaminated food. Most of the ingestion dose could be averted by the restriction of sale of contaminated food and other measures taken to reduce transfer of radioactivity to food products.

## Criteria

Protective Action	Guidance Level (Projected Dose)	Comments
Evacuation	International guidance: 100 mSv in first 7 days	Not recommended for use in for Ireland due to distance from nearest nuclear facilities
Sheltering	50 mSv in first 7 days	Most effective during passage of the plume
Temporary relocation	100 mSv in first year	Largely from groundshine pathway
Food controls	1 mSv per annum from food ingestion	EU MPLs would be adopted.

## Comments

Ireland has no nuclear facilities or research reactors. The nearest nuclear facility is over 100 km away in the United Kingdom. In addition, the nearest operational nuclear power plant is over 200 km away in the United Kingdom.

# Italy

## EPR Fact Sheet

### Decision making

The Operational Committee of the Civil Protection is responsible for the emergency management at national level. It is chaired by the Head of the Department of Civil Protection (DPC) of the Presidency of the Council of Ministers and composed by representatives from Ministries, Regions and local Authorities, National Corp of Fire Brigades, military forces, relevant agencies, volunteers, and public/private operators of critical infrastructures. At local level, the Prefect of the province, supported by the local emergency committee, is responsible of the emergency response.

### Advice

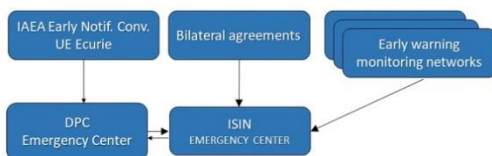
ISIN - National Inspectorate for Nuclear Safety and Radiation Protection - is responsible of the emergency support system through its CEN - Nuclear Emergency Centre. The Committee for data analysis and radiological assessment (CEVaD), activated by DPC and established at ISIN Headquarters, provides the operational procedure for sampling and measurement activities performed by the regional radiological laboratories. CEVaD is coordinated by ISIN and is composed by experts from national organizations.

### Licensee

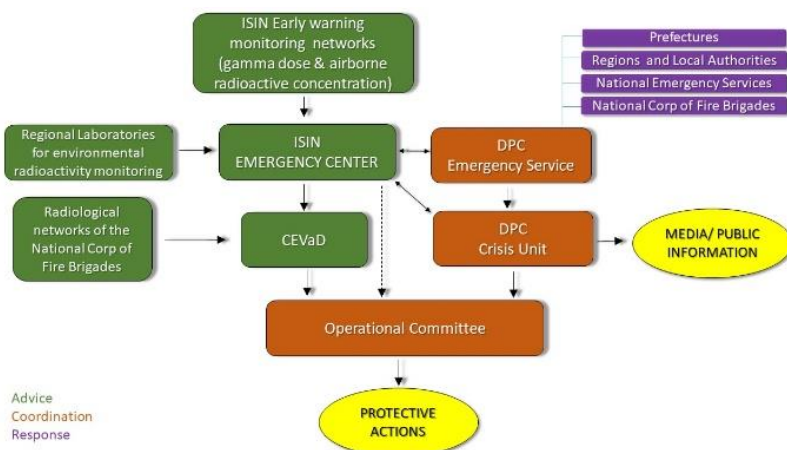
In case of nuclear or radiological emergency the operator must immediately notify the event and the measures taken to face it, reporting any relevant information and data for the implementation of the off-site emergency response.

### Alarming

At local level, the licensee (Category II and III) is responsible for notifying the off-site Authorities (Prefect) in case of abnormal event. The following scheme describes the alarming flow of the National Plan (Category V):



### Organizational structure



### Country info

Capital	Rome
Official language	Italian
Population	60.7 M
Area	301 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1
Calling code	+39
Internet TLD	.it
NPPs /ele. share	0/0%

### NWP\*

DPC- Department of Civil Protection of the Presidency of Council of Ministers;

### NCA\*

NCA-A & NCA-D: ISIN  
NCA-D: DPC

### Emergency website

[www.protezionecivile.gov.it](http://www.protezionecivile.gov.it) (public)

### Online measurements

None

### Bilateral agreements

Switzerland (Governmental level)  
Slovenia and France (between Regulatory Authorities)

### RANET capabilities

Nuclear Installation Assessment and Advice  
Source Search and Recovery  
Radiation Survey  
Sampling and Analysis  
Radiological Assessment and Advice  
Decontamination  
Dose Assessment

## Nuclear facilities and practices

At local level, EPR arrangements are in place for former NPP & Fuel-Cycle facilities, now in decommissioning, for research reactors, nuclear powered vessels in Italian harbours, waste storage facilities, practices using radiation sources, transport of radioactive materials and in case of discovery of orphan sources. Regarding the National Plan, the hazard assessment is related to an accident to an abroad NPP.

## Emergency classification

The national plan provides for three levels of activation:

- **Attention:** following the notification of alert or facility emergency in a foreign nuclear installation; in this level DPC and ISIN are involved in the event monitoring, international information exchange, and public information activities
- **Warning:** following the notification of site area event in an abroad NPP; this level requires the warning of national and regional/local authorities;
- **Alarm:** following the notification of general emergency in a foreign nuclear installation.

## Protection strategy

The protective actions provided by the National Plan include food chain protection, ITB (age <18, pregnant and breast feeding women) and sheltering. The potentially affected territories extend along large areas of the northern Italy.

Reference levels for emergency exposure situations are fixed in an interval between 20 and 100 mSv. The higher values of the range between 20 and 100 mSv are adopted in extremes circumstances, in which protective measures to reduce exposure could have very serious consequences on people or it is not considered possible to plan to maintain exposures to the below a lower reference level. An handbook for the radiological assessment and for the sampling and measurement of the environmental and food matrices during a nuclear or radiological emergency was issued by the CEVaD and is published in Italian language: [https://www.isinucleare.it/sites/default/files/contenuto\\_redazione\\_isin/emergenze\\_nucleari\\_e\\_radiologiche.pdf](https://www.isinucleare.it/sites/default/files/contenuto_redazione_isin/emergenze_nucleari_e_radiologiche.pdf)

## Criteria

Protective Action	Generic criteria	Comments
Sheltering	10 mSv	Projected effective dose 2d
ITB	40 mSv	Projected thyroid equivalent dose 7d
Evacuation	20-50 mSv	Projected effective dose 7d
Relocation	30 mSv	Projected effective dose 30d

### Comments

The maximum concentration levels for food and feedstuff are based on EURATOM regulations.

OILS for air, soil, water and foodstuff should be defined.

# Latvia

## EPR Fact Sheet

### Decision making

At State level, the Cabinet of Ministers and Crisis Management Council, which consists of key ministers and is led by the Prime Minister, are general responsible for the overcoming the state threat and the liquidation of such consequences. The management of radiological or nuclear emergencies are coordinated by the Ministry of Environmental Protection and Regional Development of Latvia.

Regulation No. 152/2003 "Requirements for Preparedness for Radiological Emergency and Actions in the Event of Such Emergency" includes detailed requirements for planning the main urgent and long-term protective actions in the event of radiological emergencies and specifies the responsibilities of operators.

### Advice

In case of a radiological or nuclear emergency the Radiation Safety Centre of State Environmental Service (RSC SES) provides expert assistance to other involved institutions. RSC SES operates the national monitoring network and coordinates radiation measurements in case of emergency.

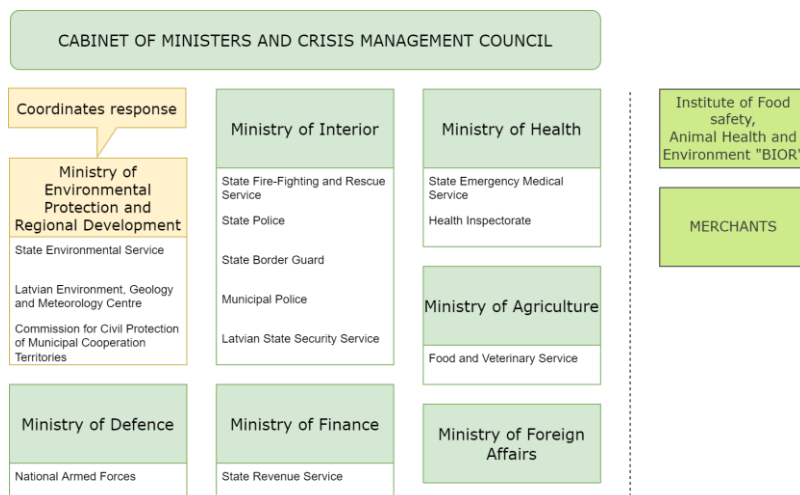
### Licensee

RSC SES issues licensees and fulfils licensee supervision. The licensee is responsible for informing RSC SES about any incident, accident or emergency situations and for carrying out urgent protective measures within the facility. They must make a Plan of action for preparedness for radiological emergencies and actions in the event of a radiological emergency which must be approved by RSC SES, the State Fire and Rescue Service and local government.

### Alarming

The competent authority and National warning point for radiation and nuclear emergencies is RSC SES which operates 24/7. For population warning RSC SES provides information to the State Fire and Rescue Service concerning the emergency and urgent countermeasures and in turn, the State Fire and Rescue Service warns the public by means of sirens and subsequent radio and television broadcasts.

### Organizational structure



### Country info

Capital	Riga
Official language	Latvian
Population	1.9 M
Area	65 000 km <sup>2</sup>
Currency	Euro €
Time zone	UTC+2
Summer (DST)	UTC+3
Calling code	+371
Internet TLD	.LV
NPPs /ele. share	0/0%

### NWP\*

Radiation Safety Centre of the State Environmental Service

### NCA\*

Radiation Safety Centre of the State Environmental Service

### Emergency website

<https://www.vvd.gov.lv/>

[https://www.vugd.gov.lv](https://www.vugd.gov.lv/)

### Online measurements

<https://ims-web.vvd.gov.lv/>

### Bilateral agreements

Lithuania, Ukraine, Belarus

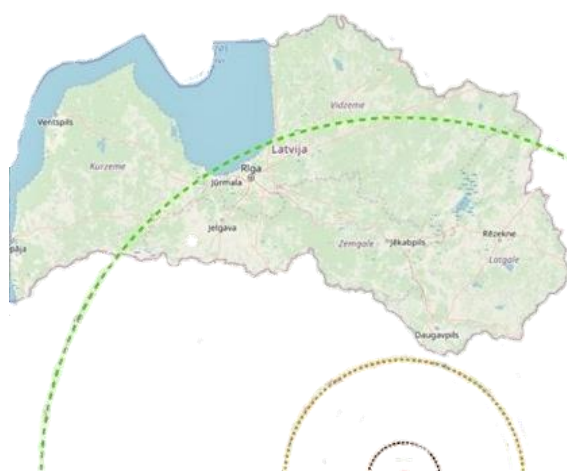
### RANET capabilities

None

## Nuclear facilities\* and population

Latvia does not have nuclear power plants. The former Salaspils research reactor is under decommissioning.

### Planning zones



### Emergency classification

Regulatory requirements have not been developed for classifying emergency, as there are no nuclear facilities.

In case of nuclear or radiological emergency in neighboring country HERCA-WENRA Approach for a better cross-border coordination of protective actions during the early phase of a nuclear accident are used:

- Precautionary action zone 5km
- Urgent protective action planning zone 30km
- Extended planning distance 100km
- Ingestion and commodities planning distance 300km

### Protection strategy

The nearest nuclear power plant is more than 100 km away from the border of Latvia. According to the assessment of potential emergencies in case of a nuclear accident abroad, potential exposure could be from contaminated food and water therefore the introduction of agricultural countermeasures would be used.

### Criteria

Protective Action	OILs /EALs	Comments
Evacuation	100 mSv in the next 7 days	Not planned to use in for Latvia due to the distance from the nearest nuclear facilities.
Sheltering	100 mSv in the next 7 days	Used during the passage of the radioactive plume, applied for not more than 48hrs.
ITB	50 mSv in the next 7 days	Equivalent dose to thyroid gland only from radioactive iodine. Not planned in Latvia.
Water, food and feed protection	10 mSv during the first year after the accident 1 $\mu$ Sv/h (OIL)	The maximum concentration levels are based on EURATOM regulations

### Comments

National requirements are established in Regulation No. 149 “Regulations for Protection against Ionizing Radiation” (2002) and Regulation No. 152 “Requirements for preparedness for radiological emergency and actions in the event of such emergency” (2003). New regulations are currently being developed to replace Regulation No. 152.

# Lithuania

## EPR Fact Sheet

### Decision making

In a state-level nuclear or radiological emergency (hereafter - emergency), the National Crisis Management Centre is authorized to gather information about the emergency, prepare a forecast of its development, organize and plan protective actions until the State Operations Commander is appointed, organize and coordinate protective actions and other response actions necessary to liquidate the emergency. The National Crisis Management Centre assists the State Operations Commander in decision-making, coordinates, and controls the implementation of the decisions of the State Operations Commander.

### Advice

RPC is responsible for early warning and information system (RADIS) and provides recommendations on urgent protective actions, early protective actions and recovery actions. RPC also organizes, coordinates and performs radiological measurements, organizes and performs radiological monitoring of the public and environment, assesses the results, forecasts consequences of the emergency.

VATESI provides urgent information to the state and municipality institutions about the radiological situation in the nuclear facilities, forecasts the development of the emergencies, issues recommendations and other information relevant to the event at the nuclear facility.

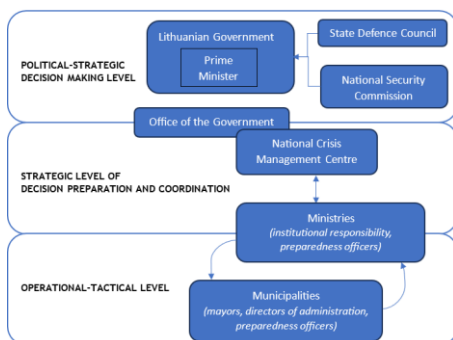
### Licensee

In order to protect the members of the public, in the event of an emergency, the licensee notifies the competent authority (licensee with authorized practice with sources of ionizing radiation notifies RPC and licensee in the nuclear energy area notifies VATESI) and other institutions specified in the emergency response plan also take all appropriate measures to mitigate the consequences of an emergency. Licensee makes an initial assessment of the circumstances and consequences of the emergency, takes mitigatory actions and if necessary, assist the competent authority with taking protective actions.

### Alarming

The Fire and Rescue Department is responsible for warning and informing the public. Public is warned by using public sirens and SMS messages, details and recommendations on protective actions are announced continually on national radio and TV.

### Organizational structure



### Country info

Capital	Vilnius
Official language	Lithuanian
Population	2.9 M
Area	65 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+2
Summer (DST)	UTC+3
Calling code	+370
Internet TLD	.lt
NPPs / ele. share	0/0%

### NWP and NCA\*

The State Nuclear Power Safety Inspectorate (VATESI)

### Regulatory bodies

Radiation Protection Centre (RPC)  
The State Nuclear Power Safety Inspectorate (VATESI)

### Emergency website

[lt72.lt](http://lt72.lt)

### Online measurements

[rsc.lrv.lt](http://rsc.lrv.lt)

### Bilateral agreements

In accordance with the inter-governmental agreements with Denmark, Norway, Latvia, Poland and Belarus VATESI is obligated to provide information about nuclear events in Lithuania. Also VATESI exchange information under the cooperation agreements with the Swedish Radiation Safety Authority (SSM).

### RANET capabilities

Decontamination  
Dose Assessment  
Nuclear Installation Assessment and Advice  
Radiation Survey  
Radiological Assessment and Advice  
Sampling and Analysis  
Source Search and Recovery

\*National Warning Point and Competent Authority under the Emergency Conventions

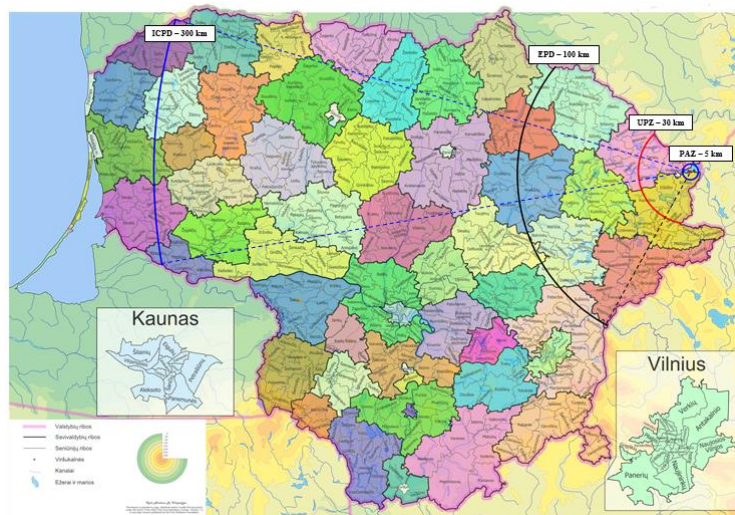
## Nuclear facilities\* and population

Nuclear facility	Type	MW <sub>e</sub>	GPS coordinates	5 km pop.**	30 km pop.**	Comments	
Ignalina NPP	2 Units	RBMK	1500	55,3616° N 26,3336° E	~ 0	52 000	Under decommissioning

\* The IAEA emergency preparedness category I and other relevant facilities

\*\* Population in Lithuania territory only.

## Emergency preparedness zones and emergency planning distances



### Emergency preparedness zones and emergency planning distances

- Precautionary urgent protective action zone (PAZ) - 5 km
- Urgent protective action planning zone (UPZ) - 30 km
- Extended planning distance (EPD) - 100 km
- Ingestion and commodities planning distance (ICPD) - 300 km

## Emergency classification

- **General emergency** - an emergency at facilities of emergency preparedness category I and II that requires prompt taking risk mitigation actions, precautionary urgent protective actions, urgent protective actions, and early protective actions and other response actions on the site and off the site (at the emergency planning zones and emergency planning distances).
- **Site area emergency** - an emergency at facilities in emergency preparedness category I or II that warrants taking protective actions and other response actions on the site.
- **Facility emergency** - an emergency at facilities in emergency preparedness category I, II and III, which requires the application of protective measures and emergency response measures at the facility and on the site.
- **Alert** - an event identified at facilities in emergency preparedness category I, II and III for which risk mitigation actions is required.
- **Other emergency** - an emergency in category IV that warrants taking protective actions and other response actions at any location.

## Criteria

Protective actions and other response actions	Generic criteria	Comments
Evacuation	100 mSv in first 7 days	projected effective dose or equivalent dose to fetus
Sheltering	100 mSv in first 7 days	projected effective dose or equivalent dose to fetus
Iodine Thyroid Blocking	50 mSv in first 7 days	projected equivalent dose to thyroid
Restriction of consumption of food, milk and water	100 mSv in first 7 days	projected effective dose or equivalent dose to fetus
Relocation	100 mSv per 1 year or for the full period of in utero development	projected effective dose or equivalent dose to fetus

### Comments:

1. Generic criteria for protective actions and other response actions in emergency exposure situations to reduce the risk of stochastic effects are consistent with the recommended generic criteria in IAEA General Safety Requirements No. GSR Part 7. Generic and operational criteria are described in detail in Lithuanian Hygiene Norm HN 99:2019 "Protective actions of the public in case of nuclear or radiological emergency".
2. In emergency exposure situations, the reference level for acute or annual exposure of the public shall be the effective dose of 100 mSv (residual dose from all pathways of exposure). A reference level below 20 mSv may be set in emergency exposure situation where appropriate protection can be provided without causing a disproportionate detriment from the corresponding countermeasures or an excessive cost.
3. HERCA-WENRA Approach is implemented into the legal acts of Lithuania.



# Luxembourg

## EPR Fact Sheet

### Decision making

At strategic level, the national crisis cell (CC) prepares all decisions on protective actions for approval by the Government. A member of the Government (typically the Minister of Interior) or a person designated by him presides over the national crisis center.

The High Commission for National Protection (HCPN) chairs the CC, which is composed of 12 regular members, heads of all directly concerned ministries and administrations. It can be extended to another 8 members, depending on the situation. The head of the Radiation Protection Department (radiation safety authority) is one of the regular members. A communication cell (CCI) and a radiological evaluation cell (CER) support the CC.

At the level of interdepartmental operational coordination, a Common operational command post (PCOC-C) is responsible for the coordination and the control of the protective and other response actions. Forward command posts oversee field operations.

### Advice

The radiological evaluation cell (CER) consists of experts of the DRP and the CGDIS. The missions of the CER are to monitor and assess the radiological situation, to propose protective and other response actions to the CC.

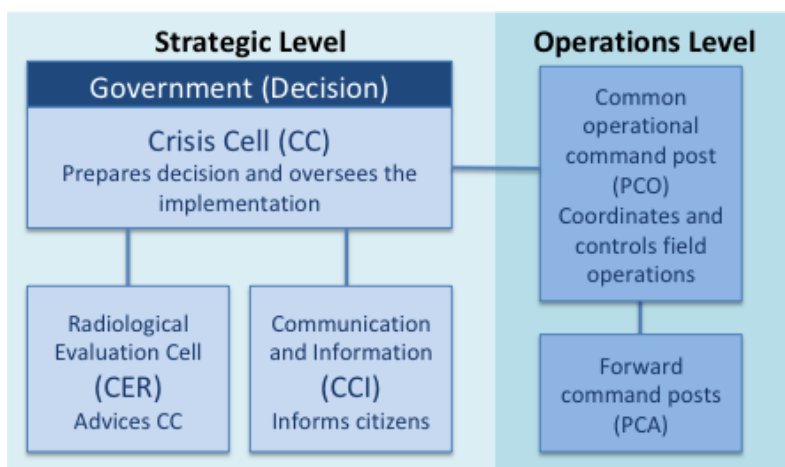
### Licensee

There is no nuclear installation in Luxembourg. Through a bilateral agreement, the licensee of the closest foreign NPP has committed to inform the DRP without delay of any event fulfilling defined criteria.

### Alarming

The alarming and the instructions regarding urgent protective actions and other response actions are triggered by the CC. The sirens are activated and the instruction are broadcasted by national and private radio stations and other media, including a dedicated website.

### Organizational structure



### Country info

Capital	Luxembourg
Official language	Luxembourgish, French, German
Population	0,65 M
Area	2 586 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1
Calling code	+352
Internet TLD	.lu
NPPs /ele. share	0/0%

### NWP\*

Grand Ducal Fire and Rescue Corps (CGDIS)

### NCA\*

Radiation Protection Department (DRP)

### Emergency website

<http://www.infocrise.public.lu>

### Online measurements

<http://www.sante.public.lu/fr/prevention/radioactivite/surveillance-environnement-alimentation/radioactivite-monitoring/index.html>

### Bilateral agreements

France, Belgium

### RANET capabilities

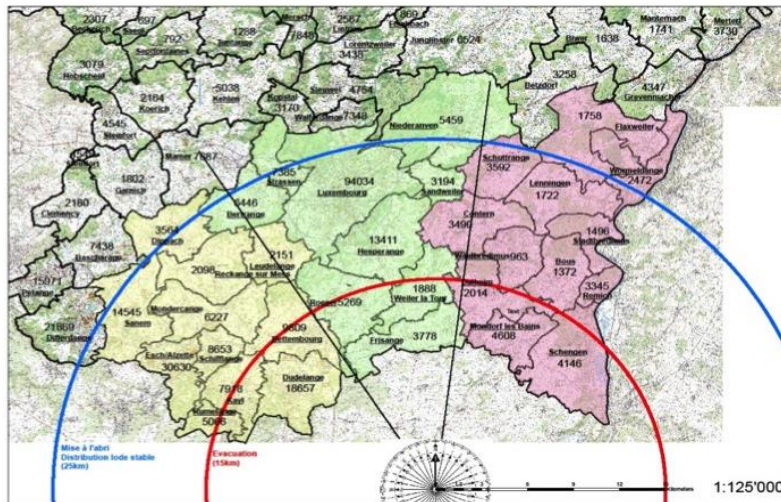
None

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates	15 km pop.	25 km pop.	Comments
Cattenom	1	PWR	1300	49.4167° N	6.25° E	NPP in France at 8.5 km from LU border. Population numbers are given for Luxembourg.
	2	PWR	1300			
	3	PWR	1300			
	4	PWR	1300			

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



## Emergency classification

In situations with potential releases relevant from a health protection point of view, the emergency is declared by the prime minister, based on the advice of the DRP, the CGDIS and the HCPN.

Arrangements are in place for direct alert of the LU-authorities by the French licensee.

### Planning radii:

Evacuation: 15 km (UPZ) can be extended to 30 km in the post-accidental phase.

ITB and sheltering: 25 km (UPZ), full country (EPD)

Ingestion and commodity planning distance: Full country.

## Protection strategy

The aim is to consider the affected area as a whole, and to coordinate protective actions with the neighboring countries. Generic reference levels (RLs) and operational reference levels (OILs) are defined as given in the table below. These values allow for the necessary flexibility in decision taking for coordinating and aligning protective actions along the borders with the neighboring countries.

Protective actions may be taken at levels of effective or equivalent dose below an RL. In duly justified cases, actions may not be taken in exposure situations above the RL's. OILs serve as orientation values during the release phase.

No criteria exist for automatically triggering actions.

## Criteria

Protective Action	RLs	OILs
Evacuation	100 mSv (eff., 7d, ext.+inh.)	
Sheltering **	10 mSv (eff., 7d, ext.+inh.)	100 microSv/h
ITB **	50 mSv (Thy., 7d, inh.)	100 microSv/h
Protection of food and livestock		1 microSv/h

\*\* Sheltering and ITB are combined

# Norway

## EPR Fact Sheet

### Decision making

During the acute phase of a nuclear or radiological incident, the Crisis Committee for Nuclear Preparedness has the King's executive power and authority to make decisions and give orders concerning certain specified mitigating actions. As the leader of the Crisis Committee, the Norwegian Radiation and Nuclear Safety Authority (DSA) can as required make decisions on behalf of the Crisis Committee from the point in time when there is knowledge of a nuclear incident and until the Crisis Committee has assembled. DSA is also the secretariat for the Crisis Committee and staffs and operates its Operations Centre.

During the acute phase of a nuclear or radiological incident, the Crisis committee can use its authority as it deems necessary to protect lives, health, environment, or other important public interests. The Crisis Committee shall ensure that the incident is managed with coordinated measures and information at the national level. The members of the Crisis Committee are responsible for the implementation of measures within their sectors, and report back to the Crisis Committee and the secretariat on the status of implementation. The County Governors are responsible for coordinating preparedness at the regional level.

### Advice

DSA provides advice and expert assistance to the Crisis Committee. DSA can also call upon the expertise of the Crisis Committee's advisors.

In addition, DSA operates the automatic radiation measurement network and would coordinate nationally the radiation measurements in case of emergency.

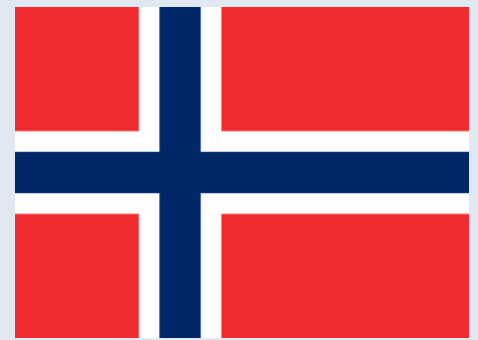
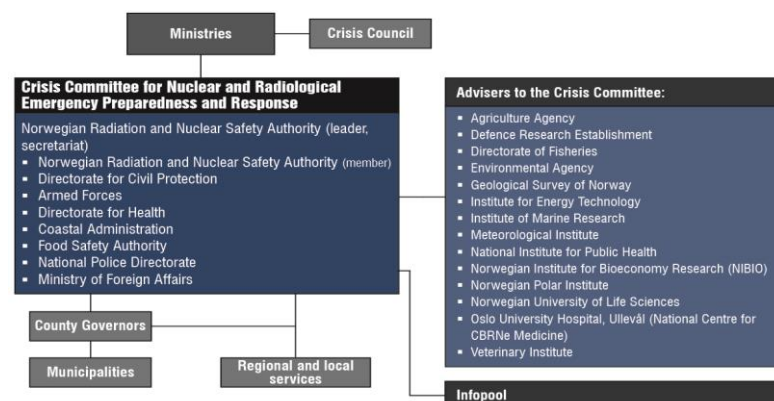
### Licensee

The licensee is obliged to make necessary information available to the authorities, to support the authorities in assessing the situation and to advise them in taking decisions on protective actions for the public.

### Alarming

In the event of a nuclear or radiological incident, the licensee shall notify DSA immediately as well as emergency services. DSA will begin coordinating the national response to the incident, as well as coordinate with on-site personnel.

### Organizational structure



### Country info

Capital	Oslo
Official language	Norwegian
Population	5.4 M
Area	385 178 km <sup>2</sup>
Currency	Krone (NOK)
Time zone	UTC+1
Calling code	+47
Internet TLD	.no
NPPs /ele. share	0/0%

### NWP, NCA\*

Norwegian Radiation and Nuclear Safety Authority (DSA)

### Emergency website

<https://www.dsa.no/en>

### Online measurements

<http://radnett.dsa.no>

### Bilateral agreements

Nordic countries (Sweden, Finland, Iceland, Denmark), Lithuania, Netherlands, Poland, Russia, UK, Germany, Ukraine.

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Environmental Sampling and Analysis

## Nuclear facilities\* and population

Research reactor	Type	MW <sub>e</sub>	GPS coordinates		Comments
HBWR	HWR	25	59°07'36.4"N	11°24'04.8"E	Permanently shut down as of March 2018
JEEP-II	TANK	2	59°58'28.3"N	11°03'07.7"E	Permanently shut down as of March 2019

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Protection strategy

Reference levels of 20 mSv (eff. dose all pathways, 1 year) is a target for the protection strategy during nuclear or radiological emergencies. The protection strategy is described in detail in the [Nordic Flag Book](#).

## Criteria

Protective Action	OILs /EALs	Comments
Evacuation	Sheltering anticipated to be needed for more than 2 days	In addition, access and traffic restrictions (road, marine, rail, aviation)
Sheltering	100 microSv/h	In addition, access and traffic restrictions (road, marine, rail, aviation)
Partial Sheltering	10 microSv/h	
ITB for all <40 y	With sheltering and/or evacuation	
ITB only for children under 18 y, pregnant and breast feeding women	With partial sheltering	
Protection of food and livestock	1 microSv/h	

# Poland

## EPR Fact Sheet

### Decision making

Depending on the extent of emergency responsibility for mitigating its consequences belongs to the licensee (on-site level), relevant provincial governor (regional level) or the Minister of Interior (national level).

### Advice

In case of radiological or nuclear emergency the National Atomic Energy Agency (PAA) provides expert advice to other authorities. PAA also operates the national radiation monitoring network and decision support systems.

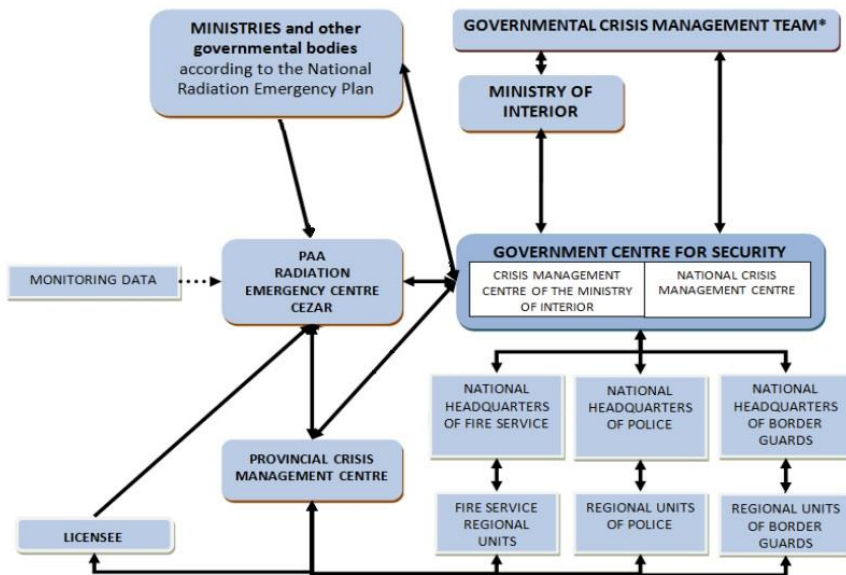
### Licensee

In case of radiological or nuclear emergency the licensee is obliged to notify the Radiation Emergency Centre CEZAR PAA.

### Alarming

In case of radiation or nuclear emergency the licensee is obliged to notify PAA and other relevant authorities according to the radiation emergency plan.

### Organizational structure



\*The PAA President is a member of the Governmental Crisis Management Team in case of crisis situation due to radiation emergency on national scale



### Country info

Capital	Warsaw
Official language	Polish
Population	38.2 M
Area	313 000 km <sup>2</sup>
Currency	PLN
Time zone	Wintertime UTC + 1 Summertime UTC+2
Calling code	48
Internet TLD	.pl
NPPs /ele. share	0/0%

### NWP and NCA\*

Radiation Emergency Centre CEZAR,  
National Atomic Energy Agency,  
[cezar@paa.gov.pl](mailto:cezar@paa.gov.pl)

### Emergency website

<http://www.paa.gov.pl>

### Online measurements

<https://www.gov.pl/web/paa/sytuacja-radiacyjna>

### Bilateral agreements

Austria, Belarus, Czechia, Denmark, Lithuania, Germany, Norway, Russian Federation, Slovakia, Ukraine

## Nuclear facilities\* and population

Research Reactor		MW <sub>th</sub>	GPS coordinates		Actions	Type
Otwock-Świerk	MARIA	30	52.122981 ° N	21.344094 ° E	≤ 1 km	pool reactor

\*The IAEA emergency preparedness category 1 and other relevant facilities

### Emergency classification

**On-site level** – radiation emergency occurring on the site of organizational entity, with the impact limited to the area within the site boundaries of this organizational entity

**Regional level** – radiation emergency occurring on the site of organizational entity, or beyond this site during field works or during the transport of nuclear materials, ionizing radiation sources, radioactive waste or spent nuclear fuel, with the impact limited to the territory of a single province

**National level** – radiation emergency similar to provincial scale public emergency, if its impact extends, or may extend, over the territory larger than that of a single province or extends beyond the state territory

### Protection strategy

Protective Action	Intervention levels	Comments
Evacuation	100 mSv	eff., 7d, ext.+inh.
Sheltering	10 mSv	eff., 2d, ext.+inh.
Temporary relocation	30 mSv	eff., 30d, ext.+inh.
Permanent resettlement	1 Sv	eff., lifetime
ITB	50 mGy	thyroid absorbed dose
Prohibition of consumption contaminated foodstuffs (applicable also to the foodstuffs for animals)	Radionuclide specific OILs	

Protective Action	OILs <sup>1</sup>	Comments
Evacuation	1000 µSv/h	measurement of OIL – 1 meter above ground
Temporary relocation	100 µSv/h	measurement of OIL – 1 meter above ground, single registration of dose rate greater than or equal of the dose rate in 10 days after reactor shutdown in the activities classified as I or II category
	25 µSv/h	
	25 µSv/h	
ITB	1000 µSv/h	measurement of OIL – 1 meter above ground, single registration of level greater than the dose rate
	1 µSv/h	Ambient dose equivalent rate at 10 cm away from the bare skin conducted in an area with a background of less than 0.5 µSv/h.
	0,5 µSv/h (children at age 0-7 years)	Measured within 6 days from iodine absorption, at the background level of ionizing radiation, measured 1 meter above ground, not exceeding 0.2 µSv/h, the dose rate was recorded at least once at the surface of the bare skin at the level of the thyroid:
	2 µSv/h (other)	
Prohibition of consumption contaminated foodstuffs (applicable also to the foodstuffs for animals)	1 µSv/h	measured 1 meter above ground, at least 1 µSv/h without consider the background level of ionizing radiation

<sup>1</sup> Implemented in the regulation of the Council of Ministers on the types of intervention measures introduced in the urgent protective zone and values of the OILs constituting the basis for introducing these activities in the outer zone

# Romania

## EPR Fact Sheet

### Decision making

According to the current legislation, the National System for the Management of Emergencies has three types of structures:

- the decisional structure – the committees for emergencies,
- the executive structure,
- the operational structure – the operative centres for emergencies.

All the decisional, executive and operational structures are established on three levels: national, county and local.

As a decision structure, at national level is organized the National Committee for Special Emergency Situations. The National Committee for Special Emergency Situations is set-up under the co-ordination of the Prime Minister and managed by the Minister of Internal Affairs. All the ministerial, county and local Committees are subordinated to the National Committee for Special Emergency Situations.

### Advice

Advice to the decision-making bodies and the responding organization is provided by the national competent authority (CNCAN) and some specific technic support organization. The assessment of the plant conditions and the possible off-site consequences is performed by the National Commission for Nuclear Activities Control CNCAN (regulatory body).

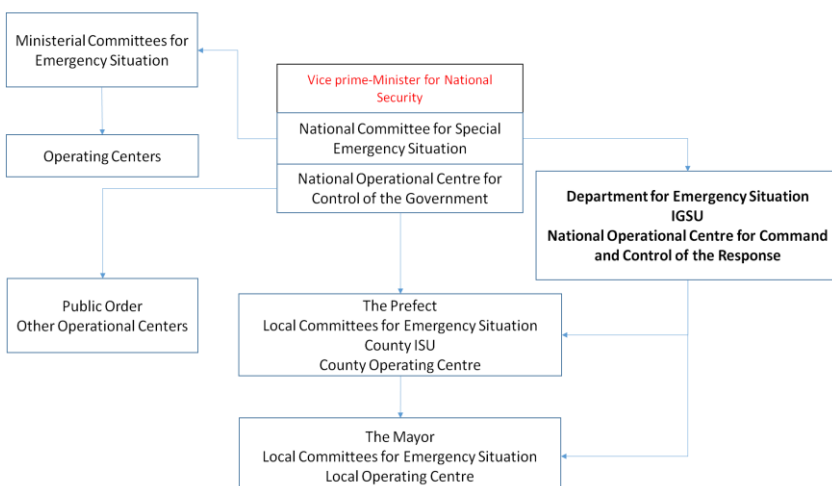
### Licensee

The licensee has to notify CNCAN, without delay, of any event fulfilling defined criteria. The licensee has to transmit all relevant and available information to CNCAN, in order for the regulatory body to assess the situation and to recommend off-site protective actions for the public.

### Alarming

The licensee has to report the emergency to CNCAN, Local Authorities and IGSU immediately if a facility, site or general emergency was classified. The sirens are activated by the local authorities and instructions are broadcasted throughout national and private Radio/TV stations.

### Organizational structure



### Country info

Capital	Bucharest
Official language	Romanian
Population	20 M
Area	238 391 km <sup>2</sup>
Currency	Leu (RON)
Time zone	UTC+2
Calling code	+40
Internet TLD	.ro
NPPs /ele. share	2/18%

### NWP\*

National Commission for Nuclear Activities Control

### NCA\*

National Commission for Nuclear Activities Control (CNCAN)

### Emergency website

[www.cncan.ro](http://www.cncan.ro)

[www.igsu.ro](http://www.igsu.ro)

### Online measurements

<http://www.anpm.ro/debit-doza-gama>

### Bilateral agreements

Bulgaria, Ukraine, Hungary, Turkey, Serbia, Greece, Russia

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Environmental Sampling and Analysis
- Radiological Assessment and Advice
- Dose Assessment
- Decontamination

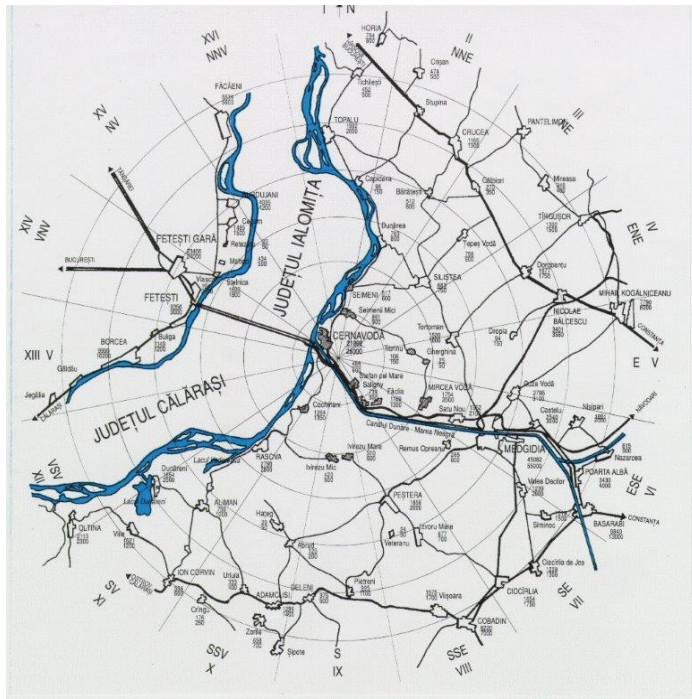
\*National Warning Point and Competent Authority under the Emergency Conventions

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates	5 km pop.	15 km pop.	100 km pop.	Comments
Cernavoda 1	PHWR	700	44.320431° N 28.059873° E	15 000	25 000	600 000	
Cernavoda 2	PHWR	700	44.321448° N 28.058512° E	15 000	25 000	600 000	

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



## Emergency classification

- 0 – Alert
- 1 – Facility Emergency
- 2 – Site Emergency
- 3 – General emergency

### Comments

- Romanian emergency classification is according to IAEA's classification from GSR Part7
- Precautionary action zone: 5 km
- Urgent protective action zone: 15 km

## Protection strategy

Reference level of 100 mSv (eff. dose all pathways, 1 year) is a target for protection strategy during nuclear or radiological emergencies. The protection strategy is according to GSR part 7 (Generic Criteria).

## Criteria

Protective Action	OILs /EALs	Comments
Evacuation in PAZ (5 km)	General Emergency	In addition, access and traffic restrictions (road, naval, rail, aviation)
Sheltering in UPZ (15 km)	General Emergency	In addition, access and traffic restrictions (road, naval, rail, aviation)
ITB	With sheltering and/or evacuation	Iodine tablets pre-distributed within 5 km of plant

### Comments

Other protective actions outside the planning zones in emergency planning distance and food restriction and commodities distance (100km):

- Restrict consumption, distribution and sale of non-essential food, milk and drinking water and restrict the use and distribution of other commodities



# Slovakia

## EPR Fact Sheet

### Decision making

The level of decision making is dependent on the territory that is affected by the emergency. If only local areas are affected, regional crisis headquarters will serve as a coordinating body and the chairman of the regional county office is responsible for decision making. In case the emergency exceeds territory of one region, Central Crisis Headquarters (CCH) is responsible for coordination of activities. CCH provides advice to the Government of the Slovak Republic that takes decisions.

### Advice

For assessing of course and consequences of incidents and accidents at nuclear installations and for preparation of recommendations for actions licensee, NRA SR and PHA SR are responsible.

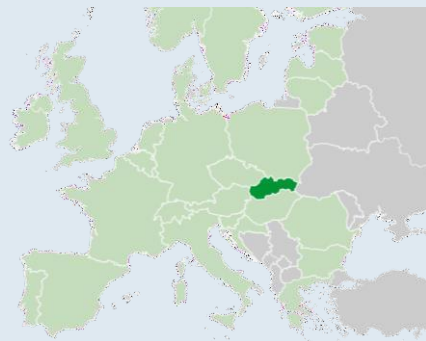
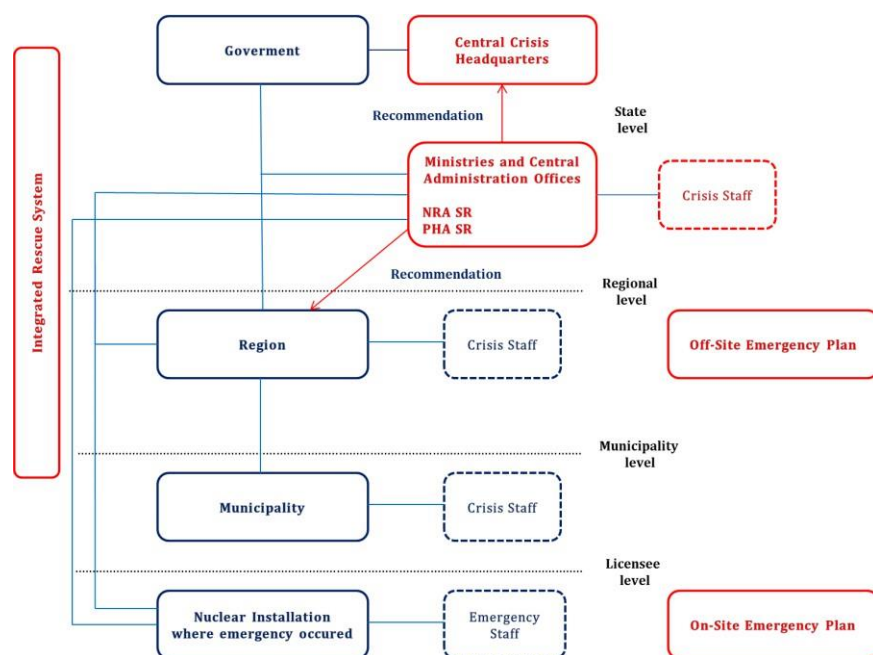
### Licensee

Licensee declares emergency and takes protective and mitigatory actions on-site to prevent or to control releases and is responsible for its workers as well as for all other persons on the premises of the nuclear installation. Licensee has some further practical responsibilities relevant for EPZ area.

### Alarming

The licensee shall notify the NRA SR of incidents or accidents over the telephone without delay. For event classified as "alert", the licensee is also obliged to inform the Ministry of Interior, Ministry of Health, PHA SR and other responding organizations with no delay. Licensees are required to update the information as soon as it is known to have changed. The operator, in co-operation with the civil protection, provides warning (sirens) and notification (radio, TV) to the population.

### Organizational structure



### Country info

Capital	Bratislava
Official language	Slovak
Population	5.4 M
Area	49 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1h
Calling code	+421
Internet TLD	.sk
NPPs /ele. share	2/51%

### NWP\*

Ministry of Interior of the Slovak Republic

### NCA\*

Nuclear Regulatory Authority of the Slovak Republic (NRA SR)

### Radiation protection

Public Health Authority of the Slovak Republic (PHA SR)

### Emergency website

[www.ujd.gov.sk/](http://www.ujd.gov.sk/)

### Online measurements

[www.shmu.sk/sk/?page=1894](http://www.shmu.sk/sk/?page=1894)

### Bilateral agreements

Czech Republic, Poland, Ukraine, Hungary, Austria, Germany, Slovenia

### RANET capabilities

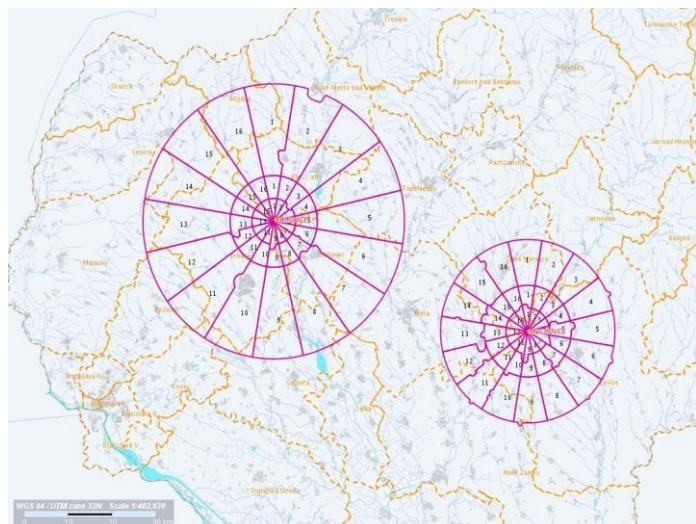
None

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates	5 km pop.	20 km pop.	Comments
Bohunice	3	PWR	505	48.4944° N 17.6819° E	14 804	266 922
	4	PWR	505	48.4944° N 17.6819° E	14 804	266 922
Mochovce	1	PWR	500	48.2639° N 18.4569° E	3 147	139 798
	2	PWR	500	48.2639° N 18.4569° E	3 147	139 798
	3	PWR	470	48.2639° N 18.4569° E	3 147	139 798

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



## Emergency classification

**1<sup>st</sup> degree** – “alert” – for the condition upon which performance of safety functions is threatened or compromised, safety barriers are compromised or non-functioning, radioactive substance release is imminent or already occurred, which may lead or leads to unacceptable irradiation of persons within building structures of the nuclear facility and in the case of adverse development of the event, release of radioactive substances outside of the nuclear facility premises is imminent.

**2<sup>nd</sup> degree** – “on-site emergency” – for a condition that may lead or leads to a release of radioactive substances outside of the nuclear facility building structures and to its area.

**3<sup>rd</sup> degree** – “off-site/general emergency” – for a condition that may lead or leads to a severe release of radioactive substances to the nuclear facility surroundings.

## Comments

The EPZ is defined based on analysis of the source term and radiological consequences of selected severe accidents and represents a circle with the centre in the nuclear facility and further divided into 16 sectors (of 22.5° each). The radius is NPP-specific and is defined as 20 km for Mochovce and 21 km for Bohunice. In case that the boundary demarcating the EPZ interferes with an inhabited area, the whole inhabited area is considered as a EPZ.

## Protection strategy

The important measures connected with the protection of population are as follows: monitoring of the radiation situation; iodine prophylaxis (iodic preparations are provided by the licensee for all inhabitants within a radius of 21 km (Jaslovské Bohunice) or 20 km (Mochovce) from the NPPs; sheltering, which is carried out immediately after the warning and notification of the population about the radiation accident; evacuation, from the areas endangered by the radiation gradient. Performing of an intervention must be carefully considered if intervention levels are exceeded.

## Criteria\*

Protective Action	Value of projected dose	Comments
Sheltering	100 mSv / 7 days (effective dose / equivalent dose to fetus)	10 mSv / 48 hours effective dose in practical arrangements
Iodine prophylaxis	50 mSv / 7 days (equivalent dose to thyroid)	
Evacuation of people	100 mSv / 7 days (effective dose / equivalent dose to fetus)	

\* Criteria in this table are generic criteria

# Slovenia

## EPR Fact Sheet

### Decision making

In case of nuclear or radiological disaster the Government of the Republic of Slovenia is responsible for decision making on protective actions. Operational management in response phase is a task of Civil Protection authorities (CP commanders supported by CP Staff) at different planning levels from facility to national. Decisions are implemented through chain of command all the way down to the facility level. The decision making process is the same for all hazards.

### Advice

Slovenian Nuclear Safety Administration (SNSA) is competent authority in Slovenia on radiation matters during an emergency. SNSA emergency response team provides advice on protective actions to the national Civil Protection Commander. Slovenian Radiation Protection Administration staff are members of the SNSA emergency team as well.

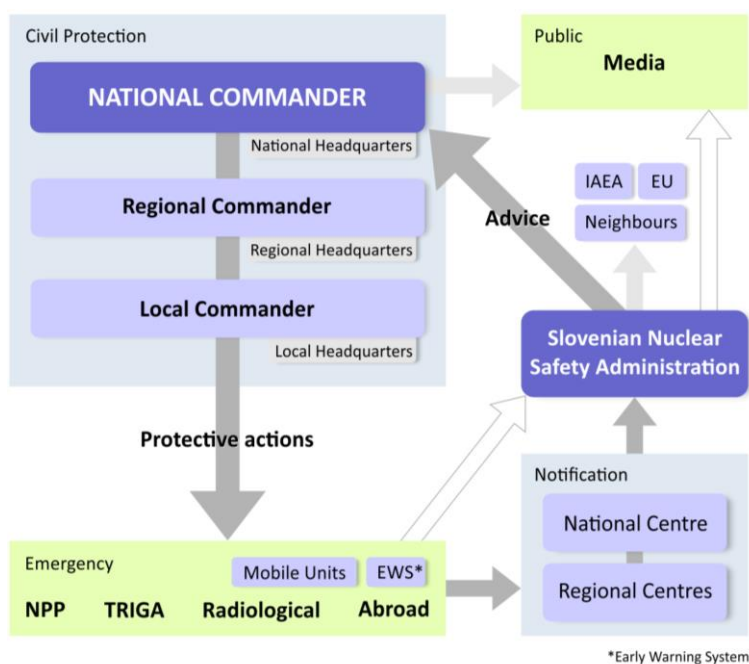
### Licensee

The NPP is obliged to notify off-site authorities (Regional Notification Centre, National Notification Centre and Slovenian Nuclear Safety Administration) within 15 min of emergency declaration. They have to report in writing every 30 min during an emergency and provide plant parameters via an online system. They have to make available plant parameters via an on-line system. They also have to give recommendation of protective actions.

### Alarming

Instructions and warnings to the public are provided by stationary siren system and through the media. Alarming is the same for all hazards.

### Organizational structure



### Country info

Capital	Ljubljana
Official language	Slovenian
Population	2 M
Area	20 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1 (CET)
• Summer (DST)	• UTC+2 (CEST)
Calling code	+386
Internet TLD	.si
NPPs /ele. share	1/24%

### NWP\*

Notification Centre of the Republic of Slovenia

### NCA\*

Slovenian Nuclear Safety Administration (SNSA)

### Radiation protection

Slovenian Radiation Protection Administration (SRPA)

### Emergency website

[www.ursiv.gov.si/](http://www.ursiv.gov.si/)

### Online measurements

[www.radioaktivnost.si/#trenutne](http://www.radioaktivnost.si/#trenutne)

### Bilateral agreements

Austria, Croatia, Hungary, Italy

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Environmental Sampling and Analysis
- Radiological Assessment and Advice
- Medical Support
- Dose Assessment
- Decontamination
- Nuclear Installation Assessment Advice
- Expertise
- Resources

\*National Warning Point and Competent Authority under the Emergency Conventions

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates	3 km pop.	10 km pop.	25 km pop.	Comments		
Krško	NEK	PWR	700	45.93811° N	15.51523° E	11 000	27 000	55 000	

Research reactor	Type	kW <sub>th</sub>	GPS coordinates	Comments		
Ljubljana	TRIGA	Mark II	250	46.09426° N	14.59769° E	Located in Brinje, 8 km outside Ljubljana

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



## Emergency classification

Emergency classification for NPP Krško is based on emergency action levels (EALs), as predetermined, site-specific, observable triggers for each level of emergency.

**0 - Unusual Event:** potential degradation of safety; no releases requiring offsite response are expected

**1 - Alert:** actual or potential substantial degradation of safety; limited releases possible with no risk to environment

**2 - Site Emergency:** actual or likely major failure of plant functions; any releases are not expected to exceed exposure limits beyond the site boundary; the NPP site is evacuated

**3 - General Emergency:** actual or imminent substantial core degradation or melting with potential for loss of containment integrity, releases requiring off-site protective actions can be expected

## Protection strategy

The protection strategy is based on 100 mSv reference level. For nuclear emergency at the NPP protective actions are predefined and based on emergency classification. Evacuation of 3 km zone is ordered when general emergency is declared, which is followed by evacuation of 10 km zone. Evacuation is accompanied by ITB, if needed. In the 25 km zone protective actions are based on field measurements and dose assessments.

### ITB distribution

The potassium iodide tablets are pre-distributed in the 10 km zone around the Krško NPP, for the rest of the population the tablets are stockpiled and distributed by Municipalities in a case of implementation of protective action of ITB.

For other radiological emergencies protective actions are based on field measurements and dose assessments. Safety perimeters for radiological emergencies are based on the IAEA recommendations.

## Criteria

Protective Action	OILs /EALs	Comments
Evacuation	General Emergency	For the NPP only.
ITB	General Emergency	Persons up to 40 yrs.
Evacuation	1000 $\mu$ Sv/h	Dose rate is measured 1 m above surface or source.
ITB	1000 $\mu$ Sv/h	OILs are based on the IAEA recommendations.
Relocation	100 $\mu$ Sv/h	
Food chain restrictions	1 $\mu$ Sv/h	
Food control	1 mSv in 1 year	Max.permitted levels of radionuclide concentration according to COUNCIL REGULATION (Euratom) 2016/52, Decree on dose limits, reference levels and radioactive contamination.

# Spain

## EPR Fact Sheet

### Decision making

Decision making in case of emergency rests in local authorities. The main position for decision making is the Plan Director, filled by the State Government Delegate at the province. This position is aided by an Executive Committee composed of five to seven posts responsible for radiation protection (filled by CSN), public health, security, logistics and local civil protection, as well as a representative of the local municipalities.

Upon request, help can be provided by the State Government through the Central Response and Help Plan, which is coordinated by State Civil Protection and encompasses the rest of the State resources.

### Advice

The Nuclear Safety Council (CSN – Consejo de Seguridad Nuclear) is the only authority responsible for providing advice and recommendations regarding radiological protection and nuclear safety in case of emergency. CSN advice to decision makers encompasses emergency assessment, prognosis, protection measurements to the public and environment, etc.

CSN operates information systems for the monitoring of environmental radiation as well significant plant parameters and status.

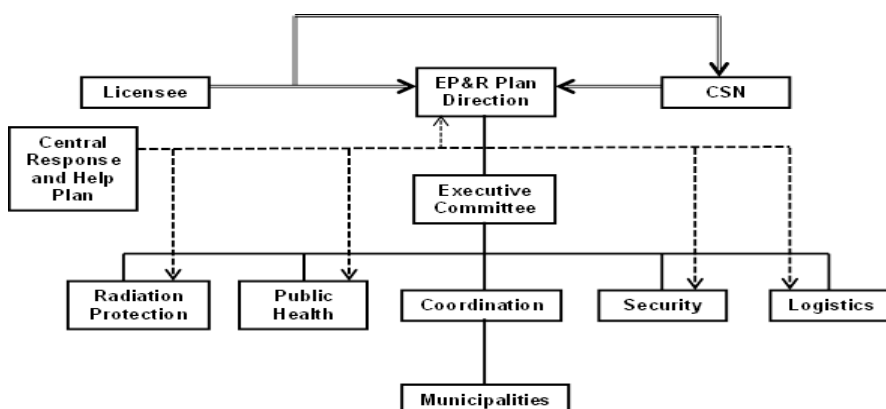
### Licensee

Additionally to the notifying requirements in case of an emergency event, licensees must make the necessary information available (including external dose predictions) to the CSN in order to assess plant status and possible consequences. Licensees are also required to update the information as soon as it is known to have changed.

### Alarming

Licensees are obliged to notify the CSN and the Plan Director (see Decision making paragraph) Emergency Centre any event that fulfills predefined criteria that requires activation of EP&R Plans.

### Organizational structure



### Country info

Capital	Madrid
Official language	Spanish
Population	46 M
Area	504 000 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC+1
Calling code	+34
Internet TLD	.es
NPPs /ele. share	6/20%

### NWP\*

CSN - Nuclear Safety Council (Salem-Emergency Centre)

### NCA\*

CSN - Nuclear Safety Council (Salem-Emergency Centre)  
Emergencies and Civil Protection Office (DGPECE)

### Emergency website

[www.csn.es](http://www.csn.es)

### Online measurements

[www.csn.es](http://www.csn.es)

### Bilateral agreements

Portugal, France

### RANET capabilities

- Radiological assessment and advice
- Dose assessment
- NI assessment and advice

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates	5 km pop.	20 km pop.	50 km pop.
Almaraz	AL1	PWR	39.807008° N 5.698364° EW	1 500	27 100	162 500
	AL2	PWR				
Ascó	AS1	PWR	41.201058° N 0.567850° E	6 700	33 800	448 100
	AS2	PWR				
Cofrentes	COF	BWR	39.213227° N 1.050972° W	2 000	11 000	366 700
Garroña	GAR	BWR	42.775442° N 3.207159° W	270	8 200	403 300
Trillo	TRI	PWR	40.701573° N 2.622687° W	1 300	6 300	120 700
Vandellós2	VA2	PWR	40.950718° N 0.865283° E	630	57 000	461 000

\*The IAEA emergency preparedness category 1 and other relevant facilities

## Planning zones



## On-site emergency classification

### Category I.- Pre-Alert

A situation with a potential degradation of plant safety

### Category II.- Emergency Alert

An event that can cause an important degradation of plant safety

### Category III.- Site Area Emergency

An event that can induce important failures in plant safety functions

### Category IV.- General Emergency

An event that can cause important damage to plant core

## Off-site emergency classification

Off-site emergency can be classified in four different groups (Situation 0, 1, 2 and 3) according to the protection measures required by the on-site emergency and its off-site consequences.

## Protection strategy

Protective Action	On-site classification	Off-site classification
None	I	Situation 0
Access Control	II, III	Situation 1
<b>Situation 1</b> measures plus Sheltering, Thyroid Blocking, Food and Water Restrictions	IV	Situation 2
<b>Situation 2</b> measures plus Evacuation and Personnel Decontamination	IV	Situation 3

## Criteria

Protective Action	OILs /EALs	Comments
Sheltering	10 mSv	Avertable dose in 48 h (up to 10 km)
Thyroid Blocking	100 mGy	Equivalent avertable dose
Evacuation	50 mSv	Avertable dose in 1 week. Greater or minor levels can be justified (weather conditions, easy evacuation, large population, up to 5 km)
<b>Long term protection measures</b>		
Temporal Relocation	30 mSv the first month and 10 mSv the following months	
Permanent Relocation	Projected dose for one month > 10 mSv after 1 or 2 years of temporal relocation, or life projected dose > 1 Sv	

## Comments

Planning zones are divided in 16 sectors of 22° 30' named after the compass rose.

# Sweden

## EPR Fact Sheet

### Decision making

In a nuclear emergency, the state, via the County Administrative Board (Länsstyrelse), is responsible for rescue services and protecting the public. This includes taking public protective actions. The Swedish Civil Contingencies Agency (MSB) supervises the planning of off-site emergency preparedness and shall support the coordination of actions by the relevant authorities. The Swedish Radiation Safety Authority (SSM) assists the County Administrative Board with risk assessments and shall provide advice. Unless otherwise stated, responsibilities and mandates of government bodies are retained in an emergency. Areas of responsibility are divided between sectors and administrative regions in Sweden.

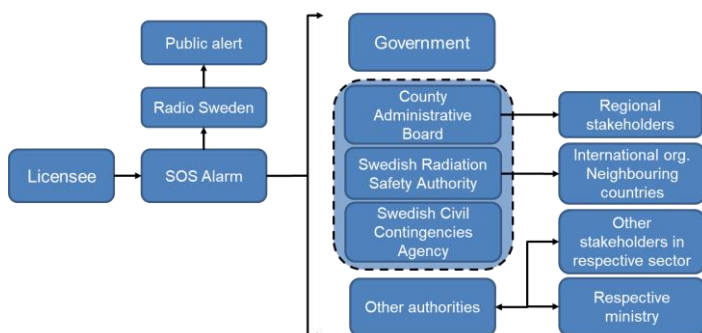
### Advice

SSM shall provide advice and recommendations concerning radiation protection and technical assessments to the County Administrative Board and other authorities. SSM operates a network of fixed monitoring stations and maintains a national expert response organisation for monitoring and sampling. Other authorities shall give advice within their areas of responsibility.

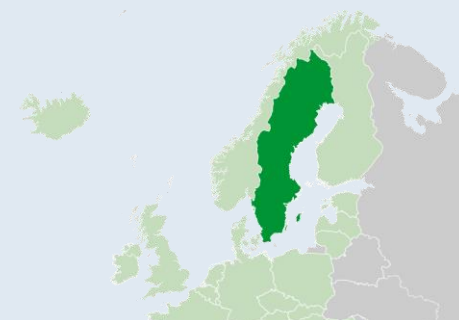
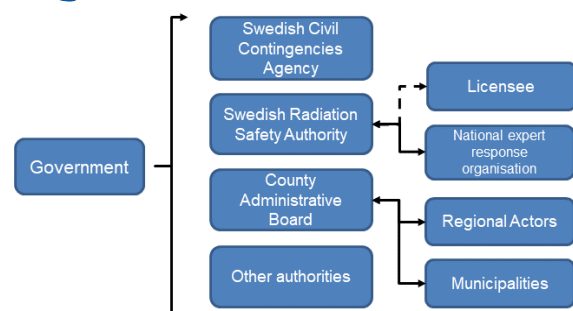
### Licensee

SSM issues regulations applying to nuclear facilities and supervises regulatory compliance. In the event of an emergency, a licensee is required to take prompt actions in order to classify the event according to the emergency classes, alert the facility's emergency response organisation and responsible authorities, assess possible releases, and restore the facility to a safe and stable state.

### Alarming



### Organizational structure



### Country info

Capital	Stockholm
Official language	Swedish
Population	10.6 M
Area	410 000 km <sup>2</sup>
Currency	Krona (SEK)
Time zone	UTC+1
DST	Yes (UTC+2)
Calling code	+46
Internet TLD	.se
NPPs /elec. produce	3/27%

### NWP\*

Swedish Meteorological and Hydrological Institute (SMHI)

### NCA\*

Swedish Radiation Safety Authority (SSM)

### Emergency website

[www.krisinformation.se](http://www.krisinformation.se)

### Online measurements

<https://remon.jrc.ec.europa.eu>

### Bilateral agreements

Denmark, Finland, Germany, Norway, Russia, Ukraine

### RANET capabilities

- Source Search and Recovery
- Radiation Survey
- Sampling and Analysis
- Radiological Assessment and Advice

## Nuclear facilities\* and population

Facility	Type	MW <sub>t</sub>	GPS coordinates		PAZ** pop.	UPZ** pop.	EPD** pop.	Comments	
Forsmark NPP	F1	BWR	3075	60.403° N	18.175° E	100	20 000	850 000	EPC I
	F2	BWR	3253	60.404° N	18.173° E				EPC I
	F3	BWR	3300	60.405° N	18.161° E				EPC I
Ringhals NPP	R3	PWR	3135	57.258° N	12.107° E	4 000	130 000	1 600 000	EPC I
	R4	PWR	3300	57.256° N	12.109° E				EPC I
Oskarshamn NPP	O3	BWR	3900	57.416° N	16.673° E	300	30 000	400 000	EPC I
Central Interim Storage Facility for Spent Nuclear Fuel (Clab)		-		57.412° N	16.655° E	N / A	N / A	35	EPC II
Fuel Fabrication Plant (WSE)		-		59.646° N	16.586° E	N / A	0	N / A	EPC II

\*The IAEA emergency preparedness category I and II or other relevant facilities

\*\* PAZ, UPZ and EPD or equivalent distances according to national EPR plans

## Planning zones



## Planning zones

Precautionary Action Zones (PAZ, red) extending ~5 km, Urgent Protective Action Planning Zones (UPZ, blue) extending ~25 km and Extended Planning Distances (EPD, dark grey) extending ~100 km from the NPP.

## ITB distribution

Pre-distributed ITB in the emergency planning zones (PAZ and UPZ), additional distribution possible in EPD.

## Criteria

Reference levels (public)	mSv	Comments
Emer. exposure situations	20/50/100 mSv y <sup>-1</sup>	> 20 mSv y <sup>-1</sup> effective dose for events not considered in the design of NPP
Transition	≤ 20 mSv y <sup>-1</sup>	A prerequisite for the termination is that it is possible to establish a reference level of 20 mSv annual effective dose or lower
Exist. exposure situations	≤ 20 mSv y <sup>-1</sup>	No lower limit is given
Protection measures	Dose Criteria	Comments
Evacuation	20/100 mSv	Effective dose in 7 days, depending on scenario and reference level
Sheltering	10 mSv	Effective dose in 7 days
Iodine Thyroid Blocking	10/50 mSv	Equivalent thyroid dose: 50 mSv additional distribution; 10 mSv for intake of distributed ITB
Food controls	1 mSv	Committed effective dose y <sup>-1</sup> , as per EURATOM 2016/52
Relocation	20 mSv	Effective dose from the end of significant releases to one year from the onset of the emergency taking effects of remediation into account

## Emergency classification

The following emergency classes are used in Sweden:

**Alert** - Support for the ordinary on-site organisation is required to handle the situation.

**Site area emergency** - Implementation of precautionary actions for the public as well as increasing the readiness to implement urgent and early protective actions and other response actions for the public is warranted.

**General emergency** - Implementation of urgent and early protective actions and other response actions for the public is warranted.

## Protection Strategy

For an accident at a Swedish NPP the protection strategy is described in decision support guidance to aid decision makers in making justified, optimised and timely decisions on public protective actions and other response actions, based on available information. The decision support is available upon request from SSM (Ref: SSM2022-8091).



# Switzerland

## EPR Fact Sheet

### Decision making

Decisions on protective actions are taken by the Federal Council, based on applications of the Federal Civil Protection Crisis Management Board (CCMB). Members of this board are the heads or delegates of all concerned federal offices (ministries) and representatives of further federal institutions and of the cantons, i.e. the Swiss federal states. The meetings of this board constitute an accelerated consultation mechanism, similar to the one in regular situations, but with a shortened decision-making process.

For taking urgent protective actions, the competence of the Federal Council is delegated to the National Emergency Operations Centre (NEOC). Urgent protective actions are defined in the "Concept for countermeasures according to the dose level" (ordinance on Civil Protection of 11 November 2020, annex 2).

The implementation of protective and other response actions is the responsibility of the cantonal and local authorities.

### Advice

Advice to the decision-making bodies and the response organisation is provided by the competent federal offices and specific technical support organisations. The assessment of the plant conditions and the possible radiological off-site consequences is performed by the Swiss Federal Nuclear Safety Inspectorate ENSI (regulatory body). The radiological situation from the civil protection perspective is monitored and assessed by the NEOC and the Federal Office of Public Health (FOPH). The NEOC is leading the actions in areas under an emergency exposure situation, the FOPH those under an existing or planned exposure situation.

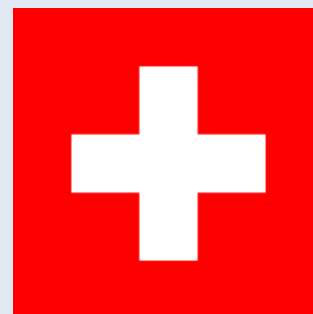
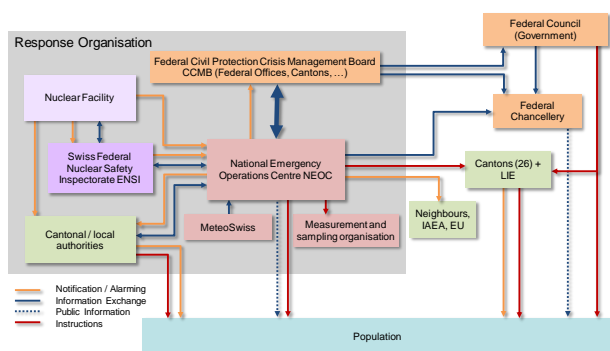
### Licensee

The licensee is obliged to notify the relevant authority without delay of any event fulfilling criteria defining the event as «nuclear emergency», and to make information needed to assess the situation available to the authority.

### Alarming

Alarming in connection with the corresponding instructions regarding urgent protective actions and other response actions is triggered by the NEOC. Civil protection sirens are activated by the local authorities, the instructions are broadcasted by national and private media as well as through the publicly available Alertswiss application.

### Organizational structure



### Country info

Capital	Bern
Official language	German, French, Italian, Romansh
Population	8.7 M
Area	41 285 km <sup>2</sup>
Currency	Swiss franc (CHF)
Time zone	UTC+1
Calling code	+41
Internet TLD	.ch
NPPs /ele. share	4/33%

### NWP and NCA\*

National Emergency Operations Centre (NEOC)

### Nuclear regulatory body

Swiss Federal Nuclear Safety Inspectorate (ENSI)

### Radiation protection

Federal Office of Public Health (FOPH)  
Swiss Federal Nuclear Safety Inspectorate (ENSI)

### Emergency website

<https://www.alert.swiss/>

Electronic Situation Display (authorities and partners, restricted access)

### Online measurements

<https://www.naz.ch>

<https://www.radenviro.ch/>

[www.ensi.ch/en/topic/measured-value-about-swiss-nuclear-power-plants/](https://www.ensi.ch/en/topic/measured-value-about-swiss-nuclear-power-plants/)

### Bilateral agreements

Austria, France, Germany, Italy, Liechtenstein

### RANET capabilities

- Radiation Survey
- Sampling and Analysis
- Source Search and Recovery
- Dose Assessment

\*National Warning Point and Competent Authority under the Emergency Conventions

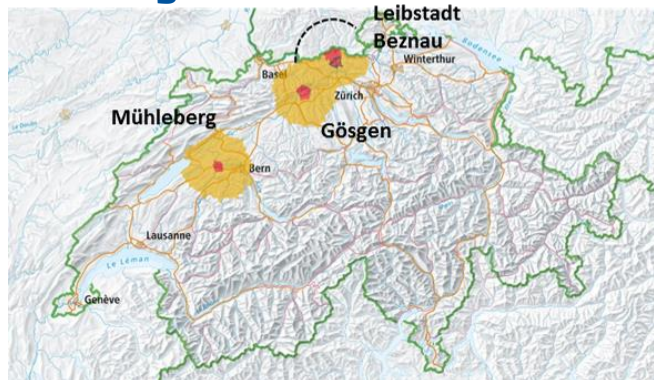
## Nuclear facilities\* and population\*\*

NPP	Type	MWth	GPS coordinates		5 km pop.	20 km pop.	Comments	
Beznau I	KKB I	PWR	1130	47.552° N	8.228° E	27 000	270 000	-
Beznau II	KKB II	PWR	1130					
Gösgen	KKG	PWR	3000	47.366° N	7.967° E	32 000	460 000	-
Leibstadt	KKL	BWR	3600	47.602° N	8.183° E	27 000	270 000	-
Mühleberg	KKM	BWR	1100	46.969° N	7.268° E	3 500	620 000	Decommissioning

\*The IAEA emergency preparedness category 1 and other relevant facilities

\*\* Concerned population on Swiss territory (current data from 2022)

## Planning zones



Planning zone 1 with a 3 to 5 km radius. Planning zone 2 with a 20 km radius, divided into 6 overlapping sectors of 120 degrees (on Swiss territory). The planning zone for the pre-distribution of stable iodine is within a 50 km radius. In case of an emergency, iodine can be distributed to the population outside the 50 km zone within 12 hours.

## Protection strategy

For a nuclear or radiological accident, the protection strategy is based on a reference level of 100 mSv residual dose during the first year. The Federal Council may set a lower reference level, depending on the specific situation. From this protection goal, the generic criteria and the operational intervention levels are derived. The generic criteria for the urgent phase are given in the table below (according to the "Concept for countermeasures according to the dose level"). The strategy will be implemented in concepts of operations describing the actions to be taken by the different response organisations (including e.g. special instructions for schools, access control, traffic deviations, etc.). The population is informed as soon as the dose of 1 mSv is exceeded or is expected to be exceeded. The information given to the population can include advice on protective actions, especially for the most vulnerable part of the population, such as children and pregnant women. As soon as the consequences can be assessed, the strategy is adapted by a graded approach. The principles of radiation justification and optimization (ALARA) are applied. The strategy will lead to an optimised reference level, used to derive new generic criteria and operational intervention levels.

## Criteria

Protective Action	Generic Criteria (projected dose)	Comments
Precautionary evacuation or sheltering	100 mSv eff., 7d, ext.+inh.	-
Sheltering	10 mSv eff., 7d, ext.+inh.	-
ITB	50 mSv thy., 7d, inh.	Pre-distributed to the households within a 50 km radius around nuclear facilities
Precautionary harvesting and grazing ban	-	In areas where protective actions for the population have been ordered and in downwind areas inside the national borders

## Emergency classification

The emergency classes for an event at a nuclear installation are triggered by specific plant parameters.

### Alert

An event that leads to a significant safety risk for on-site personnel, or which could develop into a Site Area Emergency or General Emergency and which, depending on the event, requires the deployment of the emergency organisation of the nuclear installation or part of it.

### Site Area Emergency

An event that could develop into a General Emergency or which constitutes a serious radiological hazard on the site area. A future (projected) radiological hazard to the environment that necessitates the deployment of the nuclear installation's emergency team and external emergency services is possible.

### General Emergency

An event that constitutes a serious current or projected radiological hazard to the environment and which mandatorily requires preparation for the implementation of protective actions in the vicinity of nuclear installations.

# The Netherlands

## EPR Fact Sheet

### Decision making

The Minister of Infrastructure and Water Management (I&W) and the minister(s) concerned are responsible for the preparation of radiological protective actions and the coordination and the implementation of those actions. Intersectoral crisis management will be coordinated in the *Interdepartmental Crisis Management Committee* (ICCb) and the *Ministerial Crisis Management Committee* (MCCb). They are responsible for (strategic) decision making. In the initial phase of an emergency the local authorities (Safety Regions) may initiate protective actions, such as evacuation, sheltering, ITB etc, as described in the Safety Regional nuclear emergency response plans.

### Advice

The *Crisis Expert Team radiation & nuclear* (CETsn) is responsible to collect and assess information about the technical, meteorological and radiological situation and to advise on radiological protective actions. The CETsn consists of a front office, the crisis organisation of the Authority for Nuclear Safety and Radiation Protection (CETsn-FO), and a back office with eight organisations (a.o. the ANVS Task Force, the National Institute for Public Health and the Environment, the Royal Netherlands Meteorological Institute, WFSR). The CETsn is chaired by the ANVS.

Information and advice from the CETsn will be provided to the relevant (inter)national authorities as well as the local authorities.

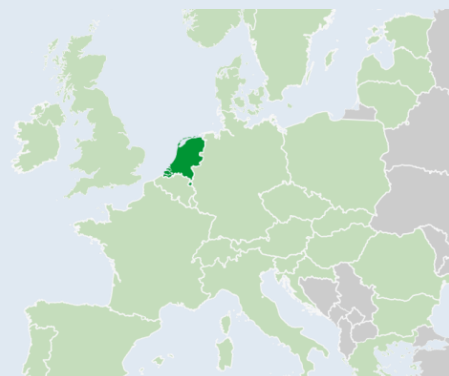
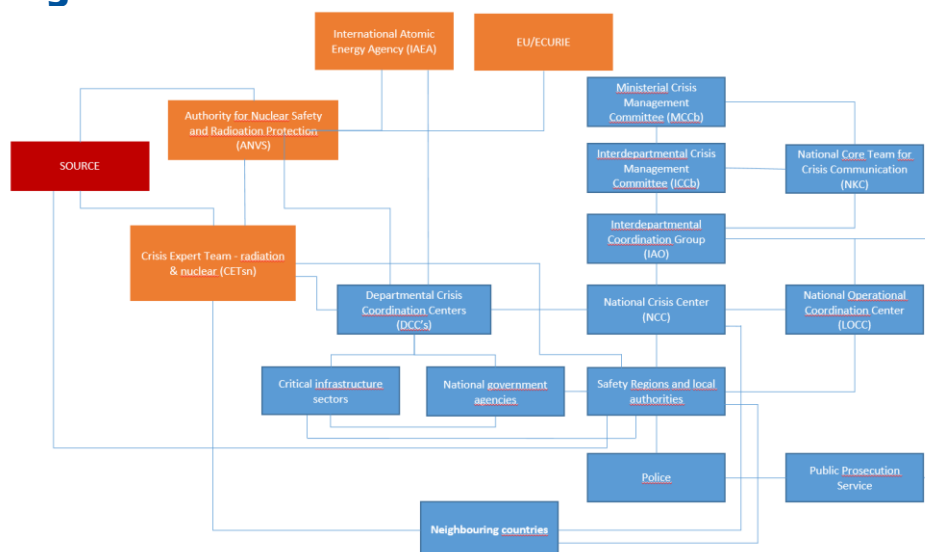
### Licensee

The licensee is responsible for actions taken on-site to mitigate the situation. The licensee is obliged to provide all information required for crisis management to the ANVS, the mayor and the Safety Region.

### Alarming

In case of a radiation accident or emergency the licensee is obliged to notify the ANVS, the mayor and the Safety Region.

### Organizational structure



### Country info

Capital	Amsterdam
Official language	Dutch
Population	17 M
Area	41 500 km <sup>2</sup>
Currency	Euro (€)
Time zone	UTC +1
Calling code	31
Internet TLD	.nl
NPPs /ele. share	1/4%

### NWP\*

ANVS (Authority for Nuclear Safety and Radiation Protection)

### NCA\*

ANVS (Authority for Nuclear Safety and Radiation Protection)

The NCA for RANET is DCC-I&W (Ministry of Infrastructure and Water Management - Crisis Management Centre)

### Emergency website

<https://www.crisis.nl>

### Online measurements

[http://www.rivm.nl/Onderwerpen/N/Nationaal\\_Meetnet\\_Radioactiviteit/Resultaten](http://www.rivm.nl/Onderwerpen/N/Nationaal_Meetnet_Radioactiviteit/Resultaten)

### Bilateral agreements

Belgium, Germany

### RANET capabilities

None.

## Nuclear facilities\* and population

NPP	Type	MW <sub>e</sub>	GPS coordinates	5 km pop.	10 km pop.	20 km pop.	100 km pop.	Comments	
Borssele	KCB PWR	490	51.43126° N 3.717364° E	4 400	57 000	240 000	4.8 M		
Petten <sup>b</sup>	HFR Pool	45 <sup>a</sup>	52.78786° N 4.677731° E	4 700	48 000	344 000	8.0 M	Research Reactor Isotope Production	
	MPF	n.a.							n.a.
Delft <sup>c</sup>	HOR Pool	2 <sup>a</sup>	51.99119° N 4.381675° E	152 000	882 500	2 470 000	11.2 M	Research Reactor	
NPP (foreign)		GPS coordinates		5 km pop.	10 km pop.	20 km pop.	25 km pop.	100 km pop.	Comments
Doel	Be	51.3239° N	4.2592° E	37	5 800	100 000	171 000	6.5 M	In total 4 reactors
Tihange	Be	50.5351° N	5.2737° E	n.a.	n.a.	n.a.	n.a.	1.1 M	In total 3 reactors
SCK-Mol	Be	51.2160° N	5.0901° E	n.a.	n.a.	24 000	60 000	7.5 M	Research Reactor
Emsland	De	52.4742° N	7.3178° E	n.a.	n.a.	n.a.	11 000	2.9 M	

\* The IAEA emergency preparedness category 1 and other relevant facilities

<sup>a</sup> MW<sub>th</sub>

<sup>b</sup> Petten: 3 km population=2 400.

<sup>c</sup> Delft: 0.5 km population=2.

## Planning zones



## Emergency classification

**Alert:** Situation requiring increased vigilance. No protective actions off-site are required.

**Facility Emergency:** Event with possible on-site radiological effects. No protective actions off-site are required.

**Site Area Emergency:** Event with possible radiological effects on-site and in the near surrounding.

No direct protective actions (sheltering, ITB or evacuation) are required. Protective actions for the food chain might be required.

**General Emergency:** An emergency requiring direct protective actions (sheltering, ITB or evacuation), as well as actions to protect the food chain.

## Protection strategy

The protection strategy is based on intervention levels as well on reference levels.

The Netherlands has a harmonized approach for a nuclear accident in a neighbouring country. Initially the protective actions in the neighbouring country will be followed. For this, planning zones have been aligned with the neighbouring countries.

For emergency exposure situations a reference level is set at 100 mSv effective dose (acute or annual).

ITB has been pre-distributed in both the ITB-planning zones.

## Criteria

Protective Action	Intervention Level (projected dose*)	Planning Zone (km)		
		KCB (Borssele)	HFR (Petten)	HOR (Delft)
Evacuation	100 mSv (E)	10**	3	
Sheltering	10 mSv (E)	20	3	0.5
ITB ≤ 40 a	250 mSv (H <sub>thy</sub> )	20		
ITB < 18 a or pregnant	50 mSv (H <sub>thy</sub> )	100	3	0.5
Water, food and feed protection	Radionuclide specific OIL's			

\* Time period for dose integration is 7 days.

\*\* The evacuation of the inner circle (5 km) is given priority.

# United Kingdom

## EPR Fact Sheet

### Decision making

Response to a major UK emergency is managed primarily at the local level by the Strategic Coordinating Group (SCG), which would normally be chaired by the police during the emergency phase and the local authority during the recovery phase. The operator, local and national agencies, and Government support the local strategic decision-making process.

At a national level, a nominated Government Department leads the national response. This Department is responsible for briefing the UK Parliament, the media and the public at a national level, and for providing information to the UK's international partners. Where necessary, specialist advice and assistance is provided to support the local response, together with the provision of any necessary extra resources.

### Advice

A Scientific and Technical Advice Cell (STAC) is formed locally to provide advice to the Strategic Coordinating Group (SCG), particularly on public health matters. STAC comprises representatives from local and national agencies who use their expert knowledge and the available information (e.g. plant status and environmental monitoring results) to form a common view of the situation and provide appropriate advice. At a national level, Government is advised by the Scientific Advisory Group for Emergencies (SAGE).

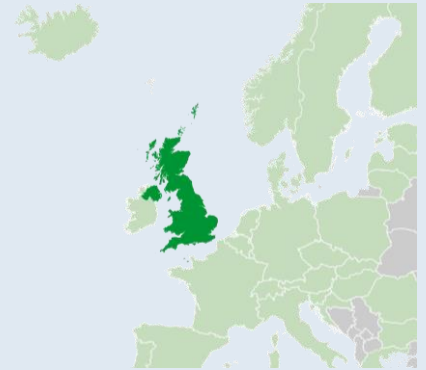
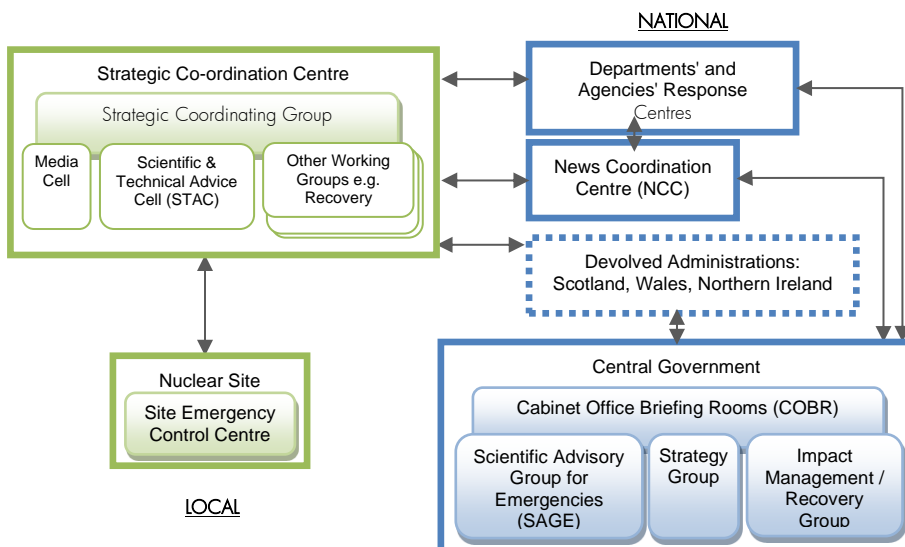
### Licensee

The licensee's role includes providing radiological data and plant information, which are used to formulate public protective advice; ensuring the safety of onsite personnel; configuring the plant or process in a safe condition; terminating the release of radioactivity as quickly as possible; providing compensation.

### Alarming

The licensee notifies the nuclear regulator, supporting agencies, Government, and the public through a well-defined notification chain.

### Organisational structure



### Country info

Capital	London
Official language	English
Population	67.5 M
Area	243 000km <sup>2</sup>
Currency	Pound (£)
Time zone	UTC
Calling code	+44
Internet TLD	.UK
NPPs /ele. share	7/15%

### NWP\* / NCA\*

Department for Energy Security and Net Zero (DESNZ)

### Nuclear Regulatory Body

Office for Nuclear Regulation (ONR)

### Emergency website

<https://www.gov.uk/guidance/emergency-response-and-recovery>

### Online measurements

RREMS (Radiological Response Emergency Management System)

### Bilateral treaties

Denmark, France, Ireland, Norway, Russia. MoU with the Netherlands

### RANET capabilities

- Radiation Survey (EBS)
- Environmental Sampling and Analysis (EBS)
- Radiological Assessment and Advice (EBS)
- Dose Assessment (EBS)

## Nuclear facilities and Sellafield Ltd and population

NPP	Reactors	Type	MWt	GPS coordinates	5km pop †	20km pop ‡	Planning zone size (km) <sup>o</sup>
Hartlepool	2	GCR	3150	54.635° N 1.179° W	29 000	684 000	<a href="#">2-2.5</a>
Heysham 1	2	GCR	3150	54.029° N 2.915° W	29 000	275 000	<a href="#">2.3-3</a>
Heysham 2	2	GCR	3260				
Sizewell B	1	PWR	3445	52.214° N 1.621° E	9 000	61 000	<a href="#">3-4</a>
Torness	2	GCR	3400	55.968° N 2.408° W	1 000	19 000	<a href="#">3</a>
Dungeness B Shut down/ defueling	2	GCR	3100	50.913° N 0.961° E	2 000	54 000	<a href="#">1.45-3</a>
Hinkley Point B Shut down/ defueling	2	GCR	2640	51.208° N 3.127° W	2 000	199 000	<a href="#">3.5-4</a>
Hunterston B Shut down/ defueling	2	GCR	2640	55.722° N 4.889° W	10 000	153 000	<a href="#">2.4-2.5</a>
Other facilities							
Sellafield Ltd	Nuclear fuel reprocessing, decommissioning, waste management			54.421° N 3.498° W	5 000	68 000	<a href="#">Approx 6-7 km</a>

\* The IAEA emergency preparedness category 1 and other relevant facilities.

† MW<sub>e</sub> is the gross output totaled over all reactors at each site.

‡ Usual resident nighttime population.

<sup>o</sup> Greater distances are used for restrictions on food and commodities.

## Planning zones

Detailed Emergency Planning Zones are not necessarily coterminous with urgent protective action areas. Urgent protective action areas are based on the application of the UK Emergency Reference Levels.

## Protection strategy

Consideration of site-specific action levels, emergency reference levels of averted dose, and reference levels of residual dose all play a part in determining where and when emergency actions are required e.g. evacuation, sheltering and taking stable iodine tablets.

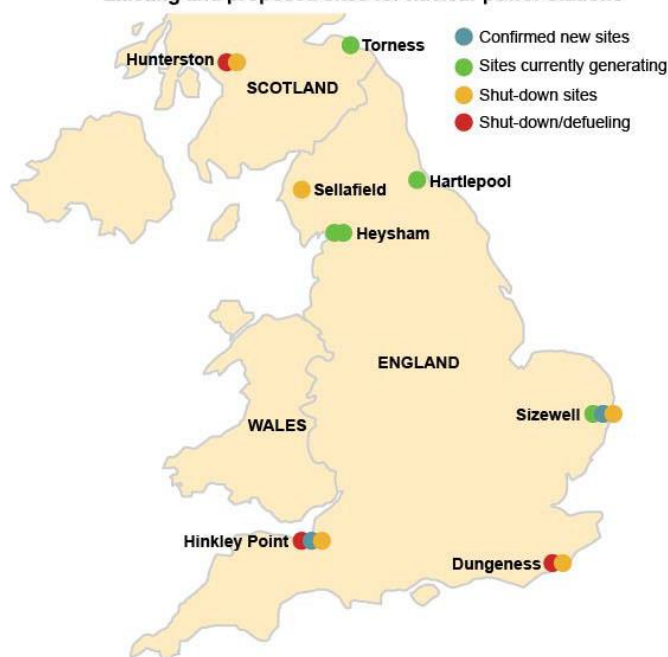
## Criteria

National guidance on the use of short term or urgent protective actions is provided through the 'Emergency Reference Levels' (ERLs) defined by UK Health Security Agency (UKHSA). The ERLs set out the scale of radiation dose reduction (i.e., benefit) that would be sufficient to justify the use of a particular type of protective action in response to a nuclear emergency. Because the potential impacts from introducing a particular protective action will vary according to the circumstances in which they are invoked, UKHSA provides a range of ERL doses for each type of protective action. The lower end of this range represents the scale of dose reduction that would justify use of that protective action under conditions where the detriments of the protective action(s) were least – i.e. the circumstances for enacting the protective action(s) were at their most favorable. Conversely the upper ERL in the range for a particular protective action is the level of dose reduction that UKHSA advises would be likely to justify that protective action even when its implementation could be more challenging.

## Emergency classification

The classification for nuclear emergencies is either 'on-site incident' (not classified as an emergency) or 'off-site nuclear emergency'.

Existing and proposed sites for nuclear power stations



Protective Action	Emergency Reference Levels (mSv)		
	Lower	Upper	
Sheltering	3	30	Averted effective dose
Evacuation	30	300	Averted effective dose
Stable iodine	30	100	Averted thyroid dose