

ISPETTORATO NAZIONALE  
PER LA SICUREZZA NUCLEARE  
E LA RADIOPROTEZIONE

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*IAEA – Technical meeting – Forum on Near Surface Disposal*

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# **Regulation and licensing of Radioactive Waste near surface disposal facilities in ITALY**

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2. Policy and strategy
3. Licensing process, according to the legislative decree n. 31/2010
4. Technical Guide n. 32



# Historical background

- Commercial utilization of nuclear power started in Italy in early '60<sup>ies</sup>
- Four NPPs (Garigliano BWR, Trino PWR, Latina Gas Graphite and Caorso BWR) were commissioned and operated. 1 LEU fuel fabrication installation (Bosco Marengo) and 2 experimental reprocessing facilities were also operated (ITREC, EUREX). A few research reactors were also operated.
- 1 EURATOM Joint Research Center (JRC Ispra)
- All NPPs and other nuclear installations unless 4 research reactors were definitively shut down in 1987 following a national referendum taken in the aftermath of the Chernobyl accident.
- The nuclear program was closed and a “safe conservation strategy” was adopted.



# Nuclear installations in Italy



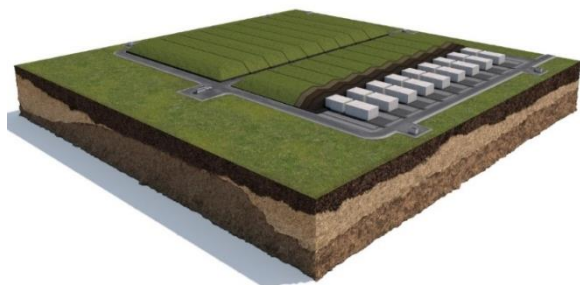
# Radioactive waste national inventory (2020)

Type	Volume (m <sup>3</sup> )	Activity (TBq)
VSLW	1.290	-
VLLW	14.620	0,16
LLW	12.700	51,6
ILW	3.142	2.777
ILW (from reprocessing)	47,6	n.a.
HLW (from reprocessing)	34,4	n.a.
Spent Fuel	15,84 tHM	34.143
Spent Sources	-	876



# Policy and strategy

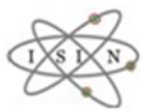
The **Legislative decree n.31/2010** and subsequent amendments defines the authorization procedure for the National Repository of radioactive waste to be sited, constructed and operated. According to the same decree the National Repository will be composed of a **near surface disposal facility for low and intermediate waste and of a long term interim storage facility for ILW and HLW**, to be included in a Technological Park.



Near surface disposal facility for LLW and ILW  
(short life)



Long term storage facility  
for HLW, SF and ILW (long lived)



# The Licensing Process

The **Legislative Decree n.31/2010** establishes the following licensing process:

- 1. Approval of the National Chart of the potentially suitable areas (CNAPI)**
- 2. Approval of the National Chart of suitable areas (CNAI)**
- 3. Approval of the selected site**
- 4. Authorization for construction and operation**
- 5. Authorization for closure**



# Approval of the National Chart of potentially suitable areas (CNAPI)

According to the Legislative Decree n° 31/2010, **SO.G.I.N.**, the national implementer responsible for the siting, construction and operation of the National Repository, **taking into account the criteria established by the Competent regulatory authority (ISPRA) and by the IAEA**, prepared a proposal of a **national chart of potentially suitable areas (CNAPI)**. This proposal has been verified and validated by ISPRA, which has transmitted the results of its review and assessment to the the Ministry for the environment and protection of land and sea and to the Ministry of economic development (now Ministry for Ecological Transition).

**In relation to the above process ISPRA has issued the Technical Guide n. 29 on the siting criteria for a near surface disposal facility of low and intermediate level waste and has completed its assessment and review process in July 2015.**





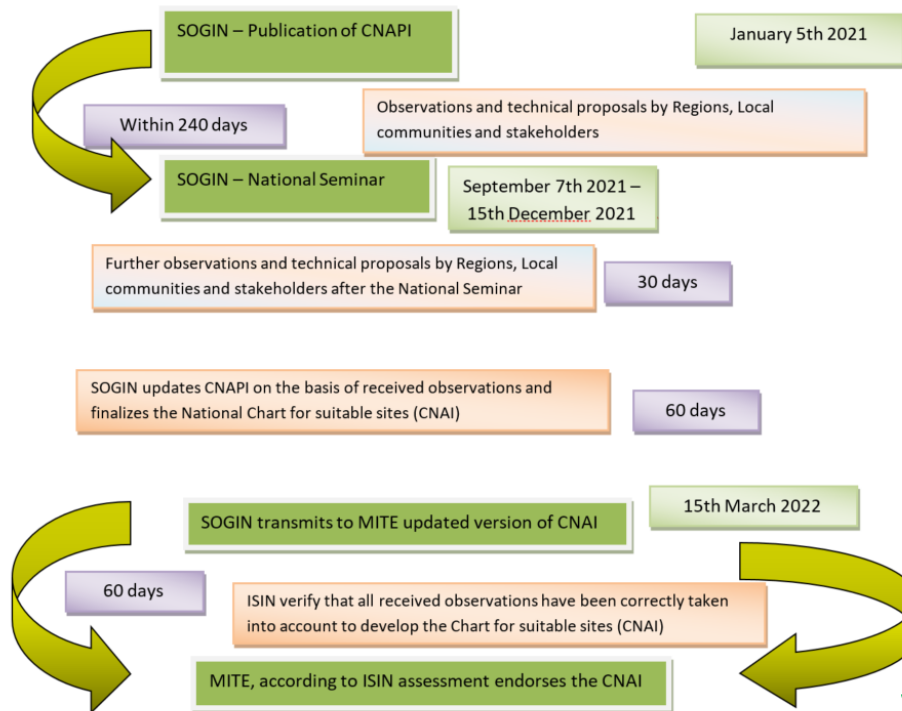
# Approval of the National Chart of suitable areas (CNAI)

Once the Ministries have granted to SOGIN the authorization to publish the proposed chart, on **January 5th 2021** the proposal of National Chart of potentially suitable areas (CNAPI), eligible to host the National Repository, has been published by SOGIN with a preliminary proposal of the National repository project and a **national debate** has started with the aim to find an agreement with the regions involved.

According to the Legislative Decree n. 31/2010, SO.G.I.N. has promoted a **National Seminar** to which all the involved stakeholders has been invited to participate. The Seminar has given the opportunity to discuss in detail all technical aspects related to the National Repository and its associated Technological Park, with particular reference to the compliance of the identified areas with the siting criteria established by the IAEA and ISPRA, as well as all aspects related to the protection of workers, public and the environment.



# Approval of the National Chart of suitable areas (CNAI)



Taking into account the seminar' outcomes, SOGIN has updated its proposal of National Chart (the so – called **CNAI**) and has submitted it to the Ministry of the Ecological Transition on 15th March 2022.

ISIN has started the process of the regulatory validation of the Chart to be completed within 60 days.

At the moment ISIN has formulated some first observations.

The Minister himself with his own decree, based upon the advice of ISIN, will adopt the National Chart of eligible areas.

Where we are now



# Approval of the selected site

Once the Chart of potential suitable sites will be approved by the Regulatory Body, SOGIN will invite the involved **Regions** to declare their potential **interest** within 60 days. Once one (or more) Region shows interest, SOGIN performs its **extensive investigations on the site (15 months)** and submits a request for authorization for a proposed site to the Ministry of the Ecological Transition, based on the technical binding advice of ISIN, and considering the view of the Ministry of university and research, expresses its judgement within 6 months.

In the case of lack of interest, SOGIN will submit to the Ministry of the Ecological Transition the list of the candidate areas indicating the first three more suitable sites, and within 30 days an inter-institutional Committee will be created, with the participation of representatives from different Ministries and Regions, with the task to reach an agreement with one of the Regions.

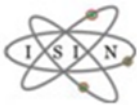


# Authorization for construction and operation

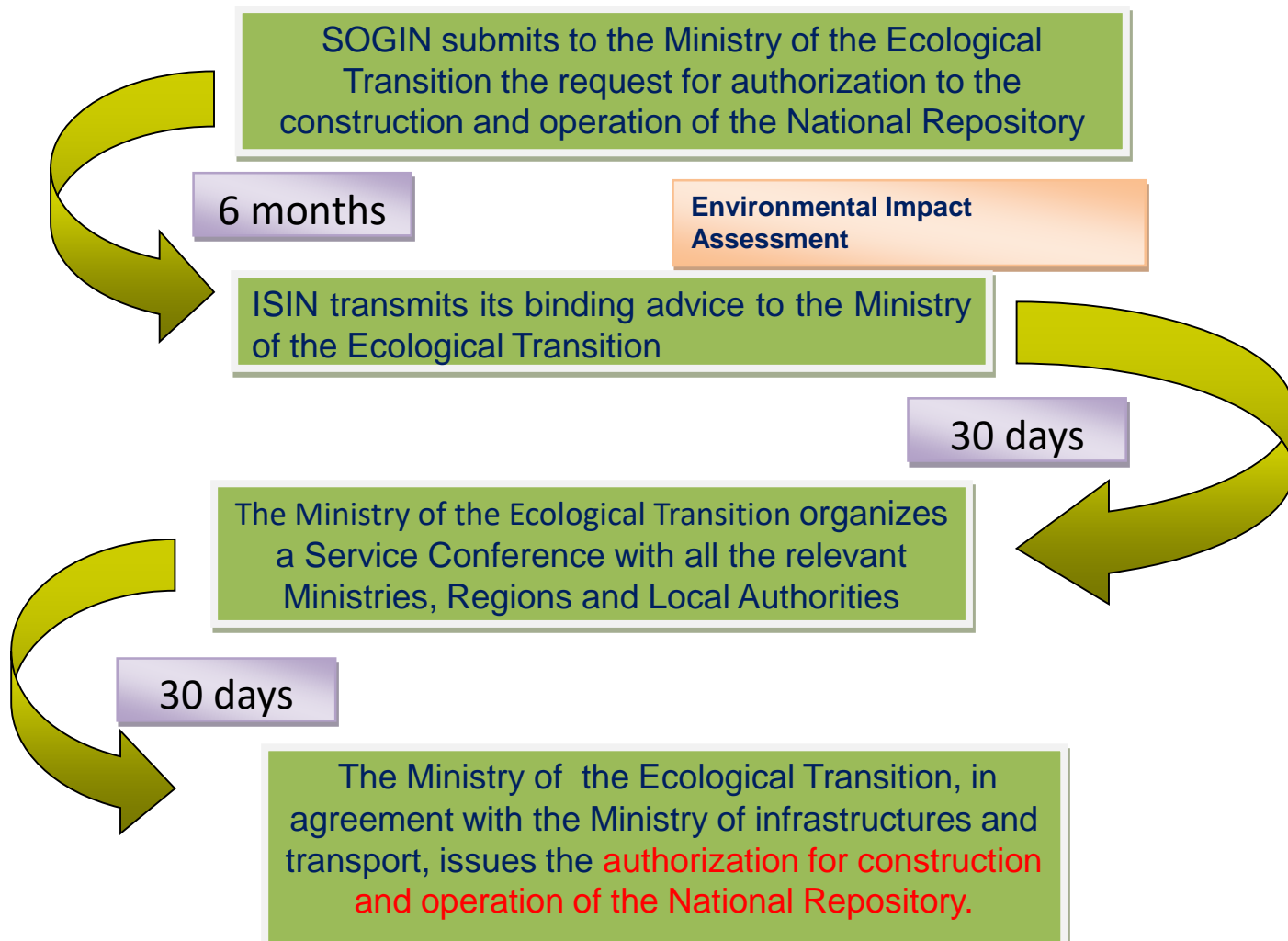
Within 6 months from the site authorization, SOGIN submits to the Ministry of the Ecological Transition the request for **authorization to the construction and operation of the National Repository**, starting also the procedures of Environmental Impact Assessment. The application documents to be submitted include the preliminary safety analysis report, the commissioning programme, the operating manual.

Based upon its review and assessment the competent regulatory authority, taking into account the results of the Environmental Impact Assessment, transmits its binding advice to the Ministry of the Ecological Transition.

The Ministry of the Ecological Transition, after the organization of a Service Conference with all the relevant Ministries, Regions and Local Authorities, in agreement with the Ministry of infrastructures and transport, issues the **authorization for construction and operation of the National Repository**.



# Authorization for construction and operation



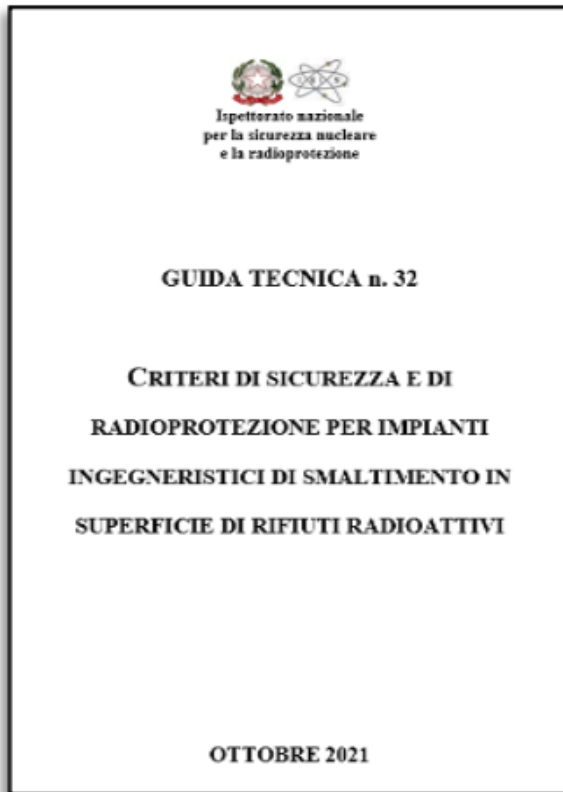
# Authorization for closure

The authorization for the closure of National Repository is given by Decree of the Ministry of the Ecological Transition, in consultation with the Ministries of the interior, labor and social policy and health, after hearing the autonomous region or province concerned and the competent regulatory authority.

The authorization, if necessary, will be given according to different steps (closure, post closure).



# The Technical Guide n. 32



ISIN has developed the Technical Guide no. 32 entitled "**Safety and radiation protection criteria for near surface radioactive waste disposal facilities**".

It concerns:

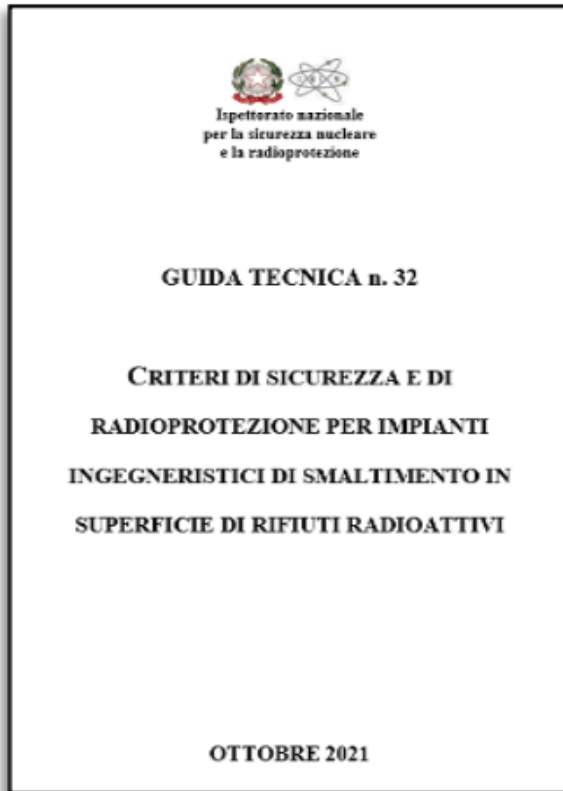
- the criteria for the extensive investigations on the site, according to the article 27, paragraph 7, of Legislative Decree No. 31/2010 and subsequent amendments (taking into account IAEA – SSG29);
- the design, construction, operation, closure and post-closure of the low - level waste disposal facilities, including the period of the institutional control.

Reference: IAEA standards, WENRA SRLs for disposal

The Technical Guide proposal was published on 4 October on the ISIN website [www.isinucleare.it](http://www.isinucleare.it) for public consultation (60 days). The comments received have been examined for preparing the final version that have been published in July 2022.



# The Technical Guide n. 32

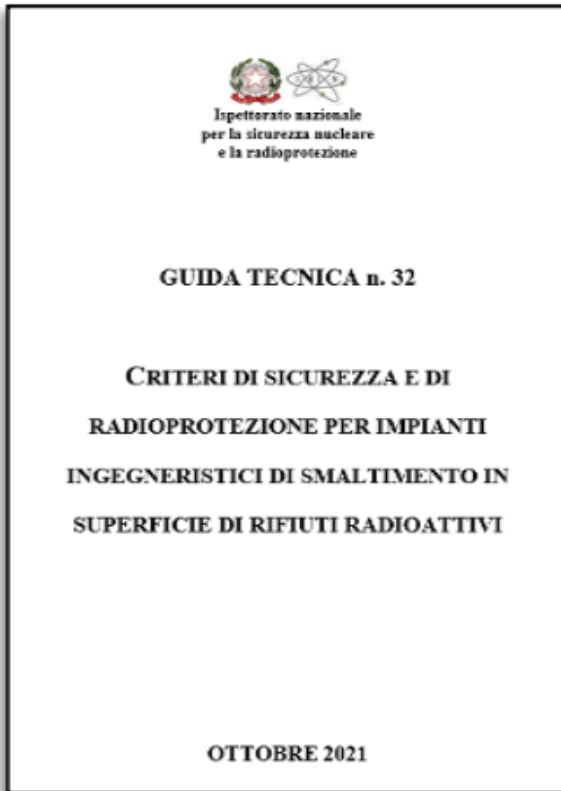


- General criteria for nuclear safety and radiation protection for the siting, design, construction, operation, closure and post-closure phases.
- Graded approach and classification of SSC.
- Waste acceptance criteria.
- Design lifetime for the disposal facilities: several hundreds of years.
- Period of institutional control: several hundreds of years.
- Radioactive waste recovery: 300y





# The Technical Guide n. 32



- External and internal design events.
- Aircraft crash (what –if).
- Criteria and methodology for safety assessment both for the operation phase and for the closure and post – closure phase.
- Safety case.
- Periodic Safety Review.
- Monitoring and surveillance.
- Emergency preparedness.



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# Thanks for the attention



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