

WEBINAR

○ OVERCOMING THE BARRIERS TO ESTABLISHING A EUROPEAN ENVIRONMENTAL FRAMEWORK FOR GEOTHERMAL PROJECTS

Session 1 – Project licensing: Italian Case Study

by

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February 23rd, 2021

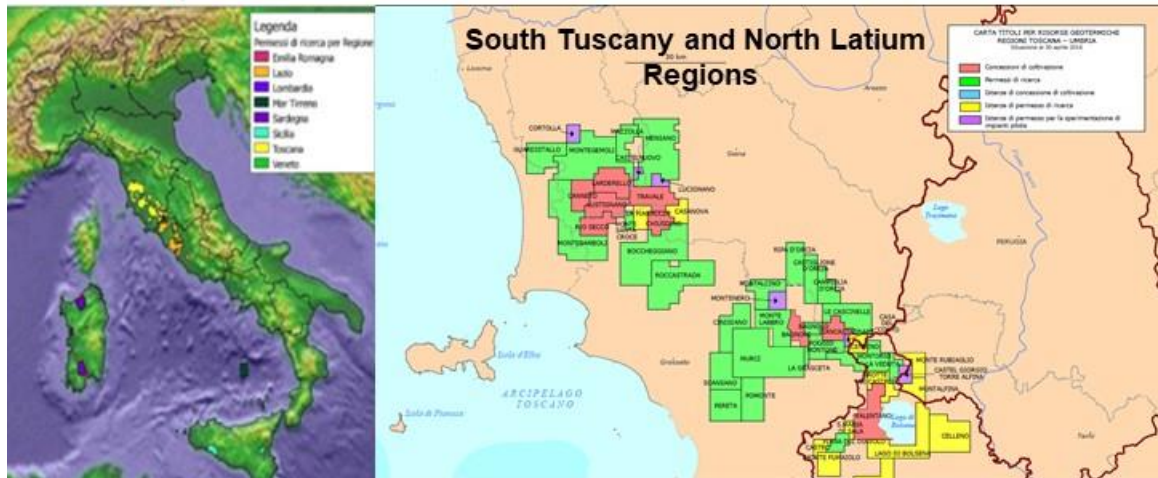


2 / Geothermal energy in Italy

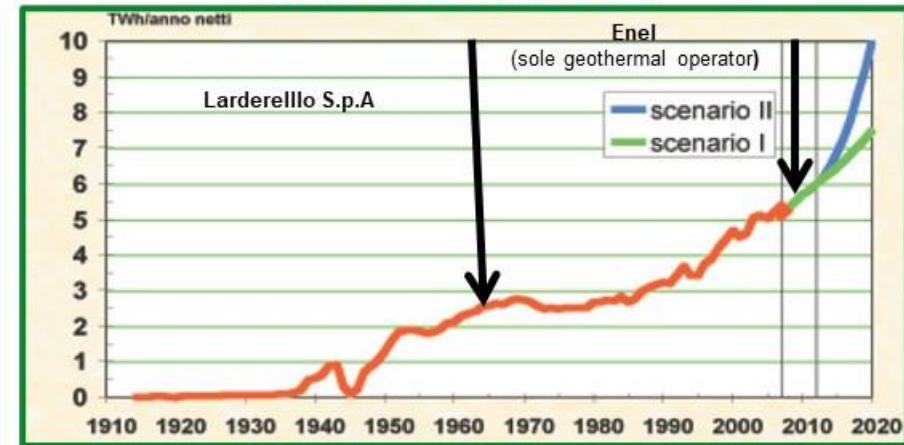
Regulation and development opportunities

- In 2010, a new legislation (DLgs. No. 22,2010) was issued to promote the geothermal development:
 - opening the geothermal market to new players
 - simplifying the authorization processes
- In 2011 the Legislative Decree No. 28 was issued to promote the development of “**pilot plants**” with nominal installed capacity not exceeding 5 MW, total reinjection of geothermal fluids in the same reservoir, and with zero emissions,
- In 2012 the Law No. 134 classified the geothermal energy as **National strategic energy sources**

About 120 applications
for new exploration leases



DEVELOPMENT SCENARIO
(forecast by U.G.I. @ 2010)



~ Electric Power
1200 - 1500 MW at 2020

~ Direct Use:
6.000 MW at 2020

(UGI estimates)

Simply and fast track licensing processes are crucial to achieve the target forecasted in the development scenario

3/ *Licensing process in Italy*

Geothermal resources classification

○ According to the current legislation the geothermal resources are classified as:

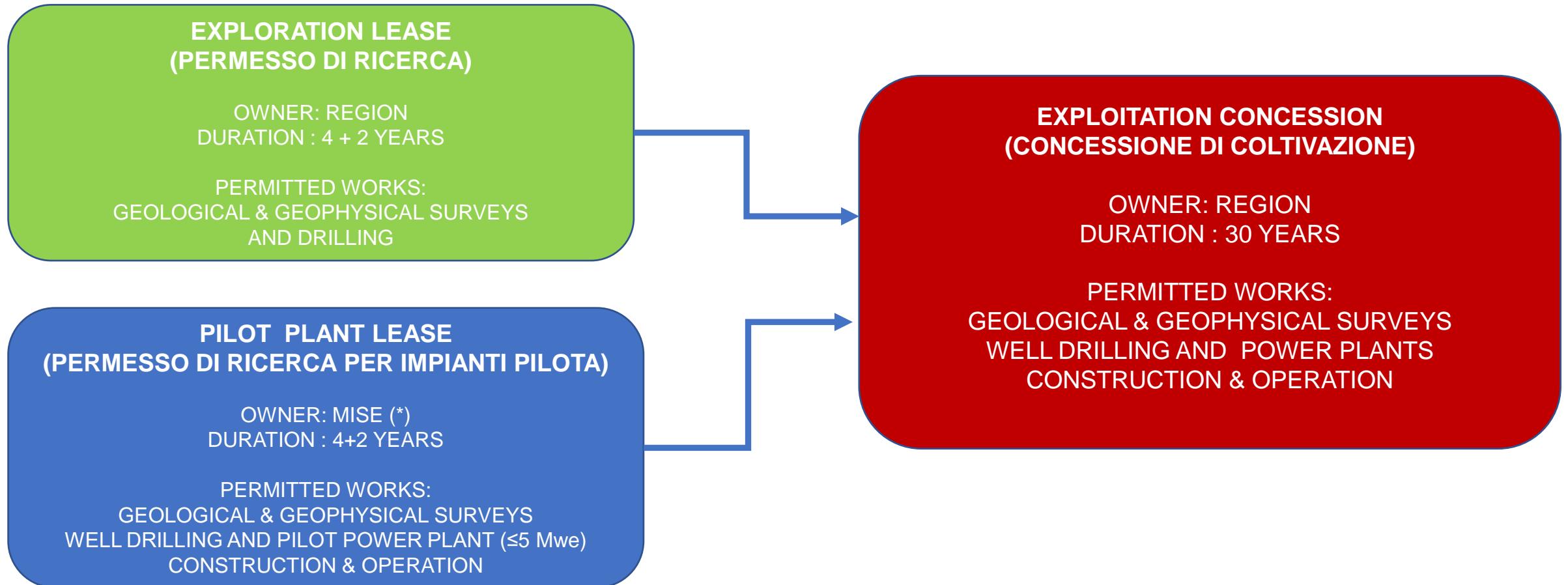
- high-enthalpy resources, for temperatures higher than 150°C;
- medium enthalpy resources, for temperatures ranging from 90° to 150° C;
- low enthalpy resources, for temperatures lower than 90°C.

The licensing process is managed by National or Regional Authorities on the base the type of the resoitunes and the size of power plants

Type	Size	Relevant authorities granting authorization to development
Resources of national interest on mainland	Above 20 MWt	Regions or their delegated bodies
Resources of local interest on mainland	2-20 MWt	Regions or their delegated bodies
Resources developed by innovative technologies (Pilot Plants)	Up to 5 MWe	Ministry of Economic Development (MISE) in agreement with the Ministry of Environment and Protection of Land and Sea (MATTM) and the relevant regional governments
Resources for small local utilization	Below 2 MWt (shallow geothermal)	Regions or their delegated bodies
Off-shore resources	Any size	Ministry of Economic Development (MISE) in agreement with the Ministry of Environment and Protection of Land and Sea (MATTM)

4 / Licensing process in Italy

Main steps



(*) MINISTERO DELLO SVILUPPO ECONOMICO (MINISTRY OF ECONOMIC DEVELOPMENT)

5/ Licensing process in Italy

Process ownership and time terms

LEASE TYPE	OWNER	LICENSING		E.I.A./P.A.U.R.		LANDSCAPE & CULTURAL HERITAGE		TOTAL DURATION
		AUTHORITY	TIMING (days)	AUTHORITY	TIMING (days)	AUTHORITY	TIMING (days)	
PERMESSO DI RICERCA (EXPLORATION LEASE)	REGION	ENERGY DEPARTMENT	240	ENVIRONMENT DEPARTMENT	90	SUPERINTENDENCE OF CULTURAL HERITAGE	30	360 DAYS (12 MONTHS)
PERMESSO DI RICERCA "PILOTA" (PILOT LEASE)	MISE	UNMIG	240	MATTM	150-330	MIBACT	30	420-600 (14 – 20)
CONCESSIONE DI COLTIVAZIONE (EXPLOITATION CONCESSION)	REGION	ENERGY DEPARTMENT	240	ENVIRONMENT DEPARTMENT	150-330	SUPERINTENDENCE	30	420-600 (14 – 20 MONTHS)

6 / *Licensing process in Italy*

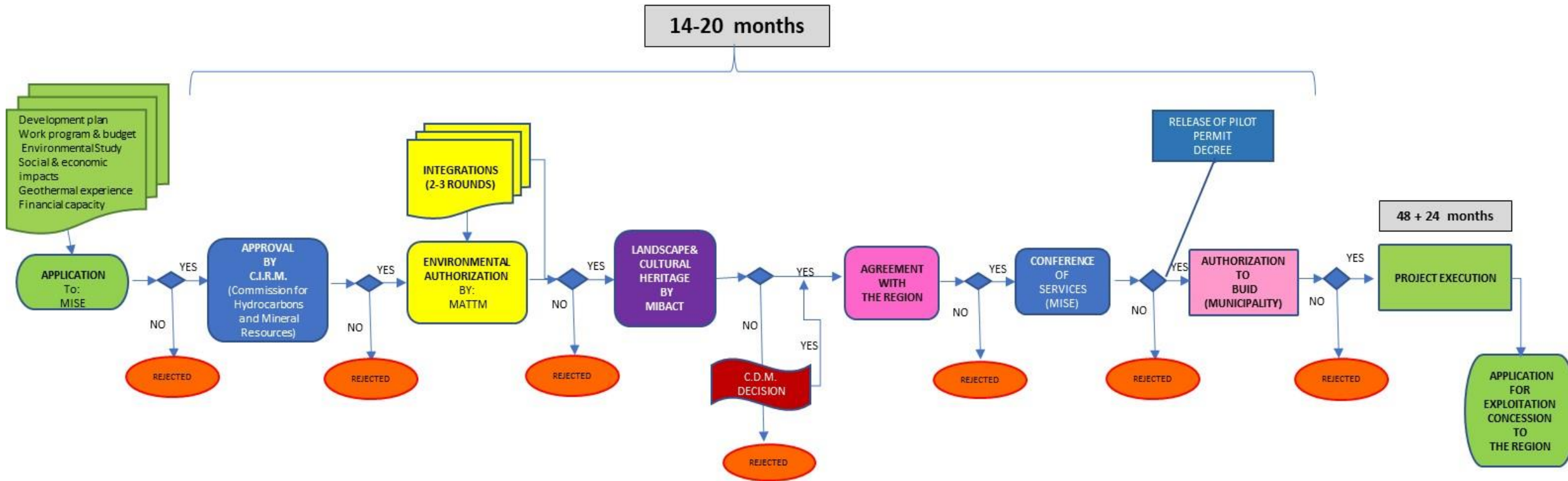
Key authorities involved in the licensing process

- MISE (Ministry of Economic Development)
 - CIRM (Technical Commission of Hydrocarbons and Mineral Resources)
- MATTM (Ministry of Environment)
- MIBACT (Ministry of Cultural heritage)
 - Superintendence of Cultural Heritage of Province
- REGION
 - Seismic Dept.;
 - Nature Conservation Dept.;
 - Landscape Dept.;
 - Forestry Dept.;
 - Agriculture and Rural development Dept.;
 - Traffic and Transportation Dept.;
 - Civil Engineering Dept.;
- National Environmental Protection Agency (ARPA);
- Regional Institute for Economic Planning;
- Agency for water supply;
- River Basin Authority;
- Municipality/es involved;
- Province/es involved

PILOT PLANT LEASES ONLY

7/ Licensing process for pilot project lease (Owner MISE)

Main steps



**THE AUTHORIZATION PROCEDURE IS VERY COMPLEX .
SEVERAL AUTHORITIES ARE INVOLVED IN THE PROCESS
OPPOSITIONS AND/OR APPEAL CAN INDEFINITELY EXTEND THE TIMELINE OF THE LICENSING PROCESS**

8 / Licensing process for pilot project lease

Status of the current applications

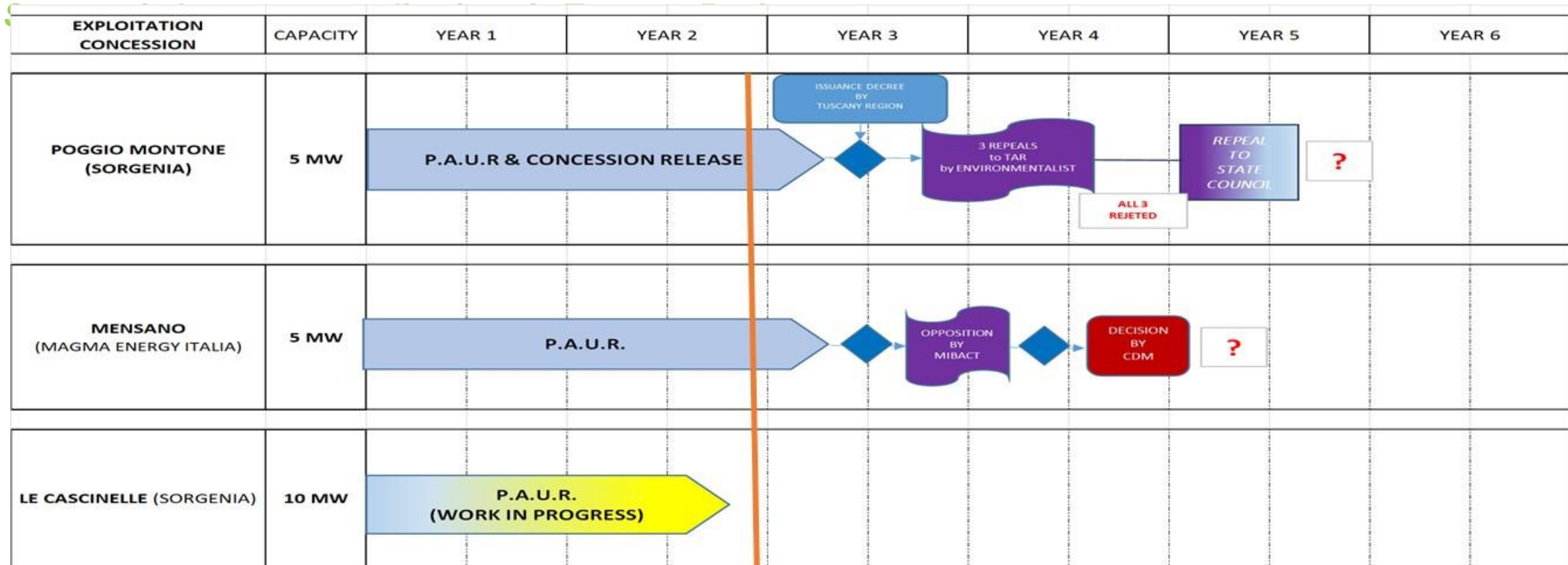


TIME LIMIT ACCORDING TO LEGISLATION

**TIME NEEDED FOR LICENSING IS MORE THAN THE DOUBLE OF TIME ASSIGNED FOR THE EXECUTION OF THE PROJECT (4+2 YEARS)
OPPOSITION OF MIBACT AND ENVIRONMENTALIST COMMITTEES ARE NOT ALWAYS MOTIVATED**

9/ Licensing process for exploitation concession (Owner: Region)

The licensing process for exploitation concession is similar to the one applied for Pilot Project Lease

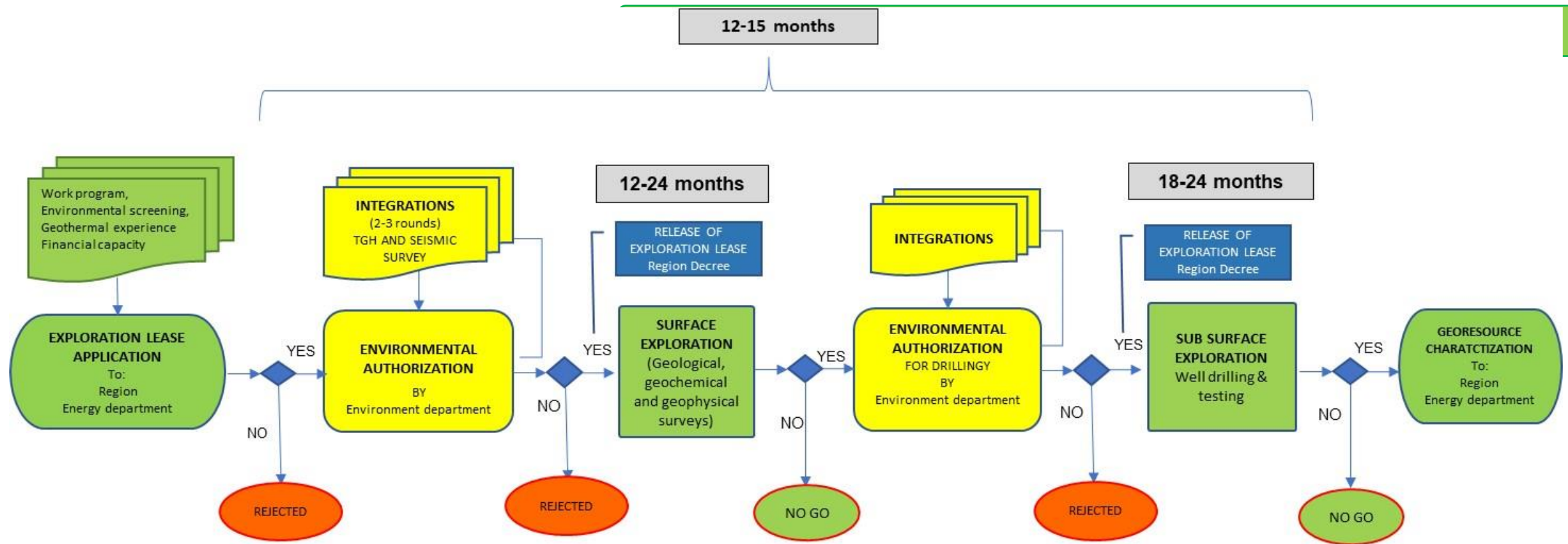


TIME LIMIT ACCORDING LEGISLATION

**THIS LICENSING PROCESS IS SATISFACTORY EFFICIENT IN TUSCANY REGION
OPPOSITION OF MIBACT, AND APPEALS TO ADMINISTRATIVE COURT BY ENVIRONMENTALIST COMMITTEES SLOW DOWN THE PROCESS**

10/ Licensing process for Exploration lease in Italy

Main steps



8 – 24 months for completion of authorization processes

48 – 72 months for exploration works

11 / Licensing process for Exploration lease in Italy

Main steps

REGION	NAME	AREA (km2)	APPLICANT	ISSUANCE DATE
Toscana	BAGNOLO	20	TOSCO GEO (100%)	07/03/2012
Toscana	BOCCHEGGIANO	233.8	ENEL GREEN POWER (100%)	06/06/2011
Toscana	CAMPIGLIA D'ORCIA	55.4	TOSCO GEO (100%)	27/07/2011
Toscana	CASTIGLIONE D'ORCIA	60.5	TOSCO GEO (100%)	06/04/2012
Toscana	CINIGIANO	85.76	GESTO ITALIA (100%)	21/03/2011
Lombardia	FRANCIACORTA	78.2	COGEME (100%)	31/05/2010
Toscana	GUARDISTALLO	87.5	GEOTHERMICS ITALY (100%)	15/06/2012
Sardegna	IGIA RISORSE GEOTERMICHE	122.22	SARAS (100%)	20/06/2013
Toscana	LA GRASCETA	7.56	SORGENIA GEOTHERMAL (100%)	22/05/2013
Lazio	LA VEDUTA	22.71	SORGENIA GEOTHERMAL (100%)	
Lazio	LAGO DI VICO	103.27	GEOTHERMICS ITALY (100%)	23/10/2012
Toscana	LE CASCINELLE	100.89	SORGENIA GEOTHERMAL (100%)	07/03/2012
Lombardia	MALPAGA	2.5	MALPAGA (100%)	29/10/2014
Toscana	MAZZOLLA	52.5	GESTO ITALIA (100%)	21/03/2011
Toscana	MENSANO	215.26	MAGMA ENERGY ITALIA (100%)	06/06/2011
Toscana	MONTALCINO	65.47	GESTO ITALIA (100%)	10/08/2012
Toscana	MONTE LABBRO	87.85	RENEWEM (100%)	21/03/2011
Toscana	MONTE SANTA CROCE	15	SORGENIA GEOTHERMAL (100%)	21/11/2011
Toscana	MONTEBAMBOLI	225.96	ENEL GREEN POWER (100%)	14/10/2011
Toscana	MONTEGEMOLI	212.78	ENEL GREEN POWER (100%)	14/10/2011
Lazio	MONTORIO	101.07	SORGENIA GEOTHERMAL (100%)	18/06/2013
Toscana	MURCI	262.7	ENEL GREEN POWER (100%)	18/04/2011
Sicilia	PANTELLERIA	6.495	GEOTERMICA (100%)	22/02/2004
Toscana	PERETA	88.6	FUTURO ENERGIA (100%)	15/06/2012
Lazio	PIANA DEL DIAVOLO	40.75	GEOTHERMICS ITALY (100%)	25/09/2012
Toscana	POGGIO MONTONE	58.05	SORGENIA GEOTHERMAL (100%)	06/06/2011
Toscana	POMONTE	88.5	TERRA ENERGY (100%)	26/11/2012
Toscana	RIPA D'ORCIA	70.5	TOSCO GEO (100%)	
Toscana	ROCCASTRADA	271.9	MAGMA ENERGY ITALIA (100%)	14/10/2011
Lazio	ROMA OVEST	45	DER (100%)	12/02/2009
Sardegna	SAN GAVINO MONREALE	84.7	TOSCO GEO (100%)	09/03/2015
Sardegna	SARDARA	70.5	TOSCO GEO (100%)	04/02/2016
Toscana	SCANSANO	49	TERRA ENERGY (100%)	26/11/2012
Lazio	TOBIA	14.75	COGEME (100%)	14/08/2012
Lazio	VALLE DI SUIO	18.07	LA R.E.P. AMBIENTE (100%)	25/09/2012

STATUS OF THE EXPLORATION LEASES @2018 (by MISE)

- 54 leases issued
- 3.252,00 km² total area covered by the leases in 5 Regions

The exploration works were completed in completed in only few leases, due to several reason:

- Opposition of local committes against the geothermal development
- Suspension of the activity for «Moratoria» in Tuscany and Latium Regions
- Suspension for definition of A.N.I (areas not suitable for geothermal development) in Tuscany
- For some leases the authorization is issued only for surface surveys not for drilling deep wells
- For some leases the authorization is issued for drilling deep wells but no assurance is provided for the release of exploitation concession

Only 3 leases applied for exploitation concession.



12 / *Licensing process in Italy*

Final remarks

- In Italy licensing process including Environmental authorization is generally very complex and long time consuming.

The main critical issues are:

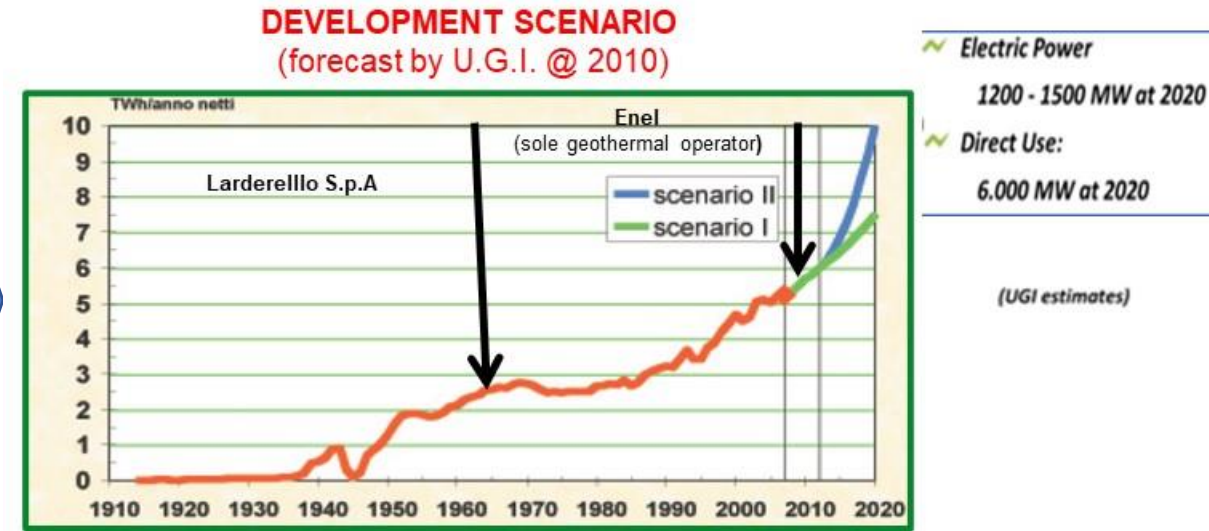
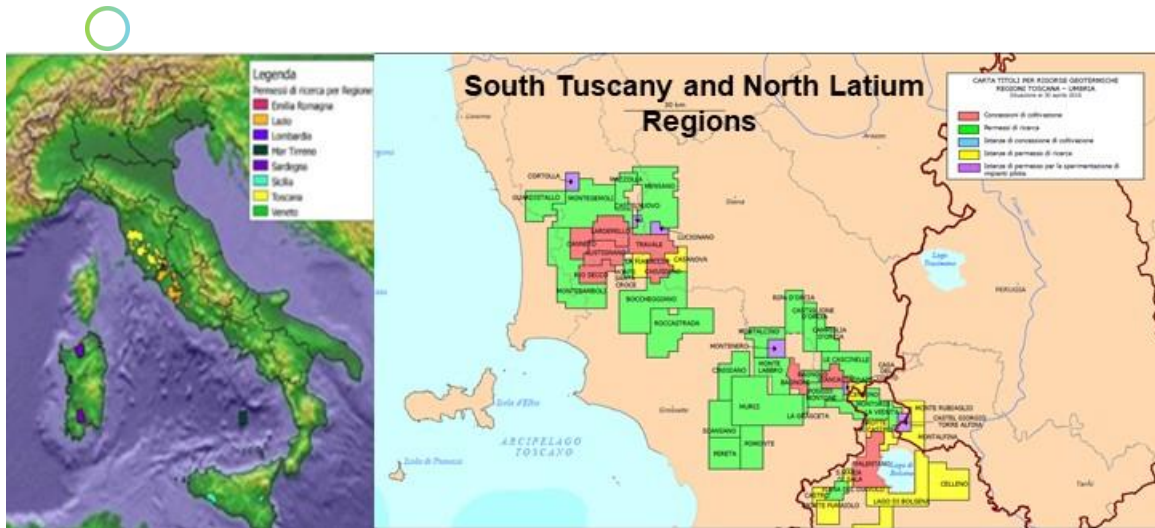
- some laws, regulations and directives to be complied with are not always clearly applicable
- heavy and sometimes unnecessary documentation required for the application, mainly for E.I.A.
- overlapping of responsibilities between the authorities involved in the authorization procedure (e.g. Landscape Department of the Region and Superintendence of Cultural Heritage)
- overestimation of some risks and impacts in the E.I.A. and consequently requirements of disproportionate mitigation measures

Proposals to make the licensing process more effective are:

- to draft a GEOTHERMAL LICENSING HANDBOOK, which collects all the best practices and delivers proposals for an EUROPEAN GEOTHERMAL LICENSING GUIDELINE harmonizing the regulatory framework to be applied in Europe.
- to promote education and training events for the key personnel of the Authorities in charge of licensing process to transfer knowledge and experience on the geothermal industry project

13/ Licensing process in Italy

Conclusions



Regrettably the complex and long time lasting licensing processes did not allow the development expected in 2010

NO POWER PLANT BUILT IN THE LAST 10 YEARS!



G E O E N V I

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No [818242 — GEOENVI]

