DGS UNMIG

Annual Report 2016

Activity 2015

Ministry of Economic Development

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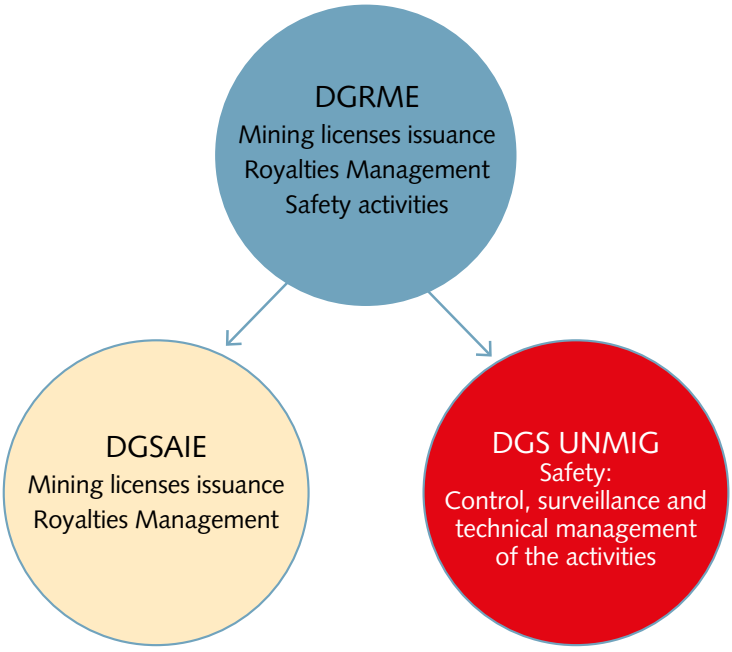
Franco Terlizzese
Director General

This is the Report concerning a crucial year for our activities.
This last year was marked by three very significant major moments. Firstly, the adoption of the European Directive on Offshore Safety. Then, the reorganization of the Directorate General for Mining and Energy Resources (DGRME), that is now divided into responsibilities for safety and those for mining licensing, within the hydrocarbons and natural gas storage sector. The 2015 is the last year in which the hydrocarbons sector was entirely managed by DGRME, both for the safety and for licenses and royalties administration.
Finally, the Referendum for the repeal of some rules included in the "Sblocca Italia" Decree concerning the upstream sector.
These important news, within the internal side, inserted themselves into a scenario heavily affected by external factors by now. During 2015, the price of oil and of raw materials in general continued to fall considerably with a major impact on the field: exploration activities declined, the frontier exploration in many cases was abandoned, Operators reduced their investments, service companies reduced the employees. Just at the end of the year, it was possible to observe a new prices balance; prices that, in any case, are still very low.
In Italy, hence, all mining sectors experienced a severe crisis, further compounded by internal factors.
The main results of our activities are worth mentioning in the present Report. Just two of the many valuable points I really would to emphasize are the following: zero accidents during drilling and no oil spill event. These results are not easy to get and they have been fully achieved for the first time in Italy.
The new system of offshore safety management, provided by the Legislative Decree no. 145/2015, is responsible for improving.
This is a little foretaste of the much information contained in the Report, which is deeply renewed and expanded.
I would hope that such information will help to better understand the specific features of the sector in Italy and the relevance of our activities, engaged in a continuous research and innovation process.
With this in mind, I wish you all a good read.

MODIFICATION OF THE DIRECTORATE GENERAL FOR MINING AND ENERGY RESOURCES (DGRME)

Reasons for changes and 2016 perspectives

The 2015 was a crucial year for changes in the mining regulatory framework. By the Legislative Decree of 18th August 2015, no.145, the Directive 2013/30/EU was adopted on subject of offshore operation safety in hydrocarbons sector, by which the European Commission established the minimum safety standards for offshore hydrocarbons prospecting, exploration and exploitation .
National efforts for the directive adoption were carried out by an ad hoc designed technical panel, which involved all the competent Authorities. The goal of implementing newest measures required by the Directive 2013/30/EU in the national regulatory framework was reached, without modifying any aspects concerning the permitting aspects, nor the ones of surveillance and safety control on job place, already existing. UNMIG (National Mining Office for Hydrocarbons and Georesources) still exercises the power in subject of evaluation and control of offshore hydrocarbons exploration and exploitation activities.
Among the main innovations introduced by the implementing Decree no. 145/2015, the establishment of the Committee for the safety of offshore



Consequences of the Legislative Decree of 18th August 2015 which transposed the Directive 2013/30/EU on the offshore operations safety in the hydrocarbons sector, by the effective separation of regulatory functions on safety from regulatory functions concerning the economic development of offshore natural resources, including the licensing and revenues management.

activities is noted. The Committee shall consist of relevant competent authorities, among which the UNMIG Director for the Central Committee and the managers of the local UNMIG Sections for fringe offices.
The Committee operates fully independently of the regulatory functions on economic development of offshore natural resources and, hence, of the functions of licensing and of revenues management coming from such offshore activities. Therefore, it has become crucial to separate the above mentioned functions (the economic development functions from the surveillance, control, safety and technical management functions) that -up to October 2015- were entirely under the authority of the Directorate General for mining and energy resources (DGRME), under the Ministerial Decree of 30th October 2015.
The licenses' issuance and modification and the economic management functions were hence moved to a different Directorate General of the Ministry of economic development: the Directorate General for security of energy supply and energy infrastructures (DGSAIE).
The surveillance, control, safety and technical management tasks were instead flown into the new Directorate General for Safety of mining and energy activities - National Mining Office for Hydrocarbons and Georesources (DGS UNMIG).
The new Directorate DGS UNMIG, with its proven technical expertise and skills owned by UNMIG Sections and by the Laboratories of chemical and mineralogical analyses, focuses on regulatory activities and safety control of operations related to enhancement of energy and mining resources.
The task of further improvement on activities' safety will be reached by activating 4 strategic levers, typifying the new action plan of DGS.
The 4 levers are:

1) prompt and meticulous control, surveillance and technical management of ongoing activities;
2) scientific research aimed to increase the competences in the field, national and international promotion of technological innovation;
3) effective regulatory activity and lawmaking aimed to increase the offshore operations safety and to implement the best practices;
4) reconfirmed commitment in involving all the stakeholders, with maximum transparency and dialogue, in synergy with DGSAIE.

Precisely on this last point, a key role is conferred to DGS UNMIG for what concerns dialogue activities and involvement of the stakeholders in order to promote the sector development and the national and international cooperation.

For 2016, DGS renews its commitment to continuously improve safety performances, that is consistent with the strategic repositioning. In the hydrocarbons sector, this will be carried out by synergistic actions: strengthening of agreements with institutions, monitoring and control activities and launch of actions by the new offshore safety Committee. For geothermal energy, DGS perspectives concern the zoning, the guidelines and the procedures for the issuance of licenses for pilot sites. About the gasification of Southern Italy, DGS will focus on the start of the investigations of the new phase (Cilento), whilst for the mines sector DGS will continue the development of international activities already launched and the path for reviewing the regulation on raw materials with a view to circular economy will start.

Modifications to the functions and to the structure

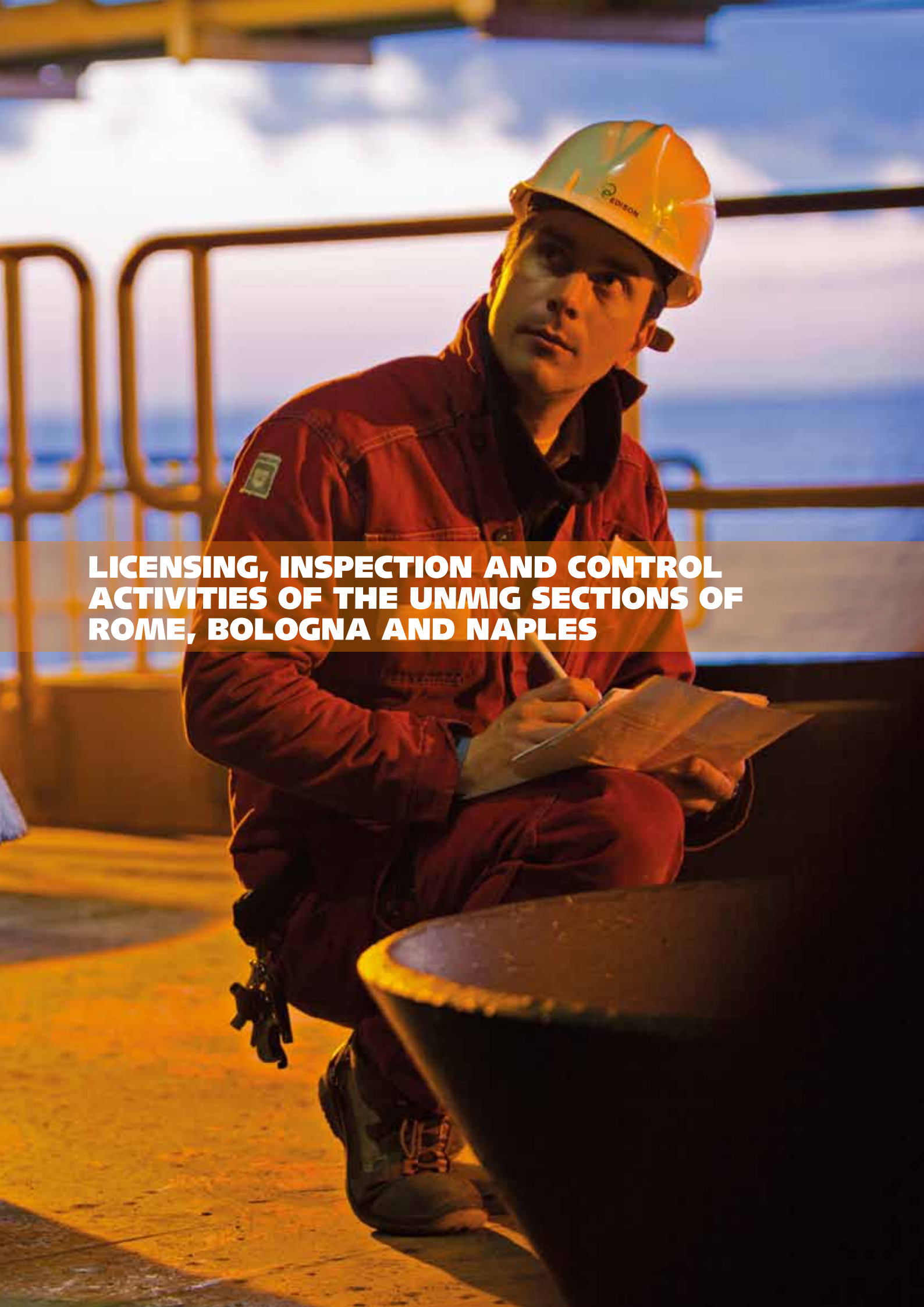
The Ministerial Decree of 30th October 2015 provided, hence, the relocation of the functions related to the conduct of administrative proceedings for issuance of mining licenses (hydrocarbons prospecting, exploration and exploitation and natural gas storage licenses), to the monitoring on royalties (as responsibility of the State, in favor of Ministry of economic affairs), and to the administrative management of eminent domains concerning energy, from DGRME to **DGSAIE**.
DGRME, renamed **DGS UNMIG**, continues to lead all the activities related to technical evaluation and management, control, surveillance and safety (also environmental) of operations on hydrocarbons, mining and energy resources and on related installations.
By the above mentioned Decree, the Ministry of economic development designated the Director General of DGSAIE responsible for the functions of regulation on economic development of natural resources, included licensing activities, in order to ensure the full implementation of the division of the tasks between DGS UNMIG and DGSAIE.
The Minister, furthermore, established that the delegate Director General makes use of an executive office of non-General level, in order to carry out the new functions. Hence, the Division VII was established at DGSAIE and some employees, currently working at Ministry and having proven capabilities on the delegate tasks, were allocated to it.
The Division VII has responsibility on issuance and management of

EFFECTS ON CIRM

The reorganization principles also affect the working way of the Commission for hydrocarbons and mining resources (CIRM) that operates as individual sessions, each one responsible for specific items: Section a) shall have advisory status for issuance of technical opinions on development of hydrocarbons exploration and exploitation activities, Section b) shall have tasks related to safety on such activities and Section c) with tasks related to royalties. With the reorganization, hence, DGSAIE shall use the opinion of Section c), whilst DGS UNMIG shall use the opinion of Sections a) and b) for safety of upstream activities

mining licenses, on management of procedures for eminent domains in energy sector, on royalties payments monitoring and on management of Section c) of the CIRM.
The new DGS UNMIG, instead, consists now of 6 divisions:
Division I, with responsibilities on general affairs; Division II, III and IV represent the local UNMIG Setions located in Bologna, Roma and Napoli cities; Division V for chemical and mineralogical Laboratories; Division VI with responsibilities on safety operations, geothermal energy, raw materials, cartography, Official Bulletin for hydrocarbons and georesources (BUIG), website management, statistics, management of Section a) and b) of the CIRM.

THE 2015 MAIN ACTIVITIES



LICENSING, INSPECTION AND CONTROL ACTIVITIES OF THE UNMIG SECTIONS OF ROME, BOLOGNA AND NAPLES

The UNMIG Sections (Divisions II, III e IV of DGS UNMIG Directorate) carry out verification and control activities in the frame of installations safety, of injuries prevention, of health and safety of workers, both onshore and offshore, dealing with the technical and administrative management of developed activities under the hydrocarbons prospecting, exploration and exploitation licenses and the natural gas storage. UNMIG Sections participate to Regional Technical Committees (CTR) for evaluating mining projects governed by law, under the law on safety of installations with risk of major accident ("Seveso III" directive). In the next Paragraphs, the data on 2015 activities of the three UNMIG Sections are given.

Inspections, verifications and testing activities

During 2015, UNMIG Sections developed the following inspection and verification activities *(Table1)*:

* 198 production inspections, that allowed to verify hydrocarbons productions in the exploitation licenses, also aimed to verify royalties revenues;
* 5767 inspections on pressure, lifting and grounding equipment;
* 456 inspection visits on drilling/production installations;
* 60 inspection visits for other purposes (e.g. public utility, urgency occupation, wire lines, injuries, etc.)

Table1 - Inspection activities. Year 2015

	Production inspections	Inspections on equipment, systems and installations	Inspectio visits on drilling/ production installations	Public utility, urgency occupation	Wire lines, injuries, etc.
January	3	315	34	0	3
February	18	302	42	0	3
March	13	477	56	0	11
April	36	622	54	0	10
May	8	735	69	0	3
June	11	807	30	0	4
July	31	526	32	2	5
August	27	168	10	0	0
September	13	365	31	0	4
October	8	552	43	0	6
November	29	660	38	0	5
December	1	238	17	0	4
Total	**198**	**5767**	**456**	**2**	**58**

Licensing

During 2015, UNMIG Sections granted the following licenses *(Table2)*:

* 109 licenses on well activities (12 drilling licenses for new wells and 12 licenses for shutting off, whilst the remaining licenses are related to other types of interventions or work over on existing wells);
* 118 licenses to start activities on existing installations;
* 245 licenses to operate new installations;
* 530 other licenses.

The licensing to drill new wells implicates, in addition to the technical aspects evaluation for operations, also the administrative management of the Service Conference in which the relevant opinion of the other interested Administrations (Region, Municipality, other bodies like Superintendent) are acquired.

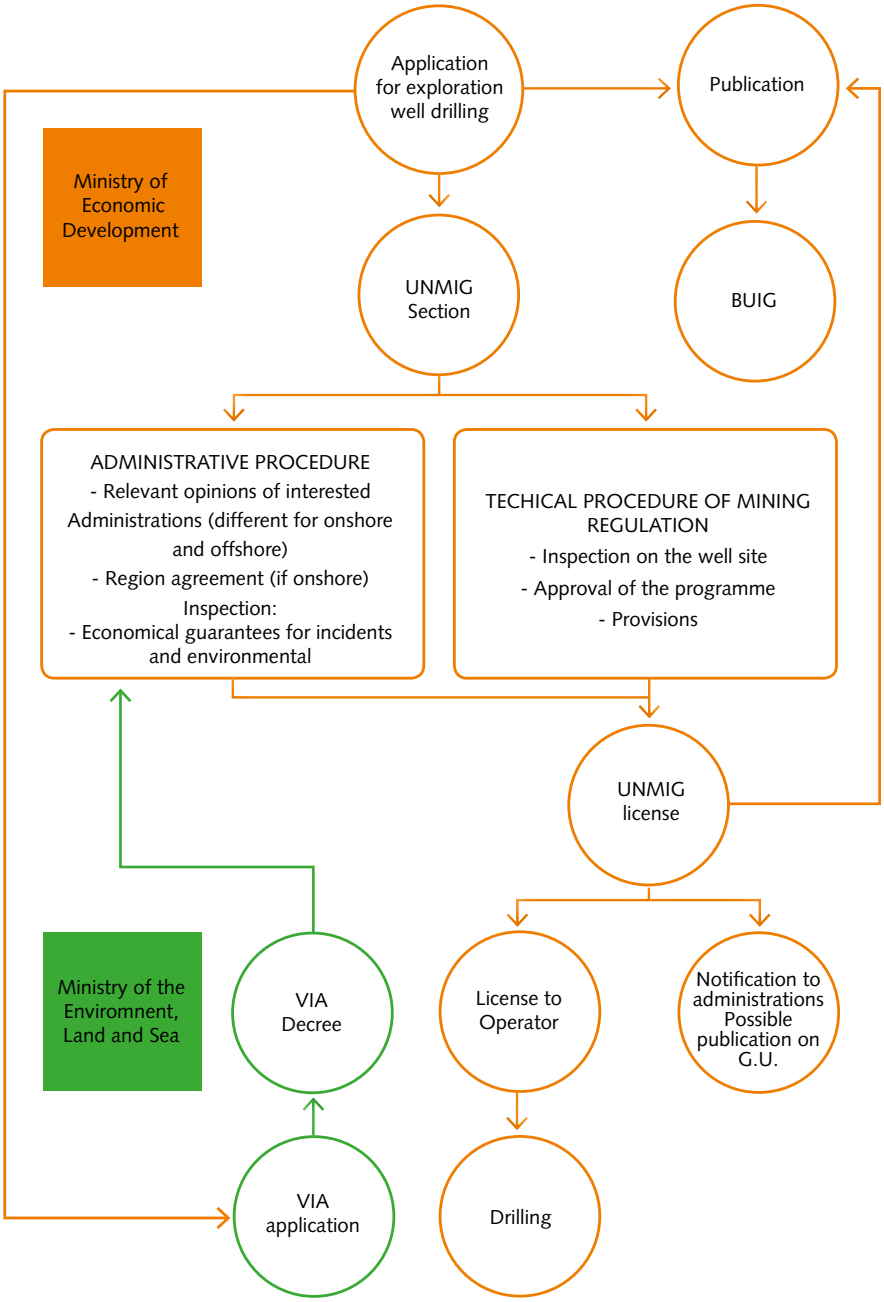
Table 2 - Granted licenses. Year 2015

	Geophisical activity	Drilling	Activities on installations	Operation of installations	Other
January	0	11	2	17	34
February	0	12	10	14	81
March	0	13	24	29	58
April	0	5	9	29	36
May	0	11	13	41	34
June	0	12	15	25	47
July	0	9	10	17	24
August	0	11	3	10	16
Setptember	0	4	12	21	29
October	0	5	5	15	33
November	0	6	7	14	74
December	0	10	8	13	64
Total	**0**	**109**	**118**	**245**	**530**

ORDINARY INSPECTION VISITS

The ordinary inspections consist in: control ongoing works and works completion before the pertaining authorization; inspection and control of the proper functioning of the safety system (cause/effects); inspection and control of the workplace with reference to the Law on health and safety at work (D. Lgs. 81/2008, D. Lgs. 624/1996 etc.) and related laws; control on the proper functioning of the emergency communication systems and related loads; control of the proper functioning of fire-fighting systems and intervention tests both of emergency response team and of protection and control automatic systems (like heat-sensitive cables and fusible plugs), control on protection systems of explosive and/or health endangering atmospheres; control of the proper functioning of lockdown system both automatic, hand local and also remote system; inspection on the different employees positions with reference to operations notification and to contract companies; control on the employees' suitability (result of the periodical visits).

Licensing procedure to drill an exploration well within an exploration/exploitation license or in a unique license (art . 21 of D.D. of 15th July 2015). Situation at 2015, before the entry into force of the Legislative Decree of 18th August 2015, no. 145.



Injuries

Hydrocarbons exploration, exploitation and storage - Italy.

Concerning the activities of hydrocarbons exploration, exploitation and storage (excluding the Sicily onshore), in 2015 there was a total amount of 12 injuries: 7 injuries were serious and 5 were mild *(Table3)*.

Among the serious injuries (so classified, if the prognosis exceeds 30 days), a fatality was recorded and involved an employee of a service company responsible for maintenance operations on board of a floating naval unit operating in an offshore oil field. The employee died in the impact, falling through a pressure relief device, while he was moving in the forepeak. The investigation was completed by the UNMIG Section in charge and the findings were reported to the Public Prosecutor's Office in Ragusa city.

During 2015, a decrease of injuries' number equal to 40%, compared to the previous year, was recorded.

The 58% of injuries occurred in onshore activities, including 2 events occurred at storage sites and both serious. The remaining 42% of injuries occurred in offshore activities. All the reported injuries can be associated with O&G operations, with the exclusion of one minor event, anyway duly reported to the UNMIG Sections because -as required by law- it took place in a mining area, which involved a waitress, employed in an offshore installation, who sustained a contusion crushing her finger while closing the door of the pantry.

Considering the total amount of reported injuries (12 injuries) and of worked hours (12.983.637 hours), for the year 2015 the LTIF[1] (Lost Time Injury Frequency) was equal to 0,92. This value confirms the reduction trend of this parameter during last years, with a remarkable decrease of 77% compared to the highest value recorded in the last five years *(Chart 1)* and a noteworthy variation (-40%) compared to the value[2] of 2014.

In addition to the LTIF, the usual indicators for evaluating the workplace safety in the upstream sector are the number of injuries occurred in drilling per drilled meter (Index 1) and the number of injuries occurred in production per million of TOE produced (Index 2). In 2015 no injury occurred during drilling operations, while the amount of injuries for production activities is increased by one unit in comparison with the previous year.

DGS UNMIG is responsible for collecting data on injuries which occur in hydrocarbons exploration, exploitation and storage in Italy and for the related statistics. The data considered for statistical purpose are fatalities or events causing workplace absence exceeding 3 days. Injuries are classified as in the following:

* Mild injuries, if the workplace absence lasts less than 30 days;
* Serious injuries, if the fatality or the workplace absence is equal to or lasts more than 30 days.

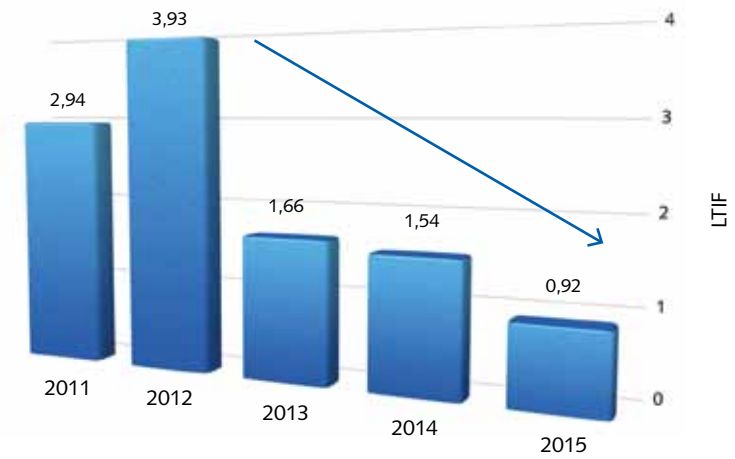
Table 3 - Injuries 2015. Classification according to severity and occurrence place (onshore/offshore).

	Mild	Serious	Total
Onshore	2	5	7
Offshore	3	2	5
Total	**5**	**7**	**12**

[1]According to IOGP (International Oil & Gas Producers Association), the LTIF is defined as "The number of lost time injuries (fatalities + lost work day cases) per 1,000,000 work hours", which represents the frequency index of accidents involving absence from work, calculated with reference to 1 million worked hours.

[2] LTIF 2014 equal to 1,54 (20 injuries per 12.963.569 worked hours).

Chart 1. LTIF in the last five years.



Since 2013, a different methodology[3] is used in order to determine the two indexes. This change should be taken into due account when comparing the datum at 2015 with the historical data *(Table 4, Table 5)* and, in particular, with the datum of 1995 (a reference-point because it is the year preceding the entry into force of Legislative Decree no. 624/1996). It has to be stressed that, over the past 20 years, a significant reduction in the occurrence of injuries and all related indexes was recorded.
The following table *(Table 6)* shows the classification of injuries divided for type of developed activities. It is clear that, with the exception of the

Table 4 - In 2015 there was no injury during drilling operations. Historical data for Index 1 (injuries/ drilled meters). With reference to 1(2014), 2(2013), 5(2010) e 20(1995) years.

Drilling operations	1995	2010	2013	2014	2015
Drilled meters	137.565	56.640	46.365	22.391	23.745
Occurred injuries	121	12	4	6	0
Index 1 (injuries/ drilled meters)	8,80E-04	2,12E-04	0,86E-04	2,68E-04	0

Table 5 - Injuries 2015. Historical data for Index 2 (injuries/ produced millions TOE). With reference to 1(2014), 2(2013), 5(2010) e 20(1995) years.
(*) 1 Mm³ of gas = 800 TOE.

Production	1995	2010	2013	2014	2015
Gas (Billionsi Scm)	20,40	7,90	7,71	7,28	6,88
Crude oil (milions Ton)	5,20	5,10	5,48	5,75	5,46
Total (Millions TOE)*	21,52	11,42	11,65	11,57	10,96
Occurred injuries	125	35	2	3	4
Index (injuries/millions TOE)	5,81	3,06	0,17	0,26	0,37

[3] Since 2013 the way to determine the two indexes changed and now it only takes into account the injuries occurred, respectively, in drilling and production operations. Previously, the indexes took into account also injuries which occurred in the sites where production or drilling operations were carried out even if the events were not closely related to these activities. The exclusion of "unrelated" operations, anyway counted in the LTIF, strengthens the effectiveness of the indexes in order to monitor the injuries in the two key activities of the sector.

item "other activities", injuries are mainly related to the categories of "plants" and "production".
"Slippages" and "falls" *(Table 7)* remain among the main causes of injuries, increasing the serious consequences if compared to the previous year. Also the use of machineries has to be mentioned among the injuries causes, although less strongly than the 2014.

Table 6 - Injuries 2015. Injuries classification according to the activity types.

Activities	Lievi	Gravi	Totale
Pipe Lines	0	0	0
Plants	2	2	4
Installations	1	0	1
Drilling	0	0	0
Production	2	2	4
Diving	0	0	0
Geophysical prospection	0	0	0
Shipping/helicopters	0	0	0
Other activities*	0	3	3
Total	**5**	**7**	**12**

*Except pipe lines, diving, geophysical prospection.

Table 7 - Injuries 2015. Classification by cause of injury

Causes	Mild	Serious	Total
Slippages/ falls	1	6	7
Falls of objects	0	0	0
Machineries	2	1	3
Manipulations of objects	0	0	0
Fires / explosions	0	0	0
Electricity	0	0	0
Dangerous substances	0	0	0
Ionizing radiations	0	0	0
Blowouts	0	0	0
Others	2	0	2
Total	**5**	**7**	**12**

Comparative Analysis

A comparative analysis on the safety performance of hydrocarbons exploration, exploitation and storage in Italy can be performed, comparing the relative LTIF value both with the indexes related to other productive sectors in Italy and to the same indexes carried out in other European Countries for the same activities.

Geothermal energy in Italy - 2015. This Report is supplemented by data on injuries related to geothermal power sector in Italy, which are collected by Tuscany Region (Mines and supervision on mineral and thermal waters section): 2 mild injuries occurred in these activities in 2015, one of which is a commuting incident. Whereas the number of worked hours amounted to 2.608.624 (licensees and contractors), the LTIF value results equal to 0,77.

Table 8 - Injuries 2015. Geothermal power sector.

2015	Geothermal power		
Injuries amount	2	Mild	2
		serious	0
Worked hours	2.608.624		
LTIF	**0,77**		

The database available at the web site of INAIL (National Institute for insurance against accidents at work and occupational diseases) contains statistical information concerning the compensated injuries occurred in Italy in 2014 (the most recent data provided on the institution website at the date of the drafting of this Report).
In order to be compliant with the INAIL approach the star symbol is added to the acronym of the index LTIF (so that it is renamed LTIF*) to specify that the commuting events are excluded from the calculation of the injury frequency.
The results show that Italian upstream industry has safety performance at the workplace significantly better if compared to the entirety of the Italian industrial activities and services *(Table 9)*.

Table 9 - Comparison of LTIF * 2014 among UPSTREAM sector and some productive sectors.

Productive sectors (Italy)	LTIF 2014
Entirety of the industrial activities and services	*9*
Some productive sectors	
O&G UPSTREAM ACTIVITIES AND RELATED SUPPORT SERVICES	0,56
Electricity, gas, steam and air conditioning supply	3,59
Extraction of minerals (in general , hydrocarbons included)	4,71
Wholesale and retail trade; repair of motor vehicles and motorcycles	7,15
Manufacturing activities	9,01
Constructions	10,83
Accommodation and food service activities	10,93

(Source "statistical database " INAIL - elaboration by DGS UNMIG).

Furthermore, the sector has the lowest incident frequency index in the macro-area of mineral resources, mining and quarrying.
In order to calculate LTIF* values for the different economic sectors, information on worked hours, not available on the INAIL website[5], is needed. Such information was obtained from the data available on the number of workers, assuming an average of 2.000 worked hours per year per employee[6] . The injury frequency index for the upstream sector was calculated considering jointly the INAIL data for sectors which in ATECO(NACE)[7] are mentioned as *"Extraction of crude oil and natural gas"* and *"Support activities for petroleum and natural gas extraction"*:

LTIF(INAIL/UPSTREAM)*2014=0,56

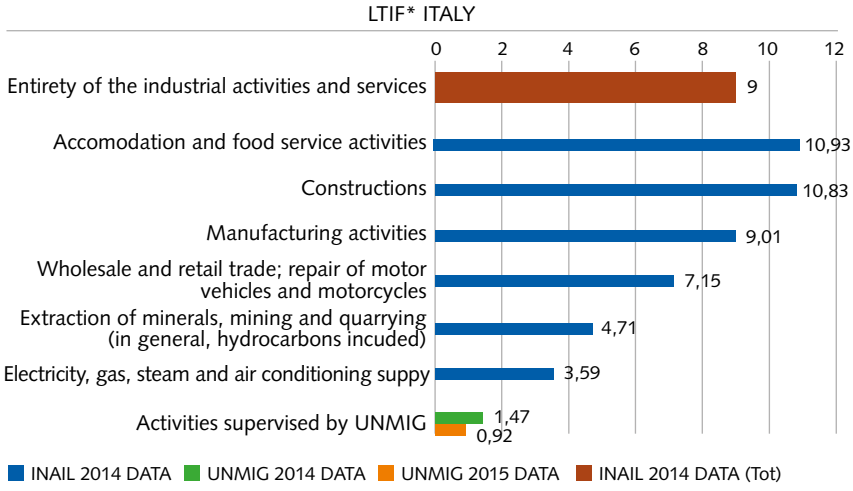
[4] See the documentation concerning to RISK AREA of INAIL statistical database "The frequency indexes are calculated excluding the cases of commuting injuries, as they are not closely related to the risk of specific activities carried out by the injured persons. This modification is compliant to the methodology used by EUROSTAT (Statistical Office of the European Union)".
[5] INAIL calculates data on employees-year divided for commodity sectors, evaluating the employees on the basis of the average salary and salary mass stated by the employer and integrating the value with the insured party to take into account the self-employed workers.
[6] See also Guidance Document on Commission Implementing Regulation (EU) no.1112/2014 on the website of European Union Offshore Oil and Gas Authorities Group.
[7] With reference to the 2007 version of the ATECO code.

The comparative analysis can be extended to the data collected by UNMIG Sections, defining LTIF (UNMIG)* excluding the commuting injuries. The following results are obtained:

LTIF (UNMIG)*2014= 1,47
LTIF (UNMIG)*2015= 0,92

It should be noted the difference between LTIF *(UNMIG)*2014 and LTIF *(INAIL/UPSTREAM)*2014: this is due to the fact that UNMIG data refer only to injured persons who were working inside mining areas, the most sensitive ones for safety issues. The first value is greater than the second one, so the results will be conservative using the UNMIG index instead of INAIL index for the comparative analysis; the same consideration can be reasonably extended to the year 2015.
The results of the comparison among sectors are shown in the Chart 2: the activities supervised by the DGS UNMIG have safety performance among the highest in the framework of the Italian productive activities with a bit more than one injury per million of worked hours (average of UNMIG data 2014-2015) compared to nearly 9 injuries per million of worked hours (INAIL data 2014) of the entirety of the national industrial activities and services.

Chart 2 - Extract of LTIF 2014/15 comparison among activities supervised by UNMIG and other productive sectors.
LTIF = number of compensated injuries (excluding the commuting events) per million of worked hours.



Source INAIL (2014 data), DGS UNMIG (2014/2015 data); elaboration by DGS UNMIG

Furthermore, the activities supervised by UNMIG have injury frequency values considerably lower than other mining activities in Italy *(Table 10)*.

Table 10. Comparison of LTIF 2014/15 among activities supervised by UNMIG and by other Administrations.

Economic activity	LTIF 2014	LTIF 2015	Data source
ACTIVITIES SUPERVISED BY UNMIG (Hydrocarbons exploration, exploitation and storage)	1,47	0,92	DGS UNMIG
Services supporting exploitation activities	2,01	Not yet published	INAIL
Other mining and quarrying activities (Products for building, chemical industry or other raw materials)	11,47	Not yet published	INAIL
Coal exploitation (excluding peat)	24,95	Not yet published	INAIL
Mining of metal-bearing minerals	25,77	Not yet published	INAIL

LTIF = number of compensated injuries (excluding the commuting events) per million of worked hours.
Source mentioned in the table; elaboration by DGS UNMIG

It is also possible to compare the injury indexes of the Italian upstream sector with those of UK's and Norway's ones.
The references are the website of the Norwegian PSA - Petroleum Safety Authority ("Trends in risk level in the Norwegian petroleum activity summary report -2014") and of HSE - Health and Safety Executive of United Kingdom ("Annual offshore statistics & regulatory activity report 2014/2015").
The analysis pertains to the injuries data available at the time of drafting of this Report. It should be noted that HSE publishes injuries data aggregating them from April to March while PSA and DGS UNMIG use the calendar year as reference period.
Concerning just the hydrocarbons exploration and exploitation activities, excluding gas storage, occurred:
* 375 injuries in Norway in 2014 (including 50 off-work events);
* 141 injuries in the UK in the period April 2014 - March 2015;
* 17 injuries in Italy in 2014 (including 4 off-work events);
* 10 injuries in Italy in 2015.

Excluding the off-work events and standardizing for the worked hours, the LTIF resulting are the following: LTIF=6.7 for Norway, LTIF=2.1 for United Kingdom, LTIF 2014=1.3 and LTIF 2015=0.9 for Italy.
A direct comparison of these results, however, is not significant due to very different ways by which the injuries data are collected and classified: for example HSE publishes statistics using only data of accident causing

absence for more than 7 days, the threshold is set to 3 days for Italian statistics while in Norway is statistically significant any accident involving absence from work shift. The non-uniformity factors can be reduced if the comparison refers only to serious injuries and fatalities. Comparing the occurrence frequency of the serious injuries[8] by the index LTIF (number of serious accidents per million worked hours), it is clear that the safety performances of Italian upstream sector are in line with those of the major O&G producing Countries in Europe *(Table 11)*. Table 12 shows the comparison of the fatalities occurrence frequency.

Table 11. Comparison among major European Countries having upstream activities. LTIF = number of serious injuries in UPSTREAM per million of worked hours.

Serious injuriesin upstream operations *(Hydrocarbons exploration and exploitation)*			
Country	LTIF serious injuries	Reference period (According to available injury data)	Data source
United Kingdom	0,24	04/2014 - 03/2015	Annual Offshore Statistics & Regulatory Activity Report 2014/2015
Italy	0,39	2014	DGS-UNMIG
Italy	0,45	2015	DGS-UNMIG
Norway	0,53	2014	Trends in risk level in the norwegian petroleum activity - summary report - 2014 Petroleum Safety Authority

Source mentioned in table; elaboration by DGS UNMIG

Table 12 - Comparison among major European Countries having upstream activities. Fatality events in UPSTREAM.

Fatalities in the past 5 years in operations upstream *(Hydrocarbons exploration and exploitation)*			
Country	LTIF Fatality number	Reference period (According to available injury data)	Data source
Norway	1 (Last event in 2015)	2011-2015	Trends in risk level in the norwegian petroleum activity summary report - 2014 + Sito Web Petroleum Safety Authority
Italy	1 (Last event in 2015)	2011-2015	Rapporti annuali DGS-UNMIG
United Kingdom	4 (Last event in 2014-15)	04/2010 - 03/2015	Annual Offshore Statistics & Regulatory Activity Report 2014/2015

Source mentioned in table; elaboration by DGS UNMIG

[8] A kind of heterogeneity still remains also in the classification of serious events: e.g. the DGS UNMIG considers serious injury the one with prognosis exceeding 30 days, while HSE stresses the fact that "in October 2013, the classification of 'Major injuries' to workers was replaced with a shorter list of 'Specified injuries' " (see details at the webpage www.hse.gov.uk/pubns/indg453.pdf).

Conclusions

During 2015 a significant decrease of injuries was observed in comparison to the previous year, connected to the reduction of mild events.
Slippages and falls represent the events which require actions in order to reduce the number of serious injuries ant the magnitude of their consequences.
In 2015 higher injury frequency occurred during activities on installations and production operations. No injury was recorded during drilling operations in the ace of a slight increase of drilled meters compared to 2014, when 6 injuries occurred.
The downward trend in LTIF value was confirmed in 2015, with a moderate increase of LTIF related to serious injuries. The injury frequency assessment for hydrocarbons exploration, exploitation and storage activities in Italy shows that the occupational safety performance in the sector under the responsibility of DGS UNMIG remained high even in 2015, in line with those of major O&G European producing Countries (such as Norway and UK) and with superior performances compared both to other Italian industry and services sectors and to similar activities supervised by other Italian Authorities.

THE 2015 MAIN ACTIVITIES

LABORATORY ACTIVITIES AND ENVIRONMENTAL MONITORING ACTIVITIES

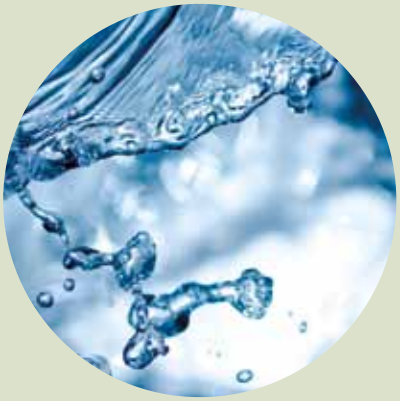
Chemical and mineralogical Laboratories (Division V) carry out experimental controls on parameters concerning prevention and safety in the frame of the activities of energy and mining sector (particularly on ground vibrations, noise, on-site air quality). The Laboratories organize and carry out inspection campaigns, sampling and chemical-physical analyses, making tests, researches and studies on mineral and geological matter coming from mining sector, included recovered materials and wastes aiming also to their reuse. The Laboratories evaluate and analyze the mining technology progresses and the new fields of application for mining raw material and derived substances.
Hereafter the activities developed by Laboratories during 2015 are described.

Control activities on emissions to air

During 2015, control activity on emissions to air by the oil and gas production, storage and treatment plants was continued.
Controls were carried out for the following oil and gas treatment and storage plants:

* VAL D'AGRI Oil Center, eni S.p.A. Company;
* SERGNANO STOCCAGGIO, STOGIT S.p.A. Company;
* RIPALTA STOCCAGGIO, STOGIT S.p.A. Company;
* CORTEMAGGIORE STOCCAGGIO, STOGIT S.p.A. Company;
* MINERBIO STOCCAGGIO, STOGIT S.p.A. Company;
* CASALBORSETTI, eni S.p.A. Company;
* RAVENNA MARE, eni S.p.A. Company;
* PINETO, Adriatica idrocarburi S.p.A. Company;
* MARIA A MARE, Edison S.p.A. Company;
* SAN GIORGIO MARE, Edison S.p.A. Company;
* SETTALA STOCCAGGIO, STOGIT S.p.A. Company;
* SABBIONCELLO STOCCAGGIO, STOGIT S.p.A. Company;
* FIUME TRESTE STOCCAGGIO, STOGIT S.p.A. Company;
* CELLINO STOCCAGGIO, Edison S.p.A. Company;
* ROSPO MARE B, Edison S.p.A. Company;
* BARBARA T2, eni S.p.A. Company;
* VEGA A, Edison S.p.A. Company;

The pollutants concentrations (CO, NOx and SO_2) at the channeled emission points, analyzed at the gas production and storage plants, resulted below the threshold limits laid down in the emission authorizations granted by competent authorities (Provinces, Regions, Ministry of Environment).
Particularly, the pollutants values measured at channeled emission points at the CENTRO OLIO VAL D'AGRI (oil center) resulted lower than the required limits by the Decision of the Basilicata Regional Government no. 627 of 4th May 2011 for full-capacity operation.
On 22nd July 2015, during a transient phase, such limits were exceeded for the thermal combustor V580-FJ-951 (emission point E20) for what concerns the SO_2 concentration, as the Company communicated to Potenza Province, to ARPAB and to Viggiano Municipality, according to the procedures provided by Paragraph 11.3, point 9 of Attachment 3 of the Decision no. 627 of 4th May 2011 on emissions authorization in case of exceeding of the hourly limit. The values of the pollutants, measured at the channeled emission points that were investigated on BARBARA T2 plants, owned by eni S.p.A. company, resulted lower than the limits forced by the integrated environmental authorization (AIA) "DSA- DEC 2009-0001804" of 26th November 2009.
In the end, the emissions on VEGA A and ROSPO MARE B plants, owned by Edison S.p.A. company, resulted to be within the acceptance limits specified in the D. Lgs 152/2006 and subsequent amendments.



Control of liquid effluents

DGS UNMIG participated to AIA monitoring activities provided by ISPRA for offshore installations.
In particular, sampling and analyses were carried out on liquid effluents (wastewaters separated from liquid and gaseous hydrocarbons, cooling waters), coming from BARBARA T2 plants.
Sampling on BARBARA T2 and further analyses on emission and liquid effluents were developed in the frame of the cooperation between DGS-UNMIG and ISPRA institute, aiming to accomplish joined controls as implied by Integrated Environmental Authorization for offshore plants, as defined in the D. Lgs. 152/2006 as amended and supplemented, article 29 decies, paragraphs 1 and 3.

ENVIRONMENT IN THE WORKPLACE

The radon gas concentration in a basement room in an office of Ministry of Economic Development located in the Viale Bostoson nr 25 street was determined, in order to verify the compliance with the limits for the workplaces. The average value for gas radon concentration in the analyzed environment resulted lower than the reference values imposed by the D. Lgs. no. 241/2000.

ENVIRONMENTAL MONITORING ACTIVITIES

Within the environmental and workers' safety sector, environmental monitoring were carried out from Division V experts in some rooms of the offices of Ministry of Economic Development located in Viale America nr 201 Street, aimed to detect asbestos fibers in the air. In the analyzed samples no fibrous material related to asbestos was detected.

In the frame of the AIA control, experts from Division V and from UNMIG Roma office carried out, in July, the joined inspection of ordinary control on the compression facilities BARBARA T2 (eni S.p.A. company), located in the Adriatic Sea, in coordination with ARPAM (Regional Agency for environmental protection of the Marche region) technicians, in order to verify the compliance with the monitoring plan for the installations as stated in the AIA document.
Furthermore, the concentration of different characteristic parameters (anions, cations, metals) was determined in the aqueous effluents.
In particular, concerning the parameters for which the current legislation defines limits, the temperature of the discharge of the cooling water of the compressed gas resulted lower than the limit defined by D. Lgs. 152/2006 and the total hydrocarbons content in the wastewater discharged to the sea is within the limits defined by the Decree 28th July 1994 of the Ministry of environment.

Gas quality control

During 2015, Division V carried out some control campaigns on the natural gas quality, for the gas exploited and/or stored in the national territory in order to verify the compliance between the characteristics of the gas with the acceptance values of the quality gas to be channeled in the pipelines for the national transport and in the local network, in compliance with the Decree of the Ministry of Economic Development of 19th February 2007 (Wobbe index, calorific value, relative density).
The controls were carried out in the following gas exploitation, storage and treatment sites:

TREATMENT AND EXPLOITATION PLANTS:
* CENTRO OLIO VAL D'AGRI, eni S.p.A. company;
* RAVENNA MARE, eni S.p.A. company,
* CASALBORSETTI, eni S.p.A. company,
*PINETO, Adriatica idrocarburi S.p.A. company,
* MARIA A MARE, Edison S.p.A. company,
* SAN GIORGIO MARE, Edison S.p.A. company.

STORAGE PLANTS:
* CELLINO STOCCAGGIO, Edison S.p.A. company,

* CORTEMAGGIORE STOCCAGGIO, STOGIT S.p.A. company,
* MINERBIO STOCCAGGIO, STOGIT S.p.A. company,
*FIUME TRESTE STOCCAGGIO, STOGIT S.p.A. company,
* RIPALTA STOCCAGGIO, STOGIT S.p.A. company,
* SERGNANO STOCCAGGIO, STOGIT S.p.A. company,
* BRUGHERIO STOCCAGGIO, STOGIT S.p.A. company,
* SETTALA STOCCAGGIO, STOGIT S.p.A. company,
* SABBIONCELLO STOCCAGGIO, STOGIT S.p.A. company.

Furthermore, the analysis of the natural gas on the compression facilities BARBARA 2T (eni S.p.A.) was carried out.

Laboratorio Cavone Project

The monitoring activities on Cavone field continued during 2015, according to the procedure established after the conclusion of the Laboratorio Cavone in July 2014 (the project implemented through the agreement among Ministry of Economic Development, Emilia-Romagna Region, Assomineraria and Padana Energia S.p.A).
All the activities of Laboratorio Cavone can be visualized on the website at the link: http://labcavone.it/

The website is organized in order to provide:
* follow-up about the launch and the evolution of the project, with particular reference to the acts and documents concerning the first application of the "Guidelines for monitoring of seismicity, ground deformation and pore pressure" (published on 24th November 2014; hereafter "Guidelines" or ILG) to the Cavone field;
* details on microseismic monitoring through a dedicated network, reports on each recorded event and some technical documents for the description of the features, performances and stations of both local and national seismic networks.

Starting from July 2014, the Laboratorio Cavone collected the information about the events acquired by the national (INGV http://cnt.rm.ingv.it) and local networks.

SUITABILITY FOR EXPLOSIVES USE

The Division V shall conduct technical investigations in order to recognize the suitability to use explosives, detonating substances and firing devices in the mining activities, as regulated by Ministerial Decree of 21st April 1979.
The explosives' list is yearly updated, according to the Title VIII of the Decree of the President of Italian Republic of 9th April 1959, no. 128 and in compliance with the above mentioned Ministerial Decree of 21st April 1979.
For 2015, the explosives' list was approved by the Directorial Decree of 20th March 2015.

These data show in site and regional seismicity (for an extended area of 8000 Km2) and they are published on the Laboratorio Cavone website within 24 hours from the event, by table format and maps.
Subsequently to the event registration, a comparison with the production data (volume of oil and water extracted from the field) and injection data (reinjection volume and pressure) is carried out in order to evaluate some possible correlations. The related information is reported within a dedicated document, that is also published on the website (http://labcavone.it/).
The specific reports contain the details of the single event acquired by the local network, that are the location, the possible detection by the national seismic network of INGV, the depth, the production data and the wastewater reinjection data separated from hydrocarbons.
During 2015, 64 events were identified and analyzed, 28 of which localized in the inner survey domain (as defined in the mentioned ILG document) with magnitude ranging between 1.1 and 3.8; among these, 4 events were also detected by the national monitoring network.
The events located in the inner survey domain were examined in the above mentioned specific document and elaborated in a summary report with the aim to highlight the information about the trend of the monitored microseismic activity.

THE 2015 MAIN ACTIVITIES

ACTIVITIES FOR OFFSHORE SAFETY: THE COLLABORATIONS WITH RESEARCH CENTERS, GOVERNMENT INSTITUTES AND UNIVERSITIES

As already stated, the DGS UNMIG manages the regulatory and control activities on operations safety linked to the development of mining and energy resources, through specialist competences of UNMIG Sections and the Laboratories for chemical and mineralogical analyses.
The objective of improvement of operations safety shall be pursued moving 4 strategic pillars:

A. control, surveillance and technical management of existing activities;
B. scientific research aimed to increase the knowhow in the sector and to promote technological innovation, at national and international level;
C. regulatory and normative activity for the increase of operations safety and the adoption of best practices;
D. renewed effort in stakeholders involvement, built on transparency and dialog, jointly with DGSAIE, Ministry of Environment, Regions and other interested Administrations.

From 2014, Collaborations with Research Centers and Government Institutes for the activation of strategic pillars aimed at continuous improvement of safety

From 2014, the Directorate established several collaborations with Research Centers, Government Institutes and Universities, in order to achieve the objectives of the above mentioned strategic pillars, in accordance to the D.Lgs. no. 152/2006, as modified by D.Lgs. 83/2012,

These objectives -nowadays amounting to 23- are all addressed to define an Indicator of sustainability. The evaluation of such indicator have to be assessed on adequate scientific bases, on measurable parameters, and on a continuous dialog with the Operators, about the use of methodologies that must be compliant with the best practices of the sector and validated by the main competent research Centers.
The Directorate's first collaborations were signed during 2014, with the Italian Navy and the Coast Guard. During 2015, further collaborations started, achieving totally 12 agreements up to December 2015.
Such agreements include 5 Universities on the entire national territory, 2 Government Institutes and 5 Research Centers *(Table 13)*.

Table 13 - Relevant information on the agreements divided by years, 2014 -2015. Each year is in quarters (T1-T4). A, B, C, D correspond to the 4 pillars of DGS: A "Monitoring and Control"; B "Research and technological innovation"; C "Safety Regulation and best practice"; D "Dialog with stakeholder and the territory"

Year 2014	Duration (y)	Pillar	University	Government Institution	Research Center
T1	3	A-C		Armed Service Navy	
T4	3	A-B-D	CRIET		
T4	3	B-C-D	AMRA		
T4	3	A-C		Coast Guard	
T4	3	B-C			RSC
T4	3	A-B			OGS
T4	3	A-B			INGV

Year 2015	Duration (y)	Pillar	University	Government Institution	Research Center
T2	3	B			CNR ISMAR
T3	3	A-B	DICAM		
T3	3	B-C	PolitecnicoTorino		
T4	3	B	La Sapienza		
T4	3	A-B			CNR IREA

During the last two years, the allocated resources covered all the 4 pillars, with a stronger effort on control and monitoring items on current status of the installations *(Chart 3)*.
From 2015, the agreements activities deepened more the issue concerning research and technology innovation *(Chart 3)*, in order to complete the knowledge about the seabed resources, the geological and seismic characteristics, useful to perform a more comprehensive risk

DGS UNMIG OBJECTIVES IN CONTROL AND MONITORING ACTIVITIES WITHIN AGREEMENTS WITH RESEARCH CENTERS, GOVERNMENT INSTITUTION AND UNIVERSITIES

1. Definition of an indicator for evaluating changes in plants' safety level.
2. Development of an innovative air-maritime-satellite system for daily monitoring of waters.
3. Development of new technologies for checking the status of sealines and installations.
4. Check on activities of traditional and next-generation drilling rigs, definition of innovative systems for drilling parameters registration
5. Implementation of feasibility studies for offshore seismic monitoring and ground deformations monitoring.
6. Stratigraphic and geological studies of new marine areas available for hydrocarbons exploration and exploitation.
7. Check of current emission systems on plants and data projection to 2020 (downline of technological innovation and production profiles).
8. Study of environmental effects of operations and NaTech accidents.
9. Energy optimization of offshore installations even by the use of renewable energy sources.
10. Study of accidental scenery at offshore plants for risk identifications (under Directive 2013/30/EU, articles 12 and 13; Annexes I and III) and related mitigation actions.
11. Study of operational procedures aimed to controls and assessment of the major hazards report as mentioned in the previous point 10 of this list (Annexes IV and VI of Directive)
12. Analysis of best practices and past cases for economic, financial and legal issue solution coming from offshore accidents, involving also cross-borders aspects.
13. Economic feasibility of offshore drilling rigs conversion for other energy uses (renewables and LNG).
14. Study of monitoring system based on new generation sensors for the detection of chemicals.
15. Characterization of oil fields through unconventional tests.
16. Study and analysis of legislation on safety and environmental protection.
17. Phenomena of pollutants degradation in the seawater (weathering).
18. Mapping of hydrocarbons natural emissions.
19. Dissemination and disclosure of the results obtained by studies carried out under the agreements.
20. Hydrocarbons transfer issues.
21. Mapping of European and international legislation on energy issues.
22. Analysis of best practices for economic and financial issues coming from hydrocarbons production and transport.
23. Survey and collection of information concerning the Italian institutions activities able to increase the offshore safety levels and related databases.

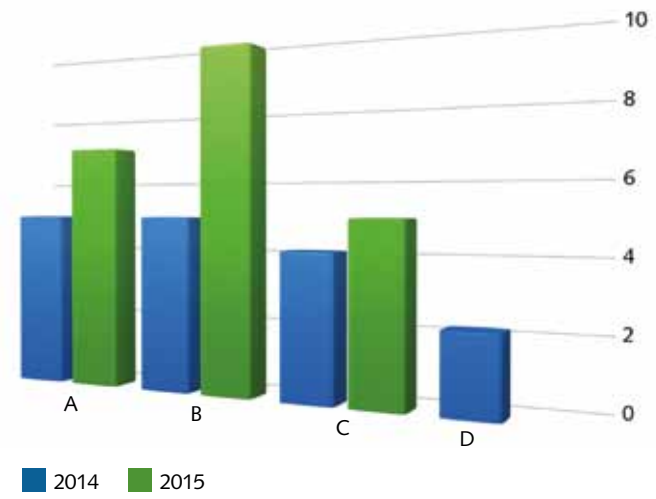
CRIET Centro di Ricerca Interuniversitario in Economia del Territorio

INTER-UNIVERSITY RESEARCH CENTER IN ECONOMY AND TERRITORY - CRIET

CRIET represents the hub of a network that, in a multi-disciplinary system, adopts as key priority knowledge of Universities, Institution and companies, following, as guideline, the concept of sustainability based on environmental, economic and social dictates which result of wealth and progress. Through its experts, CRIET provides support for communication activities with the territory, environmental controls, research on the geology subjects and addresses in an integrated way different issues related to the economy. CRIET collaborates with chemical Laboratories, to carry out an integrated study for the definition of emissive framework of hydrocarbons production platforms active in the Italian seas and the future evolution to 2020 according to the National Energy Strategy (SEN) projects. The activity is focused on the study and implementation of analytical changes, during 2015.

analysis of certain activities, and to correctly assess the economic and legal aspects related to the offshore national and trans-boundary activities.

Chart 3 - Annual investments of Directorate per year 2014-2015, divided by the 4 levers



A. Control and monitoring during 2014-2015 period

A.1 Activities developed with the National Government Institutions

The activities connected to this pillar are the first initiatives started in 2014 with the Navy and with the Coast Guard.

During these years, the Navy carried out the following activities:

a. Surveillance of E&P offshore installations and maritime areas;

b. Checks of E&P offshore plants and underwater infrastructures: the staff of the Divers Operational Group of the Divers and Raiders Command (COM.SUB.IN) Varignano (SP) worked on control activity on the sealines of two platforms;

c. Surveillance and control of maritime areas and plants for safety and environmental protection purposes against the risks induced by offshore activities;

d. sharing information, updating respective database and realization of cartography with appropriate scale for an accurate and precise definition of areas of mining licenses;
e. Professional training of respective staff;
f. Professional, technical and legislative support on safety and protection of offshore installations.

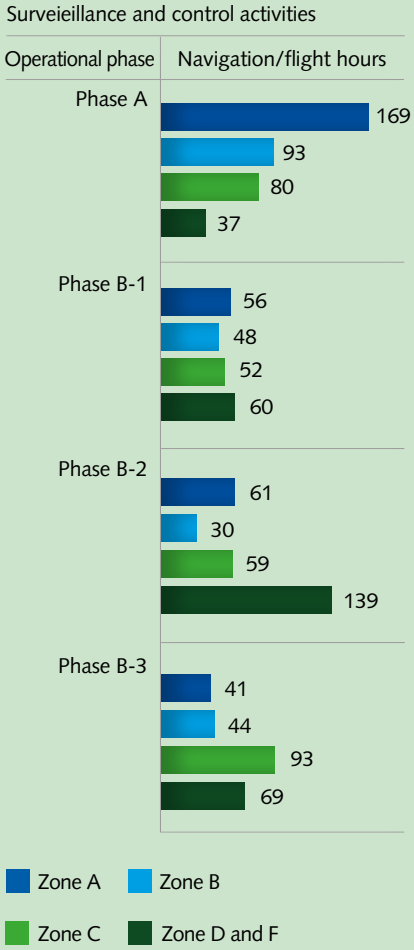
During the last two years, the Coast Guard supported DGS UNMIG by surveillance activities of maritime areas where E&P platforms are placed, using air and naval means, according to an operational program divided into 4 phase (Alfa, Bravo 1, Bravo 2 e Bravo 3), scheduled following these criteria:
* installations divided by zones
* distance from the coast of each installation
* analysis of traffic flows in the area
* analysis of the anthropic impact of the interested areas.

The Coast Guard also dedicated a deep-sea patrol boat CP328 appropriately equipped as mobile laboratory to perform sampling and analyses both on water and air matrices relative to the wastewater discharge and gas emissions in the atmosphere, in order to use a specialized vessel for monitoring activity. The vessel is located at the Coast Guard of Ravenna because of its metacentric position along the Adriatic coast where most of the E&P platforms are located.
For monitoring such activities, the Interuniversity Research Center in Economy and Territory, CRIET (University of Milano-Bicocca) also supported the UNMIG chemical Laboratories for the control and the sampling activities on the plants.

A.1.1. Results *(Figure 1 - a,b,c,d)*
By the so called Smart Mise system, the CINCNAV body of the Italian Navy provides the maritime picture continuously processed by acquisition, joining and improvement of the different gathered information. DGS UNMIG grants the mining nulla osta for activities under its responsibility, under the Royal Decree 11th December 1933, no. 1775, for the oceanographic survey to foreign vessels, following possible request of Ministry of Foreign Affairs and International Cooperation. Such authorization is granted after having verified possible interferences with other mining licenses currently in force in the Italian continental shelf.

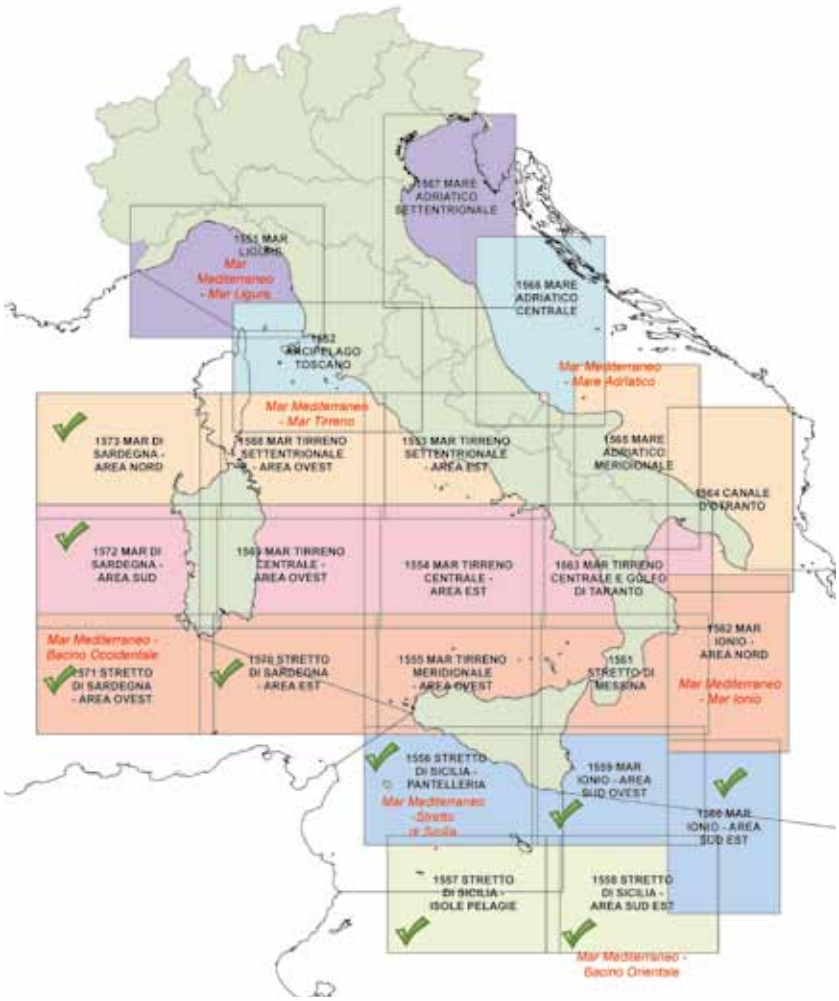
Figure1-a
Screenshot of the "Smart Mise" control system of the maritime activities in the DGS UNMIG areas.

Figure 1-b
Surveillance and control activities carried out by Coast Guard, divided by MiSE' Zones of interest and operative program phase.



Moreover, DGS UNMIG points out, based on the submitted work plan, the activities deemed "dangerous" or inconsistent with scientific research purposes (or industrial purposes) and for which issues a clearance with discretionary opinion (pursuant to UNCLOS Part IX).
The Smart Mise system allows to check the activities carried out and their compliance with the work program presented by the Research Centers (research areas and navigation routes), in relation to the offshore areas available for hydrocarbons exploration and exploitation (Maritime Zones A-G) and plants location.

Figura 1-c
IIM cartography sheets, scale 1:250.000. For "Mining" edition.



In 2015 the Directorate General received 17 applications for carring out foreign research campaigns (10 French, 4 German 2 Spanish and 1 Dutch), mainly conducted in the Tyrrhenian Sea *(Chart 4)*, in order to carriey out with the following purposes:

* 9 for marine researches;
* 1 for basic oceanography;
* 1 for a cable fixing;
* 5 for seismic acquisition for scientific research;
* 1 for geophysical surveys (magnetometry, gravimetry, sediment sampling).

Chart 4 - Distribution of the foreign oceanographic surveys in the Italian seas (2015)

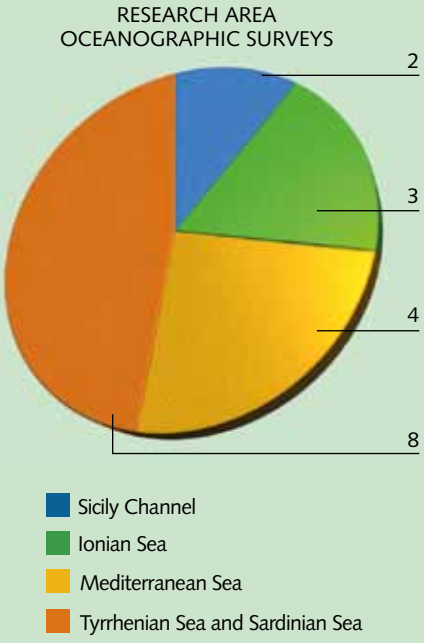
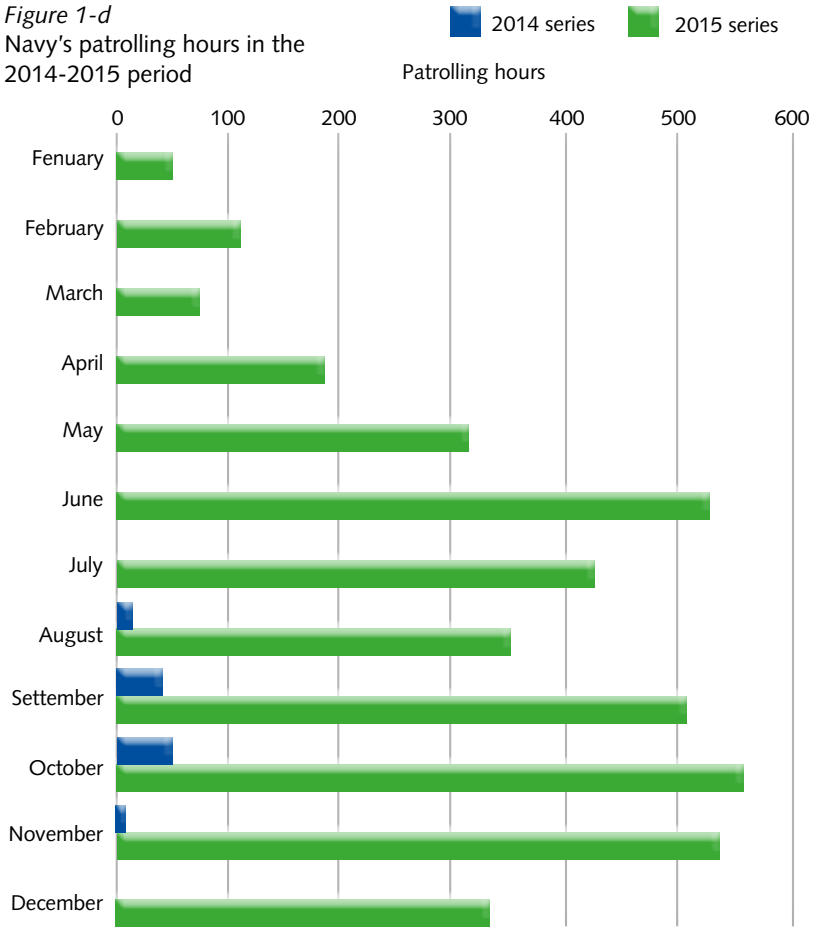
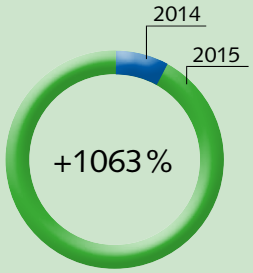


Figure 1-d
Navy's patrolling hours in the 2014-2015 period





MARINA MILITARE

THE ITALIAN NAVY

The Navy has always been involved in tasks closely connected, by their nature, to the civilian world, particularly for what concerns the complex and comprehensive maritime environmental context. Such activity, when not strictly military and carried out on direct or indirect support and favor of the community, is called "Dual Activity" or "Dual Use".

In order to perform their duties, all the Navy ships were conceived and designed with high capacities in terms of logistics self-sufficiency, movement, flexibility and ability to provide different types of support and services, without the need to necessary interact or dependent from the territory, on which or near which it is required to operate.
Thanks to their flexibility, the Navy's technologies and the means are so useful for both military and civilian purposes. In consideration of these features, possible

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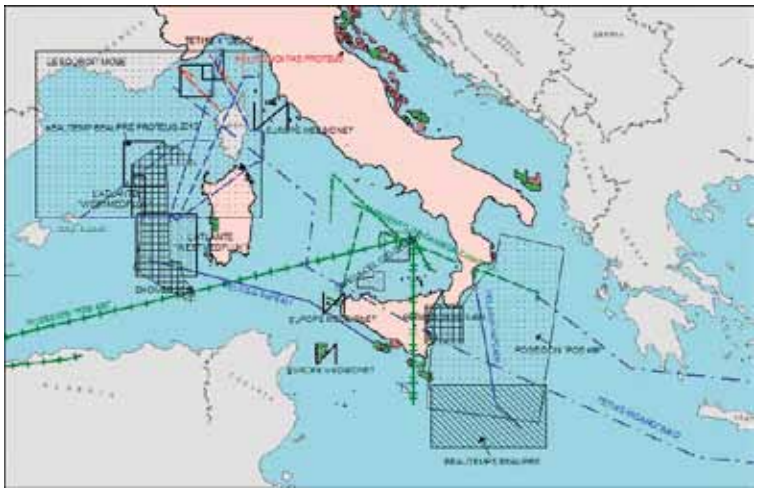
Among the 17 foreign campaigns (Figure 2), 2 interferences with mining licenses were detected and reported to the competent UNMIG Sections to carry out the necessary controls and procedures. In 2015, under the agreements with DGS UNMIG and in order to check any trespassing, the Navy reported that only 1 vessel encroached on Italian territorial waters, out of a total of 61 research and oceanographic Italian and foreign vessels (7 vessels in 2014 and the other 54 in 2015). This occurred during the Croatian seismic research campaign (in 2014), for which the DGS UNMIG carried out proper inquiries in order to obtain the data acquired performing these activities.
Within the patrolling activities carried out on maritime areas, the extension of the patrolled areas from 2014 to 2015 involves all the areas where mining activities are allowed. In particular, more than 4077 hours of patrolling on marine activities were carried out, with a monthly average of more than 331 hours, against the 2014 monthly average of more than 105 hours.
From 2014 to 2015, the Navy increased the control activity of about 1,063%. The Navy, through the collaboration with DGS, is also improving its own control systems, by implementing tools that allow to get a better radar monitoring coverage in the Adriatic Sea.

Figure 2 - Application for authorizations to carry our oceanographic surveys during 2015



Concerning the surveillance activities on plants and structures, 2 campaigns with the "Viareggio" and "Rimini" ships were performed for sealine inspections. In particular, the inspections were located near the installations of Rospo Mare field: the first one between Alba Marina FSPO and Rospo Mare B platform and the other between the Leonis FPSO and Vega A platform.
In the 2014-2015 period, the Navy, through the Naval Hydrographic Institute, delivered the first 9 maps for mining use that cover the Zone E and the Sicily Channel. Arethusa Ship completed in 2 stages the bottom survey in a subarea of approximately 80 Km2 on Vega field.
In 2015, the Port Authorities insured operational activities focused on plant safety areas (500 m) producing a higher incidence of controls in the Adriatic and Ionian Seas. Such controls allowed to detect an amount of 14 infractions infringing specific disqualification provided by the Ordinances of maritime police enacted for the purpose of navigation safety by the competent Maritime Offices. The effort, with a view to prevention issue, required a total amount of more than 1131 hours of aero-naval patrol, covering the entire national offshore and 7439 miles travelled by using the ships widely deployed along the coasts.
During patrol missions, naval crews paid special attention to the monitoring of merchant traffic through optical recognition method, both system (AIS) and radio (via VHF).
All flying activities were conducted using environmental remote sensing systems (infrared vision and SLAR) for an immediate identification of any -however small- oil spill.
Aimed at environmental safety purposes in exploration and exploitation offshore plants, the Coast Guard is considering to devote an additional patrol sea boat to be designed similar to CP 328 and to be used as a mobile laboratory, as a further technical equipment anchored at Ancona harbour in order to achieve coverage of the whole Adriatic Sea.
The preliminary results coming from the collaboration with CRIET are principally related to the plants monitoring and checks planning to obtain a total (gas and liquid) emissions framework determined by the O&G platforms.

A.2 Activities developed with the Research Centers

In the frame of this strategic view, the activities on new monitoring and operations perspectives are also included, in order to be implemented in line with the best practice on the best methodologies available in the interesting sectors. A particular reference is due to the application of the

synergies with other institutions, such as the Ministry of economic development, were studied, evaluated and developed, in order to ensure the uniform and consistent development of activities of common interest, for implementing loyal cooperation principles in the pursuit of functionality, effectiveness and economy objectives. With this view, during last year the following activities were carried out:

Viareggio Ship at Rospo Mare Field
14th September 2015: sealine control between Alba Marina FPSO and Rospo Mare B plants.

Rimini Ship at Vega Field
1st - 11th December and 11th - 14th December 2015: sealine control between Leonis FSO and Vega A plants

Activities carried out:
* Visual inspection by ROV (video and/or photo) of 6 contacts;
* sealine control between the Leonis FSO (temporary storage platform on support of ship Vega) and the platform itself;
* Visual inspection by ROV (video and/or photo) out of mud volcanoes.

Arethusa Ship at Vega Field
27th-30th September 2015: first phase of bottom survey - 46 km2 out of a total of 80 km2.
9th -13th November 2015: second phase of bottom survey – 80 km2 completion area.

THE COAST GUARD

The offshore exploitation activity involves, in its many implications, the issues concerning the environment, navigation and maritime transport safety, maritime police and traffics controls. The Coast Guard retains the sole responsibility in such issues, of which it is holder by law and in accordance with the strict requirements of the primary law sources.
The Coast Guard has a direct involvement as technical and functional body of the Ministries of infrastructure and transport, of the environment and of agriculture on aspects related to maritime domain protection, fishing, navigation safety and environmental protection, both in terms of prevention, intervention and coordination against pollution.
The Coast Guard can count on 295 maritime offices located along the coasts, provided with air-naval transport means for immediate operational needs and trained personnel of proven versatility. It is a widespread and flexible organization, constantly tailored to user needs, supported by the Inter-institutional connection between local maritime authorities and UNMIG Sections, in carrying out the ordinary institutional duties, in order to meet the DGS needs in accordance with a synergic management of activities. In the frame of the surveillance and control activities in the marine areas, the aircraft ATR 42MP provided a significant contribution, with

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Guidelines for microseismicity, ground deformation and pore pressure monitoring system, associated with the analyses of the application to the onshore cases and extension to the offshore cases *(Figures 3 and 4)*.
Some of the main Research Centers (among which INGV, OGS, CNR-IREA, DICAM) are deepening and developing these specific items. INGV was also charged -in 2015- as SPM (Structure in charge for monitoring for the pilot cases of the Guidelines).

A.2.1 Results

By December 2015, the first results were obtained principally by INGV and OGS because the agreement for DICAM and CNR-IREA started after the second quarter of the year.

A.2.2 The Agreements and the test on the Pilot Cases

At the same time as the development of activities with the Research Centers, by means of ad hoc agreements signed with the Emilia-Romagna Region, experimental laboratories are actually testing the application of technologies and methodologies aimed to identify seismicity, ground

Figure 3 - INGV seismic monitoring network

Figure 4 - INGV GPS-RING network

deformation and pore pressure as recommended by the "Guidelines" document (ILG) published by the Ministry of economic development in 24th November 2014.
Thanks to the results of the 3 pilot cases, the ILG document will be implemented and, consequently, the ILG criteria will be progressively applied to other mining fields.
In the specific matter, INGV was chosen as Structure in charge for monitoring (SPM) for the pilot cases: "Cavone" "Casaglia" e "Minerbio" fields, that represents respectively a hydrocarbon exploitation license, a geothermal energy exploitation license and a natural gas storage license.
Furthermore, within the agreement between DGS and INGV, a technical feasibility assessment for a possible extension of monitoring activities to the offshore is in progress with the aim to test the Guidelines. Therefore, possible case studies are identified in Sicily Channel and in the offshore off Ravenna and Crotone areas.

B. Research and technological innovation 2014 -2015

B. 1 Activities of Research Centers

During 2015, the above mentioned pillar B concerning the research and innovation lever, is considerably strengthened if compared to 2014.
The agreements, in this frame, were the ones signed with CRIET, AMRA, RSE, INGV, OGS, PoliTo. Other Centers (DICAM, IREA) began their collaborations after the second quarter of 2015, while in some cases (e.g. Geosapienza, CNR - ISMAR) the agreement and the specific tasks are not yet defined.
In the following, the activities carried out by CRIET, AMRA, RSE, INGV and OGS are described.
The activities developed by PoliTo, even if included in the pillar B, will be better discussed in the Paragraph concerning the pillar C.

Modeling

* Geological structure of the new marine zone (CRIET)
* ARGO Project (AMRA) – multirisk analysis
* Fluid-dynamic and geomechanic simulation within ARGO Project (RSE)
* Pollutants leakage (RSE) (OGS).

the use of environmental remote sensing systems (infrared vision and SLAR).
In order to complete the planned tasks, drawing and analysis of water samples were carried out by the specialized LAM personnel. This activity will be carried out jointly at the DGS' laboratory as next year, supported by the availability of the new patrol boat CP 328.
Finally, an implementation of information exchanges is foreseen among the Operational Centre of the Cast Guard, the DGS and the UNMIG Sections in order to manage any anomaly detected during air-naval patrol.

INGV – NATIONAL GEOPHYSICAL AND VOLCANOLOGY INSTITUTE

Since 1999, INGV collects the main national scientific realities in the sector of geophysics and volcanology in a unique center. In the frame of the agreement with DGS for the E&P offshore safety, INGV develops the following tasks:

1. Elaboration of feasibility studies for seismicity, ground deformation and pore pressure monitoring of the offshore hydrocarbons exploitation activities, in order to increase the safety standards for underground operations;

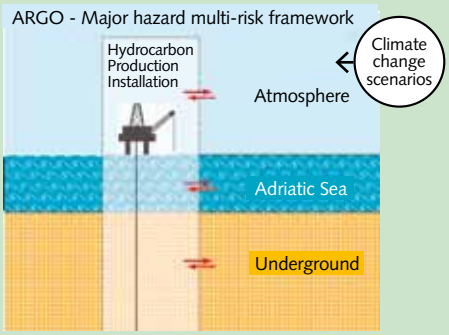
2. Seismic signal characterization aimed to distinguish between natural and induced seismicity;

3. Development of procedure and implementation of the monitoring activities in the offshore areas.

amra
analysis and monitoring of environmental risk

AMRA AND ARGO PROJECT

AMRA is a permanent research center for the development of innovative technologies applied to environmental issues. In these last years, AMRA developed a quantitative approach to the multi-risk assessment, through the analysis of a great range of risk sources and taking into account the possible scenarios of interactions of the cascading effects, granting the possibility to define the expected hazard in probabilistic terms. It is engaged in several initiatives and international and national projects, among which the ARGO Project. The main aim of the latter is to implement a multi-risk approach to offshore platforms, which, in principle, can be complementary to existing methodologies. The peculiarity of this approach is the "focus" on multi-hazard analyses that consider sequences of events and cause/effect relationships among natural events (extreme weather events, underwater landslides, earthquakes) that, while spreading, can lead to an accident generating further possible sequences of "non-natural" events, according to the structural components involved.



Technological innovation

* Energy optimization studies for the offshore installations, even by renewable energy sources (RSE);
* Discrimination between natural and induced seismicity by seismic markers (OGS) (INGV).

Databases

* Sharing Databases on the research items (OGS).

Monitoring

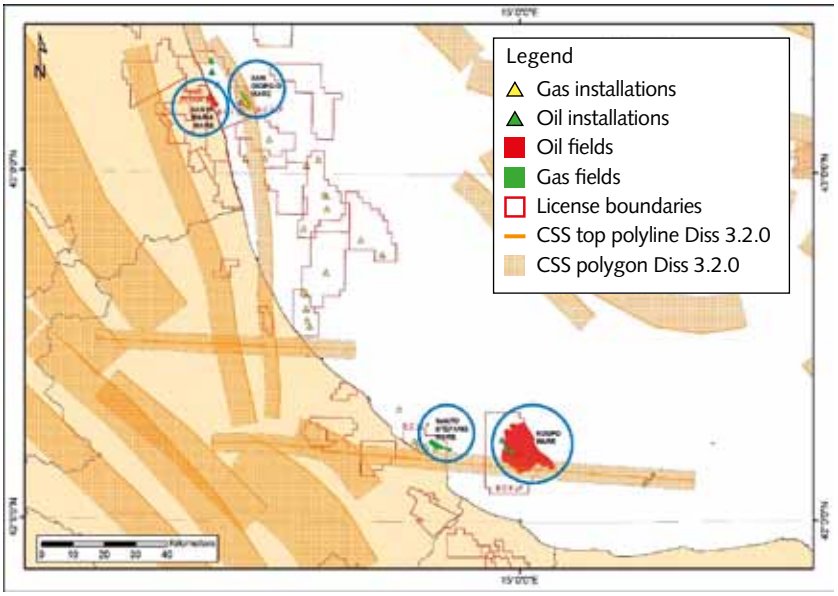
* Monitoring activities evaluation and economical evaluation applied to onshore and offshore case studies (OGS);
* Onshore monitoring study for the application to the offshore areas (INGV) (CNR-IREA);
* Development of a methodology for multi-parameters and multi-physical analyses to model the geological-geophysical processes of reservoir (CNR-IREA).

B 1.1 Results

Modeling

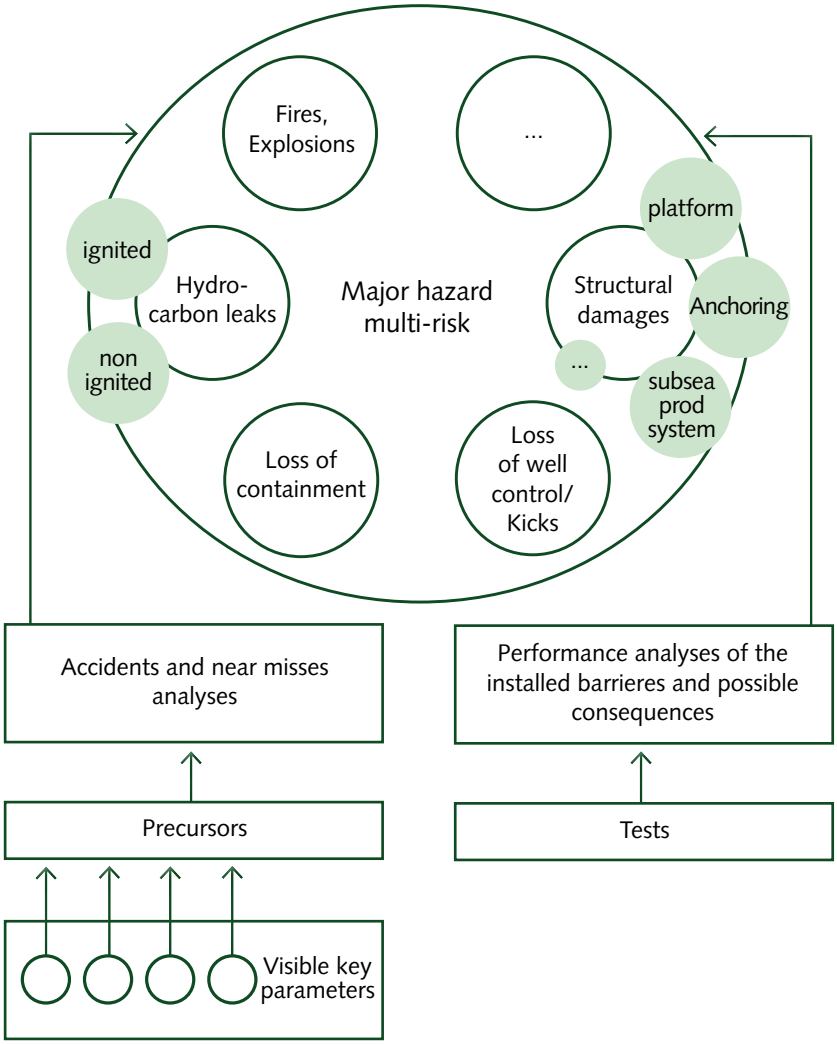
Results from modeling activities are expected in the long-term, therefore the conclusions here described refer to a preliminary or experimental phase. About the geological studies on the marine zones, data of Zone E, located in

Figure 5 - Location of the Case studies identified for the ARGO project.



the Sardinia west side offshore, were collected. These data are few and old, given the low exploration activity during past years in this area.
However, a study about the possible undiscovered resources in the basin, the geological features of the deposits and the future steps of the research activities, was done thanks to the examination of national and international scientific literature and by the economic assessment of the expected resources of the area in the current scenario (USGS 2004 study).
For the ARGO project (Figure 5), that covers a three-year period (2015-2017), AMRA is developing studies and researches aimed to carry out methodologies to conduct a natural risks analysis (e.g. meteoric-marine extreme events, geological hazards, etc..) as well as an induced risks analysis (industrial accidents, systemic vulnerability of the main

Figure 6 - Example of the possible side effects consequently to a cascading events applied to an offshore E&P platform

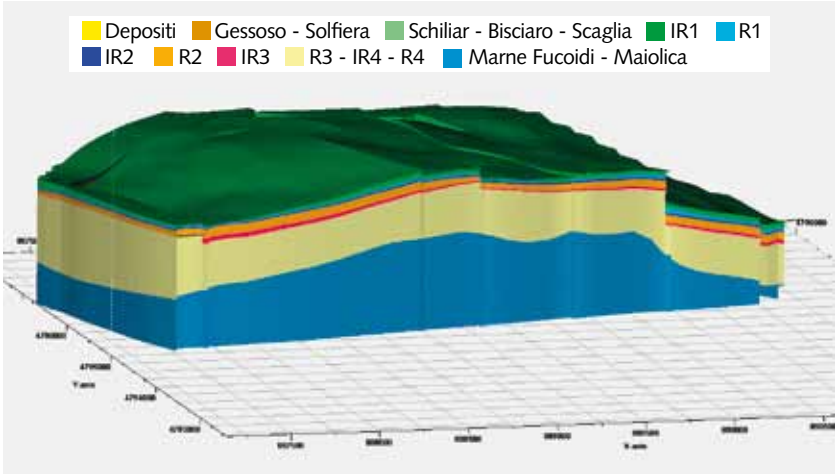


RSE S.p.A

RSE S.p.A., as a scientific and technical partner supporting DGS UNMIG since 2012, was commissioned (enforcing the art. 35 Development of Law no. 83 of 22nd June 2012) to carry out during 2015 some studies aimed at improving the safety of E&P offshore facilities, as well as studies on methods for risk evaluation and mitigation. In particular, the topics of these studies are: 1) Energy optimization of offshore installations by renewable energy sources,
2) Environmental effects and pollutants dispersion dynamics into the sea water,
3) Simulation of the circulation/spread of fluids in the underground.
RSE, in fact, is provided with the scientific and technical skills necessary to challenge such complex issues and with adequate software tools developed by its own resources ad hoc adapted to the specific needs of the DGS. During its studies, RSE faced some critical elements, the most relevant among which resulted the lack of real data necessarily required to define and validate the assumptions and the developed scenarios. In some cases, it was possible to fill this information gap thanks to the proactive cooperation with the Operators. RSE activities are essential for addressing the strategic choices of DGS, concerning applied researches aimed to critically identify the elements that contribute to optimize the sustainability and to increase the safety of offshore areas through simulations of the industrial process of hydrocarbons exploitation, and the consequences of any anomalies at the plants causing losses such as crude oil.

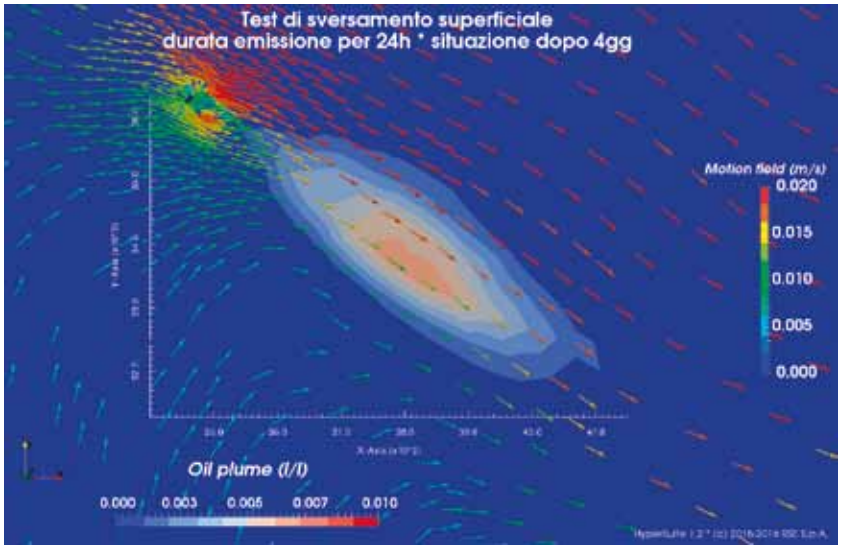
structural elements of the platforms, etc…), in the sector of safety and protection of the E&P offshore platforms. The ARGO project objective is, hence, the implementation of a multi-hazard and multi-risk model for the total evaluation of the NaTech (Natural Hazard Triggering Technological Disasters) risks which E&P offshore platforms are subjected to. With this aim, 4 areas in the Adriatic Sea were defined as case studies, identified considering their historical-production features (state of the exploitation of the reservoirs) and their geological- geographical features *(Figure 5)*.
At the end of 2015, a preliminary analysis of the study area was completed under the point of view of the weather extreme events characterization (observing a positive trend for some parameters like the level and the temperature of the sea and wind speed in the period 1998-2015).
The seismic-tectonic characterization was defined for an area around some selected platforms chosen as case studies (San Giorgio Mare e Santa Maria Mare), the analysis for the vulnerability evaluation of the plants started and the conceptual model for the multi-hazard/multi risk analysis of the area was defined *(Figure 6)*
Concerning the plants selected as case studies in the ARGO Project and in order to complete the study, RSE is developing the fluid-dynamic model with the purpose to understand the reservoir behavior following the exploitation activities at Santa Maria Mare field, by simulating the historical injection/production flows for the wells located in the license area *(Figure 7)*.

Figure 7 - Section of the 3D static geological model of Santa Maria Mare: top of the Scaglia Calcarea Bianco Rossa Formation (reservoir).



Modeling activity is necessary for a better comprehension of the area and then, to realize a multi-risk analysis.
Thanks to the researches carried out by RSE and OGS, the methodological procedure was implemented in order to develop the model for simulating oil leakages/oil spills at the offshore platforms *(Figure 8)*.
Even if Italy has a good indicator for the accidents (causing oil leakages in the sea water) per millions of TOE produced, lower than others European Countries (0,26 in 2014), DGS UNMIG set an in depth review on the issues linked to the oil spills. This review consists in simulating the effects of potential leakages from operating platforms in the Italian seas in order to study the best available restraint techniques and methodologies.

Figure 8 - Simulation of a possible offshore surface leakage of oil located near an E&P platform. Modeling of an oil spill (constant flow rate) by HyperSuite for 24 hours, in winter conditions. Oil plume dimension and distribution after 4 days.



Technological innovation
RSE started and completed the preliminary study to verify the feasibility and the cost effectiveness of offshore plant optimization using renewable energy sources. Following an assessment of the best national conditions of water, wind and solar resources *(Fig. 9 - a,b,c,d)*, the potential for application *(Fig. 10)* and the expected benefits were identified.
These investigations and the results of the technical feasibility study, including cost/benefit analysis, are preparatory to carry out an applied study on a real case and, possibly, a field test on the selected site (in partnership with the Operators).

THE OGS ACTIVITIES FOR SAFETY

OGS (National Institute of Oceanography and Experimental Geophysics) is a public research institution that operates and develops its own mission both at national and international level, with particular reference to the basic and applied research fields of Oceanography, Experimental Geophysics and Marine Geology. Within the agreements with the DGS, the institution is engaged in 4 activitiy lines (1-4) focused on:

1) identification of markers that allow to distinguish the natural seismicity from that possibly induced one by human activities and economic analysis of monitoring activities developed with requirements as described in the ILG document drafted by MiSE;

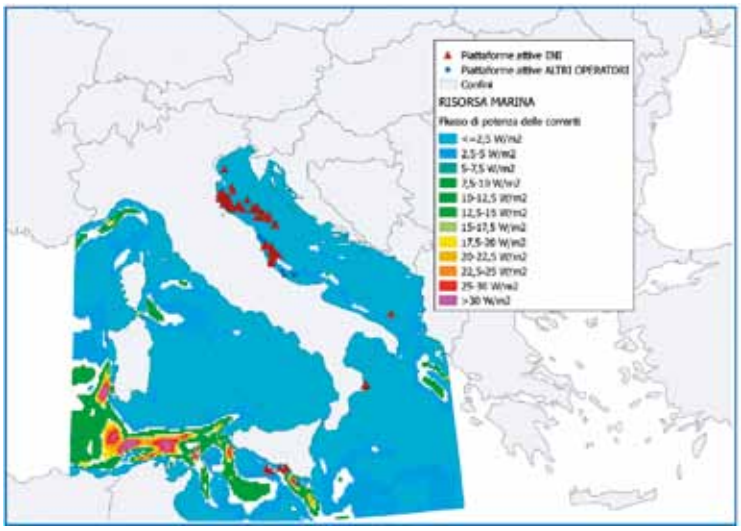
2) digitization of seismic lines published within the MiSE's ViDEPI Project and development of a dedicated platform (SNAP-MISE platform);

3) The modeling analysis of hydrocarbons spills and dispersion aimed to risk prediction;

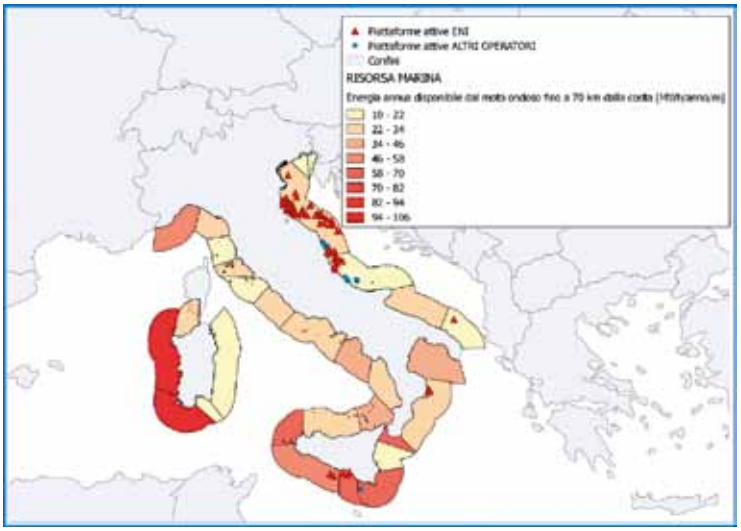
4) The seabed geohazard definition through the seabed hazard study.

Figure 9 a/b/c/d - RSE cartographic elaboration for renewable sources of wind, solar radiation, ocean currents and wave energy.

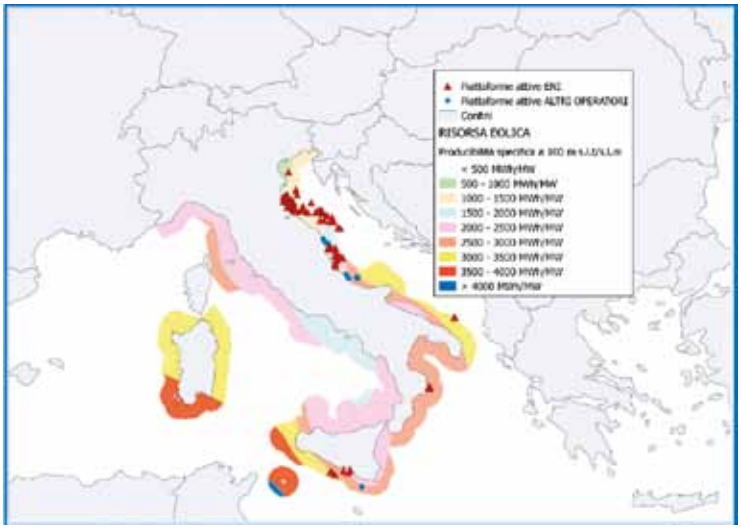
9/a



9/b



9/c



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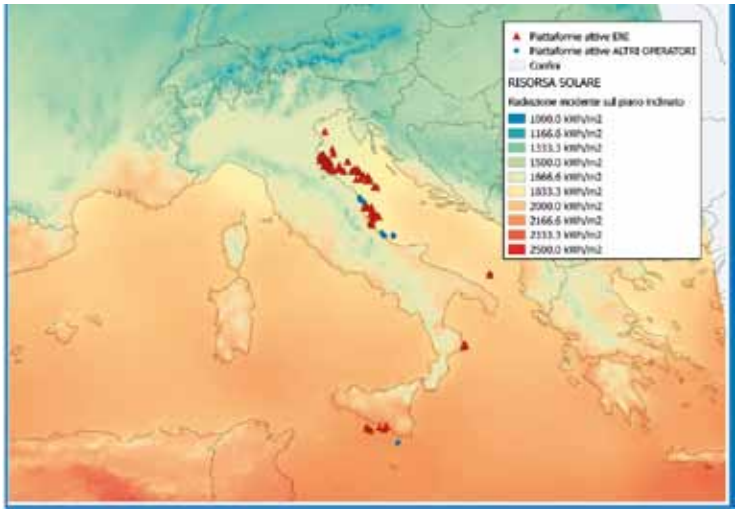


Figure 10 - Example of summary form for the renewable energy sources in the marine areas around E&P platforms (case study: Azalea B platform). It is obtained as output of an "ad hoc" developed GIS Project, realized by RSE.
The summary form is divided into 4 blocks: the first block on the top refers to the plants description (distance from the coast etc.), the green block refers to wind energy parameters for the plant, the orange block concerns the solar radiation and the blue block refers to sea energy parameters in that area.

Note piattaforma	Azalea B		
Link	http://unmig.sviluppoeconomico.gov.it/unmig/strutturemarine/dettaglio.asp?id=186		
Dimensioni. parti emerse (m)	100x27		
Altezza s.l.m.	42		
Distanza dalla costa (km)	16		
Profondità fondale (m)	19		
Risorsa eolica			
Velocità media annua a 25 m s.l.t./s.l.m. (m/s)	3.74	Producibilità specifica a 25 m (MWh/MW)	630.84
Velocità media annua a 50 m s.l.t./s.l.m. (m/s)	4.05	Producibilità specifica a 50 m (MWh/MW)	
Velocità media annua a 75 m s.l.t./s.l.m. (m/s)	4.25	Producibilità specifica a 75 m (MWh/MW)	988.04
Velocità media annua a 100 m s.l.t./s.l.m. (m/s)	4.43	Producibilità specifica a 100 m (MWh/MW)	
Risorsa solare			
Angolo di inclinazione ottimale del campo fotovoltaico (*)			34.01
Radiazione solare incidente sul piano orizzontale (kWh/mq)			1463.42
Radiazione solare incidente sul piano inclinato ottimale (kWh/mq)			1680.99
Risorsa marina			
Potenza media annua disponibile per le onde (kW/m/anno)			2.75
Flusso di potenza della corrente marina (W/m2)			2.28

DGS UNMIG stand at OMC 2015

Databases

OGS digitized and transformed seismic lines available within the ViDEPI Project, from simple .pdf format into a .SEG Y files.
This data can be viewed on the SNAP website of OGS and will be available for the download by an appropriate registration to the web site.

Monitoring

In the frame of offshore safety agreements, INGV and CNR IREA are setting activities on monitoring respectively of microseismicity and of ground deformations. Specifically, INGV is studying the procedure for developing an integrated monitoring system, as foreseen by the ILG document (above repeatedly mentioned).
The task of these institutions, within the agreements, is to deepen the items related to the integrated monitoring following a field test aimed to figure out how to possibly extend the monitoring system to the offshore cases.

C. Regulation, Safety and best practice

As above mentioned, the activities of the Politecnico di Torino (PoliTo), cross-cutting and touching all the 4 levers, are here presented under the C lever. Within the agreement, PoliTo has the principal objective to define some Recommendations and Guidelines for safety of exploitation activities related both to operated plants and to the stress-strain response of the subsurface affected by reservoir fluids production.
The PoliTo created a center dedicated to the offshore safety, called "SEADOG - Safety & Environmental Analysis Division for Oil & Gas".
The security objectives will be pursued through research activities (complementary and integrated to the lever B), institutional support, integration of different skills and information on acquired knowledge regarding:

* support DGS UNMIG for the definition of the application of Legislative Decree no. 145/2015 that implements the Offshore Directive, in particular for drafting Guidelines for the preparation of the Major Hazard Report and risk assessment,
* support DGS for the definition of the Regulation on activities of the Committee on offshore operations safety (art. 8 D. Lgs. of 18th August 2016),
* development of innovative methodologies for simulating incidental phenomena,

* characterization of the underground for unconventional well testing and geomechanical studies for offshore safety,
* Environmental monitoring system near the platforms,
* Monitoring of fire&gas of offshore plants.

The issues related to the Regulation on safety and best practices adoption are cross-sector through many of the activities planned within the agreements. The SEADOG is therefore in a favorable position to integrate, through the Working Group on Oil & Gas offshore Safety coordinated within the Conference on Assessment and Risk Management (VGR 2016), the researches carried out in other areas for a proper application of the Directive. This Working Group will provide recommendations for drawing up Guidelines on the issues included in the Major Risks Report, monitoring, sensors, and characterization and geomechanical modeling of reservoirs. Within this activity, all the centers, Operators and institutions responsible for supervision and control of the plants that signed agreement with DGS are involved.

Annual meeting 2015
at Villa Torlonia (Rome)

D. Dialogue with stakeholder and territory

The Directorate is engaged significantly in terms of communication activities, dialogue and transparency with the territory. In particular, DGS develops this task also by the agreement with CRIET, that occupies -thanks to its skills- a central role in internal and external DGS communication aimed at raising awareness of the people on the major (environmental, economic and social) concerns. With this role, CRIET has the tasks of making available all information coming from technical-scientific results of the other centers involved in the DGS agreements and of communicating these results clearly and transparently.
During 2015, CRIET supported the DGS in planning and managing the attendance to the "Offshore Mediterranean Conference" (OMC), arranging the logistical issues and managing the agenda of the events inside the DGS' stand. The scheduled appointments were participated by all the Centers involved in the agreements and DGS submitted 2 scientific paper to the OMC technical sessions. CRIET also arranged the DGS (Annual meeting 2015: Agreement' activities status MISE-Research centers, December 2015) with all the Centers involved in the agreements, held on December 2015 at the Academy of Sciences' Library of XL" in Villa Torlonia (Rome).

THE 2015 MAIN ACTIVITIES

REGULATORY ACTIVITIES AND NATIONAL AND INTERNATIONAL LEGISLATION

Following the D.Lgs. no. 105/2015, in order to provide a control of major accident hazards involving dangerous substances, **Regional Technical Committees** (CTR) are established which includes also representatives of National mining office for hydrocarbons and georesources (UNMIG).

During 2015, DGS constantly monitored both national and European regulatory development on matters under its own responsibility, contributing to drawing up legislative proposals for the sector and updating the secondary legislation.

National activities

Legislative Decree no. 105 of 26th June 2015

The DGS took part in the transposition activity of the Directive 2012/18/EU (so called "Seveso III") concerning the control on major-accident hazards related to dangerous substances. Such transposition activities ended with the adoption of Legislative Decree no. 105/2015 and the arrangement of its implementing decrees, together with the Ministry of the environment. As per European Directive, mining exploration and exploitation activities, including hydrocarbons, as well as underground gas storage activities in the offshore, were excluded from the scope of the Legislative Decree no. 105/2015, because they are regulated at European and national level by other rules providing an equivalent safety level.
The Directive also excludes the onshore exploration, exploitation and treatment activities of minerals in mines and quarries, also developed by drilling operations (meaning that hydrocarbons exploration and exploitation are also excluded) with the exception of the related chemical and physical treatment and storage operations involving the use of dangerous substances in quantities provided by the same regulation.
The "Seveso III" disciplines instead the activities related to "the underground natural gas storage in onshore reservoirs, saline aquifers, depleted mines and caves and the chemical or physical treatment operations and the related storage site, involving the use of dangerous substances". Further dispositions about the onshore storage activities are listed in Annex M of the same Decree.

Legislative Decree no. 145 of 18th Agoust 2015

In collaboration with the Ministry of the environment and involving all the concerned Administrations, DGS coordinated the panel for the transposition of Directive 2013/30/EU (so called "Offshore Directive"), concluded during August 2015, with the adoption of Legislative Decree no. 145 of 18th August 2015.
The new provisions are part of a regulatory framework already existing on offshore safety for the hydrocarbons sector, which has so far guaranteed,

through rigorous application and constant controls by the technical departments of the Directorate, the attainment of the highest European levels of safety for workers and environment.
The implementation Decree aimed to strengthen aspects of risk prevention, reducing potentially accidents arising from offshore upstream activities and limiting their consequences.
The Decree no. 145/2015 introduced additional economic and informational burdens to the Operators. In fact, before carrying out offshore hydrocarbons activities, the Operator shall give a number of communications and shall present its own safety and environment management system and the Report on major risks and its own independent verification system.
The Operator must also provide adequate financial guarantees to cover responsibility potentially arising from offshore oil and gas activities, including potential economic damages. Furthermore the Decree set up a series of measures needed to ensure its implementation and the identification of penalties applicable to infringements of the national provisions adopted pursuant to Directive.

Following the D. Lgs. no. 145/205, a **Committee for safety of offshore operations in hydrocarbons sector** was established, based in the Ministry of economic development. Such Committee shall consist of several authorities competent in environmental, sea and safety fields, among which also UNMIG representatives and responsible of evaluation of required documents to Operators and for controls and inspections of the activities.

Legislative Decree no. 208 of 28th December 2015

The adoption of the Law no. 208/2015 (so called "Legge di Stabilità" 2016, that is the budgetary plan) amended some rules previously introduced in the hydrocarbons field by the art. 38 of the Decree Law no. 133 of 12th September 2014 (known as "Sblocca Italia" Decree) and in the Environmental Code as well.
In particular, paragraph 1 of the art. 38 of the D.L. 133/2014 was modified, keeping just its nature of public utility within the hydrocarbons prospecting, exploration and exploitation activities and underground natural gas storage but without keeping also the one of strategic interest and urgency not deferability, before included in the "Sblocca Italia" Decree.
The "Piano delle Aree" (that is a hydrocarbons zoning plan) was removed, as a planning and scheduling tool of onshore and offshore upstream activities, included at the paragraph 1-bis, added to "Sblocca Italia" text during its conversion phase; the paragraph 5 was finally amended, requiring that the unique mining license, as license alternative to the ones already provided by Law no. 9 of 9th January 1991, can last for an amount of 36 years with no possibility of extension, unless anticipated depletion of the field expecting and related final environmental rehabilitation.

Other changes concerned the positions between State and Regions, on energy matter. In fact, the possibility of turning to the Presidency of the Council of Ministers was maintained only in the event of failure to achieve the agreement for dissent, ex art. 14-quater, paragraph 3, of the Law no. 241/1990, and not even in case of territorial Government inertia in releasing the agreement, according to the art.1, paragraph 8-bis of the Law no. 239/2004.
Finally, the art. 6, paragraph 17, of Legislative Decree no. 152 of 3rd April 2006 was amended, confirming the prohibition for new activities related to hydrocarbons prospecting, exploration, and exploitation sector within protected marine and coastal areas, as well as in the offshore areas placed within 12 miles from the outer perimeter of such areas and within 12 miles from the coastlines along the national coastline, arranging more restrictively the safeguard clause, previously provided by Decree Law no. 83/2012 (so called "Sviluppo" Decree). Inside the forbidden areas, the following are without prejudice: *"Qualifying licenses already issued (...) over the oil/gas field useful life, in accordance with the safety and environmental protection standards. The maintenance activities aiming at technological adaptation due to safety and environmental protection are always insured, as well as the final operations of environmental restoration*". On this regards, it is possible to carry out only the activities within the mining licenses already conferred, until the field depletion, and all the maintenance tasks, since the words "without prejudice" of the ongoing procedures for issuance of new licenses and of the grantor and authorization licenses subsequent and connected were erased, as before provided by the 83/2012 Decree. The text of the new provision was also confirmed by the Referendum of April 2016.

Focus on the referendum of April 2016
In September 2015, on the basis of a growing debate developed on the upstream sector, 10 Italian Regions (Veneto, Liguria, Marche, Abruzzo, Molise, Campania, Calabria, Basilicata, Apulia, Sardinia) submitted to the Court of Cassation 6 proposals for a referendum aimed to amend the provisions foreseen by the Development Decree and the "Sblocca Italia" Decree on the field of hydrocarbons activities. The changes proposed by the 6 referendum questions concerned essentially the reduction of hydrocarbons activities in the Italian offshore.
During December 2015, the Law no. 208/2015 ("Legge di Stabilità 2016" before mentioned) introduced several amendments to the dispositions related to the Referendum proposals. The Constitutional Court therefore considered that there were no reason for 5 of the 6 questions proposed by

the Region to continue to exist, since the new legislation, come with legal proceedings ongoing, introduced amendments to existing discipline such as to prevent the referendum for those proposals.
The Constitutional Court confirmed such assessment.
The Central Office for the Referendum, based on the same ratings, considered valid the referendum question proposed by the Regions regarding the environmental legislation under art. 6, paragraph 17 of Legislative Decree 152/2006 (as amended by Decree Law 83/2012).
The new legal framework, in fact, changing the subject under Referendum request, introduced the concept of «oil/gas field useful life» that protects the already issued licenses over the whole period of their duration and until the complete oil/gas field depletion.
On this point, the Referendum proposal was therefore left open and Italian citizens were called upon to pronounce themselves on the possibility to extend the existing offshore hydrocarbons exploration and exploitation activities. With 31 percent of voters (85% in favour of the repeal of the provision and 14% against it) the Referendum did not reach the quorum, confirming the legislation disposal as introduced by the Law no. 208/2015.

Update of procedural guideline for E&P activities: Ministerial Decree 25th March 2015 and Directorial 15th July 2015

In application to the art. 38, paragraph 7 of the Decree Law no. 133 of 12th September 2014 (above mentioned "Sblocca Italia"), the legislative framework ruling the hydrocarbons prospecting, exploration and exploitation activities was updated by means of 2 normative acts: the Ministerial Decree of 25th March 2015 and the Directorial Decree of 15th July 2015.
The adoption of the 2 decrees made effective the main news introduced by the above mentioned art. 38, afterwards modified by the Law no. 208/2015: the introduction of the unique license, the transfer of the onshore environmental assessment responsibility from Regions to the Ministry of environment and the new licensing procedure related to waste water injections activities (ex. 82-sexies of Law no.239 of 20th August 2004).
The procedure for the issuance of the unique license was regulated and the unique license is anyway alternative to the conventional mining licenses.
The technical and economical requirements for upstream activities in Italy were updated: in order to be awarded of new research and exploitation licenses, the Operators have to provide economic and financial guarantees able to cover costs of possible major accident while, for the unique license

issuance, the Operators have to provide bank or insurance guarantees for assuring the decommissioning and the environment recovery.
Finally, the pre-qualification process was introduced in order to make more effective the Operators' qualification and seismicity, ground deformation and pore pressure monitoring programs were made mandatories for new and, gradually, for ongoing licenses.

Directorial Notice of 5th November 2015

The Notice clarified some procedural aspects concerning the waste water reinjections authorization process, in response of some modifications introduced by art. 38, paragraph 11 of Decree Law no. 133/2014 to the art. 1, paragraph 82-sexies of Law no. 239 of 23th September 2004.
The Notice specified that the 82-sexties, as currently worded, makes the UNMIG responsible for the authorization for activities improving on the production facilities (drilling and waste water injections activities included) when the following conditions are met: injections activities have to be aimed to improve the performance of the already existent production plants without exceeding the production and the emission limits approved in the development plan authorized. Moreover, the Notice clarified that these activities have not to be considered as a variation of authorized development plan and that, as consequence, no further permits from Regions are required.

Directorial Notice of 2nd December 2015

The Notice clarified that, after the transfer from DGRME to DGSAIE of the licensing functions, the UNMIG Sections are responsible on safety authorization and technical plants management for hydrocarbons prospecting, exploration and exploitation activities and for hydrocarbons storage activities. Such responsibilities are conferred to the UNMIG by Presidential Decree no. 128 of 9th April 1959, Presidential Decree no. 886 of 24th May 1979, Legislative Decree no. 624 of 25th November 1996, Legislative Decree no. 81 of 9th April 2008 and by the Law no. 99 of 23th July 2009.

Directorial Notice of 2nd December 2015

The Notice communicated that, pending the constitution of the Committee for Safety of offshore operations in the hydrocarbons sector, in accordance with the Legislative Decree no. 145 of 25th August 2015, in order to the issuance of the licenses in charge to the UNMIG Sections, the provisions have to be applied to Operators' activities starting from 18th July 2016.

"Piano delle Aree" (art. 38 of the Decree Law 133/2014): hydrocarbons zoning plan

Art. 38, paragraph 1-bis of the D.L. 133/2014, repealed by paragraph 240 of the Law 208/2015, introduced in the Italian regulatory framework the so-called "Piano delle Aree" (that means: hydrocarbons zoning plan), to be prepared by the Ministry of economic development, with input from the Ministry of environment, and to be adopted for the onshore activities in agreement with the Unified Conference of Regions. The Plan should have determined in which areas of Italian territory upstream activities could be consented. For its characteristics, the Plan was to be subjected to Strategic Environmental Assessment (VAS): in a first phase, by presentation of a Preliminary Report (RP) on the Plan's possible significant environmental impacts for the scoping phase (art. 13 paragraph 1 D. Lgs no.152/2006 and subsequent modifications) and, after the first phase, by filing of the full Environmental Report – RA (Titolo II e All. VI D. Lgs. no. 152/2006 and subsequent modification). During 2015, with the agreed timetable, DGS UNMIG completed the preliminary feasibility phase of the project and started the detailed planning phase. More in detail, the governance and resource organization of the project were defined, with the appointment of an internal steering committee and with the identification and recruitment of strategic consultancy services in the areas of communication and strategic environmental assessment. The steering committee developed preliminary strategic guidelines and high level key messages.
From a technical point of view, a full analysis of protected areas (sea and land) was carried out, together with a regulatory analysis of statutes of National Parks; an initial table of content of the plan was developed (so called Masterplan).

Marine Strategy Directive Transposition

Through the enactment of the Directive 2008/56/EU, the European Commission set itself the aim to "establish a framework for Community action about marine environmental policy" defining the principles for the adoption of a Marine Strategy by the Member States. The marine strategy was implemented in Italy by the Legislative Decree no. 190/2010.
As part of the transposition and implementation of this Directive, the DGS participates in the work of the Technical Committee created by the Ministry of Environment, Land and Sea (Leading for implementation activities).The Decree identifies the objectives of good environmental status (GES, to be reached by 2020) by 11 descriptor, essential to achieving these objectives.

A study carried out by the Directorate with the CRIET support highlights the main descriptors of industry interest and relations with the E&P activities. During the 2014-2015 period, the monitoring programs (PoM) were discussed and approved, following public consultation and, on the basis of art. 12 of Legislative Decree 190/2010, during the current year, the works to establish the measures programs (POMs) started, based on a gap analysis study carried out by UNIONCAMERE.
To date, the Directorate is working on the study of possible measures programs for human activities which can cause the sealing of biogenic substrates (e.g.: sealines linking more offshore platforms each other). Such programs will be implemented at the end of 2016 to achieve the target for 2020 for each descriptor. In particular, such descriptors consist in regulatory measures that flow mainly in the implementation of existing instruments such as the Strategic Environmental Assessment (VAS), the Environmental incidence Assessment and the Environmental Impact Assessment (VINCA) and Environmental Impact Assessment (VIA). All information on the Marine Strategy is available on the website http://www.strategiamarina.isprambiente.it/

Focus on the Directive 2014/89/UE transposition
During 2015, the Directorate participated at the inter-ministerial panel set up at the Presidency of the Council of Ministers, for the transposition of the Directive 2014/89/EU on maritime spatial planning, with the purpose of promoting the sustainable development of related activities, including those on energy matter and raw materials exploitation, under responsibility of DGS.
In order to facilitate the sustainable co-existence of the various uses of the sea, given the rapid and large increase in demand of marine space for different purposes, it was decided at the European level to set up a maritime spatial planning in order to promote sustainable growth of the sea economies and ensure that the pressure of all human activities is kept within levels compatible with the achievement of good ecological status.
The transposition decree aims, therefore, to dictate norms of principle for an integrated approach for maritime activities planning, covering different sectors, such as energy production, maritime transport, fishing activity, raw materials exploitation, tourism, also taking into account the already existing activities, in order to ensure an effective management of such activities, a sustainable use of maritime resources and services and a more competitive and efficient economy.
The transposition work should be completed within September 2016, as

required by the European Directive, while the management plans of the maritime space, to be subject to strategic environmental assessment, should be established no later than 31st March 2021.

International activities

EUOAG European Union Offshore Oil and Gas Authorities Group

The EUAOG (European Union Offshore oil and Gas Authorities Group) was established by the European Commission in 2012. It is a strategic forum that brings together national authorities for safety of offshore exploration and exploitation of hydrocarbons. The Italian experts actively take part in EUOAG meetings in recognition of the fact that the exchange of knowledge on prevention and the response to emergencies in the upstream offshore is fundamental.

In the years 2014-2015 the Italian experts also participated in the work of the Subcommittee specifically established to draft the Guidelines to Regulation 1112/2014 of the Commission on the sharing and publishing of information about offshore accidents in the upstream activities.

The experts also attended and contributed to the workshop in Cyprus, organized jointly by the Joint Research Centre and the Cypriot Ministry of Labor, on the procedures in use in the Member States for accident investigation and on the European software for accidents reporting.

Hydrocarbon Bref - "Best available techniques reference" document

During 13-15 October 2015, the Kick Off Meeting of the Technical Working Group (TWG) established by the European Commission took place in Brussels, with the purpose to draft the **BAT Reference Document** (Best Available Techniques Reference Document – or so-called "Hydrocarbon Bref"), that represents the reference document on the best available technologies for hydrocarbons exploration and exploitation activities both onshore and offshore. Such initiative comes from the adoption of the Recommendation of the Commission of 22nd January 2014 on minimum principles applicable to exploration and production, which requires that Member States will ensure that Operators make use of the best technologies available in the frame of upstream activities.

The first draft of the Bref shall be delivered within February 2017, whereas the activities of TWG shall be concluded within April 2018, with the approval of final text of the document.

EUOAG

The Group offers high-profile consulting to the Commission and to participating States, through the development of guidance documents, guidelines and best practices. The EUOAG also plays a key role supporting the implementation of Directive 2013/30/EU that redefined the regulatory framework for the sector in the Member States, regarding environmental and safety issues. EUOAG represents also a panel where to exchange of expertise on prevention and emergency management in the offshore upstream activities.

HYDROCARBON BREF

By HC Bref, the European Commission aims to make available to Member States a support tool to collect and describe the current best techniques and the related environmental performances.

That's for further increasing -at a European level- the safety level of plats and of environment safeguard, even if the European - and mostly Italian- standards are the best available.

Bref represents, hence, one opportunity for all Member States to establish a shared knowledge status, based on certified performances that can be tested in order to facilitate the dialogue and the communication among Operators, stakeholders and competent authorities.

ARCTIC COUNCIL

USA, Russia, Canada, Denmark (on behalf of the Faroe Islands and Greenland), Finland, Iceland, Norway and Sweden are ex-officio members of the Arctic Council, that is the main institution of the Arctic area cooperation.
Objective of the Arctic panel is the enhancement of the Italian presence in the Arctic area, that is new frontier for global issues related to environmental protection, sustainable development, energy and transport.
The article "The Arctic Region and Italy's presence in the Arctic Council" published in March 2015 in the second edition of the BUIG MARE (the special number of the Official Bulletin of hydrocarbons and geo resources of the Directorate, committed to the close examination on the offshore mineral-energy activities) is available.

MiSE-DGS actively participates to TWG activities by its qualified delegate for Italy in the frame of strategical and operational decisions, contributing with its own knowhow in the E&P safety and environmental protection sector. In this respect, the TWG activity gains a crucial position for Italian companies in the E&P sector, as for the detection of the best technologies, as reported in Bref document.

Coordination National Panel for the Arctic

DGS participates at the Coordination National Panel for the Arctic at the Ministry of Foreign Affairs and International Cooperation (MAECI)[10], established in May 2013 when Italy acquired the status of Observer country at the Arctic Council (Declaration of Kiruna). DGS was directly involved in the drafting process of the Italian Government Strategy for the Artic, published in 2015: "As Italy is deeply committed in the Arctic activities to study climate change through the work of its research agencies", the document said, "Italy can equally provide answers to the needs of infrastructures and services tailored to Arctic conditions thanks to the cutting-edge technological expertise of its companies, in particular with regard to dedicated services such as satellite-based control and offshore engineering, in the energy, navigation and building fields."
In October 2015, a DGS delegate was invited to participate to the workshop "The EU as global actor in the Arctic", held at the K.G. Jebsen Center for the Law of the Sea of the University of Tromsø (Norway). The workshop was attended by diplomatic and institution representatives, academics and experts in satellite and environmental matter coming from different Countries. Italy's commitment to the Arctic region was reaffirmed during the workshop, showing the activities of scientific research institutes and the national industry in the region, highlighting the significant contributions given by Italy to the EU policy for the Arctic.
During 2015 the Directorate General gave its support to the definition of the Master in Sustainable Development, resources Geopolitics and Arctic Studies, organized by the Italian Society for International organization in agreement with MAECI. The Directorate General representatives took part to the meeting on sustainable development held at the Farnesina with Samis Parliamentary delegation.

Relationship with Norway

In March 2015, DGS UNMIG supported by the Italian Embassy in Oslo arranged a Norwegian-Italian Day on the offshore upstream activities within the Offshore Mediterranean Conference and Exhibition (OMC),

[10] USA, Russia, Canada, Denmark (on behalf of the Faroe Islands and Greenland), Finland, Iceland, Norway and Sweden are ex-officio members of the Arctic Council, that is the main institution of the Arctic area cooperation.

the reference event for the sector throughout the Mediterranean basin held in Ravenna under the patronage of the Ministry of economic development. The meeting was attended by the Undersecretary of the Ministry of economic development, the Ambassador of Norway to Italy, the Ambassador of Italy to the Kingdom of Norway and the Director General for Mineral and energy resources, as well as by a large delegation of business representatives.
The initiative aimed to emphasize Italian and Norwegian excellences in the provision of services, certification and engineering related to offshore oil and gas industry.
In the same context a Decalogue was shown for Italian companies that want to operate in Norway.
In their speeches, the Ambassadors remarked the excellent economic relationships between the two Countries.

Relationship with Iceland

DGS UNMIG supported the University of Reykjavik (Iceland) for the exhibition "The oldest maps of Iceland in Italian Renaissance cartography" which was held in the Capital city of Iceland in October 2015, with the support of the Italian Embassy and the Italian Association of Iceland. For the exhibition section on the contemporary cartography, the Directorate General made available some copies of Italian maps of mining licenses, giving high visibility to national activities in the mining and energy sector; the exhibition was held concomitantly with the 2015 edition of the annual conference "Arctic Circle".
The Conference was organized under the high patronage of the President of the Republic of Iceland in order to face the challenges and opportunities for the Arctic region and to give emphasis to the issues related to climate change, energy and transports.
It was attended by the leading representatives of political, academic and business sector, coming from more than 40 different Countries.

Relationship with Malta

During 2015, the activities aimed to define the Italian and Maltese continental shelf continued, also with the purpose to resolve the ongoing dispute that up to now did not allow a continuous dialogue between the parties. Also as result of the disagreement between the two Countries, no exploration activities are in place.

NORWAY AT OMC 2015

At Offshore Mediterranean Conference and Exhibition OMC 2015 edition, Ravenna city confirmed its crucial role for relationship between Italy and Norway: the day was included in a well-established tradition for bilateral meetings between the two Countries which in the past took place in the same city of Ravenna, where a technological center of international importance for the services dedicated to offshore hydrocarbons exploration and exploitation is based in.

PARTNERSHIP WITH ICELAND ON GEOTHERMAL ENERGY

The Directorate General took part, in 2014, to the conference "Arctic Circle", showing the excellence of Italian know-how in the field of geothermal energy during the session dedicated to Italy and meeting the Icelandic geothermal Operators and institutions in order to strengthen the dialogue between Italy and Iceland on geothermal energy.
In the year 2015, the Directorate General continued to work for reinforcing the cooperation between Italy and Iceland on geothermal energy and for the international promotion of Italian geothermal industry.
Geothermal energy is crucial in the decarbonization path of the European Countries, because it is continuously available and a renewable resource.
Italy was the first country in the world, since the beginning of the twentieth century, to exploit geothermal heat for electricity production and today is the first geothermal powered Country of Europe.

20 CRITICAL RAW MATERIALS

The following 20 raw materials are defined "critical" because of their great economic importance, related to a high risk for their supply: Antimony, Beryllium, Borates, Chromium, Cobalt, Coking coal, Fluorspar, Gallium, Germanium, Indium, Magnesite, Magnesium, Natural Graphite, Niobium, PGMs, Phosphate Rock, REEs (Heavy), REEs (Light), Silicon Metal, Tungsten (PGM: platinum group metal, RRE: Rare Earth Elements).
The main non Eu-producers of the 20 critical raw materials are: China, Russia, USA, Turkey, Democratic Republic of Congo, Kazakhstan, South Africa, Brazil. China is clearly the most powerful in terms of global supply. Several other countries can provide high quantities of specific raw material, as USA (Beryllium) and Brazil (Niobium).
The supply of other raw materials, e.g. the Platinum group (PGM) and borate, is wider but still relatively concentrated.

Raw Materials Supply Group (RMSG)

The RMSG task is to ensure the coordination among the Member States and the exchange of views, to support the Commission in preparing legislative proposals or defining the politic initiatives, to provide technical opinions to prepare the implementing measures. Moreover, the RMSG control the development of National policies and the application of the EU legislation by the national authorities.
The RMSG consists of representatives of University (raw materials), associations (raw materials, industries), ONG (biodiversity, raw materials, environment), research bodies (raw materials), trade unions (Employment and Social Affairs, interests of employees), National administrations. On 28th April 2015, the RMSG plenary meeting was held in Brussels, during which items related to European funds for strategic investments and the European Joint Venture for Minerals, cooperation, competitiveness, critical raw materials, circular economy were faced.

Critical raw materials

Raw materials are crucial for economy, growth and employments in Europe, also in order to maintain and improve life quality. During last years, an increase in the number of raw materials used in all products occurred. So the increasing concern within the EU and all over the world consists in ensure a reliable, sustainable access to some of raw materials, with no distortions.
As result of these conditions, in order to manage the answers to raw materials' problem at a European level, MPI (initiative on raw materials) was launched. Focus of this initiative is the definition of critical raw materials for EU economy.

Circular economy

The Eu Commission adopted an ambitious package of enforcement measures for circular economy, that includes the revised legislative proposals on wastes, in order to launch the Eu transition to a circular economy that will increase the global competitiveness, promoting the sustainable economic growth and creating jobs.The circular economy package consists on an Eu action plan for circular economy that shall establish a concrete and ambitious action program, with measures that cover the whole cycle form production and consumption, to wastes management and secondary raw materials market.

EIP (European Innovation Partnership) on Raw Materials
DGS UNMIG follows the EIP initiative, because it is aimed at international objectives, related to circular economy considerations, which the principles of raw materials recycling and reusing refers to. The technological innovations constitute the focus of this initiative. In this sector, DGS participated to an event managed by CRIET, on 15th December at Milano-Bicocca University, in which items linked to possible financing of projects having raw materials technological innovation requirements were faced.

The contribution to Connex
The negotiations development within complex business contracts is an essential precondition in order to guarantee the interests and the development of host Country, as well as the company or group that proposes investing. Such contracts can increase the development and the economic growth of a whole country. In order to face this very perceived need among the developing countries, the G7 leaders announced to 2014 G7 Brussels summit "a new initiative on strengthening the assistance for complex contracts negotiations" (CONNEX). The purpose is to provide the developing partners with legal and technical support for negotiating complex business contracts.
Italy actively participates in G7 - CONNEX initiative, with own contributions to the item of development and deepening the item of integration and access to information (Columbia University portal), drafting the final text of the "Code of Conduct" and defining criteria and possible development programs aimed at "capacity building" and at transparency initiatives.

The contribution to the implementation of the EITI standard
During 2015, DGS encouraged process aimed at implementing the EITI standards in Italy, promoting meeting on item, in order to explain the implementing path that bring to appoint the "Italian EITI Champion", to constitute the multi-stakeholder group, to the nomination and implementation of such standard.

ICSG, INSG, ILZSG (International Copper Study Group, International Nickel Study Group, International Lead & Zinc Study Group)
DGS participates to the meeting of international non-ferrous metals groups, aiming to control the supply conditions of such raw materials, production flow and changes in the market that can affect the availability of Copper, Nickel, Lead and Zinc in respect of the needs of industry sector.

HORIZON 2020 PROGRAM

The access to equity is crucial for launching technological innovation, mostly in the exploitation Italian field, where economic crisis strongly hit business activities. On one side, the continuously decreasing turnovers negatively affected the self-financing and, on the other side, the constant troubles in accessing equity by companies did not contributed to offset the chronicle lack of own funds. In this respect, a great opportunity is represented by Horizon 2020 EU program in order to promote scientific research and innovations. The Horizon 2020 notices promote innovation research projects that improve people life quality, that safeguard the environment and that make the European industry more sustainable and competitive.

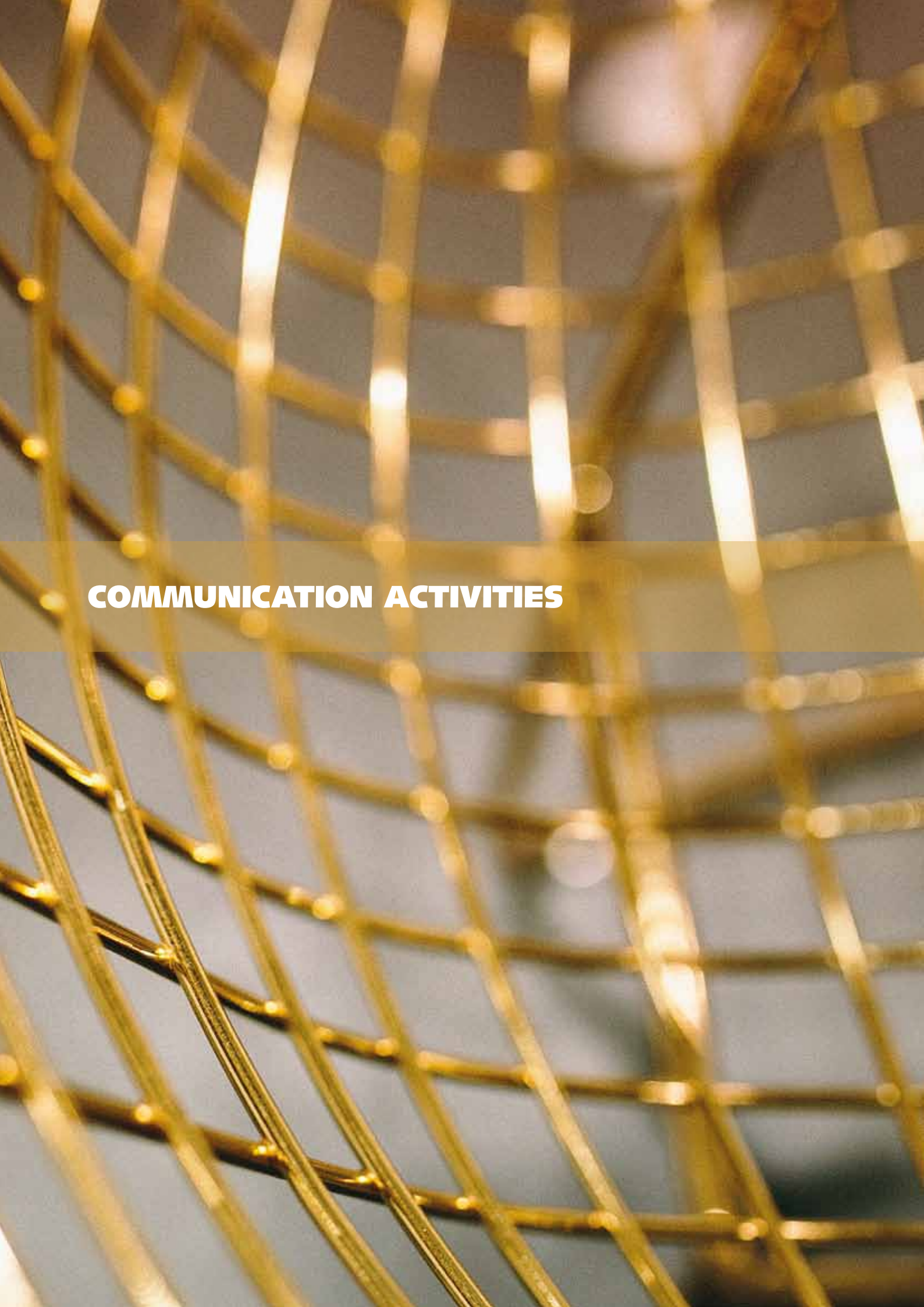
The implementation of EITI standard allows to introduce in the different Countries a successful system that guarantees the transparency to public of the cash flow among the companies (taxes, royalties) and of the Government revenues, so that the public information on revenues coming from the raw materials management is allowed and facilitated, in order to optimize their use, in a view of total transparency.
Minerals and energy resources are crucial all over the world, mostly for the industrialized European Countries. For many of developing countries, such raw materials provides the main source of revenues. The raw materials sector offers them social, politic and economic development opportunities.
But where bad governance is, the wealth of resources can also become corruption, environmental pollution or social conflict cause.

What is particularly interesting is the reporting on some extra-EU Countries around the international trade scene as major raw materials producers, considering the great strategic content that such condition means, mostly when the large-scale production is associated to the production monopoly.

Relationship with Ukraine

During 2015, some meetings were held with Ukrainian delegation of the Ministry of energy and of the NAFTOGAZ company, in order to evaluate the development possibility of a project aimed to recover heat from depleted O&G wells in Ukraine, with the purpose of supplying the heat plant in urban settlements.
The project is at an early stage and the terms of possible agreements between Italy and Ukraine are ongoing by the Administrations, aimed to launch a technical-institutional panel.

THE 2015 *MAIN* ACTIVITIES



COMMUNICATION ACTIVITIES

All the activities described so far were developed by DGS UNMIG in accordance with the principles of transparency that constitute the basis of the communication for the Public Administration. DGS does not carry out itself the institutional communication tasks, transferred instead to other bodies of the same Ministry. Anyway it provides all the items of information needed for the information and communication functions. Within the Ministry portal, in fact, the Directorate General provides the users with a rich and important database on the competency activities, highlighting its own functions, the mission and the structure, in the dedicated web page.
The Directorate General, moreover, manages technical seminaries, workshops and institutional meeting. It guarantees its own presence to the ones organized by other bodies, institutes, universities and companies operating in the sector, promoting and strengthening the dialogue with stakeholder, citizens, administrator and operators, compatibly with its own main safety tasks.
Below, some additional information are reported on the institutional communication for the Public Administration, the Directorate General web site and the organized or participate events during 2015.

Institutional communication - focus on legislation

The communication for public institutions is the specific task consisting in making the Administration activities and functions publicly available, strengthening its identity and facilitating the citizens consensus on general interest issues.
It can be useful to show a brief excursus on the legislative developments that during last fifteen years brought the public communication issue to be crucial in the relationship among the Government, public institutions, mass media and citizens.
Firstly, it has to be mentioned the Law no. 400/1988 of the Presidency of the Council, by which the Department for information and publishing was born and started its own activity, focusing on innovative social publicity campaigns, and also on events with a valiant national and international return.

The development of the public communication in our Country, hence, can receive a valuable support in the article 7 of the Law no. 142/1990, on the local self-government order, that explicitly states that the all acts of Municipalities and Provinces are public, except for the ones that are confidential as expressly indicated by law. The Law no. 142/1990 states also that, by further regulations, the needed rules will be defined in order to assure that citizens receive information on the status of the acts and of the procedures and also on the priority for examination of applications, projects and provisions.

Hence, the trend that leads the Public Administration to operate in accordance with increasing openness and transparency is realized by the Law no. 241/1990, on new regulations on administrative procedure and right of access to administrative documents, known also as law on transparency. The Law no. 241/1990 establish that the actions taken by public institutions should be dealt with cost-effective, efficiency and publicity criteria that will have to underpin the choices and the procedures in public policy.

The Law no. 150/2000 represents the key point for communicating within the Public administration as it regulates the information and communication activities of public administrations in terms of activities aimed to carry out transparency and effectiveness of administrative action. In particular, the article 1, paragraph 4 of the Law 150/2000 stresses the communication activities respect to those of information. Communication can be divided in internal and external one. The external one is addressed to the citizens, to other administrations or bodies, companies or associations, contributes to build the perception of quality of service and represents an enduring channel for listening and verifying the satisfaction level of the client/user, so that the provided service will be improved. The internal communication is complementary and functional to the external one, but it is different because addressed to the public within the Administration.

Information activity is addressed to mass media, through press, audiovisual products and telematics devices and it is aimed to allow an homogeneous and coherent disclosure of the corporate image, by disseminating its own activities, services policies, legislations and cultural references.

The web area of DGS UNMIG

Chart 5 - Daily average users for the DGS UNMIG website

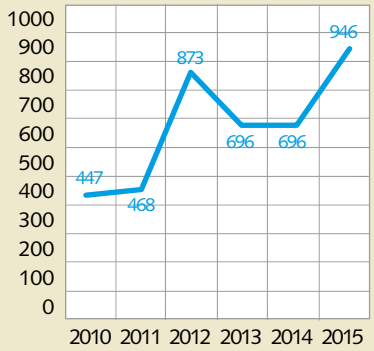
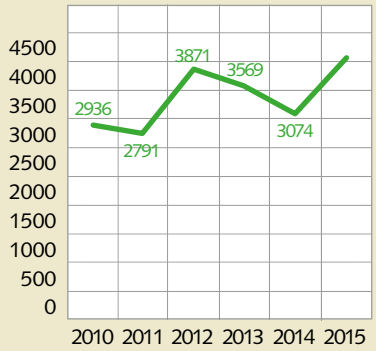


Chart 6 - Daily average number of web pages visited for the DGS UNMIG website



The layout changes in the website from January 2016 allowed a better usability for users, always more and connected with even more mobile devices. In fact, among the over 900 users visiting every day the website, the 12.4% uses a smartphone and the 5.3% uses a tablet.

During 2015, the UNMIG section of the website received 345.370 visits: 1.470.241 pages were read, with a daily average of 946 users and 4028 pages per day. Since 15th January 2016, the website of DGS UNMIG shows a new layout. The choice of changing the layout follows on from the organizational changes introduced by the Ministerial Decree 30th October 2015 that provided the separation of the licensing and mining licenses management functions from the management of mining activities safety ones.

The site was planned having a responsive web design, then it is able to automatically adapt itself depending on the device which it is displayed by (PC with different video resolutions, tablet and smartphone), minimizing the users' need to resize and scroll the pages.

Two different navigation menus can be used alternatively: a classic one (with windows), that appears when the display of the device is large enough (PC or horizontal orientation tablet), and a second simplified menu, that appears when the login is made with a vertical orientation smartphone or tablet.

The contents of the page will adapt themselves to the device and will be shown as one or more columns and with a font style smaller or bigger depending on the available space.

Events - Focus on OMC 2015

Rome, 21st January 2015

THE ECONOMIC IMPACT OF THE REGULATORY FRAMEWORK ON THE ITALIAN MINING COMPANIES. ECONOMIC AND LEGAL ANALYSIS.

CRIET (the Inter-University Research Center in the Territory Economics) organized, at the Ministry of economic development, the "CRIET Incontra 2015" conference in which the research "The economic impact of the regulatory framework on the Italian mining companies. Economic and legal analysis" was presented.

The first aim of "CRIET Incontra" is to explain the relations, in a given area, between the dynamics of companies and of institutions so that they assume an appropriate role in the scientific and strategic evaluation of individual decision makers. More information is available on the CRIET website.

Rome, 11th March 2015

Italy and the sea within geopolitics, national safety and economic strategy.

In the Aula Magna of the University of Rome "La Sapienza" the workshop "Italy and the sea within geopolitics, national security and economic strategy". was held. The meeting, organized by the Department of Political Science of "La Sapienza" University, was a useful cause for reflection about the Mediterranean Geopolitics theme and it allowed to focus on the importance and influence of the sea on the strong relationships among the countries that bordering the Sea.
For more information visit the Department of Political Science website University of Rome "La Sapienza".

Rome 12th March 2015

Focus on OMC: Offshore Mediterranean Conference and Exhibition to enhance resources and attract investments.

The XII edition of the biennial event dedicated to upstream operators, OMC 2015, held in Ravenna on 25-27 March 2015, was presented at the Ministry of economic development in Rome.
OMC is the leading showcase of O&G sector in the Mediterranean basin, an important occasion to reaffirm the centrality of the Mare Nostrum and of the O&G sector, to build an energy bridge on the Mediterranean in order to intensify relationships with the coastal Countries to realize an energy hub for the entire European Union benefit. The President of OMC, Innocenzo Titone, said that "the OMC represents the arena where to outline, with all the representatives of Mediterranean Countries and involved companies, the future scenario about resource availability, safety, sustainability but especially market stability.
These are the key words to take on the challenges of the energy outlook for the next 20 years".

Ravenna, 25th March 2015

Launch of Offshore Mediterranean Conference & Exhibition 2015.

OMC started on 25th March, with the plenary Session on "Focus on Change: Planning the next 20 years", chaired by CEO of Eni, Claudio Descalzi, in order to plan the next 20 years period diversifying the choices and increasing the opportunities.
Representatives of Mediterranean Countries and Principals of international O&G industry participated. Within the Conference, Special Sessions and Workshops on best available technologies in the sector were organized. The Conference lasted 3 days, during which several issues on

PARTICIPANTS TO OMC

The Offshore Mediterranean Conference and Exhibition is attended by over 1200 delegates, representatives of producer countries not only in the Mediterranean (Algeria, Egypt, Libya), but also in the sub-Saharan Africa (Congo, Angola, Mozambique) and In the Middle East (Qatar , Iraq). An event that is spread over an exhibition area of over 25000 square meters and an area which hosted 687 exhibitors from 34 countries, the presence of all the major European Oil Companies, North Africa and the Middle East (Eni, Edison, Total , Shell, Sonatrach, EGPC, EGAS, NOC, Crosco, Ina, Qatar Petroleum).
During OMC 2015 edition, numerous opportunities occurred for discussion on research, development, innovation and technology, with the aim of increasing the safety and environmental compatibility of mining activities.
For more information about the event http://www.omc.it

ENVIRONMENTAL SAFETY AND PROTECTION

Within the new legal framework, environmental safety and protection are the priorities. What came clear during OMC event, our Country has the higher standards in safety field, thanks to the activities of and surveillance and control carried out by competent authorities and thanks to technological excellence of national and foreign industries. This awareness gives our Country the authority needed to promote the increase of international safety standards in the Mediterranean area and for coastal Countries.

enhancement of Mediterranean sea activities were faced. A particular Session was dedicated to the projects and the agreements that DGS UNMIG signed with several institutions and research companies.
OMC 2015 was opened by the Undersecretary of the Economic Development, Simona Vicari, who pointed out that Italy is responding to the global changes of the energy scenario, in line with European targets, with new rules aimed at ensuring a higher level of security for the people, for the environment and for supplies.
During the first day, the special edition of the **Official Bulletin on Hydrocarbons and Georesources (BUIG) "The sea, II edition"** dedicated to the offshore activities and the "Annual Report 2015 - activities 2014" of the DGRME (now DGS UNMIG) were presented at the stand of the Ministry of economic development.
Then, the updating of the **ViDEPI Project** - Visibility of data relating to the activity of the hydrocarbons exploration in Italy was discussed, which goal is making the technical documents related to the Italian hydrocarbon exploration easily accessible. ViDEPI collects all the public documents concerning the expired mining licenses, filed since 1957 at the Ministry of economic development. The project, started in 2005, was ended in October 2009 with the publication of the updated data at 31/12/2007. Over the following years, as a result of the expiring of further mining licenses, other technical documentation became available for ViDEPI. The update in 2014 consisted in the scanning, classification and integration into the project database of the updates related to the 39 new mining licenses, with georeferred data and the publication of the list concerning public final well profiles updated at 31st December 2014. Seismic lines of the CROP ATLAS Project were also added and a summary page of the seismic lines acquired for the expired licenses. A new layout was given to the website of the Project and to the navigation menu, with the addition of the search function using the Google custom search engine and of the map display via the ArcGIS Online service of ESRI.
With the support of the involved institutions, the following workshops were organized:

Workshop: The mining sector in Italy, opportunities and challenges in place.
During the workshop, the actions pursued by CRIET (Interuniversity Research Centre for the local economy) together with DGS UNMIG for the development of the mining sector were presented.
In addition, data and economic-financial analyses concerning the O&G sector and the non-energy raw materials were discussed. The workshop ended with a brief exposition of the DGS commitment to promote

the development of the extractive sector also beyond the national boundaries, in view of the tasks granted in the field of promotion for development interventions in the mining sector of interest for the supply security policy and national competitiveness.

Workshop: The knowledge of the land as a safety factor.
The workshop was dedicated to explain the SOGIN company contribution to the project of the national mining data recovery.
The presentation pointed out a new perspective of utilization of big data of scientific and industrial interest, acquired over the past decades and hard to manage today, as preserved in hardly accessible paper files.
Following experts attended the workshop with contributions: Fabio Chiaravalli (Manager Sogin) about "The localization project of the deposit - need to greater knowledge of the area"; Giancarlo Ventura (Sogin) about "The recovery of the basic research project in the mining sector for the knowledge of territory RIMIN and security applications"; Daniele Simoncini -(Geotechnology Centre of the University of Siena) about "Website for the publication of data".

OMC, Ravenna, 25th March: the Italian-Norwegian day
On 25th March DGS UNMIG, with the support of the Embassy of Italy in Oslo, organized the Italian-Norwegian Day, dedicated to excellences of the two Countries in the field of services and certification for the oil offshore. The day was attended by the Ambassador of Norway in Italy, S.E. Bjørn T. Grydeland, and the Italian Ambassador to the Kingdom of Norway, S.E. Giorgio Novello. Ambassadors focused their speeches on the excellent economic relationships between the two Countries. Eng. Franco Terlizzese, General Director of the DGRME and Eng. Innocenzo Titone, delegated CEO of the OMC also gave speeches.
The event was marked by two sessions that highlighted the Italian and Norwegian excellences in services and certification for the hydrocarbons offshore. In the morning a meeting took place with the leadership of O&G divisions and business assurance operating in the Milan office of DNV GL-renowned certification body formed by the merger of the Norwegian Det Norske Veritas and the German Germanischer Lloyd.
In the afternoon, the Secretary for economic development, Senator Simona Vicari, opened the meeting with the association's companies ROCA (Ravenna Offshore Contractors Association), the association of contractors, represented by the chairman Nanni, which make Ravenna a technology center of world importance for the services dedicated to the exploration and production of offshore hydrocarbons.

Ravenna, ideally twinned with Stavanger, is confirmed to be a crossroads of relationships between Italy and Norway: the day is part of a tradition of bilateral meetings between the two Countries that in the past took place in the city in concurrence with the OMC.

OMC, Ravenna, 26th March

During the OMC second day the new skimmer technology patented was presented by the Department of Civil Protection, (S.A.U.R.O system "Sea Antipollution Unit for Rapid Offshore drainage"). It is an innovative and versatile system for water reclamation able to recover both liquid (hydrocarbons) and solid (plastics, wood and various materials) pollutants also simultaneously. The system is able to recover materials of various sizes, from sub millimeter particles, such as micro plastics, up to sizable objects. S.A.U.R.O can operate also with adverse weather and sea conditions and at speeds greater than those of a normal skimmer.
These peculiarities, combined with its particular conformation guarantee a high recovery capacity, in a short time.
Commander Walter Mazzei (Department of Civil Protection) illustrated the S.A.U.R.O. project, while frigate Captain Stefano Ramacciotti (Italian Navy) explained th use of S.A.U.R.O. system on naval units of the Italian Navy. It was also discussed a project, coordinated by DGS UNMIG and realized with the collaboration of the Operators, for the establishment of a GIS archive on the infrastructure for the production of hydrocarbons in the Italian seas (platforms and sealines). Objective of this study was the realization a GIS archive on offshore facilities , through the update and the georeferencing of the information already owned by DGS. Eni provided extensive technical and computer support to realize the GIS project.
The provision of an efficient and updated database is necessary to the Administration to ensure the sharing of information among the operating entities and the publication of the Annual Report on offshore as required by Directive 2013/30/EU, the upcoming transposition, and the connected Implementing Regulation (EU) no. 1112/2014 of the Commission.
The presentation of the project was attended by Eng. Giancarlo Giacchetta and Eng. Roberto Cianella (DGS UNMIG) and technicals Bonora and Barbaglia (Eni E & P - Building Technology).
Several speeches were held, related to the agreements that the DGS UNMIG launched with other administrations, universities and research institutions to increase the safety of offshore E&P .
In the session "Offshore Regulations" Eng. Roberto Cianella (DGS) presented the article "Towards the transposition of Directive 2013/30/EU in Italy" (Authors: M. Strada, R. Cianella, A. Cofini, L. Di Donatantonio).

The article showed the results of the technical working group for the Italian transposition of offshore Directive and the main points of the Implementing Regulation no. 1112/2014 of the Commission. Article 41 of the Directive states that the Member States are required to bring into force laws, regulations and administrative provisions necessary to comply with the Directive by 19th July 2015.

An integral part of the Directive implementation process is also the Implementing Regulation No. 1112/2014 of the Commission laying down common formats for the transparency of information in the offshore hydrocarbons field and of knowledge sharing among Operators, owners and competent authorities. The Implementing Regulation, as instrument specifically imagined by the Directive to ensure consistency in reporting data and to allow the comparison of safety performance among Member States, does not require the transposition and already entered into force following publication in the Official Journal of the European Union.

Within the same session the research project "**Transposition of the European Directive Marine Strategy: implication of the Legislative Decree 190/2010 on offshore hydrocarbon sector**" (Authors: I. Antoncecchi; A.S. Bonetti) was presented.

The project, currently in its early stages, is realized through the collaboration of "Milano Bicocca" University, pursuant to Legislative Decree of 22nd June 2012. The paper presents the main features of the Directive 2008/56/EC on the Marine Strategy (purpose, areas of expected applications and obligations) and the manner of implementation in Italy through Legislative Decree 190/2010 which provides for the establishment of monitoring programs, also within the E&P activities, to protect the marine environment. The second part of the article is dealt with the theme of verification and control methods of water and air matrices of the offshore hydrocarbons exploitation facilities adopted by the UNMIG Offices in compliance with the regulations and national standards and in pursuance of the European Directives.

Some space was also dedicated to the new rules introduced by **Decree Law 12th September 2014, no. 133**, so-called "**Sblocca Italia**" Decree, in the field under responsibility of DGRME. Articles 36, 36-bis and 38 were explained, by which the Decree Law 133/2014 introduced measures on hydrocarbons sector to implement the objectives of the National Energy Strategy document (SEN), touching two important aspects for the sustainable development of the energy sector and the enhancement of national energetic resources:

* unique license for the exploration and exploitation of hydrocarbons, optimizing the time for completion of administrative procedures

and ensuring an efficient procedural process, uniform throughout the Country and in line with the most advanced OCSE Countries (Article 38);
* development of the territories through interventions on economic development and employment in the regions directly interested by industries, using the resources that come from the hydrocarbons exploitation (articles 36 and 36-bis).

The contents of the new procedural guideline, approved by Ministerial Decree of 25th March 2015 were also presented. According to the changes introduced by the "Sblocca Italia" Decree, the new procedural guideline defines the procedures for the issuance of the Unique license and the related operating activities, fully replacing the Ministerial Decree of 4th March 2011.
It was held finally a panel, organized by the Italian diving companies - AISI, on the management of human resources in the industrial diving. Within the session "**Opportunities in Exploration**" DGS UNMIG presented the research project "**Offshore Sardinia (Italy): new perspectives in the marine areas open to hydrocarbons exploration and exploitation**" (Authors: I. Antoncecchi; F. Ceruti). This project, currently in its early stages, is realized through the collaboration of "Milano Bicocca" University, pursuant to Legislative Decree no. 22nd June 2012. The article carries out a review of the geological knowledge of the "Zone E" open to new E&P activities in the west offshore of Sardinia, to promote the study and the research of subsurface features aimed at a greater knowledge and enhancement of the potential resources of the new open areas of the Italian continental shelf. Specifically Zone E, nowadays poorly known, is characterized by complex deep-offshore conditions, which require specific studies and research aimed at introducing appropriate technologies and best practices in the safety field.

OMC, Ravenna, 27th March

On 27th March 2015 the special session "**Offshore Regulations and Technologies: Five Years after Macondo**" was held, during which particular attention was devoted to issues concerning the initiatives and policies put in place in the sector in the different Countries, after the accident in the Gulf of Mexico. Organizational aspects, capabilities of offshore Operators and new systems and protection technology for high pressures after Macondo, were also considered.

Bologna, 18th March 2015

Workshop organized by Assomineraria on the coexistence of the extractive sector with other economic activities of the Emilia-Romagna Region

The study carried out by CRIET on "Territory and hydrocarbons in Emilia-Romagna Region" was presented. On this occasion Assomineraria organized, in collaboration with Confindustria Emilia Romagna, a workshop on the coexistence of the extractive sector with other economic activities in a region that is the symbol of excellence for both the enhancement of underground resources and the products provided by the territory.

This workshop was an opportunity for dialogue among institutions, scientists, stakeholders, businesses and trade unions to talk about oil and gas impact and the potential for co-existence and integration with activities such as agriculture, fishing and tourism.

Milan, 19th March 2015

"CRIET Incontra 2015"

Circular economies, business and territory development

The meeting, organized by "CRIET Incontra" on recycling and reuse issues, entitled "Circular economies and business and territory development" was held at the Auditorium of the University of Milano-Bicocca. The economic crisis and the scarcity of resources, together with a growing interest in environmental protection, make it necessary to think of new production models that go beyond the traditional approach to production-consumption-disposal (linear economy), moving towards production-consumption -recycling-reuse (circular economy) patterns.

Piacenza, 23rd March 2015

The role of innovation in the hydrocarbons industry: winning HSE-quality and efficiency challenges, creating job opportunities.

The Organizing Committee of Piacenza Oil & Gas Museum, in collaboration with the Municipality of Piacenza, APVE Sections of Fiorenzuola d'Arda and Cortemaggiore and the Federation of the Labor Piacenza Masters, organized in Piacenza the conference entitled "The role of innovation in the oil industry: winning HSE Quality and efficiency challenges, creating job opportunities".

On the YouTube channel of ABO-About Oil online magazine the video of the interview to the General Director Franco Terlizzese, realized within OMC 2015, was published. The interview topics touched on:

- dialogue among the Mediterranean Countries on the issues of the safety of offshore activities;
- development of offshore activities in Croatia;
- investments and consequent impacts on employment for the implementation of the Decree Law 12th September 2014, no. 133 ("Sblocca Italia") and the new procedural guideline;
- supply and interconnection of energy infrastructure.

Rome 12th June 2015

Workshop on induced seismicity: comparison of the most recent experiences on induced seismicity.

At Ministry of economic development, a workshop on induced seismicity was held, within the DPC-INGV 2014-2015 agreement.

The workshop, organized in collaboration with OGS, brought together several national and international experts in order to take stock on the state of knowledge on seismicity induced by human activities through observation and analysis of case studies in Italy and abroad.

The session was opened by DGS and followed the intervention of the Civil Protection Department who briefly presented the initiative within the activities undertaken in order to promote scientific-technical debate on the subject.

The event made it clear which monitoring techniques and possible methods are available, with the current knowledge, in order to recognize the induced seismicity rather than the natural one.

The speech pointed out the issue of a better characterization of the phenomenon, aimed to define the procedures for the hazard assessment, risks control and mitigation. In this connection, DGS illustrated the contents of the Guidelines on monitoring activities, that suggests the standards for an integrated monitoring system for microseismicity, ground deformation and pore pressure and briefly described the details of the experimental implementation launched at three pilot sites.

Rome, 8th July 2015

RSE: technical and scientific in depth analysis in the field of geothermal energy.

The workshop, addressed to the DGS internal staff, was entitled "Geothermal energy: RSE academic day". The items were the following:

* General information on the RSE activities in the geothermal sector - (Relator F. Moia);
* The tools used and developed by RSE for geological modeling and numerical simulation of geothermal reservoirs - (Relator R. Guandalini);
* Fluid dynamic simulations applied to a real case: the geothermal field of Torre Alfina - Castel Giorgio (Relator F. Colucci);
* Natural and induced seismicity in geothermal areas - (Relator F. Moia)
* Potentiality of low enthalpy geothermal energy and the use of geothermal probes - (Relator F. Colucci).

The training day is part of the DGS activities in the geothermal field, also in order to carry out a technical-scientific deepening and an update on geological modeling of geothermal reservoirs.

Rome, 23rd September 2015

The seminar, organized by DGS UNMIG in collaboration with Sogin and the GeoTechnologies Centre of the University of Siena, illustrated a new perspective for accessing geological data, even from past studies and stored in paper form and their integration and public utilization on the Web.
For further information, please refer to Chapter "GEOTHERMAL RESOURCES, BASIC RESEARCH IN THE MINING SECTOR, DEVELOPMENT ACTIVITIES" of this Report.

Milano Expo, 29th September 2015

Geothermal energy and agriculture: expo cleantech workshop.

The Ministry of economic development and ICE Agency, with the support of GSE, on the occasion of Expo Milano 2015, organized the EXPO CLEANTECH WORKSHOP, a day dedicated to the presentation of the Italian best practices that combine the issue of access to energy with agriculture and food.
The Workshop, at the Pavilion Intesa San Paolo in Expo Milan, was attended by foreign delegations from Mexico, Colombia, Brazil, Saudi Arabia and India, invited for the occasion.
The seminar aimed to present to the delegations the current knowledge, the experience and technology of Italian excellence in the fields:

1. biogas and bio-methane;
2. innovative photovoltaic and geothermal solutions applied to agriculture;
3. food oils recovery and agricultural production wastes for energy.

Milano Expo, 2nd October 2015

Discovery and enhancement of decommissioned mining areas in Italy, an opportunity for the development of geological and cultural tourism.

The conference was organized at Expo 2015 by ISPRA and the Lombardia Region, with the patronage of the Italian Association for the protection of the industrial archaeological heritage (AIPAI), on the issues concerning the enhancement and recovery of decommissioned mining sites for cultural purposes, reconverted as museums and parks at the end of their production activity.

Italy is the country with the most documented mining history in the world and maintains a wide and original geo-mining heritage: in many areas this heritage was lost but in others it was possible to start a process of conservation, protection and enhancement through the launch of geo-mining parks and museums allowing also to maintain the identity of the mining sites, where the underground exploitation represented the social and economic development for many communities.
This heritage -not only natural, but also historical, archaeological and industrial- requires a legislation, lacking nowadays, in order to regulate their management.

During the convention a Memorandum of Understanding was signed by the DGS UNMIG in order to create a national Network of Italian Museums and Mining Parks (ReMi). Such project is aimed to share technological, historical, cultural, scientific development of these sites to be enhanced with additional benefits on local economies and companies, and to launch proposals for strengthening the legal framework supporting the sector.
The first ReMi meeting was subsequently held on 24th February 2016 in Rome, at the Ministry of economic development.

Potenza, 12th November 2015

Studies and researches on natural and anthropic seismic risk in Val d'Agri (Basilicata Region).

The workshop was organized by the University of Basilicata and the IMAA-CNR, to present the results of research projects related to seismic risk of Val d'Agri, as well as other ongoing initiatives for monitoring and reducing the seismic risk both natural and anthropic.
The DGS participated with the intervention of Eng. Liliana Panei entitled "The integrated monitoring of seismicity, ground deformation and pore pressure: application to pilot cases" in which the activities carried out by DGS after the seismic events of Emilia Region were described, highlighting the main actions launched for promoting the safety of offshore and onshore activities.
During the speech, the experience of Laboratorio Cavone project was mentioned, project aimed to develop monitoring and research activities in the "Mirandola license" within the Agreement signed by the Ministry of economic development, the Emilia-Romagna Region and the Padana Energia SpA, with Assomineraria patronage.

Naples, 17th November 2015

Workshop on the activities carried out to achieve the safety objectives according to the main European Directives.

At the Library of the Historical Department of Engineering of the University "Federico II" of Naples, the workshop "The Italian strategy for raw materials use and their environmental impact: hydrocarbons and geothermal energy" was held.
Eng. Franco Terlizzese explained here the activities developed by the Ministry of economic development to achieve the safety objectives of the main European Directives and the subsequent amendments to national regulatory framework on hydrocarbons and geothermal energy field.

Milan, 25th November 2015

Circular economies and sustainable development. Cross-country Italy-France analysis, CRIET Incontra 2015

Eng. Franco Terlizzese attended the meeting, answering to questions asked by Agi-energia focusing on the new structure of the Directorate for Safety (DGS UNMIG) and on the importance of the safety mission for national positioning in Europe.

Rome 15th December 2015

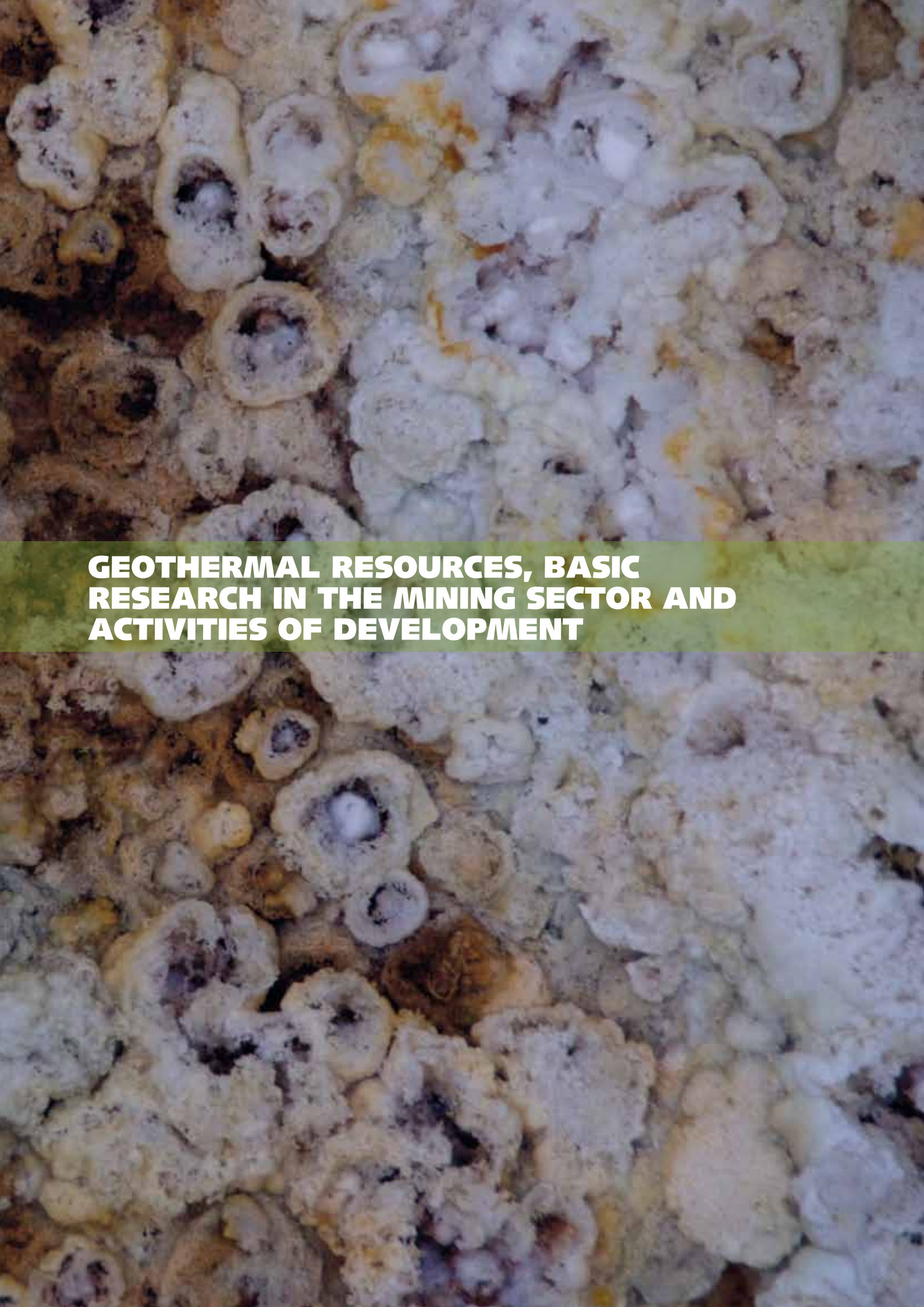
DGS UNMIG, institutions and scientific organizations for offshore safety - Annual meeting 2015:

State of the agreements MiSE-Research Institutions

The annual meeting dedicated to the agreements signed between the DGS UNMIG and some prestigious and scientific institutes took place in the context of research and innovation activities for offshore operations safety. Director Franco Terlizzese opened the meeting by explaining how DGS and the scientific institutions involved in the agreements are working together to achieve a common goal: to continue to improve the already excellent performances in the field of offshore safety.

This goal is achieved through actions concerning the following activity areas: control, carried out through complex analyses and continuous monitoring; skills, considered as new knowledge and interpretation of the best practices; efficiency, meaning analysis and innovation to improve the use of the resources; research and innovation, that means identifying and promoting new technologies for monitoring, recording and verifying; the establishment of dialogue with the territories based on transparency, listening and involvement. Involved institutions and institutes of excellence represent an important network that had and will have a strategic and operational role to achieve the objective, through the strengthening of such activities.

THE 2015 MAIN ACTIVITIES



GEOTHERMAL RESOURCES, BASIC RESEARCH IN THE MINING SECTOR AND ACTIVITIES OF DEVELOPMENT

Geothermal Resources

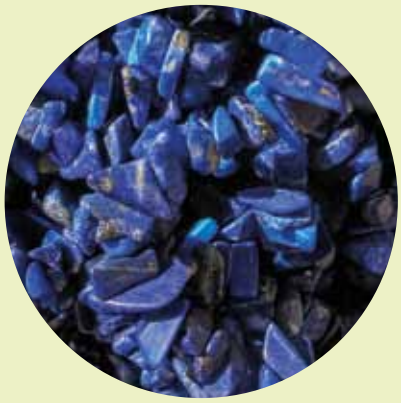
In the national legal framework, the Legislative Decree no. 112/1998 delegated the administrative and safety functions regarding the issuance of licenses for onshore geothermal resources to the Regions.
Nowadays, the State has the competence on the inventory of geothermal resources, the management of offshore geothermal licenses and, based on Title V of the Italian Constitution, legislative power to address and to give the national guidelines.
On the base of the delegated statutory, foreseen by the Law no. 99/2009 ("Legge Sviluppo"), the Legislative Decree no. 22/2010 was enacted: it represents the main benchmark of current legislation on geothermal resources.
It established, among other things, that in order to promote research and development of new geothermal power plants, with low environmental impact, geothermal fluids of medium and high enthalpy are of national interest, aimed to the testing, throughout the whole country, of pilot plants with reinjection of geothermal fluid in the same original reservoir. This operation has to be carried out with zero-emissions process and rated power installed not higher than 5 MWe for each power plant, allowing a total legal commitment not exceeding 50 MWe throughout the whole country. The Ministry of economic development along with the Ministry of environment and land and sea protection are the competent authorities for the awarding of permits to geothermal pilot plants.
They act at the end of an appropriate technical and administrative procedure, under which, among other things, is acquired the positive judgment of environmental compatibility by the Ministry of the environment and land and sea protection together with the adoption of the act of agreement of the involved Region.
During 2015, technical and administrative procedures have been developed: they are aimed at granting of exploration permits for geothermal resources within pilot plants of 9 instances for 11 total pilot plants, one of which is currently suspended. Some instances could require, as per current legislation, the presence of two separate plants within the request. All instances are still in preliminary phase.
The mentioned 9 instances are located in the Tuscany Region (6), in Umbria and Lazio Regions (1) and in the Campania Region (2). Only one of 9 projects obtained a positive decision to VIA (environmental impact assessment), with precepts, and all of them are still waiting for the act of agreement of the involved Region. At its meeting of the 15th April 2015, Commission VIII (Environment, Land and Public Works) gathered with

Commission X (Productive Activities, Commerce and Tourism), pledged the Government to implement the Italian territory geothermal zoning procedures.
In consideration of the wide interest for renewable energy sources, in particular programmable ones, as geothermal energy, the Ministry of economic development and the Ministry of environment for land and sea protection were instructed to enact «guidelines» for the various types of geothermal systems. Such guidelines shall identify suitable areas, within general evaluation criteria aimed to the safety exploitation of the resource, taking into account geothermal activity implications related to the overall water balance, risk of pollution, air quality, and induction of micro-seismicity.
In order of these commitments, works began aiming both the drafting of guidelines and defining a work program, which would lead to set up the procedures, aimed zoning Italian geothermal territory, with the support from specialists of the sector.
The before mentioned Decree no. 22/2010 permitted also to focus on aspects related to the upgrading of national inventory of geothermal resources and, consequently, revitalizing the role of the Ministry of economic development in the energy sector programming.
On this direction goes the simplification of procedures for low enthalpy (direct heat uses), as well as the opening up to competition for medium and high enthalpy resources in accordance with the current European principles of liberalization of the electricity market and the abolition of monopolies. The inventory of national geothermal resources comes from a collection of regional reports and related drawings, set up in the database of sources and geothermal wells.
Recently, all data regarding the inventory of national geothermal resources have converted into electronic format in order to be publicly available online.

Geothermal pilot plants as a case study for the transparency
The 18th of December 2015, at the Ministry of economic development, the second Transparency day was held.
DGS UNMIG intervened with its contribution entitled "Transparency and acceptance problems in energy infrastructure field: the case of geothermal pilot plants". On that occasion, it has been highlighted, among other themes, the wide availability of information featured through the Directorate-General website pages.
The pages referred to subjects related to ordinary mining licenses, of regional competence, such as the exploration and production

THE CIRCULAR 9th JULY 2015

On 9th July 2015, DGS UNMIG issued a Circular concerning the operational procedures for the submission and investigation of geothermal resources instances aimed to the experimentation of pilot plants onshore.



of geothermal resources, geothermal resources aimed to the experimentation of pilot plants under State jurisdiction and to historic data of geothermal wells drilled in Italy.

Mining research, non-energy raw materials

During 2015, DGS conducted some operations for recovery and digitalization of the database of the mining research "Rimin Project", placed at DGS UNMIG,.
The RIMIN project was realized in according to the art. 4 of Law no. 752/82 (amended by the Law no. 246/1984) and produced, from 1986, a rich dataset that could represent a great value for a detailed knowledge of Italian territory and consequently for safety of mining and energy activities.
The recovery operations bring to develop a further project (launched thanks to the collaboration among DGS, Sogin S.p.A and the Geotechnology Centre of Siena) about the recovery and sharing of big territorial archives: beyond RIMIN, there are also data from "CIREA" project and subsurface data collected by University of Siena.
The aim is to create a National Geological-Mining database (DBNGM). With this task, all the documents refer to the 68 Convention of the RIMIN project were digitalized and scanned, furthermore a system of data indexing was also create allowing an easy online consultation of the document.
A web site prototype was already launched and nowadays it is in progress. In particular, the Geotechnology Centre of Siena, with the support of Sogin S.p.A., is carring out the technical-scientific project.
The DGS is formalizing the agreement with these two Centers for the DBNGM project. This project was officially presented on 23rd September 2015 during a workshop at the Ministry of economic development, promoting a discussion among different stakeholders and research centres competent for the realization and management of Database (like ISPRA) according to the European Directives prescriptions (e.g. INSPIRE Directive).

Activities of economic development

DGS UNMIG continued its own institutional activities for what concerns
* the program of gasification of Southern Italy,
* the fund for promoting economic development measures and the launch of a social card in the territories involved by liquid and gaseous hydrocarbons exploitation, of the remaining management of the hydrocarbons bonus
* eminent domains.

Only the first mentioned activity is under the jurisdiction of DGS UNMIG, whilst the others were transferred from DGRME to DGSAIE, by the Ministerial Decree 30th October 2015.

Gasification of Southern Italy

In order to complete the construction of methane gas network in Southern Italy, particularly in the Cilento Region, by the article 1, paragraph 319 of the Law 27th December 2013, no. 147 ("Legge di Stabilità"), 20.0 million euro were allocated for each of the years from 2014 to 2020, for a total amount of 140 million euro. The support in completion of the gas distribution pipes will involve over 90 municipalities in the Southern Italy.

According to the above mentioned law, the Inter-ministerial Committee for the Economic Planning (CIPE) approved -on 28th January 2015- a resolution entitled "Fund for development and cohesion. assignment of resources for the completion of the construction of methane gas network in Southern Italy". This resolution establishes the "Provision for the submission of funding application by eligible municipalities and priority criteria for the assessment of the admission applications pursuant to art. 1, clause 319 of the Law December 27th, 2013,no. 147", launching the completion of the general Program for the construction of gas network in the Southern Italy.

After its publication on the G.U. on 18th June 2015, the majority of involved municipalities submit the application for funding.

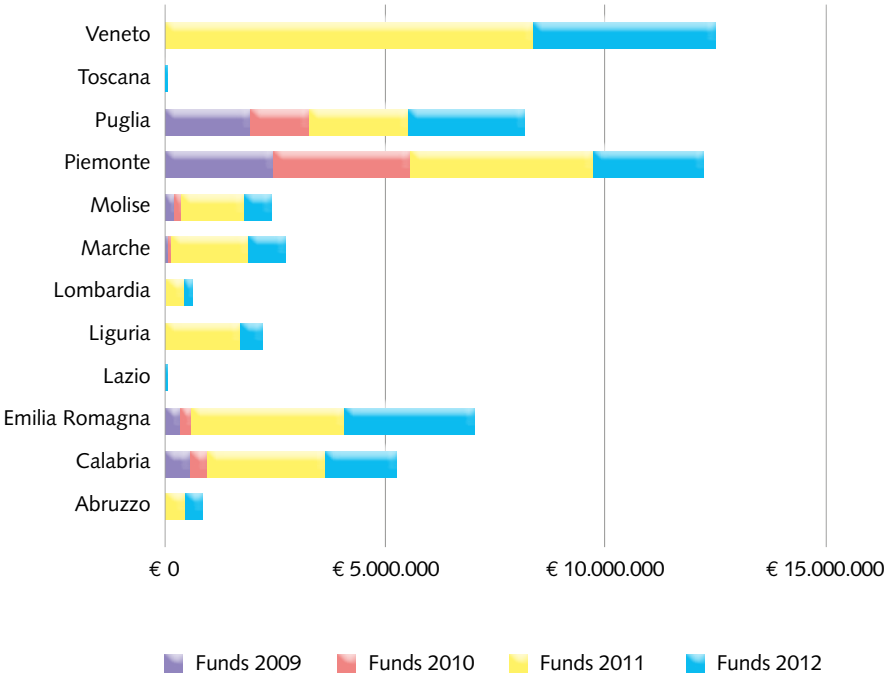
The several applications have already been classified and gathered in a proper priorities ranking list, in order to be onwards evaluated and then approved, compatibly with financial resources available during time.

In particular, during 2015, the projects submitted by Capaccio (SA) and Albanella (SA) municipalities was examined.

The results from technical-economic investigations, that this Ministry processed, were sent to the Ministry of economic affairs and finance for issuance of the related decree for granting the financial benefits. Concerning the ordinary management of the Program, during 2015 ordinaries activities for the assessment and approval of technical testing continued for concluded operations, as well as activities for the permission to extend the limit date for the on-going works completion. Still in 2015, new impulses were given to the launch of the modifications' interventions regarding 92 municipalities belonging to Calabria Region basins, which works can probably be completed within the 2016-2017 period.

Chart 7 - Amounts related to the transfer of the funds for reduction of pump fuel price for 2009-2012 production period, to the Regions in which the minimum limit for the direct on-lending to the residents (30€ pro capite).

The amount transferred for the benefit to Basilicata region residents (not shown in the Diagram because off the scale) was equal to 211 Mln€ for the same period.



Fund supporting measures of economic development and activation of social card in the territories involved in liquid and gaseous hydrocarbons exploitation and management of remaining Hydrocarbons bonus.

The Law no. 99/2009 was recently renewed by amendments introduced by Law no. 164/2014 of 11th November 2014, beyond the prediction of giving economic benefits aimed to reduce pump fuel prices in favor of residents in Regions interested in liquid and gaseous hydrocarbon exploitation.

During 2015, DGS UNMIG arranged the regulation for disciplining the use of the fund renamed for promoting measures of economic development and activation of social card in the territories involved in liquid and gaseous hydrocarbons exploitation, in compliance with the legislation in force.

A scheme of decree of the Minister of economic affairs and finance was drafted, to be issued in consultation with the Minister of economic development and in agreement with the Presidents of the involved Regions, on the fund management procedures, together with a further scheme of decree on allocation of the fund coming from 2013 exploitation activities and of the 2014 fund, among the 12 Regions involved in exploitation activity.

For what concerns the amounts of the 2012 fund, already financially involved under the previous legislation in force for benefits aimed to reduce pump fuel prices, the credits (and the related shares) for Abruzzo, Calabria, Emilia-Romagna, Lazio, Liguria, Lombardia, Marche, Molise, Piemonte, Puglia, e Veneto Regions were made available at the end of 2015.

In the Diagram 7 the amounts allocated to the Regions which took advantages from funds transfer for 2009-2012 exploitation period, that were aimed to reduce pump fuel price, in accordance with the regulations as before the amendments introduced by the Decree Law of 24th June 2014, no. 91, converted by Law of 11th August 2014 no. 116 and, finally, by Law of 11th November 2014 no. 164. For what concerns the 2012 fund, during 2016, the allocation of 330000 hydrocarbons bonus shall be carried out, as much as the residents in Basilicata Region, for a total amount of 72 Mln€. This represents the last supply, aimed to facilitate the pump fuel purchase; the 2013 funds, in fact, will be referred to the purposes of promoting the above mentioned measures of economic development and activation of social card.

In order to implement the provisions adopted by Decree 30th October 2015, published on the G.U. on 27th November 2015, during 2016 DGSAIE shall be carried out the administrative activity related to the management of the fund.

Eminent domains

The eminent domain procedures related to the building of energy infrastructures are adopted on application of the companies that, licensed to build an energy infrastructure, could not achieve a peace agreement needed for starting their own projects, even if considered of public interest.

The administrative procedures for the establishment of ablative acts needed to make the company acquire the ownership or other property rights on properties required to realize their energy projects or energy programs, are those established by the Presidential Decree of 8th June 2001 no. 327, containing the consolidated law on legislative and regulatory provisions on eminent domain.

The operators that realize the methane pipeline for empowering the national gas networks, as well as the societies that were licensed to realize infrastructural projects, can ask to competent office of the Ministry of economic development, which as expropriating authority establishes the procedures and issue the acts aimed to guarantee the availability for eminent domain of the properties and a fair compensation to be granted to their owners.

In order to achieve the objectives aimed to realize an effective communication and to allow the disclosure of the public administration activities on eminent domain in the lands where energy infrastructures are carried out, the DGS UNMIG make the information available on the website http://unmig.mise.gov.it/unmig/espropri/espropri.asp,

The ablative acts are also published in BUIG.

During 2015, 33 management order on eminent domain (land grabbing, permanent easement, provisional employment of areas involving energy exploration and development program) were issued in as many municipalities.

The Decree 30th October 2015, amending the Decree 17th July 2014, transferred the responsibility of expropriating authority for building energy infrastructures to DGSAIE.

INFORMATION AND DATA

INTERACTION WITH CIRM

The principles of the MiSE reorganization established by Ministerial Decree 30th October 2015 also affect the working methods of the CIRM (Commission on oil and gas and mineral resources), which is the technical advisory body expressing opinions concerning: hydrocarbons research and production activities (CIRM a), activities safety (CIRM b) and royalties (CIRM c).
Following the reorganization of the MiSE, DGSAIE shall request the opinion of the CIRM c), while DGS UNMIG shall request the opinion of the CIRM a) and b).

Hydrocarbons

As explained in the previous chapters, since 30th October 2015, DGSAIE has become the competent authorities in mining licenses issuance and in revenues management. DGS UNMIG keeps a key role in guarantying the safety of offshore operations by controls and inspections at installations, technical evaluation of documents and environmental monitoring activities.
The inspection and surveillance role is operated by UNMIG Sections and chemical and mineralogical analyses Laboratories. The UNMIG Sections perform the duties of surveillance on the enforcement of mining regulation.
The management procedures of responsibility task involving both the Directorates were regulated by joined Circular. Here below, the data updated at 31st December 2015 are shown, useful to clarify the state of hydrocarbons exploration, exploitation and storage in Italy.

Hydrocarbons exploration and exploitation

Mining licenses
Up to 31st December 2015, the following licenses were in force on national territory:
* 114 exploration licenses (90 of which onshore and 24 offshore);
* 202 exploitation licenses (133 of which onshore and 69 offshore).

The hydrocarbon exploration and exploitation activities themselves are carried out in very small areas if compared to the extension of the related license.
Onshore licenses cover, for instance, an area of 36.714,94 km² but the installations occupy only about 16 km², that is 0.05% of the total amount.
Furthermore, not all the licenses issued are currently operating; within the 90 onshore exploration licenses in force, for instance, only 46 are operating whilst 8 were interrupted by the Ministry, the request of companies. The suspensions are mostly requested, pending the completion of proceedings of environmental impact evaluation or the Region agreement needed for the issuance by Ministry of economic development of the licenses.

For other 19 exploration license, the procedures for authorizing the suspension is ongoing. For 6 licenses, application to renounce was submitted and, in the end, 11 licenses passed the expiry date; for these, MiSE is verifying the procedure of mining closure, of ensuring the security and the removal of installations (decommissioning procedure), with the purpose of definitively deleting the license.
For what concerns exploitation licenses, 13 submitted the application to renounce (12 onshore and 1 offshore), and 2 passed the expiry date. Also in these cases, MiSE is verifying that the decommissioning procedure is completed.
Table 14 shown the number of exploration and exploitation licenses for Region (licenses involving more Regions are counted more times). The Italian Regions most affected by licenses are Emilia-Romagna, Lombardia and Basilicata.

Compared with 2014, as it is possible to see in the Table 16 and in the Chart 10 and Chart 11, the number of exploration licenses was reduced from 117 to 114, whilst the number of exploitation licenses still remains for the offshore and increased of 1 unit from 132 to 133 in the onshore.

Table 14 - Onshore mining licenses.
Updated at 31st December 2015.

Region	Exploration licenses	Exploitation licenses
Abruzzo	11	8
Basilicata	10	20
Calabria	0	3
Campania	2	0
Emilia-Romagna	31	36
Friuli-Venezia Giulia	0	1
Lazio	5	1
Lombardia	15	17
Marche	8	19
Molise	5	7
Piemonte	7	1
Puglia	2	14
Sardegna	1	0
Sicilia	7	14
Toscana	1	2
Veneto	1	2
Total	**90**	**133**

During 2015, 2 new exploration licenses were issued (B.R273.EN and B.R274.EL) and1 new exploitation license (CASA TONETTO). During 2015, an extension of a 10 year period was granted for exploitation license C.C 6.EO and the related decrees were enforced for 4 approvals/amendments to working programs, for 5 scaling/reducing areas, for 6 modifications of the owner of license and for 17 suspensions of the time-course of exploration licenses.

Chart 8 - Percentage of offshore areas under exploration licenses. Year 2015.

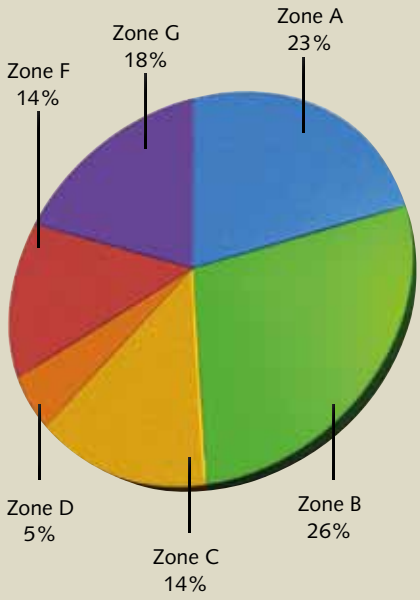


Table 15 - Offshore mining licenses. Updated at 31st December 2015.

Marine zone	Exploration licenses	Exploitation licenses
Zone A	9	39
Zone B	7	20
Zone C	5	3
Zone D	3	4
Zone F	3	3
Zone G	3	1
Total 1	**24**	**69**

Chart 9 - Percentage of offshore areas under exploitation licenses. Year 2015.

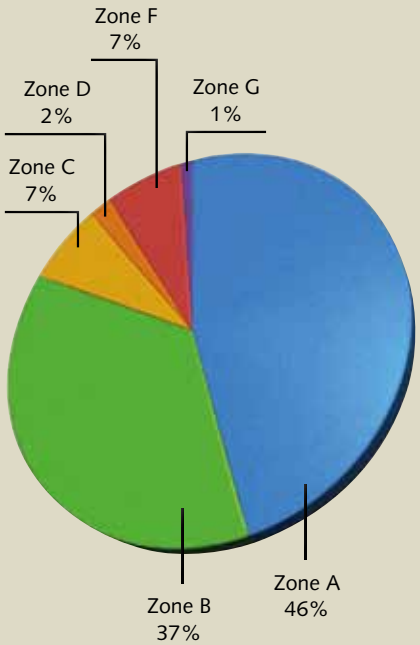


Table 16 - Hydrocarbons mining licenses. Time series 1995-2015.

Year	Exploration licenses			Exploitation licenses			Total
	Onshore	Offshore	Total	Onshore	Offshore	Total	
1995	82	64	146	133	58	191	**337**
1996	95	53	148	126	58	184	**332**
1997	107	55	162	125	57	182	**344**
1998	134	56	190	137	59	196	**386**
1999	119	55	174	156	67	223	**397**
2000	100	48	148	153	68	221	**369**
2001	95	45	140	150	69	219	**359**
2002	90	40	130	135	69	204	**334**
2003	69	34	103	146	69	215	**318**
2004	68	27	95	140	69	209	**304**
2005	60	30	90	140	69	209	**304**
2006	64	29	93	133	66	199	**292**
2007	58	32	90	131	67	198	**288**
2008	71	27	98	129	66	195	**293**
2009	72	25	97	131	66	197	**294**
2010	92	25	117	132	66	198	**315**
2011	96	25	121	133	66	199	**320**
2012	94	21	115	134	66	200	**315**
2013	94	21	115	134	66	200	**315**
2014	95	22	117	132	69	201	**318**
2015	90	24	114	133	69	202	**316**

Chart 10 - Number of exploration licenses. Time series 1995-2015.

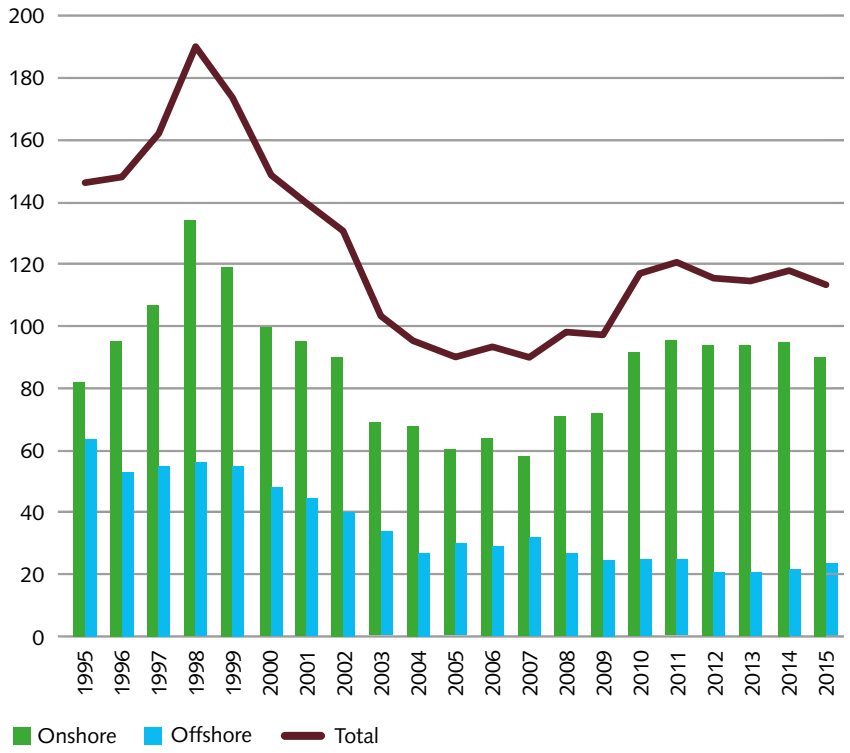
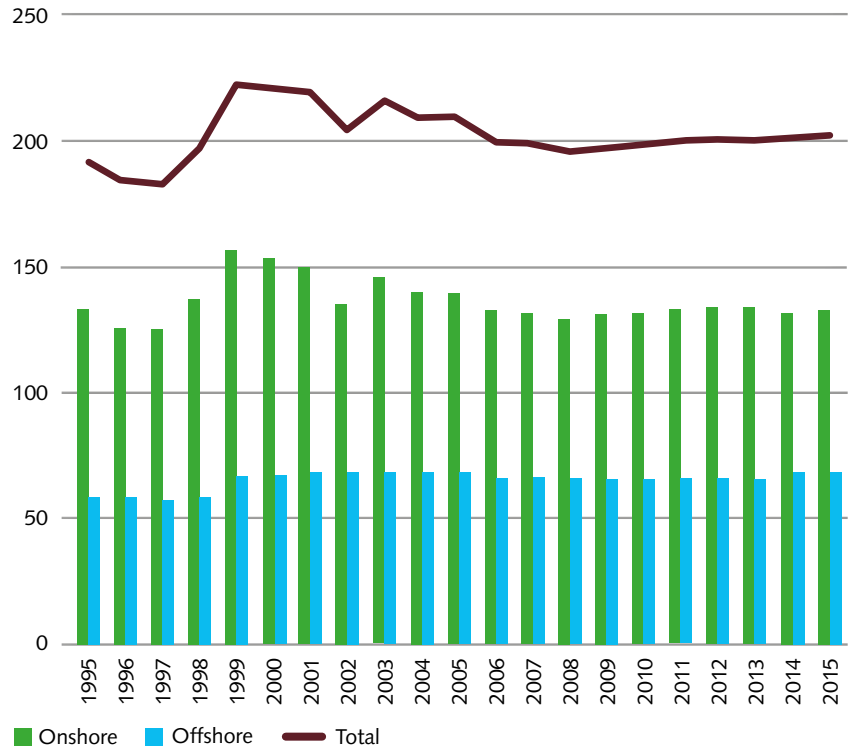


Chart 11 - Number of exploitation licenses. Time series 1995-2015.



EXPLORATION LICENSES TREND

During last 5 years, the number of exploration licenses remained constant, whilst the number of exploitation licenses had an increasing trend from 2010 to 2011, because of the restart of CIRM activities in 2008, after a period of deadlock, and also because of the achievement of the needed environmental impact evaluations and Regions' agreements

Drilling activity

During 2015, 13 wells were drilled, of which 4 onshore an 9 offshore *(Table 17)*.
Among the 13 wells, the 9 offshore wells are development wells, whilst the onshore wells are divided into 3 exploration wells and 1 storage well.
It must be stressed that none of the 3 exploration wells resulted mineralized; in particular, 2 wells were dry holes, whilst the exploration well PERGOLA 001 was not completed at 31st December 2015.
The data show that operators' activity is currently focused only to optimize the exploitation of known reservoirs rather than to explore and develop new resources.
The described drilling activity interested 12 stations (1 of 13 wells was completed 11 during 2015 but the drilling was completed during 2014[11]) for an amount of 23.745 meters drilled.
During 2015, 10 wells were completed, 8 with gas mineralization and 2 dry holes. At 31st December 2015, the drilling of 2 development wells and 1 exploration well were ongoing.
During 2015, the number of new drilling decreased, trend equal to the one of last decade in which there is a decline of exploration activity on new targets.

Table 17 - Drilling activities divided by scope. Year 2015.

Nr.	Well name	Scope	Ub	Meters	Start	End (a)	Result
1	Cascina Daga 001 DIR	Exploration	T	2.054	23/04/15	24/06/15	Dry
2	Faseto 001 DIR	Exploration	T	1.930	05/07/15	10/08/15	Dry
3	Pergola 1	Exploration	T	2.425	31/08/15	(b)	
4	San Salvo 100	Storage	T	2.057	19/03/15	24/06/15	Gas
5	Anemone 012 DIR B	Development	M	(c)	22/11/14	11/03/15	Gas
6	Armida 004	Development	M	3.932	23/03/15	08/06/15	Gas
7	Bonaccia NW 1 DIR	Development	M	1.365	04/05/15	30/06/15	Gas
8	Bonaccia NW 2 DIR	Development	M	1.760	05/12/15	(b)	
9	Bonaccia NW 3 DIR	Development	M	1.410	05/05/15	11/08/15	Gas
10	Clara NW 1 DIR	Development	M	1.580	12/08/15	(b)	
11	Clara NW 2 DIR	Development	M	1.722	15/06/15	08/08/15	Gas
12	Clara NW 3 DIR	Development	M	1.930	08/08/15	21/11/15	Gas
13	Clara NW 4 DIR	Development	M	1.580	15/08/15	01/11/15	Gas

(a) End represents the date of well completion or well closure.
(b) Well not yet completed, still ongoing at 31st December 2015
(c) Well completed before the 1st January 2015

[11]Completion: phase of setting of a well before the production. It follows the drilling phase and consists in the opening of productive layers.

Particularly, during the last 5 year, *(Table 19/20 and Chart 12 e Chart 13)* 117 new wells were completed, 10 of which are exploration wells (8,5%). The decline trend is stronger for offshore activity: during last 7 years no exploration well was drilled.

The exploration activity for searching new hydrocarbons reservoirs got its peak in the early '90s, when about a hundred new drilled wells per year, most of which were exploration wells. Starting from the second half of the '90s and particularly during last 10 year period the drilling and the exploration for new targets progressively decreased.

This is due mostly to the troubles and the long time needed for the issuance of the mining license and the authorization to drill.

The status of the procedures of exploration and exploitation licenses is constantly updated on the website of the DGS UNMIG.

Table 18 - Drilling activities with exploration purposes.
Time series 1995-2015.

Year	Exploration					
	Onshore		Offshore		**Total**	
	no.	Meters	no.	Meters	no.	Meters
1995	19	55.017	8	04.793	**27**	**69.810**
1996	22	67.664	10	27.550	**32**	**95.214**
1997	22	62.800	11	30.266	**33**	**93.066**
1998	23	62.962	9	18.794	**32**	**81.756**
1999	12	25.763	6	12.374	**18**	**38.137**
2000	14	35.721	6	19.065	**20**	**54.786**
2001	9	21.610	2	2.325	**11**	**23.935**
2002	3	3.016	5	11.200	**8**	**14.216**
2003	5	11.576	5	8.658	**10**	**20.234**
2004	10	22.223	0	0	**10**	**22.223**
2005	7	15.085	0	0	**7**	**15.085**
2006	12	17.906	3	9.139	**15**	**27.045**
2007	9	15.925	1	3.517	**10**	**19.442**
2008	4	7.274	3	6.673	**7**	**13.947**
2009	3	5.627	0	0	**3**	**5.627**
2010	3	4.183	0	0	**3**	**4.183**
2011	1	715	0	0	**1**	**715**
2012	4	5.554	0	0	**4**	**5.554**
2013	2	1.030	0	0	**2**	**1.030**
2014	0	0	0	0	**0**	**0**
2015	3	6.409	0	0	**3**	**6.409**

Table 19 - Drilling activitiy for deveopment purposes. Time series 1995-2015.

Year	Development and other					
	Onshore		Offshore		**Total**	
	no.	Meters	no.	Meters	no.	Meters
1995	19	41.380	10	26.375	**29**	**67.755**
1996	17	23.920	27	87.911	**44**	**111.831**
1997	16	34.259	10	29.285	**26**	**63.544**
1998	26	35.912	17	41.448	**43**	**77.360**
1999	14	24.476	12	28.086	**26**	**52.562**
2000	14	18.949	19	27.058	**33**	**46.007**
2001	14	52.781	15	39.086	**29**	**91.867**
2002	15	23.506	7	19.699	**22**	**43.205**
2003	9	35.182	21	28.380	**30**	**63.562**
2004	7	18.105	22	41.189	**29**	**59.294**
2005	9	16.632	24	49.399	**33**	**66.031**
2006	14	21.597	17	29.714	**31**	**51.311**
2007	13	17.886	15	33.027	**28**	**50.913**
2008	18	41.803	7	14.330	**25**	**56.133**
2009	29	37.124	20	37.770	**49**	**74.894**
2010	11	28.889	17	23.568	**28**	**52.457**
2011	14	23.474	22	31.621	**36**	**55.095**
2012	14	21.361	17	24.561	**31**	**45.922**
2013	10	18.949	8	26.386	**18**	**45.335**
2014	4	7.624	8	14.767	**12**	**22.391**
2015	1	2.057	9	15.279	**10**	**17.336**

Chart 12 - Number of drilled wells. Time series 1995-2015.

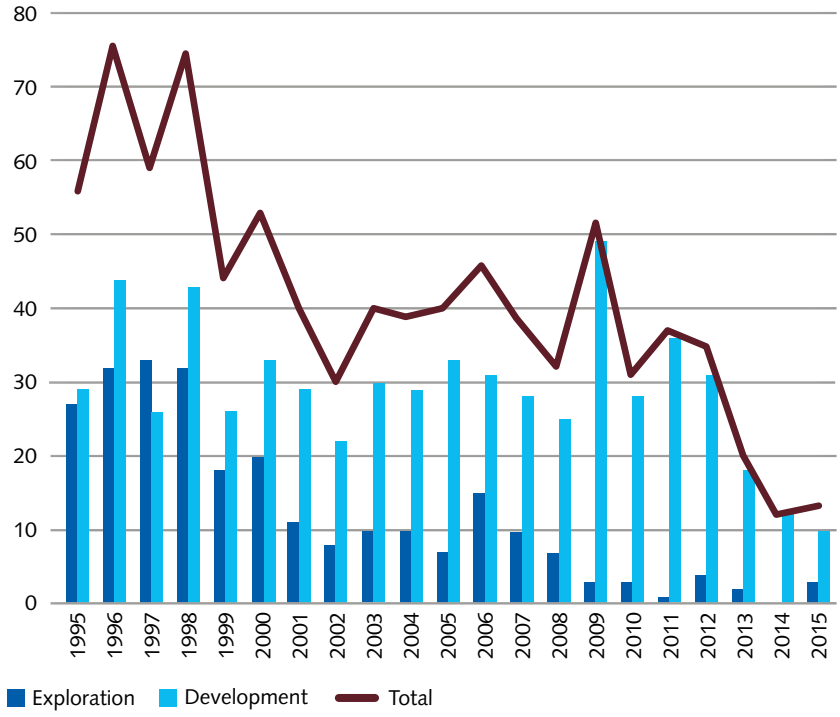
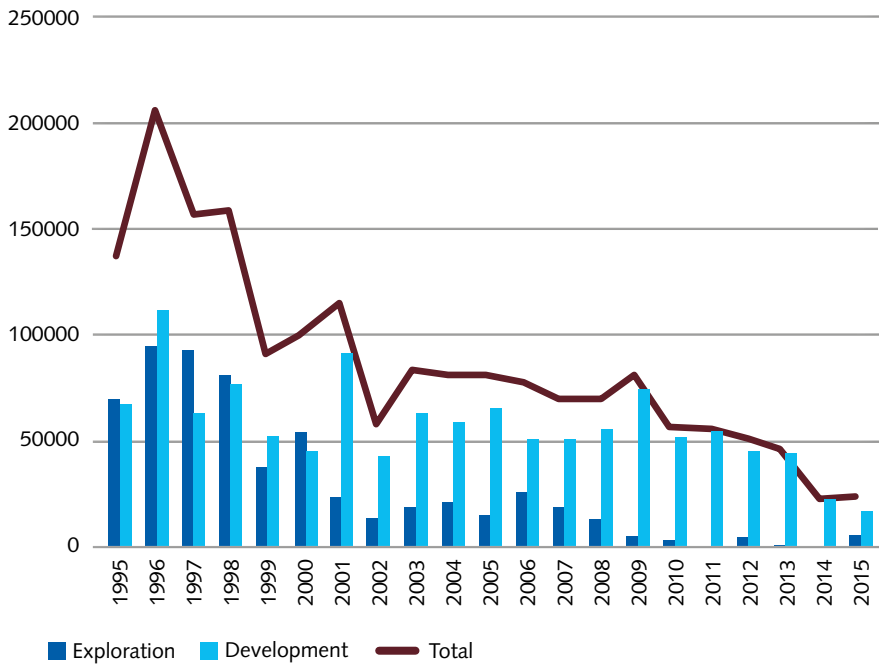


Table 20 - Drilling activity. Time series 1995-2015.

Year	Total	
	number of wells	drilled meters
1995	56	137.565
1996	76	207.045
1997	59	156.610
1998	75	159.116
1999	44	90.699
2000	53	100.793
2001	40	115.802
2002	30	57.421
2003	40	83.796
2004	39	81.517
2005	40	81.116
2006	46	78.356
2007	38	70.355
2008	32	70.080
2009	52	80.521
2010	31	56.640
2011	37	55.810
2012	35	51.476
2013	20	46.365
2014	12	22.391
2015	13	23.745

Chart 13 - Drilled meters. Time series 1995-2015.



Hydrocarbons discoveries

No discovery of hydrocarbons was made during 2015.
In the Tables 21 and 22 the discoveries from 2005 to 2015 are listed, for gas and oil respectively.

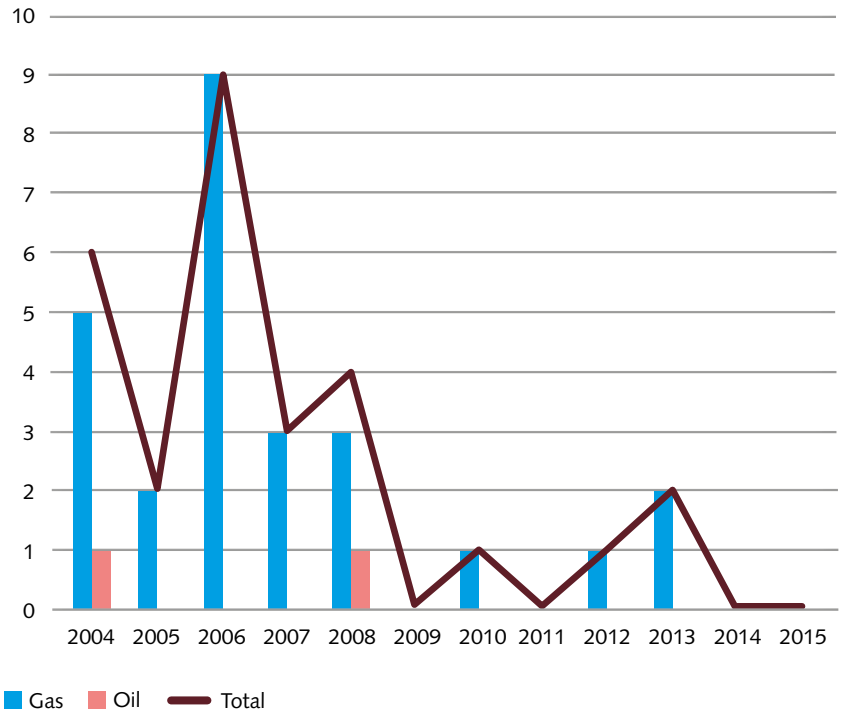
Table 21 - Hydrocarbons discoveries. Gas. Time series: 2005-2015.

Year	Name of well	Province/ marine zone	Location T:land/M:sea
2005	Mezzocolle 001 DIR	BO	T
2006	Codogno 001 DIR	CR	T
	Colle Sciarra 001 DIR A	TE	T
	Filici 001 DIR A	MT	T
	Fonte Filippo sud est 001	CH	T
	Longanesi 001	RA	T
	Ripalta 061 OR	BO	T
	Sillaro 001 DIR	BO	T
	Vitalba 001 DIR	CR	T
	Benedetta 001 DIR	Zone A	M
	Argo 001	Zone B	M
2007	Colle Sciarra 001 DIR B	TE	T
	Monte Pallano 001 DIR	CH	T
	Monte Pallano 002 DIR	CH	T
2008	Monte della Crescia 001 DIR	AN	T
	Cassiopea 001 DIR	Zone G	M
	Argo 002	Zone G	M
2009			
2010	Masseria Morano 001 DIR	AN	T
2011			
2012	Casa Tiberi 001	AN	T
2013	Gradizza 001	FE	T
	Sant'Andrea 001 DIR ST1	TV	T
2014			
2015			

Table 22 - Hydrocarbons discoveries. Oil. Time series 2005-2015.

Year	Name of well	Province/ marine zone	Location T:land/M:sea
2005			
2006			
2007			
2008	Ombrina mare 002 DIR	Zone B	M
2009			
2010			
2011			
2012			
2013			
2014			
2015			

Chart 14 - Number of discoveries. Time series 2005-2015.



Exploitation activities

Table 23 shows the time series of hydrocarbons production.
During 2015, hydrocarbons exploitation decreased if compared with the one of 2014: -5.8% for natural gas and -5.1% for oil.
As shown in Diagram 15 and 16, the last 10 year period was characterized by a first phase of constant decrease, with lowest values in 2009.
For what concerns oil, a more recent growth can be appreciated starting from 2010 and confirmed by 2015 exploitation data.
For natural gas, after a first positive peak started in 2011 and continued in 2012, exploitation activities began to decrease in 2013 and during 2015 a historical minimum was reached with 6.88 billion Sm^3.

Table 23 - Hydrocarbons exploitation. Time series 2005-2015.

	Gas (billion Sm³)			Oil (million t)			Gasoline (kt)		
Year	Onshore	Offshore	Total	Onshore	Offshore	Total	Onshore	Offshore	Total
1995	4,29	16,09	20,38	4,09	1,12	5,21	22,00	6,00	28,00
1996	4,09	16,13	20,22	4,39	1,04	5,43	17,00	5,00	22,00
1997	3,92	15,54	19,46	4,87	1,07	5,94	17,00	5,00	22,00
1998	3,64	15,53	19,17	4,08	1,52	5,60	18,00	4,00	22,00
1999	3,33	14,29	17,62	3,40	1,59	4,99	17,00	5,00	22,00
2000	3,66	13,11	16,77	3,20	1,36	4,56	25,00	6,00	31,00
2001	2,94	12,61	15,55	3,11	0,96	4,07	23,00	8,00	31,00
2002	2,79	12,15	14,94	4,47	1,03	5,50	22,00	11,00	33,00
2003	2,68	11,32	14,00	4,54	1,00	5,54	24,74	5,58	30,33
2004	2,38	10,54	12,92	4,46	0,95	5,41	23,00	6,00	29,00
2005	2,41	9,55	11,96	5,32	0,77	6,09	22,55	4,02	26,58
2006	2,33	8,51	10,84	5,06	0,70	5,76	20,87	3,03	23,90
2007	2,35	7,28	9,63	5,08	0,76	5,84	20,20	1,40	21,48
2008	2,26	6,81	9,07	4,69	0,53	5,22	22,31	0,67	22,99
2009	2,00	5,90	7,90	4,00	0,50	4,50	22,00	0,30	22,30
2010	2,10	5,80	7,90	4,40	0,70	5,10	25,00	0,20	25,20
2011	2,30	6,00	8,30	4,60	0,64	5,24	22,90	0,14	23,04
2012	2,47	6,07	8,54	4,90	0,47	5,37	19,54	0,13	19,67
2013	2,43	5,28	7,71	4,76	0,72	5,48	17,56	1,23	18,79
2014	2,42	4,86	7,28	4,99	0,76	5,75	15,72	1,45	17,17
2015	2,35	4,53	6,88	4,70	0,75	5,45	14,24	0,71	14,95

Chart 15 - Gas exploitation (billion Sm³). Time series 1995-2015.

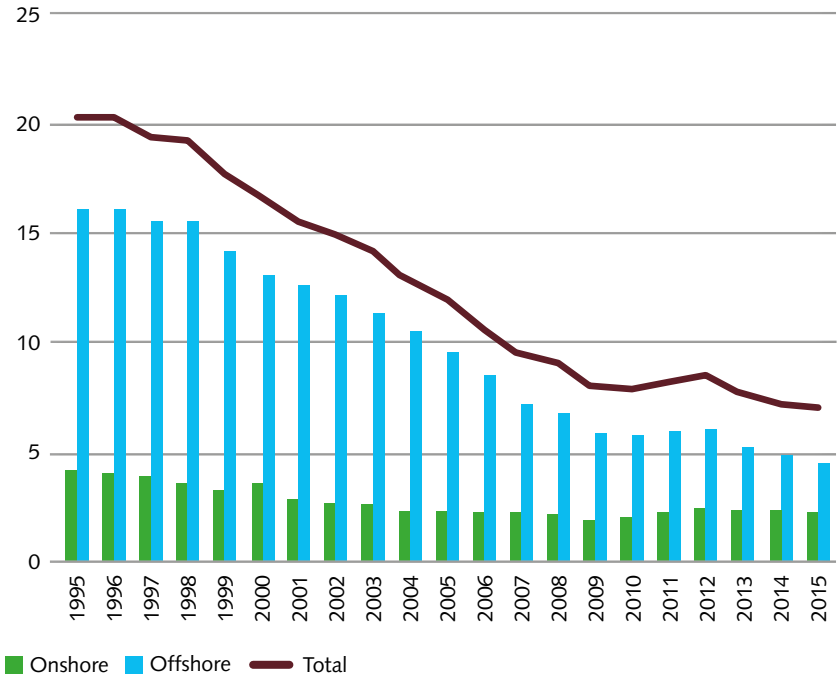
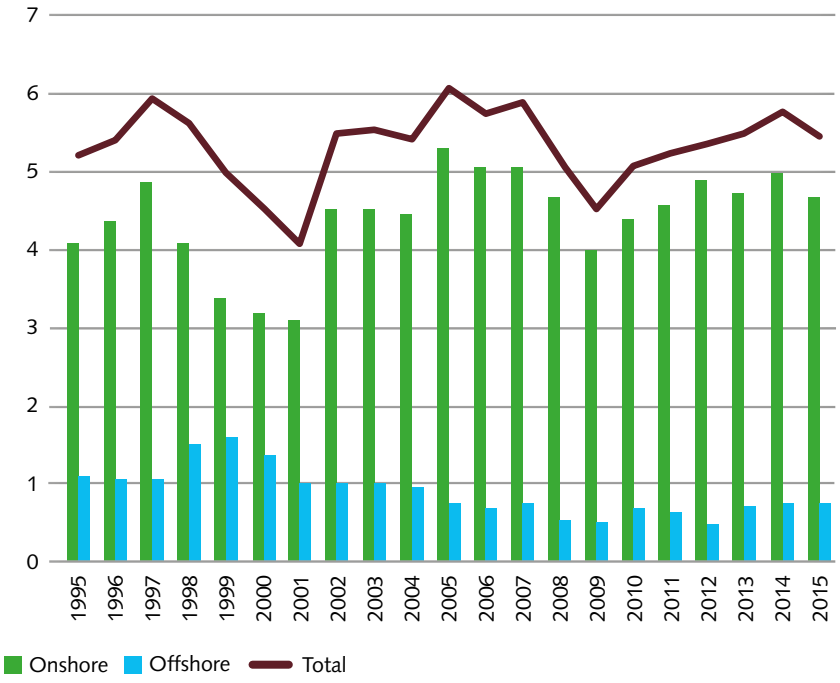


Chart 16 - Oil exploitation (million tonns). Time series 1995-2015.



Natural gas exploitation

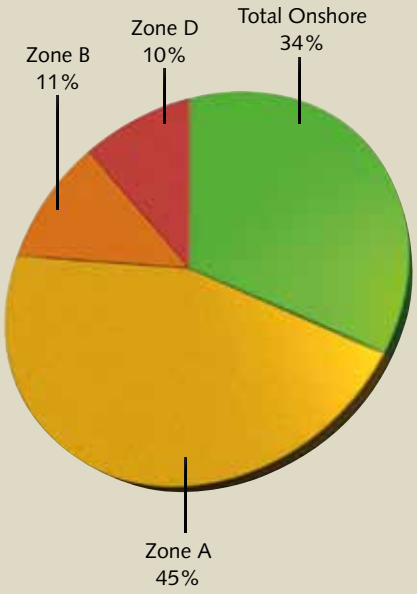
For what concerns natural gas, during 2015 the production was equal to 6.88 billion Sm^3, with a decreasing trend of 5.6% respect to 2014 production values (7.28 billion Sm^3).

The higher production, as shown in Table 24 and in Diagram 17, comes from the offshore licenses (4,52 billion Sm^3 that are 66% of national production) located in the Zone B (11% of national production) and in the Zone A (44% of national production) and from the onshore licenses (2,35 billion Sm^3 that are 34% of national production) located in Basilicata region (1,53 billion Sm^3 that are 22% of national production).

Crude oil exploitation

As for the crude oil, during 2015 the production was 5.46 million tonns of oil, with a decrease of 5.1% respect to 2014 production (5.75 million tonns).

Chart 17 - National gas production by area. Year 2015.



As shown in Table 25 and in Diagram 18, the production comes mostly from licenses located onshore (4.7 million tonns that are 86% of the national production), in Basilicata region (69% of national production) and in Sicily region (16% of national production).

Table 24 - Gas exploitation during 2015 divided per Region/Zone (million Sm³)

Region/Zone	2015	2014	Change % 2015/2014	national total%
Abruzzo	24,35	29,60	-18%	0%
Basilicata	1.526,73	1.471,45	4%	22%
Calabria	7,46	8,62	-13%	0%
Emilia-Romagna	168,00	225,06	-25%	2%
Lombardia	25,52	21,00	22%	0%
Marche	43,18	56,89	-24%	1%
Molise	75,32	66,17	14%	1%
Piemonte	10,15	14,02	-28%	0%
Puglia	235,09	253,70	-7%	3%
Sicilia	232,59	270,60	-14%	3%
Toscana	1,14	3,25	-65%	0%
Veneto	1,66	1,92	-14%	0%
Total Onshore	**2.351,19**	**2.422,27**	**-3%**	**34%**
Zone A	3.050,11	3.336,80	-9%	44%
Zone B	781,00	755,43	3%	11%
Zone C	5,57	3,83	45%	0%
Zone D	657,75	733,93	-10%	10%
Zone F	31,41	33,43	-6%	0%
Total Offshore	**4.525,84**	**4.863,43**	**-7%**	**66%**
Total	**6.877,03**	**7.285,71**	**-6%**	**100%**

Table 25 - Oil production in 2015, divided for Region/Zone (ktonns).

Region/Zone	2015	2014	Change % 2015/2014	national total%
Basilicata	3.767,25	3.978,72	-5%	69%
Emilia-Romagna	23,99	22,93	5%	0%
Lazio	0	0,06	-100%	0%
Molise	9,79	10,18	-4%	0%
Piemonte	35,37	48,64	-27%	1%
Sicilia	868,17	933,13	-7%	16%
Total Onshore	**4.704,57**	**4.993,65**	**-6%**	**86%**
Zone B	295,83	294,31	1%	5%
Zone C	247,05	232,37	6%	5%
Zone F	207,8	227,43	-9%	4%
Total Offshore	**750,68**	**754,12**	**0%**	**14%**
Total	**5.455,25**	**5.747,77**	**-5%**	**100%**

Production installations

867 production wells are operating in the exploitation licenses, 688 of which produce gas and 179 produce oil.

512 installations are located onshore and 355 offshore. The Table 26 shows the number of gas and oil wells divided by Region/Zone.

The produced hydrocarbons are addressed to the 77 storage and treatment installations and to the 14 oil production and treatment installations.

The Table 27 shows the number of gas and oil installations divided by Region. In the offshore, 135 installations are distributed with the different following purposes:

* 119 exploitation plants (included 13 underwater wellheads), 79 of which with producing (included 4 of the 13 underwater wellheads),
* 8 plants supporting production (compression or connection)
* 8 non-operating structures (pending the issuance of exploitation license).

During 2015, 2 new platforms were realized, both located in Zone B BONACCIA NW in the B.C 17.TO license and CLARA NW in the B.C 13.AS license.

Chart 18 - Crude oil production by area. Year 2015.

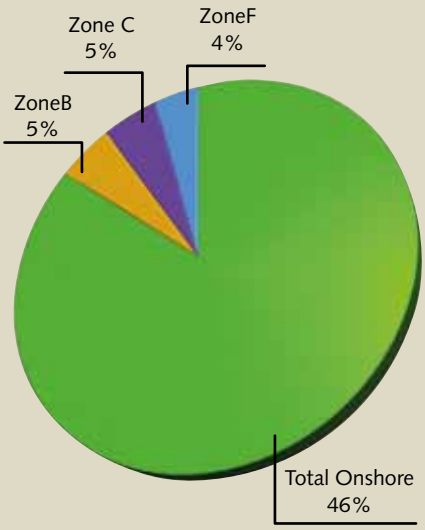


Table 26 - Production wells divided by Region/zone. Year 2015.

Region	Gas	Oil	Total
Abruzzo	3	0	3
Basilicata	11	24	35
Calabria	8	0	8
Emilia-Romagna	194	5	199
Lombardia	11	0	11
Marche	18	2	20
Molise	17	7	24
Puglia	45	0	45
Piemonte	0	4	4
Sicilia	44	73	17
Toscana	45	0	45
Total Onshore	**396**	**115**	**511**
Zone A	227	0	227
Zone B	40	31	71
Zone C	0	31	31
Zone D	25	0	25
Zone F	0	2	2
Total Offshore	**292**	**64**	**356**
Total	**688**	**179**	**867**

Part of the offshore produced crude oil is addressed to the 3 onshore oil treatment plants «MARIA A MARE», «CENTRO RACCOLTA OLIO PERLA E PREZIOSO», «TERZO CENTRO OLIO GELA» by pipeline transport. The remaining part of the oil is temporary stored in floating units (FSO and FPSO - floating storage and offloading and floating production storage and offloading respectively)[12].
Among Italian FSO it is possible to mention «ALBA MARINA» (for Rospo field in B.C 8.LF license), «FIRENZE FPSO» (for Aquila field in F.C 2.AG license) and «LEONIS» (for Vega field in C.C 6.EO license).
The complete list of producing wells, treatment and collection plants and offshore plants is available on the DGS website.

Table 27 - Number of storage and treatment installations divided by Region. Year 2015.

Region	Gas	Oil	Total
Abruzzo	6	0	6
Basilicata	7	2	9
Calabria	2	0	2
Emilia-Romagna	25	1	26
Lazio	0	1	1
Lombardia	8	1	9
Marche	15	1	16
Molise	2	2	4
Piemonte	0	1	1
Puglia	3	0	3
Sicilia	5	5	10
Toscana	2	0	2
Veneto	2	0	2
Total	**77**	**14**	**91**

Table 28 - Number of marine installations divided by zone. Year 2015.

Marine zone	Gas	Oil	Total
Zone A	74	0	74
Zone B	38	6	44
Zone C	0	5	5
Zone D	5	0	5
Zone F	1	2	3
Zone G	4	0	4
Total	**122**	**13**	**135**

[12]FPSO are floating systems of production, storage and offloading, composed by big oil tanker that can contain also treatment installations. They are bow moored vessels keeping a geostationary position. The oil produced from the platforms or from the subsea wellhead is transported on board by risers to be temporarily stored and, at the end, offloaded and transported onshore.

Table 29 - Marine facilities dicided by typology. Year 2015.

Type	Gas	Olio	Total
monotubolar	21	1	22
bitubolar	3	0	3
cluster	8	0	8
Reticular structure	79	10	89
Subsea wellhead	11	2	13
Total	**122**	**13**	**135**

Riserves

As for reserves data up to 31st December 2015, it has to be divided according to the international ranking among proved[13], probable[14] and possible[15], and it shows a reassessment of about 4.9% for gas and 2.75 for oil, compared to datum at 31st December 2014 and less the obtained production.

As for the location of proved reserves, the 55% of the total amount of natural gas is located in the offshore, whilst the 90% of crude oil reserves is located onshore, mostly in Basilicata Region *(Chart 19 and Chart 20)*.

In the present paragraph, the onshore reserves are classified respect to northern, central and southern Italy Region they are located in[16].

Table 30 - Riserves reassesed

	Reserves 2014	Production 2015	Reserves less the production of 2015	Reserves 2015 reassesed	Change %
Gas	53.713	6.877	46.836	49.122	4,9%
Oil	84.807	5.455	79.352	81.511	2,7%

[13]Proved reserves are those estimated quantities of hydrocarbons which, on the basis of geological and reservoir engineering data available, can with reasonable certainty (probability greater than 90%) be commercially recoverable, under the technical, contractual, economic and operating conditions existing at the moment considered.
[14]Probable reserves are those quantities of hydrocarbons which on the basis of geological and reservoir engineering data available, can be recovered with reasonable probability (greater than 50%), under the technical, contractual, economic and operating conditions existing at the moment considered; the elements of residual uncertainty may be related to the extension or other reservoir features (mining risk), the economics (at the conditions of the development project), the existence or suitability of the transportation system or selling market.
[15]Possible reserves are the quantities that are estimated to be recoverable with a significantly lower probability (largely below 50%) with respect to probable reserves, or which present worse economics with respect to the established limit.
[16]Northern Italy includes Val d'Aosta, Piemonte, Liguria, Lombardia, Trentino-Alto Adige, Veneto, Friuli Venezia Giulia, Emilia-Romagna Region; Central Italy includes Toscana, Umbria, Marche, Lazio, Abruzzo e Molise; Southern Italy includes Campania, Puglia, Basilicata e Calabria. Sicily is indicated separately while in Sardinia Region there is no hydrocarbon reserves.

Chart 19 - Natural gas proved reserves divided by region/Zone up to 31st December 2015.

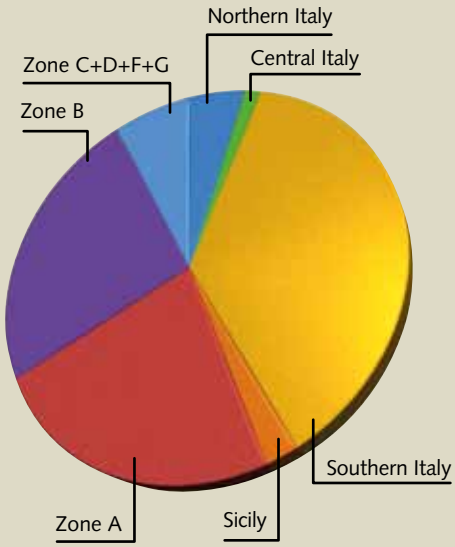


Chart 20 - Oil proved reserves divided by Region/Zone up to 31st December 2015.

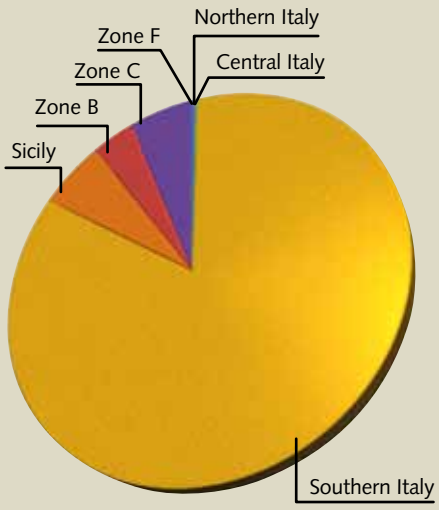


Table 31 - Natural gas reserves up to 31st December 2015.

	Gas (million di Sm³)			
	Proved	Probable	Possible	% Proved
Northern Italy	2.428	2.257	52	4,9%
Central Italy	704	1.287	224	1,4%
Southern Italy	17.697	20.800	11.603	36,0%
Sicily	1.058	1.312	660	2,2%
Total Onshore	**21.887**	**25.656**	**12.539**	**44,6%**
Zone A	11.380	8.375	3.228	23,2%
Zone B	12.452	6.952	3.704	25,3%
Zones C+D+F+G	3.403	11.375	2.458	6,9%
Total Offshore	**27.235**	**26.702**	**9.390**	**55,4%**
Total	**49.122**	**52.358**	**21.929**	**100%**

Table 32 - Oil reserves up to 31st December 2015.

	Oil (ktonns)			
	Proved	Probable	Possible	% Proved
Northern Italy	205	124	-	0,3%
Central Italy	59	2.353	741	0,1%
Southern Italy	68.715	78.243	51.314	84,3%
Sicily	4.826	4.600	2.729	5,9%
Total onshore	**73.805**	**85.320**	**54.784**	**90,5%**
Zone B	3.093	777	-	3,8%
Zone C	4.613	3.784	181	5,7%
Total offshore	**7.706**	**4.561**	**181**	**9,5%**
Total	**81.511**	**89.881**	**54.965**	**100%**

Royalties

In Italy, hydrocarbons deposits are public unavailable property (art. 826 of c.c). Private Companies that produce hydrocarbons, after the issuance of a license, have to pay royalties to the State, the Regions and the interested Municipalities, for such productions.
Royalties calculation is based on market prices of oil and gas. As for gas, its valorization cannot be lower than the QE value (index of the energy cost of the raw material gas defined by the Italian Regulatory Authority for Electricity Gas and Water), expressed in €/GJ and calculated for each quarter of the year.
During 2014, liquid hydrocarbons were valorized at the average price of the crude extracted from each license, on the basis of the direct sales of

the crude produced, or referring to the prices of similar crudes on the international market, taking into account the differentials of production yields. For gas production, the quantities allocated to the State were sold by the GME (Energy Markets Operator), via a dedicated platform reserved to production quota for the payment of royalties, which the operators of the natural gas market have access to.
The offer did not get bids at the minimum price put for the sale.
This price was equal to the QE 2014 (index of the energy cost of the gas raw material defined by the Authority in 2014), which proved to be too high for the gas quantities offered, even in the colder months (October-March). In this case, the sector regulation establishes that the same operators that put the gas on the market for royalty purposes shall retain the unsold lots for themselves and correspond to the State the QE value for those quantities.
It has to be considered that:

* the production quota that operators correspond to the State, the Regions and the Municipalities is determined only by the quantities in excess of a certain production threshold in each license,
* during 2015, operators paid fees for the sale of production quota of 2014 but also for the sale of the remaining production quota of 2013.

The final data of the royalty revenues are shown in Chart 21, including any payments made for specific law purposes (Fund for the reduction of the fuel price, pursuant to art. 45 of Law 23rd July 2009, no. 99; Quota for the protection of the marine environment and the safety of offshore facilities, ex art. 35 of Decree Law 22nd June 2012, no. 83).
The total royalties amounts paid during year 2015 were about 350 million euro. These data are reported on the DGS UNMIG website, together with the royalty revenues from the previous years, starting from 2008.

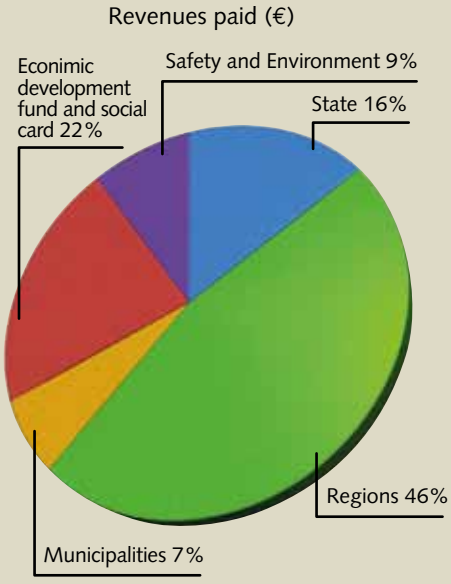
Table 33 - Proceeds from royalties in 2015 by recipients.

Recipients	Proceeds (€)
State	55.086.598,23
Regions	163.055.981,96
Municipalities	26.444.749,80
Econimic development fund and social card	75.997.733,08
Safety and Environment quota	31.399.849,63
Total	**351.984.903,70**

ITALIAN HYDROCARBONS POTENTIAL

In addition to the already discovered reserves, for which it is possible to have reliable estimations (as indicate in previous diagrams and tables), further hydrocarbons resources are available in the underground, that can be quantified only after additional new exploration activities. In fact, the almost total absence of new research activities in the last 5 years, besides threatening the substitution of consumed reserves, does not allow to improve knowledge about the hydrocarbons potential of our Country, deemed still significant and able to grant, in presence of a new start of research and development activities blocked in the last years, the accomplishment of the SEN objectives.

Chart 21 - Proceeds from royalties in 2015 by recipients.



The amounts related to the increase of 3% of the royalty rate that the holders of onshore exploitation licenses paid to the "Fund for promoting economic development measures and for the activation of a social card in the territories interested in liquid and gaseous hydrocarbons production", as established by the Law of July 23rd, 2009 no. 99 are equal to 76 M€.

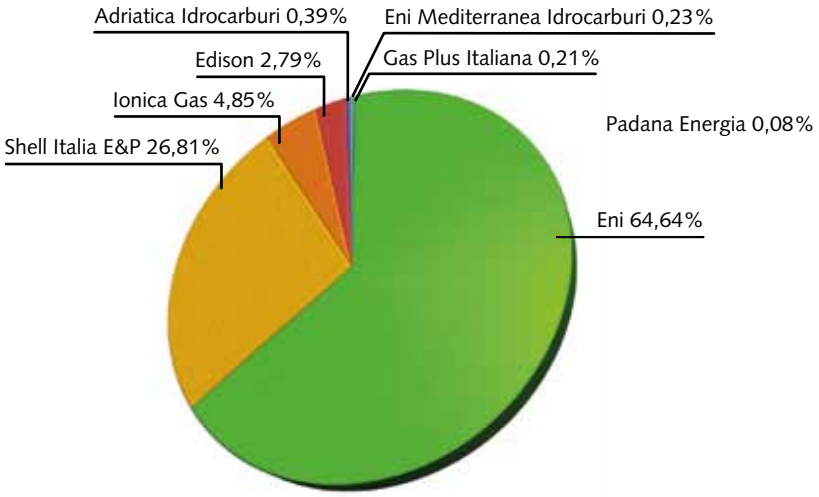
The revenues for the increase of 3% of royalty rate that the offshore licenses owners paid in agreement with art. 35 of the Decree Law of 22nd June 2012 no. 83, is about 31 M€.

The related amounts were totally paid to the State and were addressed 50% to the Ministry of environment and 50% to the Ministry of economic development in order to ensure the full implementation of surveillance and safety control activities, also environmental, on exploration and exploitation offshore installations.

In conclusion, the Table 34 and the Diagram 22 show the list of Operators that paid royalties for having produced hydrocarbons, in proportion to the amount paid in the 2015.

The Decree 30th October 2015, published on the G.U. of 27th November 2015, amending the Decree 17th July 2014 on recognition of executive office of non-generel level of the Ministry of economic development, transferred the royalties monitoring function to DGSAIE.

Chart 22 - Royalties revenues for the 2015. Payments made by Operators.



Natural gas storage

The underground natural gas storage is a process that allows the re-injection of gas into the porous rock of a depleted reservoir that just contained it before, bringing it back, to a certain extent, to its original state. Gas storage is needed to optimize the use of the national gas network, allow to manage the production facilities and transportation with adequate margins of flexibility, help to supply the national energy demand and, above all, to deal with situations of lack or reduction of supply, or crisis of the gas system (for example in the case of very harsh weather conditions or disruption of supply from foreign countries).

Table 34 - Royalties revenues for the 2015. Payments made by Operators.

Payments		
	Operators	Total revenues year 2015 (€)
1	Eni	227.534.982,97
2	Shell Italia E&P	94.379.041,92
3	Ionica Gas	17.067.901,25
4	Edison	9.809.432,02
5	Adriatica Idrocarburi	1.361.440,67
6	Eni Mediterranea Idrocarburi	815.149,52
7	Gas Plus Italiana	730.609,22
8	Padana Energia	286.346,13
	Total	**351.984.903,70**

The total storage capacity is divided into three categories (or kind of service):

* *strategic*, gas reserve with a supporting role for national gas system in case of emergency; it can only be used upon the decision of Ministry of economic development. This gas reserve is owned by the operator and therefore is not available to the gas market;
* *modulation* (commercial), service designed to satisfy modulation demands of daily, seasonal and peak consumption;
* *mineral*, service necessary for technical and economic reasons to always ensure the primary production of the natural gas fields in the Italian territory with the dual aim (i) to ensure flexibility of supply to the national production and (ii) take into account the risks of the production interruption.

THE EMERGENCY AND MONITORING TECHNICAL COMMITTEE

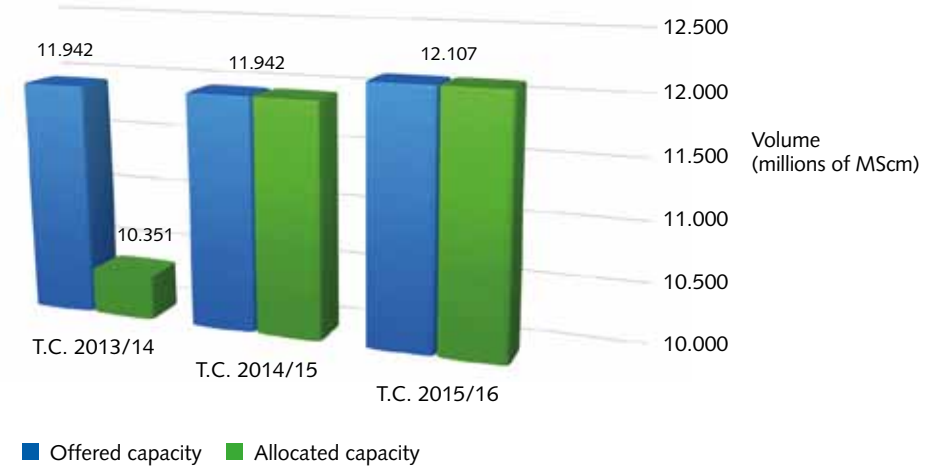
DGS UNMIG takes part in the Emergency Technical Committee and gas monitoring system, chaired by the General Director for Security of Supply and for Energy Infrastructures, which has the purpose, among other things, to plan the gas supply scenarios and to predict possible changes during the injection phase of gas into the reservoir (from 1st April and 31st October).

In order to promote the development of the national natural gas system, the commercial part of the storage capacity is assigned by auction procedures, as provided by art. 14 of Decree Law 24th January 2012 no. 1.
This procedure made the mechanisms of storage capacity allocation heavily dependent from summer-winter difference in the natural gas price (the "shippers" buy gas during summertime and store it into the storage reservoir, then they withdraw it during winter).
This effect can be viewed in the Chart 23 that shows the storage capacity allocation during the Thermal Cycle (from April to March of the following year) 2013/2014 e 2014/2015.

During winter period of thermal cycle 2014/2015, concluded in March 2015, the gas storage has contributed to the supply of the national system for about 10,5 billion of standard cubic meters (considering that the available gas capacity at 31th October was equal to 11,94 billion of standard cubic meters). This shows that the gas storage has played a central role in the supply scenarios of the Italian gas market.

Chart 24 shows the national gas demand recorded in 2015 and the different fields of use; the gas demand (consumption, net of losses) amounted to 65.560 million of standard cubic meters.
Comparing the 10,5 billion standard cubic meters withdrawn from storage during thermal cycle 2014/2015 and estimating a similar use (about 10,0 billion standard cubic meters) during the thermal cycle 2015/2016, you can evaluate that the supply of storage accounts for around 15% on gas demand.

Chart 23 - Comparison between offered and allocated storage capacity. Thermal Cycle 2013/2014 , 2014/2015 e 2015/2016.



Capacity and performance for the year 2015

Italy is the second UE Country for volume storage capacity *(Table 35 and Chart 25)*. For the thermal cycle 2014/2015 (1st April 2014 – 31st March 2015) a working-gas[17] equal to 11.942 MScm[18] was allocated, which must be added to 4.620 MScm of strategic storage, for a cumulative total of 16.562 MScm (stored in different reservoir located in Italy) with an increase of allocated capacity of 11% over the previous thermal cycle.
The maximum withdrawal capacity offered was equal to 290 MScm/d, the injection one equal to 136 MScm/d.
During 2015 also a good part of the activity of thermal cycle 2015/2016 (1st April 2015 – 31st March 2016) was developed; the injection phase takes place during the summertime, in the winter months instead takes place the withdrawal phase which will end in March 2016.

The allocation of storage capacity offered to the market is carried out according to competitive bidding procedures that take place before and during the injection phase. For the thermal cycle 2015/2016 was allocated a storage capacity amounting to 12.107 MScm, with an increase of approximately 1.5% over the previous thermal cycle.

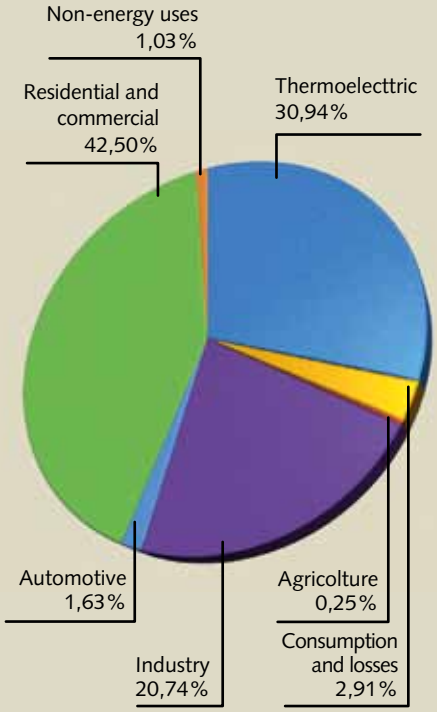
Developement project
During 2015, the construction of the new storage plant and related wells of the license "BORDOLANO STOCCAGGIO" (Stogit S.p.A.) were completed.
The reservoirs of "Bordonalo" e "San Potito e Cotignola" (Edison Stoccaggio S.p.A.) are both in phase of first re-filling.
The upgrading of the national storage system according to the Legislative Decree. 130/2010 has contributed to increase storage capacity for 2.642 MScm in five years; it is concluded according to the results of Decree Law no.145/2013.

Natural gas storage licenses and applications for license
The storage licenses currently operating in Italy are 12, of which 9 are managed by Stogit S.p.A. and 3 by Edison Stoccaggio S.p.A. ("Bordonalo" e "San Potito e Cotignola" are both in phase of first re-filling and so they don't contribute to their full potential), all realized in depleted gas reservoirs. In total the existing storage licenses are 15 (they are listed in Table 35).

Chart 24 - National gas demand recorded in 2015.

Field of use	Consumption (MSm³)
Thermoelectric	20.892
Consumption and losses	1.963
Agricolture	170
Industry	14.006
Automotive	1.100
Residential and commercial	28.698
Non-energy uses	694
Total	**67.523**

Source of data: MiSE, Energetic Statistic Observatory.

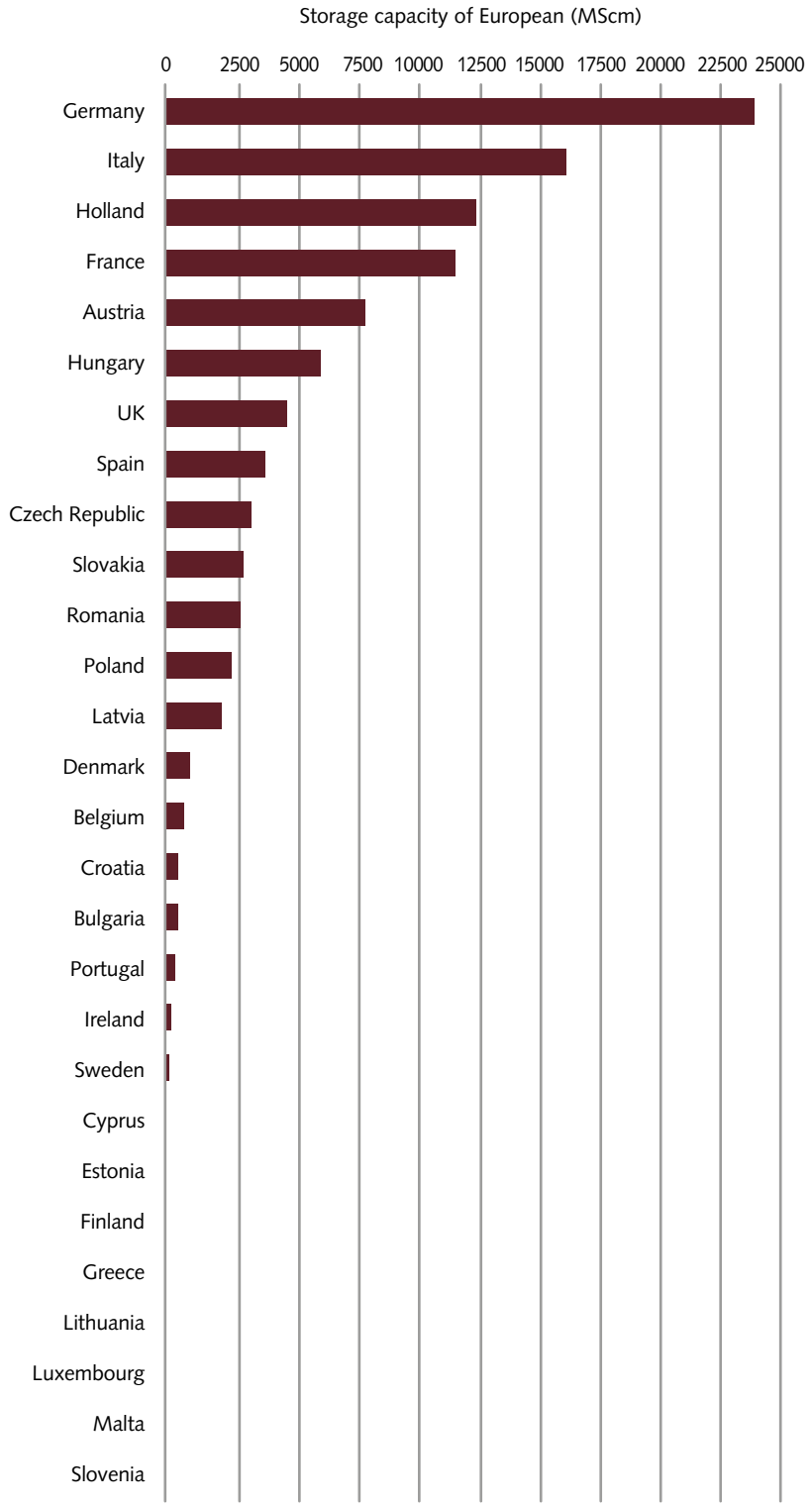


[17] Working Gas is the amount of natural gas that can be withdrawn or injected according to the market demand. It is not the entire gas present in the reservoir, in fact a part of it cannot be withdrawn in order to maintain an adequate minimum operating pressure (cushion gas). An amount of working gas is always stored in reservoir in order to ensure the strategic capacity (currently equal to 4.620 million of standard cubic meters). The use of such quantities of gas is set out by Decree of the Ministry of Economic Development, as required by D.Lgs.164/2000 and related implementation Decrees.
[18] Million standard cubic meters.

Table 35 – Storage capacity of European countries. Year 2015 *(by Gas Storage Europe Map).*

UE Country	MScm
Germany	24.566
Italy	16.562
Holland	12.900
France	12.008
Austria	8.250
Hungary	6.330
UK	5.040
Spain	4.103
Czech Republic	3.507
Slovakia	3.135
Romania	3.050
Poland	2.754
Latvia	2.320
Denmark	998
Belgium	700
Croatia	553
Bulgaria	550
Portugal	300
Ireland	230
Sweden	10
Cyprus	0
Estonia	0
Finland	0
Greece	0
Lithuania	0
Luxembourg	0
Malta	0
Slovenia	0
Total	**107.867**

Chart 25 - Storage capacity of European countries. Year 2015 *(referred to table 34).*



In the 15 storage licenses 359 wells were operating on 31st December 2015. The list of wells with some of their information is published on the DGS UNMIG website. Currently the procedures for the issuance of another five new licenses and the expansion of some existing licenses are ongoing.
More information on storage licenses, on the instances submitted to the issuance of new storage licenses and on storage plants are available on the DGS UNMIG website.

Table 36 - Natural gas storage licenses existing on 31st December 2015.

n.	Storage license	Operator	Region	Conferring date
1	Alfonsine Stoccaggio	Stogit S.p.A.	Emilia Romagna (Ravenna)	01/01/97
2	Bordolano Stoccaggio	Stogit S.p.A.	Lombardia (Brescia, Cremona)	06/11/01
3	Brugherio Stoccaggio	Stogit S.p.A.	Lombardia (Milano)	01/01/97
4	Cellino Stoccaggio	Edison Stoccaggio S.p.A.	Abruzzo (Teramo)	10/12/84
5	Collalto Stoccaggio	Edison Stoccaggio S.p.A.	Veneto (Treviso)	16/06/94
6	Cornegliano Stoccaggio	Ital Gas Storage S.r.l.	Lombardia (Lodi)	15/03/11
7	Cortemaggiore Stoccaggio	Stogit S.p.A.	Emilia Romagna (Piacenza, Parma)	01/01/97
8	Cugno Le Macine Stoccaggio	Geogastock	Basilicata (Matera)	02/08/12
9	Fiume Treste Stoccaggio	Stogit S.p.A.	Molise - Abruzzo (Campobasso - Chieti)	21/06/82
10	Minerbio Stoccaggio	Stogit S.p.A.	Emilia Romagna (Bologna)	01/01/97
11	Ripalta Stoccaggio	Stogit S.p.A.	Lombardia (Cremona)	01/01/97
12	Sabbioncello Stoccaggio	Stogit S.p.A.	Emilia Romagna (Ferrara)	01/01/97
13	San Potito E Cotignola Stoccaggio	Edison Stoccaggio S.p.A.	Emilia Romagna (Ravenna)	24/04/09
14	Sergnano Stoccaggio	Stogit S.p.A.	Lombardia (Bergamo, Cremona)	01/01/97
15	Settala Stoccaggio	Stogit S.p.A.	Lombardia (Lodi, Milano)	01/01/97

Thanks are due to Edison and Eni Companies for the granting of photos from their own archives.

DGS UNMIG - Annual Report 2016
Activity 2015

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