



*Ministry of Economic Development*

## DEPARTMENT FOR ENERGY

General Direction for Mining and Energetic  
Resources

Annual Report 2011

Year 2010



# Year 2010 report

## Summary

|   |    |
|---|----|
| INTRODUCTION .....  | 5  |
| 2010 YEAR .....   | 5  |
| 1. Organization.....  | 6  |
| 2. Activities.....  | 6  |
| Relations with the Regions – protocols agreements .....                       | 7  |
| The CIRM .....  | 8  |
| After the blow-out at the Macondo well.....                                   | 8  |
| The environmental corrective .....  | 8  |
| The website.....  | 9  |
| HYDROCARBONS AND GEOTHERMAL RESOURCES .....                                   | 10 |
| 3. Hydrocarbons exploring activities.....                                     | 10 |
| Exploration and exploitation drilling operations .....                        | 10 |
| Explorations and findings .....   | 10 |
| Mining rights .....   | 10 |
| 4. Hydrocarbons for production - Royalties.....                               | 10 |
| Production .....  | 10 |
| Gas production .....  | 11 |
| Oil production.....   | 11 |
| Estimated reserves.....   | 11 |
| Royalties.....  | 11 |
| 5. Gas storage.....   | 12 |
| Capacity 2010 .....   | 12 |
| New plants.....   | 12 |
| Overpressure.....   | 13 |
| Legislative Decree n. 130/10 .....  | 13 |
| 6. CO <sub>2</sub> storage.....   | 14 |
| CCS Directive Acceptance .....  | 14 |
| 7. Geothermal resources.....  | 14 |
| 8. Southern Italy methane distribution network .....                          | 15 |
| ENVIRONMENT AND SAFETY .....  | 16 |
| A. Accidents .....  | 16 |
| B. Chemical and environmental surveys.....                                    | 17 |
| C. Explosives.....  | 18 |
| TABLES AND DIAGRAMS.....  | 19 |
| 1. Aim classified drilling activity – Historical series years 1990-2010 ..... | 19 |
| 2. Number of drilled wells and depth – years 1990-2010 .....                  | 20 |
| 3. Finds while exploring – Historical series years 2002 - 2010 .....          | 21 |
| 4. Finds map – years 2002-2010 .....  | 22 |
| 5. Exploring permits and finds trend - years 1993-2010 .....                  | 23 |
| 6. Hydrocarbons mining titles – Historical series years 1990-2010 .....       | 24 |
| 7. Onshore mining titles .....  | 25 |
| 8. Offshore mining titles .....   | 26 |
| 9. Hydrocarbons production – Historical series years 1990-2010.....           | 27 |
| 10. Marine region/zone gas production.....                                    | 28 |
| 11. Marine region/zone oil production .....                                   | 29 |
| 12. Reserves on December 31 <sup>st</sup> 2010 .....                          | 30 |
| 13. Recoverable reserve and accumulated production- years 1990-2010 .....     | 31 |
| 14. Year 2009 royalties .....   | 32 |
| 15. Year 2009 royalties – art. 45 99/2009 Act.....                            | 33 |
| Hydrocarbons exploration, exploitation and storage map .....                  | 34 |



## INTRODUCTION

### 2010 YEAR

This year's Annual Report as a usual appointment provides summarized data and information about last year activity taking into account that year 2009 has been studied by relevant events.

Deep Water Horizon oil rig accident in Gulf of Mexico at the end of April marked a total change in hydrocarbons exploration and exploitation operations and the extent of such a disaster requires a serious remark upon its effects.

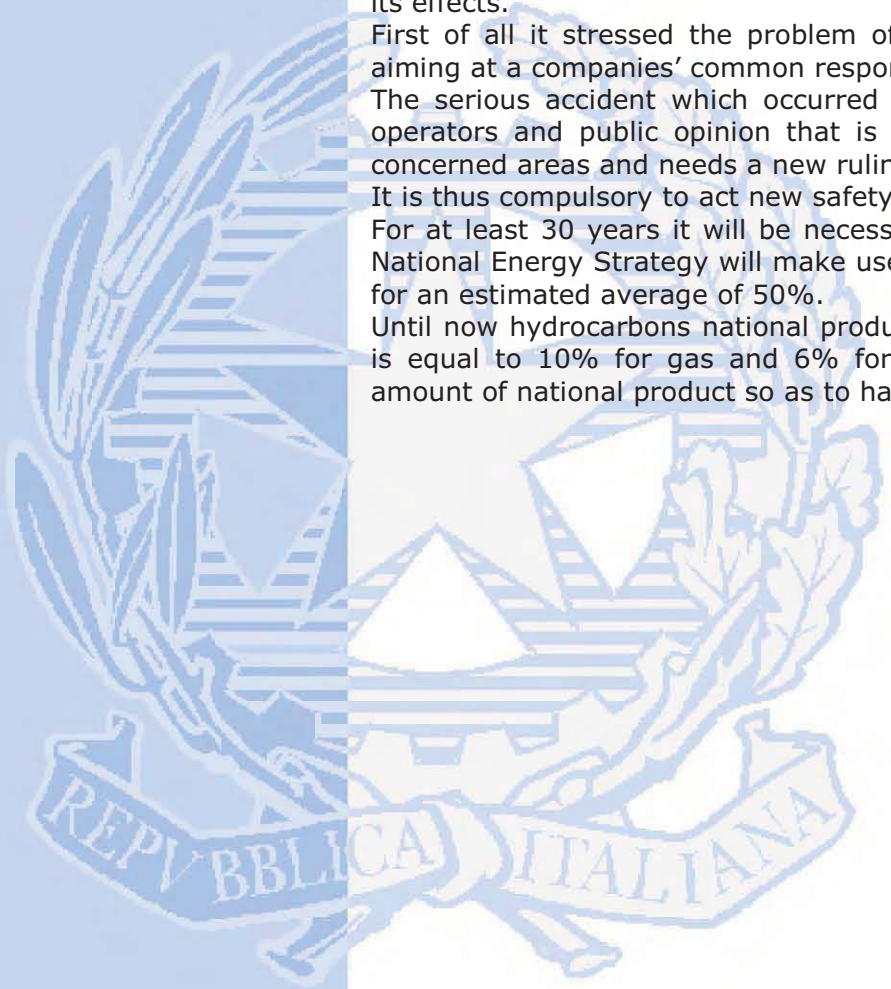
First of all it stressed the problem of field industry technological capacities aiming at a companies' common responsibilities.

The serious accident which occurred undermined the mutual trust between operators and public opinion that is necessary for companies' presence on concerned areas and needs a new ruling set.

It is thus compulsory to act new safety measures hereafter described.

For at least 30 years it will be necessary to get hydrocarbons energy as the National Energy Strategy will make use anyway up to year 2030 of fossil fuels for an estimated average of 50%.

Until now hydrocarbons national production share on whole consumption rate is equal to 10% for gas and 6% for oil and it is important to keep some amount of national product so as to have good energy supplies.



## 1. Organization

General Directory for Energy and Mining Resources has been charged with government competences for mining sector such as: Mining National Office for Hydrocarbons and Geothermal Energy (UNMIG), guide-lines and development programs set up, relations with international bodies in mining resources sector for exploration and exploitation of mining waters in international seas, third countries promoting development programs, agreements with local authorities and administrations on homeland to ensure new procedures within exploration and exploitation of mining and geothermal resources, carbon dioxide capture, transportation and storage, a ruling system for energy production, transport and storage facilities and finally mining safety.

Further to D.M. May 7th 2009 "Ministry of Economic Development not-general Managerial Offices" have been set up tasks for the eight Divisions that compose the General Directory for Energy and mining Resources. In detail the organization is as follows:

---

### DIVISION

---

*I Division – Mining National Office for Hydrocarbons and Geothermic Resources (UNMIG) – UNMIG Direction*

*II Division – Bologna UNMIG Section*

*III Division – Rome UNMIG Section*

*IV Division - Naples UNMIG Section*

*V Division – UNMIG’s Laboratories for tests and analysis in mining and energetic sector*

*VI Division –Development of hydrocarbons and geothermic resources exploration and exploitation*

*VII DivisionI – Natural gas storage , CCS*

*VIII Divisione –Relationship with Regions, local authorities, international and European Unity’s bodies; Royalties*

---

Territory competences widen both all over continental Italy where mining titles release is carried out together with regional authorities and marine areas under government jurisdiction.

In the Sicilian Region, the exploration and production of hydrocarbons is a matter of URIG (Regional Office for Hydrocarbons and Geothermal Energy). The body responsible for the Region of Sardinia is the Service Industry Mines Department.

## 2. Activities

- Governmental delegation carrying out as provided by 99/9 Act ("Development Act") as far as the geothermal resources exploration and exploitation ruling reorganization enforced by legislative decree February 11<sup>th</sup> 2010, n. 22.
- Harmonization of regulatory changes introduced by the same development law in hydrocarbons subject with the enactment of Ministerial Decree of April 26th 2010, by new disciplinary rules for hydrocarbons exploration and exploitation, which replaces the previous one in force since 1991.

With Chapter II of Title VI of the Decree were put into force the provisions of paragraph 1 of Article 7 of Decree Law No 135, September 25th, 2009, converted by Law No 166, November 20th, 2009. This rule states that protection level provided by gas

measurement rules, for hydrocarbons domestic production for a proper functioning of the national gas system and under law force, is ensured by the construction and management of same system in a way set up by the Ministry of Economic Development.

- The company owners are adopting guidelines so as to make them consistent with those expected in the distribution sector. The rule provides an early adaptation of a two year period renewable for a time not exceeding five years (Article 48). As a first requirement from October 1st 2010 hours daily measure of extraction are available from 6:00 a.m. up to 6:00 a.m. of following day.
- In view of the change in the procedural framework established by Law 99/09 on the proposal of the Ministry of Economic Development, adopted by the Conference of Presidents of Regions and Autonomous Provinces of Trento and Bolzano, in the year 2010 was made a joint working group with the joint task of preparing a proposal for a revision of the existing State-Regions, which dates back to April 24th, 2001, "the procedural rules to be adopted for the arrangement between the State and the Regions, on the functions administrative provisions relating to prospecting, exploration and production of hydrocarbons in the mainland, including those of mining regulations. "The work of the technical committee have been completed in the last meeting held on September 28th 2010, leading to a shared document that forms the basis for further discussion and signing in the State-Regions Conference.
- As part of the institutional responsibilities related to the development of guidelines for the sector during 2010, it was established a technical board for problems arising from the application of Legislative Decree No. 117/2008 on the management of mining waste following to notes no. 132 448 on 20th November 2009 and No. 1719 of the General Directorate for the Quality of Life January on 28th, 2010 the Ministry for the Environment, and Protection of Land and Sea. On March 9th, 2010 were analyzed and evaluated the first two issues that gave rise to the issue of the relevant technical advice No [AE/01/2010](#) of June 17th, 2010 - "guidelines for better implementation of Legislative Decree No. 117/2008 to the research and production of oil and gas storage and No [AE/02/2010](#) of October 21st, 2010 - "aim of Legislative Decree n.117/08 the so-called" quarrying limits", both of them published on Directorate website.
- Ministerial Decree of March 29th 2010 on the expansion of the Marine Area "G", by which it was given a more coherent structure to the areal extent of the aforesaid marine area in the Italian continental shelf.

### **Relations with the Regions – protocols agreements**

On February 22nd 2010 was signed an Agreement Protocol with [Lombardy Region](#), with the previous one signed in 2009 with [Calabria Region](#). Such protocols have to be enforced within 2011. The General Directorate has signed an agreement protocol with some bodies such as ANIM - National Association of Mining Engineering, AITEC - Italian Association of Technical Economic Cement Assomineraria - Italian Association of Mining for mining and oil GEAM - Association of Geo-resources and Environment, University of Milan - Bicocca (CRIET - Center for Interuniversity Research in Economics of the area) that has significant experience in mining management studies. The initiative includes a collaboration between all stakeholders with the aim of stimulating a "Raw Materials Laboratory" for sustainable development in the

sector "with the involvement of all stakeholders on the development of mineral resource for social and economical growth in a given territory.". The goal is to get within 2011 a database and a web portal to gather and give information on raw materials in Italy.

### **The CIRM**

For its jurisdiction on institutional activities the General Directorate shall request the Commission for Hydrocarbons and Mineral Resources' (CIRM) opinion. Such a Commission, established by a President of the Republic Decree on May 14th, 2007, no. 78, is the technical-advisory committee for permits and concessions (CIRM A) release, safety of working (CIRM B) and royalties (CIRM C). During the year 2010, the Commission met five times, two out of them for the "A " section and examined 28 applications relating to mining rights.

### **After the blow-out at the Macondo well**

Following the accident occurred on April 20th 2010 at the oil rig "Deepwater Horizon" in the Gulf of Mexico, started on May 3rd an emergency plan of checking and surveys on Italian off-shore activities located oil wick brought to a security system for oil rigs operating in the Italian seas. It was verified the status of production facilities and oil wells for an amount of 9 platforms and 70 wells. Moreover at the disposal of the Minister, on May 5th it was set up a working group within the Commission for Hydrocarbons and Mineral Resources in order to acquire information about causes and circumstances of the accident occurred. The final works were submitted to the Commission in July. At the EU level members states joined the meetings of the supervisory authorities in order to identify a common strategy, new procedures and safeguards for the activities of oil exploration in deep waters.

### **The environmental corrective**

On the wave of the emotion at the event occurred in the Gulf of Mexico entered into force on June 29<sup>th</sup> 2010 the Legislative Decree No. 128 amending and supplementing Legislative Decree April 3<sup>rd</sup> 2006, no. 152 in environmental matters. The standard rule includes a specific provision relating to the hydrocarbons off-shore exploration and production.

Specifically, the provisions of art. 2, paragraph 3, letter h) adds a paragraph to Article 17. 6 of Legislative Decree no. 152/2006, amending the rules on the conduct of research and production of oil and gas near the coast and marine protected areas. The rule imposing a ban on research, exploration or exploitation of oil and gas in coastal and marine areas protected in any capacity for environmental purposes, as well as outside it, in marine areas placed within twelve miles of the above protected areas. Moreover it provides the same prohibition, applicable only to liquid hydrocarbons, within five miles from the baselines.

Following to the entry into force of the rule, the offices of the Directorate, by necessary required elements, prepared a cartographic base to verify the



interference of all applications received and licenses applicable to the off-limits areas, even measuring the interference percentage. Thereafter as far as research permit applications are concerned letters of rejection notice. In case of possible area re-definition, interlocutory letters for areas definition if they observe prohibitions coming from research objectives. Some critical aspects concerning the application of the standard are still subject to explicit questions submitted to the competent legislative offices. The ruling standard has a significant impact on the industry in terms of employment and is also relevant that one on primary revenue and missed royalties. On the contrary, the positive impact in environmental terms is quite small because the sea-overlooking countries are heavily engaged in research and development of new fields beyond the Italian continental shelf.

### **The website**

Data disclosure is done through the website <http://unmig.sviluppoeconomico.gov.it>, which, along with information on administrative processes under way, provides a set of data of general interest such as hydrocarbons production, royalties paid by companies to the Government, regions and municipalities, reflection and refraction seismic surveys, wells and oil-rigs list, as well as a space dedicated to national and local legislation.

Most relevant data (production, licenses, projects) related to the geographical area or with the local marine area of reference are supervised by " Local Monitoring " and "Sea monitoring " set up on a local scale. It was also renewed the field map with the publication of the new licenses maps and facilities on a local scale.

Finally database established by 'National Inventory of geothermal resources, "according to law no. 896/86, consisting of local reports, geothermal springs and wells database. The data are available on the website thanks to an agreement between the UNMIG and the Institute of Geosciences and Earth Resources of the National Research Council.

On the website is published the Official Bulletin of Hydrocarbons and Geothermal Resources (BUIG), established by Law 11.01.1957, n. 6, the official monthly report that enlists new titles release, new operating titles and besides news and announcements related to the business of exploration and production of oil and geothermal resources.

During 2010 has been added French version after those already published in English, Spanish, Russian and Arabic.

Access statistics for 2010 indicate a number of visited pages for an amount of about 1,250,000 and a number of unique hits of around 191,000.

# HYDROCARBONS AND GEOTHERMAL RESOURCES

## 3. Hydrocarbons exploring activities

### Exploration and exploitation drilling operations

During year 2010 have been carried out three exploratory drilling purposes, all of them onshore, for a total amount of 4,183 drilled meters, with a decrease of about 25% compared to previous year. Twenty-eight development wells five out of them for gas storage, for a total amount of 8,200 meters.

### Explorations and findings

In 2010 there was only one finding within an exploitation concession. It is significant that there is a lack of findings in exploration permits. This is more likely due to both the mining risk and the small number of exploratory drills carried out.

### Mining rights

At December 31st 2010 there are 117 operating exploration permits (out of which 92 are onshore and 25 offshore) and 198 exploitation licenses (out of which 132 onshore and 66 offshore).

A mining title area is defined according to criteria established by law, usually a few square kilometers. It is an area where only the owner can operate and is much higher than that actually occupied by plants (well areas, power plants and processing facilities), usually a few hectares.

Territories falling within a mining right are therefore not affected by exploration and extraction except for small areas with granted permission where take place operations.

In order to make more evident the activities reduced impact over di whole title area, during 2010 on the website were published, under "Cartografia", the new maps of mineral rights and equipment, where with a detailed description are listed the actual owners and operators in the area.

## 4. Hydrocarbons for production - Royalties

### Production

In 2010 gas production in Italy has been steady (+0.4%) while for oil increased reaching about 13% compared to the previous year, but comparing data with the production as far as December 31st 2008 there was a reduction of approximately 12% for gas and 3% for oil.

## Gas production

In 2010 natural gas production was 7.94 billion Sm<sup>3</sup>. The figure is slightly positive even if viewed in the light of the historical production that highlights the increasing depletion of advanced exploration old national fields.

In this respect it is undoubtedly a significant role starting production of gas-field "AnnaMaria in March 2010 located over the line of delimitation of the continental shelves of Italy and Croatia and is the subject of agreements between the operators of the respective joint ventures for a joint exploration work. Gas production is approximately 0,8 MSm<sup>3</sup> a day.

## Oil production

In 2010 oil production was 5.08 million tonnes.

The approximately 82% of national production comes from onshore fields in Basilicata and Sicily Regions, while offshore operations contribute for a share of about 14%. In particular, in the Basilicata Region oil production will be able to be increased by about 13% compared to the current annual production if it were carried out development projects planned, about which the approval process was not completed yet.

## Estimated reserves

The ratio of recoverable gas reserves and annual production is around 13 years. There have been some relevant revaluations for likely and possible onshore reserves.

The recoverable reserves compared with a production of 7.94 billion Sm<sup>3</sup> amounting to 103 billion Sm<sup>3</sup>, are revalued by 11 billion Sm<sup>3</sup>.

As for oil reserves, relevant revaluations have occurred for those likely ones occurring onshore that increased from 72 million tonnes at December 31<sup>st</sup> 2009 up to 168 million tonnes at December 31<sup>th</sup> 2010. The reserves location shows a significant datum: about 94% of the national amount is located onshore chiefly in Southern Italy (72%).

## Royalties

July 23<sup>rd</sup> 2009, Act n. 99, provided by the article 45 a fund for reduction of filling stations fuel price for residents in areas where there is a production of hydrocarbons, supported by increasing from 7 to 10% of product rate paid by hydrocarbons production licenses' holders.

Some procedures have been defined on behalf of residents in areas covered by the benefits provided by the Decree on November 12<sup>th</sup> 2010 issued by the Ministry of Economy and Finance in agreement with the Minister for Economic Development

The Directorate on December 29<sup>th</sup> 2010 approved and signed an agreement with Italian Postal Service Society for the delivery of benefits through a special electronic paper called "bonus hydrocarbons", distributed to the holders listed by the decree. Basilicata Region in view of the considerable oil and gas production endowed with, is the most affected region by this decision. It will lead to a direct distribution to aged residents with driving licenses. 2010 was the first year of payments being directed to the aforesaid fund by the concession holders. Data are published on the

website. During 2011 there will be the Convention implementation by "hydrocarbons bonus cards."

Another important innovation in royalties has occurred with the enactment of the Decree of the Minister of Economic Development August 6<sup>th</sup> 2010 that changed the way by which natural gas producers sell some product rates earmarked to the State by an agreement of Manager of Energy Markets Co. (GME). Procedures for rates negotiation are carried out by auction sale. The law provides that a holder has anyway to pay to Government fiscal system a minimum value equivalent to the QE (*energy rate for gas raw material cost*). Adoption of this provision implies a minimum value that goes beyond any downward fluctuations in the offer market and which against the above provisions. Rates long period sales until March of following year entails that payments refer to two different financial years. So there is a delay in publishing payments complete data on the website.

## 5. Gas storage

### Capacity 2010

Currently active storage fields in Italy are 10, all of them located by exhausted fields gas, while there are 13 operating concessions. Natural gas storage capacity at December 31<sup>st</sup> 2010 is about 14.7 billion standard cubic meters (MSm<sup>3</sup>) 5100 MSm<sup>3</sup> out of which for strategic storage.

The whole granted storing space is of 14,774 MSm<sup>3</sup>, while the total amount gas distribution traffic during the solar year was of 16,361 MSm<sup>3</sup> out of which 7957 MSm<sup>3</sup> for distribution and 8404 MSm<sup>3</sup> for injection with a reduction of 915 MSm<sup>3</sup> compared to 2009.

| Storage sites        | Working gas <sup>1</sup><br>[MSm3] |
|----------------------|------------------------------------|
| <i>Brugherio</i>     | 158                                |
| <i>Cortemaggiore</i> | 650                                |
| <i>Sergnano</i>      | 1.600                              |
| <i>Minerbio</i>      | 1.421                              |
| <i>Ripalta</i>       | 1.312                              |
| <i>Sabbioncello</i>  | 585                                |
| <i>Settala</i>       | 1.160                              |
| <i>Fiume Treste</i>  | 2.350                              |
| <i>Collalto</i>      | 320                                |
| <i>Cellino</i>       | 118                                |
| <b>Total</b>         | <b>9.674</b>                       |

### New plants

In June started a new site for concession granted in 2009 called "San Potito-Cotignola (915 MSm<sup>3</sup> working gas).

<sup>1</sup> without strategic storage

During the year work of the "Collalto" plant went on; within the first six months of 2011 it will allow a 355 MSm<sup>3</sup> field capacity storage.

An important contribution to increasing security energy by increasing gas storage capacity will be reached within the next year, by the release of four concessions ("Cornegliano", "Cugno the ground", "Serra pizza" and "Sinarca ") to new operators with putting into operation "Bordolano" concession and an overpressure on some existing concessions.

With regard to the Cornegliano concession (1,300 MSm<sup>3</sup> working gas) the Conference Services work ended and its decree will be likely enforced in agreement with the Ministry of Environment within the first months of 2011.

As for "Cugno Le Macine" and "Serra Pizzuta" (800 MSm<sup>3</sup> working gas) a services conference is still going on and one is awaiting a Basilicata Region resolution on the Ministry's claim in November 2009.

For "Sinarca concessions"(324 MSm<sup>3</sup> working gas) and for "Bordolano concession " (1,200 MSm<sup>3</sup> working gas) facilities extension works the service conference works are still going on. For the latter, we are awaiting for the Lombardy Region resolution after the Ministry's claim on last March 2010.

### **Overpressure**

After a long period of testing and EIA procedures it was released on last October an authorization to operate under positive pressure (107%) of the "Settala concession" (500 MSm<sup>3</sup> increase of working gas).

In May at the end of the second experimental period by 107% for the "Sergnano concession" (350 MSm<sup>3</sup> increase) was made an application for activities. On last October a further three months trial period has been authorized so as to get more technical elements.

A second phase of the trial by 110% was authorized for the "Ripalta concession" (300 MSm<sup>3</sup> increase) for 2010-2011 cycle storage..

### **Legislative Decree n. 130/10**

On August 18<sup>th</sup> 2010 was enforced the Legislative Decree 130/2010 about "Measures for increased competitiveness in the gas market and the transfer of the accruing benefits to customers, under the Article 30, paragraphs 6 and 7 of July 23<sup>rd</sup> 2009, n. 99, Act.

The decree which includes measures to encourage growth of a new storage capacity provides a development up to 8 billion Sm<sup>3</sup> in the same capacity. The first 4 billion Sm<sup>3</sup> are reserved for operators who want to hold a wholesale market share exceeding 40% up to 55%, while the remaining 4 billion can be developed even by other storage companies.

It is expected an investors contribution to projects (industrial customers, PMI and its spin-off and thermoelectric) who will be able to have space for gas storage. Taking into account the storage facilities long times special "financial measures" are provided in order to ensure to investors for a 5 years period issues like those that they would immediately get for the new storage capacity.

Under article 4, paragraph 1 of the same Decree, on last July have been published on the website of the Directorate with the tables for storage projects in the existing concessions to develop new capacities not yet authorized to activity. Data will be updated annually on the basis of Company supplied data.

## 6. CO<sub>2</sub> storage

### CCS Directive Acceptance

CO<sub>2</sub> carbon capture and storage is considered a strategic element for European energy policy as a transitional technology that will help the climate change according to preliminary estimates the 20% reduction in emissions of greenhouse effect gases within 2020.

The directive's adoption will make available to operators a national regulatory set for implementation projects under the European Programme for Energy Recovery (EEPR).

The 2009/31/EC Directive aims to establish a common legal set on European scale for a safe geological storage of carbon dioxide, with the aim of contributing to the fight against climate change.

The Directive provides:

- a competent authority choice
- storage areas
- storage activity database
- granting permission procedures for storage activity and any possible previous survey for site suitability
- well shut off and closing down obligations, financial guarantees
- operators financial guarantees checking
- monitoring and inspections

The directorate examined the European Directive 2009/31/EC on carbon dioxide geological storage a long time before June 4<sup>th</sup> 2010, No 96 - Community Act 2009 - which provides principles and guidelines to be followed in the preparation of legislative decree.

Since the year 2009 due to complexity and importance of the subject it was established a working group that prepared an implementation draft on the basis of the text of the Directive. With the information included in the Community Act 2009, which identified the Ministry for European Policy, Economic Development and Environmental as contracting proposers and the Ministry of Foreign Affairs, Justice and Economic administrations in agreement, it was possible to set up a legislative decree draft.

The agreed text is being transmitted to the Ministry for European Policies for sharing with the government administrative bodies.

The acceptance, as established by the Directive, will occur by June 25, 2011.

The outline of legislative decree provides that activities relating to storage are carried out on the basis of exploration licenses and storage concessions. At the end of the activity is to be approved the storage site closing down and the responsibility transfer from the operator to Government.

## 7. Geothermal resources

Legislative Decree 31 March 1998, No 112 delegated to Regions administrative functions and exploration permits control as well as exploitation concessions for geothermal resources onshore.

On the basis of the ruling delegation set by art. 27, paragraph 28 of "Development Act" n. 99/2009 at the beginning of the year 2010 was issued the Legislative Decree n. 22 of February 11th 2010 about rearrangement and

reorganization of the legislation about geothermal resources exploration and production, after a meeting with the State-Regions Permanent Conference for Relations between Government, Regions and autonomous provinces of Trento and Bolzano and within a period of time fixed by law.

The rule, which repealed the earlier provisions laid down by Law No 896/86, aims to encourage use of geothermal energy "renewable" resource by means of simple procedures for low-enthalpy geothermal resources in accordance with the international agreements so as to reduce carbon dioxide emissions. That will bring to opening of a competitive system that will ensure a transparent and non discriminatory geothermal resources grant. Besides this law makes the ruling set simpler to get permits. In this way new projects can be easily implemented to enhance the use of geothermal energy.

On last November 2010 started a permanent teamwork on geothermal energy with the participation Regions power in order to update an inventory data on geothermal resources exploration and exploitation.

## **8. Southern Italy methane distribution network**

Such an industry had its origins in the early eighties as an issue of repeated oil crises that led the Italian Government to strengthen the natural gas network distribution in Southern Italy (gas distribution networks were concentrated mainly in Northern Italy) so as to reduce petroleum products dependence.

The directives issued by the National Energy Plan (PEN) in the years 1978-1980 were enforced by November 28<sup>th</sup> 1980 No 784 Act, which provides for financial contributions for natural gas distribution networks and a technical and financial assistance to municipalities or local bodies concerned.

The "Cassa per il Mezzogiorno" (National Board established in the early '50s to encourage and promote Southern Italy's development) gave financial contributions for technical development and after its closing, the Ministry of Industry (now the Ministry of Economic Development) acquired its tasks.

Southern Italy methane distribution network program fostered by the CIPE resolution of February 11<sup>th</sup> 1988 that was to be implemented in a three-year period has still to be completed.

Between the first phase and the General Program until December 31<sup>st</sup> 2009, 1865 have been funded in many municipalities, out of which 660 were funded by August 7<sup>th</sup>, 1997, No 266 Act which the Ministry of Economic Development dealt with.

The total expenditure to a large extent already supported amounts to around two billion euro.

The program will last by 23 with the final implementation of methane supply projects for a lot of Southern Italy municipalities who have not get yet any benefits from that the law due to lack of funds in this sector since 2005.

For program final conclusion it is assessed that nearly € 35.0 million are expected to be available by future financial laws.

During 2010 took place tests for 67 natural gas distribution operations, bringing the whole amount of operations up to 377. It was possible to examine Pago Veiano (BN) application for funding thanks to new funds.

Also during 2010 went on the projects implementation for 92 municipalities belonging to the Calabrian basins called CL 01, CL 02, CL 05, CL 08 and CL 22.

## ENVIRONMENT AND SAFETY

Divisions II, III and IV are the Department offices with technical and administrative management, control and supervision tasks of the hydrocarbons exploration and exploitation activities.

The territorial jurisdiction is divided into:

- II Division – Section U.N.M.I.G. of Bologna: Piedmont, Liguria, Lombardy, Veneto, Friuli-Venezia Giulia, Emilia-Romagna and its territorial sea and continental shelf
- III Divisione – Section U.N.M.I.G. of Rome: Tuscany, Umbria, Marche, Lazio, Abruzzo and Molise and its territorial sea and continental shelf
- IV Divisione – Section U.N.M.I.G. of Naples: Campania, Basilicata, Puglia and Calabria and its territorial sea and continental shelf.

As part of the work spent in the year 2010, we summarize some data:

| <i>Activities inspection</i> | <i>Exploitation verification</i> | <i>Checks</i> | <i>Inspections on drilling wells sites</i> |
|------------------------------|----------------------------------|---------------|--|
|                              | <b>84</b>                        | <b>3.866</b>  | <b>174</b>                                 |

Exploitation verification relate to hydrocarbons got by licenses, while under the entry checks are included both raising equipment and hearthing and under pressure. Finally the Inspections carried out on drilling wells sites.

| <i>Permissions</i> | <i>Authorization for new wells drilling and mining closing down</i> | <i>Beginning of work authorizations</i> | <i>Final work authorizations</i> |
|--------------------|---|---|----------------------------------|
|                    | <b>55</b>   | <b>129</b>                              | <b>63</b>                        |

Permissions provide an offices activity's technical-administrative survey even though not exhaustive, as well as for reported inspection activity data. Authorization for new wells drilling, mining closing down implies more aspects ranging from operations good planning to assessment of any specific requirement. The beginning of work authorizations is directly related to final tests carried out together with other technical bodies (Fire Brigade, Port authorities).

### A. Accidents

In research and production of hydrocarbons in the year 2010 there were a total of 47 accidents, none fatal. Of these 13 are classified in severe (prognosis with more than 30 days) and 34 non-serious.

| <i>Production</i>          | <b>1995</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>Δ% 2010/2009</b> |
|----------------------------|-------------|-------------|-------------|-------------|---------------------|
| gas (billion cubic meters) | 20,4        | 9,1         | 7,9         | 7,94        | 0,51%               |
| oil (million tonnes)       | 5,2         | 5,2         | 4,5         | 5,08        | 12,89%              |
| <i>Accidents total</i>     | 211         | 65          | 51          | 47          | -7,84%              |

| <i>Drilling</i>                         | <b>1995</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>Δ% 2010/2009</b> |
|---|-------------|-------------|-------------|-------------|---------------------|
| <i>meters drilled</i>                   | 137.565     | 70.080      | 80.521      | 56.640      | -29,7%              |
| <i>accidents indrilling operations</i>  | 113         | 25          | 24          | 12          | -50,0%              |
| <i>Drilling accidents index climbed</i> | 0,000821    | 0,000357    | 0,000298    | 0,000212    | -28,9%              |



The information contained in the diagram shows a reduction rate accident compared to last year with a nearly increasing production for gas and oil increasing. As for drill also accidents rate reduced significantly compared to the previous year.

It can be useful to make a comparison with the year 1995, a period of relevant upstream activities development and previous to put into force of the D. Legislative Decree 624/96. In particular there is a percentage reduction for the year 2010 drilling accidents rate up to -74%.

## **B. Chemical and environmental surveys**

Division V of the Executive is charged with sector tasks. The office is equipped with modern laboratories for chemical analysis and is able to carry out experimental survey and campaigns of soil, water and air sampling.

In particular:

- mining of minerals and rocks classification in relation to national and regional rules;
- analysis of liquid and gaseous emissions from extraction equipment and / or treatment of energy minerals;
- natural gas quality checking;
- chemical and mineralogical analysis of: industrial minerals (marl, feldspar, limestone, clay used in ceramic industry, bleaching clay, bentonite, salt), intermediate processing and industrial waste, asbestos-containing materials.
- analysis of soils and waters for the purpose of monitoring compliance with limits set out by Decree 152/2006 and its modifications, for metals and inorganic products;
- harmful substances emission tests according to the regulations on waste, industrial waste and inert materials;
- surveys into areas near to industrial and mining sites for monitoring the environmental impacts;
- study of the historical materials used in construction to ensure the proper restoration of the buildings (mortar, plaster, stone);
- scientific collaborations with public institutions for the study of materials and experimental processes (universities, other ministries, research institutes).

During 2010 it was concluded the transfer of the laboratories in the new headquarters in Via Antonio Bosio n. 15, Rome.

In the month of May started a campaign to control the quality of the natural gas produced and / or stored in Italy. Sampling and analysis of natural gas were carried out (determination of percentage composition of the gas calorific value, Wobbe index, density relative) in the following sites:

- Central storage Treste River, Soc Stogit SpA;
- Central gas processing Casalborsetti Soc ENI SpA;
- Ravenna Mare gas handling unit of ENI SpA Soc;
- Central gas processing Cellino Soc Storage Edison SpA;
- Central gas processing and compression Collalto Soc Storage Edison SpA;
- Compressor station of the Croton Soc Ionic Gas SpA

Central gas treatment plants of Casalborsetti and Ravenna Mare checked chimneys emissions of the exhaust into the atmosphere coming from industrial thermal burners near to fluid scrubbers handled in Val d'Agri Soc ENI SpA plant.

It was carried out a lot of chemical and physical analysis on representative samples of surface water, groundwater and spring water taken near to the mining concession area of rock salt Timpa del Salto "in the town of Belvedere Spinello.

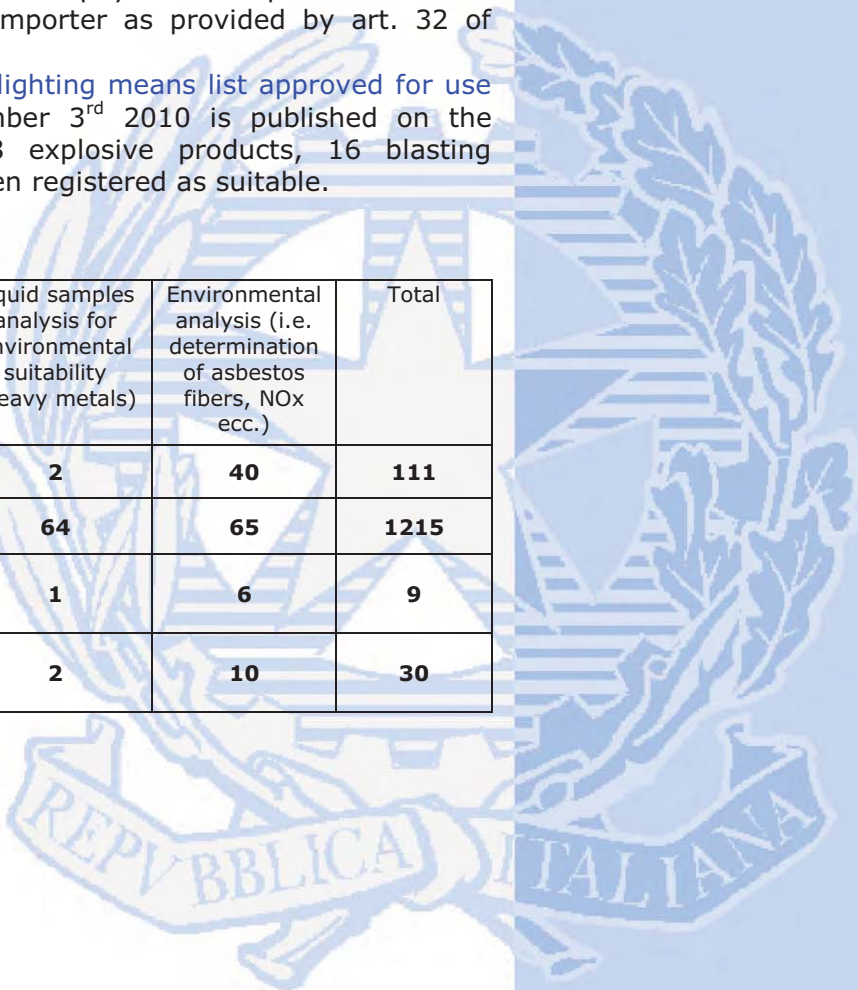
As for mineral samples certification during 2010 were sampled and analyzed 30 mineral samples from 16 mining areas.

### C. Explosives

Division V shall also update an explosives list, accessories and exploders approved for use in mining under the Ministerial Decree of April 21<sup>st</sup> 1979. Such a list contains explosive products according to the classification laid down in Title VIII of the Decree of the President April 9<sup>th</sup>, 1959, no. 128, following some tests or inspections carried out by the Administration in accordance with requirements of the Ministerial Decree of April 21<sup>st</sup> 1979. The products are enlisted after an annual fee payment of producer or an authorized representative of his or an importer as provided by art. 32 of December 12<sup>th</sup> 2002, n. 273 Act.

The [explosives, blasting accessories and lighting means list approved for use on national territory](#) updated to December 3<sup>rd</sup> 2010 is published on the Directorate website. In 2010 year 18 explosive products, 16 blasting accessories and 1 lighting device have been registered as suitable.

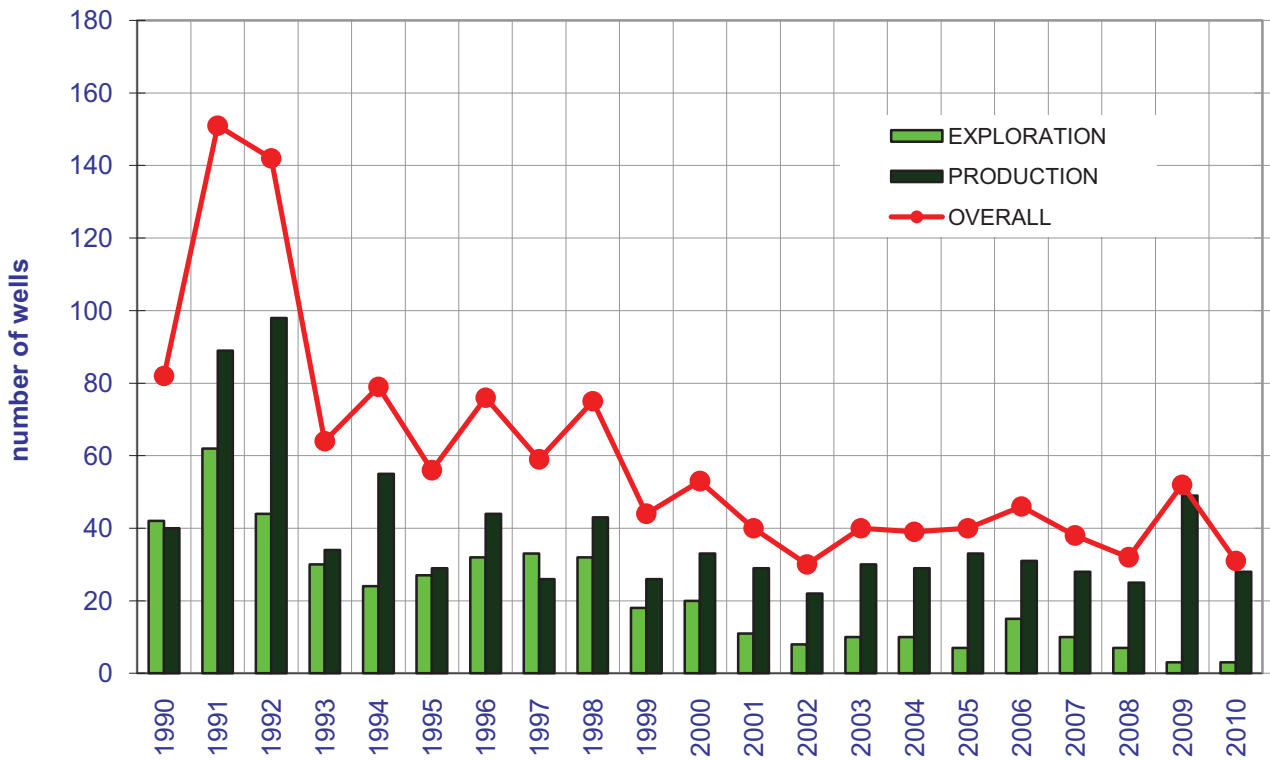
|                              | Solid samples for analysis issuing mining concessions | Water analysis for environmental control | Liquid samples analysis for environmental suitability (heavy metals) | Environmental analysis (i.e. determination of asbestos fibers, NOx ecc.) | Total       |
|------------------------------|---|--|--|--|-------------|
| Number of samples            | <b>30</b>   | <b>39</b>                                | <b>2</b>   | <b>40</b>  | <b>111</b>  |
| Number of determinations     | <b>540</b>  | <b>546</b>                               | <b>64</b>  | <b>65</b>  | <b>1215</b> |
| Number of sampling campaigns |   | <b>2</b>                                 | <b>1</b>   | <b>6</b>   | <b>9</b>    |
| Number of analysis reports   | <b>16</b>   | <b>2</b>                                 | <b>2</b>   | <b>10</b>  | <b>30</b>   |



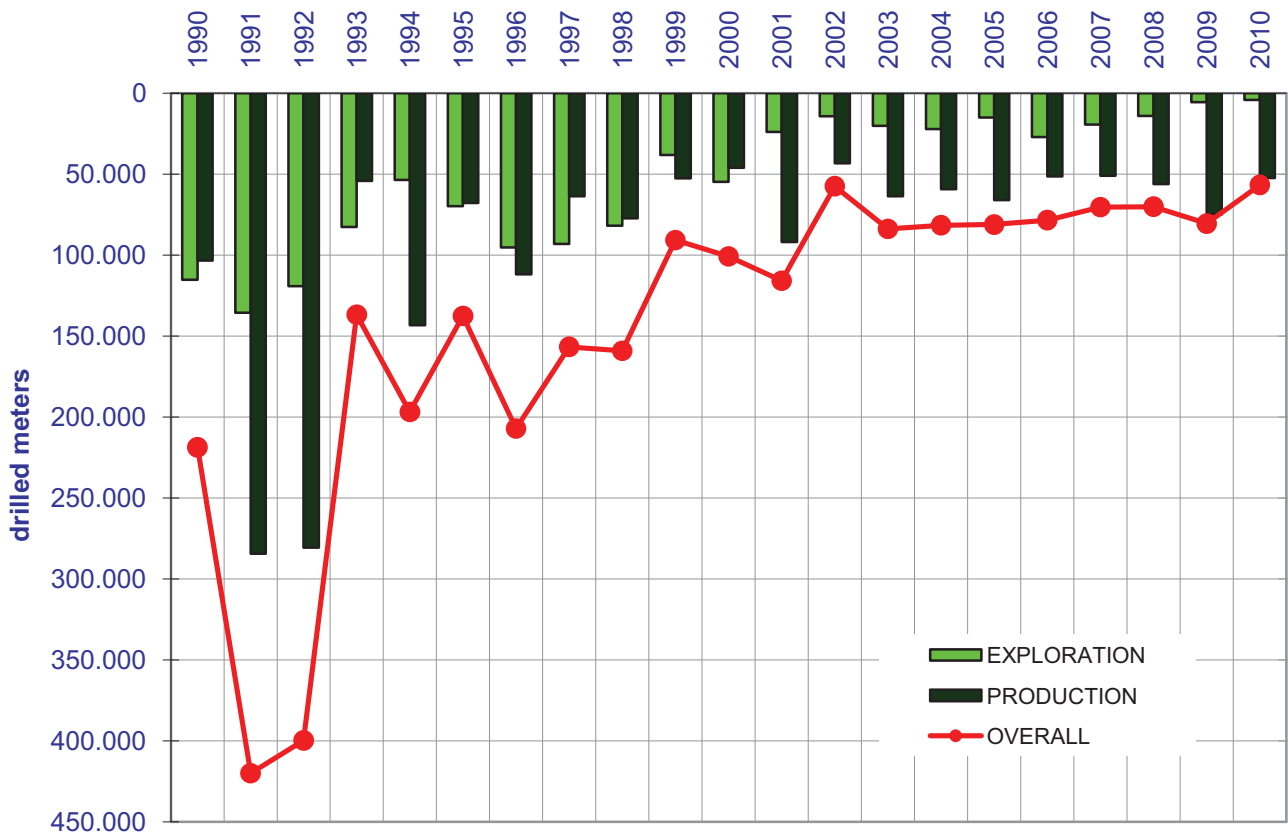
## Drilling activities - years 1990-2010

| YEAR | EXPLORATION   |                |                    |               |                |                    | PRODUCTION & OTHER PURPOSES |                |                    |               |                |                    | OVERALL       |                |                    |               |                |                    |
|------|---------------|----------------|--------------------|---------------|----------------|--------------------|-----------------------------|----------------|--------------------|---------------|----------------|--------------------|---------------|----------------|--------------------|---------------|----------------|--------------------|
|      | ONSHORE       |                |                    | OFFSHORE      |                |                    | TOTAL                       |                |                    | ONSHORE       |                |                    | OFFSHORE      |                |                    | TOTAL         |                |                    |
|      | Numb of wells | Meters drilled | Average well depth | Numb of wells | Meters drilled | Average well depth | Numb of wells               | Meters drilled | Average well depth | Numb of wells | Meters drilled | Average well depth | Numb of wells | Meters drilled | Average well depth | Numb of wells | Meters drilled | Average well depth |
| 1990 | 28            | 78.179         | 2.742              | 14            | 36.989         | 2.742              | 42                          | 115.168        | 2.742              | 16            | 42.755         | 2.586              | 24            | 60.688         | 2.586              | 40            | 103.443        | 2.586              |
| 1991 | 36            | 83.547         | 2.188              | 26            | 52.094         | 2.188              | 62                          | 135.641        | 2.188              | 35            | 97.161         | 3.194              | 54            | 187.105        | 3.194              | 89            | 284.266        | 3.194              |
| 1992 | 29            | 79.363         | 2.706              | 15            | 39.718         | 2.706              | 44                          | 119.081        | 2.706              | 25            | 57.642         | 2.863              | 73            | 222.934        | 2.863              | 98            | 280.576        | 2.863              |
| 1993 | 24            | 72.426         | 2.752              | 6             | 10.123         | 2.752              | 30                          | 82.549         | 2.752              | 13            | 16.770         | 1.594              | 21            | 37.414         | 1.594              | 34            | 54.184         | 1.594              |
| 1994 | 14            | 30.142         | 2.234              | 10            | 23.467         | 2.234              | 24                          | 53.609         | 2.234              | 9             | 14.447         | 2.603              | 46            | 128.733        | 2.603              | 55            | 143.180        | 2.603              |
| 1995 | 19            | 55.017         | 2.586              | 8             | 14.793         | 2.586              | 27                          | 69.810         | 2.586              | 19            | 41.380         | 2.336              | 10            | 26.375         | 2.336              | 29            | 67.755         | 2.336              |
| 1996 | 22            | 67.664         | 2.975              | 10            | 27.550         | 2.975              | 32                          | 95.214         | 2.975              | 17            | 23.920         | 2.542              | 27            | 87.911         | 2.542              | 44            | 111.831        | 2.542              |
| 1997 | 22            | 62.800         | 2.820              | 11            | 30.266         | 2.820              | 33                          | 93.066         | 2.820              | 16            | 34.259         | 2.444              | 10            | 29.285         | 2.444              | 26            | 63.544         | 2.444              |
| 1998 | 23            | 62.962         | 2.555              | 9             | 18.794         | 2.555              | 32                          | 81.756         | 2.555              | 26            | 35.912         | 1.799              | 17            | 41.448         | 1.799              | 43            | 77.360         | 1.799              |
| 1999 | 12            | 25.763         | 2.119              | 6             | 12.374         | 2.119              | 18                          | 38.137         | 2.119              | 14            | 24.476         | 2.022              | 12            | 28.086         | 2.022              | 26            | 52.562         | 2.022              |
| 2000 | 14            | 35.721         | 2.739              | 6             | 19.065         | 2.739              | 20                          | 54.786         | 2.739              | 14            | 18.949         | 1.394              | 19            | 27.058         | 1.394              | 33            | 46.007         | 1.394              |
| 2001 | 9             | 21.610         | 2.176              | 2             | 2.325          | 2.176              | 11                          | 23.935         | 2.176              | 14            | 52.781         | 3.168              | 15            | 39.086         | 3.168              | 29            | 91.867         | 3.168              |
| 2002 | 3             | 3.016          | 1.777              | 5             | 11.200         | 1.777              | 8                           | 14.216         | 1.777              | 15            | 23.506         | 1.964              | 7             | 19.699         | 1.964              | 22            | 43.205         | 1.964              |
| 2003 | 5             | 11.576         | 2.023              | 5             | 8.658          | 2.023              | 10                          | 20.234         | 2.023              | 9             | 35.182         | 2.119              | 21            | 28.380         | 2.119              | 30            | 63.562         | 2.119              |
| 2004 | 10            | 22.223         | 2.222              | 0             | 0              | 2.222              | 10                          | 22.223         | 2.222              | 7             | 18.105         | 2.045              | 22            | 41.189         | 2.045              | 29            | 59.294         | 2.045              |
| 2005 | 7             | 15.085         | 2.155              | 0             | 0              | 2.155              | 7                           | 15.085         | 2.155              | 9             | 16.632         | 2.001              | 24            | 49.399         | 2.001              | 33            | 66.031         | 2.001              |
| 2006 | 12            | 17.906         | 1.803              | 3             | 9.139          | 1.803              | 15                          | 27.045         | 1.803              | 14            | 21.597         | 1.655              | 17            | 29.714         | 1.655              | 31            | 51.311         | 1.655              |
| 2007 | 9             | 15.925         | 1.944              | 1             | 3.517          | 1.944              | 10                          | 19.442         | 1.944              | 13            | 17.886         | 1.818              | 15            | 33.027         | 1.818              | 28            | 50.913         | 1.818              |
| 2008 | 4             | 7.274          | 1.992              | 3             | 6.673          | 1.992              | 7                           | 13.947         | 1.992              | 18            | 41.803         | 2.245              | 7             | 14.330         | 2.245              | 25            | 56.133         | 2.245              |
| 2009 | 3             | 5.627          | 1.876              | 0             | 0              | 1.876              | 3                           | 5.627          | 1.876              | 29            | 37.124         | 1.528              | 20            | 37.770         | 1.528              | 49            | 74.894         | 1.528              |
| 2010 | 3             | 4.183          | 1.394              | 0             | 0              | 1.394              | 3                           | 4.183          | 1.394              | 11            | 28.889         | 1.873              | 17            | 23.568         | 1.873              | 28            | 52.457         | 1.873              |

### NUMBER OF DRILLED WELLS: YEARS 1990-2010



### DRILLED METERS: YEARS 1990-2010

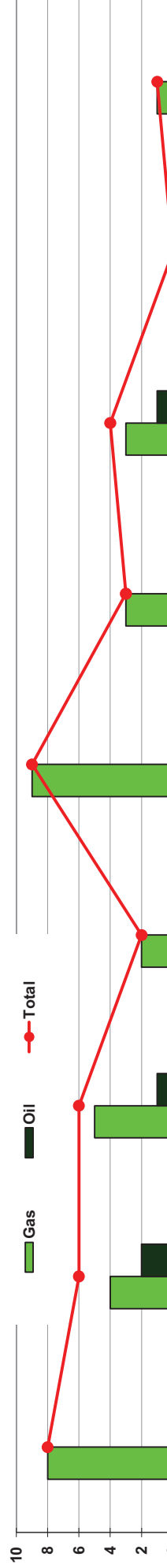


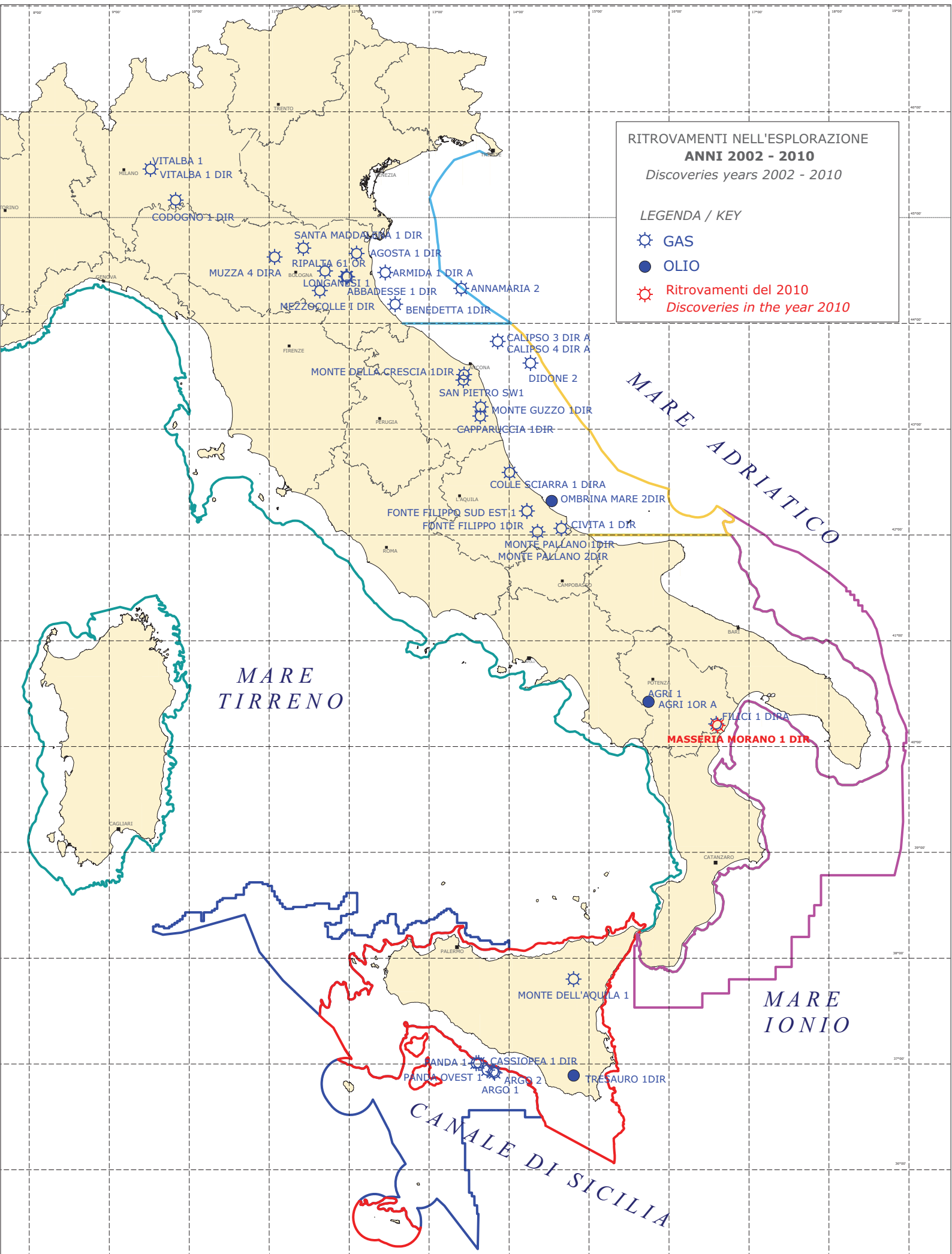
# DISCOVERIES years 2002-2010

☀ Gas  
● Oil

|                | 2002  | 2003   | 2004  | 2005  | 2006  | 2007   | 2008                               | 2009 | 2010 |                              |
|----------------|---|--|---|---|---|--|------------------------------------|------|------|------------------------------|
| <b>ONSHORE</b> | ☀ Agostia 1dir (FE)<br>☀ Fonte Filippo 1 dir (CH)<br>☀ Muzza 4dirA (MO)<br>☀ San Pietro SW 1 (AN) | ● Agri 1 (PZ)<br>● Agri 1orA (PZ)<br>☀ Capparuccia 1dir (AP) | ☀ Abbadesse 001 DIR (RA)<br>☀ Civita 001 DIR (CH)<br>☀ Monte dell'Aquila 001 DIR (CT)<br>☀ Monte Guzzo 001 DIR (AP)<br>☀ Santa Maddalena 001 DIR (BO)<br>● Tesorauro 001 DIR (RG) | ☀ Vitalba 001 (CR)<br>☀ Mezzocolle 001 DIR (BO) | ☀ Codogno 001 DIR (CR)<br>☀ Colle Sciarra 001 DIR A(TET)<br>☀ Filici 001 DIR A (MT)<br>☀ Fonte Filippo Sud Est 001 (CH)<br>☀ Longanesi 001 (RA)<br>☀ Ripalta 61 OR (BO)<br>☀ Vitalba 001 DIR (CR) | ☀ Colle Sciarra 001 DIR B (TE)<br>☀ Monte Pallano 001 DIR (CH)<br>☀ Monte Pallano 002 DIR (CH) | ☀ Monte della Crescia 001 Dir (AN) |      |      | ☀ Masseria Morano 1 Dir (MT) |

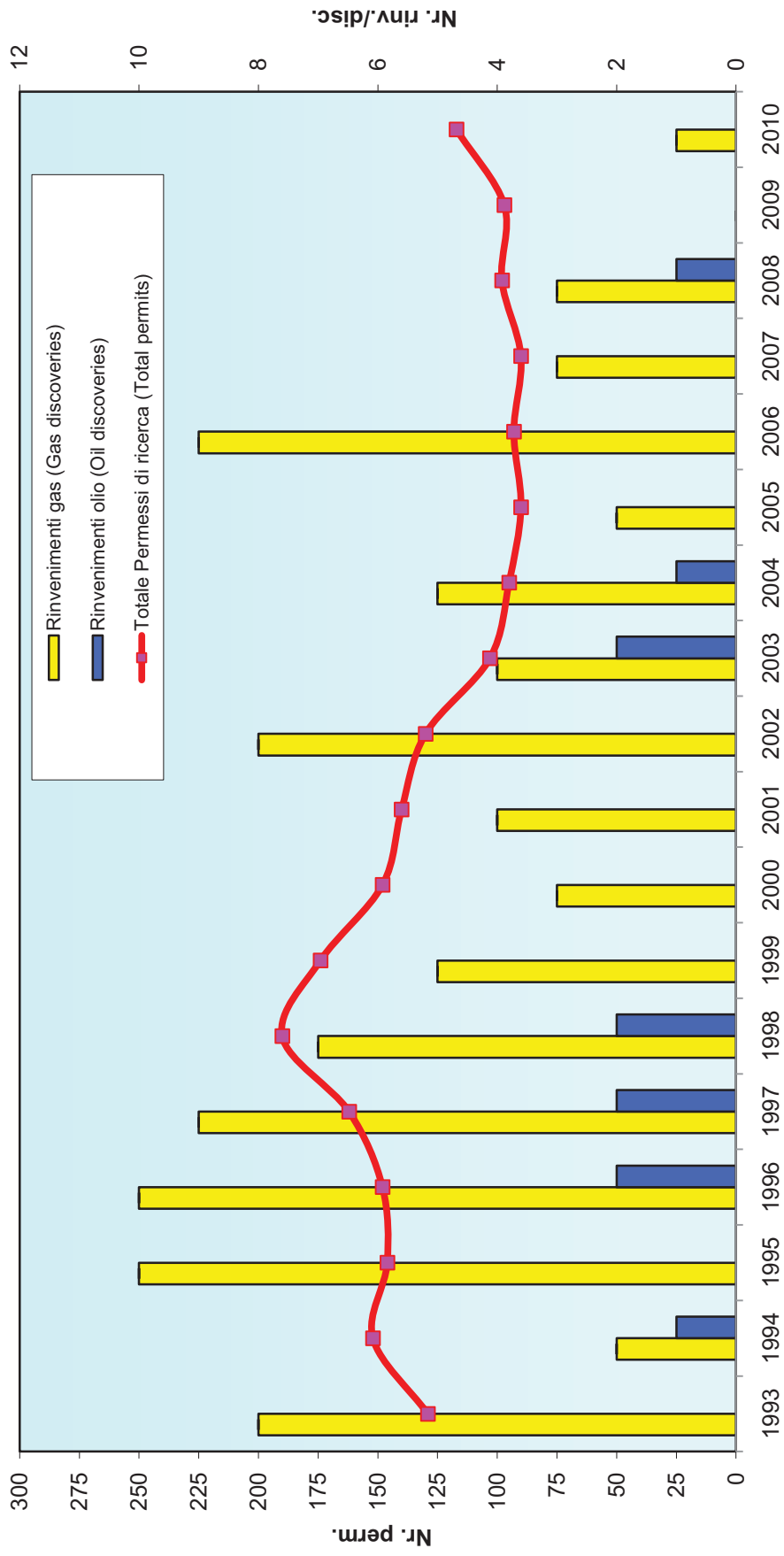
|                 | 2002   | 2003   | 2004            | 2005 | 2006                | 2007 | 2008                              | 2009 | 2010 |  |
|-----------------|--------|--|-----------------|------|---------------------|------|-----------------------------------|------|------|--|
| <b>OFFSHORE</b> |        | ☀ Annamaria 2<br>☀ Armida 1dirA                  |                 |      | ☀ BENEDETTA 001 DIR |      |                                   |      |      |  |
|                 | B Zone | ☀ Calipso 3dirA<br>☀ Calipso 4dirA<br>☀ Didone 2 |                 |      |                     |      | ● Ombrina Mare 002 Dir            |      |      |  |
|                 | F Zone |  |                 |      |                     |      |                                   |      |      |  |
|                 | G Zone | ☀ Panda 1  | ☀ Panda Ovest.1 |      | ☀ ARGO 001          |      | ☀ Cassiopea 001 DIR<br>☀ Argo 002 |      |      |  |





## Andamento Permessi di ricerca e rinvenimenti - Anni 1993 - 2010

(Exploration permits amount and discoveries trend - years 1993-2010)



# Mining licenses for hydrocarbons Years 1990 - 2010

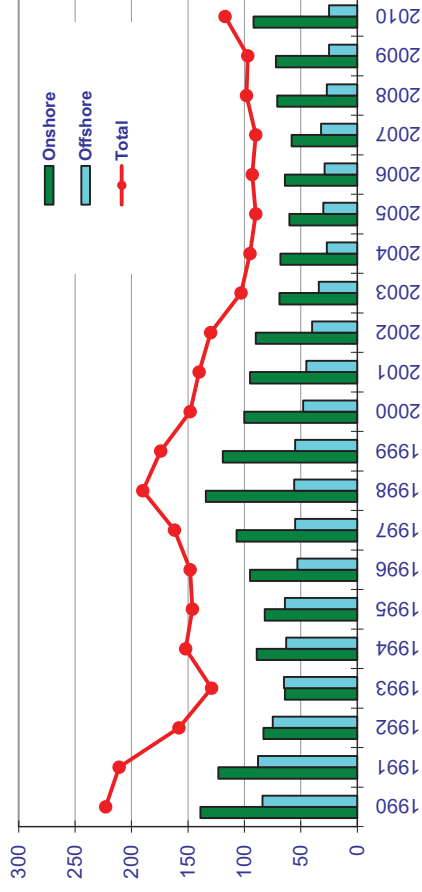
## EXPLORATION PERMITS

|      | Onshore | Offshore | Total |
|------|---------|----------|-------|
| 1990 | 139     | 84       | 223   |
| 1991 | 123     | 88       | 211   |
| 1992 | 83      | 75       | 158   |
| 1993 | 64      | 65       | 129   |
| 1994 | 89      | 63       | 152   |
| 1995 | 82      | 64       | 146   |
| 1996 | 95      | 53       | 148   |
| 1997 | 107     | 55       | 162   |
| 1998 | 134     | 56       | 190   |
| 1999 | 119     | 55       | 174   |
| 2000 | 100     | 48       | 148   |
| 2001 | 95      | 45       | 140   |
| 2002 | 90      | 40       | 130   |
| 2003 | 69      | 34       | 103   |
| 2004 | 68      | 27       | 95    |
| 2005 | 60      | 30       | 90    |
| 2006 | 64      | 29       | 93    |
| 2007 | 58      | 32       | 90    |
| 2008 | 71      | 27       | 98    |
| 2009 | 72      | 25       | 97    |
| 2010 | 92      | 25       | 117   |

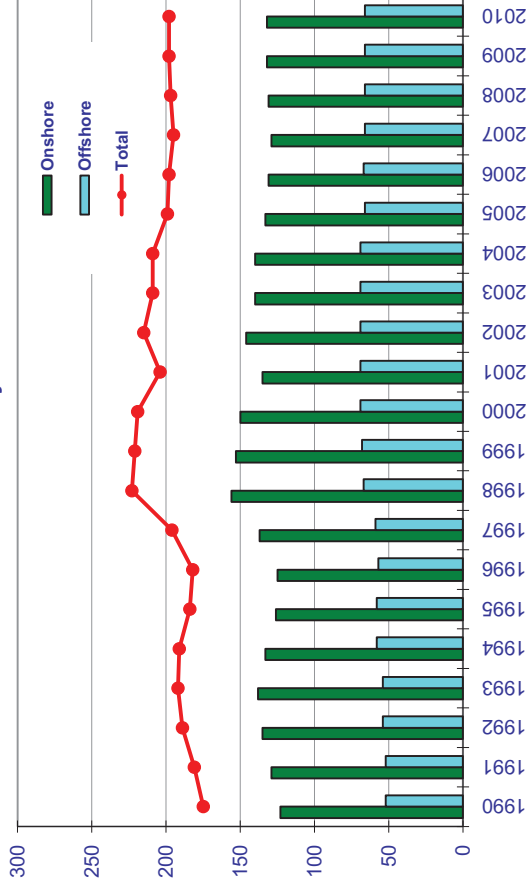
## PROD. CONCESSIONS

|      | Onshore | Offshore | Total |
|------|---------|----------|-------|
| 1990 | 123     | 52       | 175   |
| 1991 | 129     | 52       | 181   |
| 1992 | 135     | 54       | 189   |
| 1993 | 138     | 54       | 192   |
| 1994 | 133     | 58       | 191   |
| 1995 | 126     | 58       | 184   |
| 1996 | 125     | 57       | 182   |
| 1997 | 137     | 59       | 196   |
| 1998 | 156     | 67       | 223   |
| 1999 | 153     | 68       | 221   |
| 2000 | 150     | 69       | 219   |
| 2001 | 135     | 69       | 204   |
| 2002 | 146     | 69       | 215   |
| 2003 | 140     | 69       | 209   |
| 2004 | 140     | 69       | 209   |
| 2005 | 133     | 66       | 199   |
| 2006 | 131     | 67       | 198   |
| 2007 | 129     | 66       | 195   |
| 2008 | 131     | 66       | 197   |
| 2009 | 132     | 66       | 198   |
| 2010 | 132     | 66       | 198   |

Number of Exploration Licenses - years 1990-2010



Number of Production Licenses - years 1990-2010





# Onshore licenses

## Data till December 31<sup>st</sup> 2010

| REGIONS                      |                                  | EXPLORATION LICENSES |                         |                    | PRODUCTION LICENSES |                         |                    | TOTAL                       |                    |
|------------------------------|----------------------------------|----------------------|-------------------------|--------------------|---------------------|-------------------------|--------------------|-----------------------------|--------------------|
|                              | Regional area (km <sup>2</sup> ) | Number (-)           | Area (Km <sup>2</sup> ) | % of Region's area | Number (-)          | Area (Km <sup>2</sup> ) | % of Region's area | Tot area (km <sup>2</sup> ) | % of Region's area |
| VALLE D'AOSTA                | 3.266                            | 0                    | 0                       | 0,0%               | 0                   | 0                       | 0,0%               | 0,00                        | 0,0%               |
| PIEMONTE                     | 25.398                           | 4                    | 2.149,39                | 8,5%               | 1                   | 77,76                   | 0,3%               | 2.227,15                    | 8,8%               |
| LIGURIA                      | 5.421                            | 0                    | 0,00                    | 0,0%               | 0                   | 0,00                    | 0,0%               | 0,00                        | 0,0%               |
| LOMBARDIA                    | 23.861                           | 11                   | 3.362,17                | 14,1%              | 13                  | 988,61                  | 4,1%               | 4.350,78                    | 18,2%              |
| TRENTINO-ALTO ADIGE          | 13.599                           | 0                    | 0,00                    | 0,0%               | 0                   | 0,00                    | 0,0%               | 0,00                        | 0,0%               |
| VENETO                       | 18.390                           | 2                    | 554,84                  | 3,0%               | 1                   | 163,33                  | 0,9%               | 718,17                      | 3,9%               |
| FRIULI-VENEZIA GIULIA        | 7.712                            | 0                    | 0,00                    | 0,0%               | 0                   | 0,00                    | 0,0%               | 0,00                        | 0,0%               |
| EMILIA-ROMAGNA               | 22.122                           | 31                   | 8.676,95                | 39,2%              | 35                  | 1.596,45                | 7,2%               | 10.273,40                   | 46,4%              |
| <b>ITALIA SETTENTRIONALE</b> | <b>119.769</b>                   | <b>48</b>            | <b>14.743,35</b>        | <b>12,3%</b>       | <b>50</b>           | <b>2.826,15</b>         | <b>2,4%</b>        | <b>17.569,50</b>            | <b>14,7%</b>       |
| TOSCANA                      | 22.990                           | 1                    | 246,89                  | 1,1%               | 2                   | 307,71                  | 1,3%               | 554,60                      | 2,4%               |
| MARCHE                       | 9.695                            | 6                    | 1.023,79                | 10,6%              | 18                  | 1.136,11                | 11,7%              | 2.159,90                    | 22,3%              |
| UMBRIA                       | 8.454                            | 0                    | 0,00                    | 0,0%               | 0                   | 0,00                    | 0,0%               | 0,00                        | 0,0%               |
| LAZIO                        | 17.210                           | 5                    | 2.388,81                | 13,9%              | 1                   | 41,14                   | 0,2%               | 2.429,95                    | 14,1%              |
| ABRUZZO                      | 10.793                           | 8                    | 3.230,65                | 29,9%              | 6                   | 490,14                  | 4,5%               | 3.720,79                    | 34,5%              |
| MOLISE                       | 4.438                            | 3                    | 801,53                  | 18,1%              | 4                   | 336,93                  | 7,6%               | 1.138,46                    | 25,7%              |
| <b>ITALIA CENTRALE</b>       | <b>73.580</b>                    | <b>23</b>            | <b>7.691,67</b>         | <b>10,5%</b>       | <b>31</b>           | <b>2.312,03</b>         | <b>3,1%</b>        | <b>10.003,70</b>            | <b>13,6%</b>       |
| CAMPANIA                     | 13.592                           | 1                    | 247,39                  | 1,8%               | 0                   | 0,00                    | 0,0%               | 247,39                      | 1,8%               |
| PUGLIA                       | 19.364                           | 3                    | 2.070,15                | 10,7%              | 14                  | 1.252,46                | 6,5%               | 3.322,61                    | 17,2%              |
| BASILICATA                   | 9.992                            | 12                   | 1.590,66                | 15,9%              | 21                  | 2.120,89                | 21,2%              | 3.711,55                    | 37,1%              |
| CALABRIA                     | 15.083                           | 0                    | 0,00                    | 0,0%               | 2                   | 103,21                  | 0,7%               | 103,21                      | 0,7%               |
| <b>ITALIA MERIDIONALE</b>    | <b>58.031</b>                    | <b>16</b>            | <b>3.908,20</b>         | <b>6,7%</b>        | <b>37</b>           | <b>3.476,56</b>         | <b>6,0%</b>        | <b>7.384,76</b>             | <b>12,7%</b>       |
| SICILIA                      | 25.701                           | 5                    | 3.168,90                | 12,3%              | 14                  | 596,85                  | 2,3%               | 3.765,75                    | 14,7%              |
| SARDEGNA                     | 24.090                           | 0                    | 0,00                    | 0,0%               | 0                   | 0,00                    | 0,0%               | 0,00                        | 0,0%               |
| <b>ITALIA INSULARE</b>       | <b>49.791</b>                    | <b>5</b>             | <b>3.168,90</b>         | <b>6,4%</b>        | <b>14</b>           | <b>596,85</b>           | <b>1,2%</b>        | <b>3.765,75</b>             | <b>7,6%</b>        |
| <b>TOTALE</b>                | <b>301.171</b>                   | <b>92</b>            | <b>29.512,12</b>        | <b>9,8%</b>        | <b>132</b>          | <b>9.211,59</b>         | <b>3,1%</b>        | <b>38.723,71</b>            | <b>12,9%</b>       |

N.B.

In case of licenses extending over two or more zones, the surface shares are attributed to the zones they belong to, while the mining unit is assigned to the zone including the largest surface share.

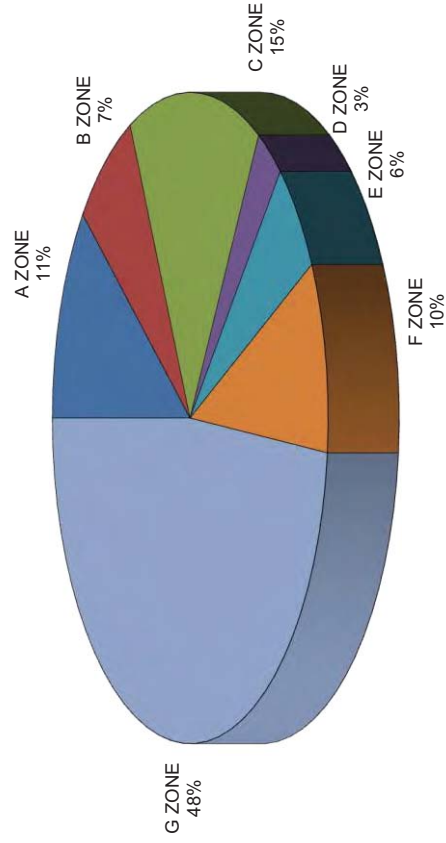
Mining licence area is far superior than that one actually taken up by plants (well areas, treatment stations and plants). Mining licence not pertaining areas not take up by the aforesaid plants nevertheless can be used for all usual human activities.

# Offshore licenses

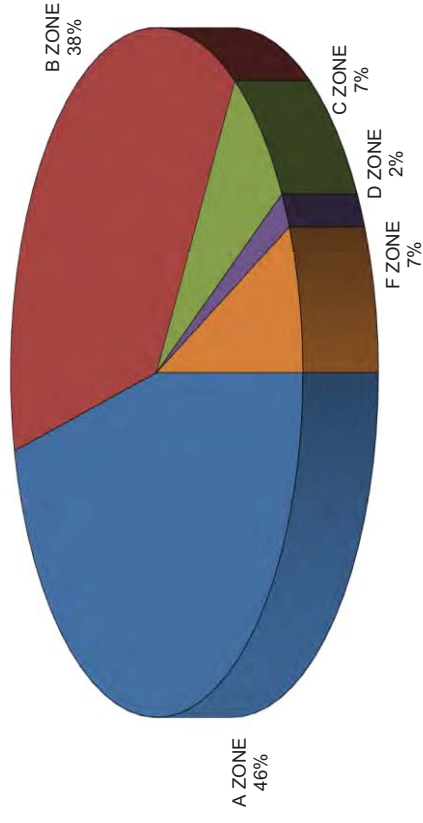
Data till December 31<sup>st</sup> 2010

| SEA ZONES    | EXPLORATION LICENSES |                         | PRODUCTION LICENSES   |                         | TOTAL AREA (Km <sup>2</sup> ) |
|--------------|----------------------|-------------------------|-----------------------|-------------------------|-------------------------------|
|              | Number of permits    | Area (Km <sup>2</sup> ) | Number of concessions | Area (Km <sup>2</sup> ) |                               |
| A ZONE       | 7                    | 1.257,64                | 38                    | 4.143,35                | 5.400,99                      |
| B ZONE       | 3                    | 827,23                  | 19                    | 3.365,13                | 4.192,36                      |
| C ZONE       | 3                    | 1.806,26                | 3                     | 659,51                  | 2.465,77                      |
| D ZONE       | 0                    | 357,97                  | 3                     | 153,40                  | 511,37                        |
| E ZONE       | 1                    | 683,13                  | 0                     | 0,00                    | 683,13                        |
| F ZONE       | 2                    | 1.111,17                | 3                     | 618,68                  | 1.729,85                      |
| G ZONE       | 9                    | 5.645,79                | 0                     | 0,00                    | 5.645,79                      |
| <b>TOTAL</b> | <b>25</b>            | <b>11.689,19</b>        | <b>66</b>             | <b>8.940,07</b>         | <b>20.629,26</b>              |

Offshore exploration licenses: areas



Offshore production licenses: areas

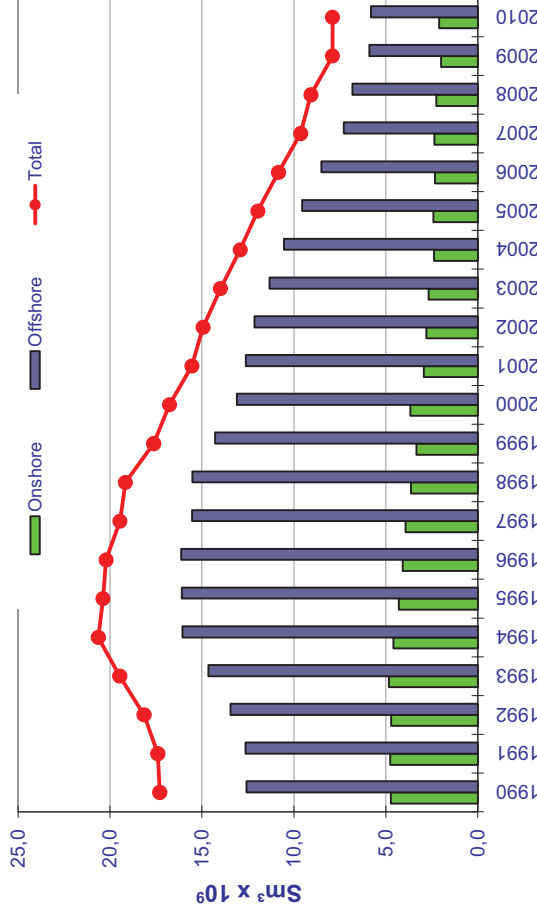


# Hydrocarbons production

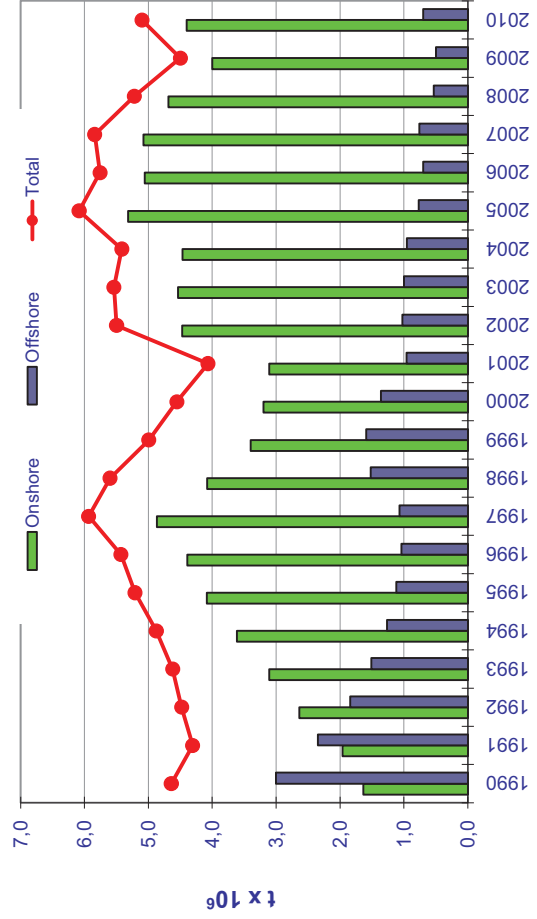
Years 1990 - 2010

| Year | GAS (Sm <sup>3</sup> x 10 <sup>9</sup> ) |          |       | OIL (t x 10 <sup>5</sup> ) |          |       | GASOLINE (t x 10 <sup>3</sup> ) |          |       |
|------|--|----------|-------|----------------------------|----------|-------|---------------------------------|----------|-------|
|      | Onshore                                  | Offshore | Total | Onshore                    | Offshore | Total | Onshore                         | Offshore | Total |
| 1990 | 4,7                                      | 12,6     | 17,3  | 1,6                        | 3,0      | 4,6   | 19,0                            | 8,0      | 27,0  |
| 1991 | 4,8                                      | 12,6     | 17,4  | 2,0                        | 2,3      | 4,3   | 17,0                            | 8,0      | 25,0  |
| 1992 | 4,7                                      | 13,4     | 18,2  | 2,6                        | 1,8      | 4,5   | 16,0                            | 6,0      | 22,0  |
| 1993 | 4,8                                      | 14,7     | 19,5  | 3,1                        | 1,5      | 4,6   | 13,0                            | 7,0      | 20,0  |
| 1994 | 4,6                                      | 16,1     | 20,6  | 3,6                        | 1,3      | 4,9   | 12,0                            | 6,0      | 18,0  |
| 1995 | 4,3                                      | 16,1     | 20,4  | 4,1                        | 1,1      | 5,2   | 22,0                            | 6,0      | 28,0  |
| 1996 | 4,1                                      | 16,1     | 20,2  | 4,4                        | 1,0      | 5,4   | 17,0                            | 5,0      | 22,0  |
| 1997 | 3,9                                      | 15,5     | 19,5  | 4,9                        | 1,1      | 5,9   | 17,0                            | 5,0      | 22,0  |
| 1998 | 3,6                                      | 15,5     | 19,2  | 4,1                        | 1,5      | 5,6   | 18,0                            | 4,0      | 22,0  |
| 1999 | 3,3                                      | 14,3     | 17,6  | 3,4                        | 1,6      | 5,0   | 17,0                            | 5,0      | 22,0  |
| 2000 | 3,7                                      | 13,1     | 16,8  | 3,2                        | 1,4      | 4,6   | 25,0                            | 6,0      | 31,0  |
| 2001 | 2,9                                      | 12,6     | 15,5  | 3,1                        | 1,0      | 4,1   | 23,0                            | 8,0      | 31,0  |
| 2002 | 2,8                                      | 12,1     | 14,9  | 4,5                        | 1,0      | 5,5   | 22,0                            | 11,0     | 33,0  |
| 2003 | 2,7                                      | 11,3     | 14,0  | 4,5                        | 1,0      | 5,5   | 24,7                            | 5,6      | 30,3  |
| 2004 | 2,4                                      | 10,5     | 12,9  | 4,5                        | 1,0      | 5,4   | 23,0                            | 6,0      | 29,0  |
| 2005 | 2,4                                      | 9,5      | 12,0  | 5,3                        | 0,8      | 6,1   | 22,6                            | 4,0      | 26,6  |
| 2006 | 2,3                                      | 8,5      | 10,8  | 5,1                        | 0,7      | 5,8   | 20,9                            | 3,0      | 23,9  |
| 2007 | 2,4                                      | 7,3      | 9,6   | 5,1                        | 0,8      | 5,8   | 20,2                            | 1,4      | 21,5  |
| 2008 | 2,3                                      | 6,8      | 9,1   | 4,7                        | 0,5      | 5,2   | 22,3                            | 0,7      | 23,0  |
| 2009 | 2,0                                      | 5,9      | 7,9   | 4,0                        | 0,5      | 4,5   | 22,0                            | 0,3      | 22,3  |
| 2010 | 2,1                                      | 5,8      | 7,9   | 4,4                        | 0,7      | 5,1   | 25,0                            | 0,2      | 25,2  |

Gas production: years 1990 - 2010



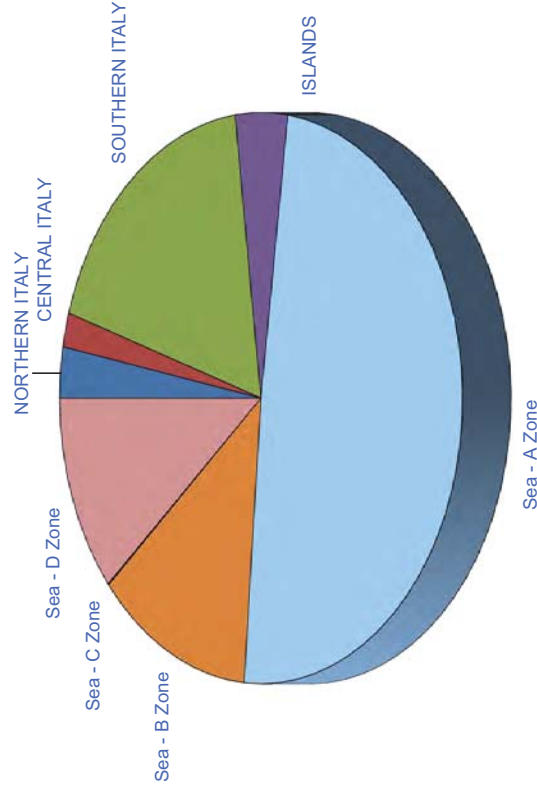
Oil production: years 1990 - 2010



## Gas production years 2008-2009-2010

| <b>GAS (Milioni di Sm<sup>3</sup>)</b> |               |               |               |                          |  |
|--|---------------|---------------|---------------|--------------------------|--|
| Region / Sea Zone                      | Year<br>2010  | Year<br>2009  | Year<br>2008  | Variation %<br>2010/2009 |  |
| VALLE D'AOSTA                          | 0,0           | 0,0           | 0,0           | -                        |  |
| PIEMONTE                               | 47,5          | 45,9          | 21,3          | 3,6%                     |  |
| LIGURIA                                | 0,0           | 0,0           | 0,0           | -                        |  |
| LOMBARDIA                              | 29,8          | 25,1          | 30,6          | 18,8%                    |  |
| TRENTINO-ALTO ADIGE                    | 0,0           | 0,0           | 0,0           | -                        |  |
| VENETO                                 | 3,1           | 3,3           | 3,4           | -5,9%                    |  |
| FRIULI-VENEZIA GIULIA                  | 0,0           | 0,0           | 0,0           | -                        |  |
| EMILIA-ROMAGNA                         | 148,7         | 157,8         | 190,1         | -5,8%                    |  |
| <b>NORTHERN ITALY</b>                  | <b>229,2</b>  | <b>232,1</b>  | <b>245,4</b>  | <b>-1,3%</b>             |  |
| TOSCANA                                | 1,2           | 1,3           | 1,4           | -6,1%                    |  |
| MARCHE                                 | 51,4          | 66,0          | 57,8          | -22,2%                   |  |
| UMBRIA                                 | 0,0           | 0,0           | 0,0           | -                        |  |
| LAZIO                                  | 0,0           | 0,0           | 0,0           | -                        |  |
| ABRUZZO                                | 24,1          | 26,6          | 35,9          | -9,5%                    |  |
| MOLISE                                 | 76,7          | 81,8          | 84,8          | -6,3%                    |  |
| <b>CENTRAL ITALY</b>                   | <b>153,3</b>  | <b>175,8</b>  | <b>179,9</b>  | <b>-12,8%</b>            |  |
| CAMPANIA                               | 0,0           | 0,0           | 0,0           | -                        |  |
| PUGLIA                                 | 316,9         | 333,4         | 397,9         | -4,9%                    |  |
| BASILICATA                             | 1112,8        | 914,0         | 1080,0        | 21,8%                    |  |
| CALABRIA                               | 10,2          | 9,8           | 11,9          | 4,3%                     |  |
| <b>SOUTHERN ITALY</b>                  | <b>1439,9</b> | <b>1257,1</b> | <b>1489,8</b> | <b>14,5%</b>             |  |
| SICILIA                                | 332,9         | 325,2         | 340,5         | 2,4%                     |  |
| SARDEGNA                               | 0,0           | 0,0           | 0,0           | -                        |  |
| <b>ISLANDS</b>                         | <b>332,9</b>  | <b>325,2</b>  | <b>340,5</b>  | <b>2,4%</b>              |  |
| <b>TOTAL ONSHORE</b>                   | <b>2155,3</b> | <b>1990,2</b> | <b>2255,6</b> | <b>8,3%</b>              |  |
| Sea - A Zone                           | 3906,5        | 3939,3        | 4700,4        | -0,8%                    |  |
| Sea - B Zone                           | 978,8         | 1083,8        | 1233,7        | -9,7%                    |  |
| Sea - C Zone                           | 5,4           | 4,2           | 3,7           | 27,4%                    |  |
| Sea - D Zone                           | 895,8         | 891,6         | 877,0         | 0,5%                     |  |
| Sea - F Zone                           | 0,0           | 0,0           | 0,0           | -                        |  |
| <b>TOTAL OFFSHORE</b>                  | <b>5786,5</b> | <b>5918,9</b> | <b>6814,8</b> | <b>-2,2%</b>             |  |
| <b>TOTAL</b>                           | <b>7941,8</b> | <b>7909,1</b> | <b>9070,4</b> | <b>0,4%</b>              |  |

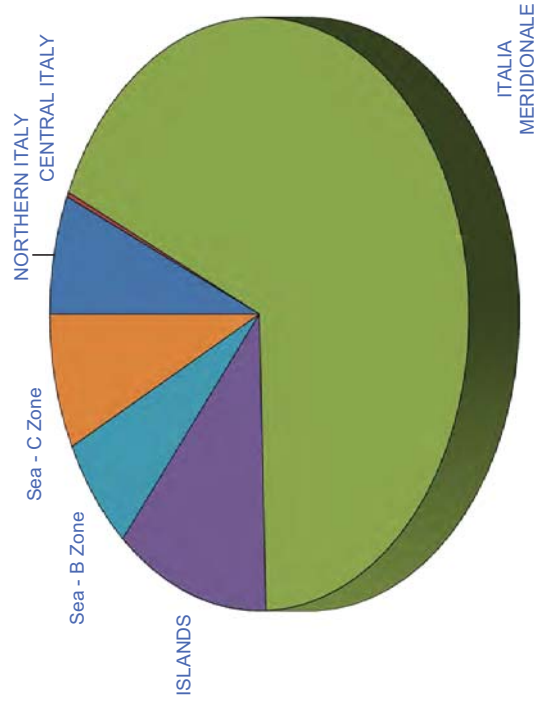
**Gas production in Italy - year 2010**



## Oil production Years 2008-2009-2010

| Oil (thousands of metric tons) |               |               |               |                          |
|--------------------------------|---------------|---------------|---------------|--------------------------|
| Region / Sea Zone              | Year<br>2010  | Year<br>2009  | Year<br>2008  | Variation %<br>2010/2009 |
| VALLE D'AOSTA                  | 0,0           | 0,0           | 0,0           | -                        |
| PIEMONTE                       | 300,0         | 263,4         | 165,1         | 13,9%                    |
| LIGURIA                        | 0,0           | 0,0           | 0,0           | -                        |
| LOMBARDIA                      | 0,0           | 0,0           | 0,0           | -                        |
| TRENTINO-ALTO ADIGE            | 0,0           | 0,0           | 0,0           | -                        |
| VENETO                         | 0,0           | 0,0           | 0,0           | -                        |
| FRIULI-VENEZIA GIULIA          | 0,0           | 0,0           | 0,0           | -                        |
| EMILIA-ROMAGNA                 | 29,1          | 28,9          | 34,0          | 0,7%                     |
| <b>NORTHERN ITALY</b>          | <b>329,1</b>  | <b>292,3</b>  | <b>199,1</b>  | <b>12,6%</b>             |
| TOSCANA                        | 0,0           | 0,0           | 0,0           | -                        |
| MARCHE                         | 0,0           | 0,0           | 0,0           | -                        |
| UMBRIA                         | 0,0           | 0,0           | 0,0           | -                        |
| LAZIO                          | 0,2           | 0,2           | 0,2           | -                        |
| ABRUZZO                        | 0,0           | 0,0           | 0,0           | -                        |
| MOLISE                         | 13,0          | 20,8          | 26,1          | -37,7%                   |
| <b>CENTRAL ITALY</b>           | <b>13,2</b>   | <b>21,0</b>   | <b>26,3</b>   | <b>-37,4%</b>            |
| CAMPANIA                       | 0,0           | 0,0           | 0,0           | -                        |
| PUGLIA                         | 0,0           | 0,0           | 0,0           | -                        |
| BASILICATA                     | 3442,6        | 3155,5        | 3930,4        | 9,1%                     |
| CALABRIA                       | 0,0           | 0,0           | 0,0           | -                        |
| <b>SOUTHERN ITALY</b>          | <b>3442,6</b> | <b>3155,5</b> | <b>3930,4</b> | <b>9,1%</b>              |
| SICILIA                        | 600,4         | 556,1         | 530,0         | 8,0%                     |
| SARDEGNA                       | 0,0           | 0,0           | 0,0           | -                        |
| <b>ISLANDS</b>                 | <b>600,4</b>  | <b>556,1</b>  | <b>530,0</b>  | <b>8,0%</b>              |
| <b>TOTAL ONSHORE</b>           | <b>4385,3</b> | <b>4024,9</b> | <b>4685,7</b> | <b>9,0%</b>              |
| Sea - A Zone                   | 0,0           | 0,0           | 0,0           | -                        |
| Sea - B Zone                   | 321,1         | 353,8         | 376,7         | -9,2%                    |
| Sea - C Zone                   | 374,1         | 172,1         | 157,3         | 117,4%                   |
| Sea - D Zone                   | 0,0           | 0,0           | 0,0           | -                        |
| Sea - F Zone                   | 0,0           | 0,0           | 0,0           | -                        |
| <b>TOTAL OFFSHORE</b>          | <b>695,2</b>  | <b>525,9</b>  | <b>534,0</b>  | <b>32,2%</b>             |
| <b>TOTAL</b>                   | <b>5080,5</b> | <b>4550,8</b> | <b>5219,8</b> | <b>11,6%</b>             |

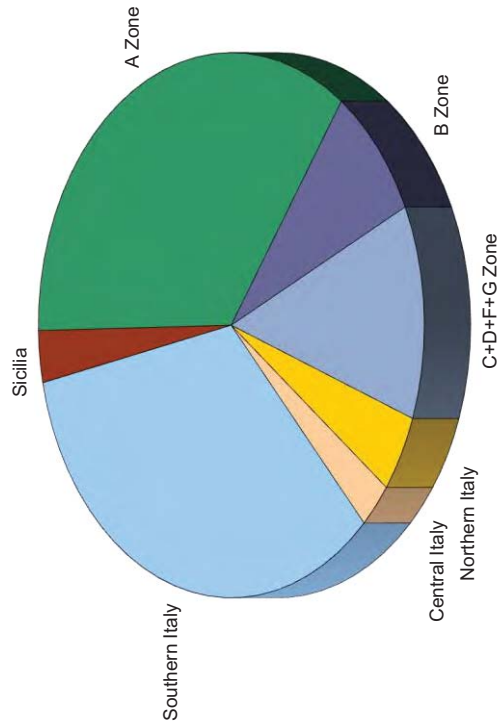
**Oil production in Italy - year 2010**



## Reserves till December 31<sup>st</sup> 2010

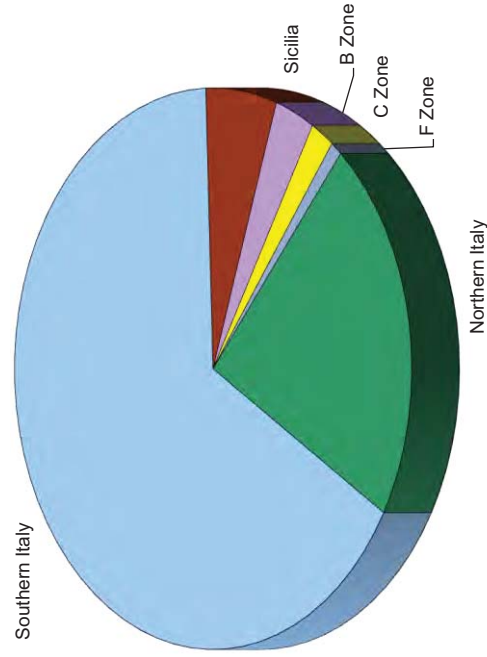
| GAS Millions of Sm <sup>3</sup> |               |               |               |                |              |
|---------------------------------|---------------|---------------|---------------|----------------|--------------|
|                                 | PROVEN        | PROBABLE      | POSSIBLE      | RECOVERABLE    | %            |
| Northern Italy                  | 3.151         | 3.089         | 220           | 4.740          | 4,6          |
| Central Italy                   | 1.794         | 1.905         | 618           | 2.870          | 2,8          |
| Southern Italy                  | 18.823        | 20.306        | 29.332        | 34.842         | 33,7         |
| Sicilia                         | 2.749         | 831           | 96            | 3.184          | 3,1          |
| <b>TOTALE onshore</b>           | <b>26.517</b> | <b>26.131</b> | <b>30.266</b> | <b>45.636</b>  | <b>44,1</b>  |
| A Zone                          | 27.561        | 12.873        | 10.864        | 36.170         | 35,0         |
| B Zone                          | 5.869         | 4.738         | 1.180         | 8.474          | 8,2          |
| C+D+F+G Zone                    | 6.070         | 13.195        | 2.305         | 13.129         | 12,7         |
| <b>TOTAL offshore</b>           | <b>39.500</b> | <b>30.806</b> | <b>14.349</b> | <b>57.773</b>  | <b>55,9</b>  |
| <b>TOTAL Italy</b>              | <b>66.017</b> | <b>56.937</b> | <b>44.615</b> | <b>103.409</b> | <b>100,0</b> |

### Recoverable gas reserves



| OIL (thousands of metric tons) |               |                |                |                |              |
|--------------------------------|---------------|----------------|----------------|----------------|--------------|
|                                | PROVEN        | PROBABLE       | POSSIBLE       | RECOVERABLE    | %            |
| Northern Italy                 | 4.211         | 75.729         | 0              | 42.076         | 22,5         |
| Central Italy                  | 0             | 0              | 0              | 0              | 0,0          |
| Southern Italy                 | 55.566        | 88.632         | 117.691        | 123.420        | 65,9         |
| Sicilia                        | 8.331         | 3.809          | 2.677          | 10.771         | 5,7          |
| <b>TOTALE onshore</b>          | <b>68.108</b> | <b>168.170</b> | <b>120.368</b> | <b>176.267</b> | <b>94,1</b>  |
| B Zone                         | 4.117         | 1.678          | 4.956          | 5.947          | 3,2          |
| C Zone                         | 3.329         | 285            | 58             | 3.483          | 1,9          |
| F Zone                         | 1.042         | 1.308          | 0              | 1.696          | 0,9          |
| <b>TOTAL offshore</b>          | <b>8.488</b>  | <b>3.271</b>   | <b>5.014</b>   | <b>11.126</b>  | <b>5,9</b>   |
| <b>TOTAL Italy</b>             | <b>76.596</b> | <b>171.441</b> | <b>125.382</b> | <b>187.393</b> | <b>100,0</b> |

### Recoverable oil reserves

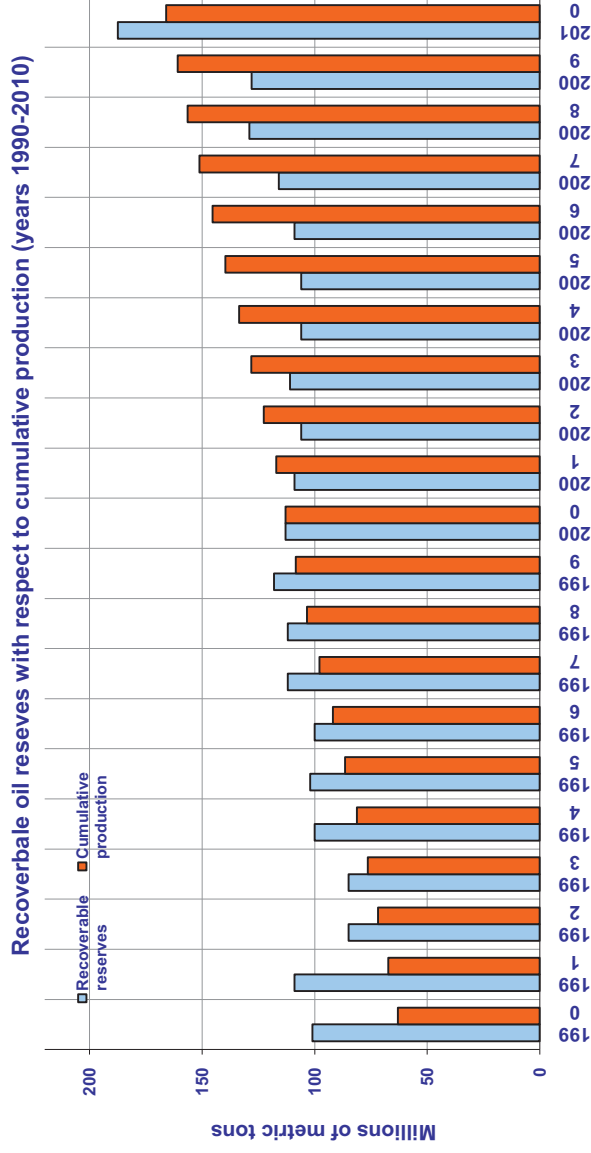
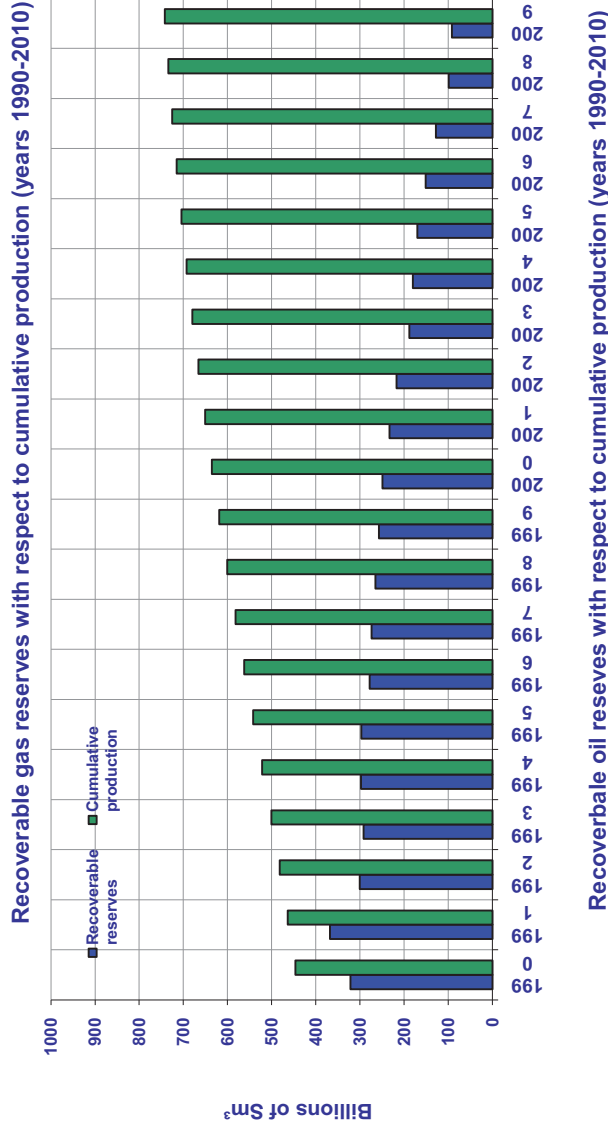


N.B. The Recoverable Reserves are calculated as follows: Proven + 50% Probable + 20% Possible.  
 At the beginning of the exploitation of a reservoir, uncertainty is bigger. Reserves estimation is updated during the exploitation without a precise scheduling.

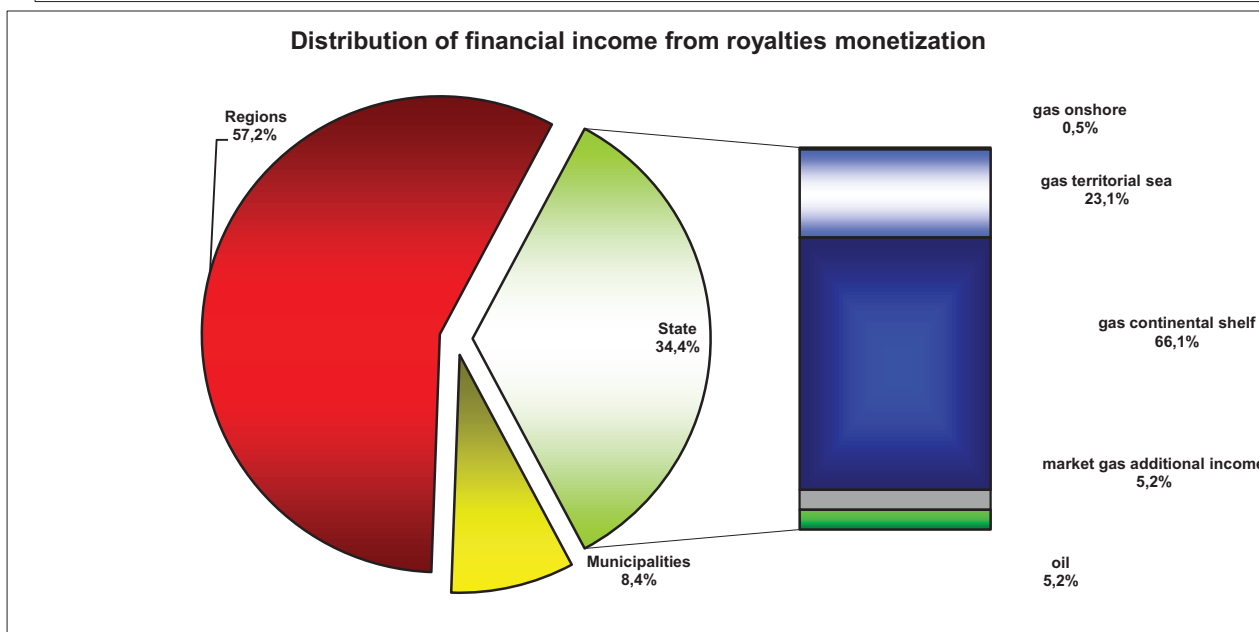
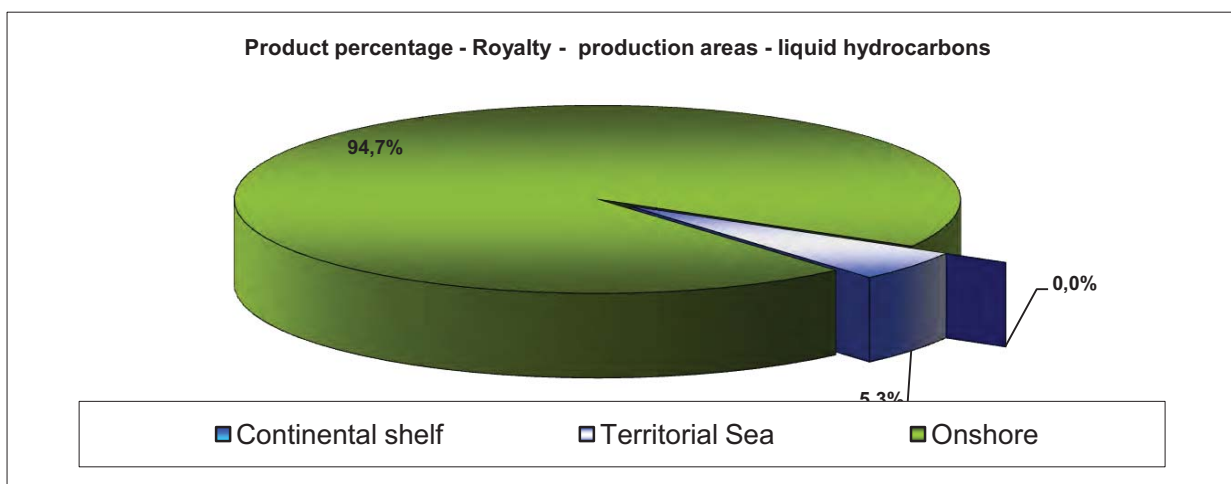
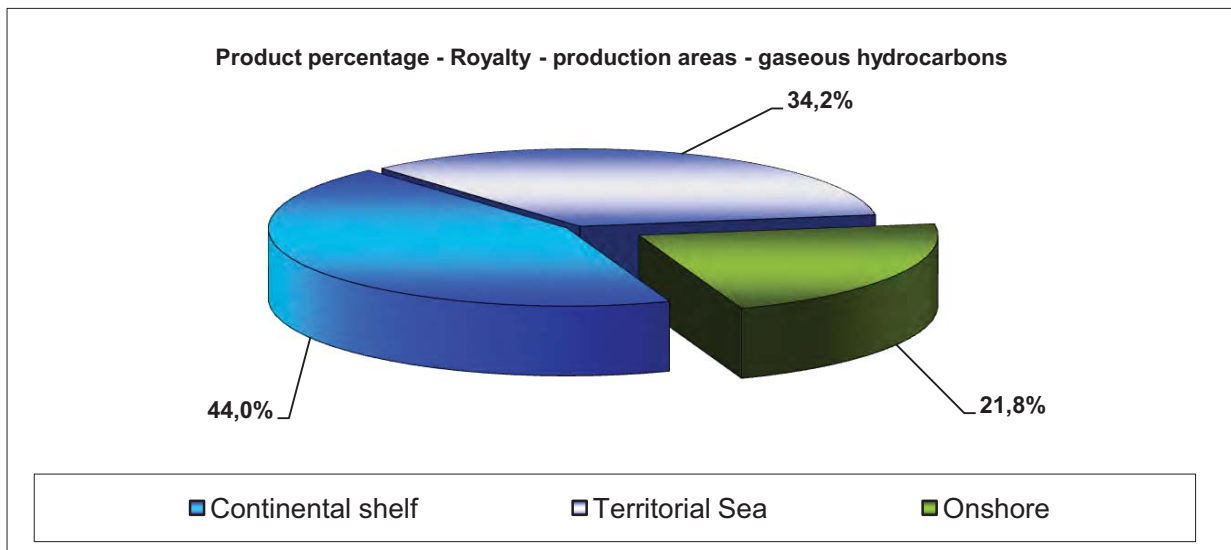
# Recoverable reserves with respect to cumulative production

## years 1990-2010

| YEAR | GAS<br>(Billions of Sm <sup>3</sup> ) |                       | OIL<br>(Millions of metric tons) |                       |
|------|---------------------------------------|-----------------------|----------------------------------|-----------------------|
|      | Recoverable reserves                  | Cumulative production | Recoverable reserves             | Cumulative production |
| 1990 | 322                                   | 446                   | 101                              | 63                    |
| 1991 | 368                                   | 463                   | 109                              | 67                    |
| 1992 | 301                                   | 482                   | 85                               | 72                    |
| 1993 | 292                                   | 501                   | 85                               | 76                    |
| 1994 | 298                                   | 522                   | 100                              | 81                    |
| 1995 | 297                                   | 542                   | 102                              | 86                    |
| 1996 | 278                                   | 562                   | 100                              | 92                    |
| 1997 | 274                                   | 582                   | 112                              | 98                    |
| 1998 | 265                                   | 601                   | 112                              | 103                   |
| 1999 | 257                                   | 619                   | 118                              | 108                   |
| 2000 | 249                                   | 635                   | 113                              | 113                   |
| 2001 | 233                                   | 651                   | 109                              | 117                   |
| 2002 | 217                                   | 666                   | 106                              | 123                   |
| 2003 | 188                                   | 680                   | 111                              | 128                   |
| 2004 | 180                                   | 693                   | 106                              | 134                   |
| 2005 | 170                                   | 705                   | 106                              | 140                   |
| 2006 | 151                                   | 715                   | 109                              | 145                   |
| 2007 | 128                                   | 725                   | 116                              | 151                   |
| 2008 | 99                                    | 734                   | 129                              | 156                   |
| 2009 | 92                                    | 742                   | 128                              | 161                   |
| 2010 | 103                                   | 750                   | 187                              | 166                   |



**Year 2009 gaseous and liquid hydrocarbons production  
Royalties related to law in force before 99/2009 act  
(158 M€)**

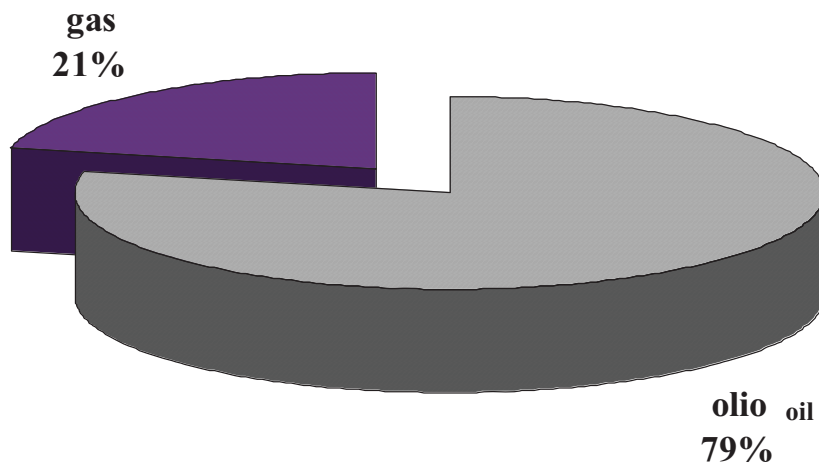




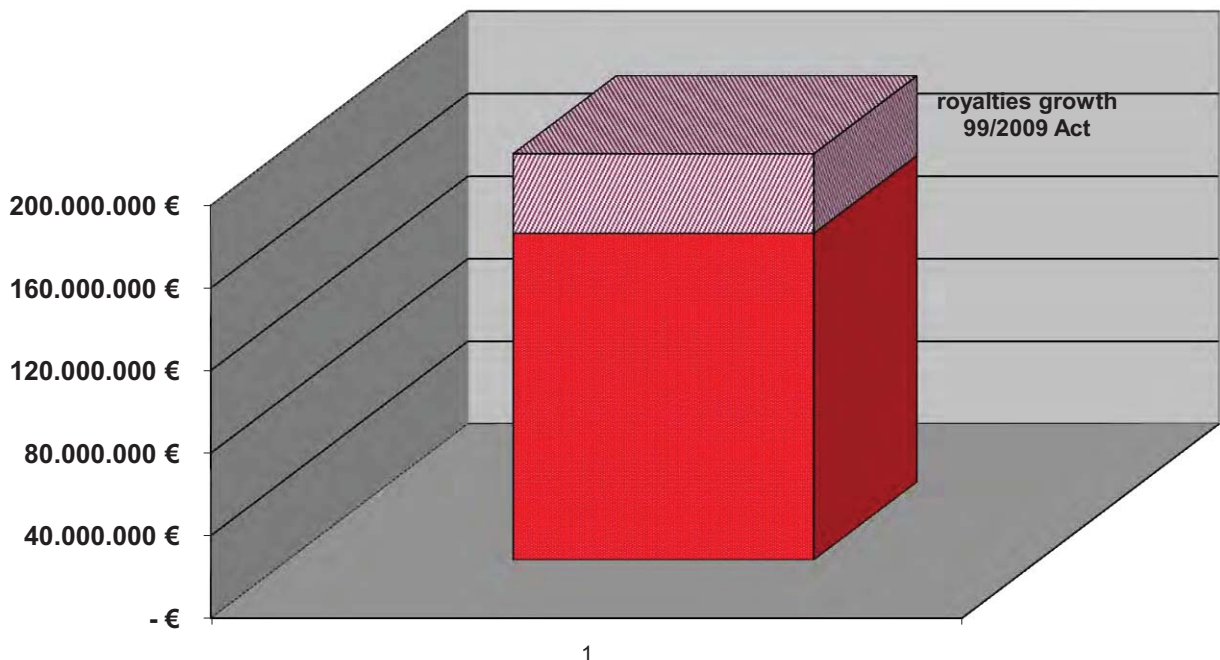
Year 2009 gaseous and liquid hydrocarbons production  
Art.45, 99/2009 Act

Ruling application amount: 38,5 M€

**99/2009 Act**  
**- 2009 production's royalties growth -**  
**percentage production related to growth**



**Royalties payment - production 2009**







*Ministry of Economic Development*

DEPARTMENT FOR ENERGY

General Direction for Mining and Energetic Resources

Via Molise, 2 - 00187 ROMA

Tel. +39 0647052859 Fax +39 0647887802

e-mail: [dgrme.segreteria@sviluppoeconomico.gov.it](mailto:dgrme.segreteria@sviluppoeconomico.gov.it)