



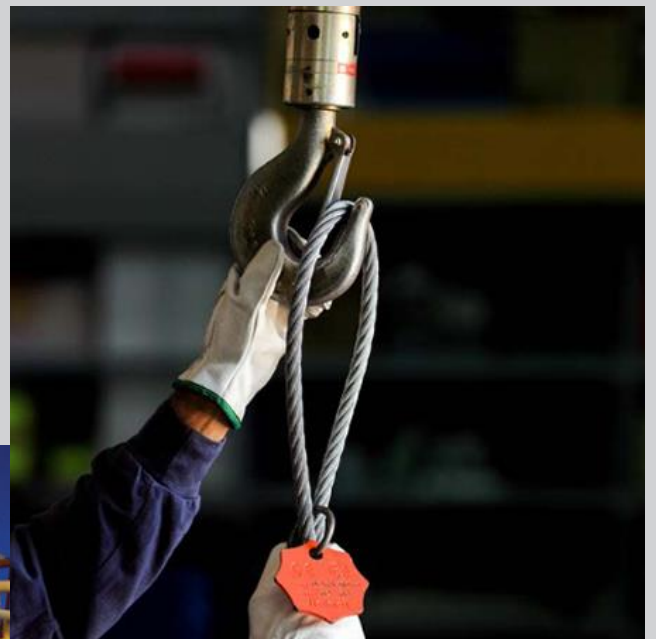
60° UNMIG
1957-2017

DGS-UNMIG

Ministry of Economic Development
Directorate-General for Safety of Mining and Energy Activities
National Mining Office for Hydrocarbons and Georesources

DGS-UNMIG databook 2017

Activity 2016



DGS-UNMIG databook 2017

Activity 2016

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SAFETY AND ENVIRONMENT

DGS-UNMIG has a very important role, as through its central offices, the local UNMIG Sections and the chemical and mineralogical Laboratories, supervises the proper execution of the works and the compliance with the safety standards in the workplace in the entire sector of hydrocarbons prospection, exploration, exploitation and natural gas storage.

Surveillance

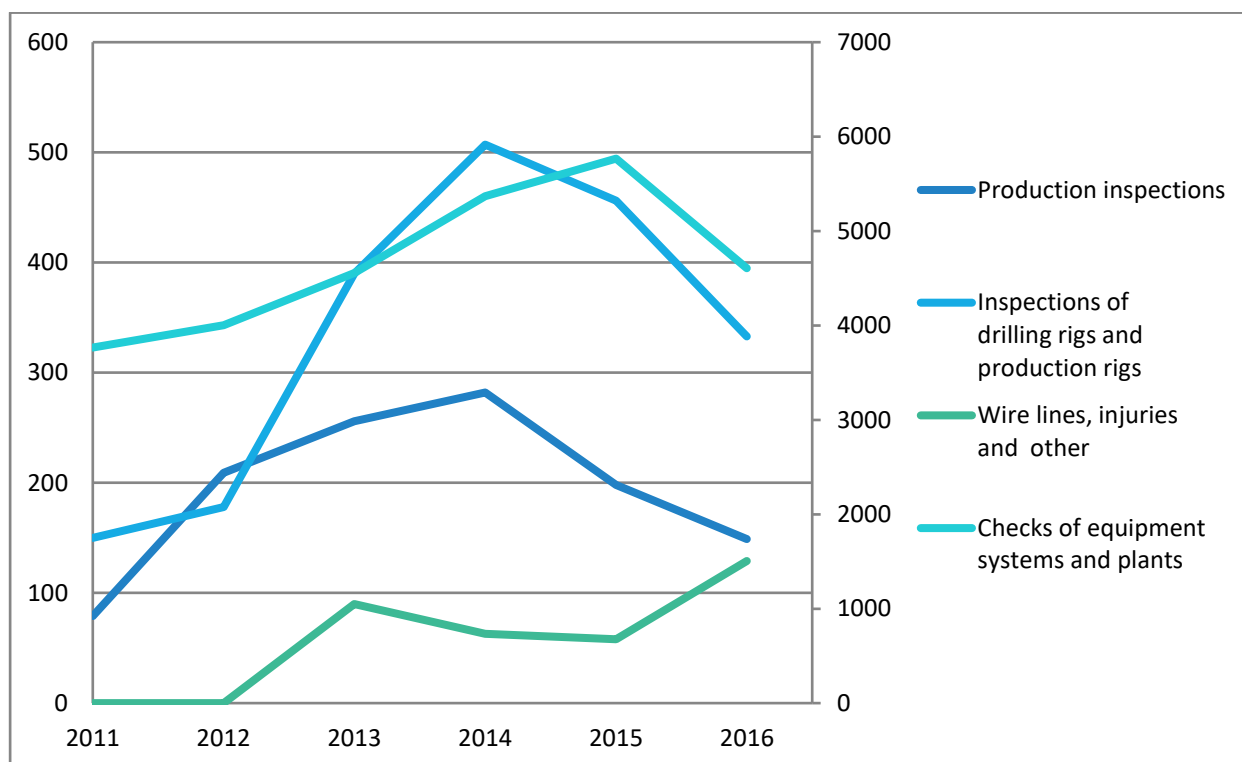
During the year 2016 the following inspections were carried out by the UNMIG Sections.

Surveillance carried out in the year 2016

	Production inspections	Checks of equipment systems and plants	Inspections of drilling rigs and production rigs	Public utility and emergency occupation	Wire lines, injuries, other
January	5	173	27	0	4
February	7	376	44	0	5
March	23	325	32	0	4
April	5	414	24	0	4
May	9	477	27	2	14
June	6	404	21	0	14
July	5	356	29	0	35
August	5	274	15	0	8
September	9	357	21	0	19
October	16	476	30	0	7
November	35	587	32	0	7
December	24	387	31	0	8
Total	149	4,606	333	2	129

Surveillance - Years 2011-2016

Year	Production inspections	Checks of equipment systems and plants	Inspections of drilling rigs and production rigs	Public utility and emergency occupation	Wire lines, injuries, other	Total
2011	79	3,766	150	0	0	3,995
2012	209	4,002	178	4	0	4,393
2013	256	4,555	390	2	90	5,293
2014	282	5,369	507	4	63	6,225
2015	198	5,767	456	2	58	6,481
2016	149	4,606	333	2	129	5,219



Surveillance – Years 2011-2016

Safety authorizations

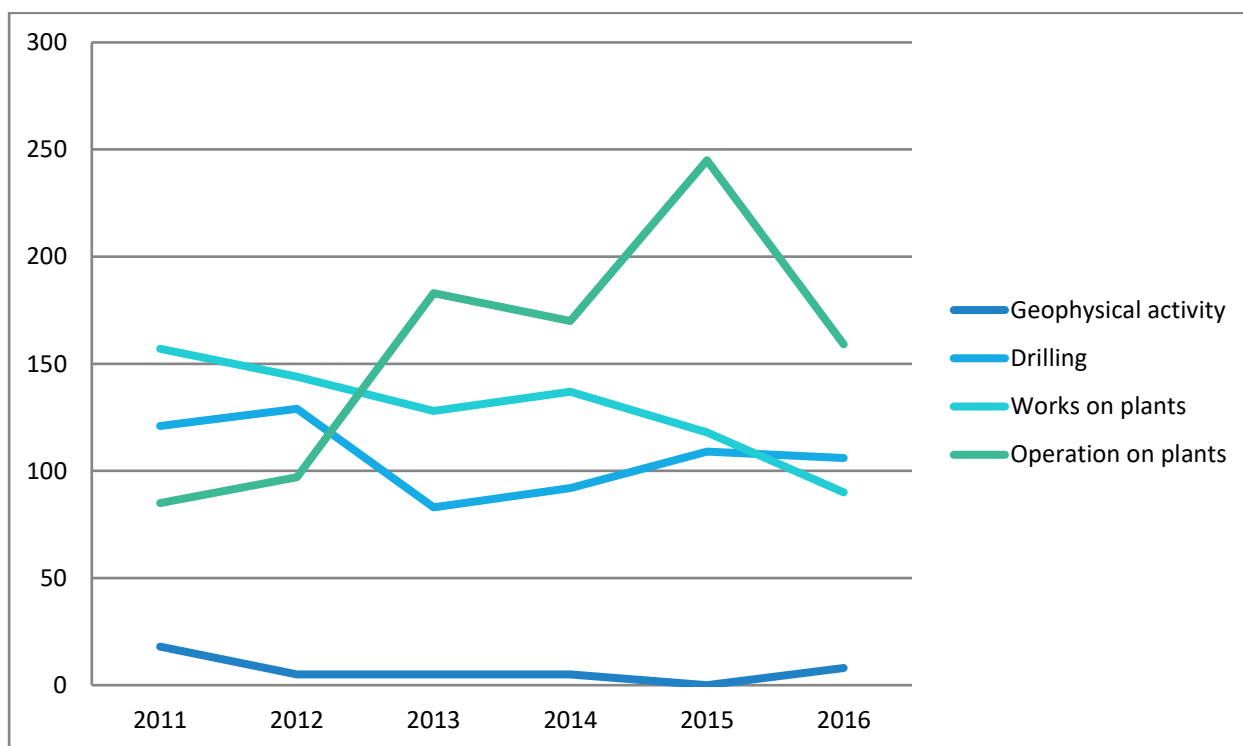
During the year 2016 the UNMIG Sections granted the following authorizations:

Authorizations granted in year 2016

	Geophysical activity	Drilling	Works on plants	Operation on plants	Miscellanea
January	1	3	1	7	91
February	0	4	6	23	84
March	0	24	8	30	79
April	5	14	13	4	38
May	0	11	6	14	82
June	1	14	6	11	57
July	0	4	14	15	52
August	0	5	8	13	41
September	0	1	12	11	46
October	1	8	2	11	44
November	0	13	3	5	58
December	0	5	11	15	76
Total	8	106	90	159	748

Issued authorizations – Years 2011-2016

Year	Geophysical activity	Drilling	Works on plants	Operation on plants	Miscellanea	Total
2011	18	121	157	85	313	694
2012	5	129	144	97	569	944
2013	5	83	128	183	795	1,194
2014	5	92	137	170	461	865
2015	0	109	118	245	530	1,002
2016	8	106	90	159	748	1,111



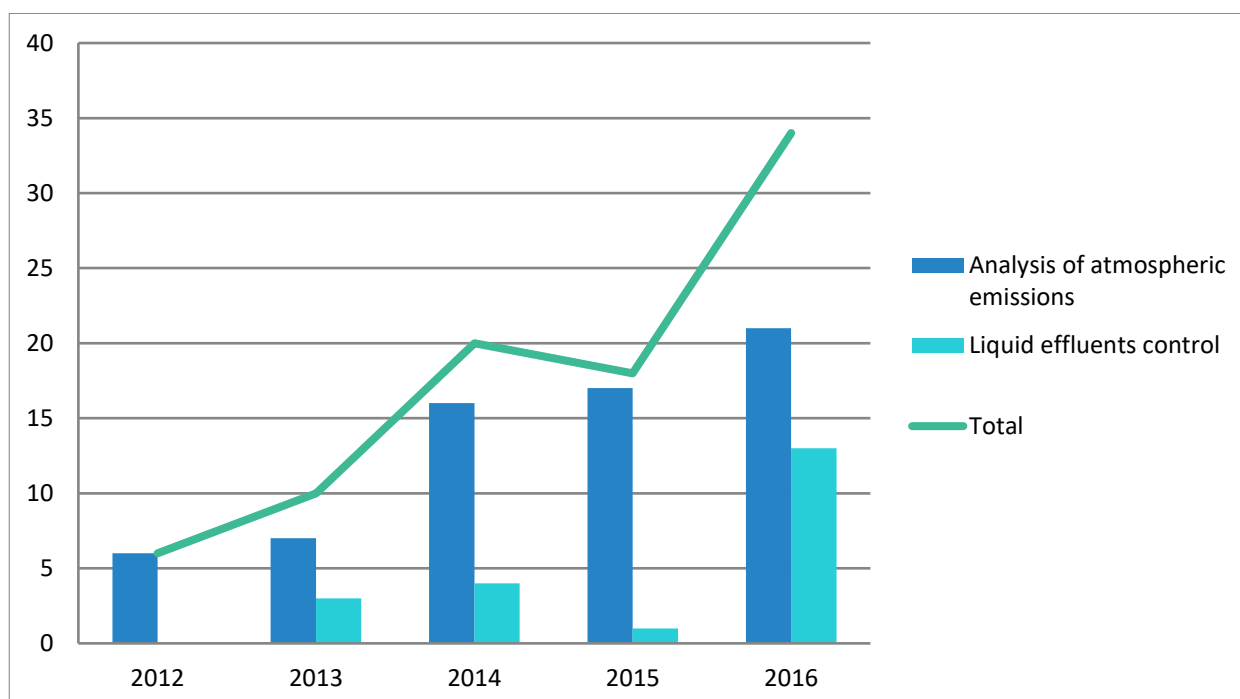
Issued authorizations – Years 2011-2016

Environmental monitoring

Chemical and mineralogical Laboratories (Division V) carry out control activity on parameters related to prevention and safety on the energetic and mineralogical sector.

Environmental monitoring – Years 2012-2016

Year	Analysis of atmospheric emissions			Liquid effluents control			Total
	Centres	Platforms	Total	Centres	Platforms	Total	
2012	6	0	6	0	0	0	6
2013	3	4	7	2	1	3	10
2014	12	4	16	3	1	4	20
2015	14	3	17	0	1	1	18
2016	17	4	21	1	12	13	34



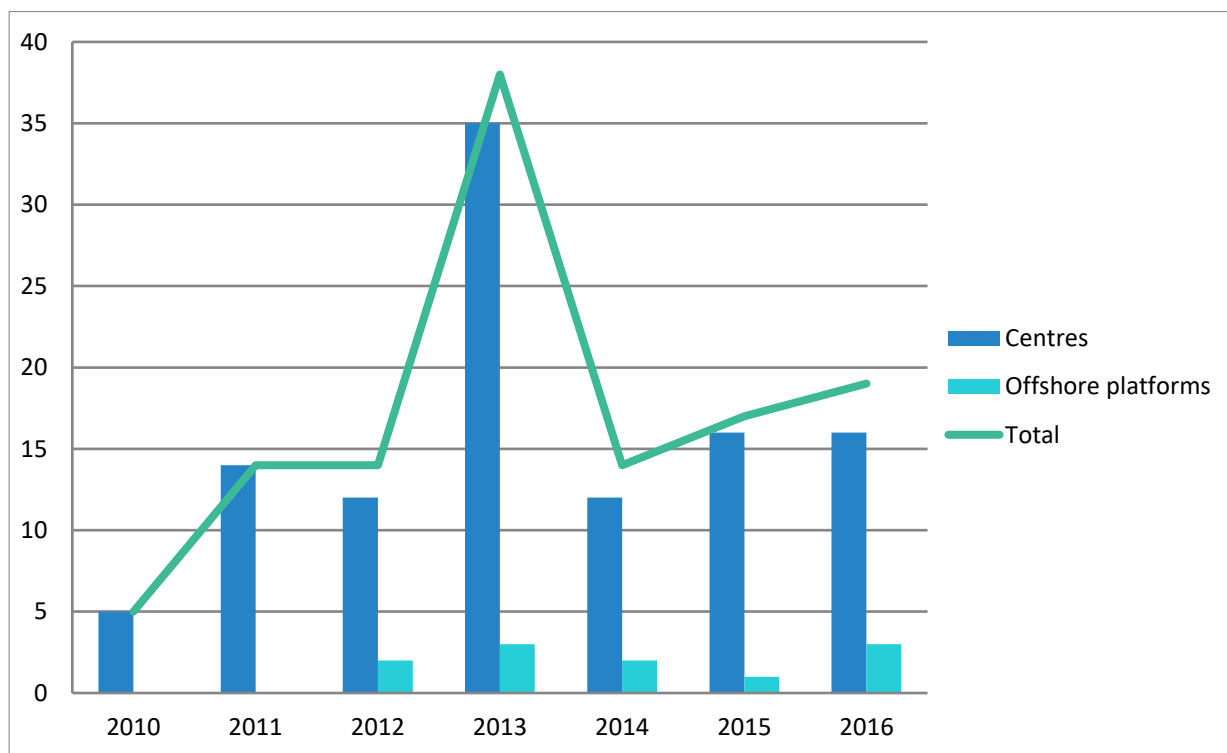
Environmental monitoring – Years 2012-2016

Gas quality control

Gas quality control consists in sampling and analysis of natural gas coming from production plants before distribution. The superior calorific value, relative density and Wobbe Index, calculated from molar gas composition must fall within acceptable parameters of gas set by [Ministerial Decree on February 19th, 2007](#).

Gas quality controls carried out - Years 2010-2016

Year	Centres	Offshore platforms	Total
2010	5	0	5
2011	14	0	14
2012	12	2	14
2013	35	3	38
2014	12	2	14
2015	16	1	17
2016	16	3	19



Gas quality control – Numbers of controls carried out - Years 2010-2016

Injuries

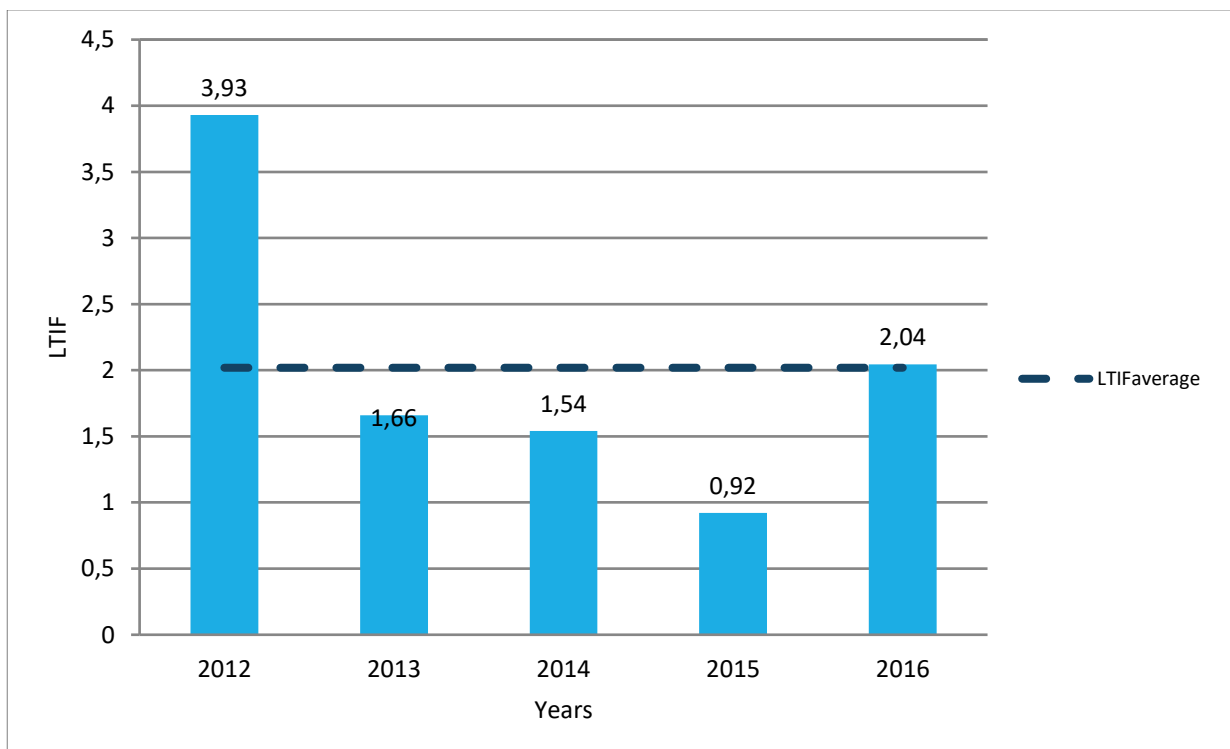
In Italy (with the exception of onshore Sicily) there was a total amount of 21 injuries in 2016 in the activities of exploration, exploitation and storage of hydrocarbons.

	Mild	Serious	Total
Onshore	6	9	15
Offshore	1	5	6
Total	7	14	21

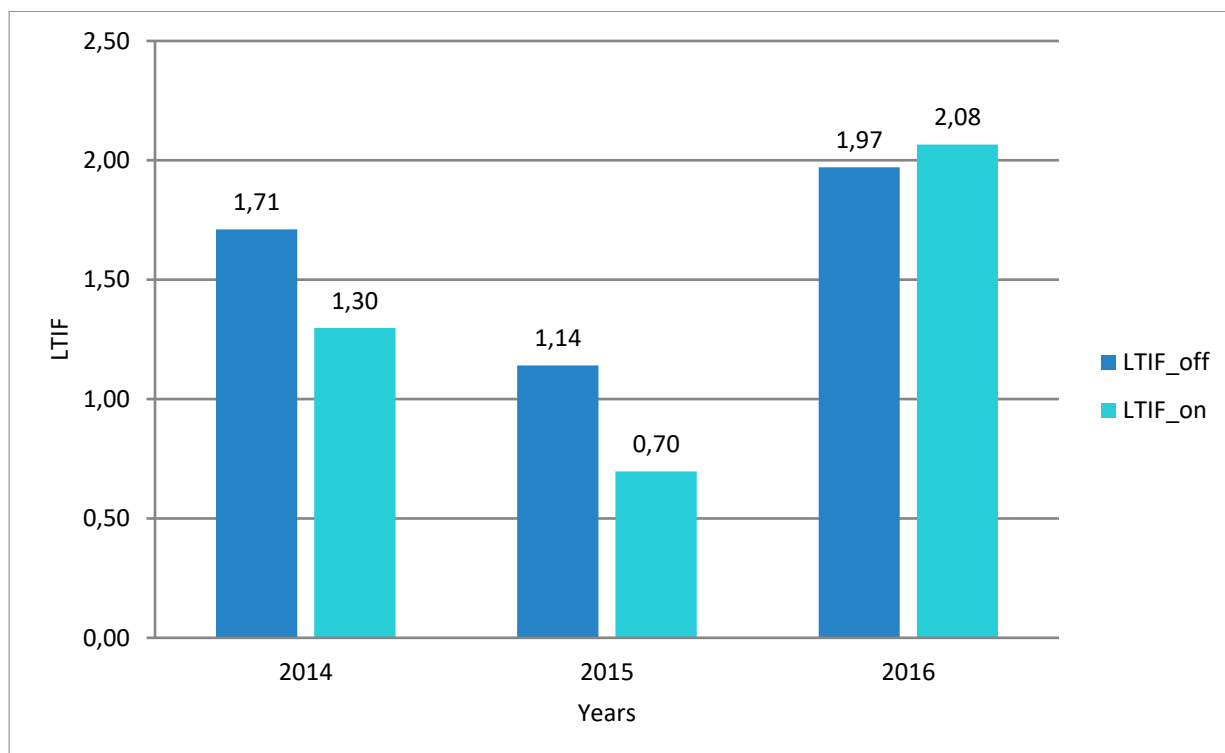
There were 4 injuries in drilling operations: 2 mild and 2 serious. In comparison to 2015 (12 injuries), in 2016 we recorded an increase of injuries mainly related to onshore activities. Among onshore incidents, 4 injuries occurred in the storage sites (1 mild and 3 serious).

Lost Time Injury Frequency

LTIF is defined as the number of lost time injuries (fatalities + lost work day cases) per 1,000,000 work hours



LTIF calculated on the injury total amount (onshore plus offshore)



Comparison of the onshore and offshore LTIF

Classification of the injuries on the basis of the activities

Activities	Mild	Serious	Total
Pipe Lines	0	0	0
Plants	3	7	10
Installations	0	0	0
Drilling	2	2	4
Production	2	4	6
Diving	0	0	0
Geophysical prospection	0	0	0
Shipping/helicopters	0	0	0
Other activities	0	1	1
Total	7	14	21

Classification of injuries occurred in 2016 on the basis of the activities

	2013	2014	2015	2016
Drilling operations				
Drilled meters	46,365	22,391	23,745	33,782
Occurred injuries	4	6	0	4
Index 1 [injuries/ drilled meters]	8.63E-05	2.68E-04	0	1.18E-04

Number of injuries occurred in drilling per drilled meter (injuries/drilled meters)

Production	2013	2014	2015	2016
Gas [Billions Sm ³]	7.71	7.28	6.88	6.02
Crude oil [Millions Ton]	5.48	5.75	5.46	3.74
Total [Millions TOE]	11.65	11.57	10.96	8.56
Occurred injuries	2	3	4	6
Index 2 [injuries/millions TOE]	0.17	0.26	0.37	0.70

Number of injuries occurred in production per millions TOE (injuries/produced millions TOE)

Classification of the injuries on the basis of the causes

Causes	Mild	Serious	Total
Slippages/ falls	3	9	12
Falls of objects	1	0	1
Machineries	2	2	4
Manipulations of objects	0	2	2
Fires / explosions	0	0	0
Electricity	0	0	0
Dangerous substances	0	0	0
Ionizing radiations	0	0	0
Blowouts	0	0	0
Others	1	1	2
Total	7	14	21

Injuries 2016. Classification injuries on the basis of the causes

Injuries in geothermal power sector

	2015	2016
Injuries amount	2 (mild)	4 (mild)
Worked hours	2,608,624	2,465,184
LTIF	0.77	1.63

Injuries 2015/2016. Injuries in geothermal power sector - Data collected by Tuscany Region - Mines and supervision on mineral and thermal waters section

HYDROCARBONS

Mining licences

Up to 31st December 2016, the following licenses were in force on national territory:

- ❖ 111 [exploration licences](#) 87 of which onshore and 24 offshore
- ❖ 202 [exploitations licences](#) 133 of which onshore and 69 offshore.

Onshore mining licenses

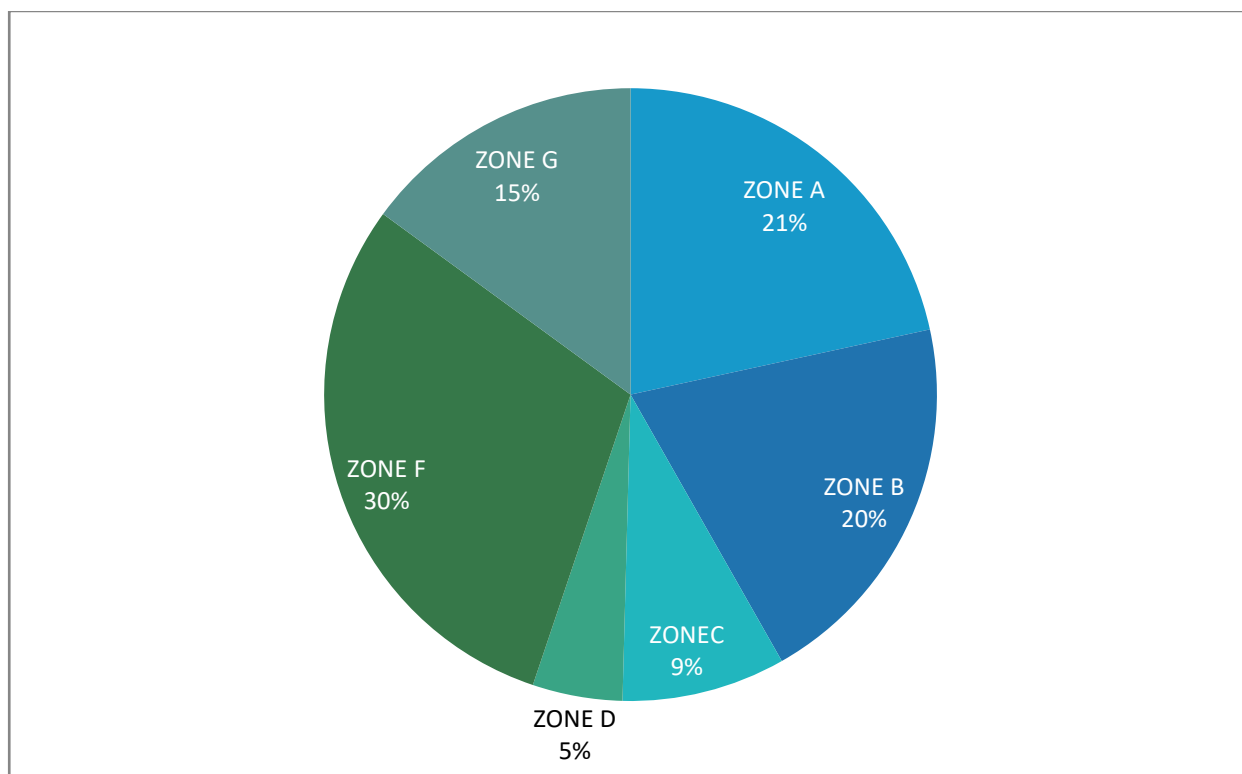
Region	Exploration licences	Exploitation licences
Abruzzo	11	8
Basilicata	10	20
Calabria	0	3
Campania	2	0
Emilia-Romagna	30	36
Friuli-Venezia Giulia	0	1
Lazio	5	1
Lombardia	14	17
Marche	8	19
Molise	5	7
Piemonte	7	1
Puglia	2	14
Sardegna	1	0
Sicilia	7	14
Toscana	0	2
Veneto	1	2
TOTAL	87	133

Mininig titles belonging to one or more region are computed each time for each region they belong to.

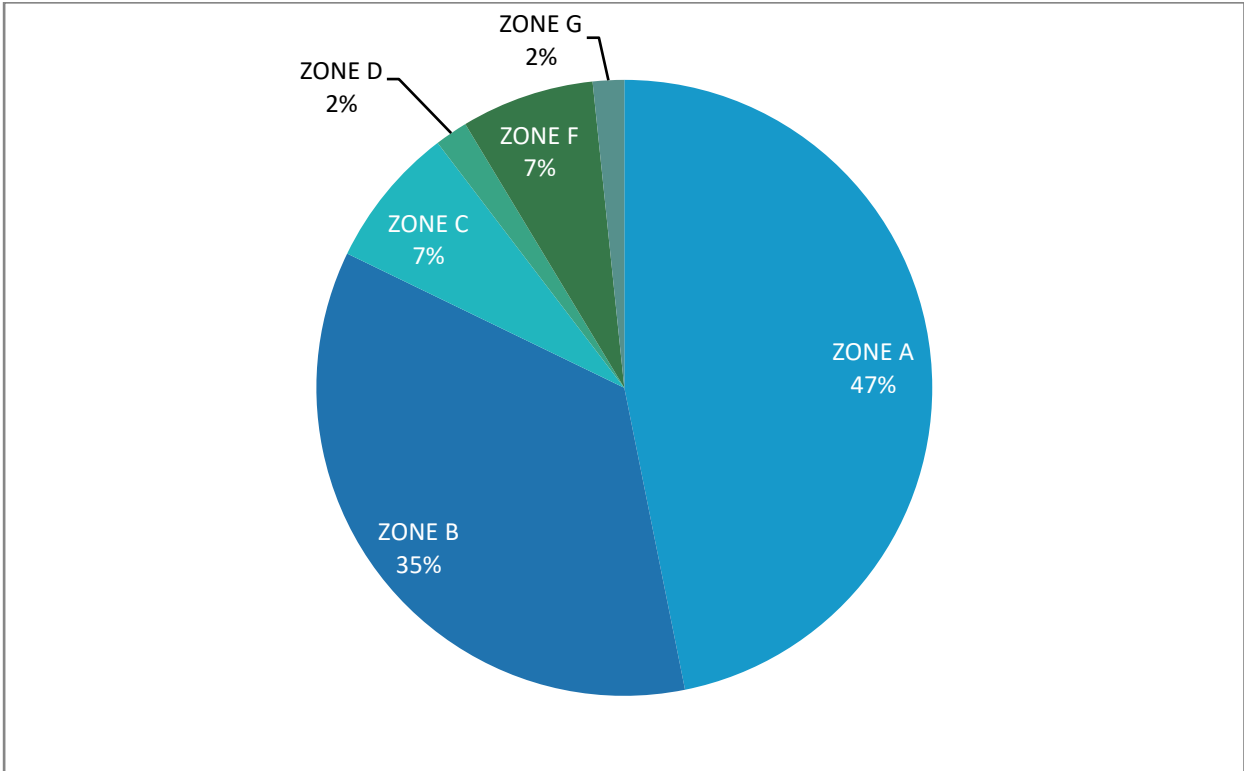
Offshore mining licenses

Marine zone	Exploration licences	Exploitation licences
ZONE A	9	39
ZONE B	6	20
ZONE C	4	3
ZONE D	3	4
ZONE E	0	0
ZONE F	5	3
ZONE G	3	1
TOTAL	24	69

Mininig titles belonging to one or more zone are computed each time for each zone they belong to.



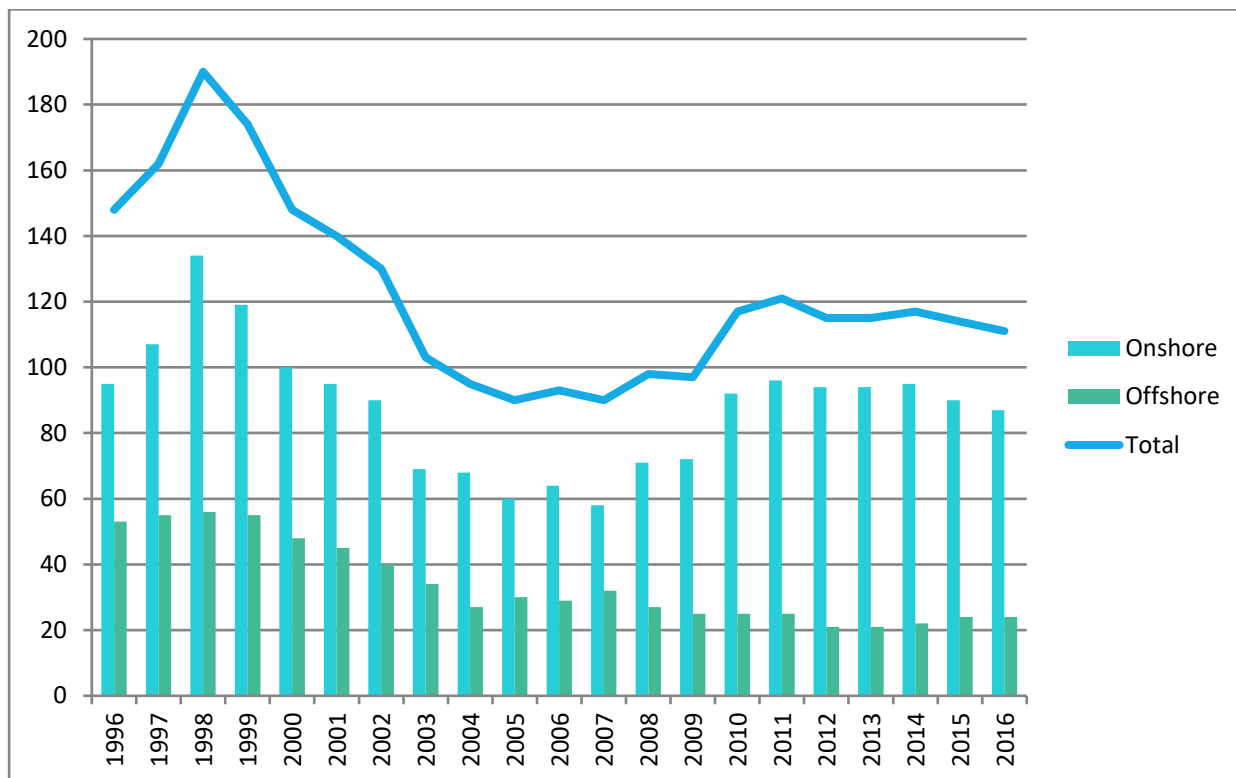
Percentage of areas under exploration licenses per marine areas - Year 2016



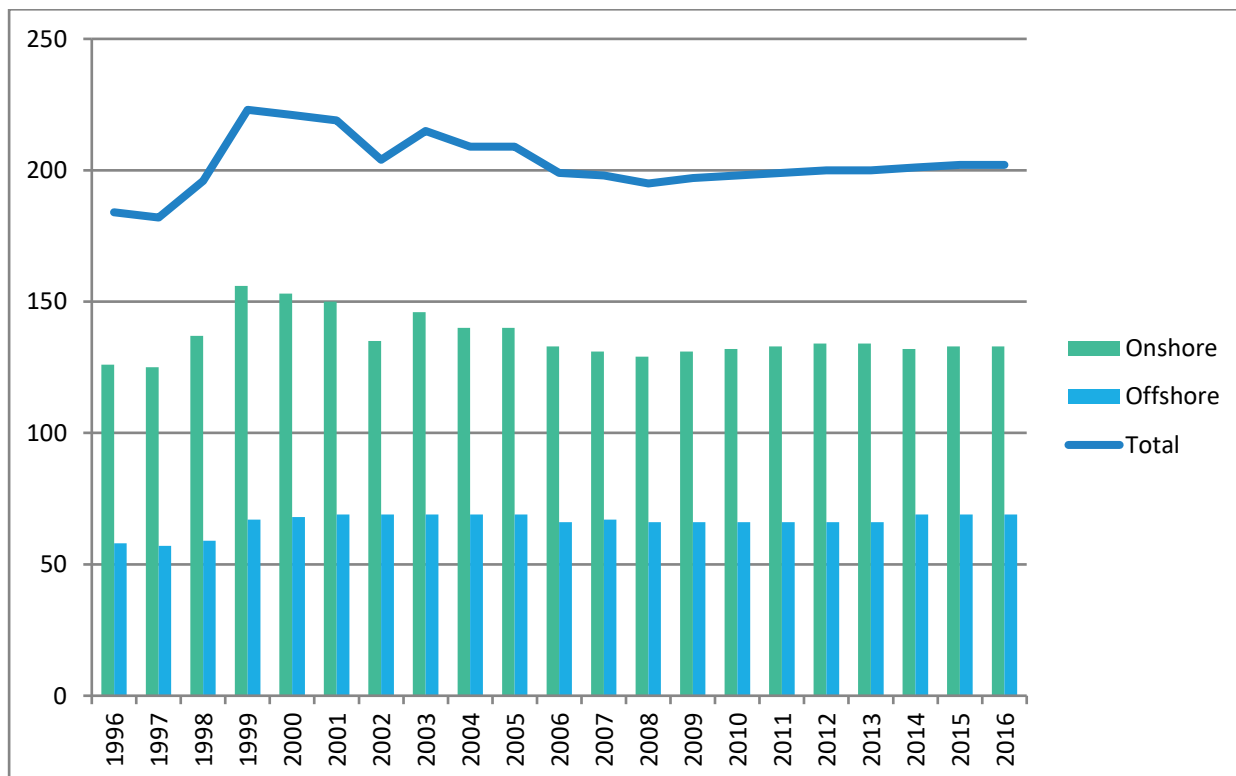
Percentage of areas under exploitation concessions per marine areas - Year 2016

Mining titles. Time Series 1996-2016

Year	Exploration licences			Exploitation licences			TOTAL
	Onshore	Offshore	Total	Onshore	Offshore	Total	
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
2016	87	24	111	133	69	202	313



Number of Exploration Licenses. Time Series years 1996-2016



Number of Exploitation Licenses. Time Series years 1996-2016

Drilling activity

In 2016 drilling activities were carried out on 17 wells, 16 onshore and 1 offshore. During the month of December drilling activity involving the only exploration well MOIRAGO 001 DIR has begun, at the date of December 31st 2016 was still ongoing. In the course of the year 4 wells, 2 development wells (1 onshore and 1 offshore) have been completed, both of them were successful as well as 2 storage wells. At the date of December 31st, 2016 drilling activities are still ongoing on 12 storage wells.

Drilling activities divided by scope. Year 2016

	Well name	Scope	Loc	Meters	Start	End (a)	Result
1	MOIRAGO 001 DIR	Exploration	On	52	15/12/16	(b)	
2	PERGOLA 001	Development	On	1,356	31/08/15	12/04/16	Oil
3	BONACCIA NW 002 DIR	Development	Off	(c)	05/12/15	28/01/16	Gas
4	CORNEGLIANO A 001	Storage	On	1,450	01/07/16	09/09/16	Gas
5	CORNEGLIANO A 002 DIR	Storage	On	886	12/09/16	(b)	
6	CORNEGLIANO A 003 DIR	Storage	On	874	24/09/16	(b)	
7	CORNEGLIANO A 004 DIR	Storage	On	1,822	06/10/16	(b)	
8	CORNEGLIANO A 005 DIR	Storage	On	861	17/10/16	(b)	
9	CORNEGLIANO A 006 DIR	Storage	On	860	29/10/16	(b)	
10	CORNEGLIANO A 007 DIR	Storage	On	1,413	12/11/16	(b)	
11	CORNEGLIANO B 001	Storage	On	2,809	08/07/16	(b)	
12	CORNEGLIANO B 002 DIR	Storage	On	898	11/09/16	(b)	
13	CORNEGLIANO B 003 DIR	Storage	On	408	24/09/16	(b)	
14	CORNEGLIANO B 004 DIR	Storage	On	1,800	06/10/16	19/12/16	Gas
15	CORNEGLIANO B 005 DIR	Storage	On	863	16/10/16	(b)	
16	CORNEGLIANO B 006 DIR	Storage	On	866	26/10/16	(b)	
17	CORNEGLIANO B 007 DIR	Storage	On	864	04/11/16	(b)	

(a) Column “End” indicates the date of the end of the activity that coincides with the date of completion, for wells with a positive outcome, or by the date of shut off, for dry holes.

(b) Drilling still in progress at December 31st, 2016

(c) Drilling completed before January 1st, 2016

In 2016, in addition to the research and development of new wells, drilling activity has also concerned the workover on 8 existing wells. During 2016, drilling activity as a whole has concerned 24 fields for a total of 33,782 meters drilled.

Workover on existing wells - Year 2016

	Well name	Scope	Loc	Meters	Start	End	Result
1	BARBARA C 015 DIR B	Workover	Off	891	14/07/16	05/10/16	Gas
2	BARBARA C 023 DIR A	Workover	Off	1,047	08/12/16	(a)	
3	BARBARA C 025 DIR A	Workover	Off	1,374	22/08/15	08/12/16	Gas
4	CERVIA 023	Workover	Off	4,165	29/12/15	08/07/16	Gas
5	MORENA 001 DIR A	Workover	Off	2,130	01/02/16	22/03/16	Gas
6	BORDOLANO 001 DIR A	Workover	On	1,826	16/08/16	01/11/16	Dry
7	MONTE ALPI 007 OR A	Workover	On	1,452	18/08/16	(a)	
8	MONTE ENOC 005 OR C	Workover	On	4,641	28/04/15	(a)	

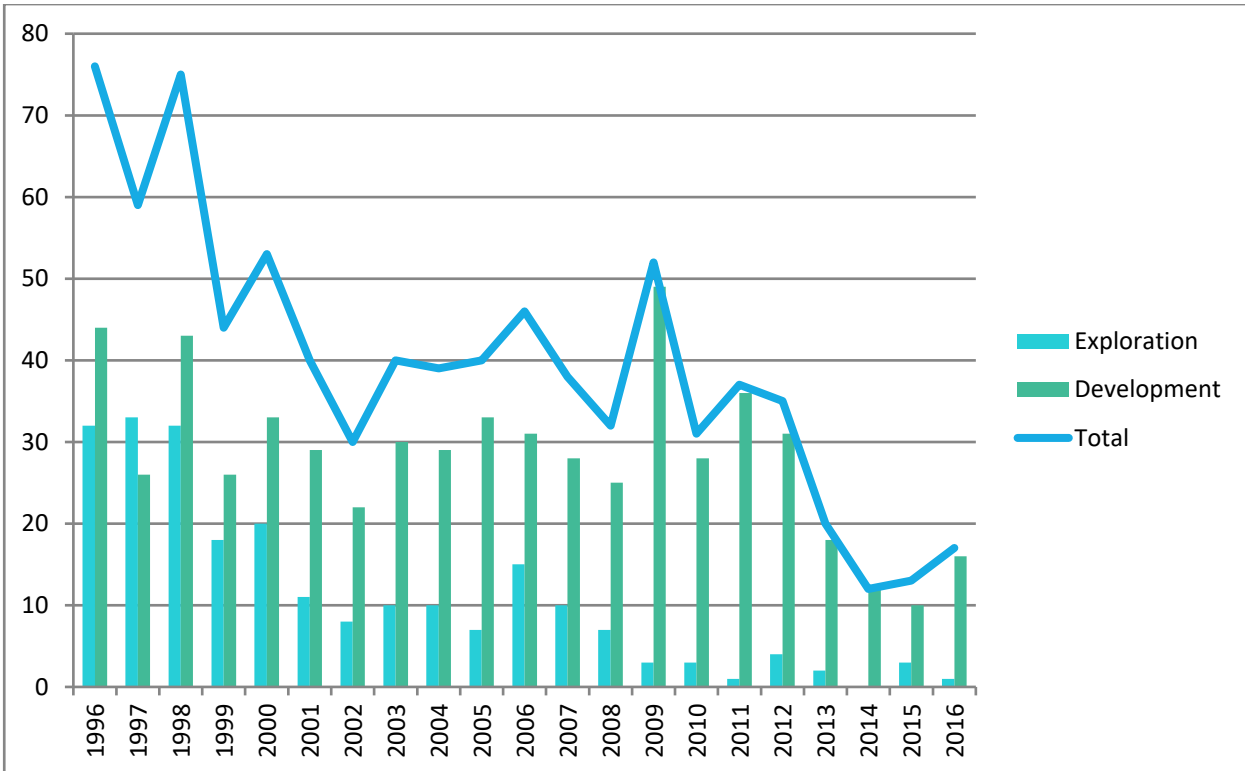
(a) Drilling still in progress at December 31st 2016

Drilling activity for exploration purposes. Time series 1996-2016

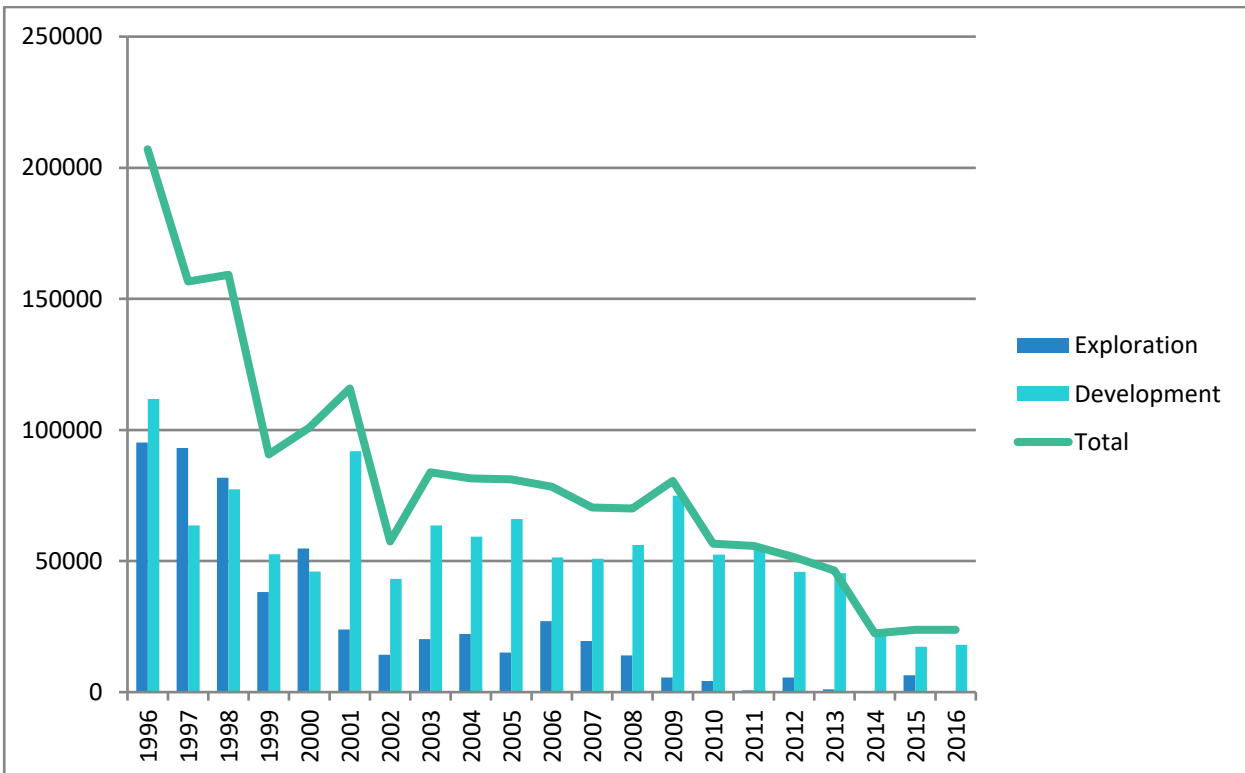
YEAR	EXPLORATION					
	Onshore		Offshore		TOTAL	
	n.	meters	n.	meters	n.	meters
1996	22	67,664	10	27,550	32	95,214
1997	22	62,800	11	30,266	33	93,066
1998	23	62,962	9	18,794	32	81,756
1999	12	25,763	6	12,374	18	38,137
2000	14	35,721	6	19,065	20	54,786
2001	9	21,610	2	2,325	11	23,935
2002	3	3,016	5	11,200	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
2016	1	52	0	0	1	52

Drilling activity for development purposes. Time series 1996-2016

YEAR	DEVELOPMENT AND OTHER					
	Onshore		Offshore		TOTAL	
	n.	meters	n.	meters	n.	meters
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
2016	15	18,030	1	0	16	18,030



Number of drilled wells. Time Series years 1996-2016



Drilled meters. Time Series years 1996-2016

Hydrocarbons discoveries

No discovery was made in 2016.

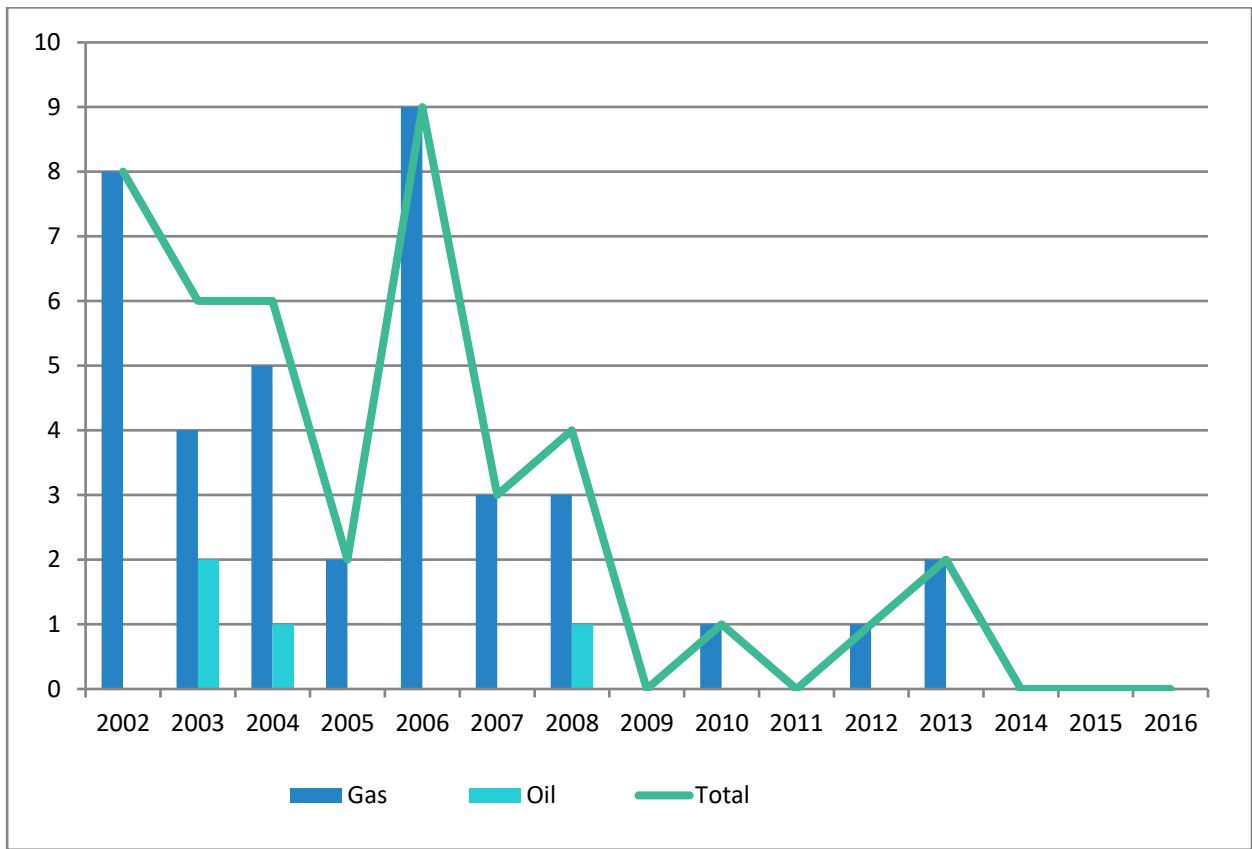
Hydrocarbons discoveries. Gas. Time series years 2002-2016

Year	Well name	Province/ Marine Zone	Location
2002	AGOSTA 001 DIR	FE	Onshore
	FONTE FILIPPO 001 DIR	CH	Onshore
	MUZZA 004 DIR A	MO	Onshore
	SAN PIETRO SW 001	AN	Onshore
	CALIPSO 003 DIR A	ZB	Offshore
	CALIPSO 004 DIR A	ZB	Offshore
	DIDONE 002	ZB	Offshore
	PANDA 001	ZG	Offshore
2003	CAPPARUCCIA 001 DIR	AP	Onshore
	ANNAMARIA 002	ZA	Offshore
	ARMIDA 001 DIR A	ZA	Offshore
	PANDA OVEST 001	ZG	Offshore
2004	ABBADESSE 001 DIR	RA	Onshore
	CIVITA 001 DIR	CH	Onshore
	MONTE DALL'AQUILA 001 DIR	CT	Onshore
	MONTE GUZZO 001 DIR	AP	Onshore
	SANTA MADDALENA 001 DIR	BO	Onshore
2005	MEZZOCOLLE 001 DIR	BO	Onshore
2006	CODOGNO 001 DIR	CR	Onshore
	COLLE SCIARRA 001 DIR A	TE	Onshore
	FILICI 001 DIR A	MT	Onshore
	FONTE FILIPPO SUD EST 001	CH	Onshore
	LONGANESI 001	RA	Onshore
	RIPALTA 061 OR	BO	Onshore
	SILLARO 001 DIR	BO	Onshore
	VITALBA 001 DIR	CR	Onshore
	BENEDETTA 001 DIR	Zone A	Offshore
ARGO 001	Zone B	Offshore	
2007	COLLE SCIARRA 001 DIR B	TE	Onshore

	MONTE PALLARO 001 DIR	CH	Onshore
	MONTE PALLARO 002 DIR	CH	Onshore
2008	MONTE DELLA CRESCIA 001 DIR	AN	Onshore
	CASSIOPEA 001 DIR	Zone G	Offshore
	ARGO 002	Zone G	Offshore
2009			
2010	MASSERIA MORANO 001 DIR	AN	Onshore
2011			
2012	CASA TIBERI 001	AN	Onshore
2013	GRADIZZA 001	FE	Onshore
	SANT'ANDREA 001 DIR ST1	TV	Onshore
2014			
2015			
2016			

Hydrocarbons discoveries. Oil. Time series years 2002-2016

Year	Well name	Province/ Marine Zone	Location
2002			
2003	AGRI 001	PZ	Onshore
	AGRI 001 OR A	PZ	Onshore
2004	TRESAUTO 001 DIR	RG	Onshore
2005			
2006			
2007			
2008	OMBRINA MARE 002 DIR	Zone B	Offshore
2009			
2010			
2011			
2012			
2013			
2014			
2015			
2016			



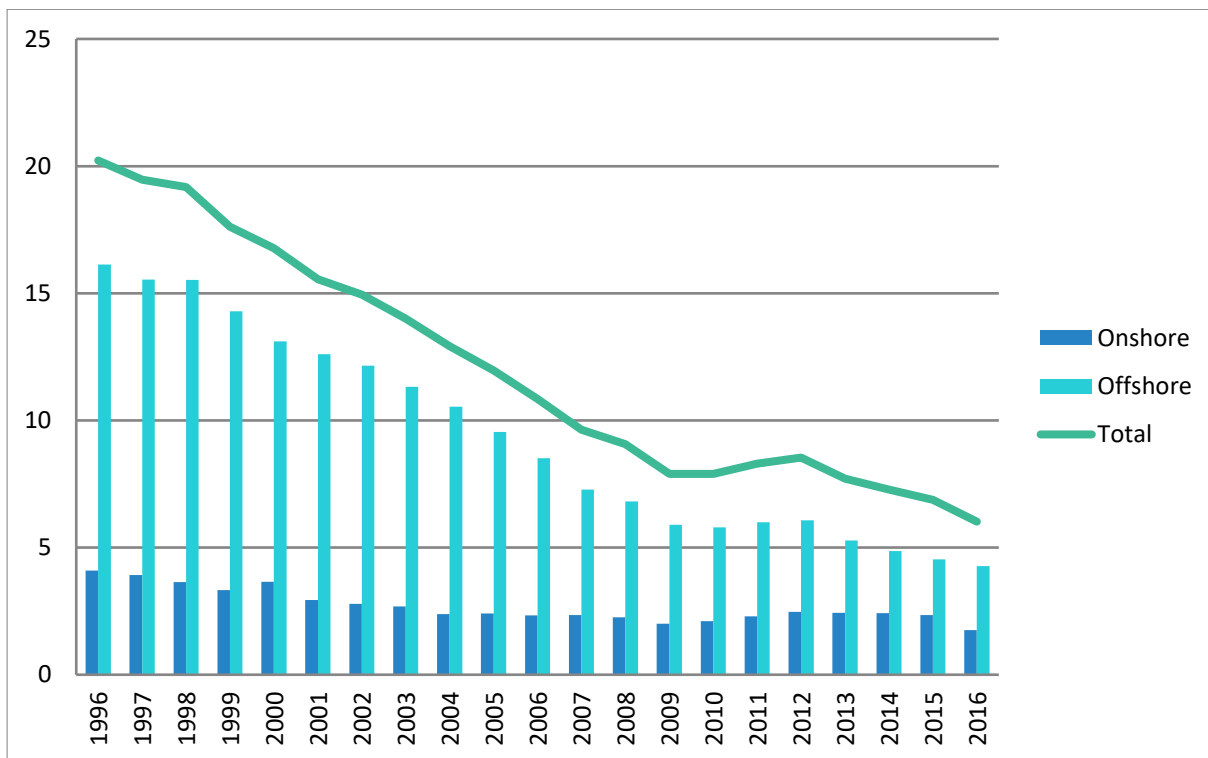
Number of discoveries. Time Series years 2002-2016

Production activity

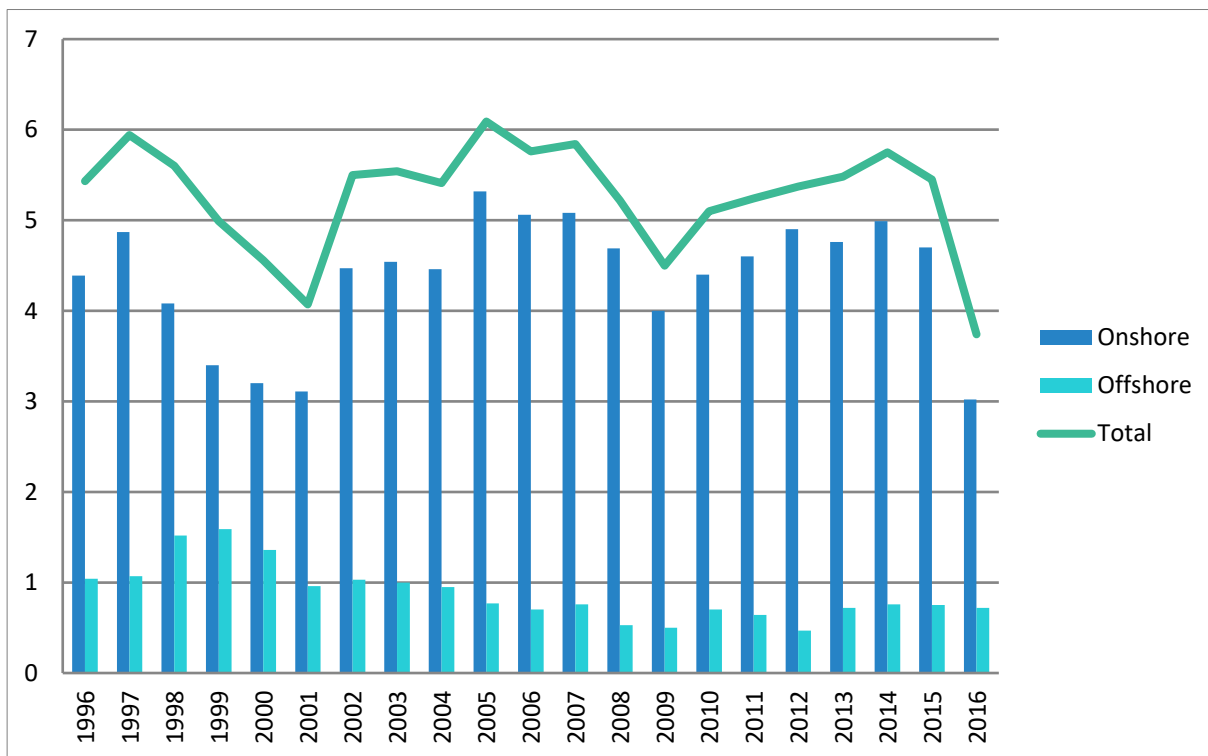
In 2016, compared to the previous year, hydrocarbons [production activity](#) was characterized by a decline in natural gas production (-12.5 %) and oil production (-31.3 %).

Hydrocarbons production. Time series years 2006-2016

Year	GAS (billion of Sm ³)			OIL (million of tons)			GASOLINA (thousands of tons)		
	Onshore	Offshore	Total	Onshore	Offshore	Total	Onshore	Offshore	Total
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
2016	1.75	4.27	6.02	3.02	0.72	3.74	13.30	0.39	13.69



Production of gas (billion of Sm³). Time series - Years 1996-2016



Oil production (million of tons). Time series - Years 1996-2016

Natural gas production

As for [natural gas](#), 2016 was characterized by a production of 6.02 billion of Sm³ with a decrease, as already mentioned, of 12.5 % compared to 2015 production (6.88 billion of Sm³)

Gas production by Region/Marine Zone

Region/Zone	2016	2015	% variation 2016/2015	% on total domestic prod
Abruzzo	26.41	24.35	8%	0%
Basilicata	1,027.33	1,526.73	-33%	17%
Calabria	7.22	7.46	-3%	0%
Emilia Romagna	148.36	168.00	-12%	2%
Lombardia	16.47	25.52	-35%	0%
Marche	18.93	43.18	-56%	0%
Molise	79.75	75.32	6%	1%
Piemonte	4.18	10.15	-59%	0%
Puglia	206.73	235.09	-12%	3%
Sicilia	213.02	232.59	-8%	4%
Toscana	2.68	1.14	135%	0%
Veneto	2.82	1.66	70%	0%
TOTAL Onshore	1,753.90	2,351.19	-25%	29%
Zone A	2,516.65	3,050.11	-17%	42%
Zone B	1,116.90	781.00	43%	19%
Zone C	4.03	5.57	-28%	0%
Zone D	602.08	657.75	-8%	10%
Zone F	27.44	31.41	-13%	0%
TOTAL Offshore	4,267.10	4,525.84	-6%	71%
TOTAL	6,021.00	6,877.03	-12.4%	100%

[million of Sm³]

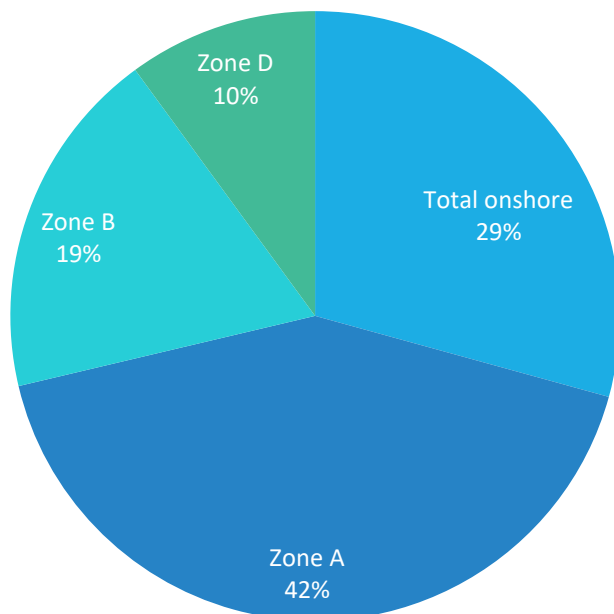
Oil production

As for the [crude oil](#), in 2016 there was a production of 3.75 million tons, with a decline, as already mentioned, of 31.3 % compared to the 2015 production (5.46 million tons).

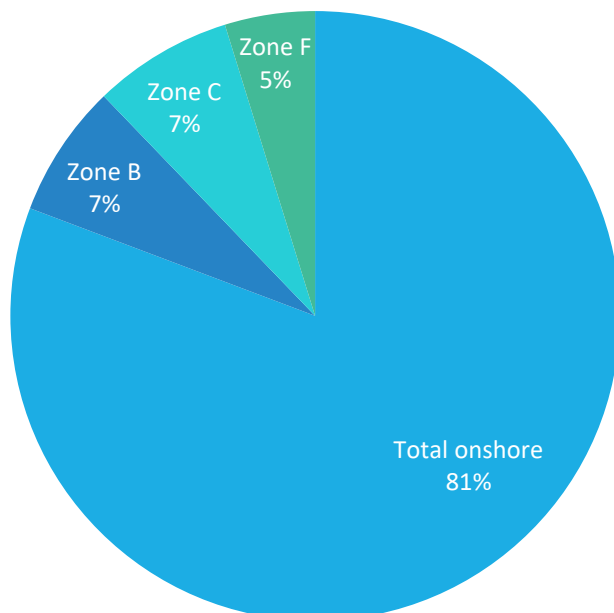
Oil production by Region/Marine Zone

Region/Zone	2016	2015	% variation 2016/2015	% on total domestic prod
Basilicata	2,297.42	3,767.25	-39%	61%
Emilia Romagna	22.44	23.99	-6%	1%
Molise	9.55	9.79	-2%	0%
Piemonte	16	35.37	-55%	0%
Sicilia	678.95	868.17	-22%	18%
TOTAL Onshore	3,024.36	4,704.57	-36%	81%
Zone B	264.75	295.83	-11%	7%
Zone C	277.50	247.05	12%	7%
Zone F	179.22	207.80	-14%	5%
TOTAL Offshore	721.47	750.68	-4%	19%
TOTAL	3,745.83	5,455.25	-31.3%	100%

[ktons]



National gas production by area. Year 2016



Crude oil production by area. Year 2016

Production plants

In the 202 production licenses there are 818 productive wells, of which 656 are gas wells, 162 oil wells, 474 are onshore and 344 offshore. Produced hydrocarbons are sent to 77 (gas) and 14 (oil) treatment and collection plants.

Production wells divided by Region/Marine zone

	GAS	OIL	TOTAL
ABRUZZO	4	0	4
BASILICATA	7	23	30
CALABRIA	8	0	8
EMILIA ROMAGNA	191	3	194
LOMBARDIA	9	0	9
MARCHE	8	2	10
MOLISE	18	6	24
PUGLIA	39	0	39
SICILIA	45	66	111
TOSCANA	45	0	45
TOTAL Onshore	374	100	474
ZONE A	209	0	209
ZONE B	50	31	81
ZONE C	0	30	30
ZONE D	23	0	23
ZONE F	0	1	1
TOTAL Offshore	282	62	344
TOTAL	656	162	818

Number of collection and treatment plants by 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

In the Italian offshore, 136 offshore plants are installed divided by:

- 119 production platforms (including 13 subsea wellheads);
- 8 platforms for production supporting (compression or connection);
- 9 not operating plants

Number of marine platforms divided by zone

MARINE ZONE	GAS	OIL	TOTAL
Zone A	75	0	75
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	136

Number of marine platforms divided by tipology

TIPOLOGY	GAS	OIL	TOTAL
monotubolar	22	1	23
bitubolar	3	0	3
cluster	8	0	8
reticular structure	79	10	89
subsea wellhead	11	2	13
TOTAL	123	13	136

Part of the offshore crude oil production is transported by pipelines to the 3 onshore oil treatment plants. The remaining offshore oil production is temporarily stored by means of a FSO/ FPSO unit (floating production storage and offloading)¹.

In Italy, operative FSO are «ALBA MARINA» in Rospo field (license B.C 8.LF), «FIRENZE FPSO» in Aquila field (license F.C 2.AG) and «LEONIS» in Vega field (license C.C 6.EO).

The complete list of [producing wells](#), [gathering and treatment centres](#) and [offshore platforms](#) is published in the DGS-UNMIG website.

¹ They 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 geo-stationary 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.

Reserves

According to the International Classification, the reserves data at December 31st 2016, subdivided in proved ², probable³ and possible⁴, show a decrease of about 11.6% for gas and approximately 8.2 % for oil, with respect to the figure at 2015, after subtracting the production obtained in 2016.

Reevaluated reserves

	Reserves 2015	Production 2016	Reserves less the 2016 production	Reevaluated reserves 2016	Change %
GAS (million of Sm ³)	49,122	6,021	43,101	38,114	-11.6%
OIL (thousand of tons)	81,511	3,745	77,766	71,419	-8.2%

As for the location of proved reserves, the 52.3 % of the total amount of natural gas is located in the offshore, whilst the 91.2 % of crude oil reserves is located onshore, mostly in Basilicata Region.

² Proved reserves are those estimated quantities of hydrocarbons which, on geological and reservoir engineering data available, can be, with reasonable certainty (probability greater than 90%), commercially recoverable, under the technical, contractual, economic and operating conditions existing at the moment considered.

³ Probable reserves are those quantities of hydrocarbons which on 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.

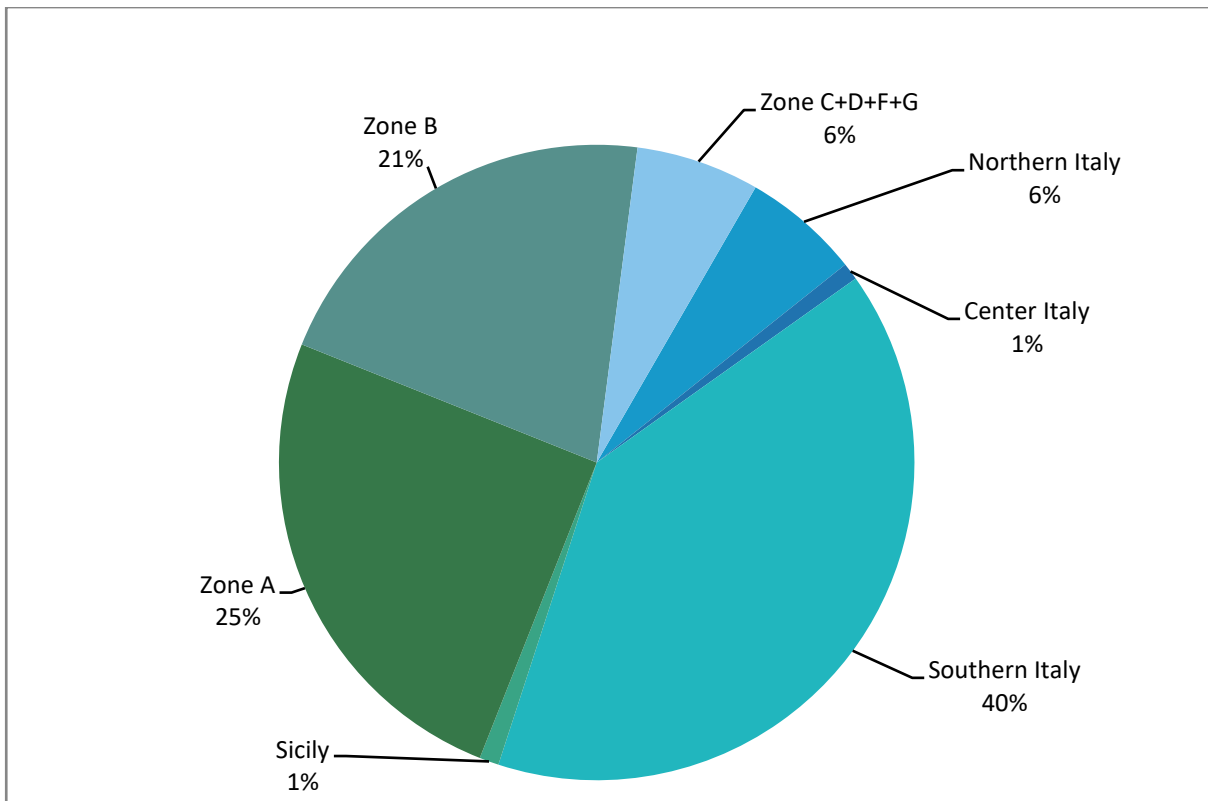
⁴ Possible reserves are the quantities that are estimated to be recoverable with a significantly lower probability (largely below 50%) with respect to probable reserves, or which present worse economics with respect to the established limit.

Natural gas reserves up to December 31st 2016

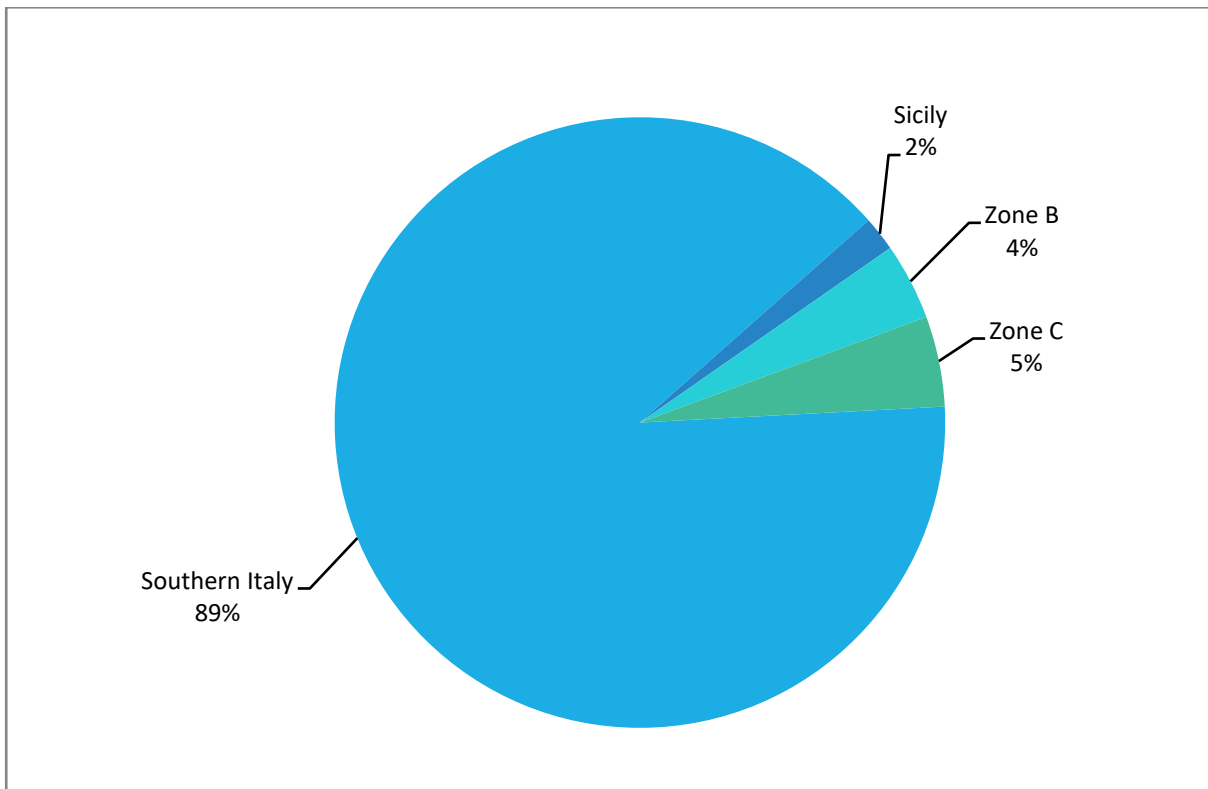
GAS (million of Sm ³)				
	Proved	Probable	Possible	% Proved
Northern Italy	2,273	3,023	96	6.0%
Central Italy	332	1,808	224	0.9%
Southern Italy	15,185	21,248	10,550	39.8%
Sicily	378	1,205	389	1.0%
Total Onshore	18,168	27,284	11,259	47.7%
Zone A	9,552	7,424	3,236	25.1%
Zone B	8,000	8,010	4,437	21.0%
Zone C+D+F+G	2,394	10,963	2,977	6.3%
Total Offshore	19,946	26,397	10,650	52.3%
TOTAL	38,114	53,681	21,909	100.0%

Oil reserves up to December 31st 2016

OIL (thousand of tonnes)				
	Proved	Probable	Possible	% Proved
Northern Italy	211	125	0	0.3%
Central Italy	30	2,544	737	0.0%
Southern Italy	63,570	80,757	48,839	89.0%
Sicily	1,304	812	9,110	1.8%
Total Onshore	65,115	84,238	58,686	91.2%
Zone B	2,898	777	0	4.1%
Zone C	3,406	3,627	17	4.8%
Zone F	0	0	0	0.0%
Total Offshore	6,304	4,404	17	8.8%
TOTAL	71,419	88,642	58,703	100.0%



Proved reserves of GAS by region at December 31st 2016



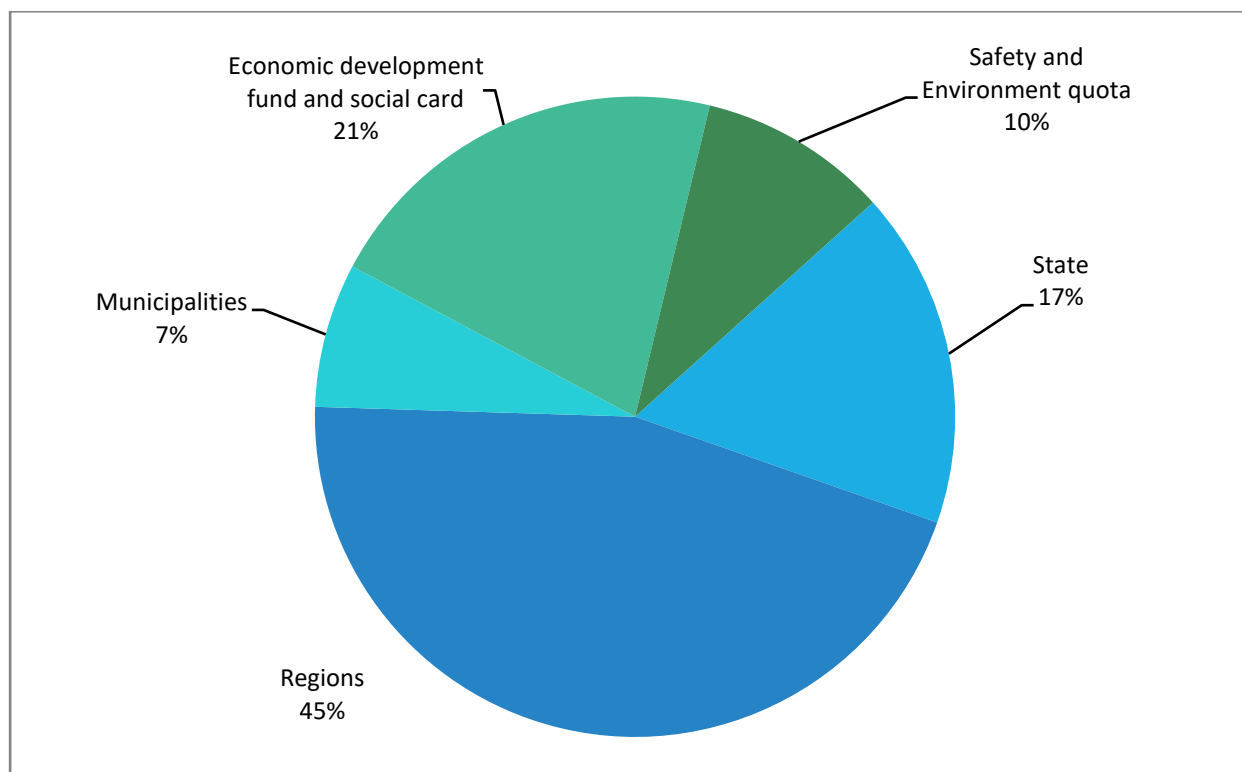
Proved reserves of OIL by region at December 31st 2016

Royalties

In Italy, hydrocarbons deposits are public unavailable property. 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.

Proceeds from royalties in 2016 by recipients

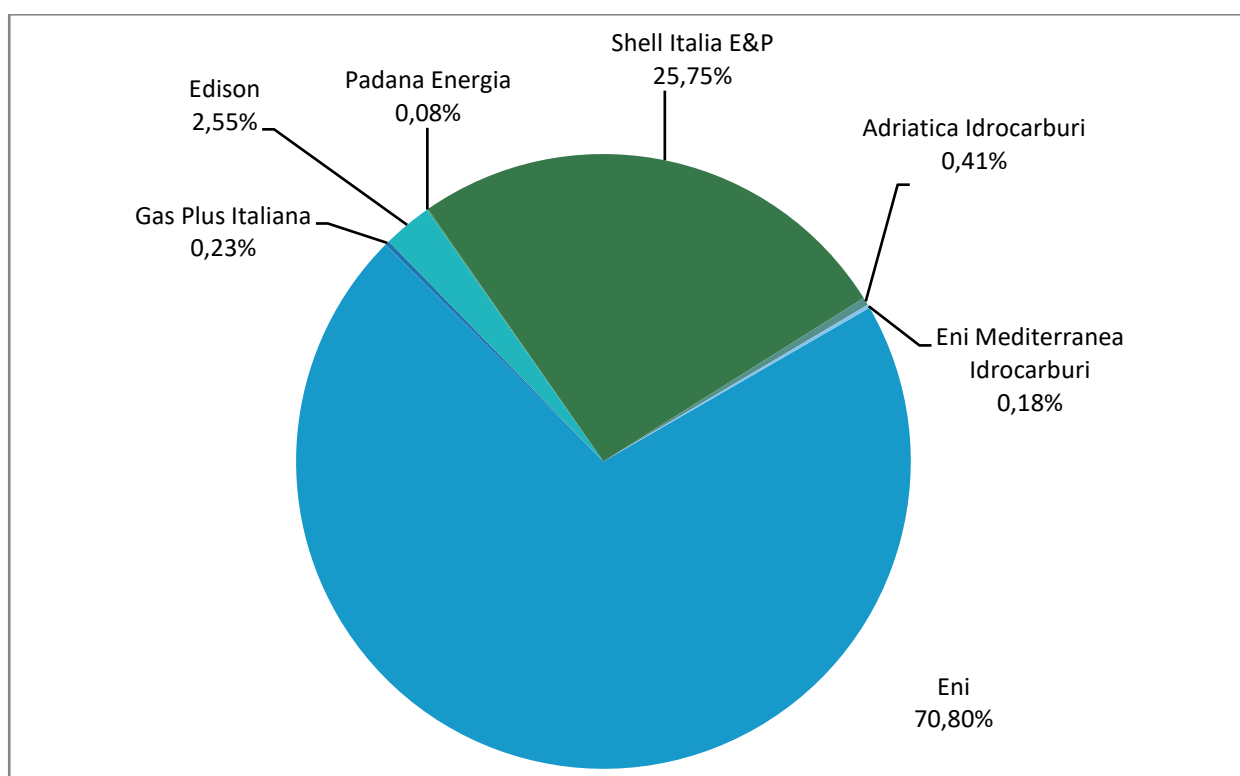
Recipients	Proceeds (€)
State	37,942,294.76
Regions	100,585,793.26
Municipalities	16,232,958.32
Economic development fund and social card	46,745,967.26
Safety and environment quota	21,348,780.61
TOTAL	222,855,794.21



Proceeds from royalties in 2016 by recipients

Royalties revenues for the 2016. Payments made by Operators

Operator	Proceeds (€)
Eni	157,787,352.27
Shell Italia E&P	57,382,146.38
Edison	5,691,257.90
Adriatica Idrocarburi	910,378.74
Gas Plus Italiana	512,197.18
Eni Mediterranea Idrocarburi	404,781.57
Padana Energia	167,680.17
TOTALE	222,855,794.21



Royalties revenues for the 2015. Payments made by Operators

Natural gas storage

In 2016 are in force 15 storage concessions. To 14 storage plants are connected 510 wells of which 359 used to store natural gas.

Natural gas storage concessions

	Concession	Operator	Province	Year
1	ALFONSINE STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	RA	1997
2	BORDOLANO STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	BS-CR	2001
3	BRUGHERIO STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	MI	1997
4	CELLINO STOCCAGGIO	EDISON STOCCAGGIO	TE	1984
5	COLLALTO STOCCAGGIO	EDISON STOCCAGGIO	TV	1994
6	CORNEGLIANO STOCCAGGIO	ITAL GAS STORAGE	LO	2011
7	CORTEMAGGIORE STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	PC-PR	1997
8	CUGNO LE MACINE STOCCAGGIO	GEOGASTOCK	MT	2012
9	FIUME TRESTE STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	CB-CH	1982
10	MINERBIO STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	BO	1997
11	RIPALTA STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	CR	1997
12	SABBIONCELLO STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	FE	1997
13	SAN POTITO E COTIGNOLA STOCCAGGIO	EDISON STOCCAGGIO BLUGAS INFRASTRUTTURE	RA	2009
14	SERGNANO STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	BG-CR	1997
15	SETTALA STOCCAGGIO	STOCCAGGI GAS ITALIA (STOGIT)	LO-MI	1997

Centres and storage wells

	Centres	Concession	Connected wells	Storage wells
1	ALFONSINE	ALFONSINE STOCCAGGIO	12	
2	BORDOLANO	BORDOLANO STOCCAGGIO	11	9
3	BRUGHERIO	BRUGHERIO STOCCAGGIO	9	8
4	CELLINO	CELLINO STOCCAGGIO	23	5
5	COLLALTO	COLLALTO STOCCAGGIO	22	17
7	CORTEMAGGIORE	CORTEMAGGIORE STOCCAGGIO	58	40
8	GROTTOLE FERRANDINA	CUGNO LE MACINE STOCCAGGIO	15	
9	FIUME TRESTE	FIUME TRESTE STOCCAGGIO	125	85
10	MINERBIO	MINERBIO STOCCAGGIO	58	51
11	RIPALTA	RIPALTA STOCCAGGIO	40	35
12	SABBIONCELLO	SABBIONCELLO STOCCAGGIO	37	32
13	SAN POTITO E COTIGNOLA	SAN POTITO E COTIGNOLA STOCCAGGIO	17	11
14	SERGNANO	SERGNANO STOCCAGGIO	38	35
15	SETTALA	SETTALA STOCCAGGIO	41	31

During 2016, in CORNEGLIANO STOCCAGGIO, ITAL GAS STORAGE Company licence for natural gas storage, 4 new wells were drilled but were not connected to the central because it has not been realized yet.

Storage capacity of European Countries. Year 2016

	Million of Sm ³
Germany	23,790
ITALY	17,144
Netherlands	13,783
France	12,298
Austria	8,649
Hungary	6,135
UK	4,644
Czech Republic	3,421
Slovakia	3,291
Poland	3,218
Romania	2,985
Spain	2,854
Latvia	2,333
Denmark	1,124
Belgium	748
Bulgaria	573
Croatia	505
Portugal	326
Ireland	231
Sweden	10
TOTAL	108,062

Year 2016, by Gas Storage Europe Map

Southern Italy methane network

In order to complete the construction of Southern Italy methane network, [Law 27th December 2013, n. 147](#), authorized the concession of capital grand contributions to municipalities allocating 20 million euro for each of the years from 2014 to 2020 in completion of methane gas distribution pipes.

Following the submission of applications for contributions, the DGS-UNMIG has implemented [Directives for the implementation](#) of 4 categories of municipalities.

List of municipalities included in the first category

	Municipality	Region	Province	Operator
1	ALBANELLA	Campania	SA	Amalfitana Gas
2	CAPACCIO	Campania	SA	Amalfitana Gas
3	CASAMICCIOLA	Campania	NA	C.P.L. Concordia
4	LACCO AMENO	Campania	NA	C.P.L. Concordia

Total investment for the first phase: 22.68 million euro.

List of municipalities included in the second category

	Municipality	Region	Province	Operator
5	AGROPOLI	Campania	SA	Amalfitana Gas
6	ALFANO	Campania	SA	Cilento Reti Gas
7	AQUARA	Campania	SA	Amalfitana Gas
8	ASCEA	Campania	SA	Cilento Reti Gas
9	BARANO	Campania	NA	C.P.L. Concordia
10	BELLOSQUARDO	Campania	SA	Amalfitana Gas
11	CAMEROTA	Campania	SA	Cilento Reti Gas
12	CAMPORA	Campania	SA	Amalfitana Gas
13	CANNALONGA	Campania	SA	Cilento Reti Gas
14	CASALVELINO	Campania	SA	Cilento Reti Gas
15	CASALETTO SPARTANO	Campania	SA	Cilento Reti Gas
16	CASELLE IN PITTARI	Campania	SA	Cilento Reti Gas
17	CASTELLABATE	Campania	SA	Amalfitana Gas
18	CASTELNUOVO CILENTO	Campania	SA	Cilento Reti Gas
19	CELLE DI BULGHERIA	Campania	SA	Cilento Reti Gas
20	CENTOLA	Campania	SA	Cilento Reti Gas
21	CERASO	Campania	SA	Amalfitana Gas
22	CICERALE	Campania	SA	Amalfitana Gas
23	CUCCARO VETERE	Campania	SA	Amalfitana Gas
24	FAVARA	Sicilia	AG	C.P.L. Concordia
25	FUTANI	Campania	SA	Cilento Reti Gas
26	GIOI	Campania	SA	Cilento Reti Gas
27	GIUNGANO	Campania	SA	Amalfitana Gas
28	ISPANI	Campania	SA	Cilento Reti Gas
29	LAUREANA CILENTO	Campania	SA	Amalfitana Gas
30	LAURINO	Campania	SA	Amalfitana Gas
31	LAURITO	Campania	SA	Cilento Reti Gas
32	LUSTRA	Campania	SA	Amalfitana Gas
33	MAGLIANO VETERE	Campania	SA	Amalfitana Gas
34	MOIO DELLA CIVITELLA	Campania	SA	Amalfitana Gas
35	MONTANO ANTILIA	Campania	SA	Cilento Reti Gas
36	MONTEFORTE CILENTO	Campania	SA	Amalfitana Gas
37	MORIGERATI	Campania	SA	Cilento Reti Gas
38	NOVI VELIA	Campania	SA	Cilento Reti Gas
39	OMIGNANO	Campania	SA	Amalfitana Gas
40	ORRIA	Campania	SA	Amalfitana Gas
41	PERITO	Campania	SA	Amalfitana Gas

Total investment for the second phase: 241.45 million euro.

List of municipalities included in the third category

	Municipality	Region	Province	Operator
1	MONTEVERDE	Campania	AV	Metaedil
2	ROCCADASPIDE	Campania	SA	Metaedil
3	SAM MAURO CILENTO	Campania	SA	Metaedil
4	POLLICA	Campania	SA	Metaedil
5	CASTEL SAN LORENZO	Campania	SA	Metaedil
6	FELITTO	Campania	SA	Metaedil

Total investment for the third phase: 35.76 million euro.

List of municipalities included in the fourth category

	Municipality	Region	Province	Operator
1	ACQUAFONDATA	Lazio	FR	Melfi Reti Gas
2	MONTECORICE	Campania	SA	Metaedil
3	CASTELVETERE SUL CALORE	Campania	AV	Metaedil
4	CUSANO MUTRI	Campania	BN	Pomilia Gas
5	SACCO	Campania	SA	Amalfitana Gas
6	STELLA CILENTO	Campania	SA	Cilento reti Gas
7	SESSA CILENTO	Campania	SA	Cilento Reti Gas

Total investment for the fourth phase: 28.26 million euro.

Geothermal resources

The DGS-UNMIG has responsibility on the evaluation of the projects related to exploration permits for geothermal resources within experimental plants.

The [Legislative Decree no. 22/2010](#) established that mining rights may be granted allowing a total legal commitment not exceeding 50 MWe. At present instances have been received to cover the expected maximum power and new instances can only be accepted with reserve.

Applications for exploration permits directed to experimental plants

	Name	Operator	Province	Phase
1	CASTEL GIORGIO-TORRE ALFINA	ITW-LKW GEOTERMIA ITALIA	Viterbo Terni	Involvement with local authorities
2	LUCIGNANO	LUCIGNANO PILOT PROJECT	Siena	EIA in progress
3	CORTOLLA	R.T.I. RENEWEM - CO.SVI.G.	Pisa	EIA requested
4	CASA DEL CORTO	SVOLTA GEOTERMICA	Siena	EIA requested
5	FORIO	ISCHIAGEOTERMIA	Napoli	EIA requested
6	MONTENERO	GESTO ITALIA	Grosseto	EIA requested
7	SCARFOGLIO	GEOELECTRIC	Napoli	EIA requested
8	CASTELNUOVO	RGT-RETE GEOTERMICA TOSCANA	Pisa Siena	EIA requested

Applications accepted with reserve

	Name	Operator	Province
1	SERRACONA	GRAZIELLA GREEN POWER	Siena
2	LATERA	LATERA SVILUPPO	Viterbo

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