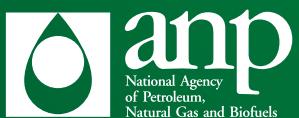


OIL, NATURAL GAS  
AND BIOFUELS  
STATISTICAL YEARBOOK

2013



OIL, NATURAL GAS  
AND BIOFUELS  
STATISTICAL YEARBOOK

2013

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**MINISTER OF MINES AND ENERGY**

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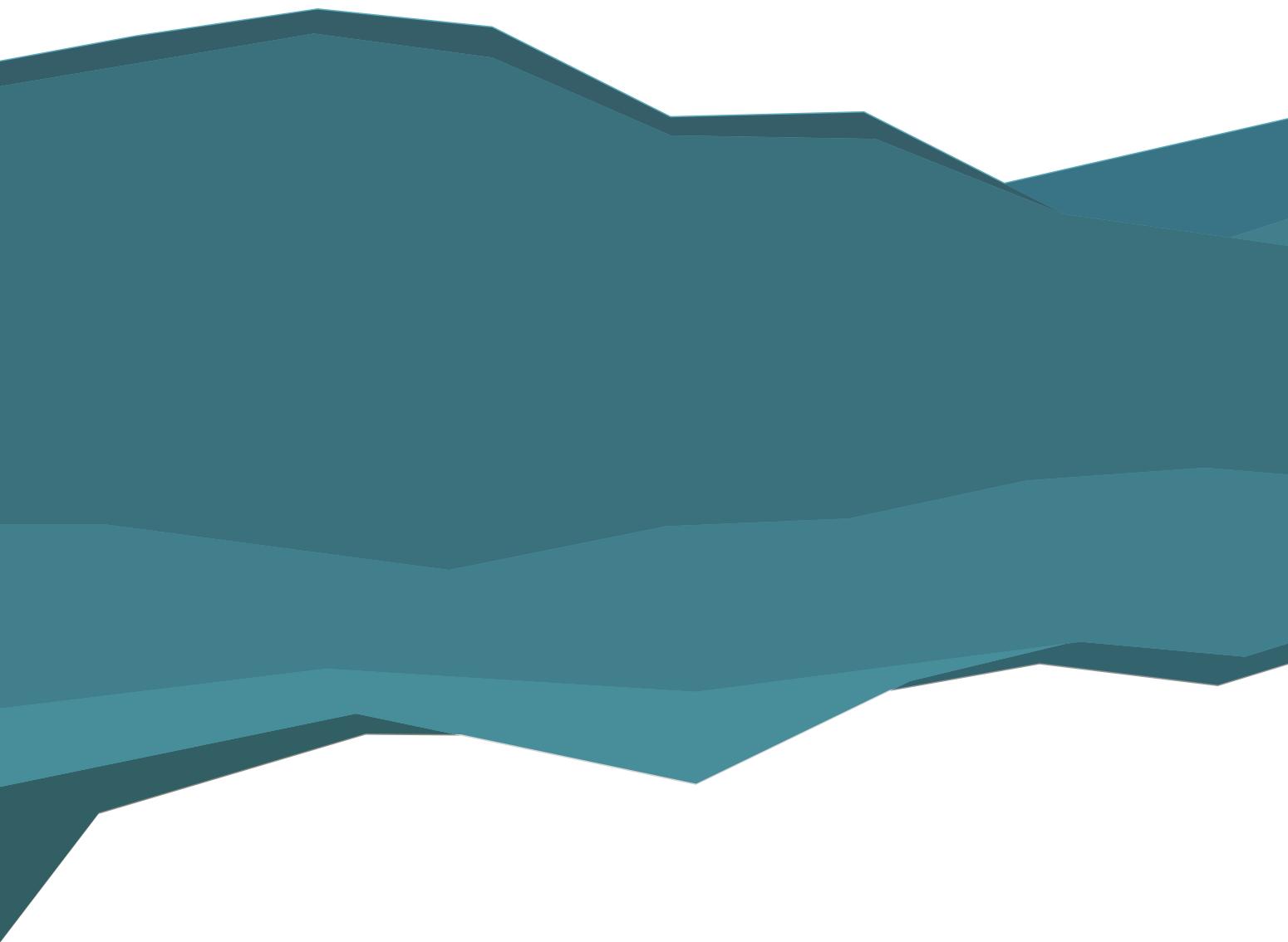
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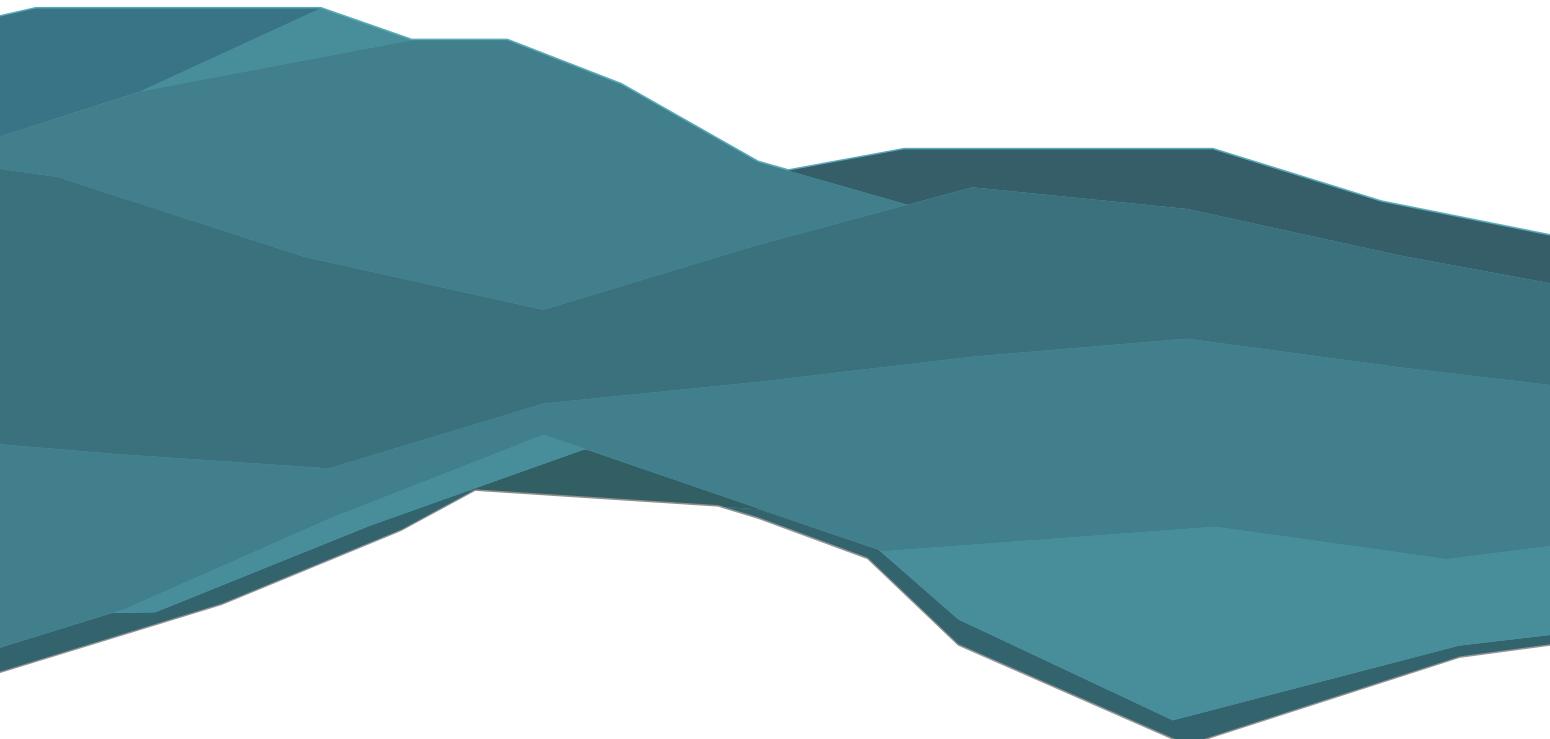


MINISTRY OF MINES AND ENERGY

NATIONAL AGENCY OF PETROLEUM,  
NATURAL GAS AND BIOFUELS

OIL, NATURAL GAS  
AND BIOFUELS  
STATISTICAL YEARBOOK

2013



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## PRESENTATION

This 2013 edition of the Oil, Natural Gas and Biofuels Statistical Yearbook presents the 2012 scenario, which has been changing significantly during the current year. By the end of 2013, ANP will have held three historical bidding sessions: the 11<sup>th</sup> Round, a success with record revenue in signature bonuses; the 12<sup>th</sup> Round, the first to offer only onshore blocks, with emphasis on natural gas; and the 1<sup>st</sup> Pre-salt Round, which inaugurates the production sharing regime in Brazil's effort to increase oil extraction in great depths under the ocean.

Actually, the pre-salt was one of the highlights of 2012: the production of oil under the pre-salt layer has increased and in December 2012, it achieved a record of 247,000 barrels/day, only six years after the first discovery of oil in the area. This 2013 edition of the Yearbook also registers the contribution of the pre-salt to the increase of proved oil reserves in Brazil: the current reserves are almost 50% larger than ten years ago, when the pre-salt oil in the Santos and Campos basins had not yet been discovered.

In 2012 we also had a record production of natural gas in Brazil: 70.8 million m<sup>3</sup>/day, which was already an increase of 7.3% compared to 2011, and also above the average growth of the last decade. Consumption also increased 9.8%, reaching 80 million m<sup>3</sup>/day, the equivalent to almost 1% of the world consumption of natural gas. It's also worth mentioning the reduction of flaring and losses of gas and the decrease of the volume reinjected into the wells, resulting in greater quantities made available on the market.

In the refining segment, there was also a record production of petroleum products that reached 2.02 million bpd. The largest volumetric increases were in the production of gasoline A (+45.2 thousand bpd) and of diesel oil (+51.2 thousand bpd). In the supply segment, compared to 2011, fuel sales increased at a faster rate in the Country (6.1%), notably the increase of 11.9% in the sold volume of gasoline C, compared with a 9.6% fall in the sales of hydrated ethanol.

Higher oil production also means higher allocation of financial resources for research and development, as highly productive fields must meet the R&D Clause in the concession contracts and invest locally in innovation. In 2012, the obligations generated by the R&D clause reached R\$ 1.2 billion (around US\$ 550 million), a significant contribution to the development of technologies and the strengthening of the oil industry, including its chain of goods and services suppliers. The R&D Clause also helps feed another essential front for the growth of the oil and gas sector: professional training and specialization. In 2012, the ANP Human Resources Program (PHR-ANP) made available R\$ 59.8 million (around US\$ 27.5 million) for the granting of scholarships and bench fees in universities – an increase of more than 160% compared to the previous year.

This 2013 Yearbook – arriving to readers in a new graphic project – also shows that, in 2012, government participation in oil revenues broke records and reached R\$ 31.8 billion (around US\$ 14.6 million). Of this total, royalties represented R\$ 15.6 billion (around US\$ 7.1 billion), and special participations R\$ 15.9 billion (around US\$ 7.3 billion).

MAGDA MARIA DE REGINA CHAMBRIARD  
DIRECTOR-GENERAL





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## GENERAL NOTES

### ROUNDING OFF

Numeric data in Tables were rounded up. Therefore, any differences between the resulting summation of items and totals amounts may be accounted for the rounding off criterion.

### GEOGRAPHIC AND GEOPOLITICAL

Geographic groupings used in this book were adopted with merely statistic aims. Doing so, they imply no judgement based on political or economic criteria.

**South and Central America:** Caribbean (including Puerto Rico), Central America and South America.

**Dutch Antilles:** Comprise the Bonaire Islands, Curaçao, Saint Eustatius and South Saint Martin.

**Asia-Pacific:** Comprises Brunei, Cambodia, China, Hong Kong (region under China's special administration), Indonesia, Japan, Laos Popular Democratic Republic, Malaysia, Mongolia, Korea Popular Democratic Republic, Singapore, Philippines, South Asia (Afghanistan, Bangladesh, India, Myanmar, Nepal, Pakistan and Sri Lanka), Republic of Korea, Taiwan, Thailand, Vietnam, Australia, New Zealand, Papua New Guinea and other Oceania countries.

**United Arab Emirates:** Comprise Abu Dhabi, Dubai, Ras-al-Khaimah and Sharjah.

**OPEC:** Organization of Petroleum Exporting Countries. Multilateral organization founded in 1960, which aimed to coordinate petroleum policy of member-countries, besides providing them with technical and economic support. Includes Angola, Saudi Arabia, Algeria, Qatar, Kuwait, United Arab Emirates, Ecuador, Iran, Iraq, Libya, Nigeria and Venezuela.

**Middle East:** Comprises Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates and Yemen.

**United Kingdom:** Comprises Great Britain (England, Scotland, Wales), Northern Ireland, Isle of Man, Channel Islands, Orkney Islands and Shetland Islands.

**Republic of Korea:** South Korea.

**Democratic Republic of the Congo:** Former Zaire.

**People's Republic of the Congo:** Congo (Brazzaville).

**Democratic People's Republic of Korea:** North Korea.

### NATURAL GAS AND SHALE GAS

Volumes of gas shown in this book refer to the product at 20 °C and 1 atm pressure.

### BRAZILIAN OIL AND NATURAL GAS RESERVES

Oil and Natural Gas data series are subject to changes. Current values are available on ANP website ([www.anp.gov.br/dadosestatisticos](http://www.anp.gov.br/dadosestatisticos)).

### SALES OF OIL PRODUCTS AND HYDRATED ETHANOL

Up to 2006, sales of oil products and hydrated ethanol were based on enterprise mandatory data declaration to ANP, by means of Product Control Demonstrative (DCP). DCP includes enterprises sales and own consumption. Since 2007, that information includes only enterprises sales, as per Ordinance ANP No. 17/2004.

### FOREIGN TRADE

Data on imports and exports of oil and oil products were extracted from Ministério da Indústria e Comércio (MDIC)/Secretaria de Comércio Exterior (Secex) data system. Those data are subjected to changes without any previous warning and, therefore, may diverge from data series already published in former editions of this book.

## CONVENTIONS

### SYMBOLS

- numeric datum equal to zero not resulting from rounding off.
- .. numeric datum not applicable.
- ... numeric datum not available.
- 0 numeric datum equal to zero resulting from rounding off an originally positive numeric data point.
- (0) numeric datum equal to zero resulting from rounding off an originally negative numeric data point.



# SECTION 1

## THE BRAZILIAN OIL AND NATURAL GAS INDUSTRY



## EXPLORATION AND PRODUCTION

### 1.1 Blocks and Fields Under Concession

**FRAME 1.1. BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012 (CONTINUE)**

BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012					
SEDIMENTARY BASINS	ONSHORE/ OFFSHORE	CONTRACTS	BLOCKS	ROUNDS	CONCESSIONARIES (%)
Alagoas	Onshore	SEAL-T-187_R10	SEAL-T-187	Round 10	Integral <sup>l</sup> (100)
Almada	Offshore	BM-CAL-5	BM-CAL-5	Round 3	Petrobras <sup>l</sup> (59,2)/Queiroz Galvão (22,5)/El Paso (18,3)
Amazonas	Onshore	AM-T-62_R10	AM-T-62	Round 10	Petrobras <sup>l</sup> (60)/Petrogal Brasil (40)
	Onshore	AM-T-83_R10	AM-T-83	Round 10	STR <sup>l</sup> (100)
	Onshore	AM-T-84_R10	AM-T-84	Round 10	Petrobras <sup>l</sup> (60)/Petrogal Brasil (40)
	Onshore	AM-T-85_R10	AM-T-85	Round 10	Petrobras <sup>l</sup> (60)/Petrogal Brasil (40)
Barreirinhas	Offshore	BM-BAR-1	BM-BAR-1	Round 3	Petrobras <sup>l</sup> (75)/ONCG Campos (25)
	Onshore/ Offshore	BM-BAR-3	BM-BAR-3	Round 4	Petrobras <sup>l</sup> (60)/BP Energy (40)
	Offshore	BM-BAR-4	BM-BAR-377	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-BAR-5	BM-BAR-175	Round 6	Petrobras <sup>l</sup> (60)/BP Energy (40)
Camamu	Offshore	BM-CAL-7	CAL-M-120	Round 6	Petrobras <sup>l</sup> (60)/Statoil Brasil (30)/Gran Tierra (10)
	Offshore	BM-CAL-7	CAL-M-186	Round 6	Petrobras <sup>l</sup> (60)/Statoil Brasil (30)/Gran Tierra (10)
	Offshore	BM-CAL-9	CAL-M-188	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-CAL-10	CAL-M-3	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-CAL-10	CAL-M-58	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-CAL-10	CAL-M-60	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-CAL-11	CAL-M-248	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-CAL-12	CAL-M-312	Round 6	Petrobras <sup>l</sup> (60)/EP Energy do Brasil (20)/Queiroz Galvão (20)
	Offshore	BM-CAL-12	CAL-M-372	Round 6	Petrobras <sup>l</sup> (60)/EP Energy do Brasil (20)/Queiroz Galvão (20)
	Offshore	BM-CAL-13	CAL-M-314	Round 7	BP Energy <sup>l</sup> (100)
Campos	Offshore	BM-C-14A	BM-C-14	Round 3	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-25	BM-C-25	Round 4	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-26	C-M-78	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-26	C-M-98	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-27	C-M-119	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-27	C-M-120	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-27	C-M-122	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-27	C-M-145	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-27	C-M-146	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-27	C-M-95	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-27	C-M-96	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-28	C-M-333	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-29	C-M-202	Round 6	Anadarko <sup>l</sup> (50)/Ecopetrol Óleo e Gás (50)
	Offshore	BM-C-30	C-M-101	Round 6	Anadarko <sup>l</sup> (30)/BP Energy (25)/IBV Brasil Petróleo (25)/Maersk Energy (20)
	Offshore	BM-C-32	C-M-61	Round 6	BP Energy <sup>l</sup> (40)/Anadarko (33)/Maersk Energy (27)
	Offshore	BM-C-33	C-M-539	Round 7	Repsol <sup>l</sup> (35)/Statoil Brasil (35)/Petrobras(30)
	Offshore	BM-C-34	C-M-471	Round 7	BP Energy <sup>l</sup> (30)/Petrobras (50)/Maersk (20)
	Offshore	BM-C-34	C-M-473	Round 7	BP Energy <sup>l</sup> (30)/Petrobras (50)/Maersk (20)
	Offshore	BM-C-35	C-M-535	Round 7	Petrobras <sup>l</sup> (65)/BP Energy (35)
	Offshore	BM-C-36	C-M-401	Round 7	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-36	C-M-403	Round 7	Petrobras <sup>l</sup> (100)
	Offshore	BM-C-37	C-M-560	Round 9	OGX <sup>l</sup> (70)/Maersk (30)
	Offshore	BM-C-38	C-M-591	Round 9	OGX <sup>l</sup> (70)/Maersk (30)
	Offshore	BM-C-39	C-M-466	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-C-40	C-M-499	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-C-41	C-M-592	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-C-42	C-M-620	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-C-43	C-M-621	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-C-46	C-M-622	Round 9	Sonangol Starfish <sup>l</sup> (30)/Sonangol P&P (70)
	Offshore	BM-C-44	C-M-593	Round 9	Petrobras <sup>l</sup> (47,5)/ Petrogal Brasil (37,5)/ Ecopetrol Óleo e Gás (15)
	Offshore	BM-C-45	C-M-498	Round 9	Sonangol Starfish <sup>l</sup> (30)/Sonangol P&P (70)
	Offshore	BM-C-47	C-M-529	Round 9	Statoil Brasil Óleo e Gás <sup>l</sup> (60)/Sinochem Brasil (40)
	Offshore	BM-C-47	C-M-530	Round 9	Statoil Brasil Óleo e Gás <sup>l</sup> (60)/Sinochem Brasil (40)
Ceará	Offshore	BM-CE-1	BM-CE-1	Round 3	Petrobras <sup>l</sup> (60)/ BP Energy (40)
	Offshore	BM-CE-2	BM-CE-2	Round 3	Petrobras <sup>l</sup> (60)/ BP Energy (40)
Espírito Santo	Offshore	BM-ES-5	BM-ES-5	Round 3	Petrobras <sup>l</sup> (65)/EP Energy do Brasil (35)
	Onshore	BM-ES-21	ES-M-414	Round 6	Petrobras <sup>l</sup> (88,89)/Repsol (11,11)
	Offshore	BM-ES-22	ES-M-523	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-ES-22A	ES-M-468	Round 6	Petrobras <sup>l</sup> (75)/CVRD (25)
	Offshore	BM-ES-22A	ES-M-527	Round 6	Petrobras <sup>l</sup> (75)/CVRD (25)
	Offshore	BM-ES-23	ES-M-525	Round 6	Petrobras <sup>l</sup> (65)/Shell (20)/Impex (15)
	Offshore	BM-ES-24	ES-M-588	Round 6	Petrobras <sup>l</sup> (40)/Anadarko (30)/IBV Brasil Petróleo (30)

**FRAME 1.1. BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012 (CONTINUATION)**

BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012					
SEDIMENTARY BASINS	ONSHORE/ OFFSHORE	CONTRACTS	BLOCKS	ROUNDS	CONCESSIONARIES (%)
Espírito Santo	Offshore	BM-ES-24	ES-M-661	Round 6	Petrobras <sup>l</sup> (40)/Anadarko (30)/IBV Brasil Petróleo (30)
	Offshore	BM-ES-24	ES-M-663	Round 6	Petrobras <sup>l</sup> (40)/Anadarko (30)/IBV Brasil Petróleo (30)
	Offshore	BM-ES-25	ES-M-590	Round 6	Petrobras <sup>l</sup> (80)/Anadarko (20)
	Offshore	BM-ES-26	ES-M-413	Round 7	Petrobras <sup>l</sup> (100)
	Offshore	BM-ES-27	ES-M-411	Round 7	Petrobras <sup>l</sup> (65)/ Shell (17,5)/CVRD (17,5)
	Offshore	BM-ES-27	ES-M-436	Round 7	Petrobras <sup>l</sup> (65)/ Shell (17,5)/CVRD (17,5)
	Offshore	BM-ES-27	ES-M-437	Round 7	Petrobras <sup>l</sup> (65)/ Shell (17,5)/CVRD (17,5)
	Offshore	BM-ES-30	ES-M-665	Round 7	Repsol <sup>l</sup> (100)
	Offshore	BM-ES-31	ES-M-592	Round 7	Petrobras <sup>l</sup> (80)/Petrogal Brasil (20)
	Offshore	BM-ES-32	ES-M-594	Round 7	Petrobras <sup>l</sup> (60)/Statoil Brasil (40)
	Onshore	BT-ES-33	ES-T-466	Round 7	Vipetro <sup>l</sup> (100)
	Offshore	BM-ES-37	ES-M-416	Round 9	Perenco Brasil <sup>l</sup> (50)/OGX (40)/Sinochen Petróleo (10)
	Offshore	BM-ES-39	ES-M-472	Round 9	Perenco Brasil <sup>l</sup> (50)/OGX (40)/Sinochen Petróleo (10)
	Offshore	BM-ES-40	ES-M-529	Round 9	Perenco Brasil <sup>l</sup> (50)/OGX (40)/Sinochen Petróleo (10)
	Offshore	BM-ES-41	ES-M-531	Round 9	Perenco Brasil <sup>l</sup> (50)/OGX (40)/Sinochen Petróleo (10)
	Onshore	BT-ES-38	ES-T-391	Round 9	Vipetro <sup>l</sup> (100)
	Onshore	BT-ES-38	ES-T-392	Round 9	Vipetro <sup>l</sup> (100)
	Onshore	BT-ES-41	ES-T-400	Round 9	Cowan Petróleo e Gás <sup>l</sup> (90)/Lábrea (10)
Foz do Amazonas	Offshore	BM-FZA-4	FZA-M-217	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-FZA-4	FZA-M-252	Round 5	Petrobras <sup>l</sup> (100)
Jequitinhonha	Offshore	BM-J-1	BM-J-1	Round 3	Petrobras <sup>l</sup> (100)
	Offshore	BM-J-2	BM-J-2	Round 4	Queiroz Galvão <sup>l</sup> (100)
	Offshore	BM-J-3	BM-J-3	Round 4	Petrobras <sup>l</sup> (60)/Statoil (40)
	Offshore	BM-J-3A	BM-J-3A	Round 4	Petrobras <sup>l</sup> (100)
	Offshore	BM-J-4	J-M-115	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-J-4	J-M-165	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-J-4	J-M-3	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-J-4	J-M-5	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-J-4	J-M-63	Round 5	Petrobras <sup>l</sup> (100)
	Offshore	BM-J-5	J-M-59	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-J-5	J-M-61	Round 6	Petrobras <sup>l</sup> (100)
Pará - Maranhão	Offshore	BM-PAMA-3	BM-PAMA-3	Round 3	Petrobras <sup>l</sup> (80)/Sinopec (20)
	Offshore	BM-PAMA-8	PAMA-M-192	Round 6	Petrobras <sup>l</sup> (80)/Sinopec (20)
	Offshore	BM-PAMA-8	PAMA-M-194	Round 6	Petrobras <sup>l</sup> (80)/Sinopec (20)
	Offshore	BM-PAMA-10	PAMA-M-188	Round 9	Petrobras <sup>l</sup> (40)/ CVRD (30)/ Ecopetrol Óleo e Gás (30)
	Offshore	BM-PAMA-11	PAMA-M-222	Round 9	Petrobras <sup>l</sup> (40)/ CVRD (30)/ Ecopetrol Óleo e Gás (30)
	Offshore	BM-PAMA-12	PAMA-M-223	Round 9	Petrobras <sup>l</sup> (40)/ CVRD (30)/ Ecopetrol Óleo e Gás (30)
	Offshore	BM-PAMA-13	PAMA-M-407	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-PAMA-14	PAMA-M-408	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-PAMA-15	PAMA-M-443	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-PAMA-16	PAMA-M-591	Round 9	OGX <sup>l</sup> (100)
	Offshore	BM-PAMA-17	PAMA-M-624	Round 9	OGX <sup>l</sup> (100)
Parecis - Alto Xingu	Onshore	PRC-T-104_R10	PRC-T-104	Round 10	Petrobras <sup>l</sup> (100)
	Onshore	PRC-T-105_R10	PRC-T-105	Round 10	Petrobras <sup>l</sup> (100)
	Onshore	PRC-T-106_R10	PRC-T-106	Round 10	Petrobras <sup>l</sup> (100)
	Onshore	PRC-T-121_R10	PRC-T-121	Round 10	Petrobras <sup>l</sup> (100)
	Onshore	PRC-T-122_R10	PRC-T-122	Round 10	Petrobras <sup>l</sup> (100)
	Onshore	PRC-T-123_R10	PRC-T-123	Round 10	Petrobras <sup>l</sup> (100)
Parnaíba	Onshore	BT-PN-1	PN-T-102	Round 9	OGX Maranhão <sup>l</sup> (50)/Imetame (16,67)/Orteng (16,67)/Delp (16,67)
	Onshore	BT-PN-2	PN-T-66	Round 9	BP Energy <sup>l</sup> (40)/ Petrobras (40)/ CVRD (20)
	Onshore	BT-PN-3	PN-T-86	Round 9	Petrobras <sup>l</sup> (40)/ BP Energy (40)/ CVRD (20)
	Onshore	BT-PN-4	PN-T-48	Round 9	OGX Maranhão <sup>l</sup> (70)/Petra Energia (30)
	Onshore	BT-PN-5	PN-T-49	Round 9	OGX Maranhão <sup>l</sup> (70)/Petra Energia (30)
	Onshore	BT-PN-6	PN-T-50	Round 9	OGX Maranhão <sup>l</sup> (70)/Petra Energia (30)
	Onshore	BT-PN-7	PN-T-67	Round 9	OGX Maranhão <sup>l</sup> (70)/Petra Energia (30)
	Onshore	BT-PN-8	PN-T-68	Round 9	OGX Maranhão <sup>l</sup> (70)/Petra Energia (30)
	Onshore	BT-PN-9	PN-T-84	Round 9	OGX Maranhão <sup>l</sup> (70)/Petra Energia (30)
	Onshore	BT-PN-10	PN-T-85	Round 9	OGX Maranhão <sup>l</sup> (70)/Petra Energia (30)
Pelotas	Offshore	BM-P-2	P-M-1269	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-P-2	P-M-1271	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-P-2	P-M-1351	Round 6	Petrobras <sup>l</sup> (100)
	Offshore	BM-P-2	P-M-1353	Round 6	Petrobras <sup>l</sup> (100)
Pernambuco - Paraíba	Offshore	BM-PEPB-1	PEPB-M-783	Round 9	Petrobras <sup>l</sup> (80)/Petrogal Brasil (20)
	Offshore	BM-PEPB-2	PEPB-M-837	Round 9	Petrobras <sup>l</sup> (80)/Petrogal Brasil (20)
	Offshore	BM-PEPB-3	PEPB-M-839	Round 9	Petrobras <sup>l</sup> (80)/Petrogal Brasil (20)
Potiguar	Onshore	BT-POT-8	BT-POT-8	Round 4	Petrobras <sup>l</sup> (100)
	Onshore	BT-POT-10	BT-POT-10	Round 4	UTC Engenharia <sup>l</sup> (50)/Potíoleo <sup>l</sup> (50)
	Onshore/ Offshore	BM-POT-11	BM-POT-11	Round 4	Petrobras <sup>l</sup> (100)
	Offshore	BM-POT-16	POT-M-663	Round 7	Petrobras <sup>l</sup> (60)/ Petrogal Brasil (20)/ IBV Brasil Petróleo (20)

**FRAME 1.1. BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012 (CONTINUATION)**

BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012						
SEDIMENTARY BASINS	ONSHORE/ OFFSHORE	CONTRACTS	BLOCKS	ROUNDS	CONCESSIONARIES (%)	
Potiguar	Offshore	BM-POT-16	POT-M-760	Round 7	Petrobras <sup>1</sup> (60)/ Petrogal Brasil (20)/ IBV Brasil Petróleo (20)	
	Offshore	BM-POT-17	POT-M-665	Round 7	Petrobras <sup>1</sup> (80)/ Petrogal Brasil (20)	
	Offshore	BM-POT-17	POT-M-853	Round 7	Petrobras <sup>1</sup> (80)/ Petrogal Brasil (20)	
	Offshore	BM-POT-17	POT-M-855	Round 7	Petrobras <sup>1</sup> (80)/ Petrogal Brasil (20)	
	Onshore	BT-POT-55	POT-T-749	Round 7	Sonangol Starfish (30) <sup>1</sup> /Petrobras (70)	
	Onshore	BT-POT-55	POT-T-794	Round 7	Sonangol Starfish (30) <sup>1</sup> /Petrobras (70)	
	Onshore	BT-POT-57	POT-T-744	Round 7	Petrobras <sup>1</sup> (100)	
	Onshore	BT-POT-57	POT-T-745	Round 7	Petrobras <sup>1</sup> (100)	
	POT-T-609_R10	POT-T-609	POT-T-609	Round 10	Petrobras <sup>1</sup> (100)	
		POT-T-610_R10	POT-T-610	Round 10	Petrobras <sup>1</sup> (100)	
Recôncavo	Onshore	POT-T-699_R10	POT-T-699	Round 10	Petrobras <sup>1</sup> (50)/ Petrogal Brasil (50)	
	Onshore	POT-T-743_R10	POT-T-743	Round 10	Petrogal Brasil <sup>1</sup> (50)/Petrobras (50)	
	Onshore	BT-REC-35	REC-T-210	Round 9	Imetame <sup>1</sup> (33,34)/ Delp (33,33)/Orteng (33,33)	
	Onshore	BT-REC-36	REC-T-211	Round 9	Imetame <sup>1</sup> (33,34)/ Delp (33,33)/Orteng (33,33)	
	Onshore	BT-REC-37	REC-T-158	Round 9	Cowan Petróleo e Gás <sup>1</sup> (90)/Lábrea (10)	
	Onshore	BT-REC-39	REC-T-129	Round 9	Gran Tierra <sup>1</sup> (100)	
	Onshore	BT-REC-40	REC-T-131	Round 9	Alvopetro <sup>1</sup> (100)	
	Onshore	BT-REC-41	REC-T-132	Round 9	Alvopetro <sup>1</sup> (100)	
	Onshore	BT-REC-42	REC-T-142	Round 9	Gran Tierra <sup>1</sup> (100)	
	Onshore	BT-REC-43	REC-T-157	Round 9	Alvopetro <sup>1</sup> (100)	
Rio do Peixe	Onshore	BT-REC-44	REC-T-196	Round 9	Alvopetro <sup>1</sup> (100)	
	Onshore	BT-REC-45	REC-T-197	Round 9	Alvopetro <sup>1</sup> (100)	
	Onshore	BT-REC-46	REC-T-224	Round 9	Gran Tierra <sup>1</sup> (100)	
	Onshore	BT-REC-47	REC-T-144	Round 9	Alvopetro <sup>1</sup> (100)	
	Onshore	BT-REC-47	REC-T-155	Round 9	Gran Tierra <sup>1</sup> (100)	
	Onshore	BT-REC-47	REC-T-182	Round 9	Alvopetro <sup>1</sup> (100)	
	Onshore	BT-REC-56	REC-T-166	Round 9	Sonangol Starfish <sup>1</sup> (40)/Água Branca (30)/Somoil do Brasil (30)	
	Onshore	BT-REC-57	REC-T-130	Round 9	Sonangol Starfish <sup>1</sup> (50)/Petrobras (50)	
	Onshore	BT-REC-58	REC-T-183	Round 9	Petrosynergy <sup>1</sup> (100)	
	Onshore	BT-REC-60	REC-T-170	Round 9	BrazAlta <sup>1</sup> (75)/Petro Vista (25)	
Santos	Offshore	REC-T-163_R10	REC-T-163	Round 10	Imetame <sup>1</sup> (51)/Cemig (24,5)/Codemig (24,5)	
		REC-T-220_R10	REC-T-220	Round 10	Petrobras <sup>1</sup> (100)	
		REC-T-235_R10	REC-T-235	Round 10	Petrobras <sup>1</sup> (100)	
		BT-RIOP-1	RIOP-T-75	Round 9	Cowan Petróleo e Gás <sup>1</sup> (90)/Lábrea (10)	
Onshore		BT-RIOP-5	RIOP-T-30	Round 9	Ral Engenharia <sup>1</sup> (50)/Univen (50)	
		BT-RIOP-6	RIOP-T-31	Round 9	Ral Engenharia <sup>1</sup> (50)/Univen (50)	
		BM-S-8	BM-S-8	Round 2	Petrobras <sup>1</sup> (66)/Petrogal Brasil (14)/Queiroz Galvão (10)/Barra Energia (10)	
Offshore	BM-S-9	BM-S-9	Round 2	Petrobras <sup>1</sup> (45)/ BG Brasil (30)/ Repsol (25)		
	BM-S-10	BM-S-10	Round 2	Petrobras <sup>1</sup> (65)/ BG Brasil (25)/ Partex (10)		
	BM-S-11	BM-S-11	Round 2	Petrobras <sup>1</sup> (65)/ BG Brasil (25)/ Petrogal (10)		
	BM-S-12	BM-S-12	Round 3	Petrobras <sup>1</sup> (70)/ Queiroz Galvão (30)		
	BM-S-21	BM-S-21	Round 3	Petrobras <sup>1</sup> (80)/ Petrogal Brasil (20)		
	BM-S-24	BM-S-24	Round 3	Petrobras <sup>1</sup> (80)/ Petrogal Brasil (20)		
	BM-S-42	S-M-239	Round 6	Petrobras <sup>1</sup> (100)		
	BM-S-42	S-M-324	Round 6	Petrobras <sup>1</sup> (100)		
	BM-S-42	S-M-417	Round 6	Petrobras <sup>1</sup> (100)		
	BM-S-44	S-M-172	Round 6	Petrobras <sup>1</sup> (75)/Repsol (25)		
	BM-S-48	S-M-673	Round 7	Repsol <sup>1</sup> (40)/ Petrobras (35)/CVRD (12,5)/Woodside (12,5)		
	BM-S-48	S-M-674	Round 7	Repsol <sup>1</sup> (40)/ Petrobras (35)/CVRD (12,5)/Woodside (12,5)		
	BM-S-48	S-M-789	Round 7	Repsol <sup>1</sup> (40)/ Petrobras (35)/CVRD (12,5)/Woodside (12,5)		
	BM-S-50	S-M-623	Round 7	Petrobras <sup>1</sup> (60)/Repsol (20)/BG Brasil (20)		
	BM-S-51	S-M-619	Round 7	Petrobras <sup>1</sup> (60)/ Repsol (40)		
	BM-S-53	S-M-405	Round 7	Petrobras <sup>1</sup> (100)		
	BM-S-54	S-M-518	Round 7	Shell <sup>1</sup> (80)/Total E&P Brasil (20)		
	BM-S-56	S-M-226	Round 9	OGX <sup>1</sup> (100)		
	BM-S-57	S-M-268	Round 9	OGX <sup>1</sup> (100)		
	BM-S-58	S-M-270	Round 9	OGX <sup>1</sup> (100)		
	BM-S-59	S-M-314	Round 9	OGX <sup>1</sup> (100)		
	BM-S-61	S-M-1037	Round 9	Karoon Petróleo e Gás <sup>1</sup> (100)		
	BM-S-62	S-M-1102	Round 9	Karoon Petróleo e Gás <sup>1</sup> (100)		
	BM-S-63	S-M-1036	Round 9	Vanco <sup>1</sup> (70)/Panoro Energy (15)/Brasoil Round 9 (15)		
	BM-S-68	S-M-1101	Round 9	Karoon Petróleo e Gás <sup>1</sup> (100)		
	BM-S-69	S-M-1165	Round 9	Karoon Petróleo e Gás <sup>1</sup> (100)		
	BM-S-70	S-M-1166	Round 9	Karoon Petróleo e Gás <sup>1</sup> (100)		
	BM-S-71	S-M-1035	Round 9	Vanco <sup>1</sup> (70)/Panoro Energy (15)/Brasoil Round 9 (15)		
	BM-S-72	S-M-1100	Round 9	Vanco <sup>1</sup> (70)/Panoro Energy (15)/Brasoil Round 9 (15)		
Offshore	Cessão Onerosa 2010	Florim	Onerous Assignment	Petrobras <sup>1</sup> (100)		
	Cessão Onerosa 2010	Franco	Onerous Assignment	Petrobras <sup>1</sup> (100)		
	Cessão Onerosa 2010	Guará Sul	Onerous Assignment	Petrobras <sup>1</sup> (100)		

**FRAME 1.1. BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012 (CONTINUATION)**

SEDIMENTARY BASINS	ONSHORE/ OFFSHORE	CONTRACTS	BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012			CONCESSIONARIES (%)
			BLOCKS	ROUNDS	Onerous Assignment	
Santos	Offshore	Cessão Onerosa 2010	Iara Ent	Round 7	Onerous Assignment	Petrobras <sup>1</sup> (100)
	Offshore	Cessão Onerosa 2010	Peroba	Round 7	Onerous Assignment	Petrobras <sup>1</sup> (100)
	Offshore	Cessão Onerosa 2010	Tupi NE	Round 7	Onerous Assignment	Petrobras <sup>1</sup> (100)
	Offshore	Cessão Onerosa 2010	Tupi Sul	Round 7	Onerous Assignment	Petrobras <sup>1</sup> (100)
São Francisco	Onshore	BT-SF-2	SF-T-101	Round 7		Petrobras <sup>1</sup> (100)
	Onshore	BT-SF-2	SF-T-102	Round 7		Petrobras <sup>1</sup> (100)
	Onshore	BT-SF-2	SF-T-111	Round 7		Petrobras <sup>1</sup> (100)
	Onshore	BT-SF-2	SF-T-112	Round 7		Petrobras <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-118	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-124	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-125	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-130	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-131	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-137	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-139	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-143	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3	SF-T-144	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-85	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-86	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-94	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-95	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-96	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-105	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-106	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-115	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-121	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-128	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-134	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-3A	SF-T-138	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-5	SF-T-132	Round 7	Orteng <sup>1</sup> (30)/Codemig (49)/Delp (11)/Imetame (10)	
	Onshore	BT-SF-6	SF-T-133	Round 7		Cisco Oil and Gas <sup>1</sup> (100)
	Onshore	BT-SF-7	SF-T-92	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-8	SF-T-119	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	BT-SF-9	SF-T-126	Round 7		Petra Energia <sup>1</sup> (100)
	Onshore	SF-T-104_R10	SF-T-104	Round 10	Imetame <sup>1</sup> (51)/Cemig (24,5)/Codemig (24,5)	
	Onshore	SF-T-114_R10	SF-T-114	Round 10	Imetame <sup>1</sup> (51)/Cemig (24,5)/Codemig (24,5)	
	Onshore	SF-T-120_R10	SF-T-120	Round 10	Imetame <sup>1</sup> (30)/Cemig (24,5)/Codemig (24,5)/Orteng (11)/Sipet(10)	
	Onshore	SF-T-127_R10	SF-T-127	Round 10	Orteng <sup>1</sup> (30)/Cemig (24,5)/Codemig (24,5)/ Imetame (11)/ Sipet (10)	
	Onshore	SF-T-80_R10	SF-T-80	Round 10		Shell <sup>1</sup> (60)/CVRD (40)
	Onshore	SF-T-81_R10	SF-T-81	Round 10		Shell <sup>1</sup> (60)/CVRD (40)
	Onshore	SF-T-82_R10	SF-T-82	Round 10		Shell <sup>1</sup> (60)/CVRD (40)
	Onshore	SF-T-83_R10	SF-T-83	Round 10		Shell <sup>1</sup> (60)/CVRD (40)
	Onshore	SF-T-93_R10	SF-T-93	Round 10		Shell <sup>1</sup> (60)/CVRD (40)
Sergipe	Offshore	BM-SEAL-4	BM-SEAL-4	Round 2		Petrobras <sup>1</sup> (75)/ONGC Campos (25)
	Offshore	BM-SEAL-9	BM-SEAL-9	Round 4		Petrobras <sup>1</sup> (85)/ Partex Brasil (15)
	Offshore	BM-SEAL-10	SEAL-M-347	Round 6		Petrobras <sup>1</sup> (100)
	Offshore	BM-SEAL-10	SEAL-M-424	Round 6		Petrobras <sup>1</sup> (100)
	Offshore	BM-SEAL-10	SEAL-M-499	Round 6		Petrobras <sup>1</sup> (100)
	Offshore	BM-SEAL-11	SEAL-M-349	Round 6		Petrobras <sup>1</sup> (60)/IBV Brasil Petróleo (40)
	Offshore	BM-SEAL-11	SEAL-M-426	Round 6		Petrobras <sup>1</sup> (60)/IBV Brasil Petróleo (40)
	Offshore	BM-SEAL-11	SEAL-M-497	Round 6		Petrobras <sup>1</sup> (60)/IBV Brasil Petróleo (40)
	Offshore	BM-SEAL-11	SEAL-M-569	Round 6		Petrobras <sup>1</sup> (60)/IBV Brasil Petróleo (40)
	Onshore	BT-SEAL-13	SEAL-T-412	Round 7		Petrogal Brasil <sup>1</sup> (50)/Petrobras (50)
	Onshore	BT-SEAL-13	SEAL-T-429	Round 7		Petrogal Brasil <sup>1</sup> (50)/Petrobras (50)
Solimões	Onshore	BT-SOL-1	BT-SOL-1	Round 4		Petrobras <sup>1</sup> (100)
	Onshore	BT-SOL-3	SOL-T-150	Round 7		Petrobras <sup>1</sup> (100)
	Onshore	BT-SOL-3	SOL-T-171	Round 7		Petrobras <sup>1</sup> (100)
	Onshore	BT-SOL-3	SOL-T-173	Round 7		Petrobras <sup>1</sup> (100)
	Onshore	BT-SOL-3	SOL-T-193	Round 7		Petrobras <sup>1</sup> (100)
	Onshore	BT-SOL-4	SOL-T-151	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-172	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-174	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-194	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-195	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-196	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-197	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-218	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-219	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4	SOL-T-220	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	
	Onshore	BT-SOL-4A	SOL-T-148	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)	

**FRAME 1.1. BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012 (CONCLUSION)**

BLOCKS IN THE EXPLORATION PHASE ON 12/31/2012					
SEDIMENTARY BASINS	ONSHORE/ OFFSHORE	CONTRACTS	BLOCKS	ROUNDS	CONCESSIONARIES (%)
Solimões	Onshore	BT-SOL-4A	SOL-T-149	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-168	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-169	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-170	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-191	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-192	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-214	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-215	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-216	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)
	Onshore	BT-SOL-4A	SOL-T-217	Round 7	HRT O&G <sup>1</sup> (55)/TNK Brasil (45)

SOURCE: ANP/SEP.

<sup>1</sup>Operator.**FRAME 1.2. FIELDS IN DEVELOPMENT OF PRODUCTION PHASE ON 12/31/2012 (CONTINUE)**

FIELD IN DEVELOPMENT OF PRODUCTION PHASE ON 12/31/2012				
SEDIMENTARY BASINS	STATES	ONSHORE/ OFFSHORE	FIELDS	CONCESSIONARIES (%)
Alagoas	Alagoas	Onshore	Arapaçu	Petrobras <sup>1</sup> (100)
	Alagoas	Onshore	Fazenda Guindaste	Petrosynergy <sup>1</sup> (100)
	Alagoas	Onshore	Mutum <sup>3</sup>	Petrobras <sup>1</sup> (100)
	Alagoas	Onshore	Sebastião Ferreira	Petrosynergy <sup>1</sup> (100)
Amazonas	Amazonas	Onshore	Azulão	Petrobras <sup>1</sup> (100)
	Amazonas	Onshore	Japiim	Petrobras <sup>1</sup> (100)
Camamu	Bahia	Offshore	Camarão	EP Energy do Brasil <sup>1</sup> (100)
	Bahia	Offshore	Camarão Norte	Queiroz Galvão (45)/Petrobras <sup>1</sup> (35)/Brasoil Manati (10)/Rio das Contas (10)
	Bahia	Offshore	Pinaúna	EP Energy do Brasil <sup>1</sup> (100)
	Bahia	Offshore	Sardinha	Petrobras <sup>1</sup> (100)
Campos	Espírito Santo	Offshore	Baleia Anã	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Catuá	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Caxaréu	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Mangangá	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Nautilus	Shell <sup>1</sup> (50)/Petrobras (35)/ONGC Campos (15)
	Espírito Santo	Offshore	Pirambu	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Carapicu	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Carataí	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Maromba	Petrobras <sup>1</sup> (70)/Chevron Brasil (30)
	Rio de Janeiro	Offshore	Papa-Terra	Petrobras <sup>1</sup> (62,5)/Chevron Brasil (37,5)
	Rio de Janeiro	Offshore	Tartaruga Mestiça	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Tartaruga Verde	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Tabarão Martelo	OGX <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Xerelete	Petrobras <sup>1</sup> (41,18)/Total E&P Brasil (41,18)/Brasil Energy (17,64)
	Rio de Janeiro	Offshore	Xerelete Sul	Total E&P Brasil <sup>1</sup> (50)/Petrobras (50)
Espírito Santo	Espirito Santo	Onshore	Albatroz	Petrosynergy <sup>1</sup> (100)
	Espirito Santo	Offshore	Carapó <sup>3</sup>	Petrobras <sup>1</sup> (100)
	Espirito Santo	Onshore	Córrego Cedro Norte Sul	Petrobras <sup>1</sup> (100)
	Espirito Santo	Onshore	Corruíra	Petrobras <sup>1</sup> (100)
	Espirito Santo	Onshore	Garça Branca	Central Resources <sup>1</sup> (100)
	Espirito Santo	Onshore	Jacupemba	Petrobras <sup>1</sup> (100)
	Espirito Santo	Onshore	Jacutinga Norte	Petrobras <sup>1</sup> (100)
Paraná	Paraná	Onshore	Barra Bonita	Petrobras <sup>1</sup> (100)
Parnaíba	Maranhão	Onshore	Gavião Azul	OGX Maranhão <sup>1</sup> (70)/Petra Energia (30)
	Maranhão	Onshore	Gavião Branco	OGX Maranhão <sup>1</sup> (70)/Petra Energia (30)
	Maranhão	Onshore	Gavião Branco Oeste	OGX Maranhão <sup>1</sup> (70)/Petra Energia (30)
Potiguar	Rio Grande do Norte	Onshore	Acauã Leste	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Arribaçã	UTC Engenharia <sup>1</sup> (50)/Potíoleo (50)
	Rio Grande do Norte	Onshore	Barrinha Sudoeste	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Chopim	Petrogal Brasil <sup>1</sup> (50)/Petrobras (50)
	Rio Grande do Norte	Offshore	Gaiuba	Petrobras <sup>1</sup> (65)/EP Energy Pescada (35)
	Rio Grande do Norte	Offshore	Guajá	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Pardal	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Patativa	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Rio do Carmo <sup>2</sup>	Proen <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Salema Branca	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Siri	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Tiziu	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Urutau	Petrogal Brasil <sup>1</sup> (50)/Petrobras (50)

**FRAME 1.2. FIELD IN DEVELOPMENT OF PRODUCTION PHASE ON 12/31/2012 (CONCLUSION)**

FIELD IN DEVELOPMENT OF PRODUCTION PHASE ON 12/31/2012				
SEDIMENTARY BASINS	STATES	ONSHORE/ OFFSHORE	FIELDS	CONCESSIONARIES (%)
Recôncavo	Bahia	Onshore	Cambacica	Petrobras <sup>1</sup> (75)/Sonangol Starfish (25)
	Bahia	Onshore	Maritaca <sup>3</sup>	Sonangol Starfish <sup>1</sup> (50)/Somoil do Brasil (50)
	Bahia	Onshore	Pariri	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Tapiranga Norte	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Uirapuru Sudoeste	Petrosynergy <sup>1</sup> (50)/Silver Marlin (50)
Santos	Rio de Janeiro	Offshore	Atlanta	Petrobras (40)/Queiroz Galvão <sup>1</sup> (30)/Barra Energia (30)
	Rio de Janeiro	Offshore	Carapíá	Petrobras <sup>1</sup> (100)
	Santa Catarina	Offshore	Cavalo-Marinho	Petrobras (40)/Queiroz Galvão <sup>1</sup> (30)/Barra Energia (30)
	Paraná	Offshore	Estrela-do-Mar	Petrobras <sup>1</sup> (35)/Panoro Energy (65)
	São Paulo	Offshore	Guaimá	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Oliva	Petrobras (40)/Queiroz Galvão <sup>1</sup> (30)/Barra Energia (30)
	São Paulo	Offshore	Piracucá	Petrobras <sup>1</sup> (63)/Repsol (37)
	Rio de Janeiro	Offshore	Pirapitanga	Petrobras <sup>1</sup> (100)
	São Paulo	Offshore	Sapinhoá	Petrobras <sup>1</sup> (45)/BG Brasil (30)/Repsol (25)
	Rio de Janeiro	Offshore	Tambutatá	Petrobras <sup>1</sup> (100)
Sergipe	Santa Catarina	Offshore	Tubarão	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Carmópolis Sudeste	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Dó-Ré-Mi	Petrogal Brasil <sup>1</sup> (50)/Petrobras (50)
	Sergipe	Onshore	Guará	Nord <sup>1</sup> (60)/Mercury (40)
	Sergipe	Offshore	Piranema Sul	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Sirizinho Oeste	Petrobras <sup>1</sup> (100)
Solimões	Sergipe	Onshore	Sirizinho Sul	Petrobras <sup>1</sup> (100)
	Amazonas	Onshore	Aracacanga	Petrobras <sup>1</sup> (100)
	Amazonas	Onshore	Juruá	Petrobras <sup>1</sup> (100)
Tucano Sul	Bahia	Onshore	Irai	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Lagoa Branca	Petrobras <sup>1</sup> (100)

SOURCE: ANP/SDP.

<sup>1</sup>Operator company. <sup>2</sup>Marginal fields. <sup>3</sup>Fields to be returned by concessionaire(s).**FRAME 1.3. FIELDS IN THE PRODUCTION PHASE ON 12/31/2012 (CONTINUE)**

FIELDS IN THE PRODUCTION PHASE ON 12/31/2012				
SEDIMENTARY BASINS	STATES	ONSHORE/ OFFSHORE	FIELDS	CONCESSIONARIES (%)
Alagoas	Alagoas	Onshore	Anambé	Petrobras <sup>1</sup> (100)
	Alagoas	Onshore	Cidade de São Miguel dos Campos	Petrobras <sup>1</sup> (100)
	Alagoas	Onshore	Cidade de Sebastião Ferreira	Petrosynergy <sup>1</sup> (100)
	Alagoas	Onshore	Coqueiro Seco	Petrosynergy <sup>1</sup> (100)
	Alagoas	Onshore	Fazenda Pau Brasil	Petrosynergy <sup>1</sup> (100)
	Alagoas	Onshore	Furado	Petrobras <sup>1</sup> (100)
	Alagoas	Onshore	Japuacu	Petrobras <sup>1</sup> (100)
	Alagoas	Onshore	Jequiá	Petrosynergy <sup>1</sup> (100)
	Alagoas	Onshore	Lagoa Pacas	Petrosynergy <sup>1</sup> (100)
	Alagoas	Offshore	Paru	Petrobras <sup>1</sup> (100)
Camamu	Alagoas	Onshore	Pilar	Petrobras <sup>1</sup> (100)
	Alagoas	Onshore	São Miguel dos Campos	Petrobras <sup>1</sup> (100)
	Alagoas	Onshore	Sul de Coruripe	Petrosynergy <sup>1</sup> (100)
	Alagoas	Onshore	Tabuleiro dos Martins	Petrosynergy <sup>1</sup> (100)
	Bahia	Onshore	Jiribatuba <sup>2</sup>	Alvopetro <sup>1</sup> (100)
Campos	Bahia	Offshore	Manati	Queiroz Galvão (45) /Petrobras <sup>1</sup> (35)/Brasoil Manati (10)/ Rio das Contas (10)
	Bahia	Onshore	Morro do Barro <sup>2</sup>	Panergy <sup>1</sup> (30)/ERG (70)
	Espírito Santo	Offshore	Abalone	Shell Brasil <sup>1</sup> (50)/Petrobras (35)/ONGC Campos (15)
	Rio de Janeiro	Offshore	Albacora	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Albacora Leste	Petrobras <sup>1</sup> (90)/Repsol (10)
	Rio de Janeiro	Offshore	Anequim	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Argonauta	Shell Brasil <sup>1</sup> (50)/Petrobras (35)/ONGC Campos (15)
	Rio de Janeiro	Offshore	Badejo	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Bagre	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Baleia Franca	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Barracuda	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Bicudo	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Bijupirá	Shell <sup>1</sup> (80)/Petrobras (20)
	Rio de Janeiro	Offshore	Bonito	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Cachalote	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Carapeba	Petrobras <sup>1</sup> (100)

**FRAME 1.3. FIELDS IN THE PRODUCTION PHASE ON 12/31/2012 (CONTINUATION)**

FIELDS IN THE PRODUCTION PHASE ON 12/31/2012				
SEDIMENTARY BASINS	STATES	ONSHORE/ OFFSHORE	FIELDS	CONCESSIONARIES (%)
Campos	Rio de Janeiro	Offshore	Caratinga	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Cherne	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Congro	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Corvina	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Enchova	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Enchova Oeste	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Espadarte	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Frade	Chevron Frade <sup>1</sup> (51,74)/Petrobras (30)/Frade Japão (18,26)
	Rio de Janeiro	Offshore	Garoupa	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Garoupinha	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Jubarte	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Linguado	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Malhado	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Marimbá	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Marlim	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Marlim Leste	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Marlim Sul	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Moréia	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Namorado	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Nordeste de Namorado	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Ostra	Shell Brasil <sup>1</sup> (50)/Petrobras (35)/ONGC Campos (15)
	Rio de Janeiro	Offshore	Pampo	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Parati	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Pargo	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Peregrino	Statoil Brasil <sup>1</sup> (60)/Sinochem Petróleo (40)
	Rio de Janeiro	Offshore	Piraúna	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Polvo	BP Energy <sup>1</sup> (60)/Maersk Energia (40)
	Rio de Janeiro	Offshore	Roncador	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Salema	Shell <sup>1</sup> (80)/Petrobras (20)
	Rio de Janeiro	Offshore	Triilha	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Tubarão Azul	OGX <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Vermelho	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Viola	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Voador	Petrobras <sup>1</sup> (100)
Ceará	Ceará	Offshore	Atum	Petrobras <sup>1</sup> (100)
	Ceará	Offshore	Curimã	Petrobras <sup>1</sup> (100)
	Ceará	Offshore	Espada	Petrobras <sup>1</sup> (100)
	Ceará	Offshore	Xaréu	Petrobras <sup>1</sup> (100)
Espírito Santo	Espírito Santo	Onshore	Barra do Ipiranga	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Biguá	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Cação <sup>3</sup>	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Cacimbas	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Camarupim	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Camarupim Norte	Petrobras <sup>1</sup> (65)/EP Energy do Brasil (35)
	Espírito Santo	Onshore	Campo Grande	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Canapu	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Cancã	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Cangoá	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Córrego Cedro Norte	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Córrego das Pedras	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Córrego Dourado	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Crejoá <sup>2</sup>	Central Resources <sup>1</sup> (100)
	Espírito Santo	Onshore	Fazenda Alegre	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Fazenda Cedro	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Fazenda Cedro Norte	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Fazenda Queimadas	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Fazenda Santa Luzia	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Fazenda São Jorge	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Fazenda São Rafael	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Golfinho	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Guriri	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Inhambu	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Jacutinga	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Lagoa Bonita	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Lagoa Parda	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Lagoa Parda Norte	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Lagoa Parda Sul	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Lagoa Piabanha	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Lagoa Suruaca	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Mariricu	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Mariricu Norte	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Mariricu Oeste	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Mosquito	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Mosquito Norte	Petrobras <sup>1</sup> (100)

**FRAME 1.3. FIELDS IN THE PRODUCTION PHASE ON 12/31/2012 (CONTINUATION)**

SEDIMENTARY BASINS	STATES	ONSHORE/ OFFSHORE	FIELDS IN THE PRODUCTION PHASE ON 12/31/2012	
			FIELDS	CONCESSIONARIES (%)
Espírito Santo	Espírito Santo	Onshore	Nativo Oeste	Petrobras <sup>1</sup> (100)
	Espírito Santo	Offshore	Peroá	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Barra Seca	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Doce <sup>3</sup>	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Ibiribas <sup>3</sup>	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Ipiranga <sup>3</sup>	Cheim <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Itáunas	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Itáunas Leste	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Maríricu	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Preto	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Preto Oeste	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Preto Sudeste	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio Preto Sul	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio São Mateus	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Rio São Mateus Oeste	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Saira	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	São Mateus	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	São Mateus Leste	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Seriema	Petrobras <sup>1</sup> (100)
	Espírito Santo	Onshore	Tabuiaíá	Petrobras <sup>1</sup> (100)
Potiguar	Rio Grande do Norte	Onshore	Acauã	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Aguilha	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Alto do Rodrigues	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Andorinha	Petrogal Brasil <sup>1</sup> (50)/Petrobras (50)
	Rio Grande do Norte	Onshore	Andorinha Sul	Petrogal Brasil <sup>1</sup> (50)/Petrobras (50)
	Rio Grande do Norte	Onshore	Angico	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Arabaiana	Petrobras <sup>1</sup> (21)/Unopaso (79)
	Rio Grande do Norte	Onshore	Araçari	Petrosynergy <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Aratum	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Asa Branca	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Baixa do Algodão	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Baixa do Juazeiro	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Barrinha	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Barrinha Leste	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Benfica	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Biquara	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Boa Esperança	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Boa Vista	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Brejinho	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Cachoeirinha	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Canto do Amaro	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Carcará	Central Resources <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Cardeal	Partex Brasil <sup>1</sup> (50)/Petrobras (50)
	Rio Grande do Norte	Offshore	Chauá <sup>2</sup>	Alipetro <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Cioba	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Colibri	Partex Brasil <sup>1</sup> (50)/Petrobras (50)
	Rio Grande do Norte	Onshore	Concriz	UTC Óleo e Gás <sup>1</sup> (51) /Phoenix Petróleo (39) /Quantra (10)
	Rio Grande do Norte	Offshore	Dentão	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Estreito	Petrobras <sup>1</sup> (100)
Ceará	Onshore	Fazenda Belém	Petrobras <sup>1</sup> (100)	
	Onshore	Fazenda Canaan	Petrobras <sup>1</sup> (100)	
	Onshore	Fazenda Currul	Petrobras <sup>1</sup> (100)	
	Onshore	Fazenda Juncu	Petrobras <sup>1</sup> (100)	
	Onshore	Fazenda Malaquias	Petrobras <sup>1</sup> (100)	
	Onshore	Fazenda Pocinho	Petrobras <sup>1</sup> (100)	
	Onshore	Galo de Campina	UTC Engenharia <sup>1</sup> (50) /Potíoleo (50)	
	Onshore	Guamaré	Petrobras <sup>1</sup> (100)	
	Onshore	Guamaré Sudeste	Petrobras <sup>1</sup> (100)	
	Onshore	Icapuí	Petrobras <sup>1</sup> (100)	
	Onshore	Iraúna	Petrobras <sup>1</sup> (100)	
	Onshore	Ireré	Petrosynergy <sup>1</sup> (100)	
	Onshore	Jaçanã	Petrobras <sup>1</sup> (100)	
	Onshore	Janduí	Petrobras <sup>1</sup> (100)	
	Onshore	João de Barro	UTC Engenharia <sup>1</sup> (50) /Aurizônia Petróleo (50)	
	Onshore	Juazeiro	Petrobras <sup>1</sup> (100)	
	Onshore	Lagoa Aroeira	Petrobras <sup>1</sup> (100)	
	Onshore	Leste de Poço Xavier	Petrobras <sup>1</sup> (100)	
	Onshore	Livramento	Petrobras <sup>1</sup> (100)	
	Onshore	Lorena	Petrobras <sup>1</sup> (100)	
	Onshore	Macau	Petrobras <sup>1</sup> (100)	
	Onshore	Monte Alegre	Petrobras <sup>1</sup> (100)	
	Onshore	Morrinho	Petrobras <sup>1</sup> (100)	
	Onshore	Mossoró	Petrobras <sup>1</sup> (100)	
	Onshore	Noroeste do Morro Rosado	Petrobras <sup>1</sup> (100)	

**FRAME 1.3. FIELDS IN THE PRODUCTION PHASE ON 12/31/2012 (CONTINUATION)**

FIELDS IN THE PRODUCTION PHASE ON 12/31/2012				
SEDIMENTARY BASINS	STATES	ONSHORE/ OFFSHORE	FIELDS	CONCESSIONARIES (%)
Potiguar	Rio Grande do Norte	Offshore	Oeste de Ubarana	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Pajeú	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Pedra Sentada	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Periquito	UTC Óleo e Gás <sup>1</sup> (38)/Aurizônia Petróleo (37)/Phoenix (25)
	Rio Grande do Norte	Offshore	Pescada	Petrobras <sup>1</sup> (21)/Unopaso (79)
	Rio Grande do Norte	Onshore	Pintassilgo	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Pitiguari	Petrosynergy <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Poço Verde	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Poço Xavier	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Ponta do Mel	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Porto Carão	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Redonda	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Redonda Profundo	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Riacho da Forquilha	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Riacho Velho <sup>2</sup>	Genesis 2000 <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Rio Mossoró	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Rolinha	UTC Engenharia <sup>1</sup> (50)/Potíóleo (50)
	Rio Grande do Norte	Onshore	Sabiá	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Sabiá Bico de Osso	Petrobras (70) /Sonangol Starfish <sup>1</sup> (30)
	Rio Grande do Norte	Onshore	Salina Cristal	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Sanhaçu	Petrogal Brasil (50) /Petrobras <sup>1</sup> (50)
	Rio Grande do Norte	Onshore	São Manoel <sup>2</sup>	Arclima <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Serra	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Serra do Mel	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Serra Vermelha	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Serraria	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Três Marias	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Trinca Ferro	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Offshore	Ubarana	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Upanema	Petrobras <sup>1</sup> (100)
	Rio Grande do Norte	Onshore	Varginha	Petrobras <sup>1</sup> (100)
Recôncavo	Bahia	Onshore	Acajá-Burizinho	Recôncavo E&P <sup>1</sup> (100)
	Bahia	Onshore	Água Grande	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Apraiüs	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Aracás	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Araçás Leste <sup>2</sup>	Egesa <sup>1</sup> (100)
	Bahia	Onshore	Aratu	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Biriba	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Bom Lugar <sup>2</sup>	Alvorada <sup>1</sup> (100)
	Bahia	Onshore	Bonsucesso	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Brejinho	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Buracica	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Camaçari	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Canabrava	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Canário	Petrosynergy <sup>1</sup> (100)
	Bahia	Onshore	Candeias	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Cantagalo	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Cassarongongo	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Cexis	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Cidade de Entre Rios	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Dom João	Petrobras <sup>1</sup> (100)
	Bahia	Offshore	Dom João Mar	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Alto das Pedras	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Alvorada	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Azevedo	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Bálsmo	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Belém	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Boa Esperança	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Imbé	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Onça	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Panelas	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Rio Branco	W. Petróleo <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Santo Estevão	W. Petróleo <sup>1</sup> (100)
	Bahia	Onshore	Fazenda Sori <sup>3</sup>	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Gomo	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Guanambi	Petrobras <sup>1</sup> (80)/Guanambi (20)
	Bahia	Onshore	Ilha de Bimbarra	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Itaparica	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Jacuipé	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Jandaia	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Juriti	Recôncavo E&P <sup>1</sup> (100)
	Bahia	Onshore	Lagoa do Paulo	Recôncavo E&P <sup>1</sup> (100)
	Bahia	Onshore	Lagoa do Paulo Norte	Recôncavo E&P <sup>1</sup> (100)

**FRAME 1.3. FIELDS IN THE PRODUCTION PHASE ON 12/31/2012 (CONTINUATION)**

FIELDS IN THE PRODUCTION PHASE ON 12/31/2012				
SEDIMENTARY BASINS	STATES	ONSHORE/ OFFSHORE	FIELDS	CONCESSIONARIES (%)
Recôncavo	Bahia	Onshore	Lagoa do Paulo Sul	Recôncavo E&P <sup>1</sup> (100)
	Bahia	Onshore	Lagoa Verde <sup>3</sup>	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Lamarão	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Leodório	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Malombê	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Mandacaru	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Mapele	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Massapê	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Massuí	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Mata de São João	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Miranga	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Miranga Norte	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Norte Fazenda Caruaçu	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Paramirim do Vencimento <sup>3</sup>	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Pedrinhas	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Pojuca	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Pojuca Norte	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Remanso	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Riacho da Barra	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Riacho Ouricuri	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Riacho São Pedro	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio da Serra	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio do Bu	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio dos Ovos	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio Itariri	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio Joanes	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio Pipiri	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio Pojuca	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio Sauípe	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Rio Subáuma	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Santana	Santana <sup>1</sup> (100)
	Bahia	Onshore	São Domingos	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	São Pedro	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Sauípe	W. Petróleo <sup>1</sup> (100)
	Bahia	Onshore	Sesmaria	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Socorro	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Socorro Extensão	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Sussuarana	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Tangará	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Tapiranga	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Taquipe	Petrobras <sup>1</sup> (100)
	Bahia	Onshore	Tico-Tico	W. Petróleo <sup>1</sup> (100)
	Bahia	Onshore	Tiê	Gran Tierra <sup>1</sup> (100)
	Bahia	Onshore	Trovoada	Petrosynergy <sup>1</sup> (70)/ Silver Marlin (30)
	Bahia	Onshore	Uirapuru	Petrosynergy <sup>1</sup> (100)
Santos	São Paulo	Offshore	Baúna	Petrobras <sup>1</sup> (100)
	Paraná	Offshore	Caravela	Petrobras <sup>1</sup> (100)
	Paraná	Offshore	Coral	Petrobras <sup>1</sup> (35)/Panoro Energy (35)/Queiroz Galvão (15)/Brasoil Coral (15)/
	São Paulo	Offshore	Lagosta	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Lula	Petrobras <sup>1</sup> (65)/ BG Brasil (25)/ Petrogal (10)
	São Paulo	Offshore	Merluza	Petrobras <sup>1</sup> (100)
	São Paulo	Offshore	Mexilhão	Petrobras <sup>1</sup> (100)
	São Paulo	Offshore	Piracaba	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Tambáu	Petrobras <sup>1</sup> (100)
	Rio de Janeiro	Offshore	Uruguá	Petrobras <sup>1</sup> (100)
Sergipe	Sergipe	Onshore	Aguilhada	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Angelim	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Aracuã <sup>3</sup>	Sonangol Starfish <sup>1</sup> (30)/Petrobras (70)
	Sergipe	Onshore	Aruari	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Atalaia Sul	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Brejo Grande	Petrobras <sup>1</sup> (100)
	Sergipe	Offshore	Caioba	Petrobras <sup>1</sup> (100)
	Sergipe	Offshore	Camorim	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Carapitanga <sup>2</sup>	Silver Marlin <sup>1</sup> (100)
	Sergipe	Onshore	Carmópolis	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Carmópolis Nordeste	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Castanhal	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Cidade de Aracaju <sup>2</sup>	Alvorada <sup>1</sup> (100)
	Sergipe	Offshore	Dourado	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Foz do Vaza-Barris <sup>2</sup>	Rai <sup>1</sup> (100)
	Sergipe	Offshore	Guaricema	Petrobras <sup>1</sup> (100)
	Sergipe	Onshore	Harpia	Nord <sup>1</sup> (60)/Mercury (40)
	Sergipe	Onshore	Ilha Pequena	Petrobras <sup>1</sup> (100)

**FRAME 1.3. FIELDS IN THE PRODUCTION PHASE ON 12/31/2012 (CONCLUSION)**

FIELDS IN THE PRODUCTION PHASE ON 12/31/2012					
SEDIMENTARY BASINS	STATES	ONSHORE/ OFFSHORE	FIELDS	CONCESSIONARIES (%)	
Sergipe	Sergipe	Onshore	Mato Grosso	Petrobras <sup>1</sup> (100)	
	Sergipe	Onshore	Mato Grosso Noroeste	Petrobras <sup>1</sup> (100)	
	Sergipe	Onshore	Mato Grosso Norte	Petrobras <sup>1</sup> (100)	
	Sergipe	Onshore	Mato Grosso Sudoeste	Petrobras <sup>1</sup> (100)	
	Sergipe	Onshore	Mato Grosso Sul	Petrobras <sup>1</sup> (100)	
	Sergipe	Offshore	Piranema	Petrobras <sup>1</sup> (100)	
	Sergipe	Onshore	Riachuelo	Petrobras <sup>1</sup> (100)	
	Sergipe	Offshore	Salgo	Petrobras <sup>1</sup> (100)	
	Sergipe	Onshore	Siririnho	Petrobras <sup>1</sup> (100)	
	Sergipe	Offshore	Tartaruga	UP Petróleo Brasil <sup>1</sup> (67,5)/Petrobras (25)/TDC (7,5)	
Solimões	Amazonas	Onshore	Tatui	Petrobras <sup>1</sup> (100)	
	Amazonas	Onshore	Tigre <sup>2</sup>	Severo Villares <sup>1</sup> (100)	
	Amazonas	Onshore	Carapanaúba	Petrobras <sup>1</sup> (100)	
Tucano Sul	Amazonas	Onshore	Capiúba	Petrobras <sup>1</sup> (100)	
	Amazonas	Onshore	Leste de Urucu	Petrobras <sup>1</sup> (100)	
	Amazonas	Onshore	Rio Urucu	Petrobras <sup>1</sup> (100)	
	Amazonas	Onshore	Sudoeste Urucu	Petrobras <sup>1</sup> (100)	
	Bahia	Onshore	Conceição	Petrobras <sup>1</sup> (100)	
Ceará	Bahia	Onshore	Fazenda Matinha	Petrobras <sup>1</sup> (100)	
	Bahia	Onshore	Fazenda Santa Rosa	Petrobras <sup>1</sup> (100)	
	Bahia	Onshore	Quererá	Petrobras <sup>1</sup> (100)	
	Bahia	Onshore	Sempre Viva <sup>2</sup>	Orteng <sup>1</sup> (34)/Delp (33)/Logos Engenharia (33)	

**SOURCE:** ANP/SDP.<sup>1</sup>Operator company. <sup>2</sup>Marginal fields. <sup>3</sup>Fields to be returned by concessionaire(s).

## 1.2 Reserves

**TABLE 1.1. PROVED OIL RESERVES, PER LOCATION (ONSHORE AND OFFSHORE), BY STATE - 2003-2012**

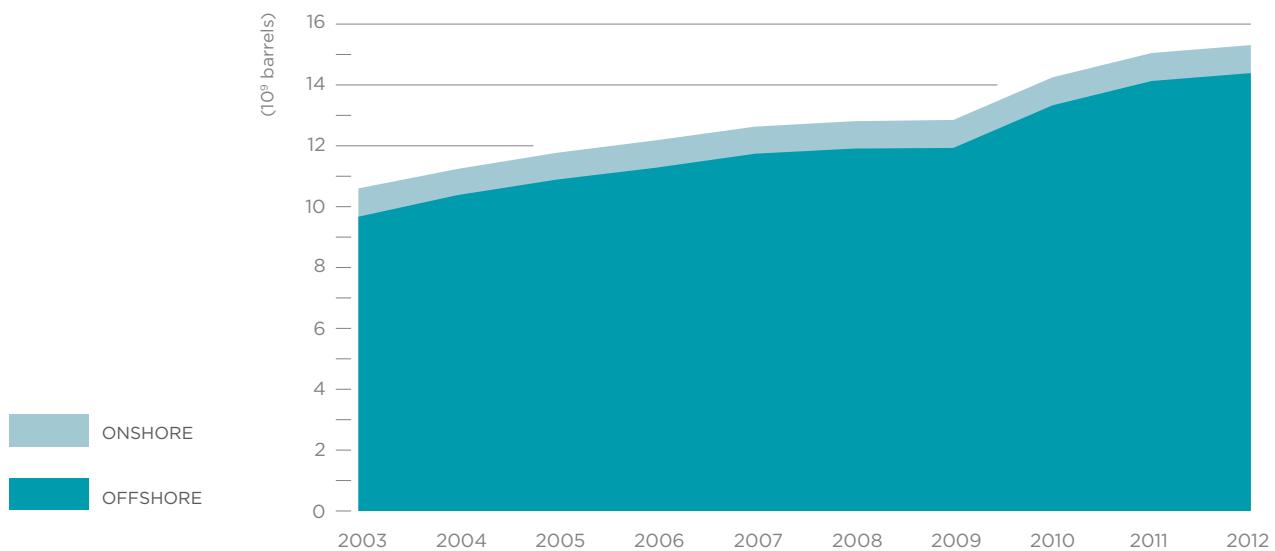
STATES	LOCATION	PROVED OIL RESERVES (10 <sup>6</sup> BARRELS)										12/11 %
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>		<b>10,601.9</b>	<b>11,243.3</b>	<b>11,772.6</b>	<b>12,181.6</b>	<b>12,623.8</b>	<b>12,801.4</b>	<b>12,875.7</b>	<b>14,246.3</b>	<b>15,049.9</b>	<b>15,314.2</b>	<b>1.76</b>
<b>Subtotal</b>	<b>Onshore</b>	<b>934.5</b>	<b>864.5</b>	<b>882.7</b>	<b>904.9</b>	<b>886.4</b>	<b>895.8</b>	<b>938.6</b>	<b>916.3</b>	<b>915.2</b>	<b>920.4</b>	<b>0.56</b>
	<b>Offshore</b>	<b>9,667.4</b>	<b>10,378.8</b>	<b>10,890.0</b>	<b>11,276.8</b>	<b>11,737.5</b>	<b>11,905.6</b>	<b>11,937.1</b>	<b>13,330.0</b>	<b>14,134.7</b>	<b>14,393.9</b>	<b>1.83</b>
Amazonas	Onshore	110.6	100.0	91.9	96.7	102.7	107.6	114.0	104.4	102.6	104.8	2.18
Ceará	Onshore	5.7	6.8	6.3	5.5	8.4	10.4	15.3	15.4	14.1	16.6	17.12
	Offshore	67.1	70.1	71.3	69.5	57.5	58.9	58.9	47.8	49.1	46.3	-5.83
Rio Grande do Norte	Onshore	260.3	250.2	259.4	263.0	264.6	265.1	266.3	254.6	252.1	277.8	10.18
	Offshore	71.6	67.4	80.7	79.6	98.1	98.1	105.4	120.5	121.0	117.1	-3.16
Alagoas	Onshore	11.4	10.9	11.8	11.3	8.7	6.9	5.8	5.2	10.5	6.3	-40.15
	Offshore	1.4	1.6	1.2	0.9	0.7	0.6	0.7	0.8	0.7	0.6	-20.20
Sergipe	Onshore	220.0	223.3	230.0	226.6	231.8	226.4	242.4	250.7	246.3	240.1	-2.55
	Offshore	21.1	36.1	37.8	38.1	34.6	35.0	26.2	31.6	28.4	32.3	13.53
Bahia	Onshore	211.6	214.8	228.6	241.1	216.1	228.6	241.9	241.1	255.9	239.9	-6.24
	Offshore	2.2	2.3	2.3	3.5	37.8	59.6	69.4	65.8	69.7	69.4	-0.49
Espírito Santo	Onshore	114.9	58.4	54.6	60.7	54.1	50.8	53.0	44.8	33.6	34.9	3.80
	Offshore	609.7	1,205.6	1,126.1	1,286.5	1,277.1	1,275.5	1,240.8	1,297.8	1,305.5	1,334.3	2.21
Rio de Janeiro <sup>2</sup>	Offshore	8,854.1	8,931.1	9,532.6	9,762.2	10,177.9	10,328.5	10,381.9	11,707.3	12,143.3	12,211.5	0.56
São Paulo	Offshore	4.0	39.9	19.2	23.8	27.6	23.9	24.2	26.1	384.4	545.9	42.03
Paraná <sup>3</sup>	Onshore	-	-	-	-	-	-	0.0	0.0	0.0	-	..
	Offshore	23.7	14.8	10.7	6.2	21.3	20.7	24.4	27.0	27.3	31.3	14.63
Santa Catarina <sup>4</sup>	Offshore	12.5	9.9	8.2	6.6	4.8	4.8	5.3	5.3	5.3	5.3	-0.09

**SOURCE:** ANP/SDP, as per Ordinance ANP No. 9/2000.**NOTES:** 1. Reserves on December 31<sup>st</sup> of reference years.

2. Condensates included.

3. See item in General Notes on "Brazilian Oil and Natural Gas Reserves".

1Reserves related to fields whose development plans are still under analysis by ANP included. 2Reserves related to Roncador and Frade fields were totally accounted to the State of Rio de Janeiro by means of simplification. 3Reserves related to Caravela field were totally accounted to the State of Paraná by means of simplification. 4Reserves related to Tubarão field are totally accounted to the State of Santa Catarina by means of simplification.

**FIGURE 1.1. PROVED OIL RESERVES, BY LOCATION (ONSHORE AND OFFSHORE) – 2003-2012****SOURCE:** ANP/SDP (Table 1.1).**NOTES:** 1. Reserves on December, 31<sup>st</sup> of reference years.

2. Condensates included.

3. See General Notes on "Brazilian Oil and Natural Gas Reserves".

**TABLE 1.2. PROVED NATURAL GAS RESERVES<sup>1</sup>, PER LOCATION (ONSHORE AND OFFSHORE), BY STATE – 2003-2012**

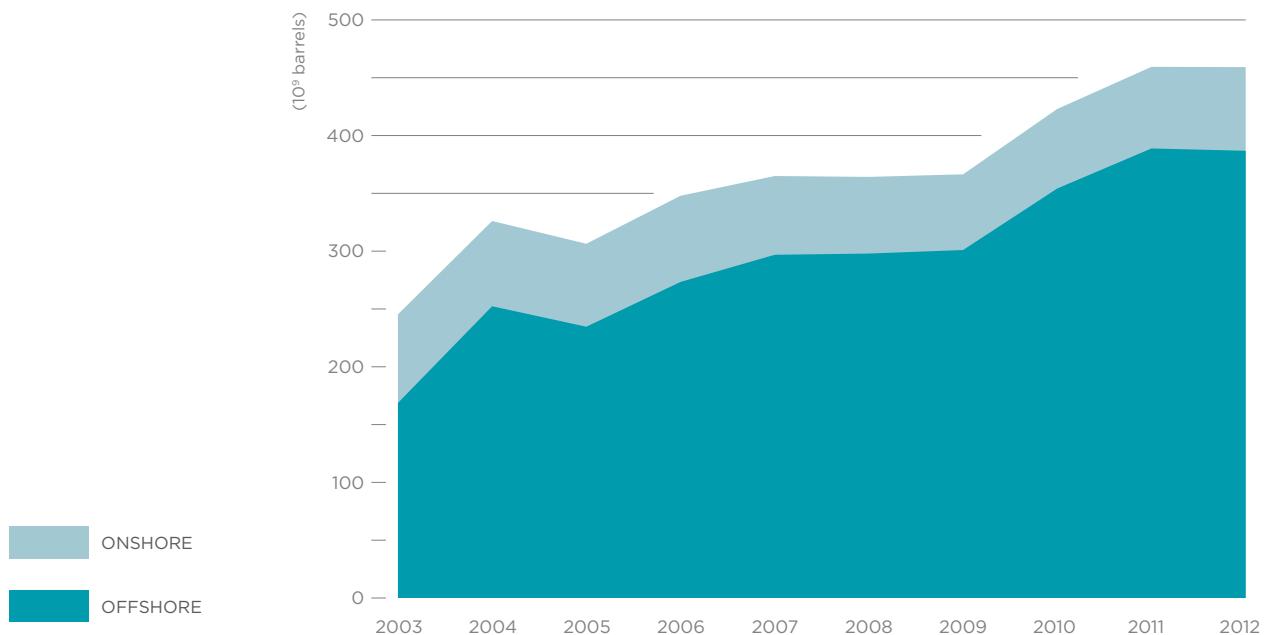
STATES	LOCATION	PROVED NATURAL GAS RESERVES (10 <sup>6</sup> M <sup>3</sup> )										12/11 %
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>		<b>245,340</b>	<b>326,084</b>	<b>306,395</b>	<b>347,903</b>	<b>364,991</b>	<b>364,236</b>	<b>367,095</b>	<b>423,003</b>	<b>459,403</b>	<b>459,187</b>	<b>-0.05</b>
<b>Subtotal</b>	<b>Onshore</b>	<b>76,597</b>	<b>73,730</b>	<b>71,752</b>	<b>74,522</b>	<b>68,131</b>	<b>66,305</b>	<b>65,489</b>	<b>68,803</b>	<b>70,577</b>	<b>72,375</b>	<b>2.55</b>
	<b>Offshore</b>	<b>168,743</b>	<b>252,354</b>	<b>234,643</b>	<b>273,381</b>	<b>296,860</b>	<b>297,931</b>	<b>301,606</b>	<b>354,200</b>	<b>388,827</b>	<b>386,812</b>	<b>-0.52</b>
Amazonas	Onshore	49,075	49,448	51,465	53,232	52,774	52,143	52,397	55,878	57,455	51,816	-9.81
Maranhão	Onshore	-	-	-	-	-	-	-	-	-	7,286	..
Ceará	Offshore	1,139	1,066	995	825	825	1,028	784	652	528	387	-26.81
Rio Grande do Norte	Onshore	3,151	2,870	2,558	2,397	1,942	1,585	1,656	1,418	1,464	2,550	74.12
	Offshore	17,289	18,337	15,059	14,047	11,755	8,663	8,376	8,676	7,645	7,297	-4.56
Alagoas	Onshore	4,286	3,929	3,525	3,241	3,042	3,058	2,665	2,391	2,515	2,740	8.92
	Offshore	980	1,198	1,084	815	850	730	825	1,085	981	762	-22.41
Sergipe	Onshore	861	829	768	814	761	989	925	1,039	1,433	1,460	1.92
	Offshore	2,525	3,286	2,751	2,978	2,842	2,678	2,523	2,588	2,323	3,422	47.29
Bahia	Onshore	16,987	15,636	12,379	11,474	8,470	7,447	7,202	7,356	6,844	5,988	-12.50
	Offshore	8,681	9,625	9,388	14,269	26,423	24,671	28,169	26,161	23,708	24,290	2.45
Espírito Santo	Onshore	2,237	1,018	1,057	3,364	1,140	940	640	587	717	535	-25.33
	Offshore	15,258	21,286	31,271	37,385	37,594	38,004	47,058	44,025	43,631	42,590	-2.39
Rio de Janeiro <sup>2</sup>	Offshore	119,257	119,049	145,378	164,503	167,917	173,142	166,770	220,506	249,984	246,438	-1.42
São Paulo	Offshore	3,508	78,471	28,696	38,543	47,881	48,340	46,189	49,373	58,882	60,336	2.47
Paraná <sup>3</sup>	Onshore	-	-	-	-	1	142	4	134	149	-	..
	Offshore	61	26	15	9	568	468	684	904	913	1,062	16.28
Santa Catarina <sup>4</sup>	Offshore	44	11	7	7	206	205	230	230	230	230	-0.09

**SOURCE:** ANP/SDP, as per Ordinance ANP No. 9/2000.**NOTES:** 1. Reserves on December, 31<sup>st</sup> of reference years.

2. Condensates included.

3. See item in General Notes on "Brazilian Oil and Natural Gas Reserves".

<sup>1</sup>Reserves related to fields whose development plans are still under analysis by ANP included. <sup>2</sup>Reserves related to Roncador and Frade fields were totally accounted to the State of Rio de Janeiro by means of simplification. <sup>3</sup>Reserves related to Caravela field were totally accounted to the State of Paraná by means of simplification. <sup>4</sup>Reserves related to Tubarão field are totally accounted to the State of Santa Catarina by means of simplification.

**FIGURE 1.2. PROVED NATURAL GAS RESERVES, BY LOCATION (ONSHORE AND OFFSHORE) – 2003-2012****SOURCE:** ANP/SDP (Table 1.2).**NOTES:** 1. Reserves on December, 31<sup>st</sup> of reference years.

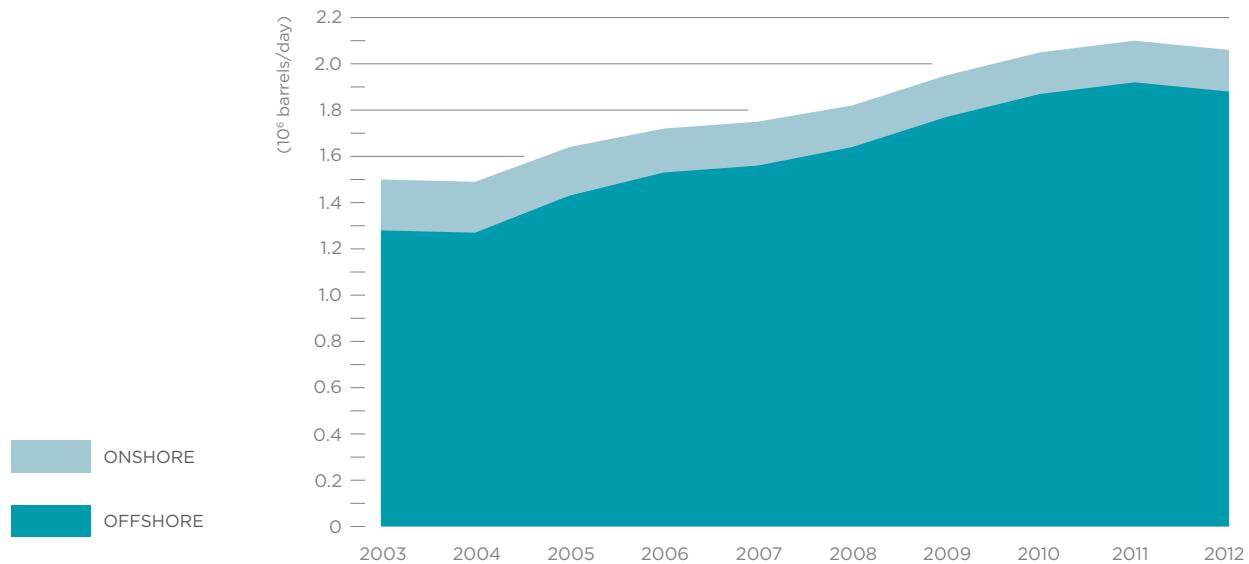
2. See General Notes item on "Brazilian Oil and Natural Gas Reserves".

### 1.3 Production

**TABLE 1.3. OIL PRODUCTION, PER LOCATION (ONSHORE AND OFFSHORE), BY STATE – 2003-2012**

STATES	Location	OIL PRODUCTION (10 <sup>3</sup> BARRELS)										12/11 %
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>		<b>546,080</b>	<b>540,717</b>	<b>596,255</b>	<b>628,797</b>	<b>638,018</b>	<b>663,275</b>	<b>711,883</b>	<b>749,954</b>	<b>768,471</b>	<b>754,409</b>	<b>-1.83</b>
<b>Subtotal</b>	<b>Onshore</b>	<b>79,738</b>	<b>78,632</b>	<b>74,962</b>	<b>70,841</b>	<b>69,893</b>	<b>66,337</b>	<b>65,465</b>	<b>65,973</b>	<b>66,441</b>	<b>66,046</b>	<b>-0.60</b>
	<b>Offshore</b>	<b>466,342</b>	<b>462,085</b>	<b>521,292</b>	<b>557,957</b>	<b>568,126</b>	<b>596,938</b>	<b>646,418</b>	<b>683,981</b>	<b>702,029</b>	<b>688,363</b>	<b>-1.95</b>
Amazonas	Onshore	15,410	15,541	14,376	13,062	12,276	11,657	12,351	13,030	12,683	12,283	-3.16
Ceará	Onshore	997	806	593	559	668	699	761	674	567	457	-19.48
	Offshore	4,419	4,176	3,796	3,250	3,098	2,788	2,539	2,261	2,051	1,919	-6.43
Rio Grande do Norte	Onshore	24,658	24,774	23,031	20,435	19,676	19,208	18,295	17,868	18,595	18,966	1.99
	Offshore	3,917	4,319	4,153	3,731	3,141	3,124	3,012	2,914	2,808	2,785	-0.83
Alagoas	Onshore	2,586	2,477	2,572	2,935	2,897	2,139	2,246	2,030	1,896	1,647	-13.16
	Offshore	190	196	186	162	126	109	96	85	108	81	-24.41
Sergipe	Onshore	10,840	11,433	11,909	12,044	12,889	12,371	12,583	12,020	11,745	11,547	-1.68
	Offshore	2,650	2,530	2,307	2,300	2,404	4,823	3,515	3,063	3,586	3,200	-10.77
Bahia	Onshore	16,064	16,324	16,144	15,703	15,525	15,156	14,642	15,551	15,776	15,712	-0.41
	Offshore	-	-	-	-	134	284	338	343	247	307	24.36
Espírito Santo	Onshore	9,183	7,278	6,338	6,103	5,963	5,108	4,587	4,801	5,179	5,435	4.95
	Offshore	6,617	4,407	5,945	16,759	36,197	37,133	31,371	75,232	110,689	107,666	-2.73
Rio de Janeiro	Offshore	446,238	443,156	501,772	529,627	520,922	547,348	605,213	594,804	568,557	561,482	-1.24
São Paulo	Offshore	534	509	514	457	724	302	333	5,278	13,984	10,921	-21.90
Paraná	Offshore	1,777	2,793	2,619	1,670	1,380	1,029	-	-	-	-	..

**SOURCE:** ANP/SDP, as per Decree No. 2.705/1998.**NOTE:** Condensates included.

**FIGURE 1.3. OIL PRODUCTION, BY LOCATION (ONSHORE AND OFFSHORE) - 2003-2012**

SOURCE: ANP/SDP (Table 1.3).

NOTE: Condensate included.

**TABLE 1.4. NGL PRODUCTION, BY STATE – 2003-2012**

STATES	NGL PRODUCTION (10 <sup>3</sup> BARRELS)										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>BRAZIL</b>	<b>20,549</b>	<b>22,457</b>	<b>28,943</b>	<b>31,532</b>	<b>30,903</b>	<b>31,628</b>	<b>28,717</b>	<b>30,204</b>	<b>31,942</b>	<b>32,131</b>	<b>0.59</b>
Amazonas	5,267	5,573	6,245	6,405	6,894	6,983	6,759	6,173	6,560	6,613	0.82
Ceará	195	194	170	144	87	90	68	66	22	28	27.85
Rio Grande do Norte	2,549	2,977	2,946	2,785	2,763	2,442	2,063	1,877	1,613	1,524	-5.53
Alagoas	320.88	795	857	768	682	612	598	587	548	568	3.63
Sergipe	1,791	1,841	1,855	1,777	1,726	1,635	1,522	1,428	1,177	1,042	-11.48
Bahia	2,530	2,595	2,670	2,682	2,276	2,199	2,037	1,957	1,616	1,506	-6.81
Espírito Santo	64	87	87	59	71	253	185	708	1,788	2,094	17.10
Rio de Janeiro	7,832	8,396	14,113	16,912	16,403	17,412	15,485	17,409	18,412	17,699	-3.87
São Paulo	-	-	-	-	-	-	-	-	205	1,057	414.17

SOURCE: ANP/SDP, as per Decree No. 2.705/1998.

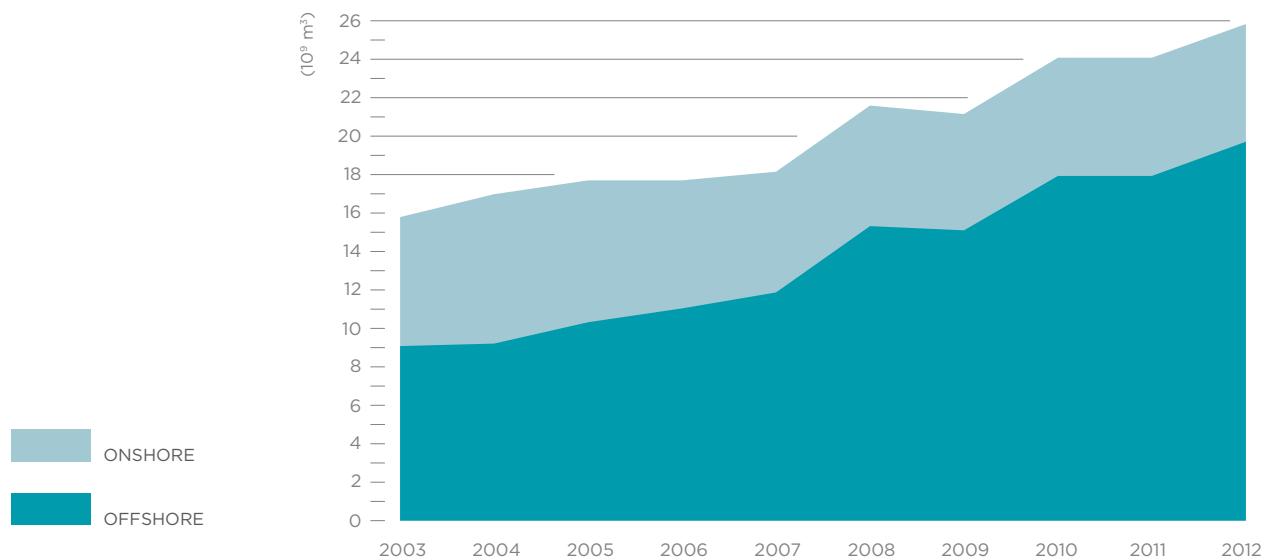
NOTE: Condensates not included. LPG and C<sub>5</sub><sup>+</sup> included, as per Ordinance ANP No. 9/2000.

**TABLE 1.5. NATURAL GAS PRODUCTION, PER LOCATION (ONSHORE AND OFFSHORE), BY STATE - 2003-2012**

STATES	LOCATION	NATURAL GAS PRODUCTION (10 <sup>6</sup> M <sup>3</sup> )										12/11 %
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>		<b>15,792.1</b>	<b>16,971.2</b>	<b>17,699.2</b>	<b>17,699.2</b>	<b>18,151.7</b>	<b>21,592.7</b>	<b>21,141.5</b>	<b>22,938.4</b>	<b>24,073.7</b>	<b>25,832.2</b>	<b>7.30</b>
<b>Subtotal</b>	<b>Onshore</b>	<b>6,708.6</b>	<b>7,765.5</b>	<b>7,375.3</b>	<b>6,656.9</b>	<b>6,282.9</b>	<b>6,273.1</b>	<b>6,045.2</b>	<b>6,024.0</b>	<b>6,147.7</b>	<b>6,122.9</b>	<b>-0.40</b>
	<b>Offshore</b>	<b>9,083.4</b>	<b>9,205.7</b>	<b>10,323.9</b>	<b>11,042.3</b>	<b>11,868.7</b>	<b>15,319.6</b>	<b>15,096.3</b>	<b>16,914.4</b>	<b>17,926.0</b>	<b>19,709.3</b>	<b>9.95</b>
Amazonas	Onshore	2,992.6	3,620.8	3,567.2	3,376.3	3,546.1	3,732.6	3,780.2	3,857.9	4,161.2	4,188.3	0.65
Maranhão	Onshore	-	-	-	-	-	-	-	-	-	0.4	..
Ceará	Onshore	0.8	0.6	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.4	-19.05
	Offshore	99.3	125.4	110.6	98.9	77.4	65.8	55.5	42.1	30.7	27.2	-11.48
Rio Grande do Norte	Onshore	301.6	333.5	296.0	266.1	313.9	317.8	273.0	269.5	272.1	258.1	-5.13
	Offshore	967.3	1,032.1	1,020.5	914.5	765.0	609.8	488.1	419.4	362.4	305.1	-15.82
Alagoas	Onshore	783.3	1,042.2	999.5	878.6	765.4	685.7	618.0	564.5	462.7	508.5	9.89
	Offshore	134.6	144.9	169.1	144.1	141.0	128.2	124.4	108.2	100.4	53.2	-47.07
Sergipe	Onshore	66.2	76.3	79.0	84.2	93.2	91.2	92.5	94.7	101.9	102.8	0.85
	Offshore	666.3	601.2	538.7	525.2	453.9	766.5	863.6	1,007.1	999.2	927.0	-7.23
Bahia	Onshore	2,115.7	2,218.4	1,959.1	1,878.1	1,480.0	1,285.4	1,172.3	1,138.3	1,057.5	970.8	-8.19
	Offshore	50.2	38.2	25.2	16.3	1,166.3	2,079.5	1,881.1	2,261.1	1,500.2	2,245.9	49.70
Espírito Santo	Onshore	448.4	473.7	474.0	173.1	83.7	159.7	108.5	98.7	91.8	93.6	1.94
	Offshore	60.9	36.1	45.1	736.6	881.7	2,642.4	967.9	2,602.4	4,240.3	3,814.3	-10.04
Rio de Janeiro	Offshore	6,660.2	6,779.1	7,967.2	8,210.8	8,025.1	8,763.3	10,497.2	10,132.2	9,386.9	10,344.4	10.20
São Paulo	Offshore	388.2	383.4	379.7	357.0	324.1	242.1	218.4	342.0	1,305.8	1,992.1	52.56
Paraná	Offshore	56.4	65.2	67.7	39.0	34.3	21.9	-	-	-	-	..

SOURCE: ANP/SDP, as per Decree No. 2.705/1998.

NOTE: Total production includes reinjection, gas flaring, losses and own consumption.

**FIGURE 1.4. NATURAL GAS PRODUCTION, BY LOCATION (ONSHORE AND OFFSHORE) - 2003-2012**

SOURCE: ANP/SDP (Table 1.5).

NOTE: Total production volume includes reinjection, flared gas, losses, own consumption, as well as condensed gas in LNG form.

**TABLE 1.6. PRODUCTION OF ASSOCIATED AND NON-ASSOCIATED NATURAL GAS, BY STATE – 2003-2012**

STATES	TYPE	NATURAL GAS PRODUCTION (10 <sup>6</sup> M <sup>3</sup> )										12/11 %
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>		<b>15,792</b>	<b>16,971</b>	<b>17,699</b>	<b>17,706</b>	<b>18,152</b>	<b>21,593</b>	<b>21,142</b>	<b>22,938</b>	<b>24,072</b>	<b>25,832</b>	<b>7.31</b>
<b>Subtotal</b>	<b>Associated</b>	<b>12,135</b>	<b>12,981</b>	<b>13,778</b>	<b>13,661</b>	<b>13,506</b>	<b>14,519</b>	<b>16,976</b>	<b>17,300</b>	<b>17,650</b>	<b>17,939</b>	<b>1.64</b>
	<b>Non-associated</b>	<b>3,657</b>	<b>3,990</b>	<b>3,921</b>	<b>4,045</b>	<b>4,645</b>	<b>7,074</b>	<b>4,165</b>	<b>5,638</b>	<b>6,422</b>	<b>7,893</b>	<b>22.91</b>
Amazonas	Associated	2,942	3,562	3,533	3,367	3,523	3,699	3,723	3,809	4,130	4,107	-0.54
	Non-associated	51	59	34	9	23	34	57	49	31	81	157.81
Maranhão	Non-associated	-	-	-	-	-	-	-	-	-	0.4	..
Ceará	Associated	100	126	111	99	78	66	56	43	31	28	-11.59
Rio Grande do Norte	Associated	796	740	769	716	590	541	518	491	460	433	-5.89
	Non-associated	473	625	548	465	489	386	243	198	175	131	-25.31
Alagoas	Associated	366	409	369	249	219	218	319	231	204	170	-16.77
	Non-associated	552	778	800	773	688	596	423	442	357	392	9.59
Sergipe	Associated	481	420	304	300	292	590	819	952	964	908	-5.85
	Non-associated	252	257	313	309	255	268	137	150	137	122	-10.87
Bahia	Associated	631	826	642	476	478	495	630	594	555	537	-3.40
	Non-associated	1,535	1,430	1,343	1,419	2,168	2,870	2,423	2,806	2,002	2,680	33.86
Espírito Santo	Associated	147	107	116	472	603	437	432	1,024	1,962	1,820	-7.26
	Non-associated	362	403	403	437	363	2,365	644	1,677	2,370	2,088	-11.89
Rio de Janeiro	Associated	6,617	6,725	7,867	7,943	7,689	8,450	10,479	10,121	9,180	9,852	7.31
	Non-associated	44	54	100	274	336	313	19	11	207	493	138.52
São Paulo	Associated	-	-	-	-	-	-	-	37	163	86	-47.45
	Non-associated	388	383	380	357	324	242	218	305	1,142	1,906	66.86
Paraná	Associated	56	65	68	39	34	22	-	-	-	-	..

SOURCE: ANP/SDP, as per Decree No. 2.705/1998.

NOTE: Total production includes reinjection, gas flaring, losses and own consumption.

## REFINING AND PROCESSING

### 1.4 Oil Refining

**TABLE 1.7. REFINING CAPACITY, BY REFINERY – 2003-2012**

REFINERY (STATES)	REFINING CAPACITY (BARREL/DAY)										2012
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL<sup>1</sup></b>	<b>2,027,072</b>	<b>2,027,072</b>	<b>2,044,054</b>	<b>2,044,054</b>	<b>2,063,552</b>	<b>2,076,604</b>	<b>2,092,643</b>	<b>2,092,643</b>	<b>2,115,859</b>	<b>2,105,795</b>	
Riograndense (RS)	16,983	16,983	16,983	16,983	16,983	16,983	16,983	16,983	16,983	17,014	
Lubnor (CE)	6,290	6,290	6,919	6,919	6,919	8,177	8,177	8,177	8,177	8,177	
Mangueiros (RJ)	13,838	13,838	13,838	13,838	13,838	13,838	13,838	13,838	13,838	13,838	
Recap (SP)	53,463	53,463	53,463	53,463	53,463	53,463	53,463	53,463	53,463	53,463	
Reduc (RJ)	242,158	242,158	242,158	242,158	242,158	242,158	242,158	242,158	242,158	242,158	
Refap (RS)	188,695	188,695	188,695	188,695	188,695	188,695	188,695	188,695	188,695	201,274	
Regap (MG)	150,956	150,956	150,956	150,956	150,956	150,956	150,956	150,956	150,956	150,956	
Reman (AM)	45,916	45,916	45,916	45,916	45,916	45,916	45,916	45,916	45,916	45,916	
Repar (PR)	188,695	188,695	188,695	188,695	201,274	220,144	220,144	220,144	220,144	207,564	
Replan (SP)	364,810	364,810	364,810	364,810	364,810	383,679	415,128	415,128	415,128	415,128	
Revap (SP)	251,593	251,593	251,593	251,593	251,593	251,593	251,593	251,593	251,593	251,593	
RLAM (BA) <sup>2</sup>	322,982	322,982	322,982	322,982	322,982	295,307	279,897	279,897	279,897	279,897	
RPBC (SP)	169,825	169,825	169,825	169,825	169,825	169,825	169,825	169,825	169,825	169,825	
RPCC (RN)	10,869	10,869	27,222	27,222	27,222	27,222	27,222	27,222	35,223	37,739	
Univen (SP)	-	-	-	-	6,919	6,919	6,919	6,919	9,158	9,158	
Dax Oil (BA)	-	-	-	-	-	1,730	1,730	1,730	2,095	2,095	
<b>TOTAL<sup>3</sup> (BARREL/DAY-CALENDAR)</b>	<b>1,925,718</b>	<b>1,925,718</b>	<b>1,941,851</b>	<b>1,941,851</b>	<b>1,960,375</b>	<b>1,972,774</b>	<b>1,988,011</b>	<b>1,988,011</b>	<b>2,010,066</b>	<b>2,000,505</b>	
<b>UTILIZATION FACTOR<sup>4</sup> (%)</b>	<b>84.1</b>	<b>90.0</b>	<b>89.6</b>	<b>90.3</b>	<b>91.1</b>	<b>89.9</b>	<b>91.1</b>	<b>91.2</b>	<b>92.8</b>	<b>96.3</b>	

SOURCE: ANP/SRP, as per Ordinances ANP No. 16/2010 and 17/2010.

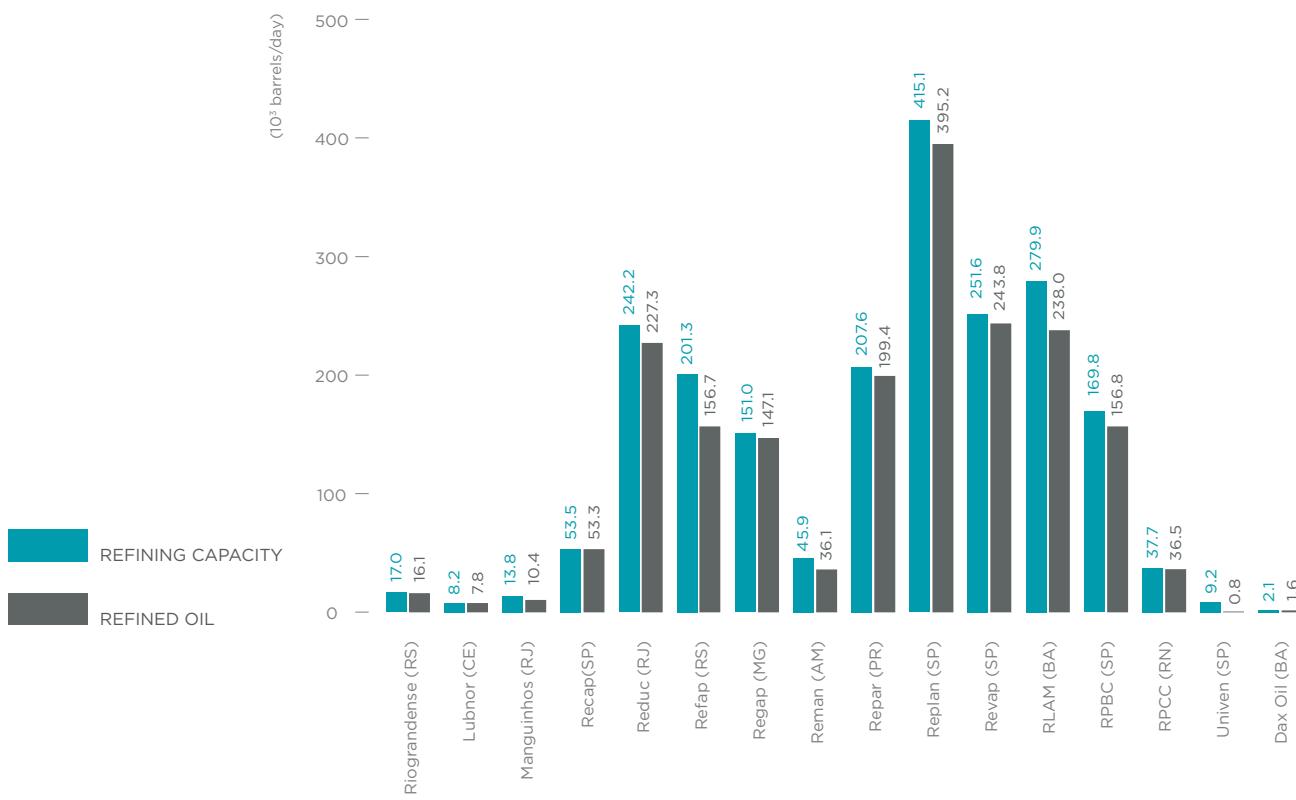
<sup>1</sup>Nominal capacity in m<sup>3</sup>/day. <sup>2</sup>RLAM has an asphalt production plant with 600 m<sup>3</sup>/day capacity. <sup>3</sup>Calendar-day refining a 95% mean utilization factor.<sup>4</sup>Refining utilization factor, considering the volume of processed oil within a year.

**TABLE 1.8. VOLUME OF PROCESSED OIL, PER ORIGIN (DOMESTIC AND IMPORTED), BY REFINERY – 2012**

REFINERY (STATES)	VOLUME OF PROCESSED OIL (BARREL/DAY)			
	TOTAL	OIL		
		DOMESTIC <sup>1</sup>	IMPORTED <sup>2</sup>	OTHER LOADS <sup>3</sup>
<b>TOTAL</b>	<b>1,926,718</b>	<b>1,537,632</b>	<b>359,011</b>	<b>30,075</b>
Manguinhos (RJ)	10,439	22	9,038	1,379
Riograndense (RS)	16,058	15,606	452	-
Lubnor (CE)	7,848	7,795	-	53
Recap (SP)	53,267	48,711	4,428	128
Reduc (RJ)	227,299	129,521	91,899	5,879
Refap (RS)	156,728	88,477	65,340	2,911
Regap (MG)	147,098	142,992	312	3,795
Reman (AM)	36,102	35,796	-	306
Repar (PR)	199,390	142,757	56,280	353
Replan (SP)	395,159	301,236	85,381	8,541
Revap (SP)	243,782	220,874	22,718	189
RLAM (BA)	237,976	230,195	2,652	5,129
RPBC (SP)	156,754	136,786	18,837	1,132
RPCC (RN)	36,458	36,458	-	-
Univen (SP)	788	-	677	111
Dax Oil (BA)	1,571	406	996	168

SOURCES: Manguinhos, Riograndense, Univen, Dax Oil and Petrobras/Abast.

<sup>1</sup>Oil and condensates included. <sup>2</sup>Oil and condensates included. <sup>3</sup>Include oil and oil products residues which are reprocessed in the atmospheric distillation units together with oil and condensate.

**FIGURE 1.5. VOLUME OF REFINED OIL AND REFINING CAPACITY, BY REFINERY – 2012**

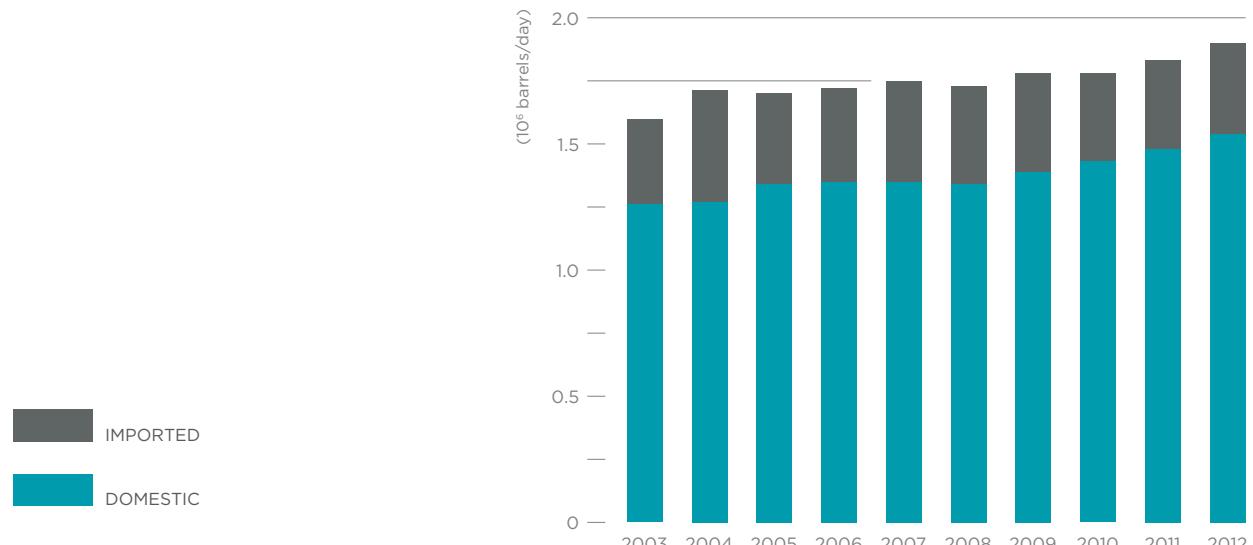
SOURCES: Riograndense, Univen, Manguinhos, Dax Oil and Petrobras/Abast (Tables 1.7 and 1.8).

**TABLE 1.9. VOLUME OF PROCESSED OIL<sup>1</sup>, PER ORIGIN (DOMESTIC AND IMPORTED), BY COUNTRY - 2003-2012**

REGION AND COUNTRY	VOLUME OF PROCESSED OIL (BARRELS/DAY)										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>	<b>1,620,152</b>	<b>1,734,095</b>	<b>1,740,720</b>	<b>1,752,692</b>	<b>1,786,809</b>	<b>1,773,469</b>	<b>1,810,386</b>	<b>1,813,257</b>	<b>1,864,502</b>	<b>1,926,718</b>	<b>3.34</b>
Other loads <sup>2</sup>	18,927	24,603	31,210	38,445	30,574	35,277	34,211	38,507	33,288	30,075	-9.65
Oil <sup>1</sup>	1,601,225	1,709,492	1,709,510	1,714,247	1,756,235	1,738,193	1,776,175	1,774,749	1,831,214	1,896,643	3.57
Domestic <sup>3</sup>	1,257,788	1,272,479	1,344,754	1,348,663	1,352,824	1,343,476	1,388,603	1,427,417	1,476,585	1,537,632	4.13
Imported <sup>3</sup>	343,437	437,013	364,756	365,584	403,411	394,717	387,572	347,332	354,629	359,011	1.24
<b>North America</b>	-	-	-	-	-	-	-	-	<b>5,486</b>	<b>5,276</b>	<b>-3.82</b>
United States	-	-	-	-	-	-	-	-	5,486	5,276	-3.82
<b>South and Central America</b>	<b>24,140</b>	<b>21,159</b>	<b>17,412</b>	<b>8,075</b>	<b>6,893</b>	<b>6,436</b>	<b>9,105</b>	<b>731</b>	<b>5,230</b>	<b>9,320</b>	<b>78.23</b>
Argentina	14,012	8,985	4,602	875	787	0	8,357	731	2,156	9,320	332.29
Bolivia	9,547	6,176	8,726	6,678	2,231	2,974	-	-	-	-	..
Colombia	-	1,416	-	-	3,875	3,462	-	-	-	-	..
Ecuador	-	4,134	4,085	522	-	-	-	-	-	-	..
Peru	-	-	-	-	-	-	-	-	3,073	-	..
Venezuela	580	449	0.3	-	-	-	748	-	-	-	..
<b>Europe</b>	<b>5,186</b>	<b>882</b>	<b>12,484</b>	<b>2,895</b>	<b>1,518</b>	<b>3,675</b>	<b>8,065</b>	<b>3,834</b>	<b>7,185</b>	<b>5,655</b>	<b>-21.29</b>
Norway	5,186	118	-	-	-	-	-	92.76	-	-	..
United Kingdom	-	764	12,484	2,895	1,518	3,675	8,065	3,742	7,185	5,655	-21.29
<b>Former Soviet Union</b>	<b>446</b>	-	-	<b>2,742</b>	<b>12,380</b>	<b>7</b>	-	<b>2,809</b>	<b>38</b>	-	..
Azerbaijan	-	-	-	2,742	11,306	7	-	-	-	-	..
Kazakhstan	446	-	-	-	-	-	-	-	-	-	..
Russia	-	-	-	-	1,074	-	-	2,809	38	-	..
<b>Middle East</b>	<b>100,438</b>	<b>97,633</b>	<b>100,756</b>	<b>94,179</b>	<b>89,337</b>	<b>91,153</b>	<b>94,592</b>	<b>93,858</b>	<b>97,226</b>	<b>94,012</b>	<b>-3.31</b>
Saudi Arabia	69,602	62,370	64,909	66,626	55,054	58,523	63,488	66,412	72,848	71,027	-2.50
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	..
Iran	724	-	-	-	-	-	-	-	-	-	..
Irak	30,112	35,263	35,848	27,553	34,283	32,630	31,104	27,447	24,378	22,985	-5.71
<b>Africa</b>	<b>210,400</b>	<b>315,440</b>	<b>234,102</b>	<b>257,693</b>	<b>293,283</b>	<b>292,957</b>	<b>271,312</b>	<b>244,296</b>	<b>223,536</b>	<b>234,126</b>	<b>4.74</b>
South Africa	5	-	-	-	-	-	-	-	-	-	..
Angola	-	-	4,211	20,376	33,213	53,326	4,457	13,090	6,467	1,965	-69.61
Algeria	66,454	82,467	98,972	50,583	30,395	36,555	21,003	16,604	5,802	22,681	290.92
Cameroon	-	-	-	-	-	-	-	2,249	-	-	..
Congo (Brazzaville)	5,011	-	2,768	17,731	11,521	3	-	-	2,552	-	..
Gabon	19	-	-	-	-	-	-	-	-	-	..
Gana	-	152	83	-	-	-	-	-	-	-	..
Equatorial Guinea	-	-	-	-	5,343	9,036	3,816	9,754	6,456	4	-99.94
Libya	-	-	-	7,305	36,152	33,029	36,576	5,958	-	-	..
Nigeria	138,911	232,821	128,069	161,698	176,660	161,008	205,460	196,641	202,259	209,476	3.57
<b>Asia-Pacific</b>	<b>2,828</b>	<b>1,899</b>	-	-	-	<b>489</b>	<b>4,498</b>	<b>1,803</b>	<b>15,928</b>	<b>10,622</b>	<b>-33.31</b>
Australia	2,828	1,899	-	-	-	489	4,498	1,803	15,729	10,072	-35.97
Indonesia	-	-	-	-	-	-	-	-	199	550	176.38

**SOURCES:** Manguinhos, Riograndense, Univen, Dax Oil and Petrobras/Abast.

<sup>1</sup>Refers to oil feed which is processed in primary distillation units. <sup>2</sup>Oil and oil products residuals included, as well as residuals from terminals which are reprocessed together with oil and condensate feeds in atmospheric distillation units. <sup>3</sup>Oil and condensates included.

**FIGURE 1.6. VOLUME OF PROCESSED OIL, BY ORIGIN (DOMESTIC<sup>1</sup> AND IMPORTED<sup>2</sup>) - 2003-2012**

**SOURCES:** Riograndense, Univen, Manguinhos, Dax Oil and Petrobras/Abast (Table 1.9).

<sup>1</sup>Oil and condensate included. <sup>2</sup>Oil and condensate included.

## 1.5 Production of Oil Products

**TABLE 1.10. PRODUCTION OF ENERGY AND NON-ENERGY OIL PRODUCTS - 2003-2012**

OIL PRODUCTS	PRODUCTION (M <sup>3</sup> )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>	<b>97,559,414</b>	<b>103,158,597</b>	<b>104,386,596</b>	<b>106,283,719</b>	<b>108,512,061</b>	<b>108,163,740</b>	<b>109,747,303</b>	<b>110,394,462</b>	<b>113,003,867</b>	<b>120,203,986</b>	<b>6.37</b>
<b>Energy</b>	<b>82,518,464</b>	<b>88,051,064</b>	<b>88,926,681</b>	<b>89,927,982</b>	<b>91,387,954</b>	<b>91,420,807</b>	<b>92,428,177</b>	<b>93,120,987</b>	<b>96,034,366</b>	<b>102,528,383</b>	<b>6.76</b>
Gasoline A	18,536,773	18,582,826	19,979,562	21,330,106	21,598,969	21,041,901	20,874,989	23,067,253	24,438,510	27,061,075	10.73
Aviation gasoline	71,731	79,829	70,199	64,598	62,159	67,966	52,746	90,104	57,537	77,606	34.88
LPG <sup>1</sup>	9,627,820	9,986,520	10,728,055	10,289,227	10,431,558	10,233,783	10,008,677	9,698,813	9,921,635	10,361,616	4.43
Fuel oil <sup>2,3</sup>	15,684,652	16,497,346	15,075,499	15,112,402	15,389,837	14,704,434	14,053,755	13,883,271	13,227,130	13,691,084	3.51
Diesel oil <sup>3</sup>	34,382,201	38,501,966	38,743,022	39,111,322	39,572,842	41,134,038	42,898,619	41,429,263	42,530,305	45,504,004	6.99
Jet fuel	3,792,358	4,142,460	4,150,003	3,823,671	4,102,676	3,871,687	4,380,983	4,664,552	5,395,177	5,422,769	0.51
Ligthning kerosene	193,138	112,858	50,107	37,691	24,969	23,158	19,707	25,457	31,012	23,885	-22.98
Others <sup>4</sup>	229,790	147,259	130,235	158,964	204,944	343,840	138,701	262,275	433,060	386,345	-10.79
<b>Non-energy</b>	<b>15,040,950</b>	<b>15,107,533</b>	<b>15,459,915</b>	<b>16,355,738</b>	<b>17,124,106</b>	<b>16,742,933</b>	<b>17,319,126</b>	<b>17,273,475</b>	<b>16,969,501</b>	<b>17,675,603</b>	<b>4.16</b>
Asphalt	1,135,327	1,415,212	1,419,621	1,864,970	1,680,039	2,125,959	2,089,926	2,767,281	2,464,544	2,569,635	4.26
Coke <sup>5</sup>	1,781,203	1,738,899	2,394,882	2,372,802	2,563,296	2,811,485	3,084,025	3,056,971	3,756,284	4,452,350	18.53
Naphtha <sup>6</sup>	8,952,160	8,743,655	8,498,006	8,626,248	9,244,639	8,134,049	8,402,282	7,311,298	6,346,782	6,440,115	1.47
Lubricating oil	807,086	759,667	801,741	785,804	645,053	756,200	593,794	603,154	602,520	607,979	0.91
Paraffin	132,619	143,729	140,457	134,417	129,638	130,069	105,594	94,196	100,291	123,445	23.09
Solvent	990,771	1,080,176	813,331	612,561	579,688	478,709	460,956	508,705	375,991	290,241	-22.81
Others <sup>7</sup>	1,241,785	1,226,196	1,391,877	1,958,935	2,281,754	2,306,463	2,582,549	2,931,870	3,323,090	3,191,837	-3.95

**SOURCES:** ANP, as per Ordinance ANP No. 17/2004, and Petrobras/Abast.

**NOTES:** 1. Refineries, petrochemical plants, NGPPs and other producers production included.

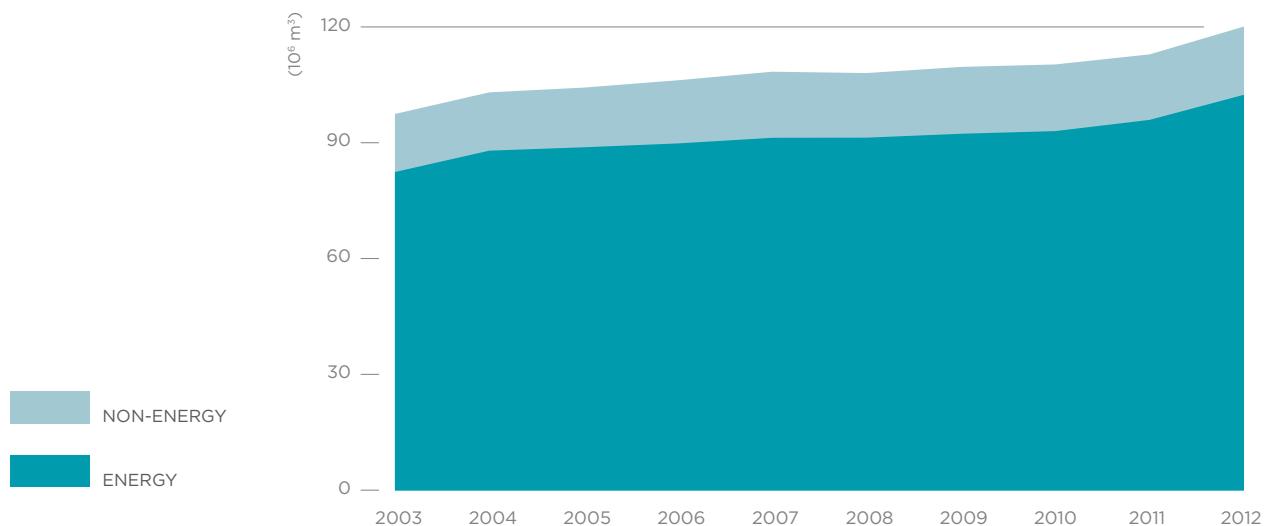
2. Shale plants production, except naphtha, not included.

3. Oil products own consumption of production plants not included.

4. Fuel gas production of refineries not included.

<sup>1</sup>Refers to propane/butane mixtures for household and industrial uses. <sup>2</sup>Refinery fuel oil not included. <sup>3</sup>Components intended to marine diesel oil production in some waterway/marine terminals included. <sup>4</sup>Light oil for power generation included. <sup>5</sup>Coke for energy use included. <sup>6</sup>Naphtha produced from shale processing included. That naphtha is then used as raw material for oil products production at Repar (refinery). <sup>7</sup>Diluents, non-energy LPG and other non-energy products included.

**FIGURE 1.7. PRODUCTION OF ENERGY AND NON-ENERGY OIL PRODUCTS - 2003-2012**



**SOURCES:** ANP, as per Ordinance ANP No. 17/2004, and Petrobras/Abast (Table 1.10).

**NOTES:** 1. Production of refineries and petrochemical plants included, as well as the ones of NGPPs and other producers.

2. Production of shale processing plants not included.

3. Own consumption of producing plants not included.

4. Fuel gas from refineries and shale producing plants not included.

## 1.6 Natural Gas Processing

**TABLE 1.11. NATURAL GAS PROCESSING CAPACITY, BY PRODUCING POLES, ON DECEMBER 31<sup>ST</sup>, 2012**

PRODUCING POLES	LOCATION (STATE)	START UP	NOMINAL CAPACITY
			10 <sup>3</sup> M <sup>3</sup> /DAY
<b>TOTAL</b>			<b>92,396</b>
Urucu	Coari (AM)	1993	9,706
Lubnor	Fortaleza (CE)	1987	350
Guamaré	Guamaré (RN)	1985	5,700
Alagoas	Pilar (AL)	2003	1,800
Atalaia	Aracaju (SE)	1981	2,900
Candeias	Candeias (BA)	1972	2,900
Santiago	Pojuca (BA)	1962	4,400
Estação Vandemir Ferreira	São Francisco do Conde (BA)	2007	6,000
Cacimbas	Linhares (ES)	2008	16,000
Sul Capixaba	Anchieta (ES)	2010	2,500
Reduc	Duque de Caxias (RJ)	1983	4,500
Cabiúnas	Macaé (RJ)	1987	17,240
RPBC	Cubatão (SP)	1993	2,300
Caraguatatuba	Caraguatatuba (SP)	2011	14,000
Araucária	Araucária/PR	2002	2,100

SOURCE: ANP/SRP, as per Ordinances ANP No. 16/2010 e 17/2010.

**TABLE 1.12. VOLUME OF PROCESSED NATURAL GAS AND DRY NATURAL GAS, LPG, C<sub>5</sub><sup>+</sup>, ETHANE AND PROPANE PRODUCTION, BY PRODUCING POLES – 2012**

PRODUCING POLES (STATE)	VOLUME OF PROCESSED NATURAL GAS AND PRODUCTION OF DRY NATURAL GAS, LPG, C <sub>5</sub> <sup>+</sup> , ETHANE AND PROPANE					
	PROCESSED NATURAL GAS (10 <sup>3</sup> M <sup>3</sup> ) <sup>1</sup>	LPG (M <sup>3</sup> ) <sup>2</sup>	C <sub>5</sub> <sup>+</sup> (M <sup>3</sup> ) <sup>2</sup>	ETHANE (10 <sup>3</sup> M <sup>3</sup> ) <sup>1</sup>	PROPANE(M <sup>3</sup> ) <sup>2</sup>	DRY NATURAL GAS (10 <sup>3</sup> M <sup>3</sup> ) <sup>1</sup>
<b>TOTAL</b>	<b>19,071,723</b>	<b>2,330,186</b>	<b>1,121,258</b>	<b>281,013</b>	<b>771,598</b>	<b>17,913,275</b>
Atalaia (SE) <sup>3</sup>	729,441	119,516	41,202	-	-	690,534
Bahia (BA) <sup>4</sup>	1,500,558	160,475	65,000	-	-	1,397,702
Cabiúnas (RJ) <sup>5</sup>	4,543,031	558,318	317,122	267,388	731,585	4,035,063
Cacimbas (ES) <sup>6</sup>	3,064,298	196,334	103,503	-	-	2,988,246
Guamaré (RN) <sup>7</sup>	745,026	186,581	52,138	-	-	682,526
Lubnor (CE)	12,129	3,645	832	-	-	10,973
Alagoas (AL)	519,132	66,480	22,447	-	-	497,274
Reduc (RJ) <sup>8</sup>	157,767	52,635	11,990	13,625	39,527	141,576
RPBC (SP) <sup>9</sup>	424,327	-	104,006	-	-	415,469
Sul Capixaba (ES) <sup>10</sup>	600,249	-	24,308	-	-	595,490
Urucu (AM) <sup>11</sup>	3,823,906	894,754	138,767	-	486	3,552,070
Caraguatatuba (SP) <sup>12</sup>	2,951,858	91,449	239,943	-	-	2,906,354

SOURCE: Petrobras/Abast.

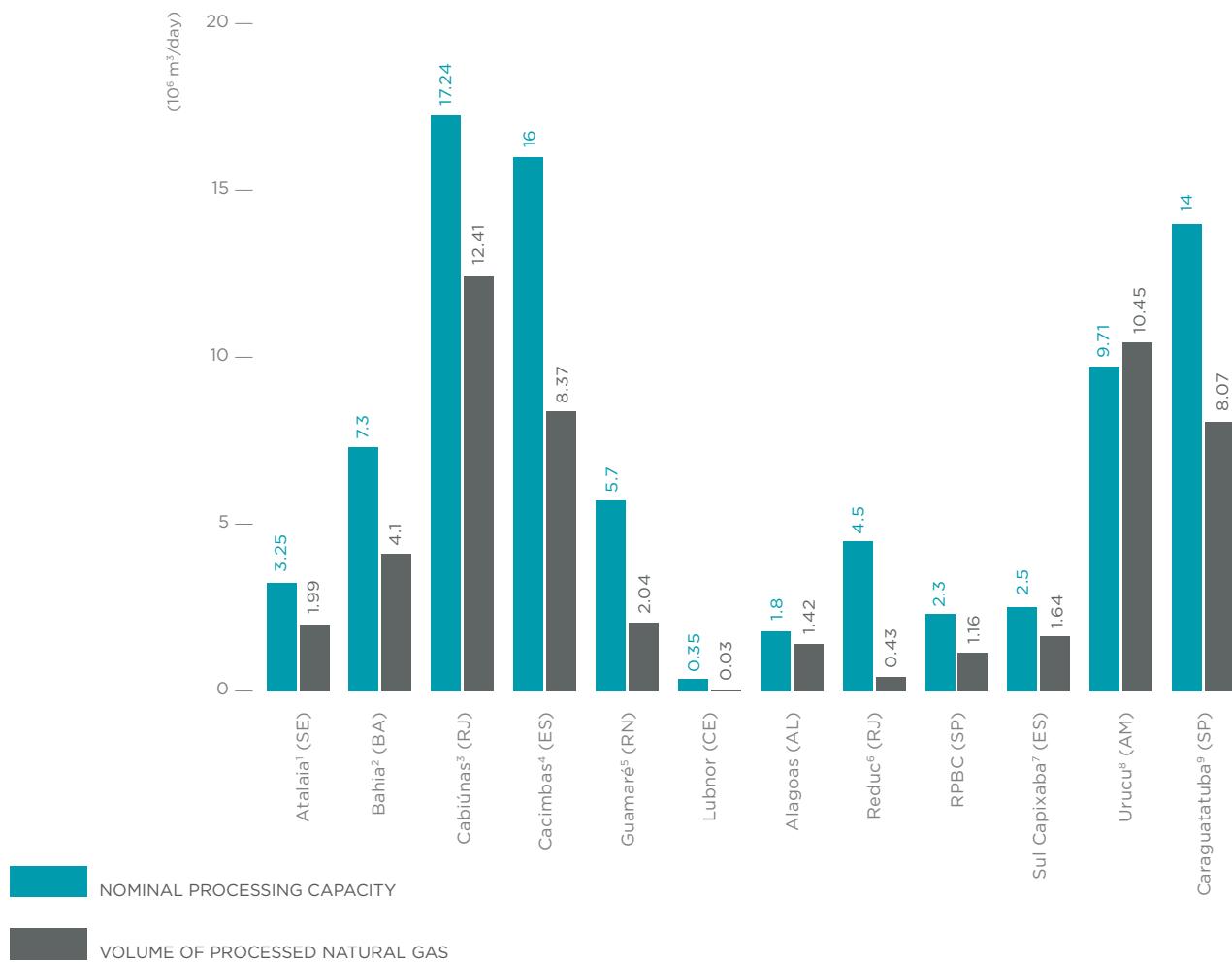
<sup>1</sup>Volumes in gaseous state. <sup>2</sup>Volumes in liquid state. <sup>3</sup>Production of Atalaia and Carmópolis NGPPs included. LNG produced in Carmópolis NGPP is fractionated in LPG and C<sub>5</sub><sup>+</sup> at Atalaia NGPP. <sup>4</sup>Processed volumes in Bahia, Catu and Candeias NGPPs included. NGL produced in that units is in RLAM, while LPG and C<sub>5</sub><sup>+</sup> fractions are accounted for in that refinery's production. <sup>5</sup>Processed volumes in Cabiúnas NGCPPs, NGPPs, NGRP and LRP included. NGL produced in NGRP is fractionated in NGCPPs. LNG produced in LRP is fractionated in Reduc's LFP, while LPG, C<sub>5</sub><sup>+</sup>, ethane and propane are accounted for in that refinery's production. <sup>6</sup>Processed volumes in NGPPs, NGCPPs and DPP Cacimbas included. <sup>7</sup>Processed volumes produced in Guamaré I, II and III NGPPs included. <sup>8</sup>Processed volumes in Reduc I and II NGPPs are accounted for in Reduc's production, as well as LPG and C<sub>5</sub><sup>+</sup> parcels. <sup>9</sup>That NGP only separates and stabilizes gas condensate. <sup>10</sup>Processed volumes in DPP Sul Capixaba included. <sup>11</sup>Produced volumes in Urucu I, II and III NGPPs included. <sup>12</sup>Processed volumes in DPP UTGCA I, II, UAPD/PDP - UTGCA and NGCPP UTGCA included.

**TABLE 1.13. PRODUCTION OF DRY NATURAL GAS, LGP, C<sub>5</sub><sup>+</sup>, ETHANE AND PROPANE IN PRODUCING POLES – 2003-2012**

PRODUCTS	PRODUCTION (10 <sup>3</sup> M <sup>3</sup> )											12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		
Dry natural gas <sup>1</sup>	10,527,258	11,810,761	12,538,167	12,722,170	12,055,517	15,207,091	12,891,650	14,369,384	15,886,738	17,913,275	12,76	
Ethane <sup>1</sup>	-	-	158,203	255,421	243,141	222,324	205,292	268,388	304,271	281,013	-7.64	
Liquids <sup>2</sup>	3,411	3,597	3,531	3,580	3,607	3,824	3,538	3,471	3,230	3,451	6.86	
GLP	2,563	2,574	2,855	2,876	2,926	3,100	2,816	2,546	2,377	2,330	-1.98	
C <sub>5</sub> <sup>+</sup>	848	1,023	677	704	681	724	722	924	853	1,121	31.52	
Propane	-	-	285	676	657	609	557	686	331	772	133.04	

SOURCE: Petrobras/Abast.

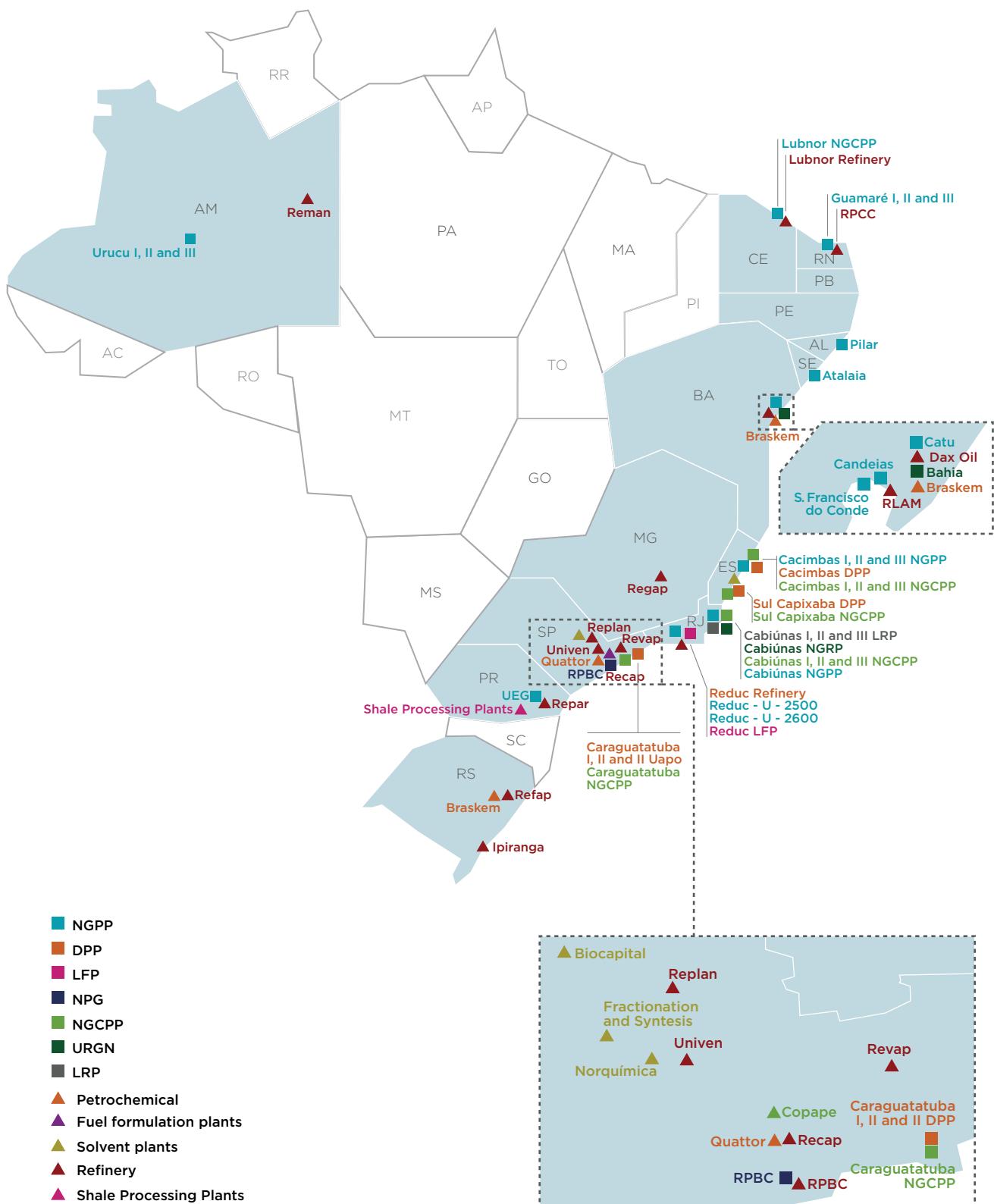
<sup>1</sup>Volumes in gaseous state. <sup>2</sup>Volumes in liquid state.

**FIGURE 1.8. VOLUME OF PROCESSED NATURAL GAS AND PROCESSING CAPACITY, BY PRODUCING POLES - 2012**

**SOURCES:** ANP/SRP; Petrobras/Unidade de Negócios de Gás Natural (Table 1.12 and 1.13).

<sup>1</sup>Atalaia and Carmópolis NGPPs included. <sup>2</sup>NGPPs Catu, Candeias and Bahia included. <sup>3</sup>Cabiúnas NGCPP, NGPP, NGRP and LRP included. <sup>4</sup>Cacimbas NGPP, NGCPP and DPP included. <sup>5</sup>Guamaré I, II and III NGPPs included. <sup>6</sup>Reduc I and II NGPP included. <sup>7</sup>Sul Capixaba NGCPP and DPP included. <sup>8</sup>Urucu I, II and III included. <sup>9</sup>Caraguatatuba DPPs and NGCPP included.

MAP 1.1. REFINING AND NATURAL GAS PROCESSING PLANTS - 2012



SOURCE: ANP/SRP; Petrobras/Abast; Petrobras/Unidade de Negócios de Gás Natural.

## SHALE INDUSTRIALIZATION

### 1.7 Shale Industrialization

**TABLE 1.14. VOLUME OF PROCESSED SHALE OIL AND PRODUCTION OF SHALE OIL PRODUCTS - 2003-2012**

SPECIFICATION	UNIT	VOLUME OF PROCESSED SHALE OIL AND PRODUCTION OF SHALE OIL PRODUCTS									12/11 %
		2003	2004	2005	2006	2007	2008	2009	2010	2011	
Processed shale oil	T	2,165,610	2,414,326	1,969,652	2,242,079	2,343,086	2,014,885	2,117,820	2,169,197	1,579,347	1,732,378 9.69
<b>PRODUCTS</b>											
<b>Energy</b>											
Shale gas	T	13,326	14,855	13,936	15,619	18,756	13,087	14,314	14,456	13,676	15,314 11.98
LPG <sup>1</sup>	M <sup>3</sup>	21,535	24,607	20,079	20,958	23,624	18,529	27,044	26,761	18,766	24,122 28.54
Fuel oil	M <sup>3</sup>	98,710	121,068	104,385	107,944	102,544	155,691	270,576	281,779	213,014	244,754 14.90
<b>Non-energy</b>											
Naphtha <sup>2</sup>	M <sup>3</sup>	40,450	39,694	34,552	44,632	48,083	37,725	40,809	42,536	33,112	31,689 -4.30
Others <sup>3</sup>	M <sup>3</sup>	14,172	16,045	12,097	13,623	4,012	2,349	1,548	3,145	3,418	2,587 -24.31

SOURCE: Petrobras/Abast.

<sup>1</sup>Propane and butane included. <sup>2</sup>Naphtha production is sent to Repar, where is used as raw material in the production of oil products. <sup>3</sup>Other non-energy oil products of lesser importance included.

## TRANSPORTATION OF OIL, ITS PRODUCTS AND NATURAL GAS

### 1.8 Terminals

**TABLE 1.15. STORAGE CAPACITY OF OIL, OIL PRODUCTS AND ETHANOL, BY TERMINAL, ON DECEMBER 31<sup>ST</sup>, 2012 (CONTINUE)**

TYPE, LOCATION (STATE) AND OPERATOR	STORAGE CAPACITY OF OIL, OIL PRODUCTS AND ETHANOL				
	NUMBER OF TANKS	NOMINAL CAPACITY (M <sup>3</sup> )			
		OIL	OIL PRODUCTS (EXCEPT LPG)	LPG	TOTAL
<b>TOTAL</b>	<b>1,777</b>	<b>5,396,117</b>	<b>6,948,563</b>	<b>328,913</b>	<b>12,673,593</b>
<b>Ethanol Storage Facility</b>	<b>21</b>	<b>-</b>	<b>105,000</b>	<b>-</b>	<b>105,000</b>
Aracaju (SE) - Petrobras	2	-	10,000	-	10,000
Araraquara (SP) - Petrobras	2	-	10,000	-	10,000
Bauru (SP) - Petrobras	2	-	10,000	-	10,000
Brasília (DF) - Petrobras	3	-	15,000	-	15,000
Campos (RJ) - Petrobras	2	-	10,000	-	10,000
Londrina (PR) - Petrobras	2	-	10,000	-	10,000
Ourinhos (SP) - Petrobras	4	-	20,000	-	20,000
Santa Adélia (SP) - Petrobras	2	-	10,000	-	10,000
Sertãozinho (SP) - Petrobras	2	-	10,000	-	10,000
<b>Waterway terminals</b>	<b>1,350</b>	<b>3,931,024</b>	<b>4,735,407</b>	<b>235,968</b>	<b>8,902,399</b>
Angra dos Reis (RJ) - Transpetro - Ilha Grande	17	845,577	132,489	-	978,066
Aracaju (ex Carmópolis) (SE) - Transpetro	5	155,788	-	-	155,788
Belém (PA) - Transpetro - Miramar	6	-	37,899	6,360	44,259
Cabedelo (PB) - Tecab	5	-	27,072	-	27,072
Cabedelo (PB) - Transpetro	4	-	10,022	-	10,022
Canoas (RS) - Transpetro	5	-	21,842	-	21,842
Candeias (BA) - Tequimar - Aratu	89	-	209,470	-	209,470
Candeias (BA) - Vopak - Aratu	58	-	86,832	-	86,832
Coari (AM) - Transpetro	13	60,000	275	19,551	79,826
Guamaré (RN) - Transpetro	14	190,147	92,454	-	282,601
Ipojuca (PE) - Pandenor - Suape	17	-	33,350	-	33,350
Ipojuca (PE) - Decal - Suape	13	-	156,222	-	156,222
Ipojuca (PE) - Temape - Suape	14	-	45,843	-	45,843
Ipojuca (PE) - Tequimar - Suape	33	-	118,545	5,000	123,545
Ipojuca (PE) - Transpetro - Suape	21	-	104,864	15,940	120,804
Ladario (MS) - Granel	6	-	8,052	-	8,052
Maceió (AL) - Transpetro	10	20,757	37,140	-	57,897
Madre de Deus (BA) - Transpetro	47	-	604,079	52,611	656,690
Natal (RN) - Transpetro - Dunas	6	-	26,642	-	26,642
Paranaguá (PR) - Cattalini	58	-	257,599	-	257,599
Paranaguá (PR) - CPA	8	-	52,990	-	52,990
Paranaguá (PR) - Transpetro	34	-	194,602	9,532	204,134

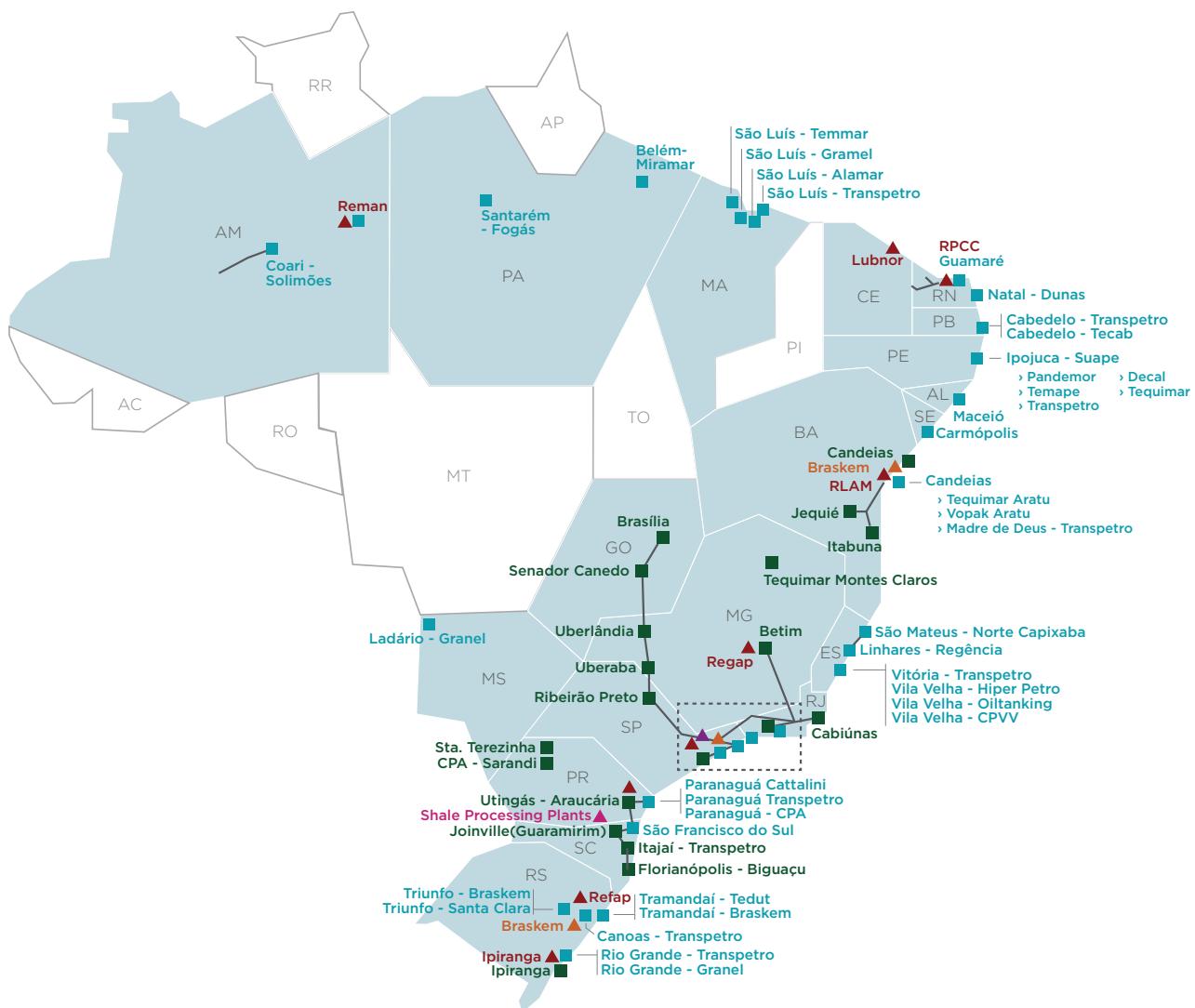
**TABLE 1.15. STORAGE CAPACITY OF OIL, OIL PRODUCTS AND ETHANOL, BY TERMINAL, ON DECEMBER 31<sup>ST</sup>, 2012 (CONCLUSION)**

TYPE, LOCATION (STATE) AND OPERATOR	STORAGE CAPACITY OF OIL, OIL PRODUCTS AND ETHANOL				
	NUMBER OF TANKS	OIL	OIL PRODUCTS (EXCEPT LPG)	LPG	TOTAL
<b>Waterway terminals</b>					
Regência (ES) - Transpetro	4	42,427	-	-	42,427
Rio de Janeiro (RJ) - Tequimar (ex - União) - Caju	24	-	17,245	-	17,245
Rio de Janeiro (RJ) - Cosan (ex - Esso) - Ilha do Governador	8	-	17,199	-	17,199
Rio de Janeiro (RJ) - ExxonMobil - Ilha do Governador	14	-	33,509	-	33,509
Rio de Janeiro (RJ) - Transpetro - Ilha Redonda	5	-	-	33,563	33,563
Rio de Janeiro (RJ) - Transpetro Alm. Tamandaré - Ilha d'Água	18	-	165,066	-	165,066
Rio Grande (RS) - Braskem	32	-	36,800	2,616	39,416
Rio Grande (RS) - Granel	24	-	59,590	-	59,590
Rio Grande (RS) - Transpetro	18	-	61,299	-	61,299
Santos (SP) - Stolthaven - Alemao	42	-	82,755	-	82,755
Santos (SP) - Adonai - Ilha Barnabé	30	-	29,104	-	29,104
Santos (SP) - Ageo - Ilha Barnabé	105	-	193,201	-	193,201
Santos (SP) - Copape - Ilha Barnabé	6	-	50,459	-	50,459
Santos (SP) - Granel - Ilha Barnabé	82	-	78,000	-	78,000
Santos (SP) - Tequimar (Ex-União) TIS - Alemao	145	-	131,454	-	131,454
Santos (SP) - Transpetro - Alemao	26	-	263,134	83,002	346,136
Santos (SP) - Vopak - Ilha Barnabé	66	-	47,512	-	47,512
Santos (SP) - Vopak - Alemao	52	-	83,937	-	83,937
São Francisco do Sul (SC) - Transpetro	7	466,622	-	-	466,622
São Luís (MA) - Alumar	1	-	21,849	-	21,849
São Luís (MA) - Granel	35	-	75,904	-	75,904
São Luís (MA) - Temmar	16	-	57,761	-	57,761
São Mateus (ES) - Transpetro - Norte Capixaba	10	-	71,290	7,793	79,083
São Sebastião (SP) - Transpetro - Almirante Barroso	36	1,562,706	427,749	-	1,990,455
Tramandaí (RS) - Braskem	4	-	164,000	-	164,000
Tramandaí (RS) - Transpetro - Tedut	16	509,000	192,159	-	701,159
Triunfo (RS) - Braskem (Central Petroquímica)	4	-	18,000	-	18,000
Triunfo (RS) - Braskem - Santa Clara	2	-	12,255	-	12,255
Vila Velha (ES) - CPVV	3	-	1,504	-	1,504
Vila Velha (ES) - Hiper Petro	2	-	3,200	-	3,200
Vila Velha (ES) - Oiltanking	23	-	70,189	-	70,189
Vitória (ES) - Transpetro	2	-	11,000	-	11,000
<b>Land terminals</b>	<b>406</b>	<b>1,465,093</b>	<b>2,108,156</b>	<b>92,945</b>	<b>3,666,194</b>
Araucária (PR) - Utingás	18	-	-	2,117	2,117
Barueri (SP) - Transpetro	25	-	200,134	9,570	209,704
Betim (MG) - SHV (ex - Betingás)	22	-	-	2,584	2,584
Biguaçu (SC) - Transpetro	10	-	38,361	-	38,361
Brasília (DF) - Transpetro	10	-	72,351	9,528	81,879
Cabiúnas (RJ) - Transpetro	12	485,198	-	4,770	489,968
Duque de Caxias (RJ) - Transpetro - Campos Elíssios	10	483,928	68,364	-	552,292
Candeias (BA) - Transpetro	12	-	36,417	-	36,417
Cubatão (SP) - Transpetro	15	47,229	112,625	-	159,854
Guaramirim (SC) - Transpetro	9	-	19,146	-	19,146
Guararema (SP) - Transpetro	14	448,738	600,254	-	1,048,992
Guarulhos (SP) - Copape	7	-	7,282	-	7,282
Guarulhos (SP) - Transpetro	19	-	165,146	-	165,146
Itabuna (BA) - Transpetro	14	-	24,050	4,798	28,848
Itajaí (SC) - Transpetro	14	-	50,553	6,364	56,917
Japeri (RJ) - Transpetro	7	-	38,588	-	38,588
Jequié (BA) - Transpetro	18	-	22,413	4,462	26,875
Maringá (PR) - Sta. Terezinha	2	-	2,800	-	2,800
Montes Claros (MG) - Tequimar	6	-	4,400	-	4,400
Osasco (SP) - Bona	30	-	6,076	-	6,076
Paulínia (SP) - Tequimar	4	-	6,703	-	6,703
Paulínia (SP) - Tercom	6	-	9,252	-	9,252
Ribeirão Preto (SP) - Transpetro	6	-	51,791	6,368	58,159
Rio Grande (RS) - Refinaria de Petróleo Riograndense	8	-	7,809	-	7,809
Santo André (SP) - Utingás	4	-	-	12,515	12,515
São Caetano do Sul (SP) - Transpetro	21	-	222,592	-	222,592
São Paulo (SP) - Diamond	14	-	1,235	-	1,235
Sarandi (PR) - CPA	17	-	91,419	-	91,419
Senador Canedo (GO) - Transpetro	14	-	122,366	20,320	142,686
Teresina (PI) - Granel	6	-	7,636	-	7,636
Uberaba (MG) - Transpetro	8	-	42,925	-	42,925
Uberlândia (MG) - Transpetro	15	-	47,331	9,549	56,880
Volta Redonda (RJ) - Transpetro	9	-	28,137	-	28,137

SOURCE: ANP/SCM, as per Ordinance ANP No. 170/1998.

## 1.9 Pipelines

MAP 1.2. INFRASTRUCTURE FOR STORAGE AND TRANSPORTATION OF OIL AND ITS PRODUCTS - 2012



— Oil Pipeline / Multipurpose Pipeline

▲ Petrochemical plants

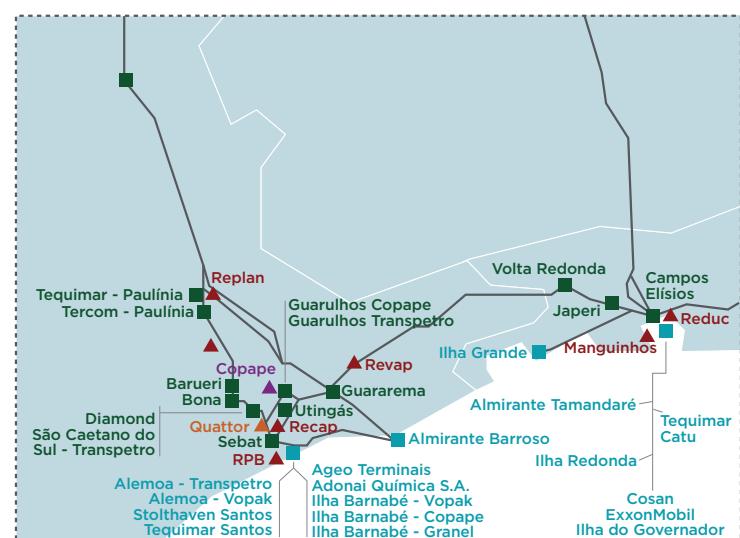
▲ Fuel formulation plants

▲ Shale Processing Plants

▲ Refineries

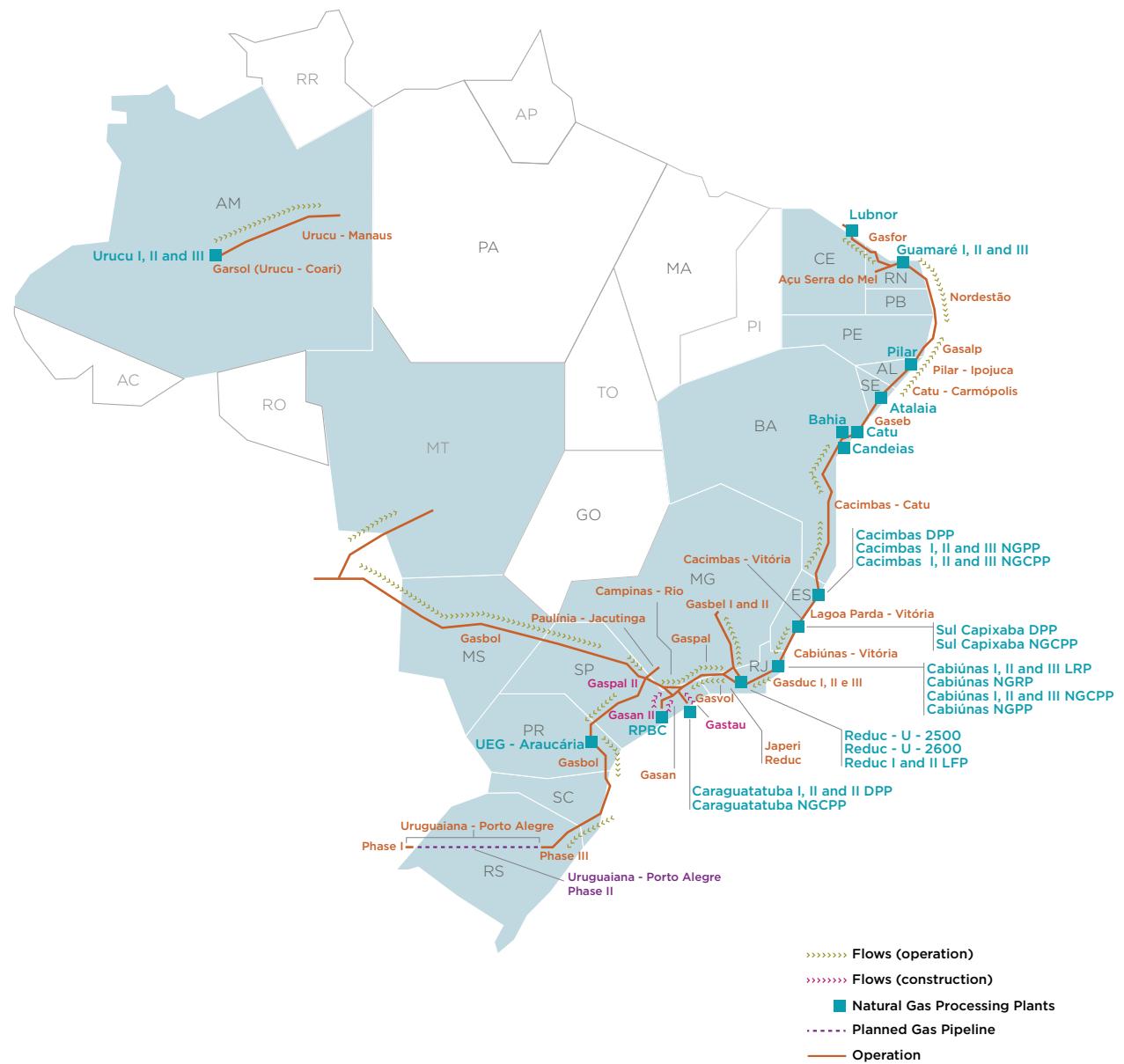
■ Waterway / Marine

■ Land



SOURCE: ANP/SRP; Petrobras/Abast; Petrobras/Unidade de Negócios de Gás Natural.

## MAP 1.3. INFRASTRUCTURE FOR NATURAL GAS PRODUCTION AND TRANSPORTATION – 2012



SOURCE: ANP/SCM.

## COMMERCIALIZATION OF OIL, ITS PRODUCTS AND NATURAL GAS

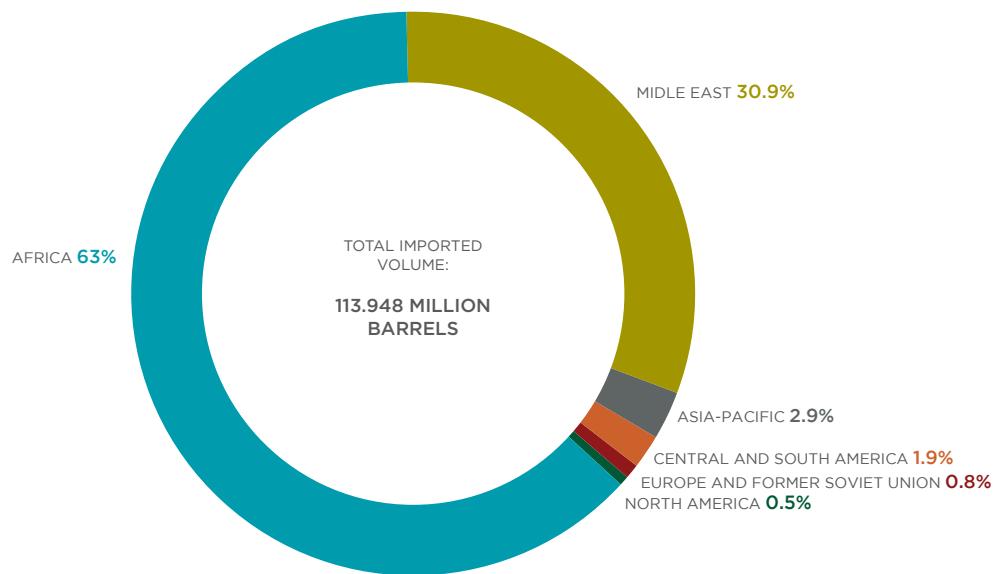
### 1.10 External Trade

**TABLE 1.16. OIL IMPORTS, BY REGION AND COUNTRY OF ORIGIN – 2003-2012**

REGIONS AND COUNTRIES OF ORIGIN	OIL IMPORTS (10 <sup>3</sup> BARRELS)											12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		
<b>TOTAL</b>	<b>125,535</b>	<b>169,275</b>	<b>138,213</b>	<b>131,508</b>	<b>159,634</b>	<b>149,208</b>	<b>143,513</b>	<b>123,649</b>	<b>121,273</b>	<b>113,948</b>	<b>-6.04</b>	
Not specified	-	-	-	-	-	572	-	-	-	-	-	..
<b>North America</b>	-	-	<b>5,130</b>	<b>3,445</b>	<b>7,998</b>	<b>654</b>	<b>896</b>	<b>2,689</b>	<b>2,054</b>	<b>553</b>	<b>-73.09</b>	
United States	-	-	5,130	3,445	7,998	654	896	2,689	2,054	553	-73.09	
<b>Central and South America</b>	<b>8,476</b>	<b>8,636</b>	<b>6,423</b>	<b>3,510</b>	<b>2,429</b>	<b>3,537</b>	<b>3,670</b>	<b>2,001</b>	<b>1,610</b>	<b>2,209</b>	<b>37.24</b>	
Argentina	4,939	2,821	1,922	230	226	-	3,459	243	583	1,966	237.41	
Barbados	-	604	-	-	-	-	-	-	581	-	..	
Bermuda	-	-	-	954	238	1,022	-	-	-	-	..	
Bolivia	3,089	2,768	2,907	2,094	781	832	-	-	-	-	..	
Cayman Islands	252	-	-	-	-	-	-	-	-	-	..	
Colombia	-	558	-	109	1,184	1,684	-	853	-	-	..	
Ecuador	-	1,696	1,595	123	-	-	-	-	-	-	..	
Peru	-	-	-	-	-	-	-	305	1,027	244	-76.27	
Venezuela	197	190	-	-	-	-	211	19	-	-	..	
<b>Europe and Former Soviet Union</b>	<b>6,296</b>	-	<b>0</b>	<b>994</b>	<b>5,157</b>	<b>1,402</b>	<b>166</b>	<b>3,203</b>	<b>463</b>	<b>884</b>	<b>90.68</b>	
Azerbaijan	-	-	-	994	4,152	-	-	-	-	-	..	
Germany	-	-	-	-	411	-	-	-	-	-	..	
Italy	2,059	-	-	-	-	-	-	-	-	-	..	
Netherlands	-	-	-	-	-	-	-	-	463	-	..	
Norway	1,425	-	-	-	-	-	-	-	-	-	..	
Portugal	-	-	-	-	-	872	-	-	-	-	..	
Russia	-	-	-	-	-	-	-	1,308	-	884	..	
Switzerland	-	-	-	-	595	52	-	-	-	-	..	
United Kingdom	2,812	-	-	-	-	479	166	1,895	-	-	..	
<b>Middle East</b>	<b>36,250</b>	<b>37,830</b>	<b>35,248</b>	<b>32,669</b>	<b>26,612</b>	<b>35,103</b>	<b>37,223</b>	<b>34,522</b>	<b>34,173</b>	<b>35,209</b>	<b>3.03</b>	
Iran	251	-	-	-	-	-	-	-	-	-	..	
Iraq	9,838	13,639	10,607	9,764	4,082	12,211	12,128	10,208	9,071	9,162	1.01	
Saudi Arabia	26,162	24,192	24,641	22,906	22,531	22,893	25,095	24,315	25,102	26,047	3.77	
<b>Africa</b>	<b>73,634</b>	<b>122,809</b>	<b>91,412</b>	<b>90,890</b>	<b>117,438</b>	<b>107,939</b>	<b>99,560</b>	<b>80,652</b>	<b>77,529</b>	<b>71,733</b>	<b>-7.48</b>	
Algeria	25,886	38,466	38,603	21,830	20,626	13,379	11,473	3,136	1,950	8,045	312.47	
Angola	-	-	-	6,814	12,220	18,798	1,937	4,868	2,866	-	..	
Cameroon	-	-	-	-	-	-	-	853	-	-	..	
Congo (Democratic Republic)	-	-	-	3,835	2,503	-	-	-	1,000	-	..	
Congo (Brazzaville)	1,790	-	956	1,825	1,830	-	-	-	-	-	..	
Equatorial Guinea	-	284	4,362	1,390	2,462	3,617	3,699	5,332	4,385	1,354	-69.11	
Libya	-	-	-	2,621	11,783	11,955	12,326	1,006	-	-	..	
Nigeria	45,958	84,059	47,491	52,575	66,014	60,191	70,125	65,457	67,328	62,334	-7.42	
<b>Asia-Pacific</b>	<b>879</b>	-	-	-	-	-	<b>1,999</b>	<b>581</b>	<b>5,443</b>	<b>3,360</b>	<b>-38.28</b>	
Australia	879	-	-	-	-	-	1,999	581	4,661	2,807	-39.77	
Indonesia	-	-	-	-	-	-	-	-	241	552	..	
Malaysia	-	-	-	-	-	-	-	-	542	-	..	

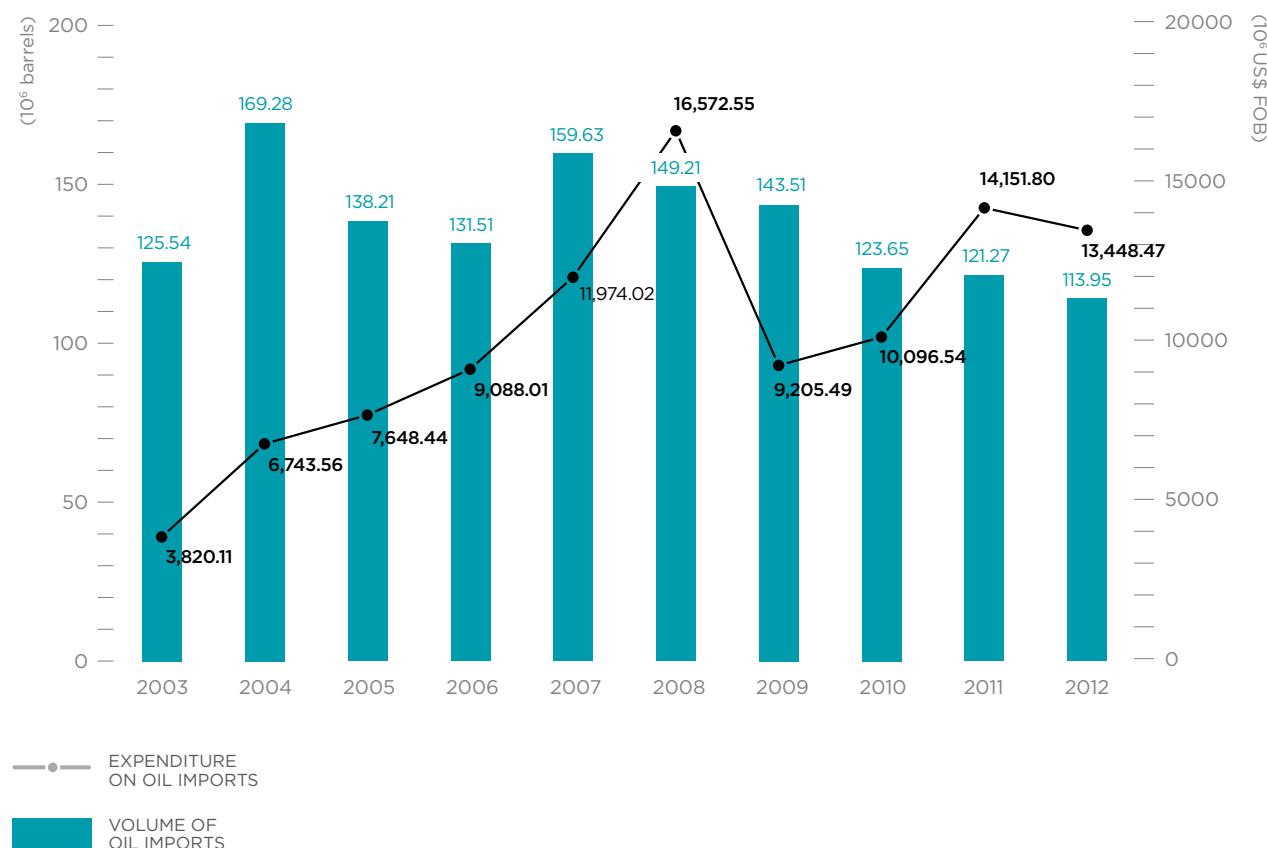
SOURCE: MDIC/Secex.

NOTE: Condensate included. Condensate imported by petrochemical plants included.

**FIGURE 1.9. OIL IMPORTS, BY REGION OF ORIGIN - 2012**

SOURCE: MDIC/Secex.

NOTE: Condensate included. Condensate imported by petrochemical plants included.

**FIGURE 1.10. – EVOLUTION OF OIL IMPORTS AND EXPENDITURE ON OIL IMPORTS – 2003-2012**

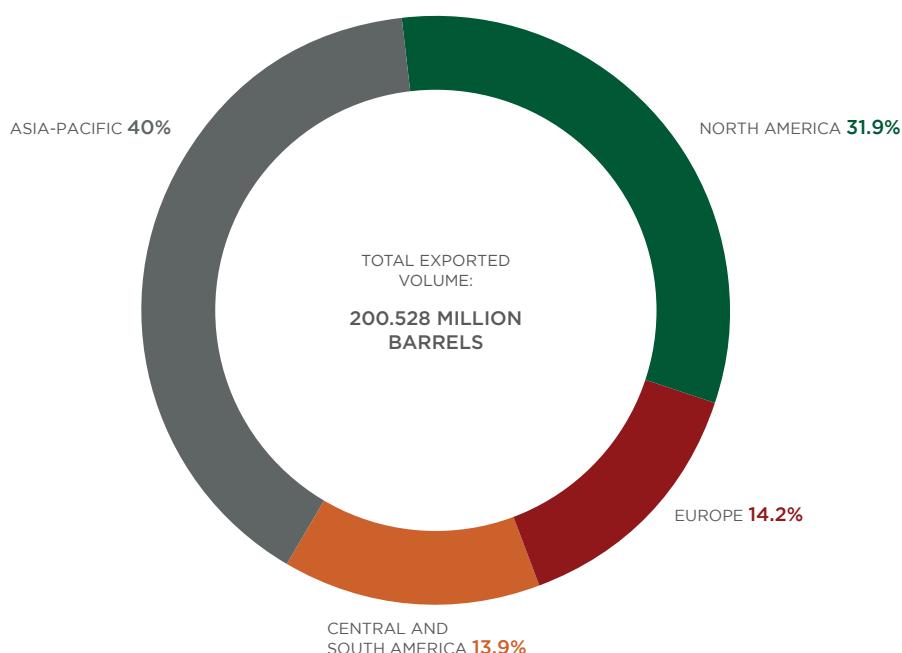
SOURCES: MDIC/Secex .

NOTES: 1. Condensate included.  
2. Dolar in current value.

**TABLE 1.17. OIL EXPORTS, BY REGION AND COUNTRY OF DESTINATION – 2003-2012**

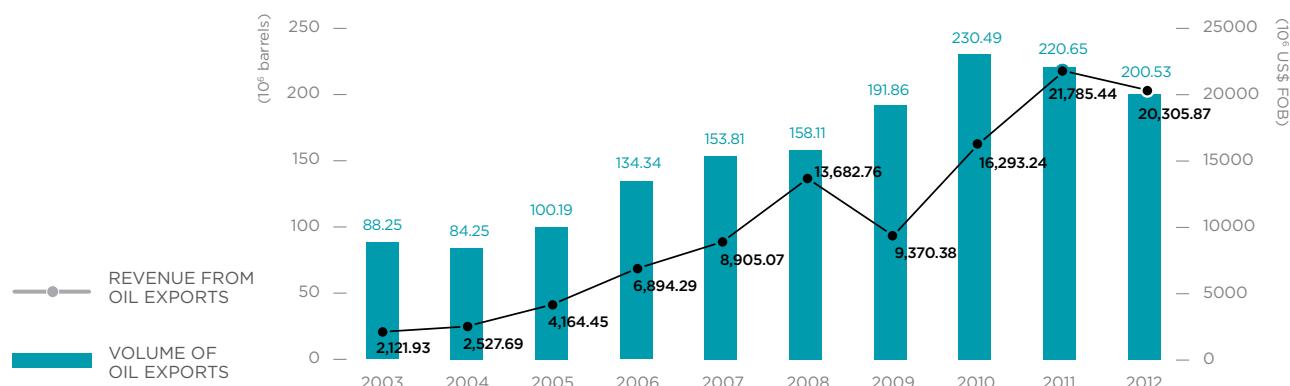
REGION AND COUNTRY OF DESTINATION	OIL EXPORTS (10 <sup>3</sup> BARRELS)										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>	<b>88,246</b>	<b>84,252</b>	<b>100,190</b>	<b>134,336</b>	<b>153,813</b>	<b>158,110</b>	<b>191,859</b>	<b>230,492</b>	<b>220,649</b>	<b>200,528</b>	<b>-9.12</b>
<b>North America</b>	<b>13,168</b>	<b>10,866</b>	<b>15,928</b>	<b>38,674</b>	<b>54,414</b>	<b>49,617</b>	<b>49,811</b>	<b>59,827</b>	<b>66,079</b>	<b>63,932</b>	<b>-3.25</b>
Canada	-	-	-	-	-	-	-	4,898	6,768	6,871	1.52
United States	13,168	10,866	15,928	38,674	54,414	49,617	49,811	54,929	59,311	57,061	-3.79
<b>Central and South America</b>	<b>28,276</b>	<b>39,394</b>	<b>47,254</b>	<b>47,590</b>	<b>48,806</b>	<b>64,697</b>	<b>72,000</b>	<b>60,782</b>	<b>58,009</b>	<b>27,843</b>	<b>-52.00</b>
Argentina	-	-	-	-	-	18	-	-	-	-	..
Aruba	1,023	5,375	8,125	3,605	1,013	-	1,366	-	664	-	..
Bahamas	14,250	10,489	15,215	12,705	-	-	-	-	322	1,890	487.00
Barbados	-	-	-	-	-	-	-	464	-	-	..
Chile	8,588	10,887	11,987	20,865	23,471	17,252	10,421	14,341	21,244	9,661	-54.52
Cayman Islands	-	-	-	-	-	357	-	4,023	3,052	-	..
Colombia	-	891	-	366	-	-	-	-	-	-	..
Netherlands Antilles	-	-	-	-	-	-	-	-	767	-	..
Peru	891	883	2,722	6,217	5,038	3,751	4,512	2,287	1,700	1,762	3.64
Puerto Rico	-	886	564	-	-	-	-	-	-	-	..
Santa Lucia	-	-	-	-	15,955	41,711	55,242	39,180	29,763	12,384	-58.39
Trinidad and Tobago	3,524	9,056	8,640	3,831	3,329	1,608	459	486	-	489	..
Uruguay	-	926	-	-	-	-	-	-	497	1,658	233.65
<b>Europe</b>	<b>22,539</b>	<b>19,323</b>	<b>18,063</b>	<b>21,734</b>	<b>32,704</b>	<b>22,513</b>	<b>28,102</b>	<b>32,973</b>	<b>29,271</b>	<b>28,544</b>	<b>-2.48</b>
France	4,181	4,719	2,369	3,032	3,644	1,906	210	4,504	4,955	7,430	49.95
Germany	-	-	0	-	3,392	2,091	1,982	2,905	-	464	..
Italy	-	341	-	-	-	0	-	-	-	-	..
Netherlands	4,312	2,110	6,607	3,093	10,586	6,567	5,573	10,966	6,554	8,144	24.25
Norway	0	0	0	0	-	-	-	0	293	0	..
Portugal	6,258	8,255	8,397	12,435	11,301	6,984	7,829	6,666	10,537	7,831	-25.67
Spain <sup>1</sup>	1,942	1,010	-	992	1,339	3,620	5,289	5,493	4,929	4,675	-5.15
United Kingdom <sup>2</sup>	5,845	2,888	690	2,183	2,442	1,345	7,218	2,439	2,002	0	..
Sweden	-	-	-	-	-	-	-	-	0	0	-60.00
<b>Middle East</b>	<b>5,698</b>	<b>3,114</b>	-	-	-	-	-	-	-	-	..
United Arab Emirates	5,698	3,114	-	-	-	-	-	-	-	-	..
<b>Asia-Pacific</b>	<b>18,565</b>	<b>11,555</b>	<b>18,945</b>	<b>26,338</b>	<b>17,889</b>	<b>21,283</b>	<b>41,946</b>	<b>76,911</b>	<b>67,290</b>	<b>80,209</b>	<b>19.20</b>
China	868	6,577	13,016	16,333	15,295	20,302	26,902	58,712	49,807	45,577	-8.49
India	11,811	0	2,042	4,993	-	982	14,041	17,259	17,483	34,632	98.08
Japan	-	-	-	-	-	-	-	939	-	-	..
North Korea	-	988	-	-	-	0	-	-	-	-	..
Singapore	-	-	0	-	-	-	-	-	-	-	..
South Korea	5,886	3,990	3,887	5,011	2,593	-	1,003	-	-	-	..

SOURCE: MDIC/Secex.

<sup>1</sup>For year 2003, Canary Islands included. <sup>2</sup>Virgin Islands included.**FIGURE 1.11. OIL EXPORTS, BY REGION OF DESTINATION – 2003-2012**

SOURCE: MDIC/Secex.

NOTE: Condensate included. Condensate imported by petrochemical plants included.

**FIGURE 1.12. EVOLUTION OF OIL EXPORTS AND REVENUE FROM OIL EXPORTS – 2003-2012**

SOURCES: MDIC/Secex .

NOTES: 1. Condensate included.  
2. Dollar in current value.**TABLE 1.18. IMPORTS OF OIL PRODUCTS, BY REGION AND COUNTRY OF ORIGIN – 2012**

REGION AND COUNTRY OF ORIGIN	OIL PRODUCTS IMPORTS (10 <sup>3</sup> M <sup>3</sup> )									
	TOTAL	NAPHTHA	DIESEL OIL	GASOLINE A	JET FUEL	COKE	LPG <sup>1</sup>	LUBRICATING OIL	SOLVENT	OTHERS <sup>2</sup>
<b>TOTAL</b>	<b>27,173</b>	<b>6,097.5</b>	<b>7,970.204</b>	<b>3,780.2</b>	<b>1,663.2</b>	<b>3,713.2</b>	<b>2,520.3</b>	<b>801.0</b>	<b>260.509</b>	<b>367.4</b>
<b>North America</b>	<b>8,073.9</b>	<b>259.0</b>	<b>3,322.7</b>	<b>721.9</b>	<b>96.9</b>	<b>2,400.7</b>	<b>597.8</b>	<b>437.6</b>	<b>64.2</b>	<b>173.2</b>
United States	7,706.7	119.0	3,322.7	721.9	96.9	2,178.1	597.8	433.2	64.0	173.2
Others <sup>3</sup>	367.2	140.0	-	-	-	222.6	-	4.4	0.2	0.0
<b>Central and South America</b>	<b>5,010.9</b>	<b>2,217.2</b>	<b>555.2</b>	<b>25.0</b>	<b>99.8</b>	<b>1,235.6</b>	<b>702.6</b>	<b>28.0</b>	<b>36.5</b>	<b>111.0</b>
Argentina	1,856.7	1,166.1	-	-	-	-	665.8	19.2	5.2	0.3
Netherlands Antilles	705.3	15.3	555.2	25.0	-	-	-	8.4	-	101.3
Peru	282.0	281.9	-	-	-	-	-	0.0	-	-
Uruguay	54.9	42.8	-	-	-	-	-	0.1	12.1	-
Venezuela	1,980.5	711.1	-	-	-	1,224.0	36.5	0.2	3.6	5.1
Others <sup>4</sup>	131.5	-	-	-	99.8	11.7	0.3	0.0	15.5	4.2
<b>Europe and Former Soviet Union</b>	<b>3,905.2</b>	<b>204.4</b>	<b>54.8</b>	<b>3,033.3</b>	<b>42.7</b>	<b>76.6</b>	<b>60.7</b>	<b>221.4</b>	<b>155.4</b>	<b>56.0</b>
Italy	382.9	-	-	289.0	-	8.2	0.0	82.1	1.1	2.6
Netherlands	2,097.3	38.4	53.7	1,923.5	42.7	5.8	0.0	17.1	15.3	0.8
Russia	133.4	131.8	-	-	-	-	-	-	1.6	-
Spain	128.7	-	-	-	-	-	-	1.0	127.0	0.7
Switzerland	44.8	-	-	-	-	44.8	-	-	-	-
United Kingdom	318.2	-	-	259.2	-	2.9	0.0	6.1	0.8	49.3
Others <sup>5</sup>	799.9	34.2	1.0	561.7	-	14.9	60.7	115.1	9.6	2.6
<b>Middle East</b>	<b>1,610.9</b>	<b>153.2</b>	<b>287.6</b>	-	<b>1,144.8</b>	-	-	<b>22.3</b>	<b>0.0</b>	<b>3.1</b>
Israel	24.0	-	-	-	-	-	-	21.1	0.0	2.9
Kuwait	1,152.2	-	287.6	-	864.6	-	-	-	-	-
Saudi Arabia	205.1	153.2	-	-	51.9	-	-	-	-	-
United Arab Emirates	228.7	-	-	-	228.2	-	-	0.3	-	0.1
Others <sup>6</sup>	0.9	-	-	-	-	-	-	0.8	-	0.1
<b>Africa</b>	<b>4,486.3</b>	<b>3,263.8</b>	-	-	<b>50.0</b>	-	<b>1,158.9</b>	<b>4.8</b>	<b>2.0</b>	<b>6.8</b>
Angola	79.1	-	-	-	-	-	79.1	-	-	-
Algeria	3,462.3	2,794.4	-	-	50	-	617.9	-	-	-
Equatorial Guinea	85.1	-	-	-	-	-	85.1	-	-	-
Marrocos	386.7	386.7	-	-	-	-	-	-	-	-
Nigeria	459.5	82.7	-	-	-	-	376.8	-	-	-
Others <sup>7</sup>	13.6	-	-	-	-	-	-	4.8	2.0	6.8
<b>Asia-Pacific</b>	<b>4,086.4</b>	-	<b>3,750.0</b>	-	<b>229.1</b>	<b>0.2</b>	<b>0.3</b>	<b>87.0</b>	<b>2.4</b>	<b>17.3</b>
India	2,675.5	-	2,655.2	-	-	-	-	20.0	-	0.3
Malaysia	23.8	-	-	-	-	-	-	20.6	-	3.3
South Korea	938.5	-	661.9	-	229.1	-	0.2	45.0	2.3	0.1
Others <sup>8</sup>	448.5	-	432.9	-	-	0.2	0.1	1.4	0.1	13.7

SOURCE: MDIC/Secex.

<sup>1</sup>Propane and butane included. <sup>2</sup>Asphalt, gasoline A, aviation gasoline, fuel oil, paraffin, jet fuel and other non-energy products included. <sup>3</sup>Canada and Mexico included. <sup>4</sup>Aruba, Cayman Islands, Colombia, Dominican Republic, Paraguay and Trinidad and Tobago included. <sup>5</sup>Austria, Belgium, Bosnia-Herzegovina, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Liechtenstein, Norway, Poland, Portugal, Sweden and Turkey included. <sup>6</sup>Bahrein and Iran included. <sup>7</sup>Egypt, Kenya and South Africa included. <sup>8</sup>Australia, China, Hong Kong, Indonesia, Japan, Singapore, Thailand and Taiwan included.

**TABLE 1.19. IMPORTS OF ENERGY AND NON-ENERGY OIL PRODUCTS - 2003-2012**

OIL PRODUCTS	IMPORTS (10 <sup>3</sup> M <sup>3</sup> )											12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		
<b>TOTAL</b>	<b>13,139.4</b>	<b>11,744.4</b>	<b>10,921.6</b>	<b>13,501.3</b>	<b>15,959.5</b>	<b>17,913.7</b>	<b>15,936.7</b>	<b>27,375.4</b>	<b>30,314.9</b>	<b>27,173.5</b>	<b>-10.36</b>	
<b>Energy</b>	<b>6,488.8</b>	<b>4,870.8</b>	<b>3,767.4</b>	<b>6,111.3</b>	<b>7,912.1</b>	<b>9,713.5</b>	<b>7,354.7</b>	<b>14,724.4</b>	<b>17,427.4</b>	<b>16,152.4</b>	<b>-7.32</b>	
Gasoline A	181.7	55.4	71.2	28.2	10.0	0.2	0.0	505.1	2,186.8	3,780.2	72.87	
Aviation Gasoline	3.9	1.7	-	-	-	-	3.1	6.2	6.1	6.2	1.21	
LPG <sup>1</sup>	2,039.9	1,880.1	947.6	1,585.5	1,794.6	2,188.8	2,556.7	3,122.6	3,389.7	2,520.3	-25.65	
Fuel Oil	93.0	130.4	52.9	251.7	116.9	198.3	10.2	160.7	709.4	212.3	-70.08	
Diesel	3,818.4	2,694.7	2,371.3	3,545.1	5,099.4	5,829.3	3,515.0	9,007.0	9,332.8	7,970.2	-14.60	
Jet fuel	352.0	108.5	324.5	700.8	891.2	1,496.9	1,269.6	1,922.8	1,802.7	1,663.2	-7.73	
<b>Non-energy</b>	<b>6,650.6</b>	<b>6,873.6</b>	<b>7,154.2</b>	<b>7,390.0</b>	<b>8,047.4</b>	<b>8,200.2</b>	<b>8,582.1</b>	<b>12,651.0</b>	<b>12,887.5</b>	<b>11,021.1</b>	<b>-14.48</b>	
Asphalt	1.2	4.4	6.5	8.0	7.8	4.8	29.5	249.9	91.0	103.7	13.89	
Coke	2,488.8	2,465.7	2,284.2	2,577.5	3,131.4	3,536.0	3,286.4	3,876.7	4,448.5	3,713.2	-16.53	
Naphtha	3,196.1	3,235.3	4,275.2	4,278.2	4,176.7	3,593.7	4,119.6	6,714.0	7,129.6	6,097.5	-14.48	
Lubricating oil	225.0	270.5	340.0	289.9	435.5	565.3	459.3	787.0	731.1	801.0	9.56	
Paraffin	18.8	9.3	5.3	12.0	21.4	23.3	35.0	46.7	55.3	35.3	-36.21	
Solvent	712.9	878.1	216.4	208.8	256.8	451.2	617.5	930.1	385.3	260.5	-32.39	
Others <sup>2</sup>	7.8	10.3	26.6	15.6	17.7	25.9	34.8	46.7	46.7	10.0	-78.67	

SOURCE: MDIC/Secex.

<sup>1</sup>Propane and butane included. <sup>2</sup>Non-energy oil products of lesser importance included.**TABLE 1.20. EXPORTS OF ENERGY AND NON-ENERGY OIL PRODUCTS, BY REGION AND COUNTRY OF DESTINATION - 2012**

REGION AND COUNTRY OF DESTINATION	EXPORTS OF ENERGY AND NON-ENERGY OIL PRODUCTS (10 <sup>3</sup> M <sup>3</sup> )											OTHERS <sup>3</sup>
	TOTAL	FUEL OIL	MARINE FUELS (BUNKERS) <sup>1</sup>	GASOLINE A	SOLVENT	COKE	LUBRICATING OIL	FUEL AND LUBRICATING OIL FOR AIRCRAFTS <sup>2</sup>	DIESEL	LPG	OTHERS <sup>3</sup>	
<b>TOTAL</b>	<b>14,916.6</b>	<b>7,279.0</b>	<b>3,442.2</b>	<b>122.3</b>	<b>326.7</b>	<b>319.3</b>	<b>139.8</b>	<b>2,781.3</b>	<b>321.2</b>	<b>31.2</b>	<b>153.7</b>	
Unknown destination	6,223.5	-	3,442.2	-	-	-	-	2,781.3	-	-	-	
<b>North America</b>	<b>543.4</b>	<b>72.7</b>	-	<b>59.7</b>	<b>229.4</b>	<b>164.6</b>	<b>13.0</b>	-	-	-	<b>3.9</b>	
United States	501.1	72.7	-	59.7	229.4	122.5	13.0	-	-	-	3.8	
Others <sup>4</sup>	42.3	-	-	0.0	0.0	42.1	0.1	-	-	-	0.1	
<b>Central and South America</b>	<b>3,181.2</b>	<b>2,477.3</b>	-	<b>62.6</b>	<b>93.3</b>	<b>1.9</b>	<b>67.1</b>	-	<b>321.2</b>	<b>31.2</b>	<b>126.6</b>	
Argentina	364.1	174.3	-	-	74.2	0.4	7.9	-	105.6	-	1.7	
Bolivia	172.6	-	-	40.9	1.4	-	4.9	-	68.4	-	57.1	
Chile	13.6	-	-	-	11.0	-	2.6	-	-	-	-	
Colombia	1.9	-	-	-	-	-	1.9	-	-	-	-	
Costa Rica	0.2	-	-	-	-	-	-	-	-	-	0.2	
Dominican Republic	1.9	-	-	-	-	-	-	-	-	-	1.9	
Ecuador	0.5	-	-	-	-	-	0.5	-	-	-	-	
Guatemala	0.3	-	-	-	-	-	0.3	-	-	-	-	
Netherlands Antilles	1,889.9	1,849.3	-	-	-	-	20.5	-	20.1	-	-	
Paraguay	203.8	5.0	-	1.6	0.1	-	15.9	-	127.1	-	54.1	
Peru	1.6	0.1	-	-	-	-	1.3	-	-	-	0.3	
Puerto Rico	20.1	-	-	20.1	-	-	-	-	-	-	-	
Uruguay	494.5	437.1	-	-	6.7	1.0	9.5	-	-	31.2	9.0	
Venezuela	2.4	-	-	-	-	0.5	1.5	-	-	-	0.4	
Others <sup>5</sup>	13.9	11.5	-	-	0.0	-	0.3	-	-	-	2.0	
<b>Europe</b>	<b>2,883.4</b>	<b>2,851.4</b>	-	<b>0.0</b>	<b>4.0</b>	<b>2.8</b>	<b>20.6</b>	-	-	-	<b>4.6</b>	
Belgium	1.3	-	-	-	1.2	-	-	-	-	-	0.1	
France	0.5	-	-	-	-	0.5	-	-	-	-	-	
Netherlands	2,710.4	2,710.1	-	-	-	-	-	-	-	-	0.3	
Spain	2.8	-	-	-	2.8	-	-	-	-	-	-	
United Kingdom	5.6	-	-	0.0	-	2.3	-	-	-	-	3.3	
Others <sup>6</sup>	163.0	141.3	-	0.0	0.1	-	20.6	-	-	-	1.0	
<b>Middle East</b>	<b>86.1</b>	-	-	-	-	<b>86.0</b>	<b>0.1</b>	-	-	-	-	
United Arab Emirates	86.0	-	-	-	-	86.0	-	-	-	-	-	
Others <sup>7</sup>	0.1	-	-	-	-	-	0.1	-	-	-	-	
<b>Africa</b>	<b>114.8</b>	-	-	-	<b>0.1</b>	<b>60.1</b>	<b>38.7</b>	-	-	-	<b>15.8</b>	
Angola	0.4	-	-	-	0.0	-	0.3	-	-	-	-	
Nigeria	38.0	-	-	-	-	-	38.0	-	-	-	-	
South Africa	60.1	-	-	-	-	60.1	-	-	-	-	-	
Others <sup>8</sup>	16.3	-	-	-	0.1	-	0.4	-	-	-	15.8	
<b>Asia-Pacific</b>	<b>1,884.2</b>	<b>1,877.5</b>	-	<b>0.0</b>	-	<b>3.7</b>	<b>0.2</b>	-	-	-	<b>2.7</b>	
Singapore	1,877.5	1,877.5	-	-	-	-	-	-	-	-	-	
Thailand	3.7	-	-	-	-	3.7	-	-	-	-	-	
Others <sup>9</sup>	3.0	-	-	0.0	-	-	0.2	-	-	-	2.7	

SOURCES: MDIC/Secex, excluding marine fuel oil; for marine fuel oil, Petrobras/Abast.

<sup>1</sup>Fuel oil, diesel oil and lubricating oil sales for foreign ships in transit included. <sup>2</sup>Jet fuel and lubricating oil sales for foreign aircrafts in transit included.<sup>3</sup>Asphalt, aviation gasoline, naphtha, other non-energy products, paraffin and jet fuel included. <sup>4</sup>Canada and Mexico included. <sup>5</sup>Aruba, Cuba, El Salvador, Guyana, Honduras, Jamaica, Nicaragua, Panama and Trinidad and Tobago included. <sup>6</sup>Austria, Bulgaria, Germany, Greece, Portugal, Serbia, Sweden and Switzerland included. <sup>7</sup>Jordan, Lebanon, Oman and Saudi Arabia. <sup>8</sup>Cabo Verde, Congo, Ecuatorial Guinea, Gabon, Ghana, Ivory Coast, Mozambique and Senegal included. <sup>9</sup>Australia, China, India, Indonesia, Japan, Pakistan, Philippines and Taiwan included.

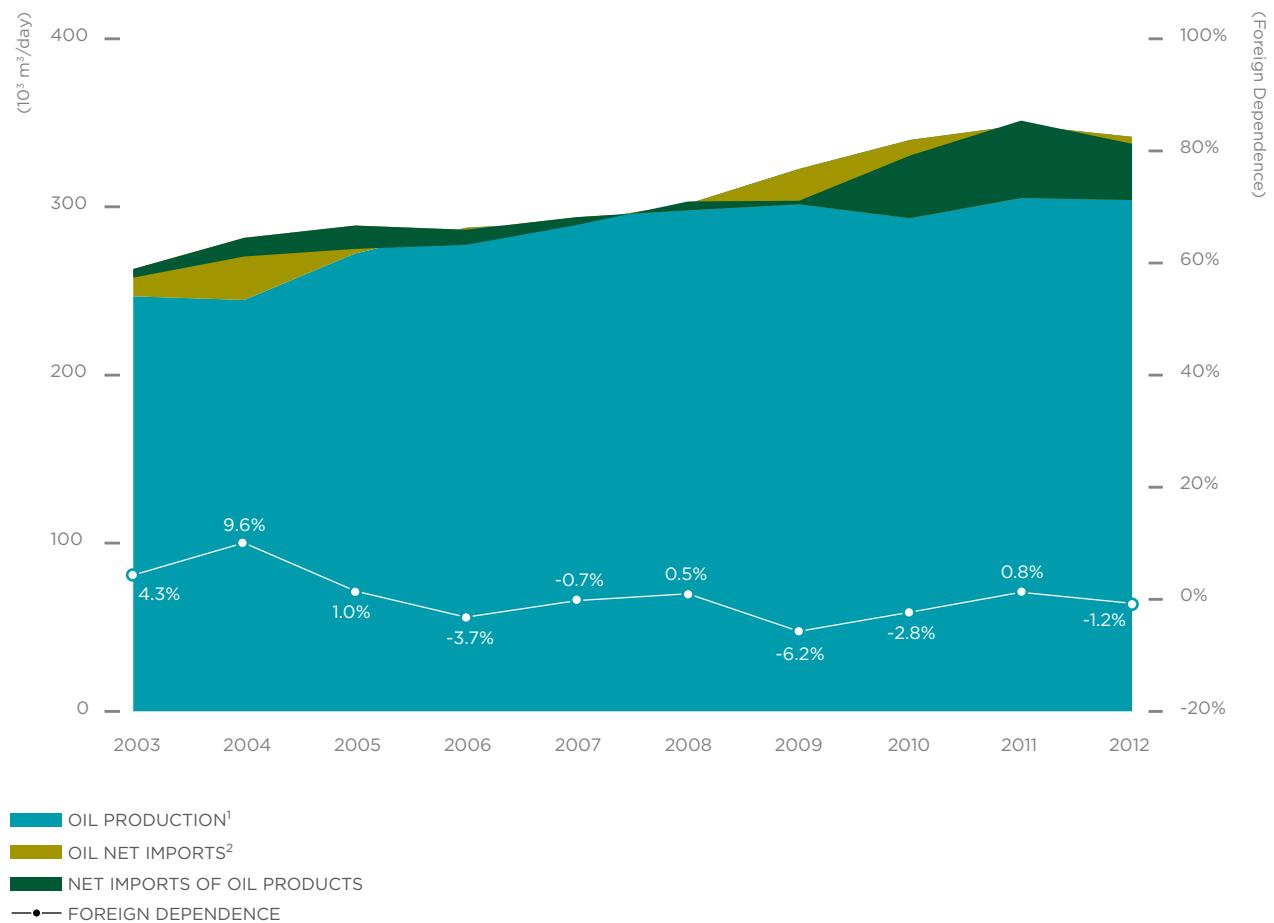
**TABLE 1.21. EXPORTS OF ENERGY AND NON-ENERGY OIL PRODUCTS – 2003-2012**

OIL PRODUCTS	EXPORTS ( $10^3$ M $\text{m}^3$ )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>	<b>15,008.9</b>	<b>15,796.2</b>	<b>15,991.0</b>	<b>16,777.3</b>	<b>17,647.9</b>	<b>15,986.4</b>	<b>15,161.9</b>	<b>13,782.9</b>	<b>13,522.3</b>	<b>14,916.6</b>	<b>10.31</b>
<b>Energy</b>	<b>14,113.9</b>	<b>14,964.1</b>	<b>14,757.6</b>	<b>15,807.8</b>	<b>16,550.4</b>	<b>14,906.4</b>	<b>14,279.4</b>	<b>12,999.8</b>	<b>12,727.6</b>	<b>14,014.3</b>	<b>10.11</b>
Gasoline A	2,678.8	2,015.1	2,831.5	2,696.6	3,698.1	2,590.8	2,513.2	761.5	309.3	122.3	-60.47
Aviation gasoline	13.9	12.5	18.7	4.4	8.1	8.0	6.0	10.9	14.8	8.4	-43.32
LPG <sup>1</sup>	130.9	63.7	152.2	34.1	23.2	7.5	20.1	7.5	43.2	31.2	-27.59
Fuel oil	5,988.3	7,463.0	5,756.2	6,792.3	5,403.9	5,159.7	4,319.6	4,940.5	5,328.9	7,279.0	36.60
Bunker <sup>2</sup>	3,751.1	3,917.0	3,930.0	3,840.2	4,431.0	4,522.3	4,163.5	4,242.2	3,814.3	3,442.2	-9.75
Diesel	122.2	64.5	301.0	601.8	1,046.1	652.3	1,221.3	669.5	597.3	321.2	-46.22
Jet fuel	7.0	16.1	0.4	2.5	1.0	26.5	23.4	33.1	23.7	28.7	20.93
Aircraft fuels <sup>3</sup>	1,421.6	1,412.2	1,767.7	1,835.9	1,939.0	1,939.4	2,012.3	2,334.5	2,596.1	2,781.3	7.13
<b>Non-energy</b>	<b>895.0</b>	<b>832.2</b>	<b>1,233.4</b>	<b>969.5</b>	<b>1,097.5</b>	<b>1,080.0</b>	<b>882.4</b>	<b>783.1</b>	<b>794.7</b>	<b>902.3</b>	<b>13.54</b>
Asphalt	21.3	20.4	10.5	19.0	17.8	30.8	63.7	75.5	94.7	110.1	16.22
Naphtha	0.0	17.1	69.7	31.9	26.5	103.4	50.4	-	0.01	-	-
Lubricating oil and lubricating grease	105.6	71.0	72.2	110.1	71.7	40.9	50.8	51.1	55.2	139.8	153.36
Paraffin	21.6	6.7	9.1	14.6	8.6	8.7	7.9	7.1	5.3	6.3	19.28
Solvent	473.7	443.1	618.5	555.6	649.7	574.2	459.9	467.2	365.9	326.7	-10.72
Others <sup>4</sup>	272.7	273.9	453.4	238.3	323.3	322.0	249.7	182.2	273.6	319.4	16.77

**SOURCES:** MDIC/Secex, excluding marine fuel oil. For marine fuel oil, Petrobras/Abast.<sup>1</sup>Propane and butane included. <sup>2</sup>Fuel oil and diesel oil sales for ships in transit included. <sup>3</sup>Jet fuel sales for aircrafts in transit included. <sup>4</sup>Coke and other non-energy products of lesser importance included.**TABLE 1.22. BRAZILIAN FOREIGN DEPENDENCE ON OIL AND OIL PRODUCTS – 2003-2012**

SPECIFICATION	BRAZILIAN FOREIGN DEPENDENCE ON OIL AND OIL PRODUCTS ( $10^3$ M $\text{m}^3$ /DAY)									12/11 %	
	2003	2004	2005	2006	2007	2008	2009	2010	2011		
Oil production (a) <sup>1</sup>	246.8	244.6	272.3	287.6	291.4	301.9	322.6	339.8	348.6	341.7	-2.00
Oil net imports (b) <sup>2</sup>	16.2	36.9	16.6	-1.2	2.5	-3.9	-21.1	-46.5	-43.4	-37.6	-13.24
Net imports of oil products (c)	-5.1	-11.1	-13.9	-9.0	-4.6	5.3	2.1	37.2	46.0	33.5	-27.21
Apparent consumption (d)=(a)+(b)+(c)	257.9	270.5	275.0	277.4	289.3	303.3	303.7	330.5	351.3	337.5	-3.92
Foreign dependence (e)=(d)-(a)	11.1	25.9	2.7	-10.2	-2.1	1.4	-18.9	-9.3	2.7	-4.1	-
<b>Foreign dependence (e)/(d) %</b>	<b>4.3</b>	<b>9.6</b>	<b>1.0</b>	<b>-3.7</b>	<b>-0.7</b>	<b>0.5</b>	<b>-6.2</b>	<b>-2.8</b>	<b>0.8</b>	<b>-1.2</b>	<b>-</b>

**SOURCES:** ANP/SDP, as per Ordinance No. 2.705/1998, for oil production data; MDIC/Secex, for imports and exports data, except for bunker.**NOTE:** Consolidated data by ANP/SPP.<sup>1</sup>Includes condensate and NGL. <sup>2</sup>Includes condensate.

**FIGURE 1.13. BRAZILIAN FOREIGN DEPENDENCE ON OIL AND OIL PRODUCTS – 2003-2012**

SOURCES: ANP/SDP; MDIC/Secex; Petrobras/Abast (Table 1.22)

NOTES: All calculations made by ANP/SPD.

<sup>1</sup>Condensate and NGL included. <sup>2</sup>Condensate included.

**TABLE 1.23. NATURAL GAS IMPORTS, BY COUNTRY OF ORIGIN – 2003-2012**

COUNTRIES	NATURAL GAS IMPORTS (10 <sup>6</sup> M <sup>3</sup> )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL (a)+(b)</b>	<b>5,947</b>	<b>8,086</b>	<b>8,998</b>	<b>9,789</b>	<b>10,334</b>	<b>11,348</b>	<b>8,543</b>	<b>12,647</b>	<b>10,481</b>	<b>13,079</b>	<b>24.79</b>
<b>Natural Gas (a)</b>	<b>5,947</b>	<b>8,086</b>	<b>8,998</b>	<b>9,789</b>	<b>10,334</b>	<b>11,313</b>	<b>8,108</b>	<b>9,820</b>	<b>9,796</b>	<b>10,082</b>	<b>2.92</b>
Argentina	350	451	349	475	166	135	-	-	-	-	..
Bolivia	5,597	7,635	8,648	9,314	10,168	11,178	8,108	9,820	9,796	10,082	2.92
<b>Liquified Natural Gas (LNG)<sup>1</sup> (b)</b>	-	-	-	-	-	35	435	2,827	686	2,998	337.18
Abu Dhabi	-	-	-	-	-	-	-	-	32	-	..
Belgium	-	-	-	-	-	-	-	79	-	214	..
Qatar	-	-	-	-	-	-	635	295	1,078	1,078	265.70
Spain	-	-	-	-	-	-	-	-	-	27	..
United States	-	-	-	-	-	-	-	88	166	70	-57.88
France	-	-	-	-	-	-	-	-	-	77	..
Ecuatorial Guinea	-	-	-	-	-	-	-	89	-	-	..
Nigeria	-	-	-	-	-	-	75	869	-	451	..
Norway	-	-	-	-	-	-	-	-	-	168	..
Peru	-	-	-	-	-	-	-	154	-	-	..
Portugal	-	-	-	-	-	-	-	-	-	67	..
Trinidad & Tobago	-	-	-	-	-	35	360	880	225	846	276.83

SOURCE: ANP/SCM, as per Ordinance ANP No. 43/1998.

NOTE: Brazilian natural gas imports started in July, 1999 and LNG in August 2008.

<sup>1</sup>Refers to the imported LNG considering its volume in gaseous state.

## 1.11 Commercialization of Oil, its Products and Natural Gas

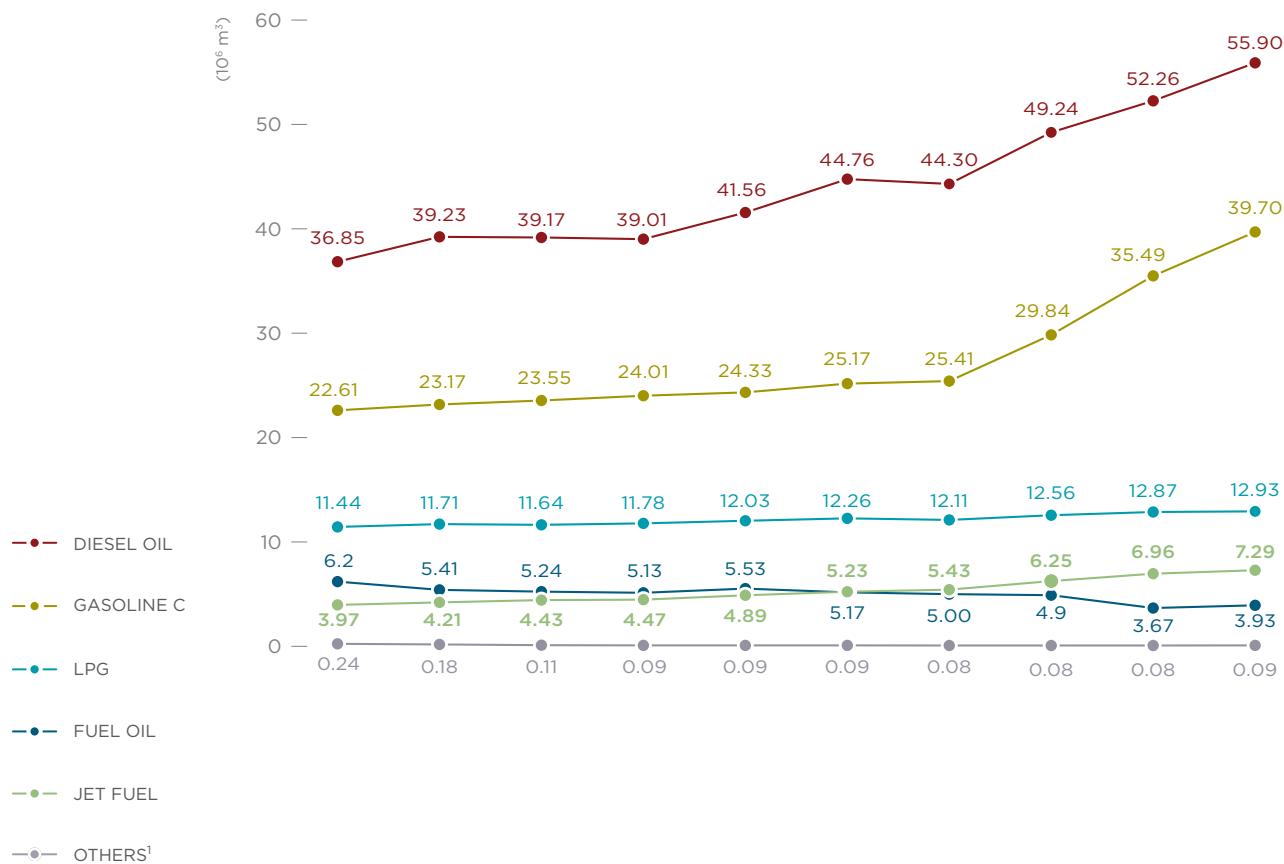
**TABLE 1.24. DOMESTIC SALES OF MAIN OIL PRODUCTS, BY DISTRIBUTORS – 2003-2012**

OIL PRODUCTS	DOMESTIC SALES AT DISTRIBUTION LEVEL ( $10^3 \text{ m}^3$ )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>	<b>81,309</b>	<b>83,907</b>	<b>84,140</b>	<b>84,486</b>	<b>88,419</b>	<b>92,682</b>	<b>92,332</b>	<b>102,878</b>	<b>111,335</b>	<b>119,838</b>	<b>7.64</b>
Gasoline C	22,610	23,174	23,553	24,008	24,325	25,175	25,409	29,844	35,491	39,698	11.85
Aviation gasoline	59	61	55	52	55	61	62	70	70	76	8.36
LPG	11,436	11,708	11,639	11,783	12,034	12,259	12,113	12,558	12,868	12,926	0.46
Fuel oil	6,200	5,413	5,237	5,127	5,525	5,172	5,004	4,901	3,672	3,934	7.14
Diesel oil	36,853	39,226	39,167	39,008	41,558	44,764	44,298	49,239	52,264	55,900	6.96
Jet fuel	3,972	4,209	4,429	4,466	4,891	5,227	5,428	6,250	6,955	7,292	4.84
Lamp oil	177	116	59	42	31	24	16	15	14	12	-18.87

SOURCE: ANP/SAB. Up to 2006, data as per Ordinance CNP No. 221/1981. Since 2007, data as per Ordinance ANP No. 17/2004.

NOTE: Up to 2006, data include distributors sales and their own consumption. Since 2007, only distributor sales are included.

**FIGURE 1.14. DOMESTIC SALES OF MAIN OIL PRODUCTS, BY DISTRIBUTORS – 2003-2012**



SOURCE: ANP/SAB (Table 1.24).

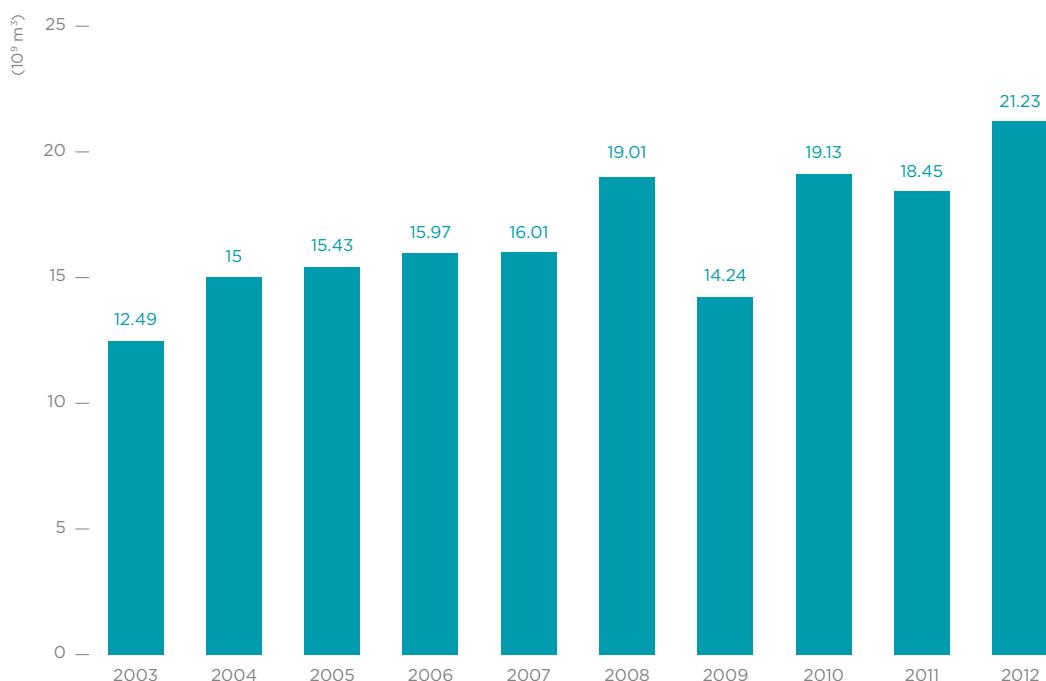
<sup>1</sup>Aviation gasoline and lamp oil included.

**TABLE 1.25. NATURAL GAS DOMESTIC SALES BY BRAZILIAN REGION AND STATE - 2003-2012**

STATES	NATURAL GAS SALES BY PRODUCERS ( $10^6 \text{ m}^3$ )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>	<b>12,488</b>	<b>14,997</b>	<b>15,426</b>	<b>15,974</b>	<b>16,012</b>	<b>19,011</b>	<b>14,236</b>	<b>19,126</b>	<b>18,450</b>	<b>21,229</b>	<b>15.06</b>
<b>North</b>	-	-	-	-	-	1	1	46	647	897	<b>38.68</b>
Amazonas	-	-	-	-	-	1	1	46	647	897	38.68
<b>Northeast</b>	<b>3,533</b>	<b>4,022</b>	<b>3,539</b>	<b>3,291</b>	<b>3,393</b>	<b>3,376</b>	<b>3,388</b>	<b>4,429</b>	<b>4,198</b>	<b>4,221</b>	<b>0.53</b>
Ceará	226	479	266	225	173	186	266	509	398	464	16.52
Rio Grande do Norte	98	112	125	137	152	148	134	142	139	126	-9.48
Paraíba	87	93	99	115	132	138	131	133	126	130	3.71
Pernambuco	279	780	662	490	391	422	475	854	864	885	2.40
Alagoas	135	145	155	169	181	181	165	174	162	197	21.68
Sergipe <sup>1</sup>	456	443	513	491	476	405	428	490	566	526	-6.99
Bahia <sup>1</sup>	2,253	1,970	1,719	1,664	1,889	1,895	1,789	2,128	1,943	1,892	-2.64
<b>Southeast</b>	<b>7,060</b>	<b>8,448</b>	<b>9,421</b>	<b>10,194</b>	<b>10,619</b>	<b>13,965</b>	<b>9,443</b>	<b>12,917</b>	<b>11,829</b>	<b>14,303</b>	<b>20.91</b>
Minas Gerais	483	726	647	733	616	830	531	945	1,045	1,318	26.0
Espírito Santo	395	409	385	406	445	673	490	808	1,047	1,101	5.1
Rio de Janeiro	2,639	3,203	3,610	3,730	3,770	6,453	3,448	5,350	4,015	5,750	43.20
São Paulo	3,543	4,110	4,779	5,324	5,788	6,009	4,974	5,814	5,721	6,135	7.23
<b>South</b>	<b>1,191</b>	<b>1,558</b>	<b>1,749</b>	<b>1,934</b>	<b>1,652</b>	<b>1,564</b>	<b>1,350</b>	<b>1,542</b>	<b>1,700</b>	<b>1,712</b>	<b>0.65</b>
Paraná	186	219	249	303	363	348	293	351	369	375	1.59
Santa Catarina	311	389	474	527	567	579	582	642	675	679	0.50
Rio Grande do Sul	694	949	1,026	1,105	723	637	475	549	656	658	0.28
<b>Central-West</b>	<b>704</b>	<b>969</b>	<b>716</b>	<b>555</b>	<b>348</b>	<b>105</b>	<b>54</b>	<b>191</b>	<b>75</b>	<b>97</b>	<b>29.49</b>
Mato Grosso do Sul	287	653	476	342	139	87	54	189	73	93	28.49
Mato Grosso	416	316	240	213	208	18	-	2	3	4	58.32

SOURCE: Petrobras/Unidade de Negócios de Gás Natural.

NOTE: Related only the States where there were sales of natural gas in the specified period.

<sup>1</sup>Sales for Nitrogen Fertilizer plants (Fafen), owned by Petrobras, included.**FIGURE 1.15. NATURAL GAS DOMESTIC SALES, AT PRODUCTION LEVEL - 2003-2012**

SOURCE: Petrobras/Unidade de Negócios de Gás Natural (Table 1.25).

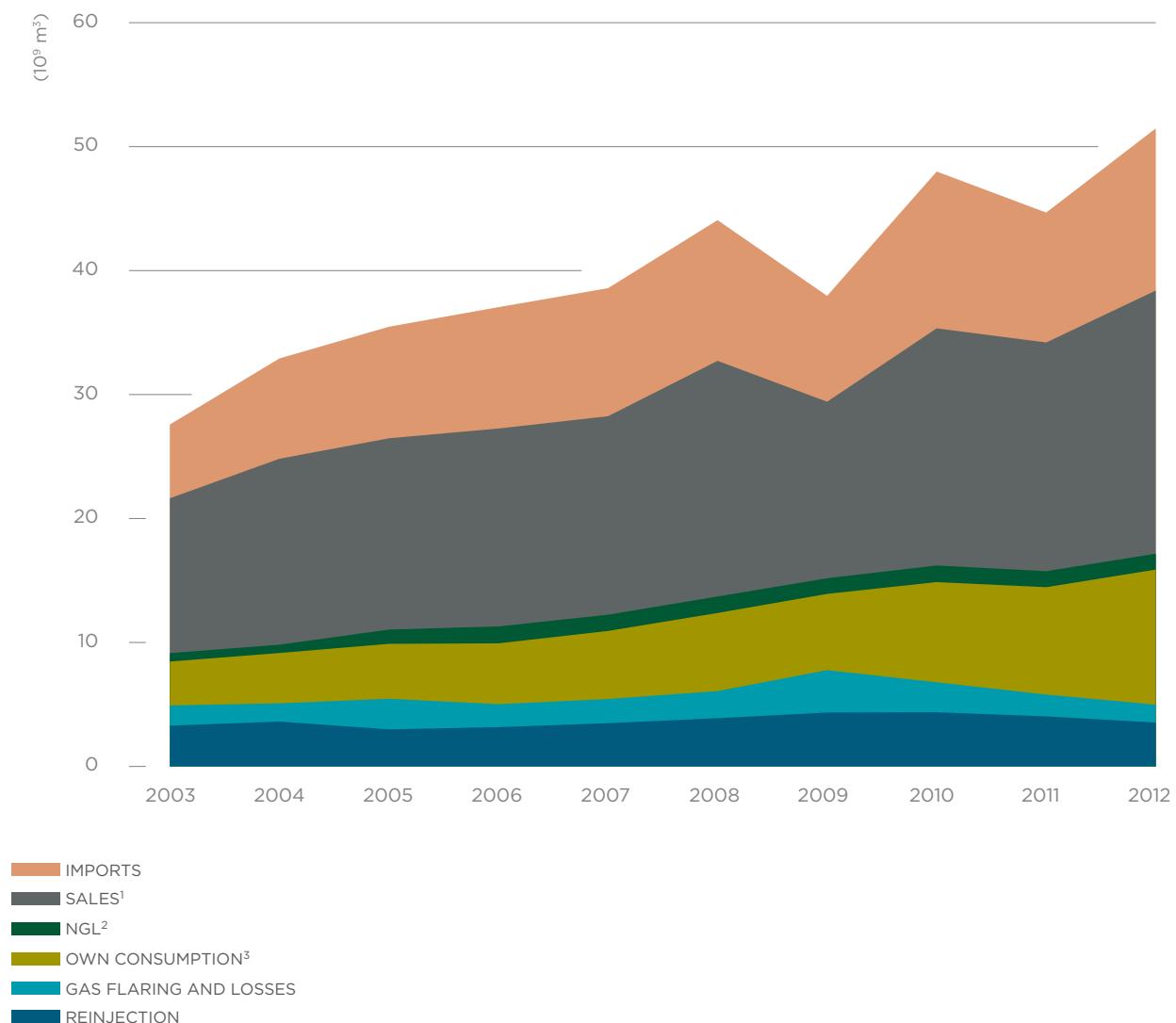
NOTE: Sales to nitrofertilizer plants (Fafen) owned by Petrobras included.

**TABLE 1.26. BRAZILIAN NATURAL GAS BALANCE – 2003-2012**

SPECIFICATION	BRAZILIAN NATURAL GAS BALANCE ( $10^3 \text{ M}^3$ )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Imports	5,947	8,086	8,998	9,789	10,334	11,348	8,543	12,647	10,481	13,079	24.79
Production	15,792	16,971	17,699	17,706	18,152	21,593	21,142	22,938	24,074	25,832	7.30
Reinjection	3,291	3,616	2,986	3,170	3,494	3,894	4,351	4,369	4,038	3,543	-12.26
Gas flaring and losses	1,626	1,469	2,474	1,852	1,947	2,187	3,424	2,418	1,756	1,445	-17.75
Own consumption	3,539	4,069	4,434	4,915	5,500	6,310	6,160	8,086	8,670	10,905	25.77
E&P <sup>1</sup>	2,048	2,215	2,473	2,805	2,879	2,892	3,084	3,548	3,703	3,869	4.46
Refining, NGPPs and transfers <sup>2</sup>	1,491	1,854	1,961	2,109	2,621	3,419	3,076	4,538	4,502	7,036	56.30
NGL <sup>3</sup>	681	675	1,150	1,362	1,309	1,331	1,256	1,335	1,287	1,281	-0.41
Sales <sup>4</sup>	12,488	14,997	15,426	15,974	16,012	19,011	14,236	19,126	18,450	21,229	15.06
Adjustments	114	231	227	223	223	207	257	251	354	709	100.19

**SOURCES:** ANP/SCM, as per Ordinance ANP No. 43/98, for imports data; ANP/SDP, as per Decree No. 2.705/98, for production, reinjection, gas flaring and losses data; Petrobras/Unidade de Negócios de Gás Natural, for own consumption, NGL and sales data.

<sup>1</sup>Refers to Petrobras own consumption in production areas and in Urucu I, II and III, Guamaré I, II and III, Pilar, Atalaia, Carmópolis, Candeias, Catu, Bahia, Lagoa Parda, Cacimbas and Sul Capixaba NGPPs. <sup>2</sup>Refers to Petrobras own consumption in refining, electricity generation and gas transfer areas as well as in Lubnor, Cabiúnas plants, Reduc I and II and RPBC NGPPs. <sup>3</sup>Volume of gas absorbed in NGPPs (LPG, C<sub>5</sub><sup>+</sup>, ethane and propane). <sup>4</sup>Sales to Nitrofertilizers Plants (Fafen), owned by Petrobras, included.

**FIGURE 1.16. BRAZILIAN NATURAL GAS BALANCE - 2003-2012**

**SOURCES:** ANP/SDP; ANP/SCM; Petrobras/Unidade de Negócios de Gás Natural (Table 1.26).

<sup>1</sup>Sales to nitrofertilizer plants (Fafen), owned by Petrobras, included. <sup>2</sup>Volume of gas absorbed in NGPPs (LPG, C<sub>5</sub><sup>+</sup>, ethane and propane).

<sup>3</sup>Refers to Petrobras' own consumption in natural gas production, refining, electricity generation and processing and transferring areas.



## SECTION 2

# BIOFUELS



## 2.1 Ethanol

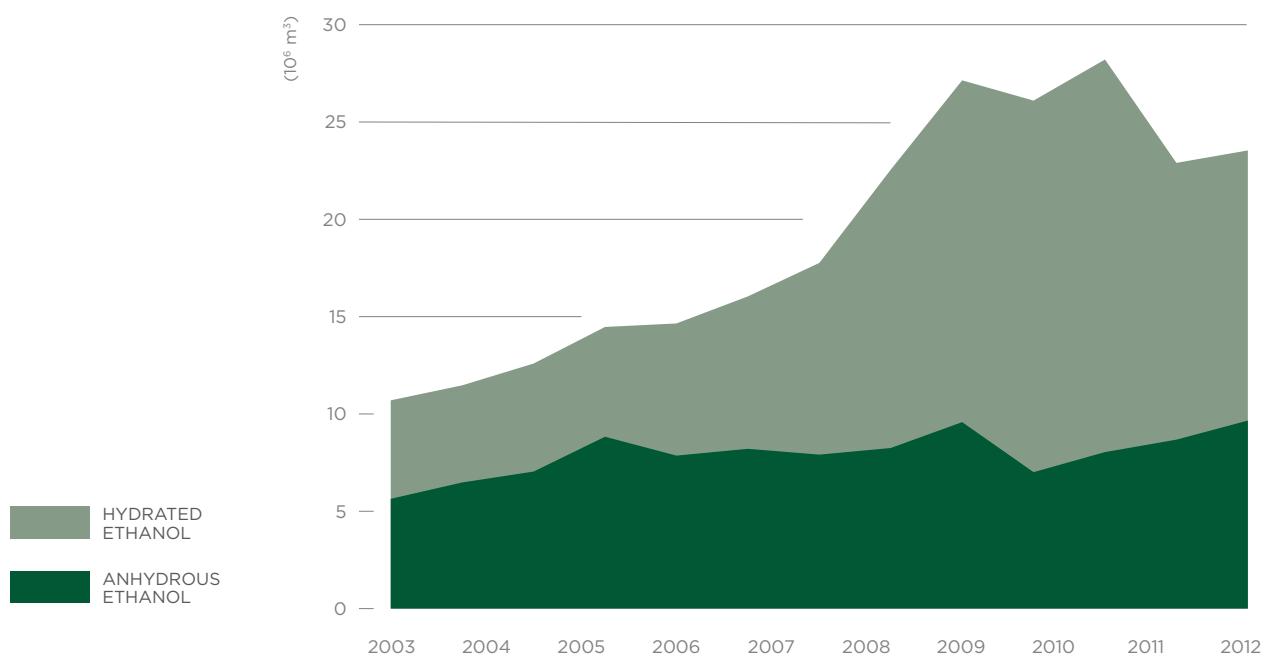
**TABLE 2.1. PRODUCTION OF ANHYDROUS AND HYDRATED ETHANOL, BY BRAZILIAN REGION AND STATE - 2003-2012**

BRAZILIAN REGION AND STATE	PRODUCTION OF ANHYDROUS AND HYDRATED ETHANOL (10 <sup>3</sup> M <sup>3</sup> )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>BRAZIL</b>	<b>14,469.95</b>	<b>14,647.25</b>	<b>16,039.89</b>	<b>17,764.26</b>	<b>22,556.90</b>	<b>27,133.19</b>	<b>26,103.09</b>	<b>28,203.42</b>	<b>22,892.50</b>	<b>23,540.06</b>	<b>2.83</b>
<b>North</b>	<b>39.39</b>	<b>47.53</b>	<b>47.51</b>	<b>75.88</b>	<b>47.66</b>	<b>55.67</b>	<b>51.73</b>	<b>59.71</b>	<b>169.86</b>	<b>209.35</b>	<b>23.25</b>
Acre	-	-	-	-	-	-	-	1.49	2.68	4.10	52.97
Rondônia	-	-	-	-	-	-	8.55	10.76	12.42	8.64	-30.39
Amazonas	4.38	4.67	6.01	5.65	8.26	7.96	4.74	7.14	6.43	4.05	-37.10
Pará	35.01	42.86	37.28	58.66	39.39	44.91	36.02	23.81	39.14	33.50	-14.40
Tocantins	-	-	4.22	11.57	-	2.80	2.42	16.51	109.19	159.06	45.68
<b>Northeast</b>	<b>1,505.23</b>	<b>1,675.49</b>	<b>1,695.56</b>	<b>1,572.56</b>	<b>1,901.72</b>	<b>2,371.62</b>	<b>2,210.50</b>	<b>1,822.89</b>	<b>1,938.53</b>	<b>1,854.79</b>	<b>-4.32</b>
Maranhão	89.87	95.91	48.92	113.56	192.30	181.56	168.50	180.62	178.37	158.92	-10.91
Piauí	22.37	19.45	19.93	65.66	36.17	44.55	40.95	35.50	36.64	33.68	-8.07
Ceará	0.32	0.15	1.02	1.00	0.57	7.52	10.76	4.04	8.78	3.98	-54.74
Rio Grande do Norte	85.47	64.21	99.35	95.56	55.60	87.40	117.30	102.03	95.92	89.81	-6.36
Paraíba	267.67	243.80	353.50	255.94	363.50	401.48	395.30	318.08	327.96	333.82	1.79
Pernambuco	339.20	397.02	380.18	311.95	395.39	558.92	469.03	396.01	366.88	318.40	-13.21
Alagoas	589.83	729.65	620.27	572.32	681.45	892.64	790.99	575.53	721.70	600.64	-16.77
Sergipe	61.49	62.47	67.64	62.79	35.49	57.56	101.12	80.91	97.89	146.43	49.58
Bahia	49.00	62.83	104.75	93.77	141.25	139.98	116.56	130.17	104.40	169.11	61.98
<b>Southeast</b>	<b>9,786.64</b>	<b>9,948.40</b>	<b>11,154.24</b>	<b>12,478.67</b>	<b>15,782.23</b>	<b>19,212.33</b>	<b>17,676.39</b>	<b>18,860.06</b>	<b>14,208.83</b>	<b>14,116.98</b>	<b>-0.65</b>
Minas Gerais	785.23	758.25	918.80	1,270.58	1,790.91	2,200.92	2,284.23	2,680.51	2,105.65	2,040.34	-3.10
Espírito Santo	151.77	167.83	217.39	159.46	281.79	250.32	238.35	208.62	197.00	180.80	-8.22
Rio de Janeiro	104.74	161.25	164.29	90.24	120.27	125.98	112.82	69.87	81.26	68.10	-16.20
São Paulo	8,744.90	8,861.07	9,853.77	10,958.39	13,589.27	16,635.12	15,041.00	15,901.06	11,824.93	11,827.75	0.02
<b>South</b>	<b>1,209.45</b>	<b>1,178.31</b>	<b>995.67</b>	<b>1,308.24</b>	<b>1,923.23</b>	<b>1,906.00</b>	<b>1,901.26</b>	<b>1,746.03</b>	<b>1,405.64</b>	<b>1,313.30</b>	<b>-6.57</b>
Paraná	1,203.40	1,173.49	992.33	1,302.74	1,916.23	1,899.68	1,898.80	1,740.23	1,399.06	1,311.64	-6.25
Rio Grande do Sul	6.05	4.82	3.34	5.50	7.00	6.32	2.46	5.81	6.58	1.67	-74.68
<b>Central-West</b>	<b>1,929.26</b>	<b>1,797.52</b>	<b>2,146.91</b>	<b>2,328.92</b>	<b>2,902.06</b>	<b>3,587.57</b>	<b>4,263.22</b>	<b>5,714.73</b>	<b>5,169.65</b>	<b>6,045.64</b>	<b>16.94</b>
Mato Grosso do Sul	472.11	413.61	619.92	644.55	873.64	945.27	1,331.48	1,881.51	1,630.29	1,938.16	18.88
Mato Grosso	795.38	792.63	723.78	811.80	863.59	898.52	809.92	853.53	862.11	977.58	13.39
Goiás	661.77	591.28	803.21	872.57	1,164.83	1,743.78	2,121.83	2,979.69	2,677.25	3,129.90	16.91

SOURCE: MAPA/Sapcana.

NOTE: Only states with anhydrous and/or hydrated ethanol production within the past ten years were listed.

**FIGURE 2.1. PRODUCTION OF ANHYDROUS AND HYDRATED ETHANOL - 2003-2012**



SOURCE: MAPA/Sapcana (Tables 2.1 and 2.2).

**TABLE 2.2. PRODUCTION OF HYDRATED ETHANOL, BY BRAZILIAN REGION AND STATE – 2003-2012**

BRAZILIAN REGION AND STATE	PRODUCTION OF HYDRATED ETHANOL (10³ M³)										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>BRAZIL</b>	<b>5,638.29</b>	<b>6,788.47</b>	<b>7,832.15</b>	<b>9,851.38</b>	<b>14,302.66</b>	<b>17,556.28</b>	<b>19,089.27</b>	<b>20,166.88</b>	<b>14,217.18</b>	<b>13,875.96</b>	<b>-2.40</b>
<b>North</b>	<b>8.69</b>	<b>9.24</b>	<b>13.61</b>	<b>19.09</b>	<b>17.91</b>	<b>34.90</b>	<b>47.62</b>	<b>48.99</b>	<b>77.77</b>	<b>75.84</b>	<b>-2.48</b>
Acre	-	-	-	-	-	-	-	-	1.49	2.68	4.10
Rondônia	-	-	-	-	-	-	8.55	10.76	12.42	8.64	-30.39
Amazonas	4.38	4.67	6.01	5.65	8.26	7.96	4.74	7.14	6.43	4.05	-37.10
Pará	4.32	4.57	7.49	11.32	9.64	25.26	31.91	17.61	22.39	10.87	-51.44
Tocantins	-	-	0.11	2.13	-	1.68	2.42	11.99	33.85	48.17	42.31
<b>Northeast</b>	<b>737.61</b>	<b>861.09</b>	<b>775.80</b>	<b>711.40</b>	<b>987.60</b>	<b>1,211.57</b>	<b>1,284.18</b>	<b>983.80</b>	<b>930.61</b>	<b>843.07</b>	<b>-9.41</b>
Maranhão	5.61	8.72	11.08	20.26	50.15	60.44	58.75	39.12	30.67	23.44	-23.59
Piauí	4.35	4.33	5.83	13.95	9.53	11.42	5.15	2.39	1.88	1.48	-21.21
Ceará	0.32	0.15	1.02	1.00	0.57	6.90	10.76	4.04	8.78	3.98	-54.74
Rio Grande do Norte	31.71	37.44	39.14	28.60	35.44	46.77	82.36	49.30	44.52	37.48	-15.80
Paraíba	131.75	158.66	171.71	147.47	212.88	213.15	237.95	182.13	184.84	186.75	1.03
Pernambuco	165.27	151.66	128.22	112.28	212.07	297.94	309.47	237.11	184.69	141.89	-23.17
Alagoas	351.10	447.87	361.04	328.90	399.25	494.34	421.62	330.25	359.07	254.21	-29.20
Sergipe	29.47	33.78	39.05	30.48	12.46	29.09	85.39	68.50	78.02	103.36	32.49
Bahia	18.04	18.49	18.72	28.45	55.26	51.53	72.74	70.97	38.14	90.48	137.21
<b>Southeast</b>	<b>3,320.67</b>	<b>4,279.67</b>	<b>5,115.17</b>	<b>6,877.56</b>	<b>9,875.79</b>	<b>12,347.86</b>	<b>12,915.91</b>	<b>13,298.17</b>	<b>8,489.67</b>	<b>7,771.42</b>	<b>-8.46</b>
Minas Gerais	400.27	429.32	525.88	691.18	1,167.92	1,634.03	1,793.39	2,084.00	1,362.74	1,192.36	-12.50
Espírito Santo	48.55	46.67	46.27	47.48	88.72	125.43	130.73	104.37	69.02	68.65	-0.54
Rio de Janeiro	65.17	101.65	84.08	59.52	93.32	89.20	102.86	69.87	81.26	68.10	-16.20
São Paulo	2,806.68	3,702.04	4,458.95	6,079.38	8,525.84	10,499.20	10,888.94	11,039.93	6,976.65	6,442.32	-7.66
<b>South</b>	<b>729.49</b>	<b>760.64</b>	<b>656.29</b>	<b>864.81</b>	<b>1,563.79</b>	<b>1,471.32</b>	<b>1,528.92</b>	<b>1,464.59</b>	<b>1,039.75</b>	<b>919.83</b>	<b>-11.53</b>
Paraná	723.44	755.82	652.95	859.31	1,556.79	1,465.00	1,526.46	1,458.79	1,033.18	918.16	-11.13
<b>Central-West</b>	<b>841.82</b>	<b>877.83</b>	<b>1,271.28</b>	<b>1,378.51</b>	<b>1,857.57</b>	<b>2,490.64</b>	<b>3,312.64</b>	<b>4,371.33</b>	<b>3,679.39</b>	<b>4,265.81</b>	<b>15.94</b>
Mato Grosso do Sul	252.44	239.99	401.83	437.40	659.43	709.03	1,088.88	1,520.53	1,194.17	1,455.36	21.87
Mato Grosso	313.08	364.17	436.01	485.88	486.18	546.22	538.35	579.38	532.58	501.81	-5.78
Goiás	276.31	273.67	433.43	455.24	711.96	1,235.39	1,685.42	2,271.42	1,952.65	2,308.64	18.23

SOURCE: MAPA/Sapcana.

NOTE: Only states with hydrated ethanol production within the past ten years were listed.

**TABLE 2.3. ETHANOL IMPORTS, BY REGION AND BY COUNTRY OF DESTINATION – 2011-2012**

REGION AND COUNTRY OF ORIGIN	ETHANOL IMPORTS (M³)		12/11 %
	2011	2012	
<b>TOTAL</b>	<b>1,136,901</b>	<b>553,886</b>	<b>-51.28</b>
<b>North America</b>	<b>1,099,623</b>	<b>553,198</b>	<b>-49.69</b>
Mexico	10	9	-11.37
United States	1,099,612	553,189	-49.69
<b>Central and South America</b>	<b>790</b>	<b>549</b>	<b>-30.48</b>
Barbados	88	135	52.60
Guyana	-	21	..
Jamaica	285	369	29.65
Trinidad and Tobago	417	24	-94.24
<b>Europe</b>	<b>36,489</b>	<b>139</b>	<b>-99.62</b>
France	1,674	5	-99.70
Germany	61	39	-36.03
Italy	9	21	145.30
Netherlands	17	-	..
Poland	-	71	..
Spain	11	3	-72.51
United Kingdom	34,718	-	..

SOURCE: MDIC/Secex.

**TABLE 2.4. ETHANOL EXPORTS, BY REGION AND BY COUNTRY OF DESTINATION – 2003-2012**

REGION AND COUNTRY OF DESTINATION	ETHANOL EXPORTS (M <sup>3</sup> )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>	<b>765,025</b>	<b>2,432,618</b>	<b>2,592,293</b>	<b>3,428,863</b>	<b>3,532,668</b>	<b>5,123,820</b>	<b>3,323,467</b>	<b>1,900,165</b>	<b>1,964,018</b>	<b>3,050,373</b>	<b>55.31</b>
<b>North America</b>	<b>85,893</b>	<b>545,613</b>	<b>387,652</b>	<b>1,836,156</b>	<b>972,212</b>	<b>1,776,481</b>	<b>358,984</b>	<b>348,494</b>	<b>668,005</b>	<b>2,042,420</b>	<b>205.75</b>
Canada	-	26,334	26,839	18,855	4,250	37,467	-	-	-	-	..
Mexico	40,935	90,417	100,098	50,241	49,210	29,930	73,740	35,100	4,080	6,553	60.61
United States	44,958	428,863	260,715	1,767,060	918,752	1,709,084	285,244	313,394	663,925	2,035,867	206.64
<b>Central and South America</b>	<b>172,779</b>	<b>305,537</b>	<b>552,374</b>	<b>609,211</b>	<b>898,737</b>	<b>1,160,262</b>	<b>783,144</b>	<b>200,309</b>	<b>372,343</b>	<b>472,341</b>	<b>26.86</b>
Argentina	-	-	-	-	-	-	-	5,945	16,415	7,663	-53.32
Chile	5	1,131	1,287	1,324	2,006	2,843	1,677	5,477	5,536	4,548	-17.85
Colombia	1,555	-	-	10,320	5,390	8,187	2,420	-	8	260	3,150.00
Costa Rica	32,491	117,893	126,693	91,265	170,367	109,504	100,276	-	-	92,213	..
Dominican Republic	-	-	13,452	-	5,428	1,617	4,001	2,010	1,310	2,015	53.82
El Salvador	15,679	29,154	157,851	181,143	224,397	356,238	71,101	-	50,083	108,421	..
Ecuador	-	-	-	1,646	7,072	3,965	-	4,903	25	-	..
Jamaica	104,077	135,759	133,288	131,543	308,968	436,503	437,657	138,622	137,589	216,270	57.19
Paraguay	79	977	-	-	-	5,068	7	74	15	112	646.67
Porto Rico	-	5,243	10,261	10,371	13,993	10,246	22,150	32,253	20,255	19,866	-1.92
Trinidad and Tobago	14,965	7,155	36,116	71,579	158,869	224,510	139,951	6,636	135,881	14,700	-89.18
Uruguay	-	-	453	440	658	466	445	3,071	5,050	6,248	23.72
Venezuela	117	2,903	49,478	104,605	-	-	-	965	-	-	..
Others	3,810	5,323	23,495	4,975	1,589	1,116	3,459	353	176	25	-85.80
<b>Europe</b>	<b>213,938</b>	<b>434,673</b>	<b>569,937</b>	<b>600,167</b>	<b>1,007,913</b>	<b>1,498,807</b>	<b>938,360</b>	<b>477,259</b>	<b>193,233</b>	<b>105,299</b>	<b>-45.51</b>
Belgium	4,818	3,625	1,400	-	1,611	6,277	5,016	4,900	18,028	162	-99.10
Finland	5,737	12,429	-	-	19,986	41,477	26,812	14,843	-	-	..
France	-	7,106	-	8,900	5,064	10,213	-	-	-	5,000	..
Germany	-	-	-	-	-	4,486	-	-	4	-	..
Netherlands	85,680	168,573	259,403	346,615	808,557	1,332,756	678,466	238,988	95,504	91,101	-4.61
Norway	-	-	-	-	-	-	-	6,000	-	-	..
Spain	568	375	-	173	4,698	4,911	-	-	-	-	..
Sweden	100,395	195,337	245,891	204,614	116,466	5,142	-	-	-	-	..
Switzerland	10,853	22,401	9,896	-	-	11,572	54,724	52,158	79,677	9,018	-88.68
Turkey	5,701	23,181	29,313	12,856	3,747	-	-	-	-	-	..
United Kingdom	4	-	13,662	27,008	47,784	81,972	161,637	160,336	20	18	-10.00
Others	184	1,647	10,372	1	-	1	11,705	34	-	-	..
<b>Middle East</b>	-	-	-	<b>48</b>	<b>43,849</b>	<b>5,191</b>	<b>29,527</b>	-	-	-	..
United Arab Emirates	-	-	-	-	43,749	5,162	23,814	-	-	-	..
Others	-	-	-	48	100	29	5,713	-	-	-	..
<b>Africa</b>	<b>81,652</b>	<b>124,766</b>	<b>131,723</b>	<b>55,531</b>	<b>172,578</b>	<b>137,676</b>	<b>180,723</b>	<b>117,398</b>	<b>105,511</b>	<b>99,265</b>	<b>-5.92</b>
Angola	413	5,848	6,577	3,178	11,661	9,871	35,118	14,548	12,173	14,995	23.18
Ghana	28,170	7,849	3,861	6,075	33,172	19,759	14,803	18,874	8,314	7,808	-6.09
Nigeria	48,248	109,096	118,441	42,680	122,879	97,888	115,766	80,123	73,603	71,066	-3.45
Sierra Leone	328	803	1,566	648	2,355	2,313	1,659	82	32	-	..
South Africa	4,097	-	-	2,008	-	5,563	12,318	3,556	11,368	5,334	-53.08
Others	397	1,170	1,278	942	2,511	2,281	1,059	215	21	62	195.24
<b>Asia-Pacific</b>	<b>210,763</b>	<b>1,022,029</b>	<b>950,607</b>	<b>327,750</b>	<b>437,379</b>	<b>545,403</b>	<b>1,032,729</b>	<b>756,705</b>	<b>624,926</b>	<b>331,048</b>	<b>-47.03</b>
Australia	-	-	-	-	-	6,374	8,040	19,338	16,443	3,533	-78.51
China	-	-	-	-	-	4,050	-	24	-	14,799	..
India	23,991	441,050	410,757	10,074	-	66,510	367,570	58,603	27,565	-	..
Japan	91,281	225,437	315,392	225,403	364,003	263,473	279,961	261,672	280,873	108,170	-61.49
New Zealand	-	-	-	-	-	-	3,597	-	-	-	..
North Korea	23,295	-	-	-	4,790	1,755	11,181	-	-	-	..
Philippines	-	2,021	4,499	-	1,564	4,522	32,799	26,679	-	-	..
Singapore	15,761	29,595	3,603	-	-	10,706	19,464	6,500	-	-	..
South Korea	56,436	281,230	216,356	92,273	66,693	186,782	313,714	375,309	300,045	165,788	-44.75
Taiwan	-	-	-	-	-	-	-	-	-	38,758	..
Others	-	42,695	-	-	329	1,230	-	4,983	-	-	..

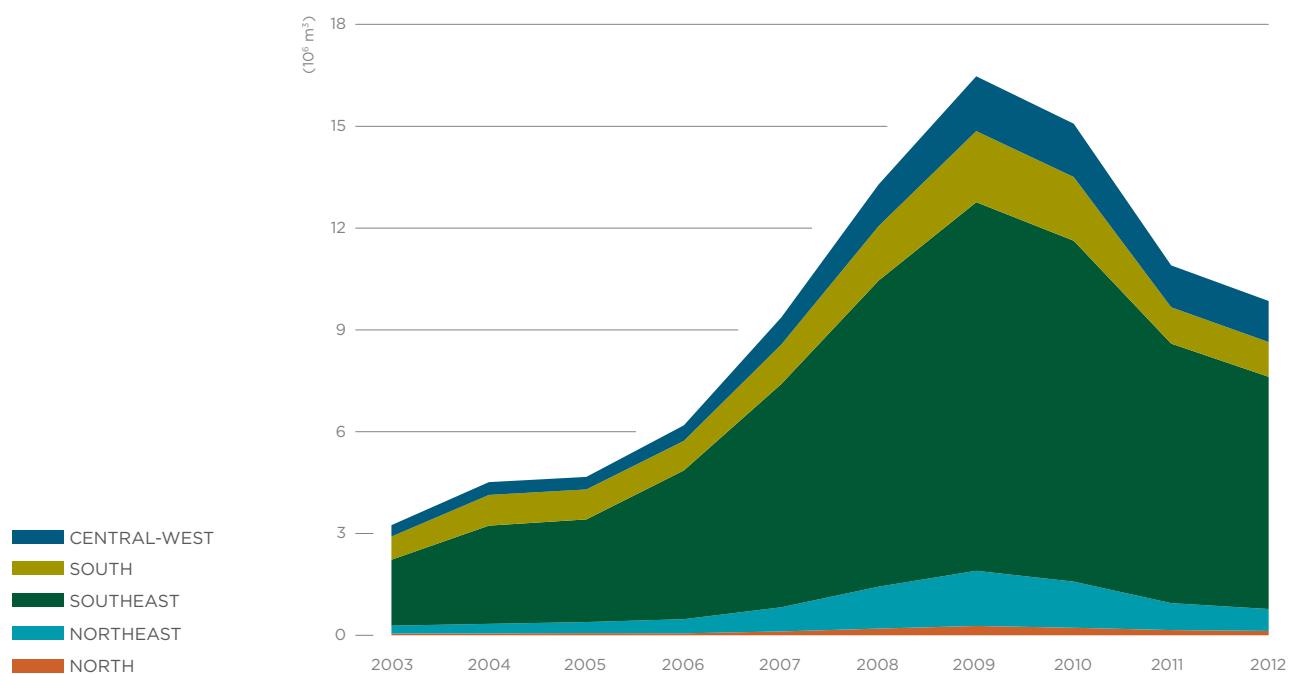
SOURCE: MDIC/Secex.

**TABLE 2.5. HYDRATED ETHANOL SALES, BY BRAZILIAN REGION AND STATE, AT DISTRIBUTION LEVEL – 2003-2012**

BRAZILIAN REGION AND STATE	HYDRATED ETHANOL SALES (10 <sup>3</sup> M <sup>3</sup> )										12/11 %
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<b>TOTAL</b>	<b>3,245.32</b>	<b>4,512.93</b>	<b>4,667.22</b>	<b>6,186.55</b>	<b>9,366.84</b>	<b>13,290.10</b>	<b>16,470.95</b>	<b>15,074.30</b>	<b>10,899.22</b>	<b>9,850.18</b>	<b>-9.62</b>
<b>North</b>	<b>50.60</b>	<b>54.98</b>	<b>62.68</b>	<b>57.77</b>	<b>113.63</b>	<b>197.77</b>	<b>275.85</b>	<b>221.36</b>	<b>154.07</b>	<b>129.35</b>	<b>-16.05</b>
Rondônia	11.94	12.74	13.63	10.62	21.53	40.58	57.19	40.08	26.51	19.70	-25.70
Acre	3.65	3.75	4.00	4.14	6.37	9.51	11.95	9.49	8.58	5.75	-33.07
Amazonas	12.56	13.53	19.02	16.27	32.50	54.70	79.60	54.88	40.52	40.07	-1.11
Roraima	0.57	0.58	0.74	1.30	2.26	2.87	2.91	2.76	2.49	1.93	-22.44
Pará	8.83	10.51	10.81	10.37	17.75	31.55	46.19	46.97	33.57	30.72	-8.49
Amapá	0.88	0.77	0.89	0.93	1.45	2.77	8.30	6.72	4.93	3.31	-32.89
Tocantins	12.17	13.09	13.60	14.16	31.76	55.78	69.71	60.46	37.47	27.88	-25.59
<b>Northeast</b>	<b>233.85</b>	<b>282.56</b>	<b>328.33</b>	<b>417.41</b>	<b>712.96</b>	<b>1,235.70</b>	<b>1,625.37</b>	<b>1,360.03</b>	<b>793.48</b>	<b>645.64</b>	<b>-18.63</b>
Maranhão	8.60	8.26	11.27	16.59	49.10	107.36	142.65	88.46	35.20	23.84	-32.28
Piauí	15.45	16.22	14.97	14.04	19.44	28.27	33.11	19.25	13.86	15.98	15.30
Ceará	34.24	35.62	40.50	66.10	107.88	152.94	174.59	157.51	113.61	93.42	-17.77
Rio Grande do Norte	18.01	23.36	26.50	33.37	67.38	94.71	98.37	79.16	55.27	46.05	-16.68
Paraíba	30.45	32.05	34.03	36.60	63.59	89.66	112.98	86.56	58.02	44.72	-22.93
Pernambuco	43.30	69.22	93.53	107.51	163.31	280.71	365.49	315.41	184.82	163.34	-11.62
Alagoas	20.05	23.52	26.90	34.90	51.46	83.10	104.51	76.10	53.24	39.55	-25.70
Sergipe	13.88	14.76	13.52	12.77	16.85	29.43	52.50	39.23	25.25	21.12	-16.33
Bahia	49.87	59.55	67.11	95.53	173.95	369.51	541.17	498.36	254.23	197.61	-22.27
<b>Southeast</b>	<b>1,941.27</b>	<b>2,893.98</b>	<b>3,023.31</b>	<b>4,381.77</b>	<b>6,578.10</b>	<b>9,022.76</b>	<b>10,860.08</b>	<b>10,044.63</b>	<b>7,646.56</b>	<b>6,841.20</b>	<b>-10.53</b>
Minas Gerais	374.26	420.90	391.48	371.41	602.74	957.20	1,204.43	838.16	568.76	524.09	-7.85
Espírito Santo	36.54	36.72	50.55	42.43	70.83	137.25	172.83	85.76	55.73	47.37	-15.00
Rio de Janeiro	98.18	109.82	180.53	224.25	359.40	677.06	872.81	746.46	531.76	435.28	-18.14
São Paulo	1,432.30	2,326.54	2,400.75	3,743.68	5,545.12	7,251.25	8,610.00	8,374.26	6,490.31	5,834.46	-10.11
<b>South</b>	<b>683.83</b>	<b>904.65</b>	<b>883.41</b>	<b>872.40</b>	<b>1,163.95</b>	<b>1,605.38</b>	<b>2,094.71</b>	<b>1,878.49</b>	<b>1,071.58</b>	<b>1,024.50</b>	<b>-4.39</b>
Paraná	377.08	538.76	518.24	520.58	701.25	904.33	1,193.03	1,347.00	811.37	814.62	0.40
Santa Catarina	155.00	173.87	175.27	193.06	242.40	376.16	498.65	290.59	123.08	94.66	-23.09
Rio Grande do Sul	151.75	192.01	189.90	158.76	220.30	324.89	403.03	240.89	137.12	115.22	-15.98
<b>Central-West</b>	<b>335.77</b>	<b>376.76</b>	<b>369.50</b>	<b>457.19</b>	<b>798.20</b>	<b>1,228.50</b>	<b>1,614.95</b>	<b>1,569.79</b>	<b>1,233.53</b>	<b>1,209.49</b>	<b>-1.95</b>
Mato Grosso do Sul	61.18	71.21	71.59	65.29	105.47	166.28	207.98	168.27	105.79	90.76	-14.21
Mato Grosso	40.02	59.25	70.98	72.47	107.20	276.85	393.94	416.31	338.64	371.86	9.81
Goiás	145.39	170.10	149.38	238.58	435.31	610.59	773.68	851.08	705.07	688.74	-2.32
Distrito Federal	89.17	76.20	77.56	80.86	150.22	174.78	239.35	134.13	84.02	58.13	-30.81

SOURCE: ANP/SAB. Up to 2006, data as per Ordinance CNP No. 221/1981. Since 2007, data as per Ordinance ANP No. 17/2004.

NOTE: Up to 2006 data include distributors sales and their own consumption. Since 2007, data include solely distributors sales.

**FIGURE 2.2. HYDRATED ETHANOL SALES, BY REGION, AT DISTRIBUTION LEVEL – 2003-2012**

SOURCE: ANP/SAB (Table 2.5).

## 2.2 Biodiesel

**TABLE 2.6. NOMINAL CAPACITY OF BIODIESEL<sup>1</sup> (B100), BY PLANT - 2012**

PLANT	LOCATION (STATE)	NOMINAL CAPACITY (M <sup>3</sup> /YEAR)
<b>TOTAL</b>		<b>20,567.8</b>
Abdiesel	Araguari/MG	6.0
Abdiesel	Varginha/MG	2.4
ADM	Rondonópolis/MT	1,352.0
ADM	Joaçaba/SC	510.0
Agreco	Alto Araguaia/MT	660.0
Agropalma	Belém/PA	80.0
Amazonbio	Jí Paraná/RO	90.0
Araguassú	Porto Alegre do Norte/MT	100.0
Barralcool	Barra do Bugres/MT	190.5
Beira Rio	Terra Nova do Norte/MT	12.0
Bianchini	Canoas/RS	900.0
Big Frango	Rolândia/PR	6.0
Binatural	Formosa/GO	450.0
Bio Brazilian Italian Oil	Barra do Garças/MT	98.0
Bio Óleo	Cuiabá/MT	150.0
Bio Petro	Araraquara/SP	194.4
Bio Vida	Várzea Grande/MT	18.0
Biobrax	Una/BA	98.0
Biocamp	Campo Verde/MT	300.0
Biocar	Dourados/MS	30.0
Bionasa	Porangatu/GO	653.0
Bionorte	São Miguel do Araguaia/GO	94.7
Biopar	Rolandia/PR	120.0
Biopar	Nova Marilândia/MT	100.0
Biosep	Três Pontas/MG	36.0
Biotins	Paráíso de Tocantins/TO	81.0
Bioverde	Taubaté/SP	503.3
Brasil Ecodiesel	São Luís/MA	360.0
Bsbios	Passo Fundo/RS	444.0
Bsbios Marialva	Marialva/PR	353.0
Bunge	Nova Mutum/MT	413.8
Camera	Ijuí/RS	650.0
Camera	Rosário do Sul/RS	360.0
Caramuru	São Simão/GO	625.0
Caramuru	Ipameri/GO	625.0
Cargill	Três Lagoas/MS	700.0
Cesbra	Volta Redonda/RJ	166.7
Comanche	Simões Filho/BA	335.0
Coomisa	Sapezal/MT	12.0
Cooperbio	Cuiabá/MT	460.0
Cooperfeliz	Feliz Natal/MT	10.0
Delta	Rio Brilhante/MS	300.0
Fertibom	Catanduva/SP	333.3
Fiagril	Lucas do Rio Verde/MT	563.0
Granol	Anápolis/GO	1,033.0
Granol	Cachoeira do Sul/RS	933.3
Granol	Porto Nacional/TO	360.0
Grupal	Sorriso/MT	120.0
Innovatti	Mairinque/SP	30.0
JBS	Colider/MT	100.0
JBS	Lins/SP	560.2
Minerva	Palmeiras de Goiás/GO	45.0
Oleoplan	Veranópolis/RS	1,050.0
Olfar	Erechim/RS	600.0
Orlândia	Orlândia/SP	150.0
Ouro Verde	Rolim de Moura/RO	9.0
Petrobras	Candeias/BA	603.4
Petrobras	Montes Claros/MG	422.7
Petrobras	Quixadá/CE	301.7
Rondobio	Rondonópolis/MT	10.0
SPBio	Sumaré/SP	83.3
SSIL	Rondonópolis/MT	50.0
Tauá Biodiesel	Nova Mutum/MT	100.0
Transportadora Caibiense	Rondonópolis/MT	100.0
V-Biodiesel	Iraquara/BA	360.0

SOURCE: ANP/SRP, as per Ordinance ANP No. 30/2013.

<sup>1</sup>Biodiesel (B100), as per Ordinance ANP No. 14/2012.

**TABLE 2.7. PRODUCTION OF BIODIESEL<sup>1</sup>, BY BRAZILIAN REGION AND STATE – 2005-2012**

BRAZILIAN REGION AND STATE	PRODUCTION OF BIODIESEL (B100) - (M³)								12/11 %
	2005	2006	2007	2008	2009	2010	2011	2012	
<b>BRAZIL</b>	<b>736</b>	<b>69,002</b>	<b>404,329</b>	<b>1,167,128</b>	<b>1,608,448</b>	<b>2,386,399</b>	<b>2,672,760</b>	<b>2,717,483</b>	<b>1.67</b>
<b>North</b>	<b>510</b>	<b>2,421</b>	<b>26,589</b>	<b>15,987</b>	<b>41,821</b>	<b>95,106</b>	<b>103,446</b>	<b>78,654</b>	<b>-23.97</b>
Rondônia	-	-	99	228	4,779	6,190	2,264	8,406	271.25
Pará	510	2,421	3,717	2,625	3,494	2,345	-	-	..
Tocantins	-	-	22,773	13,135	33,547	86,570	101,182	70,247	-30.57
<b>Northeast</b>	<b>156</b>	<b>34,798</b>	<b>172,200</b>	<b>125,910</b>	<b>163,905</b>	<b>176,994</b>	<b>176,417</b>	<b>293,573</b>	<b>66.41</b>
Maranhão	-	-	23,509	36,172	31,195	18,705	-	-	..
Piauí	156	28,604	30,474	4,548	3,616	-	-	-	..
Ceará	-	1,956	47,276	19,208	49,154	66,337	44,524	62,369	40.08
Bahia	-	4,238	70,942	65,982	79,941	91,952	131,893	231,204	75.30
<b>Southeast</b>	<b>44</b>	<b>21,562</b>	<b>37,023</b>	<b>185,594</b>	<b>284,774</b>	<b>420,328</b>	<b>379,410</b>	<b>255,733</b>	<b>-32.60</b>
Minas Gerais	44	311	138	-	40,271	72,693	76,619	80,100	4.54
Rio de Janeiro	-	-	-	-	8,201	20,177	7,716	17,046	120.92
São Paulo	-	21,251	36,885	185,594	236,302	327,458	295,076	158,587	-46.26
<b>South</b>	<b>26</b>	<b>100</b>	<b>42,708</b>	<b>313,350</b>	<b>477,871</b>	<b>675,668</b>	<b>976,928</b>	<b>926,611</b>	<b>-5.15</b>
Paraná	26	100	12	7,294	23,681	69,670	114,819	120,111	4.61
Rio Grande do Sul	-	-	42,696	306,056	454,189	605,998	862,110	806,500	-6.45
<b>Central-West</b>	<b>-</b>	<b>10,121</b>	<b>125,808</b>	<b>526,287</b>	<b>640,077</b>	<b>1,018,303</b>	<b>1,036,559</b>	<b>1,162,913</b>	<b>12.19</b>
Mato Grosso do Sul	-	-	-	-	4,367	7,828	31,023	84,054	170.94
Mato Grosso	-	13	15,170	284,923	367,009	568,181	499,950	477,713	-4.45
Goiás	-	10,108	110,638	241,364	268,702	442,293	505,586	601,146	18.90

**SOURCE:** ANP/SPD, as per Ordinance ANP No. 17/2004.

<sup>1</sup>Biodiesel (B100), as per Ordinance ANP No. 14/2012.

## MAP 2.1. INFRASTRUCTURE FOR BIODIESEL PRODUCTION – 2012



SOURCE: ANP/SPD.

## CONVERSION FACTORS, DENSITIES AND LOWER CALORIFIC VALUES

MEAN VALUES FOR YEAR 2012				
PRODUCTS AND UNITS		CONVERSION FACTOR TO BOE	DENSITY <sup>1</sup> (T/M <sup>3</sup> )	LOWER CALORIFIC VALUE (KCAL/KG)
Anhydrous ethanol	m <sup>3</sup>	3.841	0.791	6,750
Hydrated ethanol	m <sup>3</sup>	3.666	0.809	6,300
Asphalt	m <sup>3</sup>	7.219	1.025	9,790
Pure biodiesel (B100)	m <sup>3</sup>	5.698	0.880	9,000
Green petroleum coke	m <sup>3</sup>	6.277	1.040	8,390
Dry natural gas	10 <sup>3</sup> m <sup>3</sup>	4.685	0.001	8,800
Wet natural gas	10 <sup>3</sup> m <sup>3</sup>	5.286	0.001	9,930
Refinery fuel gas	10 <sup>3</sup> m <sup>3</sup>	4.714	0.001	8,400
Gasoline A	m <sup>3</sup>	5.552	0.742	10,400
Gasoline C	m <sup>3</sup>	5.535	0.754	10,200
Aviation gasoline	m <sup>3</sup>	5.536	0.726	10,600
LPG	m <sup>3</sup>	4.408	0.552	11,100
NGL	m <sup>3</sup>	4.469	0.580	10,710
Naphtha	m <sup>3</sup>	5.368	0.702	10,630
Bunker	m <sup>3</sup>	6.989	1.013	9,590
Diesel oil	m <sup>3</sup>	6.191	0.852	10,100
Fuel oil <sup>2</sup>	m <sup>3</sup>	6.989	1.013	9,590
Lubricating oil	m <sup>3</sup>	6.370	0.875	10,120
Other energy products	m <sup>3</sup>	6.340	0.864	10,200
Other non-energy products	m <sup>3</sup>	6.340	0.864	10,200
Paraffin	m <sup>3</sup>	6.141	0.820	10,410
Imported oil	m <sup>3</sup>	6.229	0.850	10,190
Domestic oil (offshore and onshore)	m <sup>3</sup>	6.484	0.884	10,190
Exported oil (Marlim)	m <sup>3</sup>	6.562	0.895	10,190
Jet fuel	m <sup>3</sup>	5.978	0.799	10,400
Lamp kerosene	m <sup>3</sup>	5.978	0.799	10,400
Solvent	m <sup>3</sup>	5.624	0.741	10,550

SOURCE: ANP/SPD.

<sup>1</sup>At 20 °C temperature and 1 atm for natural gas as well as oil and natural gas products. <sup>2</sup>Fuel oil ATE and BTE.

### Prefixes of SI Units

(k) quilo = 10<sup>3</sup>

(M) mega = 10<sup>6</sup>

(G) giga = 10<sup>9</sup>

(T) tera = 10<sup>12</sup>

(P) peta = 10<sup>15</sup>

(E) exa = 10<sup>18</sup>

### Relationships between Units

1 m<sup>3</sup> = 6,28981 barrels

1 barrel = 0,158987 m<sup>3</sup>

1 joule (J) = 0,239 cal

1 BTU = 252 cal

1 bep = 1.390 Mcal

1 tep = 10.000 Mcal

## GLOSSARY

**Anhydrous Ethanol:** obtained in Brazil through the fermentation of sugar cane molasses. It has an alcoholic content of 99.3° INPM. The anhydrous ethanol is used in mixtures with gasoline A, for producing gasoline type C, in proportions defined by applicable law.

**Apparent Consumption:** the summation of parcels referring to production and imports, minus the exported volume.

**Bbl/d:** barrels per day.

**Bidding Round:** denomination for the several international public bids promoted by ANP, aiming the granting of concessions to the winning bidders (previously qualified companies) for exploring and producing oil and natural gas in pre-defined areas (blocks).

**Biodiesel:** fuel composed by alkyl esters, derived from vegetal oils or animal fats, according to the specification of Ordinance ANP No. 14/2012.

**Boe:** “barrel of oil equivalent”. A measurement unit for equivalent energy, per convention equal to 1,390 Mcal.

**Calorie:** this book adopts the calorie at 15 °C (cal<sub>15</sub>). 1 cal<sub>15</sub> is the amount of thermal energy required to heat 1g of air-free water from 14.5 °C to 15.5 °C under a constant pressure of 101.325 kPa (quiloPascals). Conversion factor: 1 cal<sub>15</sub> = 4.1855 J.

**Concession:** an administrative contract through which ANP grants to companies that meet the technical, economic and legal requirements the right to explore and produce oil and natural gas in the Brazilian territory.

**Concessionaire:** a company incorporated under Brazilian law, with main office and management located in Brazil that was granted a concession contract by ANP for the exploration and production of oil and natural gas in a sedimentary basin located in the Brazilian territory.

**Dew Point Plant (DPP):** plant that uses Joule-Thomson effect to adjust dew point of processed gas.

**Energy Oil Products:** oil products mainly utilized as fuels, which release energy and/or light when burned. That denomination covers the following oil products: LPG, gasoline A, aviation gasoline, lamp fuel, jet fuel, diesel oil, fuel oil and coke.

**Ethanol:** composed of two carbon atoms, five hydrogen atoms and one hydroxyl group (C<sub>2</sub>H<sub>5</sub>OH), it is obtained in Brazil through the fermentation of sugar cane molasses. Used as a fuel in Otto cycle internal combustion engines, mainly on road transportation.

**Gasoline A:** Fuel produced by the process of oil refining or formulated by mixing currents from the petroleum refining and natural gas processing, for vehicles equipped with automotive Otto cycle engines, free of oxygenated components. ANP Ordinance No. 57/2011.

**Gasoline C:** gasoline composed of a mixture of gasoline A and anhydrous ethanol, whose proportions are defined by applicable law. ANP Ordinance No. 57/2011.

**Hydrated Ethanol:** motor vehicle fuel obtained in Brazil through the fermentation of sugar cane molasses. When free from hydrocarbons, it has an alcoholic content between 92.6° and 93.8° INPM. Used in Otto cycle internal combustion engines, specifically in alcohol powered vehicles for road transportation.

**INPM:** Represents the alcohol percentage in mass in the mixture (% m/m) used in Brazil.

**Liquefied Petroleum Gas (LPG):** natural gas cooled to temperatures below -160 °C for transfer and storage in liquid state. Mainly composed by methane, although it may have minimum quantities of ethane, propane, nitrogen and/or other components generally found in natural gas. ANP Ordinance No. 9/2000.

**Liquid Fractionation Plant (LFP):** plant designed to separate NGLs components (ethane, propane, butane, iso-butane and C<sub>5</sub><sup>+</sup>), consisting of boiling off of hydrocarbons one by one.

**Liquid Recovery Plant (LRP):** plant designed to process natural gas in order to re-

cover NGLs. That process is required to meet pipeline dewpoint specifications.

**Methanol:** chemical compound whose chemical formula is CH<sub>3</sub>OH. It is liquid and inflammable, besides possessing an invisible flame and freezing point of around -98 °C. Methanol has large scale utilization in plastics industry and in reactions of pharmacological importance. Concerning biofuels industry, methanol is used in transesterification of vegetal oils and animal grasses, in order to produce biodiesel.

**Natural Gas Condensate Processing Plant (NGCPP):** plant that separates natural gas condensate from a raw natural gas.

**Natural Gas Liquids (NGL):** hydrocarbons in natural gas removed from gas as liquids, in lease separators, field facilities, NGPPs or in pipeline transfers, according to Ordinance ANP No. 118/2000.

**Natural Gas Processing Plant (NGPP):** plant designed to separate heavy components (propane and butane) from natural gas.

**Natural Gas Refrigeration Plant (NGRP):** Plant that separates natural gas from natural gas liquids.

**Non-Energy Oil Products:** oil products that, although having significant energy content, are used for non-energy aims. That denomination covers the following oil products: greases, lubricants, paraffin, asphalts, solvents, coke, naphtha, aromatic extract, vacuum gas oil, light cycle oil, atmospheric residue, diluents, n-paraffin, others petroleum oils, bituminous minerals, as well as other oil products of lesser importance.

**Operator company:** enterprise that is legally designated by the consortium for conducting and executing all the operations and activities in the concession area, according to the provisions established in the concession contract signed by ANP and the concessionaire.

**Petroleum Law:** Law No. 9478, of August 6<sup>th</sup>, 1997.

**Refining capacity:** processing capacity for which an industrial plant was designed, measured in bbl/d or m<sup>3</sup>/d.

**per Operation Day:** maximum load volume that the primary distillation plant(s) can process in a 24-hour period, when operating at full capacity, under optimal and stable conditions in terms of raw materials, products and downstream plants, without any maintenance interruptions scheduled in any of the components of the refinery's production system. It is expressed in operation m<sup>3</sup>/d or bbl/stream day.

**Refining Capacity per Calendar Day:** maximum load volume, expressed in a 24-hour period, that the primary distillation plant(s) can process, under average and normal operating conditions, during the complete cycle of plant maintenance activities. This capacity takes into account any reduction in capacity of all the refinery's plants in continuous operation resulting from limitations that may delay, interrupt or reduce production. It is expressed in m<sup>3</sup>/calendar day or bbl/calendar day.

**Round Zero:** denominates the act of signing, under the provisions of the Petroleum Law, article 34, on August 6<sup>th</sup> 1998, of licensing contracts between ANP and Petrobras for 397 blocks that were already under exploration, development or production by the state-owned company at the time the Petroleum Law was enforced.

**Toe:** "ton of oil equivalent". A measuring unit for equivalent energy, per convention, equal to 10,000 Mcal.

**Shale:** generally clay sedimentary rock, organic material (kerogen) – rich. When submitted to high temperatures, shale releases oil, water and gas, as well as a carbon. Solid residual.

## LIST OF SOURCES

**Abast - Abastecimento, Marketing e Comercialização**

**Petrobras - Petróleo Brasileiro S.A.**

**MME - Ministério de Minas e Energia**

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**Brazilian Oil, Natural Gas and Biofuel Statistical Book 2010**

**ANP - Agência Nacional do Petróleo, Gás Natural e Biocombustíveis**

**MME - Ministério de Minas e Energia**

Av. Rio Branco, 65 – 12<sup>th</sup> to 22<sup>nd</sup> floors  
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[www.anp.gov.br](http://www.anp.gov.br)

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**BP - BP Statistical Review of World Energy International Headquarters**

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**DCAA - Departamento da Cana de Açúcar e Agroenergia**

**SPAE - Secretaria de Produção e Agroenergia**

**MAPA - Ministério da Agricultura, Pecuária e Abastecimento**

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**Platt's Crude Oil Marketwire**

**Global Headquarters**

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[www.manguinhosrefinaria.com.br](http://www.manguinhosrefinaria.com.br)

**Secex - Secretaria de Comércio Exterior**

**MDIC - Ministério do Desenvolvimento, Indústria e Comércio Exterior**

EQN 102/103, Asa Norte

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[www.desenvolvimento.gov.br/comercio-exterior](http://www.desenvolvimento.gov.br/comercio-exterior)

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**SIX - Superintendência de Industrialização do Xisto**

**Petrobras - Petróleo Brasileiro S.A.**

**MME - Ministério de Minas e Energia**

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[www2.petrobras.com.br/minisite/refinarias/petrosix/portugues/processo/index.asp](http://www2.petrobras.com.br/minisite/refinarias/petrosix/portugues/processo/index.asp)

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