



**Ministry of
Mines and Energy**



OIL AND NATURAL GAS SECTOR IN BRAZIL

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Production of Oil and Natural Gas**



PLAN PRESENTATION

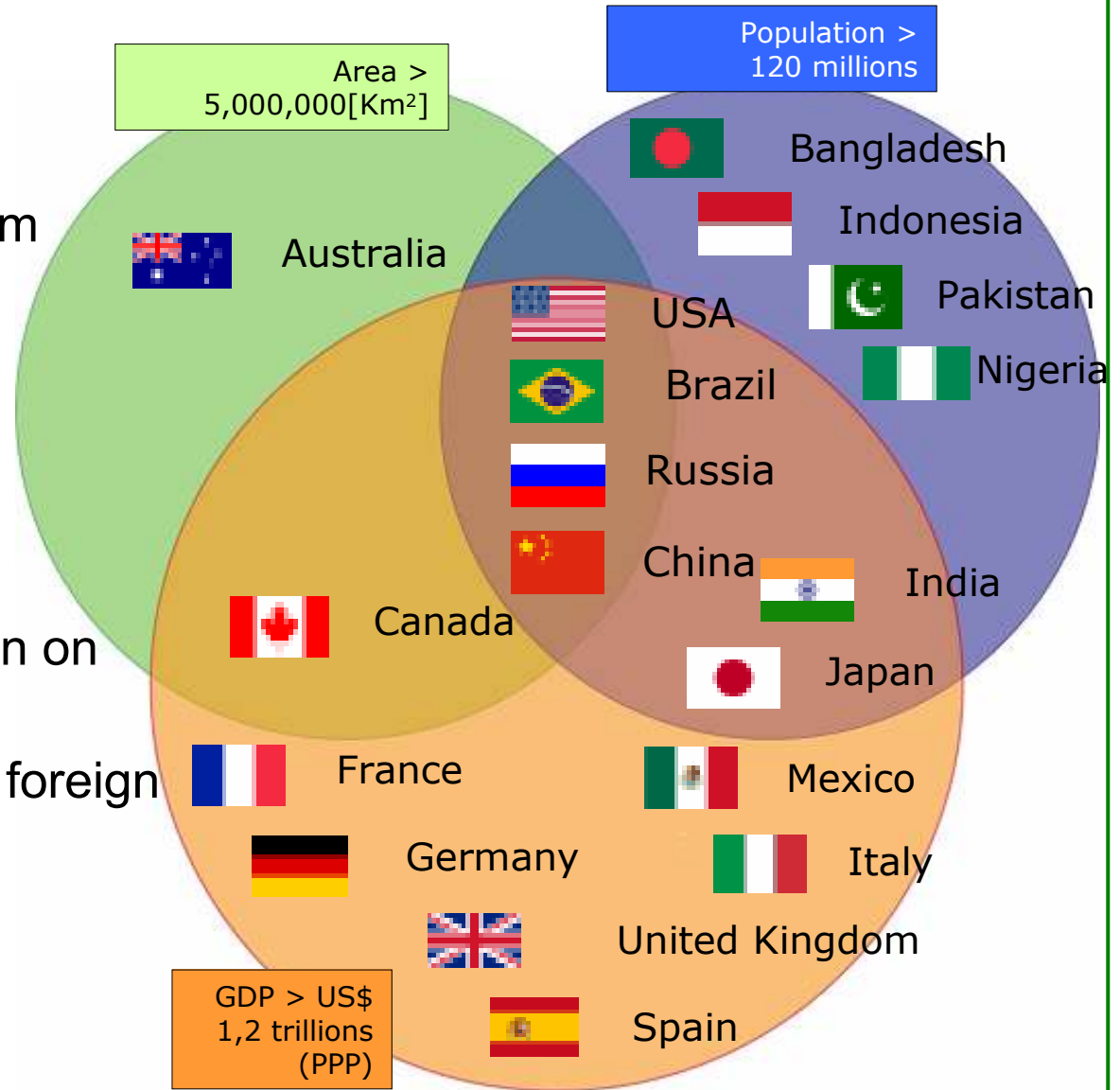
- *INTRODUCTION*
- *BRAZILIAN ENERGY MATRIX*
- *BRAZILIAN OIL AND GAS SECTOR OVERVIEW*
- *PRE-SALT PROVINCE*
- *PRE-SALT: PROPOSAL FOR REGULATION'S MODEL*
- *OPPORTUNITIES FOR INVESTMENTS*
- *FINAL REMARKS*



INTRODUCTION

BRAZIL

- Area – 8,547,403.5 sq km
- Population -190 million
- GDP ~ US\$ 1.5 trillion
- Tenth world economy
- Stable economically and politically
- More than US\$ 240 billion on international reserves
- US\$ 45.1 billion in direct foreign investments
- Investment grade



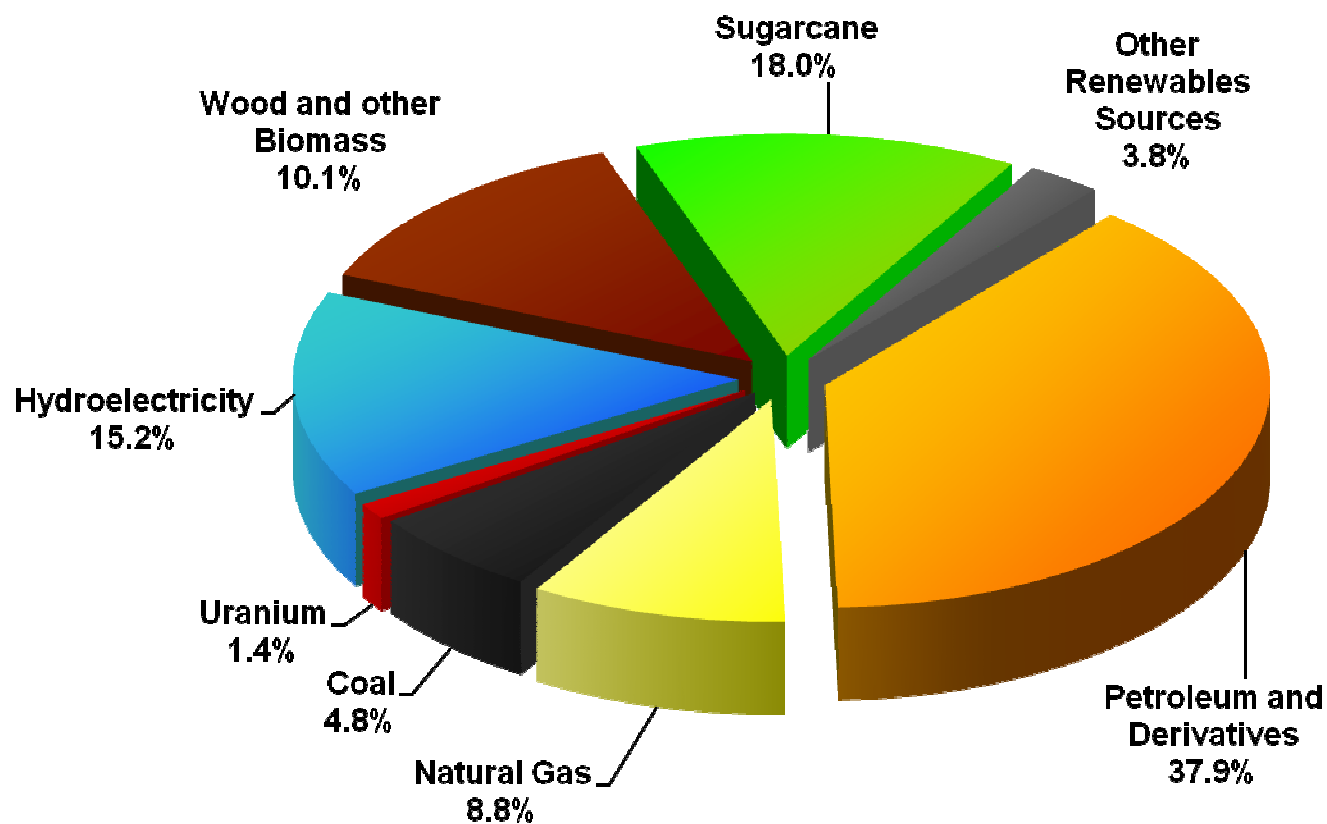


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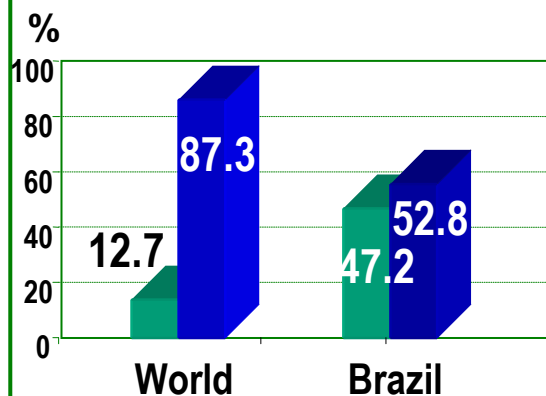
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BRAZILIAN ENERGY MATRIX - 2009



**RENEWABLE
SOURCES
47.2 %**



**243.7
MILLIONS TOE**

RENEWABLE
NON-RENEWABLE

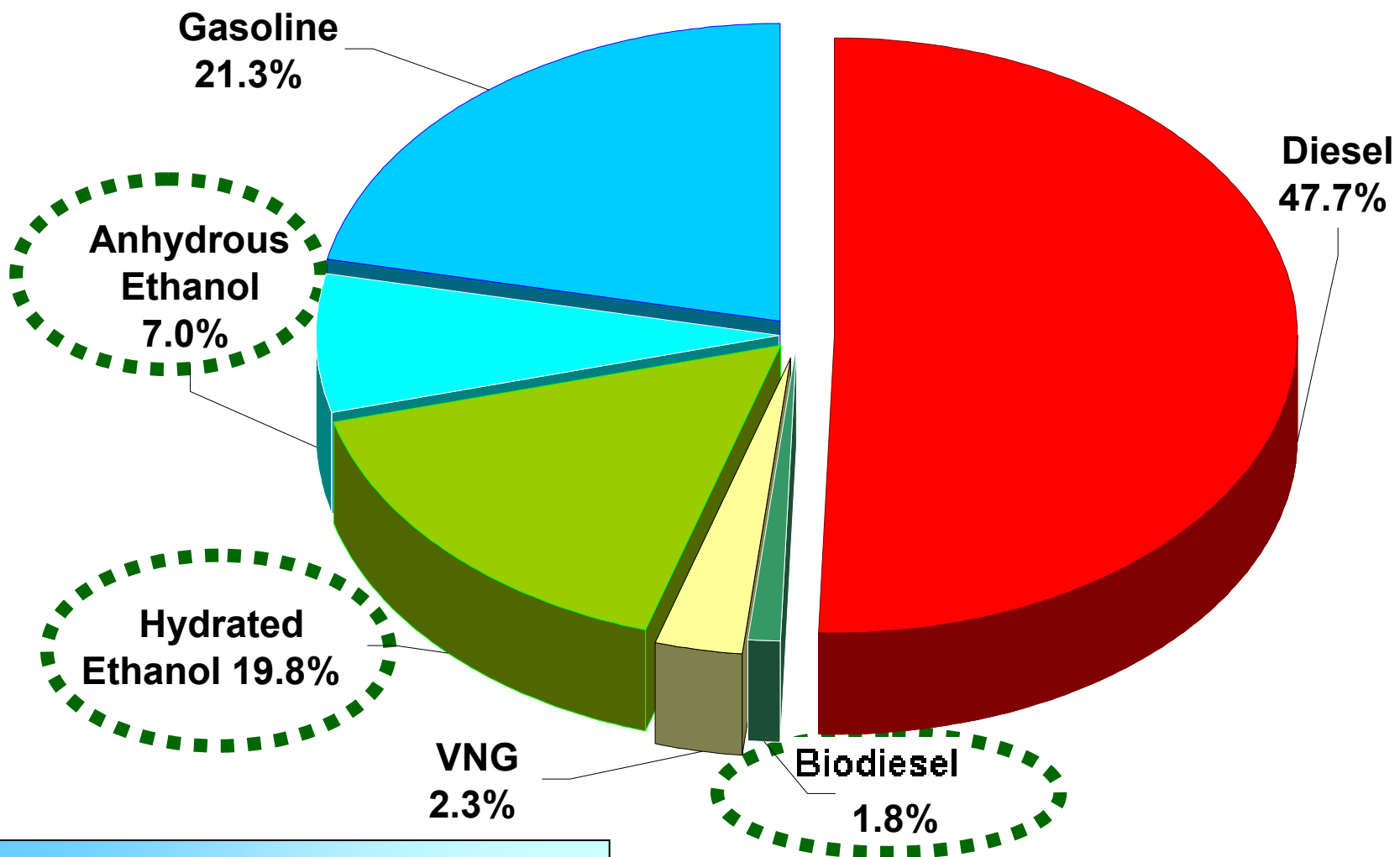
Source: Brazilian Energy Balance (2010)

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VEHICULAR FUEL CHART – 2009

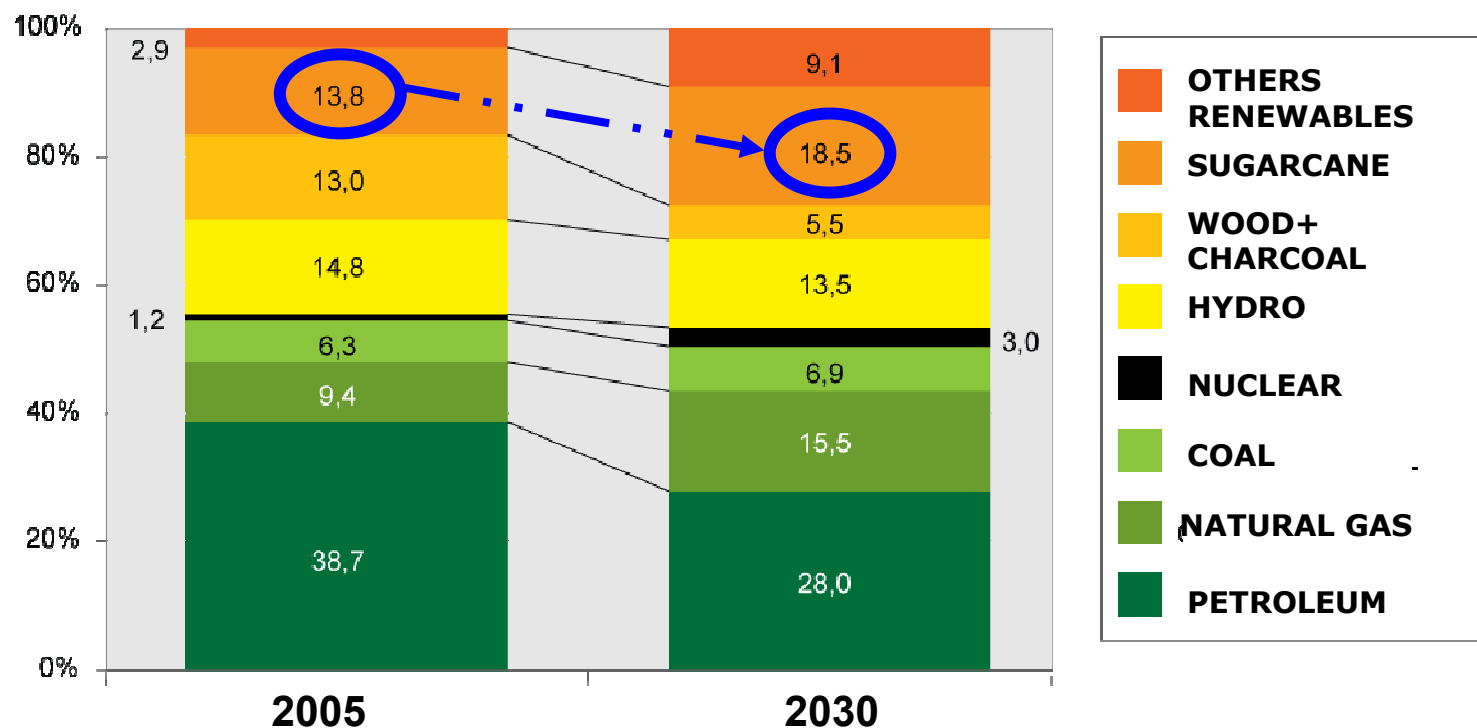


Gasoline C:
Gasoline + Anhydrous Ethanol
 $21.3 + 7.0 = 28.3\%$

Ethanol (Total)
 $7.0 + 19.8 = 26.8\%$



BRAZILIAN ENERGY MATRIX: PERSPECTIVE FOR 2030



Renewable: **Brazil:** 44.5 % (219 mi toe)

45.6% (557 mi toe)

World: 14.0 %

OECD: 6.0 %



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OIL AND GAS OVERVIEW

- Regulatory stability: more than 10 years from Petroleum Law (Law 9.478/97), which established sector politics and includes National Petroleum, Natural Gas and Biofuels National Agency – ANP
- Gas Law (Law 11.909/09)
- Brazil is among the countries with large amount of seismic data
- It is one of countries that had major reserves enhancement in the last years
- Recent discoveries in the Pre-salt sediments of Campos, Santos and Espirito Santo basins
- Proposal for pre-sal legal framework
- 76 economic groups on E&P activities(37 foreign companies)
- Solid local industry with materials, equipments and services available
- Developed national market (consumption of more than 100 billion liters of oil derivates per year)



OIL & GAS STATISTICS

Petroleum: Expected Investments E&P: US\$ 92 billion - 2009-2013

➤ Proved Reserves (December, 31 - 2009):	12.85 billion barrels
➤ Production (2008):	2.03 million barrels/day
➤ Consumption (2008):	1.90 million barrels/day
➤ Imports (2008):	0.393 million barrels/day
➤ Exports (2008):	0.526 million barrels/day
➤ Refine capacity (2008):	2 million barrels/day
➤ Reserve / Production Rate - R/P:	17.4 years

Natural Gas: Expected Investments: US\$ 8.2 billion - 2009-2013

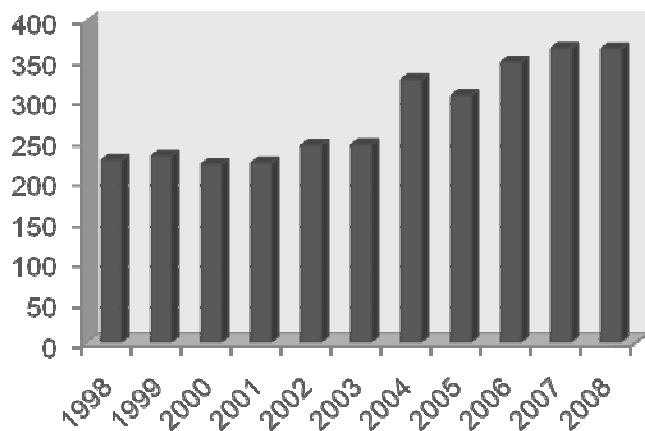
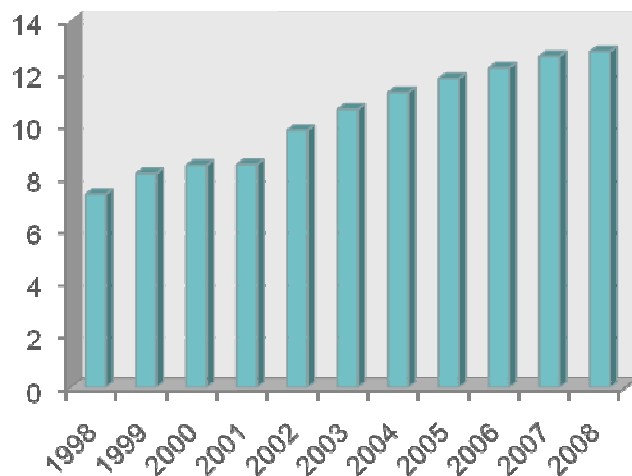
➤ Proved Reserves (December, 31 - 2009):	366.5 billion m ³ (12.9 tcf)
➤ National Production of NG (2009):	57.9 million m ³ /day
➤ Consumption in the Process, Reinjection, Flare (2009):	35.8 million m ³ /day
➤ National Gas made available to the market (2009):	22.1 million m ³ /day
➤ Imports (transport consumption deleted - 2009):	22.4 million m ³ /day
➤ Total supply of natural gas (2009):	44.4 million m ³ /day
➤ Reserve / Production Rate - R/P:	21.8 years



HISTORICAL

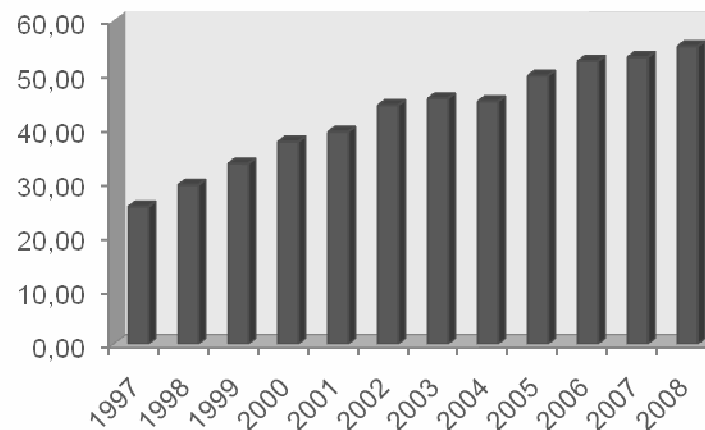
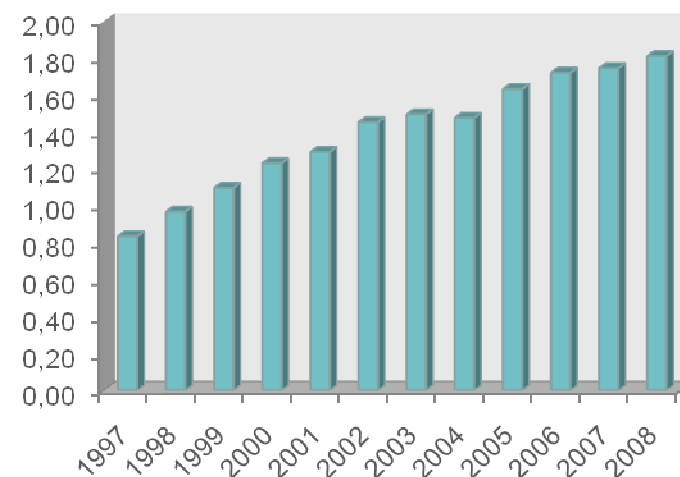
Proved Reserves

Petroleum - 12.8 billion barrels | Gas - 364 billion m³



Production

1.89 thousand barrels/day | 59 million m³/day





NINE ROUNDS: 1999-2008

Bidding rounds results:

- ❑ More than US\$ 5.4 billion in signature bonus
- ❑ R\$ 80,7 billion in exploration predicted investments (Minimum Exploratory Program)
- ❑ 745 awarded blocks
- ❑ 76 E&P concessionaries
 - ❖ 39 from Brazil
 - ❖ 37 foreign companies from 20 different countries

- Sedimentary basins: 6.4 million sq km
- Granted area: 486 thousand sq km (~7.5%)
 - Petrobras operates 257 blocks



ENERGETIC POLICIES

- Intensify exploratory activity aiming to improve knowledge about Brazilian sedimentary basins in order to enhance national oil and natural gas reserves
- Increase oil and gas production in order to support national consumption necessities, enhancing crude and derivatives exportation
- Develop little oil companies to medium ones
- Attract investments and new business for the national oil, natural gas and renewable fuels sectors
- Enhance acquisition of national goods and services by the petroleum industry
- Follow environmental rules



PLANNING OF OIL AND GAS SECTOR

- National Energetic Policy Council - CNPE
 - Establishment of national policies related to energetic matters.
- Ministry of Mines and Energy role
 - Responsible for planning and monitoring policies issued by CNPE to bidding rounds for oil and gas exploration, which are conducted by the National Petroleum, Natural Gas and Biofuels Agency-ANP.
- ANP role
 - Implement policies for the national petroleum industry;
 - Responsible for regulation, contracting, and supervision of commercial activities in the oil industry;
 - Prepare tender protocols and promote biddings for concession rights to explore, develop and produce oil and gas;
 - Supervision of companies performance.



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THE PRE-SALT AREA

- The new Brazilian Continental Platform oil province, called Pre-salt, extends from the coast of Espírito Santo to São Paulo states.
- Total area is about 149 thousand square kilometers
- From this total 42 thousand sq km(28%) were allocated to exploitation and production by the concession model.
- 72% of Pre-Salt, 107 thousand sq km, are hold by the Union and will be contracted by the Production Sharing Model
- The Pre-Salt occurrence area, whose oil potential is superior than any other so far discovered in Brazil, represent about 2.3% of Brazilian sedimentary basins, which total is 6.4 million sq km.

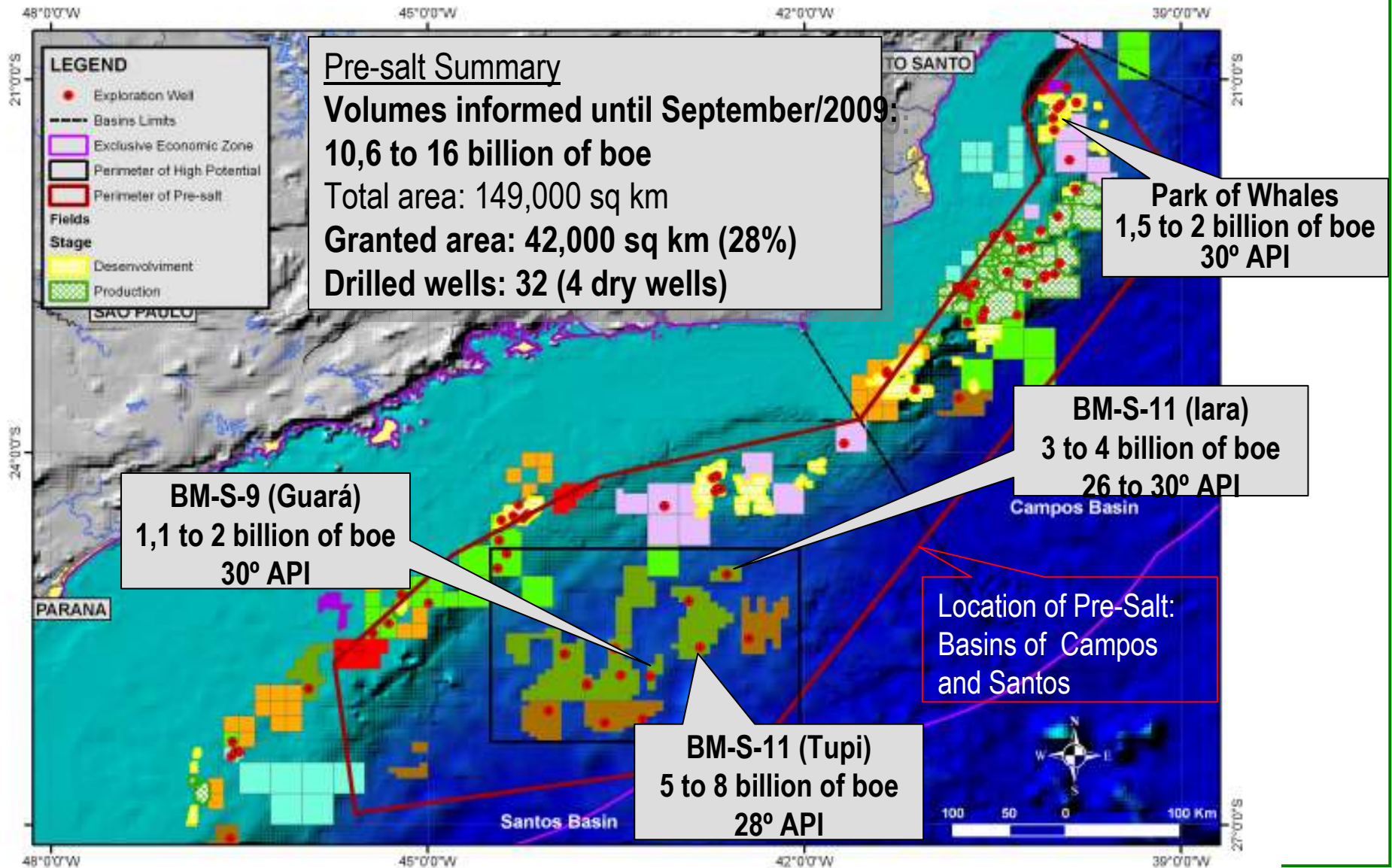


THE PRE-SALT AREA

- The greatest potential of the new province is concentrated in Santos Basin, coast of Sao Paulo and Rio de Janeiro states, in a region of ultra deep waters, about 300 km from the shore line
- Released volumes show reserves from 10.6 to 16 billion barrels oil equivalent in only four of the announced discoveries:
 - » **Tupi (5 to 8 bi), Iara (3 to 4 bi),**
 - » **Park of Whales (1,5 to 2 bi), Guar (1,1 to 2 bi).**
- The current Brazilian reserves are approximately 12.8 billion barrels of oil, or 14 billion barrels oil equivalent
- The Pre-Salt new province will place Brazil among the ten countries with the largest reserves of oil and natural gas.

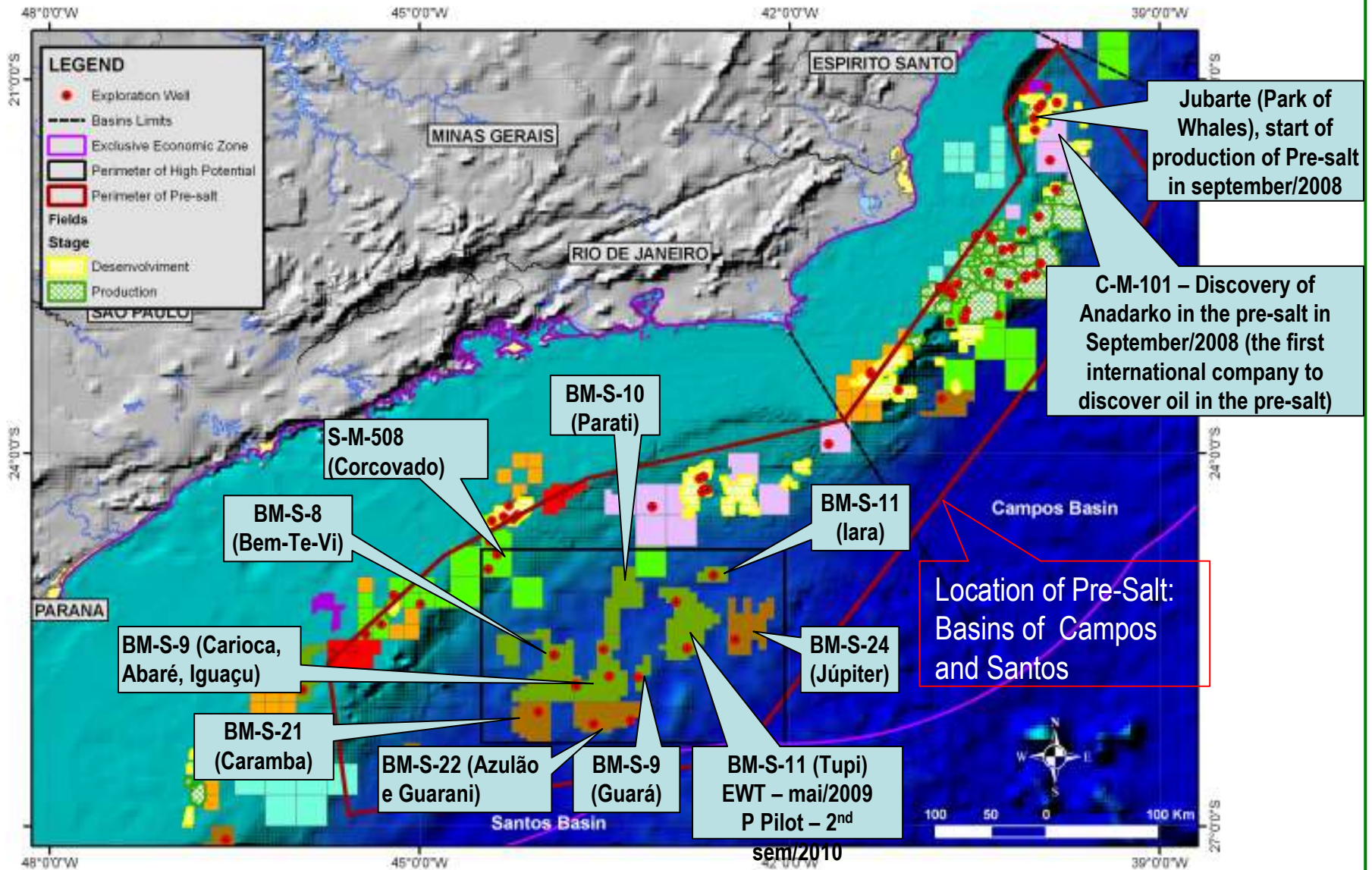


ESTIMATED RECOVERABLE VOLUMES OF DISCOVERIES IN PRE-SALT





PRE-SALT MAJOR DISCOVERIES





OIL PROVEN RESERVES

	COUNTRY	RESERVES [billion barrels]	% GLOBAL	RATE R/P [year]
1	Saudi Arabi	264,1	21,0%	66,5
2	Iran	137,6	10,9%	86,9
3	Iraq	115,0	9,1%	>100
4	Kuwait	101,5	8,1%	99,6
5	Venezuela	99,4	7,9%	>100
6	Arab Emirates	97,8	7,8%	89,7
7	Russia	79,0	6,3%	21,8
8	Libya	43,7	3,5%	64,6
9	Kazakhstan	39,8	3,2%	70,0
10	Nigeria	36,2	2,9%	45,6
11	USA	30,5	2,4%	12,4
12	Canada	28,6	2,3%	24,1
13	Qatar	27,3	2,2%	54,1
14	China	15,5	1,2%	11,1
15	Angola	13,5	1,1%	19,7
	Brazil	12,6	1,0%	18,2

Estimated position
with the Pre-Salt
8°

+ Announced
Discoveries 12°

Current Position 16°



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NEW LAWS PROPOSITIONS

- LP 5.938/2009: to establish the production sharing contracts – PSC for exploration and production of oil and natural gas in areas of high potential and low exploratory risk (Pre-salt)
- LP 5.039/2009: to establish the state company PRÉ-SAL PETRÓLEO S.A in order to represent the State interests in the PSC and the State profit-oil commercialization
- LP 5.040/2009: to establish the Social Fund in order to provide regular resources for government projects and programs in the areas of poverty mitigation and development of education, culture, science and technology and environmental sustainability
- LP 5.041/2009: to authorize the onerous assignment by the State of maximum 5 billion boe for Petrobras, aiming to capitalize the Company to carry out its projects in the Pre-salt area



PRODUCTION SHARING CONTRACTS – PSC

- Establishment of production sharing contract for the pre-salt area, on the blocks not yet granted. In the proposed model, the Government may contract directly Petrobras or, through bidding, national or international oil companies
- The current concession arrangement will be maintained for the existing contracts and for the others areas outside pre-salt
- Petrobras will be the operator on all production sharing contracts, with minimum 30% of work interest in the consortium contracted
- The operator will be responsible for conducting the exploration and production, providing the critical resources: technology (use and development), personnel and material



NEW NATIONAL OIL COMPANY

- Creation of the Brazilian Company for Oil and Natural Gas Management - PRÉ-SAL PETRÓLEO S.A (PPSA), a non-operator, with a small and highly qualified personal, to represent the Government's interest in the production share and trading contracts of oil and natural gas.
- The PPSA shall represent The Government in partnerships and Operational Committees that shall be established to manage the production share contracts.
- The PPSA's goal is to reduce the information asymmetries between the oil companies through direct action and monitoring of all activities in Exploration and Production (E&P), in particular the cost of oil production
- The PPSA shall represent the Union in unitization agreements.



SOCIAL FUND

- The creation of a Social Fund to receive the financial results from the exploration and production activity, aiming to enhance social development policies in Brazil
- The priority activities will be poverty reduction, science and technology, culture, public health, climate change mitigation and education.



ANP'S ROLE (National Petroleum Agency)

- ANP maintains all the current powers described in the Law No. 9478.
- In the Pre-Salt areas the ANP will:
 - Regulate and supervise the activities of the petroleum sector
 - Approve the exploitation, evaluation, development and production plans
 - Prepare the contracts and public announcements
 - Hold Auctions
 - Approve the individualization of the production contracts
 - Representing Union during the transition time



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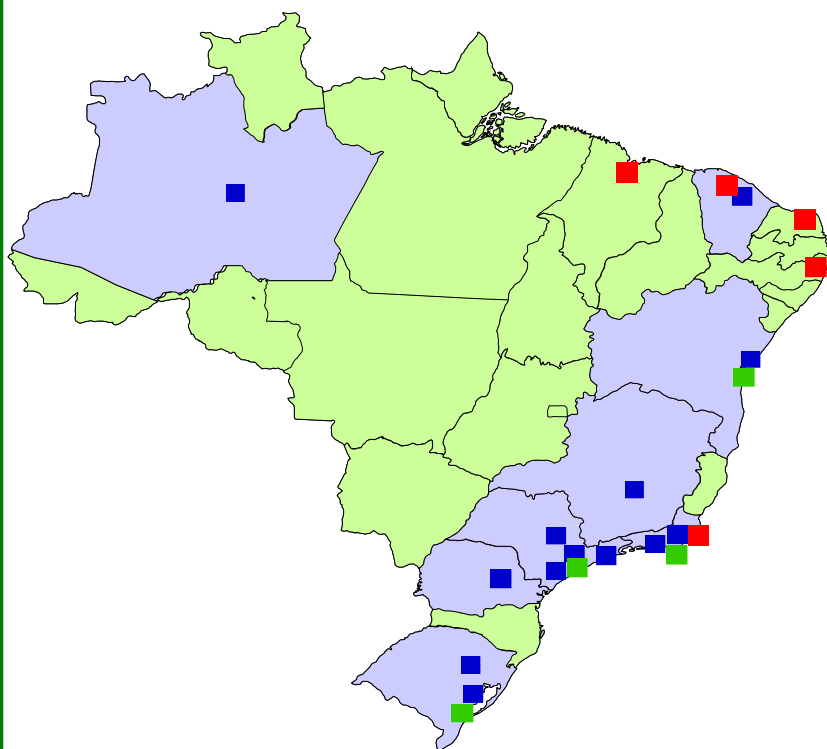
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ENHANCEMENT OF REFINE CAPACITY

PREDICTED INVESTMENTS UNTIL 2012

Refineries : US\$ 29 bi
Petrochemicals: US\$ 9 bi



■ **New Refineries**

up to 2012: **377,000 bpd**
after 2012: **900,000 bpd**

■ **Actual Refineries (13 unities)**

Installed Capacity: 2.0 million bpd

■ **Actual Petrochemical Areas (4)**

***Installed Capacity:
7.5 million ton of products / year***



LOCAL INVESTMENTS

- Local Content policy aims to enhance percentage of national companies' goods and services in petroleum industry projects
- With this policy, the Government already succeeded reactivating national naval industry
 - Construction of :
 - Production unities (SS, FPSO's)
 - Ships (Tankers, support vessels)
 - Rigs
 - Improvement of infrastructure for industry development
 - Extensive personnel training



SUPPLY OF GOODS AND SERVICES

- Despite of Local Content policy, there is necessity to import goods and services not yet provided by national companies:
 - Special submarine sphere valves
 - Offshore cranes
 - Production pipelines alloy coatings
 - Gas turbines and large gas engines
 - HCC Reactors
 - Boiler works with special alloys (reactors, towers, pressure vessels)
 - Heat exchangers working with H₂S traces
 - Structural packing for refining process towers
 - Large diesel engines



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FINAL REMARKS

- Brazil has excellent opportunities for oil and gas exploration and production, presenting growing expectations for both reserves and production
- Foreign investments in local production align with government policies for national oil industry
- Government has also policies to achieve sustainability in the oil industry, according to millennium goals
- Maintain the best environment for investments with a clear regulatory framework
- Assure the proper incentives to best practices
- Give ways to assure and respect contracts
- Induce/ facilitate the international trade



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THANK YOU VERY MUCH

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