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Challenges, Constraints and Opportunities
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Economia
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REGIONAL ENERGY INTEGRATION: A NEW WINDOW OF OPPORTUNITY?

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- Introduction
- Energy integration in Latin America
- Recent evolution of energy sector in Latin America
- Brazilian energy: an industry in transition
- A new window of opportunity for energy integration?

INTRODUCTION

- Understanding the energy integration process:
 - Initial Phase: Investment Cooperation (bilateral trade as a result of countries' cooperation for attracting investment in energy sector)
 - Mature Phase: Market Integration (trade as a result of regulatory convergence)
- Energy integration within Latin America has been limited to investment cooperation (initial phase)
- The main challenge is not political will. But the difficulty to coordinate energy policy

- 1990-2000 → wave of liberalism
- 2000-2010 → wave of energy nationalism
- 2010-2020 → new wave of pragmatism
- The economic crisis and difficulty to finance NOCs are driving the implementation of market-oriented energy policies in the Region:
 - Mexico energy reform
 - Argentina approves a new hydrocarbon law
 - Bolivia and Venezuela seeks foreign by exploring flexibility in the hydrocarbons fiscal regime.
 - Brazil?

ENERGY INTEGRATION IN SOUTH AMERICA

EVOLUTION OF ENERGY INTEGRATION INITIATIVES IN THE REGION

- 1960-80s:
 - Important political efforts with very limited results (ARPEL, CIER, OLADE)
- 1990s:
 - Pursue of economic integration (Mercosur and CAN)
 - Private investment on energy integration projects
- 2000s:
 - Economic and political changes
 - Preponderance of energy nationalism and market disintegration
- 2010s:
 - The economic crisis is driving a reduction in energy nationalism
 - Brazil energy transition: from shortage to a new bounty

ENERGY TRADE IN LATIN AMERICA IS VERY LIMITED

- Brazil imported only 8% of its energy needs in 2011 (net imports); of this, 60% of the imports came from L.A. Region
- Most energy trade within the Region is a result of investment cooperation
 - Binational hydropower plants
 - Power connections
 - Natural gas bilateral contracts (pipelines)
- Oil exporters (Venezuela, Mexico, Ecuador): trade mostly oriented to the global oil market
- Energy integration based on government-led investment has failed so far:
 - Petroamérica
 - Venezuela to Argentina pipeline (Gasoducto de la Integración)
 - GNEA Pipeline – Bolivia to Argentina
 - Eletrobras investments in generation in Peru
 - IIRSA – Iniciativa de Integração da Infraestrutura Regional Sul-americana

HOWEVER SOME INFRASTRUCTURE IS ALREADY IN PLACE

Brazil has power interconnections with several neighboring countries. Trade occurs through bilateral agreements



NATURAL GAS: SIGNIFICANT INFRASTRUCTURE IN PLACE

Energy nationalism provoked market disintegration in the 2000s

Peru – Bolivia – Chile
Historical political conflicts block gas trade

Argentina has stop export to Chile and Brazil. Many idle pipelines!

Colombia - Venezuela

Bolivia - Brasil

Bolivia - Argentina

Argentina - Uruguay

RECENT EVOLUTION OF THE ENERGY SECTOR IN LATIN AMERICA

ENERGY NATIONALISM WILL TENDS TO WEAKEN IN THE YEARS TO COME

- The economic crisis and challenges are driving the implementation of market-oriented energy policies in the Region
 - Argentina: energy scarcity is driving new policies to attract international investors (e.g. to explore shale gas)
 - Mexico: the fall in oil production has fostered the opening of the oil and gas sector to private investors
 - Venezuela: government is seeking to guarantee foreign investment by exploring flexibility in the hydrocarbons fiscal regime.
- Increasing competition to attract private/foreign investment
 - Government-led energy policy: Argentina, Ecuador, Bolivia and Venezuela
 - More market-oriented regulation: Peru, Colombia, Chile, Uruguay, Mexico and Brazil

NUMEROUS E&P BID ROUNDS IN LATIN AMERICA – INCREASING OPPORTUNITIES FOR FOREIGN INVESTORS

- Argentina: Onshore Licensing Round 2013
- Bolivia – 2012 Round
- Brazil – Round 11, 12 and Libra in 2013. Round 13 in 2015.
- Colombia – Round 2014
- Guatemala - 2012
- Ecuador 11th Bid Round
- Mexico: Round zero in 2014 and Round 1 in 2015
- Peru: 2014 Offshore Bid Round
- Suriname – 5th Bid Round
- Trinidad and Tobago – Onshore and Deepwater Round
- Uruguay: Round 3 for 2015

BRAZILIAN ENERGY: AN INDUSTRY IN TRANSITION

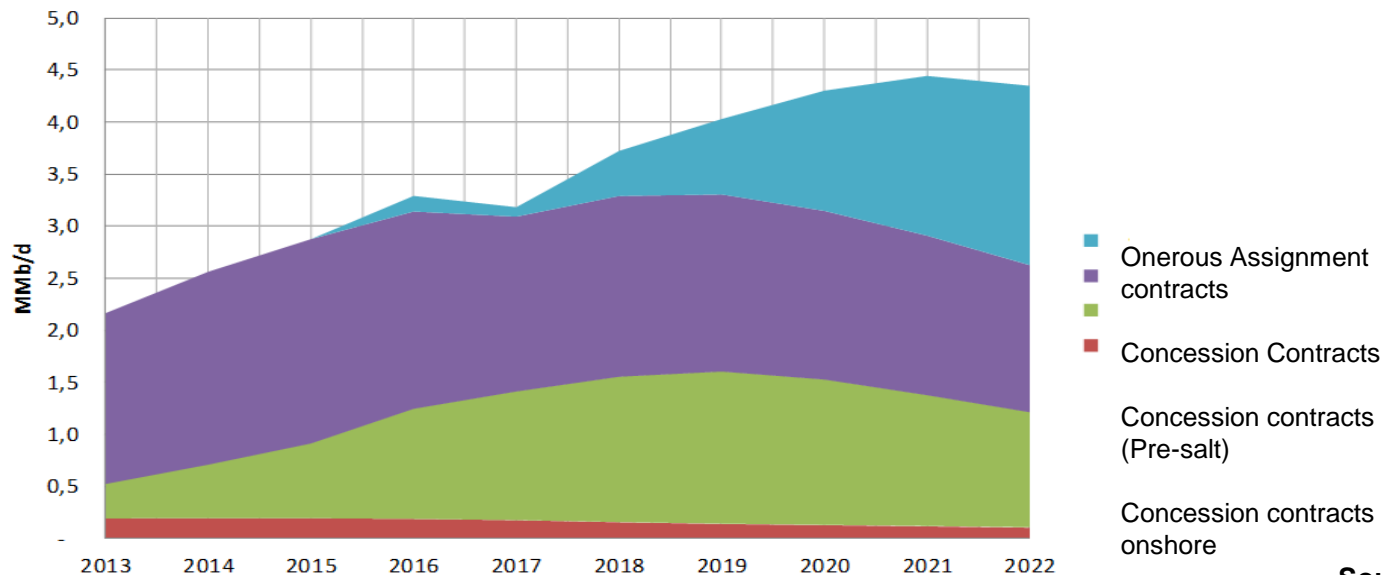
BRAZIL PLAYS A CENTRAL ROLE IN THE ENERGY INTEGRATION OF SOUTH AMERICA

- Brazilian primary energy demand represents:
 - 33% of total energy demand of Latin America
 - 45% of total energy demand of South America
- The country has energy trade (gas and power) with 6 of the 10 neighboring countries.
- Petrobras' internationalization strategy has focused on Latin America.
- So far, the traditional role of Brazil has been of an energy importer.
- As the country becomes an energy exporter, Brazil will tend to play a different role in regional energy integration and regional geopolitics.

THE POTENTIAL GROWTH OF OIL PRODUCTION IN BRAZIL IS ONE OF THE LARGEST IN THE WORLD

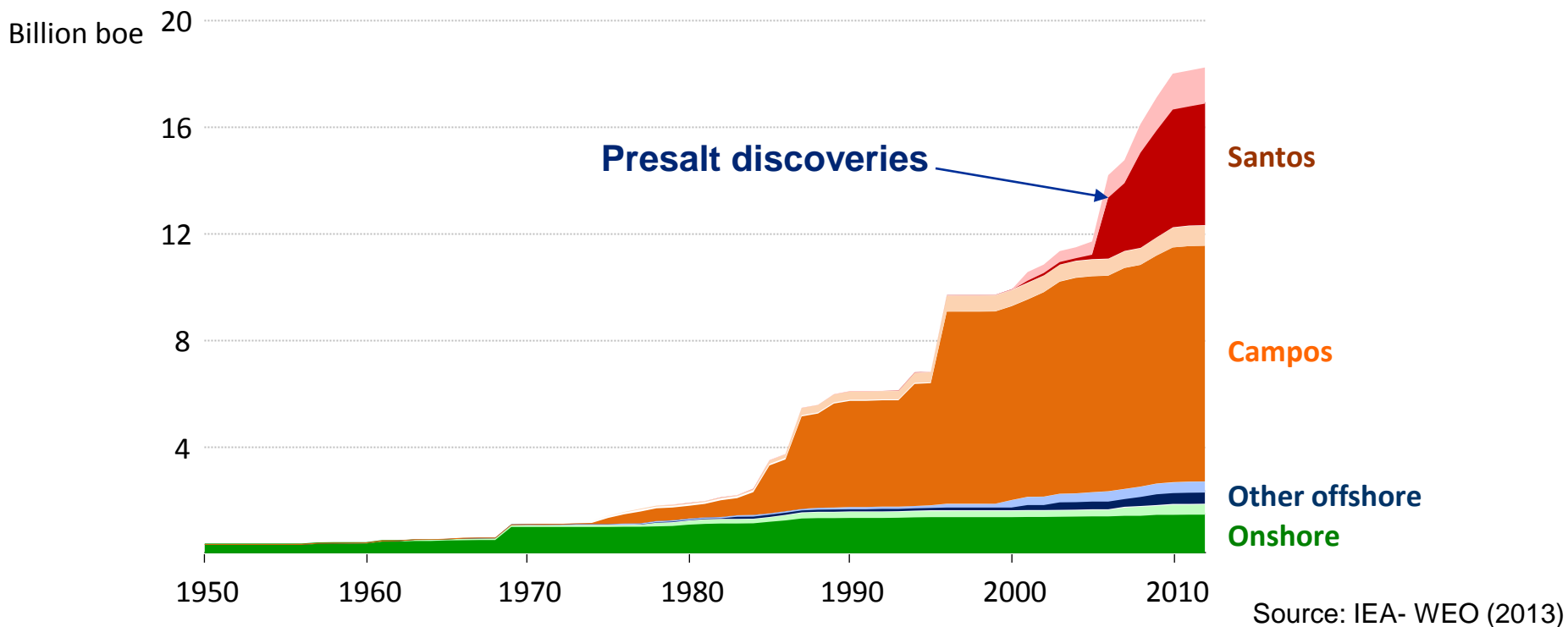
- Field development plans approved by ANP indicate a 4.3 MMb/d oil production in 2021
- An enormous amount of financial, human and technological resources are necessary to accomplish this expansion
- Upstream investment increased from US\$ 5 bn a year in 2002 to US\$ 30 bn in 2012.

PROJECTED OIL PRODUCTION (MMbL/D) BASED ON CONTRACTS APPROVED BY ANP



Source: - ANP

Evolution of Brazil's proven oil & gas reserves



- Most of Presalt oil and gas discoveries have not yet been certified. Proven reserves are expected to grow at a fast pace in the coming years

A NEW WINDOW OF OPPORTUNITY FOR ENERGY INTEGRATION?

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- There are windows of opportunities for new energy integration initiatives:
 - Renewal of investment cooperation and bilateral trade
 - Energy trade for market balance
- However, a new regional energy geopolitics is appearing in South America:
 - Reduced market power of traditional energy exporters (Bolivia and Paraguay)
 - Decrease in Brazilian energy dependence
 - Petrobras tend to focus investment in Brazil
 - Private companies tend to lead new projects for energy integration
- New political framework for integration projects negotiation is needed to take advantage of the new “wave of pragmatism ”

gracias



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