ENERGY POLICY 2030: INVESTMENT OPPORTUNITIES IN URUGUAY

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Uruguay
OVERVIEW OF URUGUAY
Country name: República Oriental del Uruguay
Land area: 176,215 km²
Population: 3.3 million inhabitants
Annual growth rate: 0.3 %
Density: 18.8 inhabitants/km²
Life expectancy: 76 years
Infant mortality rate: 7.7/1000 (22.8 in Latin Am)
### Real GDP growth in 2010

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>10.4%</td>
</tr>
<tr>
<td>China</td>
<td>10.3%</td>
</tr>
<tr>
<td>Argentina</td>
<td>9.2%</td>
</tr>
<tr>
<td>Peru</td>
<td>8.8%</td>
</tr>
<tr>
<td>Uruguay</td>
<td>8.5%</td>
</tr>
<tr>
<td>Brazil</td>
<td>7.5%</td>
</tr>
<tr>
<td>Mexico</td>
<td>5.5%</td>
</tr>
<tr>
<td>Chile</td>
<td>5.3%</td>
</tr>
<tr>
<td>Russia</td>
<td>4.0%</td>
</tr>
<tr>
<td>Japan</td>
<td>3.9%</td>
</tr>
<tr>
<td>Germany</td>
<td>3.5%</td>
</tr>
<tr>
<td>USA</td>
<td>2.8%</td>
</tr>
<tr>
<td>Eurozone</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

### FDI in South America (2009, % of GDP)

<table>
<thead>
<tr>
<th>Country</th>
<th>FDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uruguay</td>
<td>4.0%</td>
</tr>
<tr>
<td>Chile</td>
<td>3.8%</td>
</tr>
<tr>
<td>Peru</td>
<td>3.5%</td>
</tr>
<tr>
<td>Brazil</td>
<td>1.6%</td>
</tr>
<tr>
<td>Colombia</td>
<td>1.5%</td>
</tr>
<tr>
<td>Ecuador</td>
<td>1.2%</td>
</tr>
<tr>
<td>Argentina</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Source: FMI, World Economic Outlook, April 2011

Source: ECLAC
### SOCIALLY SUSTAINABLE

<table>
<thead>
<tr>
<th>Low Corruption (Transparency International 2010)</th>
<th>Democracy Index (Economist Intelligence Unit 2010)</th>
<th>Global Peace Index (ranking)</th>
</tr>
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<tbody>
<tr>
<td>New Zealand</td>
<td>1</td>
<td>Norway</td>
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<tr>
<td>Norway</td>
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<tr>
<td>Chile</td>
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<tr>
<td>US</td>
<td>22</td>
<td>Spain</td>
</tr>
<tr>
<td><strong>Uruguay</strong></td>
<td><strong>24</strong></td>
<td>South Korea</td>
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<tr>
<td>France</td>
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<td>Spain</td>
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<td>Costa Rica</td>
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<td>South Africa</td>
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<tr>
<td>South Africa</td>
<td>54</td>
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<td>Italy</td>
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<td>Brazil</td>
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<td>Argentina</td>
</tr>
<tr>
<td>Argentina</td>
<td>105</td>
<td>Colombia</td>
</tr>
</tbody>
</table>

Source: Economist Intelligence Unit 2010
EDUCATIONALLY SUSTAINABLE

“One laptop per child” program

Only country in world to meet goal of full countrywide coverage of school-age children and teachers
ENVIRONMENTALLY SUSTAINABLE

CO2/GDP
(Kg CO2/2000 US$)

- Africa
- Uruguay
- Latin America
- Asia
- China
- Non-OECD Europe
- Former Soviet...
- Middle East
- OECD
- World

Source: IEA
THE ENERGY SECTOR IN A STRONGLY GROWING COUNTRY
FRAMEWORK AND HISTORICAL BACKGROUND

• Uruguay has:
  - no oil
  - no natural gas
  - no coal

• Almost no space for new large hydropower plants (75% of present electric mix)

• High dependency on imported oil, representing up to 27% of total imports and 40% of total exports of Uruguay
PRIMARİY GLOBAL ENERGY MIX (2001-2006)

- **Oil imports**: 56%
- **Wood**: 17%
- **Hydropower**: 20%
- **Electricity imports**: 20%
- **Natural gas imports**: 2%
ENERGY POLICY URUGUAY 2030

2008: Council of Ministers

2010: Special Committee
   including all Political Parties

• Four strategic guidelines
• Short, medium and long term goals
• More than 40 working areas

Multidimensional and integrated vision, including technological, economic, geopolitical, environmental, ethical, cultural and social factors
STRAIGHTHE GUIDELINES

Institutional

- Government defines and coordinates energy policy
- Public utility (UTE) and NOC (ANCAP) as the main tools
- Enhanced participation of private companies
- Transparent and stable regulatory framework

Supply

- Energy mix diversification (sources and suppliers)
- Reduce share of imported oil
- Increase share of domestic sources
- Strong support to renewables, with no subsidies
- Building local capacities (technology transfer)
- Keeping low carbon footprint
Demand

- Strong support to energy efficiency in all energy sectors and all activities (transport, building, industry)
- The State as a paradigmatic example
- Promoting a cultural change

Social

- Adequate energy access to all citizens as a human right
- Energy policy embedded in national social policies to face vulnerability
WHAT HAVE WE DONE?
WHAT ARE WE DOING?

INVESTMENT OPPORTUNITIES
BUILDING CAPACITIES

- Strengthening energy planning capacities
- End-use energy survey:
  108 homogeneous groups

- Measurements and potential maps
  (wind, solar, biomass, cogeneration, saving)
- Hydrocarbons exploration

- New Graduate Courses in Energy
- R&D Energy Fund

- Package of Laws and Decrees
- Investment Promotion Law
EXPECTED INVESTMENTS (2011-2015)

7.1 billion dollars (17% of GDP)

- 2.4 billion public sector
- 4.7 billion private sector or public-private partnership
RENEWABLE ENERGIES

Choosing the appropriate sources and technologies
Why renewables?

- To keep low carbon emissions
- To avoid fossil fuel imports
- To drop and stabilize energy prices (no subsidies)
- To build local capacities

To improve energy sovereignty
WIND ENERGY

• 0 MW in 2007
• First wind farms installed today (4% of average power demand)
• 40% capacity factor
• Expected installed power 2015: 1000 MW (90% average power demand)

• Tender processes / 20 years contracts
• More than 20 offers in each tender processes
• Price: 62 - 64 US$/MWh (no subsidies!)
• Up to 44% domestic participation
BIOMASS HEAT AND POWER

• First 8 power plants already installed (7 cogenerating) (16% of average power demand)
• Fuel: forestry, rice, bagasse, black liquor
• 50% - 60% domestic participation

• Feed in Tariff Decree (no subsidies!)
WASTE TO ENERGY PROGRAM

• Input: agriculture, industries, cities (Uruguayan agroindustry produces large amounts of organic waste)
• Output: biogas, heat, electricity

Ambitious program 2012-2015 (GEF financed Project)

2015 goal:

30% of agroindustrial waste used to produce energy
SOLAR ENERGY

- Solar thermal promotion Law

- Heat water capacities replacement (Public Utility funding)

- 2 small Photovoltaic pilot plant (1MW)

- Photovoltaic plants bidding process (by the end of this year)
GRID-CONNECTED MICROGENERATION

- Uruguay: first country in Latin America to enable grid-connected renewable microgeneration

- Net metering contract
COMPLEMENTING RENEWABLES
LNG FLOATING REGASIFICATION CAPACITY

- Fast-track near Montevideo
- 10 Mcm/d
- Both Uruguay and Argentina’s demands
- International bidding in process
- Operation beginning: 2014
HYDROCARBONS EXPLORATION
GENERAL CONDITIONS

• Fields and extracted substances are State property
• The Executive sets the policies and rules related to exploration and exploitation of hydrocarbons
• ANCAP, the National Oil Company, signs with the IOC the Exploration-Exploitation Contract
• The IOC will access through competitive biddings or direct contracting, depending on the areas of interest:
  – OFFSHORE: Bidding rounds (Production Sharing Agreement contracts)
  – ONSHORE: Direct Negotiation – Open door system
OFF-SHORE EXPLORATION

- ANCAP made 10000 km seismic surveys (2006-2011)
- Uruguay Round I (2008): 2 blocks awarded
- Uruguay Round II (2012):
  - 12 “top 100” companies bought information (40 MUS$)
  - 19 offers presented
  - 8 blocks awarded: BG, BP, Total and Tullow Oil

ENERGY EFFICIENCY POLICIES (HIGHLIGHTS)
ENERGY EFFICIENCY

• EE promotion law
• National EE Master Plan
• Labels
• Audits
• EE Garantee Fund
• Energy saving credits (boosting EE investments)
• Tax redefinition
• Public sector (audits, managers, plans, lamps, labels, transportation)

• Global plan for the transport sector
• Wide educational and cultural program
OVERALL IMPACT
GLOBAL ENERGY MIX

- Oil: 49%
- Wood: 17%
- Hydropower: 20%
- NG: 5%
- Electricity imports: 2001-2006
- Biomass waste: 16%
- Oil: 21%
- NG: 12%
- 49% renewable energy mix
ENERGY INTENSITY
ENERGY/GDP (koe/US$)

Fuente: Key World Energy Statistics - International Energy Agency
SHORT TERM IMPACT (2015)
GLOBAL PRIMARY MIX 2015

- OIL: 39%
- LNG: 6%
- BIOHEAT: 15%
- BIOELECTRICITY: 5%
- OTHER BIOMASS: 10%
- HIDROELECTRICITY: 14%
- BIOFUELS: 3%
- WIND: 6%
- SOLAR: 1%
GLOBAL PRIMARY MIX 2015

- **Oil**: 39%
- **LNG**: 6%
- **Bioheat**: 15%
- **Bioelectricity**: 5%
- **Other biomass**: 10%
- **Hydroelectricity**: 14%
- **Biodiesel**: 3%
- **Solar**: 1%
- **Wind**: 6%

55% Renewable
ELECTRIC MIX IN 2015

HYDRO 55%
WIND 26%
BIOMASS 10%
LNG 9%

91% RENEWABLE
Electricity cost according to rain probabilities

- 73 US$/MWh (10%)
- 46 US$/MWh (90%)

DECREASING ENERGY COST
DECREASING CLIMATE DEPENDENCE

Electricity cost according to rain probabilities

69 US$ spread

25 US$ spread

10%

90%
See you in Uruguay!

91% RENEWABLE

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