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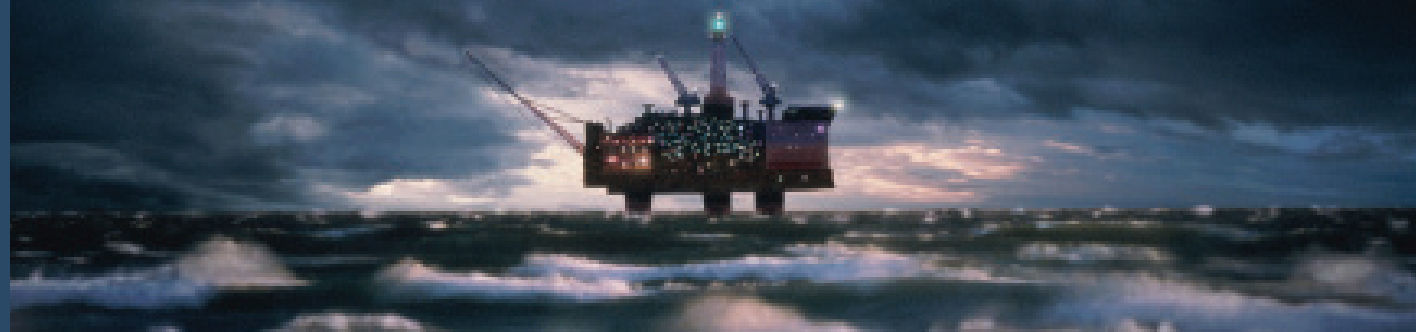


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Energy and Development in South America: Conflict and Cooperation

*Edited by Cynthia J. Arnson, Claudio Fuentes,
and Francisco Rojas Aravena*

With Jessica Varat



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First South American Energy Summit © Eduardo Morales/epa/Corbis
Front Row L-R- Colombian President Álvaro Uribe, Chilean President Michelle Bachelet,
Bolivian President Evo Morales, Venezuelan President Hugo Chávez,
Brazilian President Luiz Inácio Lula da Silva

Back Row L-R- Uruguayan Vice-President Rodolfo Nin Novoa,
Ecuadorian President Rafael Correa, Guyanese Prime Minister Samuel Hinds

Oil Rig in Stormy Sea © Steve Bloom/Getty



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utility bills are reputed to be among the highest in Latin America, averaging 30 percent versus 11 percent in Chile or 1 percent in Venezuela. See, Fundación para el Desarrollo Eléctrico, *Informe Sobre la Demanda del Consumo Eléctrico Argentino* (Buenos Aires: FUNDELEC, 2003), Annex I.

Chile's Choices: Maintaining Growth and Securing Supply

Oscar Landerretche

INTRODUCTION

The politics of oil and gas has two sides, which are often complementary. One is the use of influence and force by powerful countries in order to secure and control energy resources. The other is the use of oil and gas resources as a source of international power for the countries that control them.¹ Small countries like Chile are dependent on energy imports, and as such cannot seek anything other than free trade, adequate rules of the game, and strong international institutions in order to secure its access to international energy markets.

The Chilean economy has experienced rapid economic expansion since 1986 at an annual average rate of 5.8 percent,² increasing not only its demand for energy but also its dependence on energy imports. While total Gross Domestic Product grew at an annual average rate of 5.6 percent between 1990 and 2006, primary energy demand grew at an annual rate of 4.8 percent and the demand for electricity grew at an annual rate of 7 percent. Meanwhile, imports of primary energy increased from 45.1 percent of the total supply in 1990 to 66.9 percent in 2006, with natural gas and coal registering the highest growth (see Table 1). Chile's growing reliance on energy imports, particularly on natural gas, has not been without consequences. In April 2004, Argentina began restricting natural gas exports to Chile. In 2008 Argentine supplies to Chile have decreased to an amount that satisfies only one-third of Chile's residential demand, with no supply for industry or power generation: restrictions reached levels above 90% of total requirements by mid-2007 and have remained above that figure most of the time throughout the first semester of 2008.³

Chile has been forced to reconsider its energy policy, which—before Argentina's export restrictions—was based on increasing natural gas and power imports from Argentina. Some policy changes include incentives for using non-traditional renewable sources as well as the construction of liquefied natural gas

Table I. CHILE: DEPENDENCE ON PRIMARY ENERGY IMPORTS
IMPORTS / TOTAL SUPPLY

	1991	2006	2006: TOTAL SUPPLY STRUCTURE
CRUDE OIL	87.6%	98.7%	38.9%
NATURAL GAS	0.0%	72.3%	24.8%
COAL	40.3%	92.0%	11.5%
HYDROELECTRICITY	0.0%	0.0%	9.0%
FIREWOOD AND OTHER	0.0%	0.0%	15.8%
TOTAL	45.1%	66.9%	100.0%

SOURCE: NATIONAL ENERGY COMMISSION - CHILE (CNE)

(LNG) import facilities and new hydroelectric power plants. To generate power, the country has also substituted coal and fuel for natural gas.

Also worth noting are the lost investment and lost development opportunities, both in Chile and Bolivia, due to short-sighted and ultimately counterproductive policies towards foreign investors and potential joint ventures with Chile, implemented by President Evo Morales's government. In the long run, Chile and Bolivia will not be the only countries to lose out.

Recent trends in energy issues in the region show a revival of obsolete policies and bring old cleavages once again to the fore. It seems absurd to try to unite Latin America around "dirigiste" or statist policies which lead to inefficiency and stagnation. Even if surpluses provided by high energy prices could allow some governments to believe that foreign capital from outside the region is no longer necessary, it is doubtful that regional integration could take place based on recycling local extraordinary profits within the region, an outcome that Venezuelan President Chávez seems to think possible. As history shows, these surpluses will likely be short-lived. It is unlikely that populism and exacerbated nationalism will help us achieve the levels of development that are within our potential.

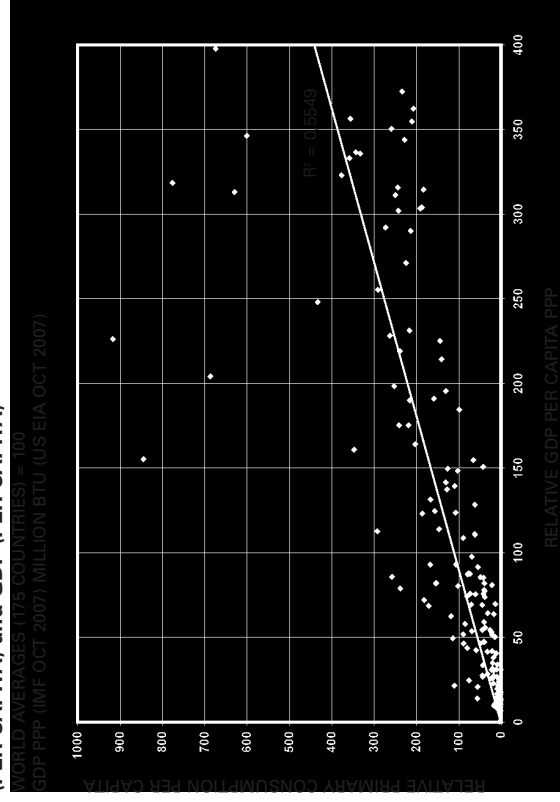
However, it is important to recognize that some of these ill-advised policies spring from the flawed implementation of policies of liberalization and privatization. The reaction against such policies has provided the socio-political basis for the resurgence of resource nationalism. Instead of improving and integrating their regulatory frameworks and trying to strengthen regional regulatory integration,⁵ some governments have returned to interventionist policies; these are causing, as in the past, numerous kinds of inefficiencies and imbalances.

ENERGY AND DEVELOPMENT

Some environmentalists argue that the efficient use and production of energy could curb the demand for energy products. Some also argue that economic growth can be reduced without affecting economic and social development. However, history and cross section analyses show that economic growth is a necessary, but not sufficient condition to attain economic and social development. In addition, a high level of per capita energy consumption is also a necessary but not sufficient condition for economic and social development.

Energy consumption (primary) and Gross Domestic Product (GDP), both in per capita terms, are positively and significantly correlated (Figure 1):

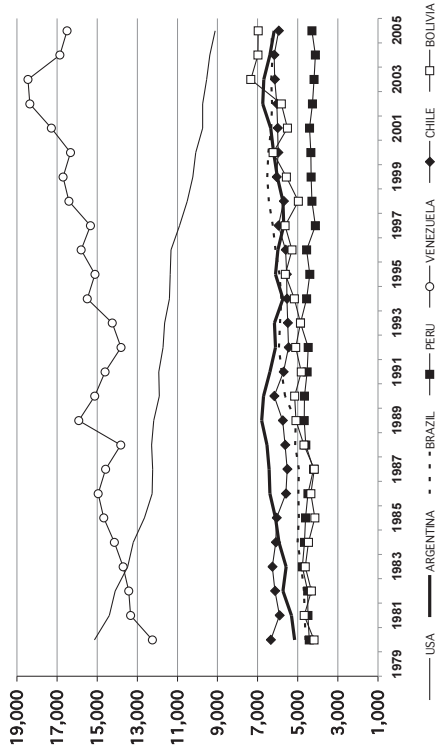
Figure 1. 2005: RELATIVE PRIMARY ENERGY CONSUMPTION (PER CAPITA) and GDP (PER CAPITA)



Efficiency can reduce the energy requirements, but history shows that energy intensity⁶ falls only after significant levels of growth and development have been achieved. Energy intensity increases during the first decades of a countries economic take off and starts falling (increasing energy efficiency) only after an economic development threshold of some sort has been reached, as seems to have been the case of the United Kingdom around 1880, the United States and Germany around 1920, France in the 1930's and Japan in the 1950's, while developing countries were not reducing their energy intensity by the end of the 20th century.

Figure 2. ENERGY INTENSITY

BTU PER 2000 US DOLLARS PPP (US EIA October 2007)



Most Latin American countries are not making any progress in terms of improving energy efficiency in the last decades. Some energy producers, such as Bolivia and Venezuela, have even increased energy intensity considerably over the last years (see Figure 2). Therefore, a country such as Chile that is fast-growing and dependent on energy imports is expected to become very vulnerable unless pragmatic measures are adopted to diversify energy sources, increase efficiency, and develop domestic energy production.

In fact, since most Latin American Nations have been experiencing less growth than is needed to catch up to developed countries, their energy needs have not grown as rapidly as they could (Table II). Only four countries (Chile, Dominican Republic, Costa Rica and Panama) are among the top 50 in terms of economic growth over the last twenty years and several Latin American countries are not even among the top 100, Brazil, the largest one by far, being one of them.

Latin America's energy challenges reflect its development challenges. Outmoded policy views are spreading over some parts of the region; they have a great impact on energy markets as well as on the production of oil and natural gas in the near future. Economic policies have changed radically, for example, in both Bolivia and Argentina, departing from principles of liberalization and modernization and in the process making a casualty of energy markets.

REGIONAL INTEGRATION

Geography also makes Latin American integration difficult. Nonetheless, there has been some progress in recent years, reflected in the area of electricity (binational hydroelectric power plants such as Salto Grande, Itaipu and Yacyreta) and natural gas.

Table 2. ECONOMIC GROWTH 1987-2007
GDP PC (NATIONAL CURRENCY AT CONSTANT PRICES), IMF WEO April 2008

Equatorial Guinea	14.8%	Burkina Faso	2.4%
China	8.6%	Pakistan	2.4%
Bhutan	6.6%	Samoa	2.4%
Vietnam	5.7%	Uruguay	2.3%
Korea	5.2%	Albania	2.3%
Ireland	5.2%	Norway	2.3%
Botswana	5.2%	Finland	2.3%
Myanmar	5.2%	Ghana	2.3%
Mozambique	4.9%	Morocco	2.2%
Taiwan Province of China	4.9%	Lesotho	2.2%
Thailand	4.7%	Angola	2.2%
Trinidad and Tobago	4.5%	Sudan	2.2%
Singapore	4.5%	Guyana	2.2%
India	4.4%	Mali	2.2%
Chile	4.3%	United Kingdom	2.2%
Cambodia	4.3%	Egypt	2.1%
Mauritius	4.2%	Netherlands	2.1%
Malaysia	4.2%	Australia	2.1%
St. Vincent and the Grenadines	4.0%	Tanzania	2.1%
Luxembourg	3.8%	St. Lucia	2.0%
Cape Verde	3.8%	Belgium	2.0%
Maldives	3.8%	Austria	2.0%
Lao People's Democratic Rep.	3.7%	Czech Republic	1.9%
Sri Lanka	3.6%	Sweden	1.9%
Belize	3.6%	Hungary	1.9%
Indonesia	3.4%	Philippines	1.8%
St. Kitts and Nevis	3.3%	United States	1.8%
Hong Kong SAR	3.2%	Japan	1.8%
Fiji	3.2%	El Salvador	1.7%
Poland	3.2%	Germany	1.7%
Dominican Republic	3.2%	Dominica	1.7%
Bahrain	3.0%	Argentina	1.7%
Tunisia	3.0%	Denmark	1.7%
Bangladesh	2.9%	Israel	1.7%
Nepal	2.8%	France	1.6%
Antigua and Barbuda	2.8%	Qatar	1.6%
Oman	2.5%	Iceland	1.6%
Nigeria	2.7%	Canada	1.6%
Uganda	2.7%	Mexico	1.6%
Costa Rica	2.7%	Colombia	1.6%
Turkey	2.6%	Kiribati	1.5%
Grenada	2.6%	Ecuador	1.5%
Spain	2.6%	Syrian Arab Republic	1.5%
Chad	2.6%	Italy	1.5%
Iran, Islamic Republic of	2.5%	New Zealand	1.4%
Panama	2.5%	Ethiopia	1.4%
Greece	2.5%	Suriname	1.3%
Portugal	2.5%	Bolivia	1.2%
Cyprus	2.5%	Swaziland	1.2%
Seychelles	2.5%	Honduras	1.2%

Chile and MERCOSUR were making progress towards achieving a higher degree of integration in the field of natural gas, even though the institutional framework is weak and national markets have not been integrated,⁷ until Argentina unilaterally reduced its natural gas supplies to Chile. One of the key weaknesses is the lack of mechanisms to mediate conflict. Another weakness concerns the lack of rules to cope with crises affecting the availability of specific resources, such as the one affecting Argentina supplies to Chile.

It is unlikely that the increasing politicization of energy integration initiatives, witnessed in recent years, would render regional improvements in this field. I see more conflict than cooperation as a result of the resurgence of populism and exacerbated nationalism in our region.

That is why I am not optimistic about the prospects coming from the Energy Summit held in Venezuela on Isla Margarita in April 2007 and promoted by Venezuela, Ecuador, Bolivia, and Argentina. For example, the Great South American Natural Gas Pipeline seems too large, too uneconomical and too controversial to be built, and some of the early supporters are having second thoughts about it.

Controversies over the promotion of ethanol, a biofuel that can be blended with gasoline to reduce countries' dependence on foreign oil, has become not only a new source of conflict between the United States and the Venezuelan government, but also a source of disagreement among South American countries, because some oil exporters look at it as a potential threat to their international oil-based policies. Meanwhile, bilateral relations between Bolivia and Brazil deteriorated severely after the nationalization of hydrocarbons decreed in May 2006, affecting Petrobrás' investment.

President Néstor Kirchner's statist policies affected investment in the energy sector so severely that domestic shortages have become a major problem, affecting supplies to Argentine consumers and neighboring Chile. Argentina's new president, Cristina Fernández de Kirchner, put former Minister for Federal Planning Julio de Vido in charge, among other areas, of energy matters. Not surprisingly, policies towards neighboring Chile have remained much the same.

Under these circumstances, Chile has no other viable alternative than to 1) substitute coal and fuel oil for natural gas in order to generate power; 2) promote Liquefied Natural Gas projects (LNG) for the northern and central regions; 3) develop hydroelectric capacity and non-traditional sources of renewable energy, including biofuels; and 4) move forward in the consideration of nuclear energy. This latter issue is very controversial, but the idea has gained greater acceptance in light of the generalized perception that the country is vulnerable from the standpoint of energy.

Sound economic policies and political stability have created the environment for Chile's sound economic performance; such performance, in turn, provides the country with the resources it needs to pay for energy in international markets. No regional integration in the foreseeable future will provide energy at prices below international levels. Thus, Chile has turned to globalized commodity markets as a more secure source of energy products. The country still has a long way to go in reducing its vulnerability, but it certainly will not opt for dependency on specific countries.

Chileans, in short, are not optimistic about future developments in the area of regional integration, but we remain optimistic about the long-term performance of the region. We expect common sense to prevail in the sphere of economic policy, provided that extreme nationalism and populism are neither promoted nor provoked by misguided foreign policies on the part of major world powers. In the meantime, we continue to prepare the institutional and technical foundations for regional energy integration, making the most of the regional organizations and institutions we have built over the years.⁸

CONCLUSION

In the Chilean case, it is unrealistic to expect a very significant reduction in energy intensity, in part because the country has not yet reached a high level of development and in part because mining remains very important to the economy as a whole. Chile is dependent on energy imports and must diversify its sources—both in terms of products and countries of origin—including the use of domestic non-traditional sources. It seems overly optimistic to assume that increasing energy efficiency would alone be sufficient to meet Chile's energy needs.

In Latin America, integration requires market-oriented policies. "Open regionalism" constitutes a non-protectionist approach which promotes integration. In the case of energy, non-protectionist policies not only promote integration but also increase competition in the markets. Development needs energy and both require appropriate government policies, information, and confidence in order to foster and coordinate long-term investment. Current manifestations of populism and exaggerated nationalism, in some cases a reaction to misguided or ill-conceived liberalization and privatization measures, will not help integration at all.

NOTES

1. Genaro Arriagada, "Petróleo y gas en América Latina. Un análisis político de relaciones internacionales a partir de la política venezolana," DT N° 20/2006, September 19, 2006, Real Instituto Elcano, <http://www.realinstitutoelcano.org/>

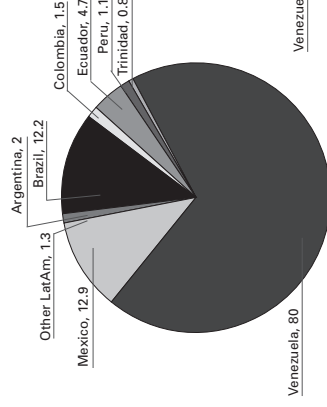
- wps/portal/rie/cano/contenido?WCM_GLOBAL_CONTEXT=/Elcano_es/Zonas_es/America+Latina/DT20-2006.
2. Total Gross domestic Product (GDP) measured at constant 2003 prices. Source: Central Bank of Chile.
 3. Source: http://www.cnc.cl/archivos/bajar/restricciones_gas/grafico_restricciones_2004-2008.pdf
 4. In the 1950s and 1960s, “dirigiste” or statist economic policies referred to widespread state intervention in the economy.
 5. See, for example, María de la Cruz Bayá C., de la Universidad San Simón de Cochabamba, “Integración Energética: Una incertidumbre Regulatoria,” *Dikáion*, año 20, N°15, Universidad de la Sabana, Chia, Colombia, noviembre 2006.
 6. Energy intensity at the macro level means the amount of energy *per* unit of GDP (measured in purchasing power parity [PPP] international dollars).
 7. Ruiz-Caro provides significant information and analyses about energy integration efforts through the end of 2005. See Ariela Ruiz-Caro “Cooperación e Integración Energética en América Latina y el Caribe” (“Energy Cooperation and Integration in Latin America and the Caribbean”), CEPAL (ECLA), *Serie Recursos Naturales e Infraestructura*, 106, abril de 2006.
 8. These include such organizations as OLADE, CIER, ARPEL, MERCOSUR, the Comunidad Andina de Naciones, the Sistema Económico Centroamericano, etc.

Venezuela: Energy, the Tool of Choice

RoseAnne Franco

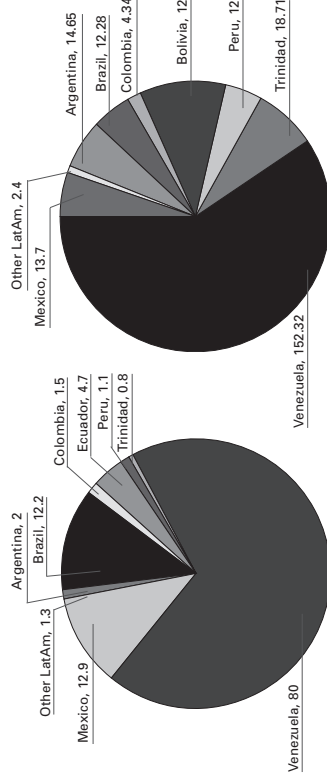
Oil Reserves

At end of 2006 (billion barrels)



Natural Gas Reserves

At end of 2006 (trillion cubic feet)



It is impossible to discuss energy in Latin American without addressing Venezuela. The country houses the largest hydrocarbon reserves in the region, registering some 80 billion barrels of proven oil reserves and 152 trillion cubic feet (tcf) of natural gas. So it is not surprising that the administration of President Hugo Chávez has decided to tap these vast hydrocarbon assets to move his ambitious regional energy integration and social development agendas forward.

On the energy front, Chávez's vision has both domestic and international aspects. First, the Venezuelan president is eager to assert Venezuela's national sovereignty within the domestic energy industry, which was evident in the promulgation of the 2001 Hydrocarbon Law.¹ Second, he has tasked Petróleos de Venezuela (PdVSA) with social and industrial development initiatives at home and abroad. Moreover, Chávez is committed to reducing Venezuela's economic dependence on the United States and diversifying PdVSA's client base.