

## *Cuba's energy problem and oil in the Gulf of Mexico*

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Cuba has historically suffered from an acute dependence on foreign sources to meet its energy needs. Until now, the island has had a small supply of conventional energy resources such as oil<sup>1</sup>, gas and coal, key sources in the current energy model. During the last century, and for different reasons, the country concentrated its oil imports in two major contemporary economic and military powers, the U.S. and the extinct Soviet Union. The analysis of the evolution of this dependence is essential to explain the possibilities of development for the country. Therefore, any event with the power to mitigate this constraint has sizeable economic and geopolitical significance for the Caribbean nation.

After 1959, the Soviet Union became the quintessential foreign supplier. Preferential supply conditions notably eased the pressures of the road towards diversified energy and greater weight for domestic sources, although there was a breakthrough in energy production from sugarcane biomass, logical result of the growth in volumes of sugarcane. Twenty-two years ago, that model was in crisis. The country was forced to severely restrict consumption between 1990 and 1995, which was only partially relaxed to the extent that the economy left this critical period in the early nineties. The symbol par excellence was the blackout, an extreme measure used frequently in exceptional circumstances.

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One of the immediate responses to alleviate the situation was the decision to double efforts to increase domestic oil production. That attempt was made feasible by the participation of foreign companies, under a scheme of risk contracts. The results have been very good, increasing output by nearly six times in the period. Progress was also made in the use of natural gas, which plays a major role in the generation of electricity<sup>2</sup> and the supply of fuel for cooking in the capital of the country. In both examples, the role of foreign investment has been crucial.

1 The country's proven reserves are estimated to be around 700 million barrels, mostly heavy oil.

2 In 2010 this source represented little more than 20% of the fuel used in electrical generation.

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But, ironically, alongside the growing oil production, the availability of bagasse was reduced due to the progressive reduction of cane production. Therefore, the benefits offered by this technology were not taken advantage of, a sector that has proven to have great potential to be incorporated as a key component of a diversified energy mix<sup>3</sup> with less pollution and a greater contribution of national resources. This contribution has materialized in other countries such as Brazil and Mauritius, where sugarcane energy has positioned itself as a real and viable alternative to traditional fuels.

Another problem that has plagued the country in the last two decades is the steady deterioration of the infrastructure related to energy production and distribution, which has suffered from an acute shortage of investment resources for replacement and expansion of its capacity. The result is that a substantial portion of the energy produced does not reach its final destination<sup>4</sup>, while recurrent interruptions occur in the supply chain, affecting the performance of the production entities and the population's living standards. This decline reached alarming levels in the summer of 2004, a situation that prompted a response from the Government in the form of a medium-term program aimed at recovering the installed capacity, increasing the contribution of renewable sources, improving the state of the transmission networks and distribution and increase energy efficiency, based on the use of modern equipment in the generation, transportation and cooking.

While new vitality was regained in electricity generation and many inefficient equipments were replaced, the transformation of the energy matrix has been more modest. There is still dependence on fossil fuels for electricity production, and among renewable sources, the use of sugarcane biomass has not played a major role, and rather its role has diminished. While the current supply has been guaranteed from beneficiary agreements with Venezuela, it continues to represent a heavy burden on the country's foreign accounts and has become a highly vulnerable situation arising from the systemic concentration of purchases in preferential terms in a preferred specific market.

In this complex scenario there has been an intense debate about the likely impact of the discovery and exploitation of large deposits of light oil, particularly in the country's Exclusive Economic Zone in the Gulf of Mexico. The main idea to further this discussion is that this event has the potential to change, not only the energy situation in the medium term, but economic development itself. For the first time, a window of opportunity would open to realistically reduce the external dependence in this area, which would increase the degree of freedom in the conduct of international economic policy, including the current conflict with the United States.

Another area of great impact would be the effect on a recurrent shortage of resources in freely convertible currency, both for current consumption as well as for the financing of investments. This could offer at least three significant possibilities. The first one would take effect even before the first drop of oil is extracted, because the possession of such a valuable asset could reduce the risk associated with loans to the island, while

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<sup>3</sup> In 2011 the sugar mills produced approximately 2.5% of the nation's electrical energy, with a proportion of 10%, and a four times reduction.

<sup>4</sup> Electricity losses through transmission and distribution are approximately 16% of the total supply.

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many creditors would be less reluctant to extend new lines of credit. Another element would be linked to the resources that would be released from fuel imports, which constitute an important account in the country's foreign purchases<sup>5</sup>. This positive impact on the balance of payments could be magnified after reaching exportable surplus. The other element has to do with the development of the activity itself, since the required investments in infrastructure and productive capacity for the extraction and processing of oil, demand a sharp increase in foreign investment

However, a vast literature associated with the "curse of natural resources" is proof that the positive effects on economic growth and long-term development from the exploitation of resources such as oil, are only a potential opportunity, and their realization depends on a set of conditions closely linked to the quality of institutions and the economic policy of the country concerned. Empirical evidence shows that in those cases where profit seeking has prevailed, overconsumption, corruption and clientelism are much more abundant than in those cases that made use of income to boost the progress of society as a whole.

From the economic point of view, the arguments about the likely negative effects are part of the so-called "Dutch disease". The general reasoning is as follows: a substantial increase in external revenue from exports of crude oil results in a progressive overvaluation of the real exchange rate, which in turn, implies an increase in imports, which begin to compete resulting in an advantage to domestic production. This is exacerbated because the increase of the real exchange rate ends up hurting the competitiveness of other tradable sectors. The result is a gradual reallocation of productive factors to the sector linked to the exploitation of the resources, increasing the systemic risk arising from fluctuations in income or the interruption of flow due to exhaustion.

Since this type of industry has the ability to generate very high income in a context where job creation is very poor, the companies involved are small and dependent on the decisions of a government body, the appropriation of profits benefits a few players, and this ends up having political implications. One is that in a scenario of relaxation of financial constraints, there is a tendency to neglect fiscal discipline, taking unnecessary risks in uncertain projects and neglecting the strategic areas of socio-economic transformation. This may create the false sense of triumphalism, which ends up postponing major and complex decisions that have the ability to shape the future progress of society.

In today's Cuba, many of these mechanisms could be eliminated, given the large crisis that the country has suffered in the last two decades, which could induce to overconsumption in detriment of growth in the longer term. However, in the context of the changes taking place in the Cuban economic model, the proper use of these potential revenues could significantly expand the possibilities of development of the country from the contribution in at least four key areas. First, increase the funds available for financing programs designed to cushion the transition to a new economic model, as social protection mechanisms and retraining of the workforce. Second, it could fund research and investment needed for the development of domestic renewable energy potential, including sugarcane biomass, wind, solar and other more futuristic types of energy, such as ocean thermal gradient. A third input would be mobilizing resources for investment in physical infrastructure, including Information Technology and Communications (ICT), which would have a lasting impact on the efficiency and productivity of other economic activities. Finally, we could consider a gradual increase

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<sup>5</sup> Purchase of fuel represents the most important structural component of the total imports. In 2007, before the start of the Cienfuegos Refinery, this proportion reached almost one fourth of the total acquisitions.

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in contribution from domestic producers in supplying goods and services to the oil industry, which would extend to productive sectors, inducing a positive change in the production structure and linked to the long-term development of vital sectors and the manufacture of capital goods and the provision of complex services, which would additionally improve manpower utilization from the Cuban labor force. This would require substantial changes in the functioning of the Cuban economy linked with greater autonomy of public enterprises, greater participation of non-government forms of production, a higher degree of economic decentralization and greater flexibility in foreign trade operations.

Regardless of the discovery of oil and its commercial exploitation, Cuba must devise a strategy to develop more rapidly its potential for energy production from renewable sources, safer and inexhaustible. Country conditions can combine different alternatives depending on their availability and the associated financial cost. Most experts agree that the sugarcane industry should represent a central part in these efforts, due to its high leverage and tradition of the nation in this activity. What would happen if a portion of the funds invested in the acquisition of distributed generation plants had been spent to rescue the sugar cane industry, modernizing and expanding generating boilers ethanol production? The process would take longer but surely we would have a stronger energy platform for the future. Not to mention the effects induced by the economic activity generated around the sector.

Another lesson of recent years is that the administrative constraints of energy consumption are not an effective response to the external currency constraint, or as a means to reduce dependence on fossil fuels. In many cases, the easiest solutions are not ideal. Given the level of economic development of the nation and its growth prospects in the long term, it is expected that energy consumption will tend to increase, especially private consumption. This development would be incompatible with a permanent containment of supply. We hope that oil will be found in the Gulf, but only if we are able to use it to promote lasting progress in the nation.

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