



## **The World Today**

### **Energy Crisis Looms Ahead**

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The government of Trinidad and Tobago is pressing forward with its agenda to create a super energy company as announced at the recent two-day conference held at the Trinidad Hilton. The event coincided with the World Energy Engineering Congress (WEEC) (Atlanta, Georgia, August 15-17, 2007). But while Trinidad and Tobago is focusing on “charting the future course of our country’s vitally important energy sector”, the Atlanta conference suggests that world energy experts are more preoccupied with the looming global energy crisis, energy efficiency and economy and the application of sustainable development in sound policy and planning.

An indication of the breath of the problem is reflected in the statement that “China's longest river is “cancerous” with pollution and is rapidly dying, threatening drinking water supplies in 186 cities along its banks.” Certainly, there must a link between this pollution and the message in the American quote which states that “much of China’s emissions results from exports to America. This is our pollution too – we’ve just outsourced it”.

Sustainable development is defined as “the ability to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.” Traditionally, civilizations have always tended to lived sustainably within their environment. Colonialization, followed by industrialization and modernization, has since led to depletion of the world’s net available non-renewable resources for use by future generations. The quest for development by post-colonial states has placed a heavy demand on global natural and human resources particularly energy. To compound the issue, resource exploitation has disrupted the balance between ecosystems and non-living systems, transforming and cross-polluting the air, water, soil and biosphere. One such present day phase transformation and imbalance is carbon dioxide emission and climate change stemming from high fossil fuel consumption. For every gallon of fossil fuel consumed, the equivalent of 25lbs of carbon dioxide is released as pollution.

It has been revealed that New York City is responsible for 1% of global carbon dioxide emissions (and so is the Caribbean according to the Caribbean Community Committee on Climate Change (CCCCC). The many skyscrapers in the Big Apple combined with its complex energy demanding transportation systems are partially responsible for high and inefficient energy consumption. Moreover, North American energy consumptive patterns have infiltrated cultural lifestyles in the Caribbean where

neither energy conservation nor sustainable development are amongst our governments' priorities.

It is the Organization of American States (OAS) which has perhaps embarked on the most viable project for renewable energy. The OAS actually houses an office of sustainable development. It has undertaken a geo-thermal development project which focuses on St. Lucia, Dominica and St. Kitts & Nevis, and seeks to catalyze the development of one or more geo-thermal power plants that might export electricity to several islands of the region, including Guadeloupe and/or Martinique.

According to Trinidad-born and New York based energy strategist and sustainable development practitioner, Dennis Ramdahin, CARICOM should embark upon a region-wide master plan for energy efficient conservation. He affirms that not enough is being done to curb wasteful consumptive patterns amongst consumers and within industries in the region. He also notes that in 2005, some Caribbean countries forged a cushy PetroCaribe deal with Venezuelan firebrand, Hugo Chavez, who agreed to provide the region with cheap petroleum. But he laments the fact that such preferences mask the real opportunities for energy efficiency, which is tied to economic growth and development.

In the same vein, it appears that the current Bush administration does not perceive efficient energy use as priority area. Despite widespread criticism from both the American and international community, President George W. Bush has yet to sign the 1997 Kyoto Protocol for the reduction of greenhouse gas emissions of about 5% in the commitment period 2008-2012, although 175 countries have ratified the Protocol to date. He has also rolled back certain environmental regulations such as those pertaining to the suspension of a regulation to toughen environmental standards for gold, silver and uranium mining on public lands, and the Environmental Protection Agency's withdrawal of the pending arsenic standard for drinking water that was prepared during the final days of the Clinton administration.

Moreover, it appears that within the American federal government there is lack of communication. The various sectors have been perceived as islands of isolation. This combined with departmental egos and reluctance to share business and best practices, do not auger well for energy efficiency. Indeed, the whole government procurement structure is based on low cost/first cost which offers no life cycle value. In a climate impact context, this is a result of the economic profit and loss emphasis of traditional economic development models.

So what are the solutions to this life-threatening crisis?

Ramdahin, who has been vigorously advocating strategies for development, sustainability and global energy conservation, offers some suggestions. At the recent WEEC meeting in Atlanta, he presented a paper which explores innovative financial modeling to extract total life-cycle value from waste, cost avoidance, and renewable energy credits to pay for the higher cost of green design.

Ramdahin contends that higher upfront technological costs for green design is a deterrent to government and private sector business owners but green design offers them life-cycle revenue and value addition. In addition, he states that mounting pressure from global warming and climate change requires a shift to green design models. He also observes that given the current rising fuel cost, energy efficient models make better business sense since waste and cost avoidance is revenue, profitability and job sustainability.

The essence of Ramdahin's presentation is that conventional developers present one main argument which hit at the very heart of green designs: *these initiatives are too costly to implement and the costs outweigh the benefits*. Green design initiatives, due to their generally higher initial costs as a result of technology applications, face an uphill battle in winning project proposals. As such, projects that deliver life-cycle value run the risk of getting out-bid. A simple payback period ignores the value of money and future cost savings. In addition, finance and budget rules do not allow for the inter-marriage of capital and operating budgets to benefit a project.

For Ramdahin, financial models that account for a long-term analysis of costs, comparing first costs (the focus of most current analyses), lifecycle costs, and avoided operating costs, are long overdue. These, he contends, will be the incentive for combating climate change. Breaking out the fragments of life-cycle cost impact in order to realize life-cycle value, is presented by Ramdahin as a "new model" which financiers could use to relax the fear experienced by developers and governments when confronted with the costs of high performance designs. This model extrapolates the life cycle value of the many different costs in order to project a total estimated value over an amortized period (e.g., 20 years) at an attractive interest rate based on lowered lending risk. This would be costs that would otherwise be incurred in maintaining *inefficiency* over a building's or system's life.

Other solutions to the energy crisis include energy efficiency planning, culture change and responsible production and consumption. Education also has a vital role to play. Augmenting existing secondary and tertiary curriculum to include sustainable development courses will demonstrate to emerging professionals such as engineers, architects and economists, the need to understand the balance between people, planet and profit. Wind, solar, tidal, geo-thermal and energy efficiency master planning can open avenues for an energy overhaul, stimulate economic development and generate employment. In order to reduce energy demand, professionals will be required to embrace these sustainable strategies. This also involves replacing existing equipment with energy efficient ones and high performance new designs and construction. A simple example of smart design was observed in a two star hotel in Brazil where it is necessary to put the room key in a slot next to the door before the total supply of electricity in the room can be activated, even for turning on the television set.

Thus, there are feasible measures through which energy efficiency, environmental preservation and development can be reconciled and through which both developed and developing countries can attain higher employment rates, greater productivity and maximum output - at lower costs. The World Business Council on Sustainable Development (WBCSD) declares that high performance designs do not cost much more. The industry thought it was 17% but according to the WBCSD, it is just 5% higher, and this is only attributable to new technology.

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