

## COMMENTS ON

### **“The Quest for Power: Analyzing the Costs and Benefits of Cuba’s Nuclear Energy Policy” by Jonathan Benjamin-Alvarado**

Oswaldo A. Juvier

I appreciate the opportunity to participate in this conference. I had the pleasure of reading the paper Mr. Benjamin-Alvarado wrote and would recommend that you do the same. It provides an excellent perspective of the current situation of the nuclear industry in Cuba and the real problems it is facing in the future.

The paper focuses on the economic and environmental impact of the current program to complete the nuclear power station at Juraguá and its effects on Cuba and its surrounding neighboring countries.

I would like, however, to focus on some aspects of the paper which I believe are very important and perhaps are not treated in sufficient detail:

1. While I strongly agree that in order for the project to continue there should be strict and concise verification of previous work, I believe that the verification task will be almost impossible to accomplish, according to recognized world nuclear construction standards, and that much of the work may have to be demolished and rebuilt. As a result, my estimate of the capital required for the completion of the plant could reach as high as US\$2 billion and not the \$800 million claimed by the Cuban Government.
2. There has not been disclosure of a plan to decommission the plant at the end of its useful life. World standards today require nuclear utilities to provide specific plans and capital allocation programs to make certain that once a nuclear

unit reaches the end of its useful life, there will be sufficient planning and capital in place to provide an orderly and environmentally secure dismantling. Also, the spent nuclear fuel storage and disposal plans appear not to be up to international standards, thus creating an environmental uncertainty for the island and neighboring countries.

3. As a result, I believe the project economics do not meet the performance expectations of potential foreign investors, thus creating a scenario of project economics based solely on government subsidies and political motives.
4. The lack of a Cuban nuclear regulatory agency which operates in conjunction with other world nuclear regulators is also a key issue. The current plans of the Cuban government do not call for such agency to exist and the inability of the Cuban nuclear industry to participate and benefit from the international exchange of technology, environmental protection and regulatory issues will be a deciding factor on whether Cuba will effectively implement a nuclear program and whether such program will attract international players.

In summary, Mr. Benjamin-Alvarado’s paper contains many interesting details and data which supports his conclusions with which I fully agree. Thank you.