

Chalillo-let's do the math correctly!

The article, entitled, "Chalillo is a rip-off", which was published in the May 6, 2001, Reporter Newspaper and authored by Peter Siegfried, includes calculations that are fundamentally wrong. BEL is obligated to respond and inform readers of the economic facts relating to the Chalillo project.

The only correct aspects of the article are the definitions of kilowatt and kilowatt-hour. However, converting kilowatt to kilowatt-hour by "knocking off" hours as the author does is erroneous. The amount of energy produced by a hydroelectric project is based on projections of annual hydrological records. This is explained in detail in the 1999 Feasibility study. In that report it is concluded that the combined output of Mollejon and Chalillo would increase to an average of 167 GWh (a GWh is 1,000,000 kWh). Knowing this annual output and the capital cost plus an annual operation and maintenance cost, the correct economic principles to determine the per unit cost are as follows:

Step 1. Take the capital cost of the project and compute an annual cost (called the amortized value) based on a defined interest rate and an estimated economic life. The interest rate is the opportunity cost of capital or the maximum hurdle rate. Economic life is the period over which the project is expected to perform at design levels with routine annual maintenance.

Step 2. Add the annual capital cost (or

operation and maintenance (O&M) cost of the project to get the total annual cost.

Step 3. To get the per unit cost in kWh, divide the total annual cost by the expected yearly annual energy production.

First what is the annual energy production? The average annual energy production due to Chalillo is approximately 167 GWh less the average existing annual long term production of Mollejon which is 85 GWh. Therefore the Chalillo project will yield an additional 80 GWh of energy. So the plant when combined with Mollejon will add a further 80 GWh of energy to the grid.

Step 1. The capital cost is estimated at Bz\$57 million. At 12% interest rate and a 50 year economic life the annual cost is Bz\$6,863,749.82.

Step 2. The annual O&M cost is generally 2% of the capital cost for hydro projects. The total annual cost is then Bz\$8,063,749.82.

Step 3. Divide Bz\$8,063,749.82 by 80,000,000 kWh and we get Bz\$0.102 (or US\$ 0.05)

This is the true cost of energy from Chalillo. This figure may vary depending on the interest rate and the final average annual production. The range lies between Bz\$0.09 to Bz\$0.12. This is the undeniable fact.

This cost is not related to the per MW cost in any way as the consumer does NOT pay for energy in per MW cost. The consumer

The author misleads the public by saying that "BEL says its dam project will come in at "just" 10 cents US per kWh in costs." BEL invites the author to share his source of this information, as the company has never made such statement. As clearly shown in the above calculations, energy produced from Chalillo will cost between 9 cents Bz to 12 cents Bz per kWh.

The analysis of any engineering project is complex and we do not know the source of the author's information on Wartsila engines so BEL cannot comment on the numbers stated. However, BEL would gladly provide a detailed economic analysis to the author of the article if he provides us with the following information: capital cost of the proposed machines, capital cost of power station including buildings (if any), substations and land, cost of environmental mitigation, cost of fuel handling, fuel storage and annual operation and maintenance.

What we do know is this: at the current price per gallon of diesel (more than Bz\$2.20), even the most efficient diesel engine would produce electricity at a per unit rate of more than Bz\$0.16, which is 60% higher than Chalillo, **AND THIS EXCLUDES PAYING BACK FOR THE ENGINES.**

BEL stands by its commitment to provide Belize with a reliable and stable supply of electricity at competitive prices. The Chalillo project is undoubtedly the most at-