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Overview

OPTVALUE is financial evaluation tool for generation projects with the capability of: (i) computing energy price for a energy block or capacity contract, associated to a given internal rate of return (IRR) which is compatible with the risk associated to the project, (ii) computing the IIR for a given energy contract price (iii) computing a mean investment cost for a given IIR and energy contract price.

The model has the capability to evaluate the main generation technologies and can also accommodate investment, operation commission date, contract revenue reduction, exchange rate, hydro and wind plants production uncertainties through user specified scenarios.

The evaluation is based on stochastic simulation and one of its main results is the probability distribution of the IIR which allows for risk analysis associated to each technology and specified scenarios.

Model input data

- Plant type, number of generating units with their commission dates and installed capacities.
- Plant life time, contract type and duration.
- O&M fixed and variable costs, fuel costs, limits on plant operation flexibility and take-or-pay clauses.
- Future spot price scenarios.
- Investment payment scheduling.
- Investment financing schemes such loan payment based on SAC, PRICE and BNDES.
- Taxes and sector charges

Model output:

- Contracting limits, COP and CEC for Brazilian thermal generation projects
- Energy price (ICB) for a given mean IIR or a minimum IIR at a VaR level, (ii) IIR for a given contract energy price and (iii) mean investment cost associated to an IIR and contract energy price
- Investor annuity (capacity contracts), associated to a given IIR and benefit cost indicator (ICB).
- IIR and net discounted revenue accumulated probability distribution.

- Graphic showing contract energy price x contracting level for energy block contracts.
- Optimal contracting level for hydro projects.
- Decomposition of contract price in terms of: investment cost, taxes, sector charges, O&M and fuel costs, TUOS, etc.;
- Financial results: company and stock holders cash flow, Patrimonial Balance and Dividend Cash Flows.
- Time series graphics associated to plant dispatch or energy credits, plant surplus, energy selling and purchasing in CCEE, stock holders cash flow, etc.

Some Recent Applications

OptValue has been used to compute energy price associated to new generation projects, helping investors on their capital allocation or auction decision making. Other model applications consist in the analysis of risk factors and premium associated to each technology.