CIB W107 Construction in Developing Countries International Symposium
"Construction in Developing Economies: New Issues and Challenges"
18-20 January 2006, Santiago, Chile.

Risk Mitigation for the Private Power Projects Investors in Brazil – The Guarantees Structure.

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Abstract
This paper deals with the mechanisms of risks mitigation designed for non-expert private investors in Private Power Projects in Brazil, taken into account the specials features of the Brazilian electricity market and economic behavior of the country as well. It is assumed in this article that all projects will have their funding by limited-recourse systems.
Firstly, the sector scenario will be briefly exposed specially in what concerns to the current generation model and to the demand for energy, based on the new Brazilian electric model disposals. Secondly, we present the main risks related to a typical power project in Brazil and its funding structure as well.
Finally, by using a prototype of a power project, we describe the special purpose environment within occurs the project development, pointing out the hole of each stakeholder involved in the Project Finance and the mechanisms for risk mitigation for the private investor.

Keywords
Project finance, mitigation, private power projects, risk analysis, guarantees.

THE BRAZILIAN ELECTRIC MODEL AND THE DEMAND FOR NEW INVESTMENTS IN POWER PROJECTS

The Brazilian generating energy system has a current capacity of 91,704MW. It is divided into small isolated systems ones and the National Linked System (SIN – Sistema Interligado Nacional). The SIN is composed by four sub-systems – North Linked System, Northeast Linked System, Southeast/Mid-West Linked System and South Linked System, they altogether generating 97% of the total national capacity. The Brazilian generating system is characterized by an expressive predominance of hydroelectric generation. The share of such kind of generation reaches over 75% of the total capacity in Brazil. Another important feature of the system is the long distances from the generating facilities to the consuming centers and, therefore, the system requires an extent net of integrated transmission lines.

Since the Brazil 2001 energy crisis, there has been an orientation towards changes in the energy matrix, searching to reduce the system exposition to hydrological risks through incentives to increment investments in thermal plants and exploitation of alternative energy sources. According

to the National Agency of Electric Energy (ANEEL – Agência Nacional de Energia Elétrica), until June, 2005, the Brazilian energy matrix, was composed of 76.3% of hydroelectric energy, 21.4% of thermoelectric energy and 2.2% of thermonuclear energy, being the remaining part provided by alternative power sources.

According to the Brazilian Mines and Energy Department (2003) (MME – Ministério de Minas e Energia), nowadays, there is an excessive energy supply, capable to support the demand until mid-2006, although the country needs to extend its generating capacity in nearly 3,200MW per year to sustain an annual growth projection of 4.5% in the Gross Domestic Product (PIB – Produto Interno Bruto) up to 2010. However, according to the forecasting made by the MME, the country needs around US$ 5.7 billion annual investments in the electric sector, which ones should be derived in 50% to generation functions, 34% to distribution and 16% to transmission. These requirements are essential to prevent low energy supply between 2007 and 2009. Otherwise it could abort economical growth perspectives for such years.

In order to adjust the energy supply increase, in March 2004, the Brazilian government approved the laws 10.487 and 10.848. These laws established the guidelines for the new Brazilian electric market. According to the MME, this new model has the following main objectives: to ensure the efficiency of operation and service provided to consumers; to assure reasonable fees; to create a steadily regulatory environment to stimulate the competition and new private investments; keeping strong orientation not only to the long term planning, but also medium and short ones.

The institutional structure of the Brazilian new electric model is focused on planning, supply security, regulation and selling and buying transactions control. The new structure comprehends, with no hierarchy whatsoever, the following entities:

- **National Energetic Policy Board** (CNPE – Conselho Nacional de Política Energética): multi-ministerial and technical counseling agency for the Republic Presidency. It is headed by the Mines and Energy Minister. Its objectives are: to formulate national policies focused on the rational exploitation of the country energy resources; to review periodically the energy matrix and to manage specific sector programs.
- **Mines and Energy Department** (MME – Ministério de Minas e Energia): the department's role is to originate and to execute in the federal level the national energy policy.
- **Energy Research Company** (EPE – Empresa de Pesquisa Energética): federal public company bounded to the MME. Its functions are related to studies of national energy planning, amongst others, the composition of the national energy matrix projections, the national energy balance, the maximum use of water resources, the environmental licensing and, finally, the planning expansion of generation and transmission of electric energy in long, medium and short terms.
- **Electrical Sector Monitoring Committee** (CMSE – Comitê de Monitoramento do Setor Elétrico): group coordinated by MME whose purpose is assure continuity and security to energy supply.
- **National Agency of Electric Energy** (ANEEL – Agência Nacional de Energia Elétrica): it is an autarchy bounded to the MME, whose purpose is to control and regulate generation, transmission, trading and distribution of electric energy across the domestic territory.
- **Electrical System National Operator** (ONS – Operador Nacional do Sistema Elétrico): it is a private entity, but with no profitable purpose, under regulation and supervision from ANEEL. The ONS aims to control functions of generation and transmission in the National Linked System.

- **Electric Energy Trading Chamber** (CCEE – Câmara de Comercialização de Energia Elétrica): it is a private entity, but with no profitable purpose, under regulation and supervision from ANEEL. The CCEE manages the electric energy trading process.

At a first sight, the intervention of the government in the sector strategic decisions is contrary to the main objective of the new model first goals, the attractiveness of private investments. The strategic planning for the electric sector, as pointed out in the new model institutional mission, lays down on the sole responsibility of MME, besides the EPE has a decisive role in giving concessions to new projects. However, regarding specifically to the sector planning, the complexity and size of Brazil's national electric system, its great dependence on hydraulic sources, and, moreover, the co-dependence amongst the four great regional systems and the excessive number of operating agents, is essential to have an integrated and impartial sector regulation, conducted by a private entity, to ensure adequate operation and expansion of the energy offering in the Brazilian market.

Taken into consideration the factors referred to the private investments attractiveness, which constitutes the scope of this article, it's worth to describe how electric energy trade will be occur. The Generation companies will trade produced energy in two distinct markets, as follows: Regulated Contract Environment (ACR – Ambiente de Contratação Regulada) and Free Contract Environment (ACL – Ambiente de Contratação Livre). In the ACR, the energy to attend regular consumers will be contracted upon a pool of distributing companies by regulated contracts, in order to promote reasonable fees to the final consumer. In the ACL, the generating companies will be free to negotiate contracts. They will trade energy with consumers called "free". These consumers are those with charge demands equal or above 3,000kW, in any voltage band.

The bidding process for new generating projects will always happen with little advance towards purchasing and selling energy auctions in the regulated environment. Power purchase agreements among generators and distributors must be signed in a first bidding five years before the distributors demand requirements. In a second moment, after two years past the first event, in a second bidding, which has no effect in deals closed in the first event, the contracts are made straightly to new plants having just a three-year to start up generation. The purpose of such scheme is to allow distributors to adjust energy demand perspectives set in the first bidding. The bidding processes of purchasing new energy, in the first and second event, must obey the following stages:

1. The ANEEL confirms along with consumers the foreseen demand established by distributors and suggests a list of projects that having previously approved environmental licenses. This list follows an increasing scale of economical merit to attend consumption expansion projections. The Global amount of energy assured in the projects list must substantially exceed demand foreseen.
2. The bidders show price proposal for assured energy to the listed plants or alternative ones. The energy price can be defined by observing available power purchase agreements, in which bidders propose prices to available energy. In such way, the demand risk is transferred to the distributor, otherwise, it can be handle by an energy quantity contract. In this case, the bidder proposes prices considering that the provided energy must be the same as in the assured energy certificate issued by ANEEL. Therefore, the exceeding of energy with no purchase warrants is a risk that must be assumed by the generator. The fees, in the first case, should be inferior to the second due to the different risk exposition degrees in both situations. The Bidders must specify in their bid, the assured energy amount available for own consumption, for trading in ACR and ACL.
3. ANEEL set up the lower fee bid to each plant in the list.

4. ANEEL commands plants bids in increasing order of energy fee.
5. The ANEEL selects plants by energy assured amount, until the bid demand volume is reached. It must be observed despite of the lower fee criteria, a minimum pre-defined participation in thermoelectric plants attendance.
6. The MME grants exploitation rights and common property use, for up to 35 years, to winners in electric generation bidding.
7. The generators sign bilateral power purchase agreement, which will last from 15 to 35 years, with supply beginning 3 or 5 years after contract signature, as they are firmed up in the first or second bidding. The Contracts types vary from energy amount or available ones and must be firmed up with each distributor in the pool. The Guarantees to generator will be, essentially and in this order, the receivables from distributors and financial assets owned by distributors.
8. During the generation plants operation cycle, there will be *ex post* re-arrangement instruments regarding to adjust the total energy amount generated in the system, to eliminate, or at least, to balance differences between energy amount really generated and those assured in each generating system plant, seeking thus prioritizing bilateral contracts fulfillment. In energy amount contracts, responsibility for eliminating and balancing transactions management rests with generating companies, but in available energy contracts, responsibility belongs to distributors themselves.

The Generators can be classified in Public Services Concessionaires (CSPG – Concessionários de Serviços Públicos de Geração), Electric Energy Independent Producers (PIE – Produtores Independentes de Energia Elétrica) and self-producers. Both CSPG and PIE are able to trade energy with (I) distributors in the pool, using ACR, by bidding, through CCEE; (II) individual buyers, also by public bidding, through CCEE, in order to set up ordinary adjust contracts; (III) free consumers, directly or via traders and (IV) as exporters, previously authorized by grantor and registered in CCEE.

The Brazilian new electric model has been in force since March 2004. Since this date, there have not been occurred any auction involving concessions granting for new electric generation projects. The first auction for new energy purchasing will occur in 2005 December 16th, for what ANEEL have bidden a list of 17 generation projects for concessions, as presented in the table 1. As there are no concessions for generation projects granted after the new legislation approval, which would permit us analyze, through observation, the new model capacity for attracting new private investments for the sector, in the next sections, we discuss the new model's risks and the ones commonly associated to power generation projects, seeking value the new regulatory structure capacity to ensure the financial recourses flow to support the expected growth of energy demand in the country.

Table - 1 List of Hydroelectric Power Plants to be granted in December 2005

#	Name	State	Power (MW)	#	Name	State	Power (MW)
1	Baguari	Minas Gerais	140	**10**	Ipueiras	Tocantins	480
2	Itaguaçu	Goiás	130	**11**	Mauá	Paraná	382,2
3	Salto Grande	Paraná	53,3	**12**	Mirador	Goiás	80
4	Simplício	Minas Gerais / Rio de Janeiro	324,8	**13**	Paulistas	Goiás / Minas Gerais	52,5
5	Baixo Iguaçu	Paraná	350	**14**	Retiro Baixo	Minas Gerais	82
6	Barra do Pomba	Rio de Janeiro	80	**15**	Telêmaco Borba	Paraná	120
7	Cambuci	Rio de Janeiro	50	**16**	Passo São João	Rio Grande do Sul	81
8	Dardanelos	Mato Grosso	261	**17**	São José	Rio Grande do Sul	45
9	Foz do Rio Claro	Goiás	67				

HYDROELETRIC POWER GENERATION PROJECTS

Characteristic Risks

Hydroelectric generation projects, as well as other projects that involve common property exploitation, embraces two different and well defined stages with characteristics and risks of their own.

The first one constitutes the implementation stage, which lasts from 3 to 5 years, period of intensive capital investment. Financially, this stage is characterized by a concentrated investment flow and an absence of income generation. In a management perspective, the main tasks are related to Engineering, Procurement and Construction (EPC) contract. In this phase, project risks are associated to environmental issues, to long term financing contracts delay and, depending on the nature of the EPC contract, to deviation in implementation costs and delay in operation beginning due to performance go down in construction management, unpredicted events and macro-economic or sector scenario breakdown.

Except for macro-economic and unpredicted risks, the risk mitigation during implementation cycle is essentially attached to the EPC suppliers' contract disposals. Risks in increasing construction costs or delays could be shared in contract, between developers and suppliers, according to each agent's risk management capacity. The EPC suppliers are able to assume risks from delays and cost increase related to efficiency failure in their processes, as long as developers assume total or partly risks regarding unpredicted events, or macro-economical scenario deviation, for which suppliers cannot deal with (FINNERTY, 1996). Bonomi and Malvessi (2002) verified that it's a common practice in Brazil that the hydroelectric generation projects EPC contracts are based on turn key terms. In such cases the EPC suppliers assume full responsibility in delivering the plant ready and operative to the generator, on a previously arranged date, and for a pre-arranged fixed price as well. The EPC suppliers offer guarantees of arranged conditions fulfillment, such as performance and accomplishment insurance.

On the other hand, the developer must take those Risks associated to social and environmental factors, along competent institutions and under EPE supervision, which among other attributions, is responsible for bid projects environmental feasibility.

The second stage comprehends the project's operation phase. In this stage the risks are not only linked to higher operational, maintenance and preservation costs, but also and mainly to risk of the market. In other words, the project performance get worse as a whole when energy amounts are traded in inferior quantity or at lower prices than those defined during planning phase (ALENCAR, 1998).

Operational inefficiency risk must be taken by developer or shared, as mentioned in the construction phase discussion, between developer and a third party contracted out to operate and maintain services. From a passive investor point of view, the developer or this third party must assure the achievement of demand levels in pre-arranged quantity and quality patterns through performance guarantees.

The demand risks, at least in ACR, are partly mitigated by both, the structure of the new project concession bidding process and the rules for energy trading in the market. As previously mentioned, ANNEL grants exploitation rights to generators, by proposed price order, until it get assured energy from granted plants that equalizes contract demand level estimated by the energy distributors pool. This pool has pre-contracted 100% of their energy demand through agreements firmed up 3 or 5 years before the demand to arise, and they have duration from 15 to 35 years, regulated by CCEE. Therefore, in ACR, the economic wealth of new projects concessions is directly dependent on pre-existing purchase agreements.

In these cases, risks during operational period are summarized into (i) gaps between operational costs and energy prices inflation rate; (ii) energy generation not formally assured in contract. Risk factor present in contracts like energy quantity, but subjects to mitigation, if it were signed with available energy clauses, where this risk is transferred to distributors; (iii) distributors insolvency, nevertheless is a partially pulverized risk, once in the new model are firmed up bilateral contracts between generators and each pool distributors member. In addition, the new rules establish adjusting mechanisms between pool members when payment obligations are not fulfilled by one of them. Outside ACR, the generators are truly exposed to all market risks, regarding to the energy lot they choose to trade in ACL or in exportation market.

The Funding and Principal Actors

Hydroelectric generation projects are usually developed in a Special Purpose Company – SPC. The SPC isolates the project and protects it from developers' business portfolio risks. In Brazil, taken into account the intensive investment requirements and relative protection of the income flow during operational phase, hydroelectric generation projects have a typical capital structure composed of: (i) a small part of developer's equity, who holds SPC stock control; (ii) pulverized investors, essentially institutional entities – large investment funds, pension funds and insurance companies – who acquire SPC's debt bonds, as well as (iii) long term finance institutions, such as development banks – in Brazil, with remarkable action in electric sector projects, we have the National Bank for Economic and Social Development (BNDES – Banco Nacional de Desenvolvimento Econômico e Social) – multilateral and bilateral credit agencies, Export Credit Agencies – ECA and private banks (ALENCAR, 1998).

The long term financing agencies usually offer credit to developers in favorable conditions. The BNDES, i.e., offers credit lines specifically for enterprises financing (FINEM – Financiamento de Empreendimentos) and directed to machinery and equipment acquirement (FINAME -

Financiamento de Máquinas e Equipamentos), with favorable indexed interest rates for Brazilian companies, called long term interest rate (TJLP – Taxa de Juros de Longo Prazo), plus a basic spread of 2,5% and a risk spread also about 2,5% a year. In general these debts have an amortization span of approximately 10 years, and a grace period up to 6 months after the project completion. The banks usually demand as protection for funds made available, guarantees from borrowers and covenant introduction to assure project financial debt liquidation.

The main structural characteristics of electric generation projects are the intense investment concentration in the beginning of implementation phase and the long term of the return flow, but usually with low fluctuation levels. This profile keep strong similarity to non aggressive investors behavior, who detain large financial capacity, besides, they set up as their investments target those that can be understood as value reserve and with some risk protection, usually associated to relative low return rates, equivalent to conservative investments.

Due to these characteristics, in Brazil almost all of the new power projects are being financed through private bonds offered in the domestic capital markets. These bonds usually are formed with conservative interests, compatible to typical risk configuration of power projects. Besides, the bonds may be conceived in many formats, varying according to the project financial flow, risk protection degree and internal rate of return offered to investors. The power projects bonds usually have part of their interests fixed by developer and, other part carried over from the project operational performance, in such case, they can be protected or not by guarantees structured by the developers. Actually, the more investors profit were linked to the project operational performance, and the more restrict were investor access to the developer assets, the more the project financial structure will be closer to the Project Finance system (BORGES, 1999).

According to Borges (1999), the first Project Finance developed in Brazilian electric sector was the ITÁ Hydroelectric Power Plant with 1450 MW, placed in Uruguay River, in the borders between State of Santa Catarina and Rio Grande do Sul in Brazil's south region. The project funding was composed by a portion of developer's equity of 30% and a debt part of 70%, obtained in a non recourse condition, along with IDB – Interamerican Development Bank and BNDES, whose participation comprehended a parcel of long term loan and another one of bonds issued by the SPC created to allocate the enterprise. Another Project Finance case occurred, in this case in a limited recourse basis, was the implementation of Machadinho Hydroelectric Power Plant, placed in the same Uruguay River, with 1200MW. This project was developed with an equity/debt relation of 35%/65%, being the debt part formed by a long term loan conceded by BNDES and by a bond issuance in the capital market. Debt bonds were remarked with a selling option to BNDES in the end of the 9th concession year and were guaranteed by the project sponsors. The BNDES loan was partly guaranteed by the project sponsors too and in another part by commercial papers issued by the SPC Machadinho.

The Cana Brava Hydroelectric Power Plant, located in Tocantins River was another project structured in a limited recourse basis too. This project had a funding equation composed by 30% of developers equity, 35% of IDB loan and 35% of BNDES recourses, obtained through a debt bond negotiation. The enterprise had the Power Purchase Agreement firmed up since the implementation beginning what contributed to reduce risks and besides, was included in the Hydrological Balance Mechanism, that promote the division of the generated hydroelectric energy between the Brazilian generation companies, reducing the hydrological risks. According to Faria (2003), although the favorable financing conditions, the balanced risks distribution and IDB participation, reducing

project's regulatory and political risks, additional developers' guarantees were required for this project becoming the project finance structure a limited recourse one.

A PROJECT PROTOTYPE: LIMITED RECOURSE GUARANTEES STRUCTURE

A prototype of the project tries to embody a typical Brazilian hydroelectric plant, as matter of fact this prototype is very to close the project studied by Faria (2003). It is assumed at the prototype that the project funding is composed by the developer own capital, funds got along with BNDES and resources brought through private debt bonds issued to capital market, according to the details below:

- Developers will bring in about 10% of estimated investment requirements by the project, right away, as SPC's seed capital, giving them property over 100% of voting stocks in SPC.
- BNDES will bring a reasonable amount of resources, corresponding to 50% of investments sum, with *pari passu* disbursement to project's implementation program. Loan investment run for 15 years, with a grace period up to 6 months after the completion, capitalized interests during implementation phase and amortization span of 11.5 years, with quarterly principal payments and debt service. Financing costs will be composed by TJLP, basic spread of 2.5%, plus risk spread of 2.5% too. In addition to this, 0.25% of every disbursement will be destined to BNDES in reference to Guarantee Insurance during the project construction period.
- Non-specialists investors will commit to acquiring SPC's term debt bonds at project's implementation beginning, considering pre-defined quarterly tranches, compatible with projects' disbursements flow. Debt bonds will offer minimum fixed interests, assured by developer, equivalent to inflation indexer of energy trade contract plus 10% annual earning margin over invested values. Besides this, regarding risk spread, it will be derived to non-specialist investors an annual percentage from project's income, enough to rise investors' annual internal return rate to 13%, considering income expectations used in investment analysis reference scenario.

The developer will firm up turn key contract with EPC services suppliers to delivery, for a span and a fixed price, the project ready and operative. The developer must assure to the project creditors – BNDES and non-specialists investors – that construction will be concluded in schedule and any additional funds needed to accomplish it, will be obtained by developer's sole responsibility. The developer also must assure that, in case the project is not operative in scheduled time, or even not concluded, additional funds will be brought by himself, to liquidate project's entire debt. As previously referred, the out-of-time completion of the project onus could be, through EPC agreement, shared between developer and these parts, according to each agent's risk management capacity.

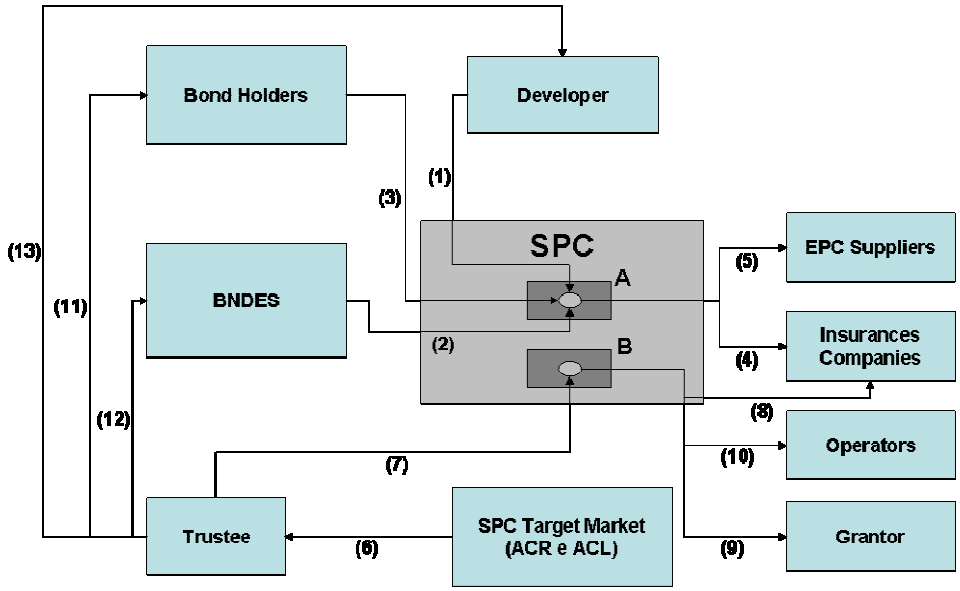
Similarly, during operational period, the developer will sign Operation and Maintenance (O&M) contracts with a third-party specialist. The contract must assure to the creditors that the project operation and maintenance will be performed according to limit quality standards, and any extra funds required to assure minimum agreed quality level will be brought by developer or by the third party responsible for operation, according to risks distribution in O&M contract. The developer also shall, during implementation and operation cycles, contract an insurance policy regarding force majeure events to assure to the creditors the agreed performance.

Market risks, associated to the hypothesis of the price and demand for generated energy going on in lower levels than those estimated, is mitigated due to the fact that the generation and distributors agreement is, at least for energy traded in ACR, *sine qua non* condition to concession granting. These agreements will also offer higher or lower risk to generators as they are based on energy amount or available energy contracts. In the first one, by previously arranged price, generators must assure to the pool of distributor the ANEEL's certified assured energy, and, in the second one, generators will make available to the pool of distributor the generated energy volume, whether it is lower or higher than assured amount. Even though not attached to conceding granting, for energy traded outside ACR, developer may sign future energy trading contracts seen by investors as contained risk or show them that his market projections, in what concerns to the demand and future energy prices, has credibility.

Besides these presented mitigation mechanisms, which are directly linked to the sector's enterprises, it will be detailed others, to reduce SPC's creditors risks, according to the list presented below:

- As guarantee for bonds and BNDES loan, it will be offered 100% of SPC's stocks, including all SPC's property assets, among them, its fixed assets, the emerging water resources exploitation rights and the power purchase agreement firmed up with distributors, traders and free consumers.
- A trustee has the function of controlling the cash flow in SPC, and distributing project's return according to arranged rules. As shown in picture 1, the project's cash flow will be derived to the stakeholders in the following order: (i) to the SPC, solely for maintenance and operation expenses, (ii) for paying principal and interests related to issued bonds, (iii) for the BNDES debt amortization and interests payment and only then (iv) for composing the developer return flow.
- Covenants introduction: (i) maintenance of a minimum capitalization index – *Net equity / Total passive*; (ii) maintenance of a minimum working capital index; (iii) maintenance of a minimum debt coverage index – *Cash flow available for debt payment / Short term net debt*, (iv) restriction regarding shareholders dividend payment and (V) restriction regarding taking new debts without main creditors' approval.

Fig. 1 - Power Project Financing Flows – Characteristics and Hierarchy



FINAL REMARKS

The realization of power projects frequently demands investments of great sums with a long-term return period. This financial tendency in the sector does not match the decreasing investment capacity of public sector in Brazil and in others development countries. As a result, there is already quite a trend in development countries infrastructure sector's a growing participation of the private capital, joined with public investments. For electric energy generation projects, financially self-sustainable and developed under the recent-made regulation disposals in Brazil, which seems to balance the project risks, the Project Finance appears like a valid system for maintain investments in satisfactory levels needed to sustaining Brazil's economic growth goals.

In Brazil, like in other developing countries, where State's investment capacity have been reduced forefront the recourses necessity for the infrastructure maintenance and expansion, and whose economic growth perspectives depend on a continuous increase of the electric energy offer, it becomes priority the creation of mechanisms and a stable environment that assures the access to the private capital and supports a constant resources flow to infrastructure projects. The new Brazilian electrical model has as one of its main objectives, the development of a steady regulatory environment, which besides promoting the competition and assuring efficiency and greater quality in the service installment, encourage the investors to face the hypothesis of anchoring resources to the sector's enterprises.

In emerging economies, the environment's stability and the predictability of the long-term returns flow are drivers of the investor's decision criteria. In this way, the new Brazilian electrical model creates the Regulated Contract Environment – ACR and establishes that each generation company shall firm a long term contract of electric energy supply with each pool's distributor member, for previously agreed price and conditions, which end up mitigating the demand or market risks that, otherwise could inhibit investors and lenders of putting resources up to power generation projects

development. The market risk mitigation is a crucial factor to attract the private capital for the sector's projects. However, just this mitigation act is not enough to accomplish private investments, that will only be mobilized if the construction and operation risks are duly treated and distributed among developer and service suppliers and if the enterprise offers a balanced investment x return flows, with an attractive internal rate of return in comparison to other investment option for the private capital.

For the first new electrical energy purchasing auction that shall occur in 2005 December 16th, further the previously listed 17 enterprises bidden by ANEEL which totalize approximately 2.800 MW of installed power, there are already other 115 vendors agents qualified to participate in the auction, whose bidden enterprises totalize more 35.000 MW. The vendors' expectation is the energy price in the first auction round about US$ 50 / MWh and US$ 40 MWh, value enough to produce a medium attractiveness rate of return for investors between 12 and 14% per year.

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