

PRIVATE SECTOR INVESTMENT IN ENERGY INFRASTRUCTURE: BALANCING THE RISKS AND THE REWARDS

Abstract

The purpose of this article is to analyze and assess the situation when a private sector company invests in the energy sector in an emerging market economy in transition. Energy investment can offer high rewards, but so are the risks especially in emerging market countries. For energy investments the host government is typically the offtake purchaser and it may have limited creditworthiness. In this situation the political risks of the project can be high. Energy investments are typically large, capital intensive and long-term which makes the investment even more risky for a private investor. It may take the private sector company 10 to 25 years to recover the investment and earn reasonable returns. There clearly is a need for increased investment in renewable energy in the developing world. However, if the risks are not mitigated, underinvestment in the clean energy sector is likely to occur. The international community has a role to play here and international financial institutions, including the World Bank Group, offer risk mitigation instruments to support investments in risky markets. Given the global needs, however, their involvement so far has been modest and reform may be needed to make those instruments more efficient and accessible for the private sector. This article is based on a review of theoretical literature, secondary data and the author's experience in working for the World Bank Group for 12 years.

KEYWORDS: Public-Private Partnerships (PPPs), energy infrastructure, emerging markets, international financial institutions, risk mitigation instruments.

Introduction

It is becoming increasingly important to utilize renewable energy sources in the world. Climate change and general concerns about protecting and preserving earth's environment are issues frequently discussed today. This is a global challenge.

Many of the renewable energy sources e.g. geothermal and hydropower are located in the emerging markets and developing countries of the south. Most of the increase in energy demand is also likely to come from this part of the world. East Asia, the fastest growing region in the World, is a good example of vast unutilized clean energy sources as well as ever increasing demand for electricity.²

Energy investments tend to be large, capital intensive and long-term. The public sector alone cannot fund the needed investments. The international community has created international financial institutions (IFIs) to (among other things) engage in infrastructure investments in the world, but IFIs also have very limited funding. Private sector participation, including in funding is thus necessary.³

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² It seems clear that the demand for electricity will grow in the coming years and decades and most of that increase will be in emerging markets. It is expected that world electricity demand will double through 2030, with the largest increase coming from developing countries (see e.g. Tooman, 2004). It has also been estimated that by 2025 developing Asia will consume 2.5 times as much electricity as in 2001.

³ According to the Asian Development Bank "Only the private sector can provide the trillions of dollars needed in the foreseeable future." (Asian Development Bank 2008).

The rewards from energy investments can be high, but so are the risks. This is especially true for emerging markets in transition. High risks typically result in underinvestment. One way to help resolve this problem is to have IFIs increase their use of risk mitigation instruments to encourage private participation in energy investments in transitions economies. This is for example important where the host government is the buyer of the energy but has weak creditworthiness.

To make this possible, IFIs may need to reform and offer more flexible and cost effective risk mitigation instruments. IFIs may also need to make more efforts to learn to work with the private sector in risky environment and help make the investment environment more enabling. Among the IFIs involved is the World Bank Group (WBG).⁴ It is the largest IFI and will be discussed in some detail in this article. The WBG operates in all emerging regions of the world.

1. Public-Private Partnerships in Emerging Markets

Private sector funding and participation in energy projects can be a challenge for many different reasons. One example is when a project generates electricity and the host government is the only buyer of the electricity produced. The government is thus the so called offtake purchaser or power purchaser⁵. Some countries with large clean energy potential have limited creditworthiness. They have low per capita income and are often going through an economic and a political transition. In such cases the sponsors⁶ of a project could hesitate to fund the project because of the uncertainty with the income stream from the investment made. Lenders, including commercial investment banks, would also often hesitate to provide loans to such projects because of the uncertainty that the project company, whose income stream is at risk, can service its loans. A proper institutional framework with efficient and effective risk allocation and risk mitigation can help. On one hand the governments of emerging market economies have limited capital and need funding from the private sector. On the other hand the private sector needs some assurances that it can expect returns from its investment.

One possible institutional arrangement to address this situation is to form a Public-Private Partnership (PPP) and use the so called Build-Operate-Transfer (BOT) scheme. There are many different definitions for PPPs. One definition is “any public sector service provided partially or wholly by the private sector” (Delmon 2009, p. 601). Another definition is a “co-operative institutional arrangements between public and private sector actors” (Hodge and Greve 2009, p. 33). Yet another definition of a PPP is “the transfer to the private sector of investment projects that traditionally have been executed or financed by the public sector” (World Bank 2008, p. 93).

The PPP becomes a venue for the public and private sector to cooperate on a project that would traditionally have been in the public domain. The BOT arrangement means that the

⁴ The World Bank Group represents five institutions. Those are the International Bank for Reconstruction and Development, IBRD, established in 1944, (ii) the International Development Association, IDA, established in 1960, (iii) the International Finance Corporation, IFC, established in 1956, (iv) the Multilateral Investment Guarantee Agency, MIGA, established in 1988, (v) International Centre for Settlement of Investment Disputes, ICSID, established in 1966. Four of those institutions issue insurances or guarantees, i.e.: IBRD, IDA, IFC and MIGA.

⁵ Offtake purchaser is the purchaser of the product produced by a project. In the case of a power project the product produces is the electricity generated.

⁶ A sponsor of a project is a party wishing to develop or undertake a project. A sponsor would normally provide financial support for the project e.g. early equity capital.

project is transferred back to the government when the concession⁷ agreement ends. In this situation efficient and effective risk allocation is key to success and the international community can play a constructive role, e.g. through international financial institutions that can offer a variety of risk mitigation instruments. Among the remedies that investors can apply to manage risks is partnership with IFIs and/or participation in a consortium with other partners.

The World Economic Forum (WEF) is an independent international organization committed to improving the state of the world by engaging leaders in partnership to shape global, regional and industry agendas. In September 2005 the WEF issued a report titled „Building on the Monterrey Consensus: The Growing Role of Public-Private Partnerships in Mobilizing Resources for Development“ (World Economic Forum 2005a). In a press release from the WEF one can find the following statement made by Richard Samans, Managing Director of the Global Institute for Partnership and Governance at the World Economic Forum "This report adds to the growing evidence that public-private partnerships are a promising tool that deserves to be taken more seriously by everyone who has an interest in expanding growth and opportunity in developing countries. It builds upon our own growing experience in facilitating partnerships involving our member companies in the areas of health, education, water, energy, information technology and disaster relief" (World Economic Forum 2005b).

The energy sector is among the sector mentioned specifically in this statement and global leadership is required here. The WEF report is an important and timely input into this debate. PPPs have a potential to help utilize more clean energy resources but many players are typically involved and the institutional framework can be quite complicated. Stronger global support can help, including from IFIs.

2. Public-Private Partnerships and Risk Mitigation

The ongoing debate about the role of international financial institutions increasingly recognizes the importance of making greater use of the risk mitigation potential inherent in their unique multilateral structure (AsDB 2006). In addition to its 2005 report on PPPs the World Economic Forum (WEF)⁸ has also argued strongly for IFIs to better use guarantee and risk mitigation instruments and capabilities to attract increased commercial investment in development projects. In 2006 WEF issued a report titled *Building on the Monterrey Consensus: The Untapped Potential of Development Finance Institutions to Catalyze Private Investment*. In this report the WEF specifically asserted that: "...the weight of DFI (development finance institutions) activities should shift over time from direct lending to facilitating the mobilization of resources from the world's large private savings pools – international and domestic – for development-oriented investment through:

- wider use of risk mitigation instruments to alleviate part of risk faces by investors; and
- stronger direct support for capacity building to strengthen the enabling environment for investment." (World Economic Forum 2006, p. 9).

⁷ The concession is the right granted by the host government for a private company to undertake an public sector project and operate it over an agreed period of time.

⁸ The World Economic Forum's Financing for Development Initiative comprises more than 200 global experts from financial institutions, corporations, governments, international organizations, universities, and nongovernmental organizations, who offer their views on improving the effectiveness of efforts to stimulate private sector investment in developing countries.

Furthermore WEF argued that DFIs should “...adapt their services, culture and capital allocation to the imperative of “crowding in” domestic and foreign private investment by placing much more emphasis on such risk mitigation instruments as partial guarantees as transitional strategy and on capacity building” (World Economic Forum 2006, p. 10) and that “an international consensus has emerged, embodied by the Monterrey Consensus, that a deeper partnership between the public and private sector is needed if we are to achieve common development objectives” (World Economic Forum 2006, p. 10). In its specific recommendations the WEF stated that “The overwhelming majority of expert participants in the project recommended a major expansion of risk mitigation activity by DFIs...” (World Economic Forum 2006, p. 15). This statement is quite interesting and is related to the discussion about PPPs. The next section of this article will discuss a major cross-border PPP in the energy sector that was made possible with the support of IFIs. In this case the application of IFI risk mitigation instruments supported an energy sector PPP and attracted large amounts of private sector funding to a developing country that would otherwise hardly receive large inflows of foreign investment.

3. The Case of Nam Theun 2

The US\$1.45 billion Nam Theun 2 Hydroelectric Project (“NT2”) in Lao PDR in East Asia is an excellent demonstration of what is possible if IFIs join forces and support an energy infrastructure PPP in a difficult business and investment environment and by doing so attract large amounts of private sector funding, see table 1. A constructive partnership with the host government was also key in making this PPP project possible. Jayasankar Shivakumar a former World Bank Country Director for Thailand and currently a Senior NT2 Advisor has written a remarkable note about the Nam Theun 2 experience and draws some important lessons from this mega project (Shivakumar 2009). In this note he discusses the efforts made to make „NT2 ready for the country, but also the country ready for the project” he also emphasizes that the NT2 preparation experience suggests that, to be an effective partner, the World Bank must improve further on this new business approach (Shivakumar 2009, p. 1).

Table 1. Funding of Nam Theun 2 (NT2)**Uses and Sources of Funds**

Uses of Funds	THB Millions	USD Millions	Total USD Million Equivalent
Development Costs	80	72	74
Environmental/Social Costs	0	49	49
Head Construction Contract	12,847	401	722
Financing Costs	4,271	144	250
NTPC General and Administrative, incl. Working Capital	414	36	46
Pre-operating and Other Costs	568	94	109
Total Base Costs	18,180	795	1,250
Contingencies	0	200	200
Total Project Cost	18,180	995	1,450
Sources of Funds	THB Millions	USD Millions	Total USD Million Equivalent
Equity			
EDFI	67	121	122
ITD	29	52	52
EGCO	48	86	87
GOL	48	86	87
Contingent Equity	0	100	100
Total Base Equity	192	345	350
Total Project Equity	192	445	450
Debt			
Thai Commercial Lenders	20,000		500
Commercial Loans covered by ECA's - Coface, GIEK and EKN		200	200
Commercial Loans covered by ADB PRG		42	42
Commercial Loans covered by IDA PRG		42	42
Commercial Loans covered by MIGA Guarantees		42	42
Thai Exim Bank		30	30
Nordic Investment Bank		34	34
ADB OCR Loan		50	50
AFD		30	30
Proparco		30	30
Total Debt	20,000	500	1,000
Total Project Financing	20,192	945	1,450

Nam Theun 2 in Lao is a good example of an energy investment in a developing country where large private sector contributions were mobilized with support from IFI funding and risk mitigation instruments.

Source: World Bank 2005

During NT2 preparation the development challenges in Lao PDR included limited capacity in the central and provincial governments, a fledgling private sector, lack of infrastructure, and the absence of stakeholder participation in the development debate. However the country is rich in natural resources, including water for hydroelectricity generation.

In partnership with the International Monetary Fund and the Asian Development Bank, the World Bank's International Development Association (IDA) supported a poverty reduction strategy in Lao through macroeconomic measures and structural reforms. IDA support came largely through Poverty Reduction Support Operations. According to Shivakumar Nam Theun 2 complemented these interventions. In fact, NT2 reinforces the government's reform program and helps maintain Lao PDR on a sustainable development path by raising revenues through environmentally and socially sustainable hydroelectric exports to neighboring Thailand that can be applied to finance poverty reduction interventions. In fact, of the 1,070 MW capacity of Nam Theun 2 only 75 MW are for domestic use in Lao. The rest, 995 MW of power are exported to Thailand.

NT2 was a formidable challenge, given that Lao PDR is one of the poorest countries in South East Asia with weak human capacity, governance, institutions and physical infrastructure. Designing the best way of forging a private-public partnership on large regional infrastructure project in a country where the private sector has yet to emerge as a major development player is a major challenge. Support from influential global players for the

project was essential and opened the possibilities for private sponsors to seriously consider large infrastructure projects in a low income, weak creditworthiness country.

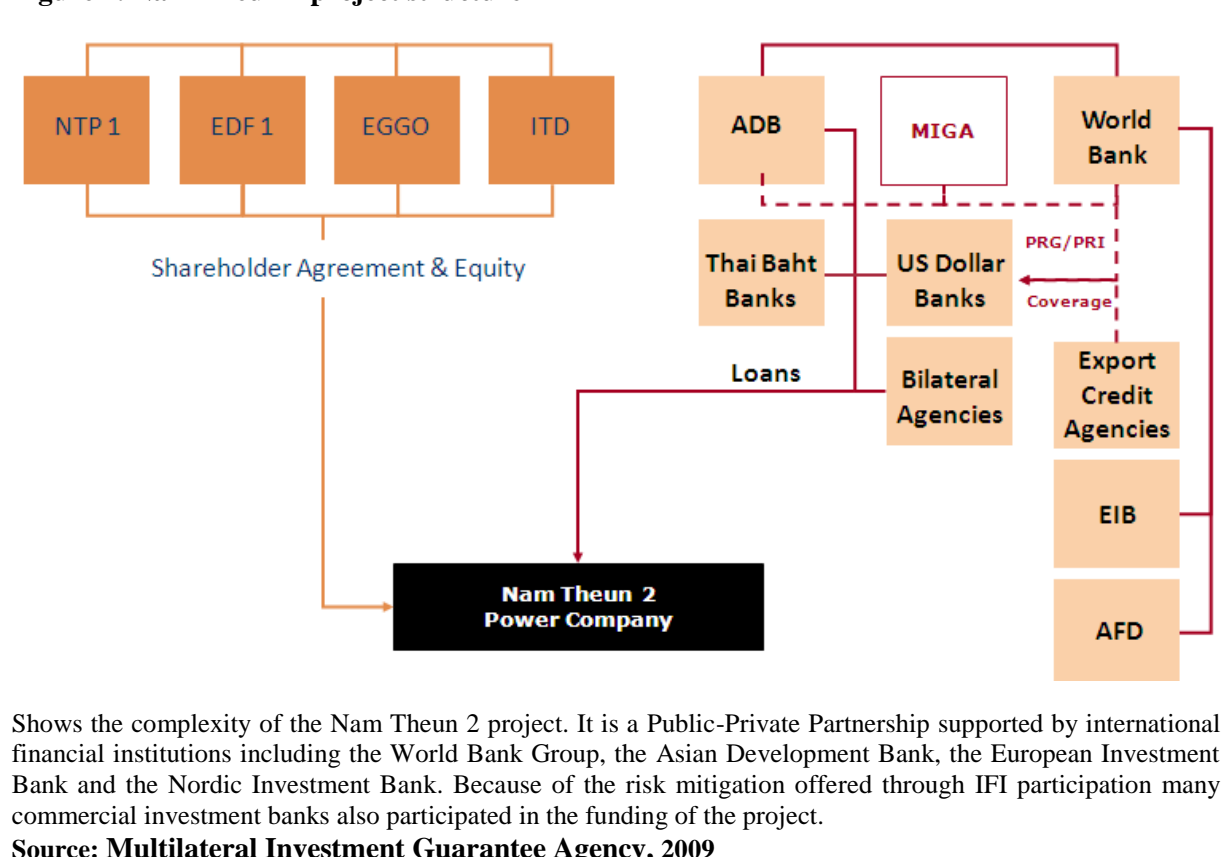
In spite of Nam Theun 2 success Shivakumar states that “The combination of behaviors of NT2 partners is unlikely to happen again, except by accident.” (Shivakumar 2009, p. 4). Furthermore he states that “The Bank is seen as a high cost, high hassle partner of last resort.” (Shivakumar 2009, p. 4). This is a strong statement but he also draws some important lessons from the NT2 experience for the World Bank Group to consider to become a more effective partner.

The key lessons are that there is a critical need to reduce the costs (monetary and “intangible”) that the private sector incurs in doing business with the Bank. The World Bank needs to better understand the constraints under which the private sector (and the government) works, including seeking:

- earlier signals to private partners on the Bank’s level of commitment to a project;
- a better prioritized, more cost-effective, properly sequenced work program on due diligence;
- more equitable burden sharing of project preparation costs among relevant shareholders; and
- a more collaborative and less threatening relationship.

While Shivakumar’s focus is on the World Bank Group his analysis and assessment should also be of interest for other IFIs, private sector partners and the governments of developing countries who are interested in Public-Private Partnerships in energy infrastructure. In addition to the World Bank Group, three other IFIs helped make NT2 possible, i.e.: the Asian Development Bank, the European Investment Bank and the Nordic Investment Bank. This support was key to getting all the private sector participation and funding for the NT2 project, see figure 1.

Figure 1. Nam Theun 2 project structure



4. An Evaluation of World Bank Group Guarantee Instruments 1990-2007

The effectiveness of the risk mitigation instruments offered by IFIs and the performance of those institutions must be under constant review and scrutiny. In 2009 the World Bank Group (WBG) issued a report titled: *The World Bank Group Guarantee Instruments 1990-2007. An Independent Evaluation* (World Bank 2009). As part of the evaluation the Independent Evaluation Group (IEG) at the Bank conducted a survey in 2008 to solicit views among its staff about the use and effectiveness of guarantee instruments (World Bank 2009). A survey questionnaire was sent to 363 staff and 206 responded.

Among the things that the survey revealed is that WBG staff are familiar with their own products but not with the guarantee products of other WBG institutions. For example only one-fifth of IFC⁹ staff were familiar with IBRD/IDA¹⁰ products. In fact, IFC staff was not familiar with the products of IBRD, IDA or MIGA.

According to the survey more than 85 percent of WBG staff felt that the most critical benefits of the WBGs guarantee instruments were enhanced image of financial soundness and improved rates and tenors. Among other benefits include WBG's role as an honest broker and securing other investors (World Bank 2009).

It is also notable how few guarantees and insurances have been issued from an institution as large as the World Bank Group. A high proportion of staff felt that changes are needed to improve the WBG's guarantee instruments (World Bank 2009). Interestingly enough most WBG staff felt that reducing time and cost of processing guarantees and improving marketing were important for improving WBG guarantees. Furthermore staff reported that clients proceeding with the project without a guarantee and long processing time were the main reason for dropped guarantee projects. 80 percent of IFC staff reported the droppages occurred because the cost of the guarantee was too high for the client (World Bank 2009).

IBRD, IDA and MIGA staff reported that project sponsors/investors most frequently originated the request of guarantees. IFC staff reported that, host governments and staff of another WBG institution are least likely to originate its guarantees.

On May 7, 2008 the Committee on Development Effectiveness (CODE) at the World Bank considered the IEG independent evaluation. Several speakers called for greater collaboration among WBG institutions based on their comparative advantages, and strengthening the coherence of the products offered, including their pricing. They also called for more coordinated WBG efforts for marketing, increased staff knowledge of the guarantee products, and appropriate staff incentives (World Bank 2009, p. xxviii). Comments were also made about the need of the WBG to think about a "single window" for guarantee products (World Bank 2009, p. xxvi).

Conclusions

Increased investment in clean energy infrastructure is important for the world. This is a global challenge that not only needs the attention of the international community, including from international financial institutions, but also more concrete action.

The public and the private sector need to join forces including via PPPs to promote renewable energy investments and international financial institutions can provide important support through their financial products and increasingly with guarantee instruments.

⁹ The International Finance Corporation, IFC, is the private sector arm of the World Bank Group WBG.

¹⁰ The IBRD and the IDA are the public sector arms of the WBG.

Increased risk mitigation can help stimulate private sector engagement in clean energy projects in emerging markets. The emerging countries of the south possess large untapped energy resources and this is also where the growth in energy demand is likely to be strongest.

Public-Private Partnerships in emerging markets need IFI support at least in some cases. The case of Nam Theun 2 shows what is possible but it also suggests that an important institution like the WBG needs to improve in the way they partner with the private sector.

A recent IEG report suggests that the World Bank Group needs to improve the coordination among the four Bank institutions that offer guarantee instruments. Marketing of the instruments needs to be improved. Long processing times and high costs are also areas that need the attention of the WBG.

References

- Asian Development Bank. (2008). *Private Sector Development*, available at: <http://www.adb.org/Documents/Brochures/InBriefs/Private-Sector-Development.pdf> (Accessed on June 20, 2010)
- Asian Development Bank. (2006). Review of ADB's Credit Enhancement Operations. Asian Development Bank, available at: http://www.adb.org/documents/policies/Credit-Enhancement/Credit-Enhancement-operation.pdf?bcsi_scan_D4A612CF62FE9576=ZahsQLqcNzyIS4kBgnty9wUAAABSylID&bcsi_scan_filename=Credit-Enhancement-operation.pdf&bcsi_scan_B90AE85AF6AB15C6=p2WEvsd/gU1DKLE49EBkmB4AAAAtcBoS&bcsi_scan_filename=Credit-Enhancement-operation.pdf (Accessed on July 23, 2010)
- Delmon, Jeffrey. (2009). *Private Sector Investment in Infrastructure. Project Finance, PPP Projects and Risk* 2nd edition, Kluwer Law International, the Netherlands.
- Hodge, Graeme A. and Carsten Greve. (2009). PPPs: The Passage of Time Permits a Sober Reflection. *Economic Affairs* Vol. 29. Issue 1, 33-39.
- Multilateral Investment Guarantee Agency. (2009). World Bank Group Mitigating Political Risks. Presentation at the World Bank Washington, D.C. in October 2009.
- Shivakumar, Jayasankar. (2009). Lessons from a new business approach to NT2. An informal note prepared for the World Bank Group.
- Tooman, Charles. (2004). Measuring Opportunity and Risk in Global Energy Investments: Practices and Techniques for Assessing International Investment Risk and Enhancing Capital Allocation. *Journal of Structured and Project Finance*, 10, 62-73, available at: <http://proquest.umi.com/pqdweb?did=637449401&sid=20&Fmt=3&clientId=58032&RQT=309&VName=PQD> (Accessed on June 9, 2008)
- World Bank. (2009). The World Bank Group Guarantee Instruments 1990-2007. An Independent Evaluation. The World Bank Washington, D.C.
- World Bank. (2008). *Capital Matters*, Vietnam Consultative Group Meeting Hanoi, 2008, available at: http://www.presscenter.org.vn/en//images/WP_Capital_Matters.pdf (Accessed on July 27, 2010)
- World Bank. (2005). Project Finance and Guarantees – IDA Guarantee Paves Renewed Interest in Private Hydropower – Nam Theun 2 Project, available at: http://siteresources.worldbank.org/INTGUARANTEES/Resources/Lao_NamTheun2_Note.pdf (Accessed on June 18, 2010)
- World Economic Forum. (2006). Building on the Monterrey Consensus: The Untapped Potential of Development Finance Institutions to Catalyze Private Investment, available at: <http://www.weforum.org/pdf/Financing/Monterrey.pdf> (Accessed on May 6, 2010)
- World Economic Forum. (2005a). Building on the Monterrey Consensus: The Growing Role of Public-Private Partnerships in Mobilizing Resources for Development, available at:

http://www.weforum.org/pdf/un_final_report.pdf (Accessed on May 20, 2010)
World Economic Forum. (2005b). Press release: „World Economic Forum report to UN calls for greater business role to fight poverty.“ Available at:
<http://www.weforum.org/en/media/Latest%20News%20Releases/PRESSRELEASES107>
(Accessed on July 7, 2010)