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Abstract

As the world economy grows, so does the demand for energy. Investments in clean energy projects are increasingly important to meet these growing energy needs. A large part of clean energy sources in the world are located in developing and emerging market economies. Investors in those markets often face higher risks than those investing in high income developed economies with a more favorable investment and business climate. Higher risks in turn reduce capital flows to emerging markets. This is especially true during times of crisis. This article discusses cross border clean energy projects to emerging market economies. The focus will be on cross border investments for investors from small states where Iceland, a country that has made a transition from fossil fuel to clean energy, is discussed as a case. The characteristics of emerging markets will be discussed, the risk faced by investors and risk mitigation instruments offered by international financial institutions (IFIs) and export credit agencies (ECAs) to manage those risks. The article argues that IFIs should make more use of their guarantee powers to help mobilize private sector funding for clean energy investments to developing and emerging markets. ECAs can also play an important role in facilitating trade from home to host country for deliverables of equipment and services for clean energy projects.
**Keywords:** Public-private partnerships (PPPs), clean and renewable energy, emerging markets, international financial institutions (IFIs), export credit agencies (ECAs) and risks and risk mitigation instruments.

**JEL Codes:** F30, G20, G32, O22, Q20, Q40

**Introduction**

As the world economy grows, so does the demand for energy. Investments in clean energy projects are increasingly important to meet these growing energy needs. Those projects are also important for environmental reasons. A large part of clean energy sources in the world are located in emerging market economies. Investors in emerging markets are normally faced with higher risks than those investing in high income developed economies. Higher risks in turn reduce capital flows to emerging markets. This is particularly true during times of economic and financial crisis. At the same time energy projects tend to be large and capital intensive with long repayment periods. Energy projects also often require partnership between the public and the private sector i.e. public private partnerships (PPPs). Efficient allocation of risks among the different partners in PPPs are important for success and generally results in more profitable projects, and is more likely benefit all the parties involved. This article will discuss public-private partnerships in the energy sector in emerging market economies. The focus will be on cross border investments for investors from small states where Iceland is discussed as a case. The characteristics of emerging markets will be discussed, the risk faced by investors and risk mitigation instruments offered by international and national institutions (IFIs) and export credit agencies (ECAs) to manage those risks. The main research questions are: How can companies from small countries like Iceland mitigate the risks when investing in clean energy projects in emerging market economies? Does the international community offer a comprehensive framework for risk mitigation for investments in emerging markets?
The article argues that companies from a small country like Iceland can make a contribution to the global transformation to clean energy and to the fight against climate change if IFIs offer flexible and affordable funding and risk mitigation instruments for private investors. Such risk mitigation could lower the risk profile of energy projects sufficiently to attract private sector funding. Guarantees from an Icelandic ECA could also be important when Icelandic companies provide services and/or equipment for cross border energy investments in emerging markets. The article also notes that while the GATT and subsequently WTO set out rules for trade they provided few rules for investment. They did nothing to manage the political risks that could hinder foreign investment. This failure is an obstacle during times when clean energy investments are needed globally and given the great unused clean energy resources in emerging markets. In Annex II the article also discusses how IFI instruments where applied in that case of Nam Theun 2 in Lao to attract private sector funding to a difficult business and investment environment to make a public private partnership possible.

Iceland and its transition to clean energy

Only a few decades ago most of Iceland’s energy needs came from fossil fuel, coal and oil. Most electricity and space heating is now based on clean energy. Al Gore describes this transformation in his book “Our Choice” as follows: “Iceland responded to the oil shocks of the 1970s by converting to domestic resources, virtually every building in the entire country is heated by the hot water resources close to the surface of the tectonically active land” (Al Gore 2009, p. 109). This transformation also meant that local capacity in geothermal energy utilization was developed. Several Icelandic companies and institutions now possess considerable experience in exploring geothermal sites and in constructing and operating geothermal power plants. There are also service providers and research and education institutions that can support geothermal energy projects in Iceland and potentially also participate in cross border investments, see table 1.
Table 1. Some Icelandic companies, service providers, research and education institutions in geothermal energy.

<table>
<thead>
<tr>
<th>Category</th>
<th>Companies/Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>GeoScience</td>
<td>ISOR, Mannvit, Vatnaskil</td>
</tr>
<tr>
<td>Business Consulting</td>
<td>KPMG, Capacent Corporate Finance, Islandsbanki</td>
</tr>
<tr>
<td>Drilling</td>
<td>Jarðboranir, Ræktunarsamband Flóa og Skeiða</td>
</tr>
<tr>
<td>Construction</td>
<td>ISTAK, IAV and Loftorka</td>
</tr>
<tr>
<td>Energy Audit &amp; Law Firms</td>
<td>KPMG, Pricewaterhouse Coopers, Deloitte, Lex (law firm), Logos (law firm)</td>
</tr>
<tr>
<td>Financing</td>
<td>Arion banki, Islandsbanki, Landsbankinn</td>
</tr>
<tr>
<td>Geothermal Research</td>
<td>ISOR, Mannvit, Vatnaskil, Utilities, Universities</td>
</tr>
<tr>
<td>Research Funding</td>
<td>Orkusjóður, Geothermal Research Group, Landsvirkjun’s Energy Fund, Orkuveita Reykjavíkur Energy Fund, Rannís</td>
</tr>
<tr>
<td>Training and Education</td>
<td>University of Iceland, Reykjavík University, University of Akureyri, Reykjavík Energy Graduate School of Sustainable Systems, Keilir – Atlantic Center of Excellence, United Nations University – Geothermal Training Programme</td>
</tr>
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This know-how has been developed during a few decades and one can say that there is now a proven capacity to construct and operate geothermal power plants in Iceland. Given this capacity a formation of a geothermal cluster, which could also engage in cross border energy projects, is ongoing, see figure 1.
The vast unutilized clean energy resources in emerging markets

Utilizing clean energy sources is not only a concern for Iceland. This is a global issue affecting both rich and poor countries. Many developing countries and emerging market economies in Africa, Asia and Latin America have large geothermal resources but are only in the early stages of development of using those resources. The future growth in demand for electricity is also likely to be strongest in those emerging regions. Transformation to clean energy could be of great benefit to those countries and have global implications in the battle against climate change and thus also benefit developed countries. However, it is not sufficient to have the natural resources and potential growth in future demand. Funding is also needed and energy investments tend to be large, capital intensive and long-term. Developing countries also often have risky business and investment environments that limit private sector cross-border investment to those countries. Proper risk mitigation can thus be a major challenge.
Private sector cross border investments in emerging markets

Private sector funding and participation in clean energy projects is a challenge for many reasons. One reason is that the host government is often the only buyer of the electricity or hot water produced i.e. it is the so called offtake purchaser. Many emerging 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 sponsors 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.

One possible institutional arrangement to address this situation is to form a Public-Private Partnership (PPP) and use the Build-Operate-Transfer (BOT) scheme. 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 project is transferred back to the government when the concession 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 small country investors can apply to manage risks is thus partnership with IFIs and/or participation in a consortium with stronger partners. National institutions such as ECAs, that support trade finance (goods and services), can also play a constructive role in reducing the risks taken by private sector investors.

PPPs and the allocation of risks – definitions and some theoretical considerations

Public private partnerships can be a feasible venue to fund infrastructure development and to increase the efficiency of public sector service delivery. Infrastructure projects in the energy
sector are often large, capital intensive and long-term. Repayment periods are also often long. It
can take a private investor 10 to 25 years to recover the investment and the project returns.

The private sector is recognized as a significant financing source for meeting developing
country investment requirements, but financial markets remain largely untapped for this purpose
and have yet to live up to their potential (Asian Development Bank 2006). PPPs are one venue
worth considering for the private sector to engage in infrastructure projects. Private capital,
donor support (including IFIs) and public funds can be combined in a PPP project. A well
designed policy and institutional framework for PPPs offers the opportunity to leverage and
combine all three sources of financing and expertise, without crowding out the private
investment. By forming a PPP the public and the private sectors can share the risks and the
rewards of infrastructure projects.

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”

To engage in cooperation, the public and the private sector can employ several different
schemes including the so called BOT, i.e. Build-Operate-Transfer (IMF 2004). In BOT
projects the private sector is responsible for financing, constructing and operating the project.
Under this arrangement the host country grants a concession, i.e. the right to a private firm to
undertake a public sector project and operate it over an agreed period of time. When the
concession expiries the ownership of the project is transferred back to the party granting the
concession. For a comprehensive discussion on BOTs see Jeffrey Delmon’s outstanding book on Private Sector Investment in Infrastructure (Delmon 2009).

The partners typically involved in a BOT project are: the project company that undertakes the project, the host government (that can also be the offtake/power purchaser), the shareholders, the lenders, the grantor, the construction contractor, the operator, the offtake purchaser/power purchaser and the input supplier. Figure 2 below shows a typical PPP BOT contractual structure.

![Figure 2. Typical PPP BOT contractual structure. Source: Delmon 2009](image)

The project company uses the income stream from the project to service its debt from the project and to pay returns to its investors (i.e. the equity contributors to the project company). The lenders to a BOT project could, for example, be commercial investment banks, international financial institutions (IFIs) and bilateral agencies (BLAs). The IFIs and the ECAs could also serve as guarantors e.g. for payment to the lenders, including commercial investment banks. The lenders would be keen to manage their risks (i.e. only take measurable and measured risks) and would receive a fixed margin on their loan whereas the shareholders (i.e. the equity holders in the project company) maximize the profits on their equity investment. In addition to obtaining
funding for the project, the project company procures the design and coordinates the construction and operation of the project in accordance with the requirements of the concession agreement. Project company shareholders often include firms with construction and operation experience, and with offtake purchase capabilities (Delmon 2009, p. 98).

The offtake purchase agreement secures the project payment stream. The offtake purchaser will be looking for a guaranteed long-term output from the project. The credit risk associated with the offtake purchaser will be of particular concern to the project company and the lenders. This is where guarantees from the host governments or IFIs, including the World Bank, become important.

Critical to the design of PPPs is the way risks are allocated between the partners in the PPP. A general principle is that risk should fall on the party that is more able to do something about it. Risks in PPP tend to be allocated on the basis of commercial and negotiating strength. The stronger party will allocate risk that it does not want to bear to the weaker party. Efficient allocation of risk will generally result in a more successful and profitable project and will benefit each of the parties involved (Delmon 2009).

In order to minimize the market risk from the project company and the project lenders an offtake purchase agreement, or in the case of a power project, a power purchase agreement may be made. This is to create a secure payment stream which will be an important basis for financing the project. The offtake purchaser may also be the grantor, or a government entity such as a public utility, in which case the offtake purchase agreement and the concession agreement may be one and the same document (Delmon 2009).

The lenders will want the project risks to be allocated to project participants, i.e. the construction contractor and the operator and not the project company who is their debtor.
The project company will enter into a contract with the construction contractor in order to divest its obligations to the grantor to design, build, test and commission the project. Completion risk for the project should be allocated to the construction contractor. In the case of a turnkey project, completion and performance risk should be on the construction contractor.

If the main risks are associated with poor management of the service, shifting the risk to the operator could provide the right incentives to make sure that the project delivers. If the risks are related to changes in policies, then the government should bear the risk. This is because the project company will not generally be able to manage political risk. The project company will ask the government to bear those risks not necessarily to demand a compensation at a future date, but to pressure the government to avoid such risks and to minimize the probability that such risks will occur.

**Is there an effective international framework for mitigating political risks?**

When talking about international investor’s efforts to manage political risks Wells (2005) discusses four options: (i) international arbitration, (ii) official political risk insurance, (iii) home government support, and (iv) official credit. In the absence of a global investment agreement, like the GATT and subsequently WTO, investors have turned to piecemeal solutions when protecting their rights in risky countries. According to Wells „These agreements set out rules for trade, but they provided few rules for investment.....They did nothing to manage the political risks that could hinder foreign investment. Starting with the aborted International Trade Organization of the immediate post-World War II era, several efforts to create a similar global framework for investment came to naught. The history of failure did not encourage renewed efforts to create a comprehensive approach.” Further Wells states that „The resulting system, however, was not the product of any grand design but the result of uncoordinated steps by various parties. Certainly, some of the problems of the new system derive from the lack of a single framework; even more important problems can be attributed to the lack of explicit
negotiation and mutual acceptance among the affected parties“ (Wells 2005, p. 89-90). This failure described by Wells is especially serious in one considers clean energy projects that tend to be large, capital intensive and long-term. Furthermore energy resources are to a large extent located in developing and emerging market countries that are also currently growing faster than high income countries both in terms of GDP and population, and thus energy use. When host governments cannot make credible long-term commitments to foreign investors, those investors will tend to avoid these projects. This becomes especially troubling during times when there is a need for a transition to clean energy projects globally. As Wells points out „The need to satisfy the demand for security grew as the international community became increasingly eager to encourage private foreign investors to build infrastructure – roads, power plants, water systems – in the developing world“ (Wells 2005, p. 89). „Without external protection, direct investors in these industries would have to be very brave, or perhaps ignorant, to enter these industries, where they would have little bargaining power once their capital was committed“ (Wells 2005, p. 89).

**What can an investor from a small country do?**

Wells (2005) noted four options when discussing international investor´s efforts to manage political risks. Regarding (i) engaging in cross border investment and relaying on favourable international arbitration in the event of dispute does not sound like a predictable venue for mitigating political risks. Regarding (iii) home government support does also not sound promising for investors from small countries. In fact, being an investor from a small country like Iceland only adds to the risks. Small countries can only be expected to have a limited leverage in the event of dispute with a host government in an emerging country that can be a much larger country. Options (ii) and (iv) could be a possibility for investors to consider when making the foreign investment decision, if feasible venues for cooperation with international financial institutions (IFIs) and export credit agencies (ECAs) can be found. This article will focus on the official insurance that can be provided by international financial institutions that
operate globally, like the World Bank, and regionally like AfDB, AsDB, EBRD, and IDB. These institutions are well placed to mitigate such risks at competitive prices as Wells says „official insurance can be priced low, since the threat of sanctions by the organizations backing the insurance sharply reduce the chances of the events being insured against occurring“ (Wells 2005, p. 91). When it comes to trade finance the role of ECAs will be discussed.

**IFI and risk mitigation in emerging markets**

Concerns about investment environments and perceptions of political risk often inhibit foreign investment, with the majority of flows going to a few countries leaving the world’s poorest economies mostly ignored. This is especially true during times of economic and financial crisis. The limited number of investors engaging in risky environments might also be tempted to invest only when quick paybacks periods are possible. International financial institutions can have an important role to play here and responsibility to offer effective venues and viable risk mitigation instruments. This is especially true for long-term investments such as in energy infrastructure.

For large infrastructure projects investors must pay considerably more attention to political risk management issues. Risk reduction can reduce the cost of funding projects and facilitate longer loan periods. Political risk insurance, especially from international financial institutions can also act as an effective deterrent against host government interference with insured private investments.

IFI offer a number of financial and risk management instruments that can be useful for Public-Private Partnerships. Those include loans, equity investments and guarantees or insurance against political risk (non-commercial risk). Among the IFIs active in this area are: (i) the World Bank Group, (ii) the European Bank for Reconstruction and Development, (iii) the Asian Development Bank, (iv) Inter-American Development Bank, (v) the African Development Bank, (vi) the European Investment Bank, and the Nordic Investment Bank.
Iceland is not a member of the Asian Development Bank, the Inter-American Development Bank and the African Development Bank. Icelandic companies do therefore not have access to the services of all the IFIs and have fewer options to form partnerships when investing in emerging markets than for example companies from the other Nordic countries who are members of all the above institutions.

Key risk issues can be categorized as: political, breach of contract by a government entity, market risk and default risk. Risk mitigation products can attract new financing resources, reduce costs of capital, and extend maturities by providing coverage for risks that the market is unable or unwilling to bear (Delmon 2009). Those products can attract more private capital to invest in infrastructure. Examples of guarantee products provided by the World Bank Group are IBRD/IDA partial risk guarantees (PRGs) and IBRD partial credit guarantees (PCGs), IFC partial credit guarantees and MIGA political risk insurance (Delmon 2009). Those risk mitigation instruments allow investors to be compensated in the case of certain adverse events and thus reduce the risk and thus the project costs. For an overview of risk mitigation products offered by the World Bank Group, see Annex I.

In the case of energy infrastructure projects World Bank guarantee products such as partial risk guarantees (PRG) and partial risk insurance (PRI) can be key to success. According to the World Bank PRGs “cover commercial lenders for a private sector project against default arising from a government-owned entity failing to perform its obligations. PRGs can cover changes in law, failure to meet contractual obligations, expropriation and nationalization, currency transfer and convertibility, nonpayment of a termination amount, failure to issue licenses in a timely manner, other risk to the extent that they are covered by contractual obligations of a government entity, and noncompliance with an agreed dispute resolution clause. PRGs can be provided in
both IBRD and IDA countries and require a government counter-guarantee” (World Bank 2009, p. 10).

Regarding the IBRD/IDA PRGs the investor receives comfort, improved credit terms, and is not liable for loan repayment. Among the strengths of this instrument is increased government commitment to success of projects, accompanied with the benefits of an ongoing by policy dialogue between the World Bank and the host government. Among the weaknesses are sovereign guarantees required in all cases, cumbersome processing and high transaction costs. The demand for this instrument is mainly limited to PPPs and sectors with heavy government engagement (World Bank 2009, p. 74).

Among the five institutions of the World Bank Group is also the Multilateral Investment Guarantee Agency (MIGA). MIGA provides guarantees against political risks, i.e. non-commercial risks for investments in emerging markets. It also provides technical assistance and dispute mediation service. Developing countries would hesitate to take measures that would negatively affect projects that MIGA is involved with because of the concern that it could adversely affect their relationship with IDA and/or IBRD and possible credit or a loan (see for example West 1999, p. 29 to 30).

According to the World Bank, MIGA “offers PRI coverage to foreign direct investors for any combination of the following political risks: transfer restriction, expropriation, war and civil disturbance, and breach of contract. MIGA can insure direct equity, quasi-equity, nonequity direct, and other investments. To insure debt, however, it must have an equity link. MIGA guarantees cover new foreign-currency-denominated investments, including “new” investments to existing investments, investments by private for-profit and nonprofit organizations, and public owned investors and organizations that operate on commercial basis. MIGA can cover
any freely usable currency, which may include local currency investments/loans. Under certain circumstances, MIGA can cover investments by local investors” (World Bank 2009, p. 10).

Regarding the MIGA PRI the investor receives comfort, improved credit terms, mediation services and compensation in the event of loss. Among the strengths are flexible coverage of all PRI risks; main product for equity investments; dispute resolution; minimal time and processing. Among weaknesses are no comprehensive coverage (commercial risk and political risk cover) and lengthy process to change Convention limitations (World Bank 2009, p. 74).

Given the global needs for energy investments these instruments have not been used frequently and the amounts are still modest. IBRD/IDA PRG has been deployed for 13 projects with the commitment amount US$ 1.2 billion and 92 percent for infrastructure projects. MIGA PRI has been deployed 566 projects with a commitment amount US$ 16.6 billion and 24 percent for infrastructure projects (World Bank 2009, p 68).

The Asian Development Bank (AsDB) and the other regional development banks also offer risk mitigation instruments that are important for private investors in emerging markets although they are not discussed in any detail here. AsDB risk mitigation instruments can for example cover breach of contract. For a power project such breach may result from failure by the government-owned entity to make payments in accordance with the power purchase agreement between the independent power producer and the user or distributor (Asian Development Bank 2000, p. 2). Such insurance can be critical for the success of an energy infrastructure project. According to the AsDB the majority of the PRGs that AsDB has provided have been private sector-oriented, including PRGs for public-private partnerships (PPPs) (Asian Development Bank 2006, p. 5).
The World Bank Group and the effectiveness of its risk mitigation instruments


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 IFC staff were familiar with IBRD/IDA 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 guarantee instruments. 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).

No evaluation has taken place by the Independent Evaluation Group at the World Bank since 2009 xii and thus difficult to assess if the effectiveness of World Bank Group guarantee instruments has improved since 2009.

Multilateral as well as bilateral financial organizations can be catalyst to support PPP projects, including in the energy sector. A recent book published by the World Bank, titled Public Private Partnerships in Europe and Central Asia – Designing Crisis-Resilient Strategies and Bankable Projects, comments very cautiously that “working with these institutions may also lengthen the project development process, given specific requirements in terms of environmental and social safeguards requirements and stringent procurement procedures.” (Cuttaree and Mandri-Perrott 2011, p. 59). Another recent book also published by the World Bank is more critical when discussing the World Bank’s cooperation with the private sector.xiii The authors simply state that: „The bad news is that the World Bank is seen as a high-cost/high-hassle partner of last
resort. There is therefore a critical need to reduce the costs the private sector incurs for doing business with the World Bank. Doing so will require the World Bank to better understand the constraints under which the private sector works“ (Porter and Shivakumar 2010, p. 22). Those comments are especially notable given that the authors have both served as World Bank country directors.

From the above, it seems like a key institution like the World Bank has some way to go to find an optimal trade-off between excessive safeguards and efficient use of its financial instruments for capital mobilization. This is especially unfortunate given the urgency in constructing more clean energy projects in developing and emerging economies.

The need for IFIs to make more use of their guarantee powers

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 (Asian Development Bank 2006). The World Economic Forum (WEF) has for example 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 Forum 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 the risk faced by investors;

and

stronger direct support for capacity building to strengthen the enabling environment for investment” (World Economic Forum 2006, p. 9).
Furthermore the 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 final recommendations the WEF says: “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).

The WEF is thus sending a very clear signal to the international financial institutions and the IFIs are listening. In its report Review of ADB’s Credit Enhancement Operations the Asian Development Bank takes a clear note of WEF’s views and refers to their 2006 report several times (Asian Development Bank 2006).

While there is a clear need for risk mitigation in emerging markets for sectors like the energy sector, it looks like the IFIs, including the WBG, have some way to go to make those instruments widely used. IFIs need to do a better job in coordinating risk mitigation activities within the institutions and spend more efforts to market those products and to make them more efficient and more cost effective for the private sector and shorten their processing time.

**ECAs and their role in risk mitigation to support cross border trade finance**

In most developed countries there are export credit agencies (ECAs) that have been established by the home countries to help finance export of their national goods and services as well as cross border investments. These agencies can provide guarantees in connection with projects where there are deliveries of equipment and/or services to the project from the home country.
This applies generally speaking to all ECAs supporting the export industry of their home country. In Iceland such an agency exists and is called Tryggingardeild útflutnings (TRÚ). ECAs can provide guarantees both against commercial and non-commercial risks in emerging markets and these instruments can be quite suitable to support overseas energy investments in developing countries and emerging markets, including for energy investments. TRÚ works in partnership with the Swedish export credit agency EKN which would assist the Icelandic agency to assess risks in host countries. According to Icelandic law TRÚ can provide guarantees and insurances up to 130 million SDR. This is a sizable amount of money. To make the story short TRÚ services have never been used by Icelandic exporters or cross border investors.

Emerging countries are increasingly important to Swedish exports and EKN is needed for expansion in these markets. From January to September 2011 the volume of guarantees issued by EKN amounted to SEK 40 billion. This is EKN’s highest ever figure for guarantee-issuing in the period January-September, apart from the temporary solutions offered in 2009 and the first half of 2010. EKN issued new guarantees for 1,163 transactions in 121 countries, compared with 1,249 transactions (same number of countries) during the same period in 2010 (EKN 2011). In contrast Icelandic exporters and investors are not using the risk mitigation instruments that are available at TRÚ at all.

For more discussion about the role of ECAs in supporting cross border trade, including during times of crisis, as well as economic justifications for the existence of ECAs see Dinh and Hilmarsson (2012a, 2012b and 2012c) and Hilmarsson and Dinh (2013).

Conclusions

A small country like Iceland can play a constructive role by sharing its experience in transforming its economy from fossil fuel to clean energy and could be an example for other countries. Icelandic energy companies have a proven record in building and operating
geothermal power plants. There are also several service providers, research and education institutions in geothermal energy that could contribute to the transition to geothermal energy in emerging market economies.

Most of the future increase in demand for electricity is likely to come from emerging market economies. This is also where most of the clean energy resources are located. This offers a tremendous opportunity for emerging market countries, but also is a challenge, including with funding. Sufficient private funds will not flow into those countries unless the risk profile energy projects can be reduced. This is especially true during times of financial and economic crisis.

To fill the tremendous energy infrastructure gap in emerging markets the public and private sector need to work in partnership, including via PPPs. Such partnerships can be supported by international financial institutions. For large energy projects partnerships, pooling public, private and donors funds should not crowd out the private sector, instead they offer the potential to crowd in private funds into risky markets that would not get private investment without proper risk mitigation.

In the absence of a global investment agreement, like the GATT and subsequently WTO on trade, investors have turned to piecemeal solutions when protecting their rights in risky countries. This failure to create a global framework for investment is especially serious if one considers clean energy projects that tend to be large, capital intensive and long-term. Furthermore energy resources are to a large extent located in developing and emerging market countries that are also currently growing faster than high income countries.

Nevertheless, international financial institutions can be important partners not only with direct funding, i.e. loans and equity investments, but also increasingly through risk mitigation instruments. IFIs need to provide instruments that are more flexible and more cost effective for
the private sector and with shorter processing time. Better coordination between the World Bank Group institutions providing guarantees/insurances are needed and better marketing of the instruments. In a recent World Bank publications, discussed in this article, two World Bank staff members who have been country directors describe the World Bank as a high-cost/high-hassle partner of last resort. They also argue that the World Bank needs to better understand the constraints under which the private sector works. Clearly the bank needs internal reform in order to reach its potential in mobilizing private sector capital via its financial instruments, especially guarantees and insurances.

Export credit agencies can also play a constructive role in supporting exporters of equipment and services to emerging markets by providing guarantees and insurances against commercial and non-commercial risk to facilitate longer-term lending and at more affordable costs.

If Icelandic companies participate in energy projects as sponsors/investors in emerging market economies they should make serious efforts to develop a comprehensive risk identification and mitigation strategy before they engage. This could be done by forming an international consortium with participation of IFIs that Iceland is a member of and with support of the Icelandic ECA.

The government of Iceland should carry out feasibility studies that could help in the decision making process of applying for membership in the regional development banks. This could help strengthen the bargaining position of Icelandic companies vis-à-vis IFIs and enable them to select from a larger menu of financial and risk mitigation instruments in emerging markets than they presently can. Access to IFIs is also even more important for Icelandic companies than for companies from larger countries, as Iceland does not have wide representation in emerging markets through embassies and business representatives.
The government should also investigate why Icelandic companies have not been using the services of the Icelandic export credit agency, TRÚ. The services of TRÚ can be an important export promotion tool for Icelandic exporters especially during times of crisis.

The Nam Theun 2 project, discussed in Annex II, is an excellent example of a successful leveraging of a multilateral guarantee mechanisms in a difficult business and investment environment. Export credit agencies also provided important support by using their instruments to facilitate cross border trade finance for Nam Theun 2.

The value added of this article is that it shows that the global system to support cross border investments to developing and emerging markets is fragmented and the international community offers only piecemeal solutions, e.g. via international financial institutions such as the World Bank and regional development banks. However, internal evidence from the World Bank suggests that it is difficult for the private sector to use the instruments offered. The World Bank has so far hesitated to use its guarantee powers in any significant way and thus does less to help mobilize as much private sector capital to developing and emerging countries as it could. This is especially unfortunate for investments in clean energy infrastructure where investments tend to be large, capital intensive and with long repayment periods. International financial institutions are well suited to mitigate non-commercial risks in emerging markets e.g. because of their global nature and because they often engage in policy dialogue with host governments and can facilitate regulatory reform often needed in emerging markets.

The implications of the above discussion are that only ineffective piecemeal solutions are offered by the international community in supporting cross border trade to emerging market economies. International financial institutions have failed to provide efficient and effective support for cross border infrastructure investments to emerging markets. Among the results is underinvestment in clean energy investments globally. In spite of all the talk about clean energy
and the battle against climate change, international financial institutions do, so far, not have much to show when it comes to capital mobilization for such projects.

Acknowledgements

Helpful comments and suggestions from anonymous referees are gratefully acknowledged.
ANNEX I

World Bank Group Guarantees

![Diagram of World Bank Group Guarantees](image)

Figure 3. World Bank Group Guarantees. Source: Delmon 2009
ANNEX II

The case of the Nam Theun 2 hydropower project in the Lao PDR

There are cases that demonstrate that international financial institutions and export credit agencies can work with governments and the private sector to mobilize funding for clean energy projects in difficult business environments where the private sector would generally hesitate to engage. One of those cases is the Nam Theun 2 (NT2) a hydropower project in Lao PDR. Lao PDR is one of the poorest countries in South East Asia with weak human capacity, governance, institutions and physical infrastructure. NT2 is an excellent example how the public and the private sector can form a partnership and construct a major infrastructure project in the energy sector in a developing country with limited creditworthiness with the support from IFIs and ECAs.

Its estimated project costs were US$1.25 million at financial close (excluding contingencies), equity 28 percent (US$350 million) and 72 per cent debt (US$900 million).

The NT2 hydropower project was implemented by the Nam Theun 2 Power Company Limited (NTPC). The shareholders (equity holders) of NTPC are: Electricite de France International (EDFI) of France (35%), Italian-Thai Development Public Company Limited (ITD) of Thailand (15%), Electricity Generating Public Company Limited (EGCO) of Thailand (25%) and Lao Holding State Enterprise (LHSE) (25%), see figure 4 below.
Several IFIs provided loans to NTPC and/or guarantees to the private sector lenders: (i) multilateral institutions including the World Bank Group’s, IDA and MIGA, (ii) bilateral agencies, and (iii) export credit agencies (ECAs). A consortium of 16 commercial banks supported the project.\textsuperscript{v}

The shareholders agreement (SA) signed by EDFI, GOL, EGCO, and ITD sets out the rights and obligations of the shareholders, provides for the objective, establishment, management, and operation of the project company, NTPC, and agrees on the Articles of Association of NTPC. The SA has duration of 45 years from signing (World Bank 2005). In the concession agreement (CA) the Government of Lao granted NTPC a concession to develop, own, finance, construct, and operate the hydroelectric plant and related facilities, and to transfer the project to GOL at the end of the concession period, i.e. after 25 years (World Bank 2005).
NT2 is the largest ever foreign investment in Lao and was the Asia Power Deal of the Year 2005. The project has an electric generating capacity of 1070 megawatts. 995 MW of the power will be for export to Thailand and 75 MW will be for domestic use in Lao. The power purchase agreements (PPA) are between NTPC and the Electricity Generating Authority of Thailand (EGAT), and NTPC and Electricité du Laos (EDL).

Head Construction Contract (HCC) was signed between NTPC and EDFI (the head contractor). It is a turnkey, price-capped engineering, procurement and construction contract (World Bank 2005). The subcontractors are ITD of Thailand, Nishinatsu Contracting Company of Japan, General Electric of the USA and Mitsubishi-Sumitomo Electric of Japan. The head contractor and the subcontractors are all reputable international companies.

International financial institutions played an instrumental role in making this project possible. In fact, the international dollar lenders to the project informed the NTPC that without political risk mitigation they would not be able to lend to the project. The Government of Lao requested the World Bank Group to provide risk mitigation to support the international lending package (World Bank 2005). IFI guarantees were thus key in lowering the project’s risk profile sufficiently to attract the commercial financing needed.

Political risk guarantees were provided by MIGA (World Bank) and Asian Development Bank (AsDB). IDA (World Bank) also provided a partial risk guarantee (PRG). NT2 PRG is the first IDA guarantee to support hydropower development and is also the first project to use a mix of IDA, MIGA and AsDB guarantees. Debt guarantees were provided from IDA, MIGA and AsDB supporting about US$126 million of private financing. Direct loans from IFIs were about US$144 million provided to NTPC (World Bank 2005).
Loans were also provided by AsDB, European Investment Bank (EIB), Nordic Investment Bank (NIB), Agence Francaise de Developpement (AFD), Proparco and the Export-Import Bank of Thailand. IDA and AFD also provided grants.

Nine International Commercial Banks and seven Thai commercial Banks helped fund the project. In addition to this the NT2 project received export credit agency (ECA) support from COFACE of France, Exportkreditnamnden (EKN) of Sweden and Guarantee Institute for Export Credits (GIEK) of Norway.

The Nam Theun 2 project can be viewed as a test case for infrastructure development in the developing world. It is an excellent demonstration of what is possible if the public and private sectors, supported by international financial institutions, team up and join their forces. The use of IFI risk mitigation instruments is particularly interesting as it demonstrates how a modest commitment through such instruments can help mobilize much larger amounts of private funding.

The NT2 project, which is the world’s largest private sector cross-border power project financing, and the largest private sector hydropower project financing, would probably be too large for participation from Icelandic firms, except if they provided technical assistance or advisory services, or maybe participated as sub-contractors. Lessons learned from this landmark project would nevertheless be a valuable study for all companies who intend to participate in infrastructure projects in developing and emerging market economies.
ANNEX III

Geothermal resource risk constraints

As noted earlier in this article geothermal power projects suffer from risks not found in other thermal power generation projects including higher up-front development costs associated with uncertainty as to site capacity (Delmon 2009). As figure 5 shows the risk associated with geothermal projects are high during the pre-survey, exploration and test drilling phases. Validating geothermal resource through test drilling is capital intensive. Commercial financing for test drilling is generally hard to find and private equity (and government support) are the only capital to undertake test drilling. These risks are not specific to emerging markets, but it often more challenging to obtain private and public capital in these markets, than in high income countries. International financial institutions have so far done little to mobilize funding for resource risk mitigation for geothermal projects in developing and emerging market economies (World Bank 2013).
Scaling-up geothermal by addressing the resource risk through sustained international effort is being discussed at the World Bank, including raising US$500 million for exploration and drilling activity, but little progress has been made so far and the funding is not available yet. In Europe a European Geothermal Risk Insurance Fund (EGRIF) is being prepared (GEOELEC 2013).
Notes

i The international institutions focused on are international financial institutions like the World Bank Group and the regional development banks, and the national institutions are export credit agencies (ECAs).

ii In addition to challenges with capital mobilization in emerging markets geothermal are also faced with resource risk constraints discussed in Annex III.

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

iv 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.

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

vi Among PPP schemes and modalities in addition to Build-Operate-Transfer (BOT) are for example: Build-Own-Operate-Transfer (BOOT), Build-Rent-Own-Operate (BROT), Build-Operate-Transfer (BLOT). Build-Transfer-Operate (BTO).

vii In addition to those services, IFIs often engage in a policy dialogue with the governments of emerging market economies to improve economic policy and management. This includes reforms to improve the business and investment climate for the private sector, to promote business activities, and to encourage foreign direct investment. IFIs also provide loans and credits to various government-led projects in developing countries and emerging markets that are subject to international competitive bidding. This allows private sector firms to participate in the bidding process and potentially to benefit from those public sector projects supported by the IFIs.

viii For an excellent overview of World Bank risk mitigation products, see Jeffrey Delmon Chapter 7 (Delmon 2009).

ix The World Bank Group represents five institutions. Those are: (i) 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.

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

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


xiii In this case in a major hydropower project in Lao, i.e., Nam Theun 2 discussed in more detail in ANNEX II in this article.

xiv 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.

xv The international commercial banks were: ANZ Bank, BNP Paribas, Bank of Tokyo Mitsubishi, Calyon, Fortis Bank, ING, KBC, SG and Standard Chartered.

xvi The Thai commercial banks were: Bangkok Bank, Bank of Ayudhya, KASIKORNBANK, Krung Thai Bank, Siam Ciry Bank, Siam Commercial Bank and Thai Military Bank.

xvii Until the first borehole has been drilled into the geothermal reservoir, developers cannot be sure about the exact parameters (temperature and flow rate) of the planned geothermal electricity project. Once drilling has taken place, in situ pump tests, temperature and hydrological measurements then reduce the resource risk and can make easier to attract external capital (GEOELEC 2013).
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