

5. Political Aspects of Grid Interconnection

5.1. Introduction

An effective international legal framework governing the construction and operation of any international electricity grid interconnection requires political agreement and cooperation between the trading countries, as well as between different constituencies inside each of the trading countries. At the same time, the presence and operation of an international power line can provide both political benefits, ranging from enhanced potential for international cooperation to increased democratization at home, and liabilities, ranging from dependency on another country to internal squabbles over power line benefits. This Chapter of this Report reviews some of the key potential political benefits and liabilities of international grid interconnections, describes the types of political cooperation required between and within countries to make grid interconnections work effectively, and notes national attributes that favor successful interconnections. Here political benefits and liabilities are defined as those impacts that enhance or degrade the political relationships between countries, or between different constituent groups within countries. This Chapter also includes discussions of the potential political barriers to grid interconnections that may be encountered, and suggests approaches through which those barriers might be overcome.

5.2. Potential Political Benefits of International Grid Interconnection

International power grid interconnections can offer political benefits to the countries participating in power trading, as well as to individuals and groups within the trading countries. Making sure that political benefits are wisely distributed and used should be a focus in planning for interconnection projects. The potential benefits of interconnections for international cooperation, in providing incentives for conflict avoidance, in spurring democratization, and in promoting political stability are discussed below.

5.2.1. International grid interconnection as a spur to additional international cooperation

The significant legal, economic, and organizational linkages between nations trading power, which are obligatory parts of most successful grid interconnections, offer the potential to spur government-to-government cooperation in other areas. A grid interconnection necessarily sets up means of communication between governments, in that, as noted in the previous Chapter of this report, representatives of the governments involved in the interconnections must agree on the terms of power sales and purchase agreements, and must cooperate in the operation of shared power lines. The international political and legal frameworks necessary to build and operate major international energy infrastructure such as power lines (and, for example, gas or oil pipelines) provide experience and channels for international communication on economic (such as trade in other goods and services), social (such as indigenous peoples and cultural exchanges), and security (such as border control) issues, to name just a few. This spur to additional cooperation can be particularly important if the countries linked by the interconnection have had a history of conflict, as do many neighboring nations in Africa, Asia, and in other regions.

5.2.2. Presence of power interconnection as a force for avoidance of conflict

Resource sharing, and the mutual dependence that it implies, provides an incentive for the partners in the sharing arrangement to work out any disagreements through non-military means, thus improving security. By tying the economy to that of its neighbors, the sharing of a very expensive and valuable asset—the interconnection line itself—arguably improves energy security by reducing the likelihood of military action against each other by the nations involved in power trading. Such actions would, if resource sharing arrangements were in place, result in harm to the economies of all of the interconnected nations, not just the nation initiating the conflict. Further, if more than two countries are involved in the interconnection, each party has an incentive to assure that differences between other parties are settled amicably, without conflicts that could interrupt the operation of the interconnection. The flows of power, and of the money—often hard currency—that pays for the power, provide a strong financial and practical incentive for the countries trading electricity to work out their differences on other matters peacefully, as well as providing an example of how such agreements can be reached.

5.2.3. Grid Interconnections may help to encourage democratization

Depending on how a grid interconnection project is developed, decided upon, and managed, grid interconnections have the potential to encourage democratization. As noted in Chapter 4, a number of legal agreements must be set and adhered to in order to assure the smooth operation of an international grid interconnection. If the process of planning a grid interconnection proceeds in a transparent and inclusive manner, with the (typically) many different constituencies affected by the interconnection project receiving sufficient opportunity to provide input into the planning process, the result may be a spur toward democratization. This occurs both as the groups providing input to the planning of the interconnection see that their “voices” have been taken into account in the planning process. Also, as officials overseeing the planning process see that providing opportunities for input from different groups of society are not only not-so-difficult to manage, but provide useful substantive input and smoother implementation of the project as well, government actors may learn to offer such opportunities for input in other context. Demonstrations of participatory decision-making in the context of planning and implementing power grid interconnections can thus have positive impacts on public participation in other important decisions affecting a country, as well as on venues and methods for participation in decisions by the constituent groups of society, and by the public as a whole in the nations involved⁸⁵.

Another way that grid interconnections may promote democratization is through their effects on power supplies. Where grid interconnections help bring stable electricity supplies to communities that previously had poor or no electricity, opportunities for education and obtaining news are increased, which can in turn prepare more citizens to participate meaningfully in democratic processes.

5.2.4. Grid interconnections may have a positive impact on political stability

In addition to providing light to learn by, grid interconnections, to the extent that they help bring electricity to under-served regions, may enhance political stability by offering opportunities for employment,

85 Note, however, that the converse to this argument is that if a grid interconnection planning process fails to allow for input from affected parties, it has the potential to alienate groups from the democratic process, as described in the sub-section that follows.

education, and medical care in areas where lack of these necessities previously caused dissension between the government and local groups. Increasing the standard of living of populations, especially rural or suburban populations, through electricity provision (and other programs) helps to slow migration to urban centers, helps to alleviate poverty, and thus mitigates the political difficulties and social tensions involved in providing for the urban poor.

5.3. Potential Political Liabilities of International Grid Interconnection

Depending, again, on how interconnection agreements are structured, and often on the nature of the interconnection itself, international grid interconnections may also become political liabilities to one or more of the host countries. Possible political liabilities include mostly domestic issues, such as the possible impacts of arrangements needed to secure power line assets, the political fallout if there is found to be graft related to an interconnection project, and the possibility of power lines being held “hostage” by militant groups, as well as international issues related to the increased economic interconnection between the countries participating in the project. As with possible political benefits of grid interconnections, the potential that these liabilities will manifest themselves is very case-specific, and depends in large part on how the process of deciding upon, designing, building, and operating a grid interconnection is handled.

5.3.1. Protection of the power line as an excuse for internal political oppression

One of the responsibilities of the nations participating in an international power grid interconnection will, as noted in Chapter 4, be the securing of the portions of the interconnection infrastructure in their countries from damage caused by humans. Protection of the power line, and adherence to agreements to do so could, in some cases, be used by authorities as an excuse for advancing their own agendas. For example, if a power line for an interconnection project passes through an area where a local group has historically had political conflicts with the central government, securing the power line infrastructure might be used by the central government as a rationale for preemptive action against the local group. Because the power line connecting the nation’s grid with electricity supplies (or demand) from another nation is clearly an important national asset, a government may find it more expedient to explain restrictions on or other moves against local populations in terms of security of the power line than in terms of advancing political goals, even if the latter is the actual overriding concern.

5.3.2. Effects of interconnections on international political relations

The presence of a grid interconnection between countries has the potential to give one country unwanted political leverage over another. If the dependence on the grid interconnection and the electricity and income it delivers is disproportionate between the interconnected nations (such as between a poorer, smaller country and a more industrialized, larger country), the potential exists for the country with less at stake in the interconnection to use power trades, and the threat of shutting off power flows, as a political tool to extract concessions from or otherwise exert political power over its interconnection partner or partners. Similarly, when an interconnection must pass through a third country to move electricity from the selling country to the major consuming country, the third country can potentially hold the interconnection “hostage” to its political demands by threatening, implicitly or explicitly, to interrupt power flows relied upon by the other partners.

5.3.3. Heightened vulnerability to instability and conflict in other countries

Heightened involvement or dependence on another country's electricity sector may make a nation participating in an electricity interconnection more easily affected by its neighbors' (or partners') internal and external political situation. For example, if a country depends on buying power from a neighboring nation that is gripped by internal strife, the purchasing conflict may find itself unwillingly drawn into political, or even military, conflict with one or more of the opposing groups seeking political power in its trading partner. This situation is not limited to electricity trades—dependence on trade in other commodities can also induce neighboring countries to “take sides” in their neighbors' internal conflicts, which they might have otherwise ignored (or played a much less active role in). Unlike many other commodities—food, minerals, or finished goods, for example—electricity cannot be stored (in significant amounts, anyway), and must be transported using relatively expensive, exclusive infrastructure that cannot be re-routed at will. As a result, a country dependent on electricity imports or exports may see no choice, if the electricity trade is threatened, than to become involved in other nations internal (or even international) conflicts to protect their own interests.

5.3.4. Proceeds from the interconnection may provide a bias for diversion by decision-makers

For an electricity exporting country, proceeds from the sales of electricity over a major international grid interconnection can easily reach into the hundreds of millions of US dollars per year. Some of these funds can be diverted openly and for legitimate purposes other than paying for the costs of providing electricity—subsidizing electrification, job creation efforts, or other development programs, for example—but in countries where controls on the behavior of public officials are weak, these substantial financial flows may offer the temptation for graft. Where proceeds that should be public funds are diverted for personal use, the result may be concentration of political power in the hands of those who have taken the funds, at the expense of other groups, thus altering (or helping to artificially maintain) the political balance of power in the country. Similarly, in both countries importing and exporting power, decision-makers may also be biased to award contracts to certain ‘preferred’ companies for constructing or maintaining power lines and/or the power plants used to feed them. As with diversion of proceeds from electricity sales, such bribery schemes have the strong potential to artificially alter the balance of political power, as well potentially either making the electricity supplied by the interconnection more expensive, reducing the quality of the interconnection infrastructure, or both. For both handling of proceeds from an interconnection and handling of supply contracts related to interconnection infrastructure, a transparent, clear, accountable, and thoroughly reviewed process for arranging for and handling financial transactions is the best way to assure that diversion of funds, and the political ramifications of same, do not become problems.

5.3.5. Political costs of power line protection

As noted above, the power lines and other infrastructure needed for grid interconnections are expensive investments, and, when operating, are relied upon to provide power and income. As such, they must be protected from attack. Power lines may run for hundreds of kilometers through fairly remote areas, including areas where central government control is naturally weak. In addition to the potential for oppression of local populations in the name of providing such protection, as noted above, the need to protect power lines and other infrastructure from militant local groups may put a central government in

a weaker political position relative to the local groups, essentially offering the potential that the power line will be used as a tool for financial and/or political extortion by local groups against the government. This may result in the central government granting political concessions to the local group—such as greater autonomy from central jurisdiction, or a reduction in vigilance against illegal activities such as smuggling, poaching, or bribery—than it would otherwise be obliged to do. A related potential political problem may arise if the government uses the distribution of proceeds or power from the interconnection as a tool to nominally enforce protection of interconnection infrastructure in local areas, but in a way that punishes local groups for actions or positions not related to the power line at all.

Given that many nations in the developing world constitute a patchwork of traditional ethnic, religious, tribal, or other allegiances, and that the remote areas where many resources that might be used for power generation are often not under strong central government control, some form of political extortion related to the protection of interconnection infrastructure may often be possible, even unavoidable. The means of handling this eventuality that is likely to be most effective from a sustainable development perspective involves, as noted above, maintaining from the outset a transparent process for decision-making regarding the interconnection, and involving as many local groups as possible in deciding how the interconnection should be configured and the costs and benefits should be shared, so that stakeholders in the construction and operation of the interconnection have thoroughly “signed off” on (approved) how the interconnection will be built and run. This approach, together with strict adherence to the agreements made and continuous consultation among the partners in the agreements, will help to keep political conflicts to a minimum.

5.3.6. *Political costs of tariff rationalization*

One result of grid interconnection, for some countries, may be to force state utilities that have previously been relatively isolated from the requirements of rational pricing and cost recovery to pay much more attention to the balance of costs and income. This will be especially true when hard currency payments are required for power imports. The result may be that subsidies routinely given to certain groups—low-income consumers, agriculture, or industry, for example—may no longer be sustainable⁸⁶. The political cost of changing these subsidies may be substantial. This does not mean that cross-subsidies from one set of consumer groups to another may not continue even when an interconnection is in operation—the point here is that the presence of an interconnection, and the financial transparency that it will require in order that all costs related to the interconnection are paid, will likely force utility managers to undertake tariff overhauls that may be, in the short term, politically difficult or unpopular.

5.4. **Types of Political Cooperation Required**

The planning, establishment, and operation of international electrical grid interconnections requires a wide variety of agreements between nations, as well as within nations. Though some of these agree-

⁸⁶ Won-Cheol Yun (2004), in *A Strategic Approach for Electric Power Cooperation in North-East Asia*, notes the political and financing implications of power subsidies as follows “...the current level of electricity tariffs in the Russian Federation and South Korea are below marginal costs and the services are implicitly and heavily subsidized. These will introduce additional uncertainties for investment toward power sector”. (Paper prepared for the APEC Study Centre Conference, May 2004, and available as <http://fbweb.cityu.edu.hk/hkapecc/Conference/Papers/Won-Cheol.pdf>.)

ments are of a more “legal” or “technical” nature, most also of necessity have political elements as well. Augmenting the discussion of required legal agreements described in Chapter 4 of this report, the list below mention some types of agreements with political elements so as to underscore that political will and a degree of political organization and internal cooperation is needed in order to come to terms on the necessary accords to allow the construction and operation of interconnections.

- Agreements in principle as to **sharing power resources**. The forging of legal agreements for sharing power resources between countries requires political agreement between the two governments that such sharing of resources would be mutually beneficial. Coming to such a political agreement, which, after all, gives each country a degree of leverage over the economy of the partner country, may in itself be difficult, particularly in regions where neighboring countries have a history of rivalry. In addition, internal political discussions are needed within each country participating in the interconnection to assure that, on balance, an interconnection is a wise use of national resources, and that the different political actors within the country are content with (or at least resigned to) the types of long-term international responsibilities that a grid interconnection implies.
- Agreements on **moving forward with the interconnection** project. After agreements on sharing resources have been reached, the task of defining the specifics of the interconnection project and of selecting design/construction contractors begins. This task also has political implications associated with it, as the nationality and identities of the selected contractors may be subject to political preference in one or more of the power-sharing nations. Though ideally the best-qualified contractors offering the most reasonable price should prevail in an open bid process, in practice political forces may well play (or may attempt to play) a role in how contractors are selected. The routing of the power line or lines for the interconnection is also likely to be a subject that will involve political maneuvering, as nations and groups within nations attempt to secure routings that will bring those groups the most benefit, or to avoid routings that are deemed undesirable.
- Agreements as to how **firms included in the interconnection project will be paid**, and by whom. Once contractors are selected, political agreements among the counties cooperating in the project will have to be reached on how the contractors will be paid, and by whom, as control over the finances of the project is both an economic and a political issue⁸⁷.
- Agreements as to how **benefits and costs of the project will be shared**. It is highly likely that international, national, and even local political agreements will be needed to decide how the benefits, as well as costs, of power line interconnections will be shared both between countries and between groups within countries. Cost-sharing will require similar political agreements. Political agreements within countries relating to the distribution of power line benefits may result in trading off of political “favors” within groups so as to secure the agreement of all stakeholders.
- Agreements as to how the interconnection will be **operated and secured**. Political as well as legal agreements will need to be reached between nations and among groups within nations to determine how interconnection infrastructure, including power lines, will be operated and secured. Agree-

⁸⁷ Contractor payment protocols in interconnection projects financed entirely or in part by international financial institutions, however, may be prescribed by the lender, and thus not (or not as) subject to political agreement.

- ment on the governance of an independent interconnection operator, or acceptance of one party or another as an operator, will be a matter of political as well as legal debate. If power line security, for example, is provided by personnel from another country (or even from another region within the same country), political agreements would need to be in place as to the type and scope of security operations carried out by those personnel.
- Agreements as to the **sharing of information** necessary to plan, operate and protect the interconnection. The operation of a grid interconnection, and even the planning of the interconnection, requires that the countries planning the information have access to information about the electrical system of the other countries. In many instances, this may include access to information that is deemed politically “sensitive” by one or more parties. As such, political agreements must be reached on what information is to be shared, and how and when it is to be shared, between different countries and different groups. Similarly, the securing of a power line or other interconnection infrastructure may require that countries, and certainly groups within countries, share information on the activities of sub-national groups. Obtaining and providing access to such information will involve political discussion, particularly as such information gathering and transfer may have ramifications for civil liberties.

5.5. National/Regional Attributes that Help to Support Grid Interconnection

If the weighing of political costs and liabilities such as those noted above, together with the many other costs and benefits of international grid interconnection, tend to favor grid interconnection in a specific instance, there are a number of national and regional attributes that will smooth the path to full acceptance and development of interconnection infrastructure and institutions. First among these attributes, as noted in a document prepared by the “E7” Group of Utilities, is the political will to engage in cooperation with other countries⁸⁸:

“Above all, it is fundamental to ascertain and enhance the political will for cooperation. This may actually be considered a preliminary condition to the entire implementation process. Until now in fact, regional electricity cooperation and integration has developed first and foremost in countries with political cooperation experience.”

The same source continues:

“A clear commitment from the decision-makers involved in the development of an interconnection project is crucial in order to secure the support of international investors. Moreover, strong “political” support from all public and private participants is considered the single most important element for a successful interconnection project.”

Some of the many national political attributes that favor interconnection projects are described below.

5.5.1. Culture of regional cooperation

Nations that have a history of cooperation with neighboring countries on other issues are more likely to have both the political inclination and political structure in place to make an interconnection a reality.

⁸⁸ The “E7” Group of representatives of large utilities from the G7 group of industrialized nations (2000), *Regional Electricity Cooperation and Integration (RECI)* compilation. Subtitle of overall set of documents, “E7 Guidelines for the pooling of resources and the interconnection of electric power systems”. These documents are available from <http://www.e7.org>. The quote provided is from page 8 of the *Guidelines* volume.

Countries that have active trade with their neighbors in key commodities, share transportation links, have active programs of cultural exchange, and work together politically to secure international benefits for their region are more likely to look favorably on grid interconnection opportunities, and to be able to smoothly negotiate and implement the agreements needed to make interconnection work.

Perhaps the ultimate example of a set of countries where the existence of multiple ties in many sectors developed over a very long period have helped smooth the way to grid interconnections are the countries of Europe. Here active trade—including trade in commodities and services, transport linkages, and active cross-border trade in non-electricity energy products—has been carried out for many decades (indeed, for some commodities, for many centuries), and political cooperation between countries is routine. At present, electricity trade between the nations of Europe is very active, with some countries depending on neighbors for significant portion of their power needs. Indeed, an integrated European market for electricity is a stated long-term goal of the European Union's European Electricity Directive of 1997⁸⁹. The "E7" Group's document on Regional Electricity Cooperation and Integration states:⁹⁰

"In fact, integration is a self-feeding process; this is quite clear in the European Community, as it started developing to coordinate coal and steel production, then was implemented as an integrated body, and now fosters the integration of electric power markets in a single market."

5.5.2. *Culture of long-term planning*

Electricity grid interconnections are long-term investments, with lifetimes of 30 years or more, and also require significant lead times for design, impact studies, and construction (among other activities). As a consequence, countries with a culture of long-term policy planning may find it easier to cope with the demands inherent in integrating a grid interconnection into their national long-term electric sector development strategies. In addition, countries where long-term planning is a tradition will be better able to generally be able to understand the political requirements of adhering to long-term agreements, such as power sales and purchase contracts.

5.5.3. *Clarity of internal energy policy goals, and internal energy sector structure*

In addition to a culture of long-term planning and demonstrated successful participation in external cooperative ventures with other countries, internal political agreement among those setting policy as to energy policy goals (and attitudes about cooperation in general) also smooth the way to international agreements on grid interconnections. This assumes, of course, that the goals agreed to are consistent with international grid interconnection. Internal agreement on energy policy goals can be reached either by a process of internal discussion of options among interested parties, or simply by policymakers excluding

89 See, for example, M. Pollitt (1999), "Electricity Market Integration and Liberalization", Chapter 1 in *A European Market for Electricity? Monitoring European Deregulation 2*, edited by R. Vaitilingam. Centre for Economic Policy Research, London, UK.

90 The "E7" Group of representatives of large utilities from the G7 group of industrialized nations (2000), *Regional Electricity Cooperation and Integration (RECI)* compilation. Subtitle of overall set of documents, "E7 Guidelines for the pooling of resources and the interconnection of electric power systems". These documents are available from <http://www.e7.org>. The quote provided is from page 29 of the *Module 1, RECI Feasibility volume*.

the views of those who may not agree. These two approaches to reaching clarity on energy policy goals may have similar ramifications for the initial agreement on making a grid interconnection, but different ramifications for the long-term internal acceptance of the interconnection by some of the country's citizens.

The structure of a country's energy sector, and its electricity sector in particular, may also serve as an attribute in favor of grid interconnections. If the companies (state or private) that operate the electricity system in a nation considering power imports are not politically threatened by the prospects of having some electricity supplies come from outside, and/or if the wholesale supply of electricity in a country already operates in a competitive market atmosphere, the politics of agreeing to a grid interconnection are likely to be more favorable. On the export side of the picture, if a country has state or private companies that are both anxious to participate in power exports and have political leverage in their nation, that nation is more likely to successfully pursue grid interconnection opportunities.

5.5.4. Willingness to formally ratify and adhere to international agreements

The "political will" necessary to implement a grid interconnection includes the willingness to enter into long-term contracts. The extent to which a national government has shown a prior willingness to ratify and adhere to international agreements in other areas—including agreements on trade, transport, criminal justice, the environment, and security—is an indicator to potential interconnection partners of the government's potential political reliability in maintaining its part of the bargain in an interconnection arrangement.

5.5.5. Demonstrated willingness to enter into cross-border trade in a key commodity like electricity

More specifically, nations that have shown the political will to enter into agreements for cross-border trade on key commodities are arguably more likely to be politically motivated, and politically able to justify internally, agreements to share power. Countries that depend on each other for a large proportion of their supplies of petroleum products, for example, or food, are more likely to find that a co-dependence on a similarly vital commodity such as electricity is not a significant departure from politics as usual between the nations.

5.5.6. Common membership in strong regional organizations

Countries that together belong to regional institutions active in promoting trade and regional cooperation—the Asia-Pacific Economic Cooperation group of Pacific Rim nations (APEC), ASEAN (Association of Southeast Asian Nations) and the League of Arab States are examples here—are more likely to have common experiences in cooperation that will help to further the prospects of international grid interconnections. In addition, existing cooperative agreements formed under the charters of regional organizations to which potential interconnection partners below may help to provide the basis for interconnection agreements themselves, and help to smooth the way for internal political acceptance of grid interconnections.

5.6. Barriers to Political Cooperation on Grid Interconnections

For each of the national or regional attributes that help to support grid interconnections, there are potential characteristics that, conversely, serve as barriers to political cooperation on cross-border grid interconnections. Rivalries between nations or between sub-national groups, internal disunity as to energy policy goals or other political issues that affect prospects for grid interconnections, and other differences between nations all may present hurdles that the proponents of a grid interconnection project must overcome.

5.6.1. Longstanding national rivalries and related distrust

Many adjoining nations share histories of rivalry. These may include border disputes, lingering antipathy from wars fought recently or long ago, disputes over refugees, or other differences. Lingering mutual mistrust among the nations have arguably slowed the development of cooperation in energy resource sharing between the countries of certain regions. Many countries also have unresolved disputes with at least one neighbor over territorial claims. These types of lingering political issues may or may not directly affect negotiations for grid interconnections, but can be sources of distrust that affect the negotiation process.

5.6.2. Religious or tribal rivalries and related distrust between nations

In addition to purely political differences between nations, religious or tribal rivalries between nations may also prove barriers to interconnection agreements. Governments of neighboring countries, when controlled largely by groups with a history of conflict in the region, may have distrust for their potential trading partners that make grid interconnection negotiations more difficult.

5.6.3. Internal national disunity

Where one or more of the nations potentially involved in a grid interconnection suffers from national disunity, it becomes more difficult to reach lasting agreement among all of the relevant parties on how the benefits and costs of interconnection will be distributed. Major disagreements between groups of citizens in a country, whether the government itself is strong or weak (but especially in the latter case), not only make it politically more difficult for the stakeholders in the country itself to agree on energy policy goals and on the utility of (and distribution of benefits from) a grid interconnection, but make it harder for potential partner countries to trust the country's government to keep its promises in interconnection agreements. In addition, once an interconnection is built, a country suffering from serious internal conflict is less likely to be able to keep interconnection infrastructure secure, which is both a practical and political consideration for potential partner countries.

5.6.4. Substantially different political systems between countries

Where countries considering electricity grid interconnections have significantly different political systems, this difference can also serve as a barrier to reaching political agreement on a grid interconnection. Apart from any existing regional rivalries, or ethnic/tribal/religious mistrust, countries with different political systems may trust each other less simply because their governments, probably including their legal and economic systems, do not operate in the same way. In these instances, reaching agreement on the details of how an interconnection is to be implemented and governed becomes more difficult, as each party must learn how their counterparts' governing systems work in order to be sure of how interconnection agreements will be carried out.

5.6.5. Emphasis on national energy self-sufficiency and internal energy sector organization

Some countries, as part of national overall and energy policy, have an emphasis on national energy self-sufficiency that may preclude or serve as a barrier to grid interconnections. Countries with political systems that are xenophobic (tend to shun other cultures), or which simply feel based on national ideology that their energy security and/or general security interests are better served by maximizing use of

internal resources, to the exclusion of other resources, are arguably less likely to be willing to enter into agreements to share electricity resources.

Even countries with a rich tradition of trading in energy and other commodities may have an internal electricity system organization that acts to restrain prospects for trade in electricity. Independent of any potential overall economic gain to the country to be achieved by electricity trade, if politically powerful state or private utilities in a potential electricity importing country see an interconnection as reducing their own economic and/or political standing, those organizations are likely to resist grid interconnections and the resulting diminution of market share, electricity rates/revenues and/or national importance that would (they perceive) come with it. In Japan, for example, electric utilities have historically had electricity tariffs that are among the highest in the world. The availability in large quantities of imported power, for example, from the Russian Far East (via undersea cable), would ultimately (assuming a degree of market liberalization) serve to reduce wholesale power rates, and would likely drive down retail tariffs as well. A similar situation exists in Japan in the gas sector, where largely non-interconnected, local gas companies have enjoyed secure service territories and charged high prices, and thus have had limited political or economic incentive to support either pipeline imports of natural gas, or the national pipeline grid that would be needed to distribute such imports. As a result of these market arrangements, historically, Japanese utilities have had an economic disincentive to promote power imports, though these attitudes may be changing. As one researcher into the impacts of trading of electricity and other energy commodities in Japan has noted⁹¹:

“One of the highest national priorities in practical specific terms is to resolve the global competitive threat to Japan’s electric power utilities companies. Although this is a little-recognized clash, there will be a dynamic change in the Japanese power industry as corporate executives recognize the challenge because they are willing to develop global strategies and energy policy.”

As the (historical) Japanese situation indicates, the internal organization of the power sector, particularly in the potential importing partner or partners in an interconnection scheme, can serve as a significant political barrier to grid interconnection, to the extent that the managers of the utility systems A) have political clout (as is often the case) and B) see grid interconnections as providing a competitive threat to the utilities earnings and/or political standing.

5.6.6. Corruption and political interference in the power sector

If a country’s electricity sector has a history of corruption and political interference, potential interconnection partners may find the prospects of working with utilities in that country unattractive. For interconnections to operate efficiently and provide the desired benefits to the participating governments, power sector reform, including building of a culture of transparency and open, consistent dealings in the electricity sector, must be promoted, and such a culture may prove difficult for those in power to adopt if corruption has been the rule. In her paper “Pooling African Power: Challenges and Issues in a Reforming

91 Fumio Arakawa (2001), *Restructuring Needed for PGI*, prepared for the Workshop on Power Grid Interconnection in Northeast Asia, Beijing, China, May 2001, available as <http://www.nautilus.org/archives/energy/grid/papers/arakawa.pdf>. Quote is from page 5 of the referenced document.

and Integrating Southern African Power Sector”, Margaret Njirambo Matinga writes⁹²:

“A fear of the negative implications of PSR [power sector reform], which is often equated to privatisation and related to structural adjustment programs, as well as a misunderstanding of the role of the regulator, further create powerful motivation for continued political interference in the power sector. This undermines the more important and necessary objectives of regional integration.”

Ms. Matinga continues:

“Credibility of energy governance systems will also play a crucial role in attracting FDI [foreign direct investment] and in building a credible and functional power pool. Lack of a history of independent regulation in the power sector means regulatory performance is often assessed by proxy. The likely proxy indicator for assessing the credibility of the new governance structures is the government itself. Unfortunately, most governments in the region have a history of lack credibility in adhering to legal requirements; a reputation rubs off various sectors. Politically, even though a lot of countries have changed their governments to democratic leadership, the new leadership is either too new or unstable to be trusted. In addition, precedent regimes tend to have an influence on current regimes. The challenge is then for the region to develop governance systems, policing and enforcing mechanisms and practices that ensure credibility. The LRF [legal and regulatory frameworks] should also clearly support the creation of credible institutions and send the appropriate signals to the investor community through adherence to the regime.”

A problem related to corruption, but at the “user” end of the electricity system, is illegal consumption of power. In many developing countries and countries with economies in transition, theft of electricity through often dangerous illegal connections to the distribution network, sometimes referred to as “non-technical losses”, is a major problem⁹³. As distribution utilities become more transparent in their dealings with customers and power sellers and buyers, as a result of interconnection and/or other reforms, it is likely that the imperative to reduce the amount of electricity not paid for—by significantly upgrading metering and billing systems, as well as cracking down on illegal connections—will be extremely strong, if not in fact mandated by interconnection sales agreements.

5.7. Overcoming Barriers to Political Cooperation (National and International)

Each potential international grid interconnection, and each potential national party to that interconnection will present its own unique set of attributes enhancing the prospects of a successful project,

92 Margaret Matinga (2005), *Pooling African Power: Challenges and Issues in a Reforming and Integrating in a Southern African Power Sector*. Dated March 10th 2005, and available as <http://www.nepru.org.na/Regional%20Integration/Power%20sector%20integration.pdf>

93 The M. Matinga article referenced above includes the estimate that non-technical losses in the countries of Southern Africa average 35 percent (presumably of net generation), versus a “world average” of 2 percent. Southern Africa is hardly the only region where this problem exists. The author of this report has encountered similar rates of illegal consumption in other countries, including countries in the Middle East.

and unique set of barriers that must be overcome. A set of generic approaches to overcoming barriers to political cooperation in grid interconnection projects, utilizing national political attributes that favor interconnections in the process, are listed below⁹⁴. These approaches stress transparency and being inclusive in negotiations within and between countries, sharing information, making sure to fairly distribute project benefits (and costs), and using international institutions to aid in the process. The “E7” Group’s Regional Electricity Cooperation and Integration compilation includes the following statement, which summarizes an approach to overcoming political barriers⁹⁵:

“There are political barriers to market integration, mainly the absence of political trust, as well as political concern that international trade would jeopardize the social objectives assigned to the electricity supply industry. On the contrary, giving higher profile to the economic, social and environmental benefits that electricity market integration could yield and spending efforts to persuade political actors to meet and agree on common rules may be a starting point for regional electricity cooperation and integration.”

5.7.1. Make all dealings between parties in the agreements open and transparent

Many potential political barriers exist or are propped up by internal or international traditions of secrecy and “backrooms” negotiations. Making sure that all dealings between parties to the potential interconnection agreements are as open as possible is a key element of overcoming internal and international political barriers. Here “open” means that all draft agreements and related documents are available for convenient public review, that meetings between parties are announced in advance and open to representatives of all potentially affected groups, and that processes in the negotiation of the agreement are laid out beforehand as a working agenda (though subject to modification as the process proceeds) that indicates points at which comment from interested parties can be provided, and how those comments will be taken into account at major decision points.

5.7.2. Include all affected parties in early stages of project formulation and throughout the project

Additional political barriers to interconnection are the result of exclusion—deliberate or intended—from the process of discussion of the interconnection of certain groups within countries that are likely to be affected by the interconnection project. Including potentially affected parties from the early stages of grid interconnection negotiations can help to lower barriers due to internal political disagreements. Potentially affected parties, including representatives of local governments and leaders of organized groups within the specific geographical areas that would host infrastructure related to the interconnection, should be invited to attend meetings where interconnection prospects are discussed and invited to provide input

94 Many of these strategies are echoed, for general applications, in a document by the African Development Bank/African Development Fund (1999) entitled *Bank Group Policy On Good Governance*, and available at http://www.afdb.org/gecl/content/download/549/3926/file/Bank_Group_Policy_on_Good_Governance.pdf.

95 The “E7” Group of representatives of large utilities from the G7 group of industrialized nations (2000), *Regional Electricity Cooperation and Integration (RECI)* compilation. Subtitle of overall set of documents, “E7 Guidelines for the pooling of resources and the interconnection of electric power systems”. These documents are available from <http://www.e7.org>. The quote provided is from page 29 of the *Module 1, RECI Feasibility* volume.

on interconnection plans. In some cases, funds may need to be provided so that these groups have the capacity—including capacity for analysis of the local impacts of interconnection options (here analytical capacity may be in the form of hired consultants and/or of trained internal staff)—to participate meaningfully in discussions. Establishing an “Advisory Group” for the interconnection project, with membership by representatives of all national and sub-national groups potentially affected by the project, is one way to accomplish inclusion of different groups in a structured and not overly-burdensome manner. This Advisory Group would then be included in (or in some cases where discussions are particularly detailed, briefed on) discussions related to the project, and would have at least some authority to accept, reject, or force changes in decisions made by managers of the interconnection project.

5.7.3. Establish protocols for data collection and distribution to parties that require data

As noted in Chapter 2 and in other Chapters of this Report, proper planning of an electricity grid interconnection requires information from a variety of sources. For example, information is needed on the transmission systems of the interconnected countries, on the power plants operating in the grids to be interconnected, on long-term plans for power system development in the interconnected countries, and on the forecasts for power demand in the countries to be linked. Similarly, information on the costs of electricity from different sources must be provided so that the economic costs and benefits of grid interconnections can be adequately gauged. The different political groups likely to be affected by grid interconnections will need access to these types of data, and to the results of models run with these types of data as inputs, in order to assure that they are fully included in the decision process, and that each group feels that the project decision process is suitably transparent. Providing access to data will require that protocols for data collection and dissemination are established and followed throughout the project development process. The need for “open and profound analysis [involving all of the nations involved in the interconnection] of system responsibilities” was noted in the case of the “Baltic Ring” project among the countries of Northern Europe⁹⁶. This type of analysis, and the coordinated, well-founded planning that is needed to support an interconnection (particularly one that also functions with competitive markets) requires open, timely access to system and planning (for example, demand forecasting) data for all of the groups that are stakeholder in the interconnection.

Establishing data collection and dissemination will also, in most cases include making sure that the organizations in each country tasked with obtaining the needed data are adequately staffed and funded. In addition, dispensations should be made so that groups that will be reviewing data have adequate training and/or have expertise at their disposal so as to be able to make an adequate review of the information made available.

5.7.4. Make sure that benefits and costs of the project are fairly distributed

While ensuring transparency in project planning and development and making sure to include all major relevant groups in the interconnection planning process are key elements of overcoming political barriers to grid interconnections, political support may still be lacking unless the costs and benefits of the interconnection are demonstrably fairly distributed. This means that the groups responsible for evaluat-

96 Baltic Ring Electricity Co-operation Committee (BALTREL, 2003), *Towards a Common Electricity Market in the Baltic Sea Region*, Report co-Financed by the European Commission, and available as http://www.baltrel.com/Reports/Baltrel_021202.pdf. Quote is from page 21.

ing the project in each country must first come to general agreement on **what** the costs and benefits of the project are—including both quantifiable and not-easily-quantifiable aspects of the project. Next, a “base-case” assessment needs to be prepared describing **who**, in terms of countries, geographical areas within countries, local groups, and other parties to the interconnection arrangements, will receive overall project benefits, and how the overall benefits would be distributed. Following a similar assessment of how project costs would be distributed, negotiations between parties would take place to assure that project costs and benefits, to the extent that they can be identified, are fairly balanced among the interconnected countries and among the interest groups within countries. This process of negotiation could, for example, attempt to assure that any environmental or social risks taken by hosts to power line or other project infrastructure would be compensated by benefits designed to assist in the sustainable development of the area (for example, consistent electricity supplies at affordable rates), while making sure that project costs are fully paid⁹⁷.

5.7.5. Work with and through respected international organizations and other intermediaries where appropriate

Common membership in regional and international organizations was noted above as an attribute that can help countries contemplating a grid interconnection find common ground for agreement. Working with and through international and regional organizations in formulating and planning projects, including using support from such organizations to obtain analytical assistance for the various parties to an interconnection, can help to overcome political barriers to agreements, particularly when the international or regional organizations involved are demonstrably neutral in their approach. The involvement of international financial institutions, in particular, can provide the initial spur to overcome reticence to begin discussions of interconnection with neighboring countries, as well as being a trusted source of technical expertise, and ultimately, project funding. The “E7” Group of Utilities describes as follows the role of regional political organizations and/or international institutions in overcoming the reticence of national utilities to interconnect:

“In developing countries, the situation is quite different [from the current situation in North America, Europe, and Japan, where low load growth, trends toward smaller generation capacity, and market reorganization considerations dominate]. Economies of scale have not been captured, the hydroelectric potential is not harnessed, and the demand for electricity is expected to double or triple over the next 25 years. There is an urgent need for organizing the expansion of the energy system at a regional level. The corresponding investment to be made in the electric sector is generally out of reach of the governments’ financial capability. The experience of E7 countries shows that the development of transnational electricity trade — a key component of

97 For example, it may be necessary to subsidize the cost of electricity delivered over the power line to some groups—rural low-income households, for example—balanced with higher prices paid by other groups, in order to find a balance that fairly apportions the benefits of the project and promotes sustainable development. This may result in some price distortion, and make competition in electricity provision more difficult. The issue of subsidies to low-income consumers is discussed briefly in Margaret Matinga (2005), *Pooling African Power: Challenges and Issues in a Reforming and Integrating in a Southern African Power Sector*. Dated March 10th 2005, and available as <http://www.nepru.org.na/Regional%20Integration/Power%20sector%20integration.pdf> (page 5).

the least-cost process for developing the electricity sector — will not be “naturally” favored by state-owned and controlled electricity utilities. If a high level of regional integration is to be achieved, a strong political push needs to be given, either through political regional organizations or by international institutions.⁹⁸”

5.7.6. *Case studies of interconnection projects and proposals*

One case where a proposed grid interconnection—and a large export-oriented power plant to feed it—failed to reach the implementation phase in part because of perceived inequitable distribution of benefits and a process of political that was lacking, was a large proposed hydroelectric project in Nepal designed to feed demand in India and China through an interconnection. This case is discussed in Box 5.1, next page:

5.8. Summary and Conclusion

International electric grid interconnections may bring political benefits to the interconnected countries ranging from increased experience and political comfort with international cooperation, more reasons to avoid conflict with neighbors, increased democratization (depending, in part, on how the interconnection is designed and administered), and an increase in internal political stability. On the other hand, in some cases, the existence of an interconnection may be used as an excuse for internal political oppression, may give one of the interconnected countries more political and economic leverage over another, may entangle countries in each others’ internal affairs, may provide potential for political graft, and may entail significant political costs for power line protection.

Designing, constructing, and operating power line interconnections require political cooperation both between and within countries on a number of fronts, including:

- Agreements in principle as to **sharing power resources**—political agreement between the two governments that such sharing of resources would be mutually beneficial.
- Agreements on **moving forward** with the interconnection project, including agreements on contractor selection, power line routing, and other major decisions.
- Agreements as to how interconnection **project contractors will be paid**, and by whom.
- Agreements as to **how the benefits and costs of the project will be shared** between and within nations.
- Agreements as to how the interconnection infrastructure will be **operated and secured**, including agreement on the governance of the interconnection operator.
- Agreements as to the **sharing of information** necessary to plan, operate and protect the interconnection.

Countries sharing the political will to cooperate on a grid interconnection are most likely to reach such agreements smoothly and in a timely manner. Countries sharing a culture of regional or international

98 The “E7” Group of representatives of large utilities from the G7 group of industrialized nations (2000), *Regional Electricity Cooperation and Integration (RECI)* compilation. Subtitle of overall set of documents, “E7 Guidelines for the pooling of resources and the interconnection of electric power systems”. These documents are available from <http://www.e7.org>. The quote provided is from page 27 of the *Module 1, RECI Feasibility* volume. A footnote to the quoted statement in the source document notes that since the electricity market in Europe has, in fact, been dominated by national utilities, with the exception of trade in hydroelectric energy in Scandinavia and from Switzerland, electricity trade in Europe has largely occurred as a result of “planning errors” which resulted in poor matches between required capacity and actual capacity in some nations, particularly overcapacity of nuclear generation in France.

BOX 5.1: The Proposed Karnali Hydroelectric Project, Nepal

In 1996 the Nepalese Government first invited Houston based Enron Corporation to talks regarding the Karnali Hydroelectric Power Project to be built high in the Himalayan Mountains. The multi-billion dollar, 10,800 MW project was designed to export electricity to India and China. Nepal is a poor country with immense but largely untapped hydroelectric potential. Currently only 0.5 percent of the country's believed hydro capability is utilized, and only 15 percent of the country's 22 million people have access to electricity. Developing its water resources through the building of large hydro facilities is a major focus of the Nepalese Government. However, strong opposition from both international lenders and its own civil society regarding the construction of large dams has made this desire difficult to achieve. In 1995, the World Bank abandoned its plans to loan \$175 million for the Arun III hydro project, stating that the Nepalese government should instead focus on building smaller hydro initiatives, and after several rounds of negotiations Enron withdrew its plans for the Karnali dam project.

The Enron example is an interesting case. Although largely supported by the government, protests by various local civil society organizations played a significant role in causing the deal to flounder and for Enron to eventually pull out. Both Enron and the Nepalese government were committed to pushing the project forward, however neither the government nor Enron Corporation had much experience in regards to building and operating a large hydroelectric facility, and therefore concerns were expressed regarding the poor project development of the Karnali dam.

Through debates and discussions with government officials, civil society groups raised several issues related to the construction and operation of large scale hydro plants such as this one. One of the major concerns expressed by these groups was in regards to who would be legally responsible, the Nepalese Government, Enron or a combination of the two, for the expected large resettlement and environmental mitigation costs associated with the project. Civil society groups referred to ongoing problems in these areas prevalent in many of the smaller scale hydro projects in Nepal to express their similar concerns over this proposed "mega-dam".

A second major concern was in relation to who would actually benefit from Enron's proposed hydro project. Often times, large scale export oriented electricity projects do not create any forward or backward economic linkages. Therefore, Nepali civil society groups feared the local population would not receive any real economic benefit from the project. An additional concern was related to the lifespan of large reservoir dams in the Himalayas. Due to the hydrology and geography of many rivers in this region, the life-span of large reservoir dams in reality may be significantly shorter than expected or planned. These concerns, raised by various civil society groups, stemmed in part from the poor project development of the Karnali Hydro dam, and were an influential factor leading to Enron pulling out of the project and the project being abandoned.

cooperation, having a culture of active long-term planning and clear energy policy goals, having shown a previous willingness and ability to ratify and adhere to international agreements, sharing a history of cross-border trade on key commodities, and having common membership in strong regional organizations are most likely to be able to reach political agreement on grid interconnections. Political barriers to interconnection between countries, on the other hand, can include longstanding national rivalries or territorial disputes, religious or tribal rivalries between nations, internal political disunity, substantially different political systems and traditions, an emphasis on national energy self-sufficiency to the exclusion of other options, and an internal energy sector organization that may be politically at odds with an interconnection project.

Given these potential political benefits, costs, national attributes favoring agreements, and barriers to cooperation, some of the potential overall strategies for reaching the necessary political agreements

(many of which have technical, legal, economic, social, and/or environmental aspects as well) include:

- Emphasizing transparency in negotiations related to grid interconnections
- Including all (or at least all major) potentially affected parties in the early stages of project formulation, and continuing to solicit the input of all parties on key decisions throughout the project
- Establishing clear needs for, and protocols for collecting and distributing, quantitative data and other information needed for project design, as well as for the accurate estimation of project costs and benefits.
- Fairly distributing project costs and benefits among project participants and groups affected by the interconnection.
- Working with and through international and regional institutions, including international financial institutions, to help smooth the path to political agreement, as well as to assist in providing the capacity for all groups to contribute meaningfully to decisions related to the interconnection.

5.9. Resources for further analysis

5.9.1. Selected references

Margaret Matinga (2005), *Pooling African Power: Challenges and Issues in a Reforming and Integrating in a Southern African Power Sector*. Dated March 10th 2005, and available as <http://www.nepru.org.na/Regional%20Intergration/Power%20sector%20integration.pdf>

“Guidelines” and “Module 1” volumes of *Regional Electricity Cooperation and Integration (RECI)*, E7 Guidelines for the pooling of resources and the interconnection of electric power systems, prepared by the E7 Network of Expertise for the Global Environment, dated approximately 2000, and available from <http://www.e7.org>.