

Sustainability of Reform in Central America: Market Convergence and Regional Integration

By

Richard Tomiak and Jaime Millan

1. Introduction

The 1990s was the decade of privatization and deregulation. Although the strategy was largely pioneered in the mature Western economies, the notion that liberalization could improve economic efficiency and at the same time generate income streams that could alleviate fiscal imbalances was rapidly extended to developing countries. Private sector investors would pay to acquire publicly owned assets and at the same time take over certain of the government's obligations. A regulatory framework that enabled market forces to deliver efficient decisions in competitive market sectors and simulated market forces in monopolistic ones would ensure that these obligations continued to be responsibly met. As the decade progressed, the concept of energy market liberalization was embraced by governments, businesspersons, consultants and lending agencies across the world as a cornerstone of economic policy. Such was the enthusiasm for liberalization that the question of whether it was in fact an appropriate policy for all countries, whatever their circumstances, was sometimes overlooked or at least glossed over.

In Central America, the initial impetus for change had its origins in the deteriorating situation faced by the state-owned, vertically integrated utilities during the early-1990s. In most countries, finances were in disarray, inefficiency was rife and resources were scarce. Consultants and advisors were brought in to help resolve these problems, but without fully understanding the special circumstances of the countries of the region, they often recommended that solutions which appeared to be working successfully in other economies should be transferred indiscriminately to Central America. It is clear with the benefit of hindsight that many of original reforms planned for Central America were over-optimistic, both in terms of what was to be achieved and in terms of how soon it could be achieved.

In four of the six Central American countries, the exceptions being Honduras and Costa Rica, fundamental reforms have been implemented (see Table 1), resulting in a significant level of privatization activity and the unbundling of companies in the electricity sector. Guatemala and Panama have introduced competition at the level of the wholesale market, while in El Salvador the entire sector has been opened up, at least in terms of the legal infrastructure. In Nicaragua, privatization of distribution has been accomplished and in Honduras reform is in its initial stages, but it is important that the progress that has been made in the region, such as it is, should not be undermined. Only Costa Rica remains reluctant to go any further than contracting for a limited number of PPAs with the private sector.

Table 1
Electricity sector reforms in Central America

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Single Buyer With PPA	1990 Law 7200 & 7508 Qualifying Facilities	1994 PPA CEL-Nejapa Power	1991 PPA EEGSA-Enron	1993 PPA ENEE-ELCOSA	1996 PPA ENEL-Amfels	1997 PPA IRHE-Petroeléctrica
Wholesale Competition	No	1996 Law	1996 Law	no	1998 Law	1997 Law
Retail Competition	No	1996 Law	no	no	no	no

SOURCE: Interamerican Development Bank

The objective of this paper is to assesses the Central American power sector reforms and suggest an integrated framework for promoting sustainability of electricity sector reform in the six countries of the Central American isthmus¹. Whilst the paper draws on experiences gained in other parts of the world, it explicitly takes into account the particular characteristics of the region. It concurs with the view that competition in the six Central American states is limited by their technical and institutional constraints but suggests that these can be overcome over time by establishing appropriate regulatory regimes and pursuing a policy of regional market convergence that ultimately results in full regional integration.

The paper is organized as follows: Section 2 provides an assessment of the prospects for regional integration in Central America by referring to four lessons drawn from the European experience. Section 3 considers the nature of the various constraints faced by the individual Central American states during their complicated transition towards a more competitive energy sector. Section 4 presents the conclusions that have been reached and the recommendations that emerge from them.

¹ Belize is a small country that has not participated in the integration effort.

2. Prospect for Regional Integration

Full regional integration of Central American electricity markets, initiated by the signing of the Central American Market Framework Treaty in Guatemala in December 1996, has to be seen as a longer-term goal.² While the treaty provides the basic elements for integration, the absence of a formal timeline defining specific milestones will delay integration. For the process to advance, the following conditions are relevant.

First, public confirmation and social acceptance that the development of a free and competitive energy market as a means to achieve a sustainable electricity sector is a worthwhile and high priority objective. Commitment to this long-term goal needs to be clear and unambiguous from the outset. Inevitably, there will have to be trade-offs and compromises made along the way, but if there are doubts that liberalization is the goal, then the process of reform will be seriously jeopardized. One important challenge in this respect is to re-energize the overall drive towards liberalization, which in the eyes of some of the parties involved has become a tired and even discredited old initiative. Second, a mature institutional framework, encompassing political, legal, regulatory and commercial issues, is essential in facilitating the smooth operation of a free market and minimizing the country and political risk perceived by potential investors. Forcing through liberalizing reforms in a country where such a framework does not exist can result in serious problems that threaten the long-term success of the whole endeavor. Creating institutions that are flexible and robust enough to support a free, competitive market is an enormous, but vital, task.

One of the more positive developments in recent years has been the emergence of a greater desire for unity within the region, which is replacing the conflicts and rivalries of the past. There is a realization within the Central American countries that future economic prosperity is dependent not only on their relationships with one another, but also with their larger neighbors to the north, Mexico, the U.S.A and Canada (the members of NAFTA) and with the emerging economies of South America. Now, many social agents recognize that only through joint initiatives will the region be able to exploit its geographical advantages and participate actively in the global energy economy.

Some significant progress has already been made in the new century with the establishment of a free-trade agreement between Guatemala, Honduras, El Salvador and Mexico and, in a separate initiative, with the agreement to create a customs union that will include Guatemala, Honduras, Nicaragua and Belize. Furthermore the Plan Puebla Panama has become the focus of infrastructure integration in Central America. These developments sit well with the plans for a free-trade pact with Central America, which were outlined by President Bush at the summit meeting held in Quebec in March of 2001. Nevertheless, as encouraging as these steps towards integration may look, the region still has a lot of work ahead to reach levels of integration such as those already achieved by Mercosur, for example.

² The history of integration goes back around 20 years to when the first studies were performed.

The relevance of these considerations for the evolution of a market integration process is better understood once we bring to mind four important lessons from the European experience

In drawing parallels with the situation in Central America, it is illuminating to recall that the idea of a common European market started life almost 50 years ago as a purely sectoral initiative. Although driven by a broader political vision, the Schuman Plan for the establishment of a common market in coal and steel was embodied in a treaty and ratified by the member countries in 1952. The European Coal and Steel Community that the treaty gave birth to, allowed its members to co-operate in these specific industrial sectors without having to enter into wider and more demanding commitments. However, the benefits of economic cooperation were demonstrated and in 1957 the Treaty of Rome was signed, resulting in the formation of the European Economic Community. Since then the Community has been enlarged and strengthened as initially recalcitrant countries gradually came to realize that their economic and political interests would be best served by joining the European Union. ***A first lesson of the European experience is that co-operation at a sectoral level can precede full economic integration and indeed provides a valuable learning platform for the participating states.***

A main feature of the market restructuring process adopted by the European Union is the binding character of the Electricity and Gas Directives. These Directives, adopted in 1996 and 1998 respectively, provide an overall binding legal framework for the EU, setting out the basic rules and minimum requirements for market opening in gas and electricity. They require Member States to open a specified minimum level of demand to Europe-wide competition, to give third parties access to the transportation network and to partially unbundle networks from other parts of the electricity and gas industries. The existence of this overall framework is significant since with interconnected systems, decisions and actions taken in one country can have an impact on markets and consumers in other countries. Of course, the European experience has not been without its problems. France, for instance, has on occasion been reluctant to conform to some of the measures contained in the energy Directives. But over time, the explicit and implicit pressures that fellow member states are able to exert, together with a degree of compromise, are producing a gradual movement towards the objective of a creating a single European energy market. Whether a process of setting binding rules for all countries provides an acceptable route in the context of Central American politics has to be debated. ***A second lesson of the European Experience is that the effectiveness of the directive binding approach should not be underestimated.***

Whilst the energy Directives issued by the European Commission in Brussels have driven the European deregulation process, it has been reinforced by the creation of a number of new industry bodies. The establishment of the following organizations has been particularly significant:

- a) the Council of European Energy Regulators (CEER), which has both gas and electricity sections that meet quarterly to coordinate and progress the detailed implementation of the principles contained in the energy Directives;
- b) Independent System Operators, whose role is to ensure that national transmission grids are operated in a commercially and technically efficient manner so as to facilitate Europe-wide movement of energy;
- c) the European Federation of Energy Traders Regulators (EFET), which was set up by traders in 1998 in order to develop the processes and mechanisms that would enable energy trading to take place on a pan-European basis.

In order to encourage joint action at the Community level, in 1998 the European Commission initiated the creation of the European Regulatory Forum for electricity, the *Florence Forum*. The Forum brings together representatives of the Commission, the national administrations, the European Parliament, the Council of European Regulators and the Association of European Transmission System Operators (ETSO). Producers, consumers, traders and other players are also represented. The objective of the Forum is to clarify and discuss possible solutions with all key players, in particular, at present, on cross-border tariffs and congestion management. While the Florence Forum has proven a highly effective tool in developing consensus on highly complicated, rapidly evolving and controversial issues, recent experience has shown that the forum suffers from a number of weaknesses. For instance, the Forum has only two two-day meetings a year, and is poorly equipped to make firm decisions on frequent and/or detailed issues: unanimity is required and there are no procedures to enforce implementation of decisions. As a result the Commission has decided to adopt a legislative instrument (another Directive) to finalize decisions on cross-border transmission tariffs and congestion management on interconnectors. ***The third lesson refers to the important role of a diversity of new bodies and institutions in the deregulation process.***

In the early 1990s the Norwegian and Swedish TSOs were formally separated from the integrated utilities they had formerly been a part of. As transparently impartial and apolitical players, the two bodies were able to identify common interests and develop strong mutual links, so that by 1996 it was logical for the Swedish grid operator to take a 50% stake in NordPool, the Nordic power exchange. The continuing existence of significant differences between the two countries - not just on electricity issues and government policy, but also as the result of a long history of mistrust and conflict – has many parallels in the relations that exist between the Central American states. However, the Scandinavian experience shows that the neutral operation of a cross-border electricity market can co-exist with national political differences and continue to deliver integration and competition that is in the best interests of both parties. ***The four lesson illustrates the extend to which fully independent transmission system operators (TSOs) may also facilitate closer regional cooperation. This lesson is important for the Central American context since the institutional organization of the transmission system is one important point still under discussion.***

These four lessons are certainly important to take into account when considering the integration of electricity markets. Nevertheless the extend to which they may apply to the

particular conditions of the Central American Electricity Market requires a careful understanding of the constraints and peculiarities observed in these countries. This is the subject of the next section.

3. Market Constrains and Regional Convergence

Size of Market

Table 2 below summarizes the main characteristics of the electricity markets of the Central American isthmus in 1999. The last row of data shows that with the exception of Costa Rica, levels of electrification in the region are still relatively low. This highlights the importance of ensuring that government priorities are agreed and understood – there has to be consensus that, for example, liberalization will not jeopardize the goal to obtain quickly full electrical coverage.

Table 2
Central American Electricity Market Features: 2000

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama	Total
Peak demand (MW)	1121	758	1017	702	397	777	4772
Installed capacity (MW)	1699	1114	1668	918	633	1071	7104
Energy Sold (GWh)	5750	3638	4620	3289	1505	3797	22599
Consumption per capita kwh p.a.	1429	580	406	499	297	1329	624
Electrical Coverage	95%	76%	72%	58%	46%	68%	69%

Small is, of course, a relative term, but in the context of electricity markets can best be defined as providing an insufficiently large demand base to support a competitive generation sector (five or six companies, say, each accounting for some 500 MW of capacity). As the table above shows, peak demands in the region range from just less than 400 MW (Nicaragua) to a little over 1000 MW (Costa Rica). As a result, these “small” markets are either at risk of being dominated by one or two large players or have to limit the size of participants to levels at which they cannot realize economies of scale. Making the market physically bigger by encouraging interconnection of national markets and thereby developing a regional market will produce a more robust and diverse market. The demand of the six Central American states, which currently totals around 4500 MW,

would be capable of supporting a competitive industry, as defined above. Moreover, demand in these countries is currently growing at rates close to 6% a year, so the potential for future market growth should not be underestimated.

Market Convergence

Whilst, in a general sense, all the individual countries of Central America may be moving towards a deregulated future, it would be useful to know whether their market structures - wholesale market arrangements, trading rules, company structures, etc, - are actually moving closer together towards a standard regional model. If convergence does not occur, then the more difficult and costly will it be to bring about the degree of homogeneity and consolidation that is required to expedite the creation of a single Central American energy market. Whilst this inevitably has to be a subjective appraisal, it is clear that there are a number of key parameters according to which the state of liberalization in each country may be assessed.

Legal Arrangements

In the first place, suitable legal arrangements should be in place. These must include an appropriate legal framework through which the necessary structural changes can be implemented and subsequently enforced, and this has to be reinforced by other related supporting systems – for example, contract law and anti-trust laws. The existence of detailed plans for market opening and the level of opening already implemented, in theory as well as in practice, are other relevant factors that need to be taken into account. Table 3 contains a summary of the legal arrangements in the six Central American states.

Table 3
Legal Arrangements

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Legal framework for liberalization and deregulation	No	Yes	Yes	Analyzing future reform	Yes	Yes
Anti-trust laws	Yes	No	No	No	No	Yes
Deregulation program with detailed timetable	No –	No	No	Analyzing future reform	No	5-year transition period
Degree of legal market opening	None	Totally open market	Wholesale competitive	Wholesale competitive	Wholesale competitive	Wholesale competitive

The spectrum of reform is defined at one extreme by Costa Rica, whose government is reluctant to pursue reform because of lack of consensus and opposition of strong interest

groups, and at the other by Panama which has a strong legal framework, a well-developed transition plan and a strong regulatory regime. In terms of consistency, it should be noticed that El Salvador, which has a fully deregulated electricity sector, has no anti-trust laws to manage the situations that an open market can bring about.

Ownership Structure

Given the legal arrangements that are in place, it is illuminating to consider how far the ownership structure of the electricity industry has changed in reflection of the intent behind those arrangements. For example, the extent of private sector participation in electricity, the degree of market concentration and the mix of ownership in the sector all provide useful indications of whether the legal framework is delivering the desired outcomes. Other factors, such as the extent to which vertical and/or horizontal integration of companies is permitted and whether new entrants enjoy at least legal freedom of entry, are also important. A summary of this information is contained in Table 4 below.

Table 4
Ownership Structure

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Percentage of Private Participation						
• Generation	10	40	50	60	30	100
• Transmission	0	0	0	0	0	0
• Distribution	0	100	100	0	100	100
Market share of the three largest companies	100	90	70	90	90	100
• Generation	100	100	100	100	100	100
• Transmission	80	100	100	100	100	100
• Distribution						
Extent of vertical integration	No Separation	Separation but no limits	Separation but no limits	No Separation	Legal separation	Legal separation
Legal Free Entry	No	Yes	Yes	Yes	Yes	Yes

In all the countries of the region transmission continues to be a state-owned monopoly activity, but it is interesting to note that distribution companies are increasingly falling into private hands. Vertical re-integration in small systems is likely to result in the establishment of dominant positions, especially when some companies are starting from a strong existing position in the distribution sector. In particular, allowing incumbents to move from distribution into production will enhance their market power and discourage new players from entering the market.

Wholesale arrangements

A deregulated market needs to provide mechanisms that facilitate the development of the liberalizing forces envisaged by the reform program. In the electricity industry, efficient wholesale arrangements that link energy producers with energy retailers and enable the effective management of price risk, are a crucial element of the competitive market. Therefore it is important to ascertain whether such arrangements exist and what the detailed rules for dealing in such markets are (see Table 5 below). In addition, it is also important to know whether there are any impediments to the utilization of wholesale markets, particularly in the form of existing long-term contracts, which obviate the need to deal in wholesale markets.

Table 5
Wholesale Arrangements

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Type of contracts	Physical	Physical	Financial		Financial	Financial
Spot market price	Not market but SOE buys at SRMC from qualified generators	Marginal bid to serve the residual market(after contracts have been dispatched)	Short run marginal cost by dispatching available capacity at declared cost. Transmission Constraints		SRMC by dispatching available capacity at declared cost	SRMC by dispatching available capacity at declared cost
Capacity Charge		No	Regulated		Regulated	Market based
No. and vol. of PPAs		Yes	Yes			

With the exception of Costa Rica and Honduras, the other countries of the region have introduced some form of wholesale market. El Salvador's pooling arrangements – which allow free bids – have already proved difficult to implement. Cost-based pools are more appropriate in the Central American context for a number of reasons. They represent a natural progression from traditional merit-order dispatching methods and, because they require transparency, they should continue to ensure that dispatch remains economically efficient. Hedging instruments can develop around a cost-based pool and there are no constraints (other than size) to prevent such arrangements from eventually evolving into bid-based spot markets.

Regulation

Even in successfully deregulated electricity markets, monopolistic segments need to be regulated to ensure open access and appropriate prices. Table 6 shows the state of

regulation in each country, both in terms of the independence of the regulatory authority and the nature of the price control mechanisms that are being used.

Table 6 – Regulation

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Regulatory authority	Multisectorial	Multisectorial	Sector	Sector	Sector	Multisectorial
Independence of Regulator	Yes	No	No	No	Limited	Yes. Strong body
Pass-through of generation cost to regulated customers	N.A. Traditional Utility	Quarterly average of Spot prices	Average of contracts and spot market purchases. Yearly forecast are adjusted quarterly	Long-run marginal cost	Yearly	Weighted average of contracts and spot market purchases
Re-balancing of tariffs	No	No – subsidies Maintained	No – subsidies Maintained	No – subsidies Maintained	Yes	Yes – subsidies withdrawn

Two important observations emerge from the table. First, only in Panama does a sufficiently robust regulatory structure appear to be in place. While this observation may call for the pooling of regional expertise, the Panamanian regulator may not wish to risk his position by becoming involved with the other regulators of the region. Second, Central American states have been experimenting with a variety of price setting mechanisms for regulated customers. Unless reversion to a common standard takes place over an extended period, any re-balancing of tariffs could produce severe socio-economic disturbances in the countries of the region.

Generation

Experience shows that in most countries the generation sector is the first part of the electricity industry to be affected by liberalization since international players find it relatively easy to enter this area of activity. The relevant expertise is internationally transferable and there are fairly standard contractual arrangements that can, to a large degree, isolate overseas investors from the risks associated with working in an uncertain economic and political environment. Table 7 shows in which of the Central American states freedom of entry is actually possible and, if it is, the extent to which new entrants have taken advantage of this freedom.

Table 7 – Generation

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Freedom of entry	No	Yes - market power of incumbents restrictive	Yes - market power of incumbents restrictive	Yes	Yes	Yes – single buyer
No. of companies	1 major	2 major + imports	4 major	4 major + imports	4 major + imports	4 major + imports

As the experiences of El Salvador and Honduras show, it is in generation that the problems of small markets are most evident. First of all, in order to achieve economies of scale, individual generation projects are often so large that they can meet the entire demand of a single country, thereby curtailing any further new entry. Similar problems arise because of difficulties associated with entering such markets in the first place - the upside potential is limited, start-up costs are high and reliable local partners are hard to find. However, once a new entrant has overcome these hurdles and has secured access to the market, they then become an automatic choice for future projects with the result that other companies may be discouraged from trying to enter the market.

Moreover, providing the stability that private sector investors seek creates a “regulatory burden” for the authorities, who, in difficult circumstances, have to find the financial and human resources to support a skilled and stable regulatory regime. Establishing a regional grid and with it the facility to trade electricity between countries alleviates many of these problems.

Transportation

An interconnected regional grid has been proposed as the medium-term solution to the problems resulting from the small size of national electricity markets in Central America. Although new entrants can only participate in a deregulating market if they are able to access the transportation network on the same terms as the incumbents, a physical transmission grid is a necessary but not a sufficient condition for integrating markets. The EU experience illustrates this point.

**Table 8
Power Transportation**

Transportation	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Grid access		Open	Open	Open	Open	Open
Interconnector capacity	Limited capacity. Two isolated segments to be united next year. SIEPAC line will enhance capacity in five years					
Number of grid operators	One	One - UT	One – AMM (Temporarily ETCEE)	One	One – (CNDC of ENTRES A)	One – (CND of ETESA)
Grid ownership	State	State	State	State	State	State
No. of distribution companies	8	5*	2	1	1	4

* AES controls 3 companies with 80% of the market

In theory at least, access to electricity transportation systems in Central America is open to all market participants. The system operators are accountable to government but their responsibilities have not yet been extended to include resolution of the specific issues which arise as a result of cross-border movements of electricity (tariff structures, congestion management, allocation of existing capacity). In the same way as a regional regulatory body needs to be encouraged, the existing coordination between national transmission system operators should be strengthened.

Overall Assessment

Panama has developed the strongest and most independent electricity sector, while at the other extreme Costa Rica, largely because of political considerations has delayed the introduction of market reform. Overall, the power of regulators in the region is still very weak. For example, in Guatemala the regulator reports directly to the Ministry of Energy. With the exception of El Salvador, which has a pool that follows the Nordic model, the other countries of the region have all adopted cost-based pooling arrangements. In El Salvador, however, the government was forced to intervene to control high consumer prices driven by an artificial supply shortfall which was the result of market power being exploited in a duopolistic wholesale market. Panama appears to be the only country to have implemented a phased introduction of competition, with an initial five-year period during which the grid operator acts as a single buyer on behalf of the market.

The conclusion that can be drawn from the above information is that there is no evident trend towards regional convergence of electricity markets. This is not particularly surprising, since at no point does there appear to have been a conscious decision made to confirm that, in light of the SIEPAC project, convergence is of itself a desired strategic objective. Any movement away from the planned program of reform will inevitably be

difficult, even painful to drive through. Expectations have been created and commercial decisions made. However, the creation of a competitive, regionally integrated electricity market will be all the more difficult to achieve unless measures are taken now to direct national programs towards the goal of regional convergence in the medium-term

Private companies have expertise and resources that are often superior to those found in the countries they are planning to invest in and frequently they appear to be recalcitrant and reluctant to divulge key information. Hence it is vital that regulators and governments in Central America do all they can to achieve a balance of negotiating strength with potential investors. This might involve drawing on the European model and pooling regional resources, harmonizing regional regulatory and competition strategies and making use of informed, objective advice.

4. Final Remarks: Transition toward a Central America Integrated Electricity Market

Having stated the constraints and difficulties arising from the particular conditions of the Central American Countries we may return to other experiences and focus the attention on a number of considerations that must be taken into account in facilitating a smooth transition toward an Integrated Central America Electricity Market. The existence of realistic expectations as to the role and strategies of foreign investors, the scope for competition and regulation in small markets, the fundamental role that transmission plays as a market enabler, the required institutions for the market to function and the need for regional planning.

The Strategies of Foreign Investors

Observers have noted that relatively few overseas companies seem to be interested in investing in the Central American region and even then only under certain conditions, not always compatible with the building of a competitive market. The needs of potential investors have to be understood and a view taken as to what is and what is not acceptable to host governments and regulators.

The largest energy companies – there aren't that many of them and the number will get smaller as global consolidation and restructuring progress - are now operating at a global level. They are cash rich and need to invest their funds to produce reliable future income streams for their shareholders. In seeking out investment opportunities these companies want to broaden and diversify their portfolios, not only by moving along the energy chain and into other utility-related areas (such as telecom, water and even financial services), but also into new geographic areas, beyond their traditional markets in North America and Europe. Nonetheless, companies investing in overseas markets balance potential gains against the risks they run and where risks are perceived to be high the projected returns must compensate. In this context, it is significant that many international companies are constantly looking to identify opportunities for “regulatory arbitrage” –

that is, moving operations overseas in order to escape from harsh regulatory regimes in their home markets.

However, a pragmatic approach has to be taken in respect of the question of outturn price levels versus price levels expected under perfect competition. The impression can sometimes be given that any imbalance between actual and theoretical prices is simply the result of private sector "rip-offs", whereas the realistic view is that a certain premium is economically justifiable according to the level of risk being taken. Of course, the real point is that if regulators are not sufficiently empowered and well-informed, private firms may be tempted to exploit their weaknesses and try to justify excessive margins in their prices. Central American countries' experiences with poorly negotiated PPAs prior to reforms are painful reminders of what may be expected when large asymmetries in negotiation power exist.

Market Structure and Competition during the Transition

Having acknowledged that the markets of Central America are relatively small and immature, it is difficult to envisage how a competitive energy market could develop in each individual state in the near future. On the other hand, regulatory systems in those countries are weak. These factors combine to make the threat of market dominance by a small number of large players particularly relevant in the Central American context. Although regulators in the Central American countries do need to worry about the mismatch between their size and that of the companies entering their markets, that does not necessarily mean they should insist in developing a sector with only small units unable to profit from optimal power plant sizes. . If investment is to be encouraged, then sensible compromises have to be made. In this context, regulators across Central American countries should make sure that they have a shared vision of how and when a competitive market will be achieved. Furthermore they need to present a unified and consistent regional structure to potential new entrants, this may be challenging but does not necessarily destroy the incentive to invest.

While vertical integration, if properly regulated, may be preferable to competition in a small market, - because of the small number of players and limited scope for competition - ;this does not constitute an argument to defend a process which results in large economic groups controlling all power sector segments. This is because unbundling was already undertaken on the basis that limiting vertical integration could enhance competition. If this control is relinquished without corresponding changes in regulation, the resulting situation may produce the worst of all possible worlds. The existing regulatory frameworks already being implemented or discussed in the region, with the exception of Costa Rica, are based on unbundling transmission, distribution and generation.

It is vital to understand the crucial importance of convergence in regulatory frameworks. Decisions about mandating distribution companies to open bids for long-term contracts, having a cost-based pool, imposing price-caps on the pool or on the forward markets and so on, are less important in themselves than the need for all the Central American

countries to make similar decisions. Individually of course these issues are important, but the concept of regional convergence is even more important. On the one hand this is because a consolidated regional market can only happen if there is a marked degree of convergence and secondly, commonality of decision-making reduces the potential for regulatory arbitrage. Hence, for example, cost-based pooling arrangements, open bids for long term contracts, single buyer arrangements and accounting unbundling of integrated firms will provide regulators with the mechanisms to monitor private sector investors. Relying on quasi-competitive forces where they do not really exist or forcing physical unbundling to a level that is consistent with the small size of the individual Central American markets does not make practical sense.

The Crucial Role of the Regional Grid as Market Enabler

The importance of having the transmission segment independent and under proper regulation can never be overestimated as recent lessons from the EU and the US markets painfully reminds us. In order to comply with the Directive, incumbent European electricity utilities are obliged to unbundle the TSO (transmission system operator) activity in accounting and management terms and demonstrate that it operates at arm's length from other competitive parts of their business, such as generation and supply. Unbundling is essential not only for elimination of cross-subsidies but also to ensure non-discriminatory access. System operators must ensure that the interests of potential new entrants are protected by allowing freedom of access to the transmission network. Progress towards unbundling has already been made in most of the Central American states and this should continue in order to achieve full managerial, accounting and legal separation of the TSOs from their parent companies.

However, whilst nearly all Member States have implemented the Directive and transmission capacity would in most cases be physically available, for many eligible customers it still remains organizationally and economically difficult to choose a supplier located in another EU country. Due to differences in tariff structures in Member States the actual amount payable for cross-border access to the system can vary considerably, depending on the TSOs involved and without there necessarily being a link to actual costs. Furthermore, in cases where several countries have to be transited, "pancaking" (ie accumulation) of tariffs can occur.

Furthermore, given the limitations of existing interconnector capacities, the principles of allocation capacity to market operators will be important in determining which players profit from trading in the internal market. In the absence of non-discriminatory, transparent rules discrimination between market players may occur. Incumbents might deter new entrants, particularly if substantial volumes of capacity are tied up under long-term contracts. This would hinder the development of trade and produce fewer benefits from the establishment of the internal market.

Hence, electricity liberalization with open network access and transparent pricing facilitates the development of free trade. This in turn will promote the better use of

Central America's transmission infrastructure and stimulate the reinforcement of networks. To achieve these goals, a proper framework for cross-border charging, interconnector access and congestion management should be established at regional level. Where possible, commercial solutions should be used to deal with constraints - network operators should have commercial incentives to develop their networks and to optimize the management of congestion. It may be useful to bear in mind the principles adopted by European legislators and regulators in this area.

Transmission and distribution charges have to be published and be subject to independent regulation. Published transmission charges and non-discriminatory access to ancillary services are an essential requirement for the development of competition. It is important to clarify exactly what is covered by the published charges – long-term and short-term transmission charges must be separated out and losses should not be included in these charges. In some European markets access to distribution markets has proved to be problematic and the relevant provisions have had to be reinforced, particularly since non-discriminatory access to distribution is likely to become increasingly important with the development of embedded generation. Cross-border transmission charges should be cost-reflective, but they should also be simple and facilitate trade. In Central America as much as in Europe, a pragmatic regional solution is needed to ensure progress can be made towards a single market.

Congestion of transmission networks should not be seen as primarily a physical problem and it would be wrong to over-emphasize physical rather than commercial solutions. When the institutional framework can support them, market-based approaches should be used for congestion management. These could include not only auctions but also market splitting and counter-trade, which are working well in the Nordic market. Eventually, for a liquid market to develop, traders will need access to clear and timely information on likely transmission capacity availability and availability periods. Such forecasts will be needed on a day-ahead basis and complemented by accurate ex-post information on actual flows to enable traders to build up a picture of load flows over time.

Institutions for the Integrated Energy Markets

If raising the level of competition in the region is the desired end result, regulatory regimes in Central America have to be customized to reflect the special circumstances prevailing in the individual states. Since markets are too small and too immature to support competition, regulators have to accept that a significant degree of integration is inevitable and try to contain it by setting appropriate limits and simulating market forces. Nevertheless, the initial effort, therefore, must center on creating or strengthening national regulatory institutions and developing a vigorous regulatory culture. This entails securing high quality resources for the regulator's office and ensuring that the regulator has unhindered access to all relevant information and enjoys symmetry of negotiating power. Subsequently, plans and timetables should be drawn up in outline and then details of regulatory structures and processes have to be proposed, negotiated and agreed. A transition plan and timetable for the introduction of competition, a balance in the negotiating strength of all the parties involved and a regulatory model that simulates competitive pressures.

Furthermore, if global regulatory gradients are not to lead to the exploitation of less well-developed and less well-regulated energy markets, Central American regulators would benefit greatly from the establishment of a regional organization to serve as a discussion and knowledge-sharing forum. Such an association would provide the perfect platform from which to develop a consistent regional strategy and equally importantly, it would provide a concrete and influential power base for the individual regulators who are otherwise exposed to all sorts of difficult pressures in their home markets

The Need for Regional Planning

A key element that is missing from the existing plans for regional integration in Central America is the absence of any agreed timetable according to which progress may be judged. The absence of a plan with targets allows the process to drift aimlessly and risks the possibility of divergence in each country's structural evolution. The UK liberalization program, for example, followed an eight-year plan, which was outlined right at the start of the process, setting out the timetable for a phased opening of the electricity market.

Any decisions that are taken must be aimed at promoting convergence of the six national markets and ensuring that transition to increased competition, in terms of delivering institutional change and making the required compromises and trade-offs, is properly managed and is executed according to a detailed schedule. An initial outline plan might be structured around the following phases.

Phase I: Agreement on strategy

At the outset it is essential to ensure that a genuine appetite for and appreciation of the benefits of liberalization exists. Commitment to the liberalization process is the end product of education and informed debate rather than political ideology. This has to be accompanied by a parallel debate concerning the desirability of regional integration and the time-scales over which it can be achieved. As all the relevant issues are already familiar to the parties involved, it should be possible to reach conclusions on these issues in a relatively short time frame. Then if liberalization of the electricity sector through regional integration is accepted as the desired objective, the process can move forward to the second phase below. However, if regional integration is rejected, then separate national plans to address the problems associated with the tendency towards poor efficiency in small markets have to be put in place.

Phase II: Preparation

Within each of the individual states of Central America, deficiencies in the existing institutional endowment have to be recognized, remedies identified and a program of change that delivers regional convergence, established. Such an analysis of institutional endowment has to encompass the judiciary, the financial and banking sectors, contractual arrangements and regulation.

Phase III: A Common Agenda

If regional integration is to be accomplished, the implementation of a convergent market framework takes on the highest priority. Pushing through the changes in individual countries that will lead to regional convergence may entail undoing existing arrangements and will, in any case, be a complex and difficult task. However, it should be made easier if all the countries agree a common agenda, which will include:

- a) changing market rules so that they conform to a regional standard (for example, plant bidding rules, treatment of renewable resources);
- b) “unbundling” vertically integrated companies into legally separate generation, transmission, distribution and retail businesses;
- c) phasing out or restructuring existing contracts, which brings with it the difficult question of how to deal with stranded costs;
- d) re-balancing tariffs to more cost-reflective levels;
- e) divestment of assets or the imposition of harsher regulatory intervention if certain ownership thresholds are reached.

Phase IV: Implementation

The transition from six national electricity markets to a single regional entity has to be planned, both in terms of timing and sequence of events. The transitional framework has to be sufficiently robust to withstand shocks to the system, whether the causes are physical (e.g. damage to generation and transmission systems), commercial (e.g. high prices, dominance by large global players) or political (e.g. undermining of the commitment to reform, not making decisions according to proper business principles).

Phase V: Consolidation

Once the basic changes have been implemented it will be necessary to fine-tune the system in response to any minor deficiencies and inconsistencies. In this regard, it is interesting to note that Panama has set up market monitoring groups, composed of independent outside experts, whose objective is to “institutionalize” change.

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