

Contributing Paper

Regional Integrated Resource Planning - Note

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REGIONAL INTEGRATED RESOURCE PLANNING

What is evolving in increasing importance is what could be called international regional Integrated Resource Planning IRP. Together, a utility bloc from various neighbouring countries can either form a tight or loose power pool from which to manage their supply and demand options. IRP while at a local or national level may appear complex in scope, addressing interested parties concerns and suggested alternatives is further complicated at the international regional level by the various layers of participants, issues needing to be addressed, and individual country demands placed on the utility or water user. Additional problems of communicating across borders, language and cultural barriers, and differing demands placed on the member utilities will hamper or at least slow the process down. The conflicting demands of multiple users and multi-purpose requires that a regional power pool remain focused.

Political parties of one government may not align with those of another. While the IRP time horizon is fairly long, political changes may occur during the implementation stages thus impacting the success of the proposed outcome. Also, the complexity of both a transboundary water resource and power plan will be that of satisfying a public participation process across borders. This will present a greater challenge to address concerns of the extended body of participants and for periodic, consistent, or regular communication.

POTENTIAL ADVANTAGES

By expanding the scope and outlook on its planning processes, a utility could benefit from an international regional IRP by a number of factors:

- An exchange of professional skills by its neighbouring utilities thus expanding its own skills base;
- Potential access to staff, professionals and specialists within the member utilities, i.e. one utility may not have a particular skill in-house yet access it within the pool;
- Allow for better management of peak period loads;
- Overcome potential energy shortages;
- With limited funding available, delay or eliminate the need to plan or expand into new supply/generating capacity;
- Greater utilisation of current supply/generating plant and thus increased potential for greater efficiencies;
- Develop international markets and the potential for foreign exchange as payment/revenue;
- Promote the exchange of technologies and related training;
- Allow the benchmarking of performance of one utility against the other;
- Take advantage of regional climatic and meteorological fluctuations especially a hydro scheme dependent upon water supply. In a region such as Southern Africa, vast cycles flooding followed by drought periods can have a major impact on implementing certain supply options. By executing the Southern African Power Pool agreements, a given utility has the option to open negotiations with another regional utility from which to buy its power thus assuring its customers a reliable source of energy.
- Establish common technical, operational, and environmental standards and guidelines will assist both the member utilities themselves who may need further assistance and development in this area and the external bodies such as the financial bodies wishing to work in or with the regional pool;
- Less isolating for an individual utility. The partnerships could lead to other joint projects and programmes;
- Strategically, there is the security of having a back-up supply of potentially both a water resource and a power supply;
- Increase awareness and possibly training of each member utility in areas of technology, operations, maintenance, environmental and thus, seeing the bigger picture;

- Optimise the use of resources and plant and thus lower the risk of stranded assets;
- Promote the goals and objectives of sustainable development on a larger context thus allowing greater impact on social, economic, and environmental factors;
- Promote cross-pollination of management, technical and specialist skills. Greater cross-disciplines, cross-border interaction, and working in teams;
- Improve and increase the understanding of the neighbours bordering a utility and thus promote regional co-operation;
- Contribute to regional economic growth and prosperity.

POSSIBLE DISADVANTAGES

Although the advantages of a regional power may at first glance outweigh the disadvantages of not having one, it is worth noting that some of the economic, social, political, technical, and environmental factors and issues may need to be addressed. These include:

- Population growth and rate of growth in the member utility countries. This will have a short and long-term impact on the supply and demand side forecasting;
- The prevalence of AIDS and the health and welfare of a utility's employees and citizens. In the Southern African context, there is and will continue to be a real threat to the viability of the skills base, the growth of the region, and the long-term impact on the costs of medical care;
- The lack of data and data management in all areas of the business;
- Communication delays between and amongst utilities, various stakeholders, government bodies and customer especially in lesser developed countries;
- A larger stakeholder base means a larger communication plan, execution of programmes, and a larger data input in to the planning process;
- Lack of infrastructure in a member utility's country;
- Technology differences amongst the member utilities will hamper the execution of programmes. This includes not only those apparent at the generation, transmission, and distribution levels, but basic computer, phone, fax, and telecommunication;
- The expectations of the member utilities, various public involved, stakeholders, and customers will need to be clearly defined to avoid disappointments;
- The geography of the regional power pools and its accessibility to planners, engineers, operations and maintenance personnel and specialists needs to be acknowledged;
- Language, cultural, political, social, and economic (to name but a few) differences of the member utilities and their associated countries;
- The number of utilities and first tier stakeholders and its impact on managing, implementing, and satisfying all parties;
- The location of water supply, generating plant and proposed plant versus the areas of demand for the water or power will have an impact on the level of reticulation, transmission and distribution, and the associated costs, e.g. the greater the power pool size/area, the greater the demands placed on the utility;
- The potential for civil unrest or worse still, war, will deter utilities in a regional pool from becoming totally dependent on another country's utility. An example of this can be seen in Central and Southern Africa. The instability of some of the countries in these regions has its impact on appropriate long-term water and power planning;
- The strengths and weaknesses of individual utilities and their countries must be recognised and acknowledged to avoid unnecessary tension and expectations.

OPPORTUNITIES

Opportunities exist in a regional power pool to improve, share and streamline the institutional processes that an individual utility or country may experience. The interdependence of a

regional agreement shows the importance of a regional economic co-operation in the energy sector. Regional co-operatives affords the opportunity for utilities to diversify their energy mix and their dependence on one energy source. It also allows for greater regional understanding and/or if there is the need to improve relations. Ultimately, it will impact the end user. In a lesser developed country, it could improve the social standing of entire region

A regional power pool in implementing an IRP needs to define its goals and objectives of the pool, state the vision it has for the region, then formulate a strategy including resource (human and financial) requirements for implementation. Factors to consider in a regional co-operative include:

- economic growth with increased demand for energy could outpace the availability of supply;
- geographical difference in supply, demand and the associated resources socio/political/economic and environmental factors;
- distances between the supply options and the demand means that developing the regional market can lower the transportation costs within generation, transmission, and distribution and increase the return on the investment of the energy developments

As argued by Dorian et al. (1999), when coal or gas is used to produce electricity, it is usually considered more economical and efficient to transport these resources directly and generate the electricity locally. However, with hydropower, after construction of the dams and the power station along with the use of 'free' water as a resource, the transport of electric energy over long distances becomes feasible. The authors continue by stating the main opportunities for expanding trade and for co-operation in electric energy involves hydroelectric energy.

The lessons learnt by Dorian et al. (1999) are first of all to promote a consensus in the region's countries (in their case, Central Asia) on objectives such as energy policy, conservation, diversification of supplies, integration of networks, and environmental management. Secondly, the regional co-operation created political, legal, and financial frameworks to rationalize medium and long-term supply and demand patterns.

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