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Editorial

Restructuring (be it functional or legal) of the existing vertically integrated electric power utilities is an integral part of electricity reforms in many countries. The goal of such restructuring is to make the basic components of the supply chain (generation, transmission, and distribution) as viable entities, enhance efficiency, and also in the process, separate the competitive and non-competitive elements, which will eventually lead to the evolution of a competitive market. Under the new Electricity Act, 2003, enacted by the Government of India, all states were required to unbundle their SEBs (state electricity boards) by 10 June 2004. Boards can continue to function beyond this period only with the mutual consent of the central and respective state governments. However, for the second time, the government has granted extension to 11 states for another six months to unbundle their SEBs. These states have not unbundled their SEBs for various technical, financial, and administrative reasons. There is also an apprehension in some quarters that it may lead to privatization. Hopefully, these difficulties and apprehensions will be overcome and the deadline of December 2005 shall be met.

In the neighbouring country of Sri Lanka, restructuring of the electricity industry has also been put on hold. The original CEB (Ceylon Electricity Board) restructuring bill has been withdrawn. A special committee appointed by the ministry is reviewing the proposals put forward by the trade unions and the final draft will be prepared with consent of trade unions.

In a similar development in Pakistan, the privatization of PTCL (Pakistan Telecommunication Company Ltd), Pakistan's largest government-owned telecom company, was put on hold by the government for an indefinite period due to stiff resistance being put forward by its 55 000 employees. India too is facing similar roadblocks in its disinvestment plan of the oil companies and other public sector undertakings. In dealing with all such issues, a well-designed and pragmatic communication strategy aimed at winning over employees is crucial.

In the last quarter, there have been hectic activities for reviving the prospects of building the transnational Iran–Pakistan–India pipeline, which has been in debate for some reason or the other. There are absolutely no doubts about the economic benefits of this project. The region is experiencing a sharp increase in the demand for energy. Despite these prospective gains, several techno-economic, commercial, and geo-political issues still remain to be resolved to make these pipedreams see the light of the day.

Lastly, a large number of regulatory institutions have already been established in the South Asian region. In the new environment, regulatory bodies are entrusted with the task of creating and maintaining a sustainable, self-sufficient sector. This necessitates them to possess a thorough understanding of the sector, in terms of its functioning, which includes a broad-based appreciation of technical issues; administrative factors; and the underlying economic, social, and environmental implications. Adequate manpower with necessary skills and capabilities is crucial for them to be effective. Thus, the new role of regulators calls for constant capacity-building of regulatory institutions in the region.

A handwritten signature in black ink, appearing to read "Shahid Hasan", is located at the bottom right of the page.

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Use of benchmarking in regulation

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Benchmarking compares the actual performance of a company against a reference or benchmark performance (often, the actual performance of other but similar companies). It is being increasingly used by regulators around the world, particularly in relation to the incentive or CPI-X regulation of the natural monopolies such as water, electricity, and gas distribution and transmission businesses. This form of regulation provides incentives for companies to improve efficiency by reducing costs below the regulator's assumed 'efficient' costs and retaining the gains at least until the next price review. However, assessment of efficient levels of costs poses a challenge for a regulator who does not have robust information on such costs as the regulated business. The objective of benchmarking is to reduce such information asymmetry on the achievable efficient levels of costs by reducing reliance on the company's own costs.

However, benchmarking is not without its difficulties, both conceptual and practical. The choice of comparators and techniques used to assess the efficiency are arguably the two key issues. Economic regulation if based on imperfect benchmarking measures, may create its own problems with incentives. Both, the benchmarking process and the results therefore need to be treated with care. In particular, benchmarking should be regarded as a regulatory tool complementing other approaches and not as a substitute to decision-makers and their judgments.

This article discusses the benefits as well as limitations of benchmarking and highlights some important regulatory issues. Different benchmarking measures and techniques are also discussed in context of their use in regulation.

Rationale for using benchmarking as a regulatory tool

Natural monopolies, such as network businesses, pose a common problem to the regulators.

Regulators cannot rely on direct competition to put downward pressures on the costs and hence on the profits. The problem is complicated by the fact that the regulator often needs to rely on the company for information on its costs.

The economic regulation approach which sets prices on the basis of the company's own costs has two key problems. First, regulators do not have good information on the scope of efficiency improvements that the company can make. Second, because the company knows this to be the case, it has incentives to influence the price-setting system by artificially or unnecessarily inflating its recorded and projected costs, both capital and operating. While the regulator can attempt to reduce the difference in information by conducting extensive reviews of the company's cost efficiency or its investment proposals, these types of reviews can never provide a full answer. Further, there is a risk that the regulator ends up as a de facto manager of the management of the regulated company, with major decisions by the company requiring regulatory approval, leading to a loss in accountability.

Benchmarking provides one way out of this dilemma by using the information over which the company has no influence in setting its prices, but which nonetheless provides a reasonable indication of what the company's costs should be. Setting prices of a firm according to other companies' costs rather than its own, gives strong incentives for the company to improve efficiency. This is how the firms behave in a competitive market. Benchmarking therefore helps the regulator create a regime that stimulates a competitive market for natural monopolies by setting prices in line with an exogenous benchmark or yardstick.

Setting prices purely on the basis of benchmarking would be challenging given the practical problems of finding good comparators as well as comparable data. But using benchmarking to set prices is not an all-or-nothing approach.

¹ Views expressed in this article are those of the author and not of the Bureau.

Benchmarking could be one of the several pillars for setting prices.

Efficiency measures

In benchmarking, efficiency is considered as a relative concept. It is measured by comparing an organization's actual ratio of outputs to inputs to the 'optimal' ratio of outputs to inputs. For natural monopolies such as distribution and transmission businesses, operating and capital costs are often considered as the inputs and peak demand, units transmitted or distributed, and number of customers as outputs. For example, efficiency of a distribution business can be measured in terms of operating expenditure per customer or per-unit distributed.

When the production process involves a single input and a single output, this calculation is a trivial matter. However, when there is more than one input or output (which is often the case) then a method of aggregating these inputs or outputs into a single index of inputs or outputs is required to obtain a ratio measure of productivity. The total factor productivity is a measure, which can involve all inputs and outputs.

Economic efficiency has two main components: technical efficiency and allocative efficiency. Technical efficiency is the measure of an organization's ability to convert inputs into outputs, that is, to either maximize outputs for given inputs or produce the given outputs with minimal inputs. The management practices or size of an organization can however influence technical efficiency. Accordingly, technical efficiency is broken down into pure technical efficiency and scale efficiency.

Scale inefficiency is usually not attributed to managerial inefficiency because the size at which an organization operates is often outside the control of managers, at least in the short term. A scale-efficient organization can produce a similar, proportionate increase in output for a proportionate increase in input. An organization that can produce an increase in output higher or lower than the increase in input, is considered to have increasing or decreasing returns to scale. Arguably, such organizations should either increase or reduce production size until they reach the more efficient point of production at the CRS (constant return to scale).

In benchmarking, the CRS assumption is only appropriate when all organizations are operating at an optimal scale. Factors such as imperfect competition, slow demand growth, and financing constraints may cause an organization to be not operate at an optimal scale. The CRS-based comparisons can lead to larger organizations being compared to smaller ones and vice versa. However, comparisons between organisations on the VRS (variable return to scale) basis ensure that organizations with similar levels of outputs and inputs are compared with each other.

Allocative efficiency is a measure of the ability of an organization to utilize a combination of inputs to minimize the cost of production, given the input prices. To assess the allocative efficiency, a detailed decomposition of company production costs and prices is required. However, the latter is often not readily available for natural monopolies.

Benchmarking techniques

As shown in Figure 1, benchmarking techniques range in form and complexity. 'Informal' techniques assess the companies on one or more ratios between one input and one output, often referred to as partial productivity measures. In contrast, 'formal' benchmarking techniques, such as regression analysis, DEA (data envelopment analysis), and SFA (stochastic frontier analysis) use information on multiple inputs and multiple outputs of companies.

The OLS (Ordinary Least Square) regression analysis determines an 'average' efficiency benchmark for companies, whereas the DEA and SFA, and COLS (corrected OLS) regression construct an efficiency frontier showing the most efficient businesses. These techniques allow explicit recognition of different geographic conditions and circumstances in which businesses operate, and of differences in scale of operation and capital-labour ratios. Each business is then assessed in terms of its position to the efficiency frontier.

The efficiency score of a firm that lies on the efficiency frontier is always 1 (or 100%). If a firm has an efficiency score of 0.70, it means the firm must reduce its inputs (or increase its outputs) by 30% to produce the same output (or using the

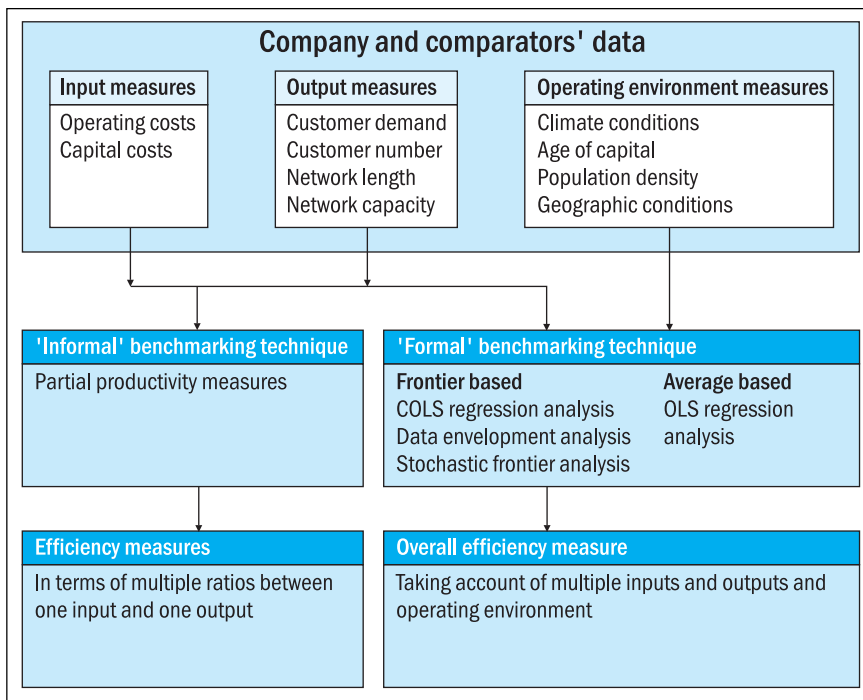


Figure 1 Benchmarking techniques

managerial capabilities of an organization, the scale of operations, or both. Further analysis can be carried out using the DEA to determine if some inefficiency is due to the operating environment (which is beyond the control of management), for example, climate, population density, and age of capital. In addition to informing managers about the efficiency of their organizations, the DEA provides the less-efficient organizations with information on an efficient mix of outputs and inputs and identifies the role models, which the organizations could consult to help improve their efficiency using the same input and output mix.

same input) as an efficient firm produces (or uses) and become an efficient firm.

This allows the regulator to assess the efficiency of a company in two important aspects: first, how efficient the company is at present compared to its peers; and second, what improvements in efficiency are required to move to the efficiency frontier (which can also move with time).

The DEA is based on linear programming and computes rather than estimates the relative efficiency of the firms in relation to the efficiency frontier. In contrast, the SFA and COLS are statistical techniques and hence estimate rather than compute the relative efficiencies. Both the techniques require specification of a production or cost function. Similar to the DEA, the COLS technique assumes that all deviations from the efficient frontier are due to inefficiency. On the other hand, the SFA recognizes the possibility of stochastic errors or noise in the measurement of inefficiencies.

The DEA is indeed the frontier technique most widely used by regulators as it can measure the overall efficiency of an organization and decompose it into various measures of efficiency such as pure technical and scale efficiencies to determine whether inefficiency is due to

Limitations of benchmarking techniques

Partial productivity measures are widely used to assess the efficiency of organizations because they are simple to calculate and are easily understood. These comparisons can be useful when assessing the productive efficiency for very similar companies in the same situation and environment. However, these measures need to be interpreted with care as they do not take into account the differences between the company and its comparators in respect of size, operating environment, etc., and trade-off between the different inputs and outputs. Nevertheless, a combination of several partial productivity measures can provide a broader assessment of performance. However, it is difficult to determine the overall efficiency of an organization if the measures move in an opposite direction.

Like the partial productivity measures, 'formal' techniques are also not without difficulties and drawbacks. For example, being a non-statistical tool, the DEA has a limitation with regard to the measurement error and other noise, that may influence the shape and position of the frontier. That is, there is a limited scope of statistical tests of significance to assist the model design. Expert advice and industry forums are often relied upon

while designing the model. Furthermore, the DEA results may be sensitive to outliers in the data, which may, in turn, be due to errors in the data or may reflect other random events such as climate. The outliers distort the frontier and hence reduce the apparent efficiency of similar organizations.

Another important limitation of the DEA (and SFA) is that it is sensitive to the specification of the number of inputs and outputs included and the size of sample. Increasing the sample size cannot increase the efficiency scores but can reduce them because the new organizations may push the frontier outwards. Conversely, inflating the number of inputs and/or outputs cannot decrease the efficiency scores but can increase them because the number of potential peers of each organization could decline. In case of a small sample size and many inputs and/or outputs, many companies appear on the DEA frontier. If an investigator wished to make an industry look good, he/she could reduce the sample size and increase the number of inputs and outputs in order to increase the efficiency scores.

Similar to the DEA, OLS and COLS methods attribute any deviation from the fitted line entirely to (in)efficiency. However, in reality, some of the differences between the actual and predicted best performance may be due to data and measurement errors. While the SFA recognizes the possibility of stochastic errors in measurement of inefficiencies, it requires parameters to be specified in a functional form. Any mis-specification of the production function would add distortion to the estimated efficiency. Further, most pitfalls associated with the DEA are also applicable (in varying degrees) to the SFA.

While no single benchmarking technique is exhaustive or can provide a complete picture of performance, they are also not mutually exclusive. Therefore, a sensible and prudent approach to benchmarking requires the use of several techniques.

Use of benchmarking by regulators

The use of benchmarking in regulation of utilities and transport sectors is well-established in many developed countries. However, the choice of benchmarking techniques and scope of benchmarking results in setting prices vary significantly across countries and sectors.

Partial productivity measures, DEA, and regression analyses emerge as the most widely used methods, particularly in Australia and the UK. A survey of the use of benchmarking methods for electricity transmission and distribution in 17 OECD (Organisation of Economic Co-operation and Development) and 4 non-OECD countries finds that all regulators surveyed have full discretion with regard to the choice of benchmarking method, model, and inputs and hence, a variety of methods are used by regulators. However, there is a notable preference for the non-parametric methods like the DEA, followed by the average-based benchmarking methods.

The role of benchmarking in setting prices also varies across regulators. Some electricity regulators (for example, in Abu Dhabi, Colombia, Great Britain, Norway, the Netherlands, and New South Wales) have used benchmarking as part of the price review process while for some (for example, in Finland), benchmarking has been used outside the price-setting process. In Norway with a large number of distribution businesses, the electricity regulator uses a formalized approach, converting linearly, the benchmarking efficiency scores into efficiency improvements for setting prices. In contrast, in New South Wales (Australia) and Abu Dhabi (United Arab Emirates) with just six and two distribution businesses respectively, there is no formalized procedure for conversion of efficiency scores into efficiency targets.

The scope of benchmarking is often limited to operating expenditure, and capital costs are treated separately. This is predominantly the case in Abu Dhabi, the Netherlands, New South Wales, and the UK where there are relatively fewer electricity distribution businesses. However, the Norwegian regulator uses the total controllable costs (both operating and capital) in benchmarking in light of large number of electricity distribution businesses in the sector.

International benchmarking is often used when a country has a limited number of companies in the industry. This is the case with the regulators in Abu Dhabi, Australia, and the UK. Abu Dhabi has used benchmarking based on the companies across different countries or jurisdictions in a country.

In Abu Dhabi, the water and electricity regulator has also used benchmarking to set prices

of water and electricity from state-owned production plants with reference to the competitively bid prices of the independent water and power producers of similar size and technology in the sector. This is similar to the modern equivalent asset valuation technique used in the UK prior to the privatization of generating assets in the early 1990s. For certain plants which do not have suitable comparators in the Abu Dhabi sector, hypothetical benchmark plants of similar size and technology are developed using real market data or comparator plants from the overseas.

Regulatory issues

Benchmarking is a useful tool to counter information asymmetries and support a framework for economic regulation, which has better incentives to meet regulator objectives. However, use of benchmarking as a regulator tool has been subject to considerable criticisms, some of which are summarized below.

- Benchmarking, by virtue of selection of inputs, outputs, benchmark companies, and design of model or cost function, is subjective in nature and creates many problems.
- Similarly, the rate assumed by regulators in setting prices for transition from the current cost levels to the efficient or target levels is also considered to be subjective and without a robust methodology based on observed data.
- Separate benchmarking of operating and capital costs makes no sense as it may combine the minimum operating expenditure from one company with the minimum capital expenditure from another company, and hence may set a cost target that no individual company can meet.
- The use of benchmarking is also argued to be inconsistent with the conventional approaches towards estimating the cost of capital or rate of return if regulators set costs at efficient levels but allow companies to earn only a 'normal' rate of return derived from the average capital market data.
- Use of benchmarking in regulation puts a heavy burden of proof on companies. While a benchmarking technique may assume implicitly that high costs or low efficiency scores are due to inefficiency, in fact, the companies' high costs can be due to a number

of factors not captured in the analysis. The companies must find out what those factors are or else the regulator presumes the right to disallow costs because they are 'inefficient'. The use of benchmarking will therefore deny some regulated companies the chance to recover their costs, even if they are in fact efficient.

- If prices are set, which are significantly out of line with the firm's average or short-run incremental costs and long-run incremental costs, undesirable impacts can occur. For example, there will not be an incentive for the firm to meet demand at that price, the firm will go bankrupt, or incentives to invest and to provide desirable outputs over the long run would be compromised.
- The use of benchmarking may introduce uncertainties in the regulatory framework. If the benchmarking results are seen as mis-specified, subject to significant uncertainty, or the firm makes either very large profits or losses due to the divergence between prices and costs, regulators would come under heavy pressure in future to adjust the methodology for setting prices.
- The use of international benchmarking for industries having fewer firms is inevitably based on inconsistent or incomparable data and firms.
- Benchmarking often ignores the quality of service.

While some of these criticisms are specific to a benchmarking technique or a regulatory decision at the time and hence can be addressed by refining the benchmarking models and adopting various techniques rather than relying on a single method, there are some merits in the concerns relating to the uncertainties and risks associated with the use of benchmarking.

The pro-benchmarking response to these concerns is that while incentives to make cost efficiencies are reasonably good under incentive regulation, they are not perfect and no incentive-based regulatory framework is without an uncertainty. An assessment of the achievable efficiency gains must be based on some form of benchmarking, otherwise, the regulator would have to rely entirely on the information submitted by the regulated company. Further, despite a bankruptcy risk, few regulators have simply accepted the firm's own costs at face value, and its financial viability

tests and sliding-scale arrangements provide an alternative check on the bankruptcy problem.

The very objective of economic regulation is to mimic the outcome of a competitive market. It is a characteristic of competitive markets that firms' prices are set by reference to competition in the market, not necessarily by direct reference to their own costs. Therefore, there is no *a priori* reason for an economic regulator to focus on setting prices equal to the regulated firms' own costs, if superior information through benchmarking is available.

Similarly, the concern that separate analysis of operating and capital costs encourages intermediation between these costs also has some merit. While benchmarking should ideally apply to the total costs, this is difficult, given the heterogeneous nature of capital. Nevertheless, in arriving at a judgment on efficient operating and capital costs, regulators may find that the DEA and SFA provide useful information on the optimal mix of inputs.

Further, in practice, a regulator usually does not require the company to achieve the minimum of both, operating and capital costs achieved by different comparators. Rather, an appropriate mix of the cost levels is used and suitable glide-path targets are set to be achieved over time.

International benchmarking is more useful for countries where there are a small number of firms in the industry or where firms are likely to be inefficient. However, international benchmarking raises particular difficulties. The most notable issue is that of comparability and quality of data, which may only be improved in time and requires cooperation among regulators. The relative differences in input prices (for example, wage rates, taxes, and rates of return on capital)

beyond the control of the firm may also have to be taken into consideration.

Finally, assessment of performance of a firm should be based on both, quality of service and efficiency. Otherwise, a company could improve efficiency in service delivery by sacrificing the quality of service.

Conclusion

The issue of choosing the most appropriate benchmarking methods and model specification cannot be settled on theoretical grounds. Therefore, benchmarking should not be confined to a particular technique. In each case, the regulator should use the latest techniques such as the DEA, SFA, COLS, and simple ratio-based benchmarking as well as sensitivity analysis to examine the consistency and robustness of results, as shown in Figure 2. Different approaches should use the same set of data and should rank the companies in approximately the same order, ideally identifying the same companies as the best and the worst. Further, all approaches should demonstrate stability over time.

The decision on how far benchmarking should be used in setting the prices will need to be based

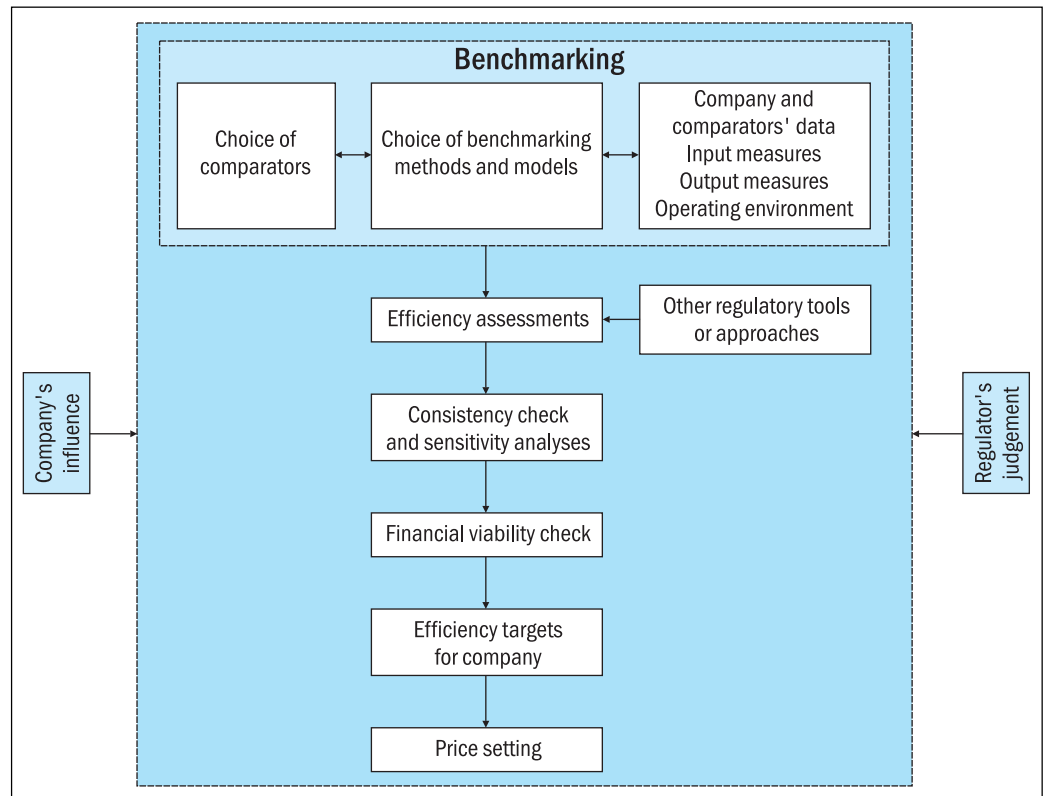


Figure 2 Use of benchmarking in price setting

upon the quality of benchmarking itself and the potential benefits that benchmarking can have as against the downside problems. Benchmarking should not be carried out in excessive detail to assess each and every cost component such that it could take the form of regulatory micro-management of the firm's activities.

Broadly, there are two possible benefits of benchmarking: first, regulators gain the confidence to set revenue exogenously rather than with reference to the firm's own costs (thus realizing superior incentives to incentive regulation) and second, regulators would set exogenously determined revenue in any case but more accurate benchmarking enables them to match the expected revenue more closely to the expected costs (avoiding windfall gains or losses for the firm).

While using benchmarking, regulators should also take account of the possible gaming or strategic behaviour of companies, which may attempt to influence the choice of benchmarking methods, model, comparators and variables, and translation of efficiency scores into efficiency targets, as shown in Figure 2. At the time of benchmarking, companies influence such choices so as to present their performance in a more favourable manner, resulting in welfare transfer from customers, or even other companies, to themselves through lower efficiency targets than the true underlying efficiency would suggest. If the same benchmarking technique is consistently used over the price reviews, companies may increase their cost base or delay efficiency improvements in periods leading to the next price review, again resulting in socially inefficient resource allocation and dead-weight loss. In case of frontier-based approaches, such behaviour can also affect the measured performance of other companies.

Finally, benchmarking methods and their raw results should not be regarded as replacements to decision-makers and their judgments. Rather, the primary function of benchmarking methods is to serve as decision-aid tools. Therefore, as in any area of public policy, regulatory decisions should ultimately be based on judgments and some discretion.

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Pipelines in the pipeline

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With the rapidly growing economies and a burgeoning population, South Asia has seen a sharp rise in its demand for energy over the past decade. Oil dependency of the region has

increased manifolds, which not only translates into a huge dependence on the Middle East but also exposes the South Asian economies to the rising international crude oil prices. The situation is not

expected to become any better with time. *The World Energy Outlook* has projected South Asia's oil-import dependency to increase as high as 95% by 2030. Oil prices are also projected to continue with their upwards trend. Against this backdrop, there is an increasing policy shift towards the use of natural gas, which is fast emerging as the preferred fuel of 21st century. However, there is no respite with respect to natural supplies either. At the end of 2003, Bangladesh, India, and Pakistan together had 1.1% of the world's proven natural gas reserves (BP 2004). As against these limited reserves, the demand is growing at an unprecedented rate: India's gas demand is expected to double by 2015. By 2025, India is projected to have a gas deficit of over 200 MMSCMD (million metric standard cubic metres per day). Pakistan presently meets its gas demand of about 110 MMSCMD from domestic sources. However, it is projected to have a gas deficit of about 10 MMSCMD by 2010 and 60 MMSCMD by 2015. By 2025, this amount is expected to reach 200–300 MMSCMD. There are concerns about the size of Bangladesh's domestic reserves, with certain projections even showing a gas deficit by 2008 (Nexant/SARI 2005). However, this might not be the case given that the gas demand in Bangladesh is severely constrained by a lack of infrastructure and a favourable environment for market development. A huge capital will be required if Bangladesh has to tap its domestic resources.

With the burgeoning gap between the demand and supply of natural gas in the region, several transnational gas pipeline projects have been under discussion. Not only can these projects play a crucial role in meeting South Asia's ever-increasing appetite for energy, but also usher an era of economic integration of the region. In this backdrop, this article discusses a few key gas import options being considered, prospects for the participating countries, key concerns, and the way forward.

Iran–Pakistan–India pipeline

Iran has the world's second-largest proven natural gas reserves after Russia. Subsequent to the discovery of its largest natural gas field in South Pars, Iran has been very keen to sell gas to other

countries, including India and Pakistan. The South Pars field was first identified in 1988 and originally appraised at 128 TCF (trillion cubic feet) in the early 1990s (EIA 2005). Current estimates of the field are that South Pars contains 200 TCF of gas, while some estimates peg the reserves as high as 500 TCF. The development of South Pars is Iran's largest energy project, and has already attracted about 15 billion dollars in investment.

In 1989, Dr R K Pachauri, Director-General, TERI, and Dr A S Ardekani, later the Deputy Foreign Minister of Iran, proposed an overland natural gas pipeline from Iran to Pakistan and India (TERI 2004). In 1993, Tehran signed an MoU for the project with India, which was followed by initiatives to assess the feasibility of laying a pipeline. The focus was initially on laying an offshore pipeline outside the territorial waters of Pakistan. Subsequently, a joint team was constituted with GAIL as the lead for the India team. However, in absence of permission from the Pakistan government for conducting the required offshore marine surveys, not much progress could be made with this study. In May 2000, hopes for the project were revived when India and Iran decided to analyse the import options for evacuation of gas from India to Iran. These included (1) an overland pipeline network through Pakistan and (2) deepwater offshore pipeline to avoid Pakistan's exclusive economic zones. A joint committee was also set up to review the progress with regard to these options. In August 2001, GAIL was appointed as the nodal agency for the project. In 2002, Iran and Pakistan also signed an agreement on a feasibility study for the pipeline. In January 2003, an MoU was signed between India and Iran for cooperation in the hydrocarbons sector. Subsequently, in December 2004, India proposed a bilateral agreement with Iran whereby Iran could deliver gas at the Indian border on take or pay basis while entering into separate agreement with Pakistan (GAIL 2005).

The overland pipeline option is now the more favoured one for the project. In 2003, BHP Billiton carried out a pre-feasibility study for the project that has established that the 2600-km pipeline is technically and commercially viable.¹

¹ Views from the record note of discussions held with BHP Billiton representatives on *Iran–Pakistan–India gas pipeline* at TERI, New Delhi, on 14 December 2004.

As per the report, the pipeline will run almost as a straight 1100 km line from Assaluyeh in Iran to the Pakistan border and another 800 km in the state of Baluchistan in Pakistan, before it reaches the Indian border in Rajasthan. New Delhi, which will be the Indian offtake point, will be another 700 km from the border. The project is initially expected to cost about 4.16 billion dollars.

All the three countries stand to benefit much from this project. For Iran, the project offers a broad market for its gas. Pakistan, which presently meets its gas demand from the domestic sources would be short of gas by 2010 and will have to look for import of gas. Pipelines from Iran could play a very important role in meeting its rising gas demand. Besides being an important market for its gas, Pakistan is also important for Iran from the strategic point of view, given Pakistan's emerging role in the region. As a step towards building bilateral ties with Pakistan, Iran has agreed to set up the Pakistan–Iran Investment Co. Besides, Iran is to provide an amount of 200 million dollars for infrastructure development in Pakistan. India's gas demand is expected to almost double by 2015 and India is actively looking for various gas import options. For Iran, India's participation in the project is important on two counts. Not only will India's participation ensure economic gains from a broader market, but will also strengthen the political support for Iran in the international arena. Pakistan also stands to benefit from India's participation for it will make economic gains from the transit fee that the pipeline will fetch. Both, Pakistan and India realize the gains to be made from this project. India could tap up to 90–100 MMSCMD of gas through the pipeline, while Pakistan could source another 50–60 MMSCMD of gas from the pipeline (PTI 2005). In a joint statement issued in New York on the sidelines of the United Nations General Assembly in September 2004, the Indian Prime Minister Dr Manmohan Singh and Pakistan President General Pervez Musharraf reiterated the crucial role that this pipeline can play in contributing to the welfare and prosperity of both countries.

Despite the prospective gains for all participating countries, there are several important issues that need to be addressed before this pipeline sees the light of the day. Given the huge investments that would be involved in the project, a crucial concern relates to ensuring the physical security of the

pipeline and its associated costs. Unrest in Pakistan's province of Baluchistan has been an important cause of concern for India. The local tribesmen have been increasingly targeting natural gas facilities in the province in order to promote their own agenda. Such incidences cast serious apprehensions with regard to ensuring security of the pipeline in the long run.

Another crucial concern is the price at which gas is supplied to India. According to some reports, Iran is linking the price of pipeline gas with the price of regasified LNG. India, on the other hand, has suggested that gas price be worked out on the basis of the actual cost involved by taking into account the actual wellhead price coupled with cost of transportation, transit fee, and other related costs. Then, Pakistan and India are also to reach a consensus about the transit fee. Given the geopolitical concerns and risks involved, the Indian standpoint is that a proposal to lay the transnational gas pipeline will be attractive only if there is an appreciable difference between the delivered prices of the pipeline gas vis-à-vis price of regasified LNG: add to this, the competing economics of LNG. Significant technical innovations are taking place in the LNG industry that are driving the LNG processing and shipping costs south-wards (EIA 2003). With these developments, price thus assumes a centre stage in determining the extent to which a gas pipeline option would weigh over a competing LNG project. The gas import contract being negotiated with Iran is for a 25-year term, beginning 2010, with delivery at the India–Pakistan border. To add to these issues, the US has raised objections to the proposed pipeline on grounds of Iran's nuclear policy. The US secretary of state Condoleezza Rice has strongly expressed that if India and Pakistan go ahead with the project then the US may take steps against them under the ILSA (Iran and Libya Sanctions Act), which forbids more than 20-million-dollar investment in the Iranian oil sector. However, some experts see the US opposition to the pipeline as part of its global interests.

As a step towards addressing some crucial concerns linked to the pipeline, in April 2005, TERI organized a workshop on the Energy Charter Treaty under the aegis of Ministry of Petroleum and Natural Gas, Government of India; and the Energy Charter Secretariat, Brussels. The Energy Charter Treaty provides a broad multilateral framework of

rules under the international law governing energy cooperation. It facilitates agreements on energy trade between governments and also with project investors for protection of investments. It also deals specifically with transit issues that are of particular relevance with regard to the Iran–Pakistan–India pipeline project. Iran is already an observer at the Energy Charter Conference, and is also perhaps keen to become a full member. Apparently, Pakistan is also interested in joining the treaty. India too has been exploring the option of becoming an observer to the treaty.

To address the security concerns linked to the project, BHP Billiton has proposed that the pipeline would be buried to a depth varying between 0.9 metres and 1.5 metres, and would use fiber-optic cable-sensing systems with a back-up satellite link for monitoring. Maintenance units will be located every 150 km with ready-to-install pipe sections in case of any disruption to the pipeline, which can be rectified within two-to-three days. Besides, the 11–12 overground compressor stations will be manned full time. If one compressor station is disabled, it can be by-passed and supplies can be maintained at 80% capacity. As a provision against Pakistan disrupting supplies to India, the point on the pipeline from where Pakistan will offtake the gas will be 60 km from the Indian border and there will be no valve further down the line until after it enters the Indian territory. Mr Mani Shankar Aiyar, India's Minister for Petroleum and Natural Gas, has also proposed to extend the pipeline to China as a step towards further enhancing the security of supply upstream through the Pakistani territory. More recently, India and Pakistan have agreed to set up a joint committee to discuss some crucial issues discussed above so as to kick-start the project by January 2006. The joint committee will look at several technical, financial, commercial, and legal aspects of the project. These are positive developments and, with a firm commitment on part of all governments involved, could help in materializing the project.

Turkmenistan–Afghanistan–Pakistan–India pipeline

Turkmenistan's abundant gas resources make it a key player in the international energy market. Estimates of its proven reserves of natural gas are 100–155 TCF, besides probable reserves of

250–300 TCF. The largest natural gas fields are in the Amu-Dar'ya basin, with half the country's gas reserves located in the giant Daulatabad-Donmez field. With surplus gas reserves, Turkmenistan has been very keen on increasing its gas exports to the world markets and various pipeline projects have been under consideration. The Turkmenistan government's 2020 strategy has indicated that natural gas production should increase to 67 BCM (billion cubic metres) in 2005, 79% of which would be for export (ADB 2005).

The Turkmenistan–Afghanistan–Pakistan gas pipeline project was initiated by the Unocal Corporation in the mid 1990s. The pipeline was initially envisaged to originate in the Daulatabad gas fields in south-east Turkmenistan, with proven gas reserves of 23 TCF, passing through the heart of Afghanistan, turning right to touch Kandahar, before entering Pakistan near Chaman. However, the project was shelved due to the Al-Qaida's terrorist attacks on the US Embassies in Africa and the increasing instability in Afghanistan under the Taliban regime. Subsequent to ousting of the Taliban in Afghanistan, interest in the pipeline was revived. The pipeline can give the much-needed boost to Turkmenistan's gas sector, which has not been meeting its production targets, and faces serious challenges, in terms of bringing new technology and attracting foreign investment. At the end of 2002, leaders of Pakistan, Afghanistan, and Turkmenistan signed an agreement to facilitate the laying of a 3-billion-dollar gas pipeline, about 1600 kilometres from Turkmenistan's gas fields to Pakistan through Afghanistan. The Afghan government too is very keen on the TAP project as it is estimated to create over 10 000 jobs and bring hundreds of millions of dollars from the additional projects agreed to in the tripartite MoU signed in May 2002. The Afghan government also expects to earn 100–300 million dollars annually in transit fees on the pipeline alone (Haidari 2004). The pipeline could transport up to 30 BCM of natural gas annually from the Daulatabad fields to consumers in Afghanistan, Pakistan, and possibly in India. The US is also in favour of the pipeline as against its strong reservations against the pipeline from Iran, as discussed above.

A steering committee of ministers of oil and gas from the three countries was established for supervision of the project. During the first steering committee meeting of the three governments on

9–10 July 2002, ADB was appointed as the lead development partner for the project. The ADB-sanctioned a one-million-dollar technical assistance grant to undertake a feasibility study for the project. The study was conducted by PensPen, a British company. The feasibility report indicates that the pipeline would be uneconomical unless extended to India. Keeping this in mind, after the Steering Committee Meeting of the project met in Manila on 9 April 2003, the oil and gas ministers of Pakistan, Afghanistan, and Turkmenistan jointly requested India to participate in the pipeline venture.

India has had several concerns regarding the pipeline. These include doubts regarding availability of gas, with a major portion of Turkmenistan's gas already committed to Russia. In January 2004, Russia started importing Turkmen gas under a 25-year agreement for 2004–28. The current agreement stipulates a gradual increase of gas shipments from 5 BCM in 2004 to 80 BCM in 2028 (ADB 2005). Besides, Russia is committed to buy another 1 TCF under an additional agreement signed in April 2003 between Gazprom and the state-owned Turkmengaz. Then, there are security concerns linked to the pipeline, which arise on two accounts: one being the internal political situation in Afghanistan and fears regarding possible activity by Al-Qaida elements in the region. Another reason for the security concern, as in case of the Iran pipeline, is ensuring the security of the pipeline during the transit through Pakistan. These concerns will need to be duly addressed to bring India onboard the TAP project. Nevertheless, the Indian government does realize its common interest with Pakistan, in terms of access to affordable energy to meet the widening gaps in the domestic demand situation and for the first time, expressed its interest in joining the project. During his visit to Pakistan to have in-depth discussions on the Iran–Pakistan–India pipeline, India's petroleum minister Mr Mani Shankar Aiyar has agreed to join the ministerial-level discussions at the next joint committee meeting of the TAP project to be held in July 2005. It is also noteworthy to mention here that Turkmenistan is already a member of the Energy Charter Treaty discussed above.

Myanmar–Bangladesh–India pipeline

Myanmar has significant gas reserves owing to which India has been keen to import hydrocarbon resources from Myanmar for quite some time now. At the end of 2003, Myanmar's proven gas reserves were estimated to be 12.8 TCF (BP 2004). The discovery of 5 TCF gas in Myanmar's Rakhine state in which India's state-owned companies ONGC and GAIL have 20% and 10% shares, respectively, has further enhanced this interest. The block is reported to have a capacity to produce 20–25 MMSCMD gas for a period of 20 years. In February 2004, GAIL was offered Myanmar's 65% gas in block A-1. Besides, GAIL has also been offered two new gas blocks in Myanmar, A-2 and A-3, on a 'nomination' basis for exploration.

Of the options available for the pipeline, the most feasible one is the onland option. This option could involve a pipeline linking the gas field to the Indian state of Tripura before crossing Bangladesh to West Bengal in India. International consultant Snam Progetti has been appointed by GAIL to work out the feasibility of this onland pipeline route to bring in gas through Mizoram. The pipeline through Bangladesh is more cost-effective for India as through this pipeline, India will be able harness gas reserves in the Tripura basin, which it is unable to do at present owing to the absence of local market. Bangladesh stands to gain from the pipeline on many counts.

(1) Earnings from the pipeline can give a boost to Bangladesh's economy. (According to some reports, Bangladesh would receive right of way charges worth 100 million dollars, wheeling charges of 100 million dollars per annum, and involvement of the Gas Transmission Company Ltd, which may earn the company 24 million dollars per year as management costs) (*The News Today* 2005). (2) The pipeline could be used by Bangladesh to carry gas to its northern region. (3) The project could pave way for the much-needed foreign investment in the country's energy sector. (4) As its gas reserves are gradually depleting, market access will be increasingly crucial for Bangladesh. By providing access to Myanmar's huge gas reserves, the project would thus indirectly strengthen Bangladesh's energy security.

In June 2004, the Government of Bangladesh expressed its willingness to consider the proposal

for laying the pipeline through its territory. At the Yangan meeting of a technical committee on the tri-nation gas pipeline, Bangladesh laid down certain conditions for its participation in the project. It wanted India to provide a transit facility to Nepal and access to hydroelectricity from Nepal and Bhutan. It also wanted India to agree to allow Bangladesh to use the pipeline to export its gas to India or import it from Myanmar. These new conditions have further delayed the negotiation over the pipeline. Final consensus on the terms for the pipeline thus remain to be made. A committee has been set up by the Bangladesh government to assess the pipeline proposal and submit its recommendations on the project. Due to a delay in this decision, Daewoo International and KOGAS, which are other stakeholders in the project, are already examining the prospect of exporting the gas from the field in form of LNG to Korea. If India and Bangladesh are to reap the benefits of this project, they will have to speed up on their decisions at the earliest.

The way forward

The transnational gas pipeline projects hold significant potential to meet South Asia's ever-increasing appetite for energy, and can bring in a whole new era of regional integration. If successful, these projects will go a long way in enhancing the stability and improving living standards in Central Asia as well as in South Asia. Despite these prospective gains, several techno-economic, commercial, and geo-political issues still remain to be resolved to make these pipedreams see the light of day. Several initiatives are already underway to address many of these concerns, with joint studies and discussions being carried out at the government level. The ECT (Energy Charter Treaty) can prove to be a key instrument for facilitating gas trade in the region. Turkmenistan is already a signatory to the treaty while Iran is an observer. To benefit from the treaty, as a starting point, India and Pakistan should become observers to the treaty. Besides these efforts, there is a need to carry out a thorough cost-benefit analysis of these projects by duly incorporating their impact on trade, environment, and socio-economic development of

the region. All these efforts need to be expedited so as to create a level-playing field for all stakeholders and thus shape a long-term relationship beneficial to all. South Asia's pipe dreams have for long, been in the pipeline now and it is high time that these dreams are turned into reality.

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The Bangladesh Energy Regulatory Commission Act, 2003: an analysis*

Introduction

The Bangladesh Energy Regulatory Commission Act, 2003, was enacted to establish an independent and non-allied energy regulatory commission in order to ensure transparency in management, operation, and tariff determination in the energy sector. This legislation expects to create a favourable investment climate for the private sector in production, transmission, transportation and marketing of electricity, gas resource, and petroleum products to facilitate a healthy competition and to protect the interests of consumers.

The act defines energy to include the constituents of electricity, gas, and petroleum products.

Power, functions, and activity of commission

The act gives the commission the power to issue a licence for power production, energy transmission, marketing, supply, stocking, distribution, efficient use, standard service, and tariff determination and safety development. The commission can also terminate, amend, and determine the conditions of licence. It will be the duty of the commission to prepare codes and standards to ensure a qualitative standard and its implementation.

The commission will be responsible for facilitating competition among the licensees. As far as settlement of disputes is concerned, the commission will adjudicate disputes between licensees and between licensees and consumers, and it has the power to refer matters for arbitration. The commission's adjudicatory power extends to disputes relating to monopoly and dishonest business.

The government and commission

The government will give clear, written policy directions to the commission regarding the energy sector, including the overall planning and cooperation in the interest of the energy sector that the commission is expected to follow. The government has the discretion in deciding the use of energy in an emergency situation.

Licence

Any person engaged in the business of power production, energy transmission, energy marketing and distribution, energy supply, and energy stocking needs to have a licence from the commission. The commission can renew or even cancel the licence. The licensee is expected to deliver high-quality work standards for ensuring the safety norms and also enhancing the image of the energy sector.

Tariff

The commission would determine tariff as per the tariff policy norms prepared in consultation with the government for wholesale, bulk retail in the production, transmission, marketing, distribution supply, and stocking of energy unless a consensus has been reached upon between the government and the commission. The tariff once framed, cannot be changed more than once a year.

Power of the commission in implementing orders

The commission would ensure that there is no non-compliance of any of the provisions laid down by the licensees. It can even ask any of the licensees at the time of inquiry to transfer all their rights to the commission till inquiry is over.

Information collection and secrecy

The commission has been given the power to collect any information it deems necessary for fulfilment of objectives of this act as determined by the rule. The important element is that the act prohibits the commission to disclose any information, which may be of secretive nature, without the consent of the concerned person and subject to law.

Arbitration and appeal

Any dispute between the licensee or between the licensee and the user will be adjudicated by the commission. The commission has the liberty to

* With inputs from M P Ram Mohan, Research Associate, TERI, New Delhi, India

appoint an arbitrator to settle the dispute. Judgment of the commission is final and binding as in the case of the civil court. Appeal against the order of the inspector under the electricity act, petroleum act, or any other rule will have to be submitted to the commission.

Offence and punishment

Any offence regarding non-compliance with the statutory provisions laid down by the commission would attract punishment in the form of monetary fine and also imprisonment. The commission has the power to appoint an inspector in order to investigate any matter that has come under the

scope of offence under the ambit of the act. Severe punishment has been mandated under this act with regard to energy theft.

Receiving complain from consumer and its settlement

The licensees will have to have complaint centres so that the consumer could lodge complaints in respect of the energy services or related matters under this act. The complaints must be addressed within seven days after their filing. Otherwise, on expiry of the said time period, the commission would intervene and take the matter under its own jurisdiction.

Regulatory news

Energy

Germany: New energy regulation bill

The German government and opposition parties have agreed to pass a new energy law that should empower a regulator by July in a bid to usher in more competition. The law will install a new regulator to supervise utilities in the industry, which is dominated by four large utilities: EON, RWE, EnBW, and Vattenfall Europe. The new regulator plans to introduce incentives by mid-2006 to make the energy transmission grids more efficient and to lower consumers bills. Germany is well behind the 1 July 2004 EU (European Union) deadline to bring its energy sector in line with the liberalization directives aimed at improving competitiveness in the bloc's energy industry. Under the original plans, utilities with more than 100 000 customers would split the network operations from business arms such as sales and production units.

Oil and gas

Bangladesh: Study to explore Bangladesh–Nepal and Bhutan gas pipeline

This study will explore the possibility of laying a pipeline to send natural gas from Bangladesh to Nepal and Bhutan. An agreement to conduct the study was reached at a foreign secretary-level meeting of Bangladesh, India, Myanmar, Sri Lanka, and Thailand Economic Cooperation

(BIMSTEC) in Dhaka. During the meeting, officials stressed on the importance of using natural gas, given the increasing price of petroleum products.

Bangladesh: Uniform gas pricing for foreign investors planned

The government is contemplating to introduce a uniform model for gas pricing for foreign investors who want to set up gas-based plants in the country. As there is no uniformity in gas prices, foreign investors go for hectic negotiation with the government to fix up the gas price while setting up gas-based plants, including power, fertilizer, and cement plants.

There would be two sets of prices—one for export-oriented investors and other for the investors who want to sell their products in the local market. There are some flaws in the existing rules such as the government has to give penalty if gas supply is interrupted but there is no penalty for the plants if they stop taking gas.

India: New-look petroleum regulatory bill ready

The CoS (Committee of Secretaries), headed by cabinet secretary Mr B K Chaturvedi, has made significant amendments to the draft PNGRB (Petroleum and Natural Gas Regulatory Board) Bill 2005. The amended draft bill, to be shortly circulated among the members of the GoM (Group of Ministers) and the Department of Legal Affairs,

has incorporated a set of important provisions relating to a common appellate tribunal for the electricity, petroleum, and natural gas sectors and the concept of contract carrier. The draft also proposes the establishing of a strong affiliate code of conduct, monitoring the price of natural gas, methodology for fixation of transportation charges by pipelines, besides an exclusivity clause for city or local distribution networks. The DGH (Directorate General of Hydrocarbons) would regulate the upstream issues and the PNGRB will look into the downstream issues. A distinction has, however, been made as regards the pricing of natural gas. While the DGH will look into the pricing of natural gas under the provisions of the PSC (production sharing contracts), the PNGRB will look into the pricing of natural gas in the context of provisions relating to profiteering and transportation charges for pipelines. This provision has been suitably incorporated in the amended bill.

Power

Chile: Electricity reform bill still under discussion in Congress

The Chilean electricity reform bill is still under discussion in the lower chamber of the congress, after the Senate failed to pass a controversial article limiting gas imports from Argentina. The bill provides incentives for investment in electricity generation capacity by allowing generators to sign long-term, fixed-price agreements with the distributors. It also aims at reducing the Chilean dependence on gas supplies from Argentina by limiting to 85%, the total volume of gas imports from any one source. The reform bill is now expected to be approved next month.

India: Big consumers can choose power source

Those consuming over 1 MW power may soon have the choice of selecting their source of supply. The CERC (Central Electricity Regulatory Commission) chairman Mr A K Basu said regulations to this effect for all states except Delhi, Assam, and Chhattisgarh would be finalized by June. However, each state regulator has to issue an individual regulation to enable the choice. The formula for compensating a distribution company when a consumer decided to switch sources of supply has also been worked out. Besides, it was decided that all distribution companies would be required to purchase a particular percentage of power from the renewable sources. A differential tariff system would be

followed for fixing of higher tariffs to create incentives for using renewable sources of power. The guidelines would act as a platform for enabling customers, starting with bulk users, to choose a power distribution utility of their choice. This is expected to break the monopoly of the SEB as the sole supplier of power to retail consumers in most states.

Pakistan: Massive raise in power and gas tariffs in offing

Massive increase in electricity and gas tariffs from July is in the offing, and for the first time, the 'below poverty line' power consumers are being treated at par with other categories. The OGRA (Oil and Gas Regulatory Authority) had already sought government approval for increase in gas tariff by 5.56% per unit from July 1. NEPRA has also admitted multi-year tariff petitions of WAPDA's DISCOs (distribution companies) for regular hearing against a fee of 2.9 million rupees from each company. An analysis of tariff petitions indicates that DISCOs have sought up to 71% increase for different categories of consumers in three years (2005/07). A 33% (83 paise) per unit increase for consumers using 1–100 units, 52% in 2006, and 71% in 2007 is proposed; while 23.38% in 2006 and 52% in 2007 respectively for consumers using 101–300 units. Industrial tariff is expected to increase by 24 paise or 4.6% in 2005, 74 paise (14.2%) in 2006, and 119 paise (23%) in 2007. For B-2 category, 27 paise or 5.2% increase has been proposed. In petitions, the companies also said that any change in the power purchase price would automatically be passed on to consumers immediately through the corresponding change in retail tariff.

Pakistan: Body to examine ministry, NEPRA controversy

Tariff for two power projects, that is, one near Mari gas and other in Balokey, has not been finalized despite the fact that tariff applications had been submitted four months back.

Prime Minister Shaukat Aziz has constituted a one-member committee to resolve the controversy between the Ministry of Water and Power and NEPRA (National Electric Power Regulatory Authority) over tariff rules. The government would obtain views of different public and private sector stakeholders on the issue and submit the report to the prime minister for decision-making. This decision was taken at a recent meeting of the CCRB (Cabinet Committee on Regulatory Bodies).

Portugal: New regulatory proposal

ERSE, the energy regulatory agency of Portugal, has issued a proposal for changes in the electricity codes. This proposal affects the regulations on tariffs, retail, and network access. The proposal seeks to modify the Portuguese electricity regulation to ensure that it is in line with both, the European directive and national legislation (including the creation of the Iberian electricity market), but it also seeks to increase transparency and efficiency of regulations.

Telecom

Bangladesh: Government to reformulate cable TV policy soon

The Bangladesh government would reformulate the cable television policy soon to protect the country's values and culture and also to regulate the cable operators. The situation prompts the government to reformulate the cable television policy soon for it to be approved by the cabinet. The government has

formulated a guideline for cable television network, aiming to preserve the history, heritage, culture, and values of the country and to ensure that the operators and distributors properly pay revenue. The guideline is likely to take effect by the end of the year, according to sources in the information ministry. The proposed guideline will have a provision for penalty for airing some unwanted programmes. Even the equipment of a television channel can be impounded for such offences.

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In the library

The World Bank. 2004

Reforming infrastructure: privatization, regulation, and competition

New York, USA: The International Bank of Reconstruction and Development/

The World Bank. 306 pp.

Recognizing infrastructure's importance, many countries have implemented the far-reaching reforms over the past two decades: restructuring, encouraging private participation, and establishing new approaches to regulation. The report identifies the challenges involved in this massive policy redirection within the historical, economic, and institutional context of the developing and transition economies. It also assesses the outcomes of policy reform and research to improve infrastructure performance.

Dahl C A. 2004

International energy markets: understanding pricing, policies, and profits

Oklahoma, USA: PennWell Corporation. 587 pp.

This book is designed to provide the basic economic skills to decision-makers in the power

and petroleum fields that will enable them to make better energy-related policy decisions. It contains a toolbox of models, along with institutional, technological, and historical information on oil, coal, gas, and electricity, including renewables.

Andrews C J. 1995

Regulating regional power systems

New Jersey, USA: IEEE Press. 405 pp.

The electrical power sector operates under an archaic regulatory system that is ill-equipped to oversee a competitive, restructured, regionally organized industry. It offers a systematic discourse on the regional aspects of regulatory reforms, sharing topical perspectives from leading actors and regional case studies that show how the debate plays out on the ground. It provides a strategic roadmap for the industry over the coming decade.

On the Web

IPE (International Petroleum Exchange)

<http://www.ipe.uk.com>

IPE is Europe's leading energy futures and options exchange. This site provides information about all the IPE products and services, including contract specifications, training, and access to the IPE's information vendor providers. The price section gives real-time data, market summary, and much more.

RAP (Regulatory Assistance Project)

<http://raponline.org/>

RAP is committed to fostering regulatory and market policies for the electric industry that encourage economic efficiency, assure system reliability, and allocate system benefits fairly to all customers. This website provides information and publications about electric utility restructuring, power sector reform, renewable resource development, development of competitive markets, performance-based regulation, demand-side management, and green pricing. The site also hosts the ongoing forum on distributed resource policy.

NARUC electric restructuring database

<http://www.naruc.whatsup.net/>

NARUC's website provides information as to the current state of the electricity sector reforms, restructuring, and regulation in all fifty states of the US as well as changes at the federal level of five countries, including Australia, Canada, England and Wales, New Zealand, and the United States.

OECD-Regulatory Management and Reform

<http://www.oecd.org/department/>

The OECD (Organisation of Economic Co-operation and Development) work on regulatory management and reform is aimed at building policy support and skills for good regulations in member countries. This website provides sector studies, working papers, and reports on regulatory reform undertaken by the OECD countries.

Governing Power S L Rao



- Rs 580 / US \$35
- 500 pages; hardbound
- 14 x 21.5 cm
- ISBN 81-7993-033-5

***Governing Power* won the DMA-NTPC Award for year 2004!**

“This book makes a valuable contribution in showing the path forward in our quest to enhance the effectiveness of our regulatory institutions. It deserves to be read carefully by representatives of governments, regulatory commissions, utilities, industries, and consumer groups.”

Anil D Ambani in the foreword

Authored by S L Rao, ***Governing Power*** elaborates the multidisciplinary expertise (linking economics, management, financial and cost accounting, and engineering) that electricity regulatory commissions need to harness to effectively regulate the sector, despite high government ownership, strong utility–government linkages, deep-rooted inefficiencies, and weak commercial attitudes. It tracks the emergence of regulatory law from the orders of regulatory bodies and courts; explores the concept of ‘independence’ and discusses the accountability of independent regulators (an issue not sufficiently explored till now); and suggests directions for future development of independent regulation.

For more details, contact

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New developments on the Web

Governance in the electricity distribution commercial arrangements

This impact assessment examines governance in the electricity distribution commercial arrangements. It examines the costs and benefits of maintaining the current governance structures and of introducing alternative structures. The assessment invites views on OFGEM's assessment and is available at http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11507_13705.pdf.

Indian Electricity Grid Code

The Central Electricity Regulatory Commission has released the draft revised Indian Electricity Grid Code for public comments. The code has been revised in light of the various provisions of

the Electricity Act, 2003, and the operational experience gained since February 2000. The document is available at <http://www.cercind.org/10062005/draft.pdf>.

National Electricity Policy

The National Electricity Policy aims at laying guidelines for accelerated development of the power sector, providing supply of electricity to all areas and protecting interests of consumers and other stakeholders, keeping in view the availability of energy resources, technology available to exploit these resources, economics of generation using different resources, and energy security issues. The policy document is available at http://powermin.nic.in/jSP_SERVLETS/internal.jsp.

Forthcoming events

18–19 July 2005
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In-depth introduction to electricity markets

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Tel. +201 784 5389 • Fax +201 767 1928
Website www.pmaconference.com

25–26 July 2005
Pakistan

Pakistan Natural Gas Conference 2005

Petroleum Institute of Pakistan, First Floor, Federation House Street 28, Block V, Kehkashan, Clifton, Karachi

Tel. +92 21 5378701–5378702 • Fax +92 21 5378704
Email pip@cyber.net.pk • Website www.pip.org.pk/pngc2005.pdf

Regulatori invites contributions

Regulatori newsletter belongs to its readers and other stakeholders who are interested in advancing, promoting, and sharing the best practices in infrastructure regulation in India and abroad. We sincerely welcome you to help us cultivate and enrich this newsletter by sending us articles, case studies, news, suggestions, etc. We will also welcome feedback on the contents of the newsletter to help us make it more informative.

Please send in your contributions to

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First Announcement

As new
regulatory
regimes
pose new
challenges...

SouthAsia

Forum for
**Infrastructure
Regulation (SAFIR)**

Announces
**7th Core
Training
Course**

On Infrastructure Regulation and Reform

21-29 October 2005

India

The infrastructure sectors in the South Asian countries are undergoing reforms and restructuring. With a large number of independent regulatory bodies already in place, the new regime is offering formidable challenges to both the regulators and the regulated.

SAFIR, a network of regulatory commissions facilitated by The World Bank, offers expertise for capacity building in the electricity, telecommunications, natural gas, water, and transport sectors.

Having successfully delivered six courses since 2000 to over 400 participants from 14 countries, SAFIR is now organizing its seventh, 9-day, intensive training programme for utility regulators and senior government officials working on the reform of the infrastructure sectors and executives from the public and private regulated infrastructure service providers.

This course is designed to provide participants with a strong understanding of the theory and practice of infrastructure regulation and reform. An attractive feature is the presentation of detailed international and South Asian case studies during the sectoral breakout sessions.

A price control review case study offers an opportunity for a hands-on application of what has been learnt. This will cover the main building blocks of price regulation, including asset valuation, cost of capital, incorporation of efficiency measures, and incentive properties of different techniques of price regulation.

There will also be opportunities to interact with regional participants: regulators, government officials, and executives of regulated companies.

The faculty for the course is drawn from ex-regulators, or those currently in the profession, academics, and other experts, who can speak from their personal experiences. A detailed agenda will be available shortly.

Themes

Reform strategies
Introducing competition
Techniques of price regulation
Financial aspects of regulation
Institutional design
Price control case studies



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