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See pp. 71–72

Contents

Water rights in Norway: a time for change?

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Abstract

The Norwegian concessionary policy for managing water resources has recently been put under pressure. The immediate background is a lack of ownership neutrality: public companies obtain a concession with no time limit, whereas private companies are granted concessions with a time limit and a required reversion of ownership to the state after the concessionary period. This reversion is called the 'hjemfall'. A hundred years ago, such a concessionary regime was deemed necessary to gain public control of an important natural resource. In this paper, we will place the Norwegian practice in a historical context and argue that 'hjemfall' represents an institutionalization of the old Roman law, which states that running water belongs to the public. We will also discuss the Norwegian government's options to respond to the increasing pressure against the current concessionary regime by the regulatory, institutional, and technological development that we have witnessed since the laws were passed almost a hundred years ago. Finally, we will discuss some of the challenges that a reform of the concessionary regime represents with respect to investment incentives and windfall gains and losses.

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Introduction

In the past two decades we have witnessed an international thrust towards the liberalization of formerly heavily regulated markets. The energy markets in general, and electricity markets in particular, represent no exception. In 1991, Norway was the first country in Northern Europe to liberalize its electricity market. Gradually, other Nordic countries joined this liberalization process and are now part of a common Nordic electricity market. The energy market revolution also led to considerable regulatory and organizational changes to avoid the possibility of owners of the transmission networks exploiting their natural monopoly. Detailed instructions about transmission costs were given to ensure strict public regulations and that users were treated equally. In Norway, the state was also forced to separate production and network into different companies called Statkraft and Statnett, respectively.

It is possible to use different approaches to explain the liberalization process in the northern European electricity markets. Some may choose to emphasize the technological development that allowed long-distance transmission and central coordination of a large network in an efficient manner, both technologically and contractually. Others may emphasize the realization that the natural monopoly characteristics of electricity transmission and distribution did not necessitate public ownership of electricity generation. This resulted in a policy of vertical disintegration between generation and transmission/distribution. Finally, one may point to the increasingly pro-competitive pressure represented by the European internal market and European competition policy in all markets, not only electricity generation.

An important part of the liberalization process has been to define the role to be played by the state as a regulator and as an owner of major assets in a deregulated market. In the UK, liberalization went hand in hand with privatization (Vickers and Yarrow 1988).

With respect to Norway, public ownership is still an important feature of the liberalized energy markets. The state and municipally owned companies continue to operate but are subject to competition from privately controlled companies. Yet, private and public companies are treated differently under the concessionary rules. Private companies can obtain a concession to acquire and dispose off waterfalls only for a limited period, i.e. up

to a maximum of 60 years. At the end of that period, the state has the right of reversion. This means that if the right is exercised, the acquirer is obliged to return the waterfall and all installations to the state without compensation. This rule, however, does not apply to acquisitions or concessions given to municipalities, counties, or state-owned undertakings.[1] Such undertakings have the right to unlimited concessions. Over time, this has led to an increase in public ownership of water rights. The state, counties, or municipalities are now the major owners of waterfalls used or have a potential use for hydropower production in Norway.

The differential treatment between public and private companies was the reason why the ESA (EFTA Surveillance Authority) in 2002 questioned the Norwegian concessionary regime. Nonetheless, Norwegian authorities were increasingly concerned with the concessionary rules, irrespective of the ESA questioning. They realized that the differential concessionary treatment had some negative efficiency effects. First, precluding private companies from competing for the acquisition of waterfalls based on differences in perceived value creation, effectively locked up public ownership to the resource. Second, Norwegian authorities also realized that time limits on private concessions resulted in some negative incentive effects with respect to maintenance and reinvestment at the hydropower production facilities towards the end of the concession period.

In this paper, it is definitely not our intention to discuss to what extent the ESA may or may not have a point in its reasoned opinion. One may add that Norwegian authorities have contested the ESA position, arguing that national management and control of natural resources fall outside the scope of the ESA agreement. The purpose of this paper is, firstly, to present the Norwegian regime for the management of water rights in a historical context. We also think that this represents an interesting case in the evolution of water rights and supplements the stories told by Scott and Coustalin (1995) and Rose (1990). Secondly, we want to discuss the government's options to implement an ownership neutral concessionary regime. This will be done against the backdrop of continuing policy goals such as the regulation of external effects and efficient taxation of resource rent.

[1] As defined by the Norwegian Act, it includes limited liability companies where the public ownership (state, municipalities, or counties) exceeds two-third of share holdings.

A part of this discussion will be the challenges of any regulatory reform and transition represents with respect to windfall gains and losses.

Norwegian water rights in a historical perspective

Prior to presenting a historical perspective on the evolution of Norwegian water rights in the last century, it is convenient to define the actual meaning of water rights. Scott and Coustalin (1995) argue that even though water rights differ from rights to land or the like in a number of ways, the right nevertheless is a property right. They widely define a water right as the right to use or enjoy the flowing water in a stream. The basis for the right may be riparian or ancient use. Riparian ownership emerges from a person's ownership of land on the banks of the stream, whereas ancient water use rights are based on a person's historical and actual utilization of the stream.

Norwegian water rights have historically been private and based on riparian ownership. However, even before Norway obtained a specific watercourse law in 1887, there had been certain rules regulating the ownership and use of water resources. These were based on King Christian V's law from 1687, which was again presumably based on common law and an 'ancient use' principle of water rights management: 'all water courses shall run as they have always run' as it was written in the old Gulating law code.[2] The watercourse law ('Vassdragsloven') implemented in 1887 instituted riparian ownership. The landowner also had ownership to the water running over his property, yet with the restrictions that followed from common law.

For a long time, waterfalls have been very important to the Norwegian economy. Historically, the importance was primarily connected to the transport of people and timber, in addition to fishing. The economic development during the 19th century, with the establishment of timber mills on a large scale, gave the waterfalls increased importance. Furthermore, Norwegian engineers were pioneers in the development of industrial plants that based resources on hydropower. In 1885, the Laugstol paper mill was based on hydropower, only three years after electricity was delivered to common households. By the end of the 1800s, hydropower resources had brought Norway's industry to a very

[2] The Gulating law is the earliest known Nordic code of statutes. It dates back to approximately 950 AD, but was probably not written down until late in the 11th century.

favourable position. In 1885, 30-small privately owned power stations delivered light to factories and private homes (Vogt 1971). The production of energy became the basis for the pulp and paper industry, chemical industry (such as calcium carbide and fertilizers), and metallurgical industry (such as aluminium, magnesium, and silica).

Industrial versus ancient uses brought the same conflict between the 'ancient use' principle for watercourse management and new (and presumably more valuable) uses that we also witnessed in other countries during the industrial revolution. Rose (1990) states that with the vastly intensified competition for water power resources in the late 18th and early 19th centuries, and with the application of waterpower to novel and thriving industrial uses, it became more difficult to defend the presumption that established uses were more valuable than others. According to Rose (1990), William Blackstone – whose views on water rights were quite influential in Norway and elsewhere for a time – argued that some rule of capture, as proved by 'occupancy' and prior capital expenditure was the way to establish one's right to the fall of the river and to solve the conflict between alternative uses (Rose 1990, pp. 273–274).

Thus, the first point we want to make is that by the Watercourse Act, 1887, the Blackstonian principle of 'occupancy' had also made its way into Norwegian law. Through the Act, industrial interests were afforded rights to use the waterfalls together with other private and common interests in the waterfalls. Based on the 'development and needs' of society, the law incorporated rules that gave the industry relatively wide entitlements to expropriation when the intent was watercourse regulation with an industrial purpose.

From 1905 to 1929, power-intensive industries together with shipping became the two most important sectors of the economy (Hansen and Selstad 1999). By 1920, 64% of the population lived in housing with electricity—among the highest percentage in the world. General supply was a local responsibility (municipalities, counties, and joint projects between communities). Projects for power-intensive industries generally became the responsibility of the industry itself, as an integrated part of factory projects.

Speculative investors, Norwegians, and agents acting on behalf of foreign companies saw the value of Norway's hydropower resources from an early stage. They targeted hydropower

resources in the period from 1890 to the Second World War. This was the background for a legislative act in 1888 to stop these speculative investments. This act was named the Citizens' Rights Law ('Statsborgerrettsloven'). Before the law was enacted, foreign as well as Norwegian investors could obtain rights to fixed property such as land, mines, wood, and waterfalls, without any restrictions. The law introduced concessionary rules for foreign investors' acquisitions of fixed property (except mines), persons and companies. Swedish companies and persons were exempt from these rules since Norway was in a union with Sweden at the time (until 1905).

However, the practice of the law was liberal. In addition, it was easy to circumvent, since Norwegians could act on behalf of a consortium of foreign investors. In 1906, a report was presented with figures showing that foreign investors had acquired rights to waterfalls representing total energy of more than double the amount of that used in the Norwegian industry. Furthermore, it became known that foreign investors were also in the market to acquire some additional important waterfalls.

These events triggered a law that was passed in the Norwegian Storting[3] in 1906, which intended to put an immediate stop to the negotiations on the acquisitions. This law received the popular name 'the panic law'.[4] The background for the law must, however, be understood in a broader context. First, it was a general concern that assets important to the Norwegian economy could become foreign owned. Norway had won its independence from Sweden a year before in 1905. Second, it was also a concern that the prices these waterfalls were sold at did not represent their fair and economical value. Finally, there was also a fear that a few parties could obtain control over these hydropower assets, leading to monopolization. This fear did not only apply to foreign investors.

The law gave the concessionary authority the opportunity to deny an investor a concession to buy a waterfall. The authorities reasoned that if they had the right to deny concessions then they also had the right to award concessions under certain conditions. Conditions used in practice included a concessionary licence of a limited duration (75 years). When the licence expired, the waterfall, with any hydropower installations such as dams,

[3] The Norwegian Parliament
[4] Law of 7 April 1906.

power stations, machinery and buildings, should be transferred to the ownership of the state without compensation to the licensee upon expiration of the licence. This right of reversion was the so-called 'hjemfall' condition. Other conditions imposed included the use of Norwegian citizens in the workforce and company localization in Norway.

The first version of the act to regulate the rights to acquire waterfall resources was only intended to regulate foreign investment. In the revision of the law in 1909, the regulations also included Norwegians. At that point, 'hjemfall' was specifically included in the statutes of the law. This law formed the basis for the Industrial Concession Act and the Watercourse Regulations Act, 1917, and has remained in place without major changes to this date. The laws included provisions on pre-emption rights, licences of limited duration, and the right of reversion to the state when a licence expired, usually after 60 years. Pre-emption meant that the state had a right to enter into the purchase agreement instead of the purchaser, but with the same rights and obligations as set out in the contract. If the state did not use the right, it would subsequently go to the county, and then to the municipality.

'Hjemfall' and pre-emption rights were the instruments used to secure control of an important resource through *ownership*. Pre-emption rights and the rights of reversion to the state applied only in the case of private ownership. Thus, the 'hjemfall' rule does not apply to acquisitions or concessions given to municipalities, counties, or state-owned undertakings.[5] The public owners have time-unlimited concessions.

Consequently, the second point we want to make here is that 'hjemfall' actually represents an institutionalization of the old Roman law. Scott and Coustalin (1995) noted some important features of the Roman water law. First, all 'perennial' rivers (other than freshets) were publicly owned and administered by the state. Second, running water itself belonged to no one but to everyone, and that the only interest a person could acquire in it was a temporary usufructuary right, which lasted only as long as the specific use continued (Scott and Coustalin 1995, p. 837). Furthermore, Scott and Coustalin noted that Blackstone reached back to Roman law, where flowing water had been

[5] As defined by the Norwegian Act, including limited liability companies where the public ownership (state, municipalities, or counties) exceeds two-third of holdings of shares.

res communes, owned by all and no one, subject to personal law respecting the first comer. They quote Blackstone, who wrote in 1789 in his Commentaries on the Laws of England, volume 14.

> *All these streams so long as they remain in possession every man has a right to enjoy without disturbance, but if once they escape from his custody and he voluntarily abandons the use of them, they return to the common stock and any man else has an equal right to seize and enjoy them afterwards* (Scott and Coustalin 1995, p. 855).

What is the core of 'hjemfall'? Precisely, it is that if the existing owner decides to sell his water rights, the authorities decide that he may do so, but on the condition that the resources are returned to the community after a certain period. When the owner decides to sell, he also gives up his usufructuary rights. The new owner may dispose off the resource for a certain period—a period that is long enough for the previous owner to realize a significant portion of the value of the resource on a discounted basis through the sale. After that period, however, the resource can be disposed off in the best way for society. Consequently, in many ways 'hjemfall' represents the first institutionalization of this part of Roman law that we are aware of in western societies.

It is interesting to note that when 'hjemfall' was discussed a century ago, the Department of Justice did not find it advisable to recommend *true* 'hjemfall', i.e. that the right was returned to the original owner after the concession period. The background for this recommendation was that water had features of a common resource, and that the public should be able to dispose off and control the use of that resource.

Moreover, when the laws instituting 'hjemfall' were designed, there was a heated discussion regarding how far the private water rights established by the watercourse act reached: was it an unconditional property right, or should the law be understood so that it was more like a right to *use* the stream, that is an usufructuary right? The issues discussed were, in particular, to what extent it should be necessary to obtain a *concession* to acquire a waterfall, for whom it would be necessary, and to what extent the state could set conditions as part of such concessions.

That it should be necessary with a concession was defended on the grounds that it was not a breach of the property right. The property right was first of all a right to *use* the property, and

second a right to *sell* it. It was probably unconstitutional to limit existing owners' rights to use their own waterfalls, but it was not considered unconstitutional to decide on different conditions related to the sale of the waterfalls by existing owners.

Main problems with 'hjemfall'

The main problem caused by the right of reversion to the state, after the concession period, is related to the differential treatment between private and public companies. Recall that Norwegian public undertakings enjoy concessions for an unlimited period of time, whereas private undertakings are granted concessions for a maximum of 60 years whereupon the state has a right of reversion. This skews the ownership structure in the sector towards public ownership. *Ceteris paribus*, the value of hydropower production facilities, will be higher in the hands of a public company than in a private company since the public company receives a time-unlimited concession whereas the private company receives a concession with a 60-year time frame. This creates an asymmetry for future changes in ownership, where private buyers are discriminated against. Thus, the trend of the ownership structure in the sector will be towards public ownership. One should expect some long-term negative efficiency effects associated with locking in public ownership and locking out of industrial actors possessing alternative and new competencies.

Furthermore, in the case of mergers or major changes in ownership structure, the value of the production facilities will be reduced since the right of reversion will be triggered if the public share in the merged company falls below two-thirds. This might affect the availability of new venture capital in the sector. This might again affect Norwegian companies' opportunities to participate in the ongoing structural changes we see in this sector in Europe. When industrial actors are locked out, the results may be the low innovative ability, lack of flexibility, and strategic capacity.

Because of the differential treatment, the Norwegian concessionary regime was questioned by the ESA[6] in 2002. According to the ESA, the very existence of the difference in treatment

[6] ESA is the Surveillance Authority of EFTA which ensures that Iceland, Lichtenstein, and Norway respect their obligation under the EEA-agreement (Agreement on the European Economic Area).

between Norwegian public undertakings that enjoy concessions for an unlimited period and private undertakings, which are only granted concessions for a maximum of 60 years whereupon the state has a right of reversion, only favours undertakings of Norwegian nationality. According to the ESA, this rule is contrary to the freedom of establishment provided by Article 31 of the EEA Agreement. The ESA was also of the opinion that a concessionary regime where private undertakings may only run a concession for a limited period of time, may deter investors from acquiring shares in those undertakings, contrary to the provisions for the free movement of capital as stated in Article 40 of the EEA agreement.

The third problem is associated with the incentive problems caused by the right of reversion towards the end of the concession period. It is obvious that the incentives for reinvestment and maintenance will be affected when the concession is time bound. The disincentives for investment related to specific assets will be stronger by the day as the end of the concession period approaches. It should be noted that the authorities have introduced an instrument that alleviates this problem to some extent. This instrument is called forestalled 'hjemfall'. In cases where the disincentive problem is imminent, and there is less than 25 years left of the concession period, the state may exercise its 'hjemfall' right immediately and lease or sell the waterfall with its production facilities to the incumbent for a new period of up to a maximum of 50 years. The compensation for this is subject to negotiations between the state and the concession holder.

In November 2002, the Norwegian government presented its preferred solution to these problems: to keep 'hjemfall' and make all the concessions time limited, including concessions owned by public companies. The proposed period for their concessions was 75 years from the date the new rules were implemented. After that, the rights would revert to the state. Existing private concessions would revert to the state as prescribed by the original conditions. Furthermore, it was proposed that the public pre-emption right should be removed. Forestalled 'hjemfall' was still to be used as an instrument in relation to investment incentives towards the end of the concession period.

There was no compensation offered to public companies being hit by these proposals. Needless to say, the proposals were not met with enthusiasm by the strong political forces in rural Norway. Consequently, in early 2003 the government established a

commission to consider all the alternative proposals related to 'hjemfall' that had been presented in the aftermath of the original government proposal. Thus, the future of 'hjemfall' remains uncertain.

In the rest of the paper, we attempt to outline the main premises and implications in such a discussion of policy options. The discussion relates to Norwegian water rights but should also be relevant to other countries in their considerations in this area.

Important premises of the hjemfall?

The Norwegian government faces two main challenges with respect to Norwegian water resources. The first is to identify and create an efficient, ownership-neutral regime for management of domestic water resources. The second is the transition from one regime to another, that is to cope with the windfall gains and losses that a reform will inevitably imply in some ways. The discussion of policy options to respond to these challenges must, however, be conducted against the background of some important premises.

The first premise is that the state, counties, or municipalities are actually now the *major owners* of waterfalls in use, or have a potential use in hydropower production (NOU 1998). In 1998, municipalities and counties owned around 55% of the Norwegian hydropower production capacity, while the state-owned company Statkraft owned 30%. At that point, private companies owned around 15% of the production capacity, where two-thirds of this was subject to 'hjemfall' to the state. Of this, Norsk Hydro (of which the state controls approximately 44%) owned two-thirds. Of the remaining one-third concession free, privately owned waterfalls, Hafslund[7] owned 30%.

Secondly, over the past 15 years Norway has implemented what may be the most *liberalized market* for electricity supply among IEA (International Energy Agency) member countries. The Energy Act, 1991 was designed to restructure Norway's electricity supply industry by separating generation and transmission, and allowing customers at all levels to select their suppliers. The state power company was reorganized into two state-owned companies to separate transmission and generation functions. Each is a form of state enterprise but is more independent of government than the state power authority was. Both

[7] The municipality of Oslo is a majority owner.

have an obligation to operate on commercial terms, though the state provides debt guarantees. The principles that guided these changes were the government's desire to introduce a clear distinction between its policy setter role and responsibility for supervision and regulation of the parts of the electricity sector characterized as natural monopolies, from those functions that can be organized through a market.

The foundation for the last two premises is that, although much has changed since the 'hjemfall' was instituted, the state still has important policy goals to pursue related to this vital resource.

Scott and Coustalin (1995) point out that the exercise of water rights may have *external effects* on owners of similar rights downstream. As a consequence, the owner of water rights is vulnerable to challenges by upstream users of the stream. The presence of externalities is why private water rights are often administered and controlled by the government.[8] In Norway, externalities in use, conflicts between different uses and environmental interests have over time led to the development of a number of legislative tools. For instance, a developer must have a licence pursuant to the Watercourse Regulation Act to carry out measures or divert water in a watercourse. Moreover, according to the Industrial Concession Act, 1917, the acquisition of waterfalls by persons other than the state is subject to a concession with mandatory reversion of waterfalls to the state after 60 years. Furthermore, there are rules pertaining to different kinds of works in rivers (flood control, embankments, etc.). Norwegian natural resource management decisions made on the basis of these tools can be divided into two categories: decisions relating to the acquisition and ownership of waterfalls, and decisions relating to the actual use of the waterfall.

Furthermore, we will argue that the state has the *legitimate right to tax the rent* that the use of the resource might realize. The rent may also be taxed on other grounds. Hydropower has to be produced where water is present. Consequently, in principle the rent can be taxed without any loss of efficiency. Taxing the rent can reduce the tax burden in other sectors, where taxes have a deadweight loss. The second, and most important, underpinning for resource rent taxation is that resources belong to the state. Even though individuals have usufructuary rights to the resource, the water running over the ground has been collected

[8] Alternatively, this can be left to enforcement in the courts.

from a much larger area. It can therefore be argued that the investments needed for the production of hydropower should only receive a 'normal' remuneration to capital and other resources, while the social value of the lease should go to the resource owner—the community. This must, however, be done in a way that does not introduce distortions into the companies' decisions. Otherwise, total resource value will be reduced.

The tax rate applied to Norwegian hydropower production is currently 27%, and comes on top of ordinary corporate income tax at the rate of 28%. The tax system implemented for the Norwegian power-generating sector is based on these principles proposed by Boadway and Bruce (1984), Fane (1987), and Bond and Devereux (1995). The principles of the tax system include losses carried forward at a threshold rate and ordinary deprecation deductible against the rent tax in addition to an uplift, calculated as the value of assets times the threshold rate. In principle, the uplift should shield the normal rate of return from taxation. The sector is also subject to other taxes. The 'natural resource tax' was implemented to secure the income stability of the municipalities where the waterfalls were located, amounting to 0.013 kroner per kWh of power generated. This tax is deductible against the income tax. The power production companies are also subject to *property taxes*. The basis for this tax is the market value of the production facilities, and the tax rate is in the interval of 0.2% to 0.7%. Finally, a company may be required to pay a licence fee pursuant to the Industrial Concession Act and a watercourse regulation fee pursuant to the Watercourse Regulation Act for hydroelectric development projects.

Policy options

The most obvious premise when discussing alternatives to the present implementation of the 'hjemfall' rule is that the differential treatment of private and public companies must end. This can be achieved through two alternative regimes: 'hjemfall' applied as a general condition for both private and public owners or the removal of 'hjemfall' entirely. We will discuss these two alternative policy options. Secondly, since water is and will be an important natural resource in Norway, we will take it for granted that the Norwegian state in the future will also need efficient tools to regulate the use of this resource, and to tax the natural resource rent accruing from its use, for instance for power production purposes.

Public water rights

In the first regime, the state (the public) retains ownership of the waterfall resources. The literature defines ownership through two important aspects: residual control and right of decisions, and allocation of residual net profit (Milgrom and Roberts 1992). The state can retain ownership of the resource directly or indirectly. Direct ownership implies that a company where the state has a majority control also owns the underlying waterfall rights. Indirect ownership means that the state owns the underlying resource, but can lease it to private or state-owned companies for a limited period. In a market-based sector like the Norwegian hydropower production, direct ownership is not a realistic alternative to either regulation or resource rent taxation, because the state-owned company or companies is one of the many companies in the market.

Public water rights may be allocated to private or public companies for a limited time with certain restrictions on the use. The waterfall rights reverts to the state after the end of the concessionary period. The rights can be reallocated to the same or another company for the same use, or be reserved for other uses such as recreation purposes.

Through indirect ownership, an important regulatory decision takes place at the end of the concession period when the waterfall right can be reallocated. At that point, the state can decide the future use of the waterfall; for instance whether it will be reallocated in its current use, or be put to another use that is considered to be of a higher value. Indirect ownership must, however, be combined with regulatory and legislative tools as the authorities also need to pursue the interests of society with respect to the use of the resource during the concession period.

The reallocation of the leases can be either discretionary or market-based. In the first case, the state negotiates prices and conditions with the lessee. This represents the practice today. In the alternative case, the leases are reallocated using cash bonus auctions for example. The winning bidder gets the lease and pays a bonus determined through the auction to the state. The state can still determine conditions *ex ante*. In this case, the reallocation method also represents a tool for resource rent taxation. Thus, imposing a resource rent tax on the lessees *ex post* when profits materializing during the concession period might be less important. In fact, Mead (1994) argues that the only neutral rent collecting system is a cash bonus bidding system. The social

value of a lease is, in principle, equal to the most efficient firm's valuation of it, and the auction will reveal this firm's valuation of the lease. McMillan (1995) points out that if there are enough bidders to generate significant bidding competition and bidders are reasonably confident of the precision of their value estimates, then bids are quite close to values.

Thus, in practice, the bid will depend on several factors in addition to the expected value of the reserves. To what extent these two conditions are fulfilled and the winning bid actually reveals the resource rent will determine the authorities' willingness to 'put all their eggs in one basket', that is whether cash-bonus auctions should be used as the only tool to collect resource rent. With a lease period of 60 years, the authorities might be somewhat reluctant to place all the weight on the cash-bonus auction as a resource-rent taxation tool. A shorter lease period, (for instance 15 years, as we frequently see for spectrum leases in telecommunications, for example), might result in higher precision value estimates but might on the other hand alleviate the reinvestment incentive problem.

Consequently, it is only if the concession period is relatively short and the reallocation method is based on a cash-bonus auction, that the authorities can be more relaxed with respect to imposing an *ex post* resource rent tax, given that conditions for sufficient competition are in place (Table 1).

Whether the concession period is short or long, or the reallocation method is market-based or discretionary, the problem of *reinvestment incentives* towards the end of the concession period persists so long as there is a positive probability that the lease will be lost. As previously mentioned, the current approach is *forestalled 'hjemfall'* and has relatively *long concession periods*. Long concession periods will of course reduce the problem but not solve it entirely. In case where the lessee presents investments that will not be carried through because the remaining lease

Table 1 The importance of *ex post* taxation to tax resource rent

	Reallocation method	
Length of concession	*Market-based*	*Discretionary*
Short	Low	High
Long	High	High

period is too short but would have been profitable if the lease period had been longer, the authorities may agree to negotiate terms for a renewal of the lease for a new term. The basic problem is that the current lessee may use this option *strategically* as a means to gain long-term control over the resource on a discretionary basis.

Another imperfect approach is to base the compensation on, for example, the *book value* or *reinvestment value* of assets. Different authors have proposed alternative approaches. Vickers and Yarrow (1988) discuss the case where the previous lessee must *negotiate* the price for existing specific assets with the new lessee that won the bidding competition. Not surprisingly, if the previous lessee expects that the price will be relatively low, this will provide disincentives for investment towards the end of the concession period. Harstad and Crew (1999) present an approach where the auction simultaneously determines the price p the winning bidder has to pay for the lease, and the compensation $t(p)$ from the winning bidder to the incumbent for the transaction-specific assets. The challenge facing the regulator is, of course, to specify the transfer pricing function so that investment incentives are preserved. Laffont and Tirole (1993) discuss how the auction can be designed to improve investment incentives. They point out that in cases where transferable assets (for example machinery) are significant, the auction should be designed so that it gives an advantage to the incumbent lessee.

The second problem with this regime as a solution to achieve concessionary neutrality between public and private companies relates to the *transition* between regimes. A transition to this regime creates *windfall losses* to all public companies that own time-unlimited waterfall concessions. The state-owned company Statkraft SF will also see a windfall loss, but this loss is from one hand to the other of the same owner. More serious is the effect of transferring wealth from the municipalities and the counties to the state if the rights revert to the state, as proposed. Moreover, heavy windfall losses will create serious opposition to the proposal from strong political actors. An alternative approach could be that the rights revert to the municipalities in which the waterfalls lie. However, this may create some other problems, since a waterfall often covers several municipalities. Furthermore, a municipality might have interests in the waterfall resources that is in conflict with the socio-economic or public interest. For example, locally, we have often witnessed a strong interest in

waterfall uses that create new jobs and activity, whereas the overall public interest has been towards preservation. Thus, this solution would have to include mechanisms that ensured that general public interests were taken into consideration in a proper manner. Yet another alternative would be to offer the windfall losers some form of compensation that would make them indifferent between the existing and the new rules.

On the other hand, windfall gains will accrue for the municipalities where the waterfall rights are located. According to the current rules, these municipalities have the right to one-third of the value of the waterfalls that revert to the state when the concession period expires. This applies even if the reversion is forestalled. Assuming these rules are retained, 'hjemfall' for all rights, even publicly owned rights, will result in a transfer of wealth from the current public owners to the municipalities where the waterfalls are located.

Privatization of water rights

In the second regime, the state grants concessions to buy waterfalls without setting requirements with respect to time limitation and right of reversion at the end of the concession period. Instead of ownership being the major resource management tool, the state will have to depend on laws, regulations, and negotiations to manage the common resource and externality aspects of the Norwegian water resources.

This regime implies a departure from the current regime's inevitable thrust toward public ownership and instead implies a drive towards privatization. As mentioned above, the Norwegian state, counties, and municipalities are now major owners of waterfall rights through partly or fully owned companies. If these rights, or the companies owning these rights, were sold to a private company, this can be done under the premise that the rights will belong to the private company without any time limit. We will call this the privatization regime, even though many waterfalls will still be owned by public companies.

One lesson taught by the NRE (New Resource Economics) is that privatizing water resources and using markets to allocate water between competing uses, places, and times will increase efficiency. This, however, applies to uses that can be priced in the marketplace. Consequently, efficient regulatory tools will be important in this regime. In the previous regime, the state could decide on alternative uses of the resource when the lease

expired. For privatized resources, alternative uses with a higher value for society, but not priced in the market, can still be achieved. However, the process is more cumbersome since it involves negotiations, or a tedious process through the courts. Bauer (1998) presented experiences from Chile, which indicated that the transaction costs were high and that a weak regulatory authority and private bargaining failed to resolve conflicts between alternative uses for the river.

Bowen, Moncur, and Pollock (1991) were concerned with the possibility of windfall profits being reaped by private owners through the creation of private ownership claims to a resource previously in the public domain. When waterfall rights owned by the state, or through state-owned companies or companies controlled by the counties or municipalities, are sold to private companies, prices and conditions will, at the outset, be market-based. The price will reflect the expected resource rent. However, as pointed out by Bowen, Moncur, and Pollock (1991), rent capture is dependent on well-defined property rights and markets. Consequently, the state would need an efficient instrument that taxes resource rent in a less *ad hoc* manner over time.

On the other side, this regime removes the problems with reinvestment incentives since the waterfall rights are unlimited in time. Some regulatory risk will nevertheless persist.

With respect to windfall gains and losses, privatizing the resources through time-unlimited waterfall rights will of course create windfall gains to those agents that own time-limited waterfall rights today, such as private companies. The closer to the end of the concession period, the larger the gain will be. Public companies should be indifferent, apart from the efficiency gains brought forward by ownership neutrality. In the previous section, we mentioned that under the current rules, municipalities where the waterfall rights are located have the right to one-third of the value of the waterfalls that revert to the state when the concession period expires. When 'hjemfall' is removed, this right will also be lost, resulting in a windfall loss.

Conclusion

Norwegian water rights constitute an interesting case in the management of an important natural resource. Hjemfall was an important instrument in securing control of a vital resource through ownership almost 100 years ago. Today, the legislation concerning property rights to water is still based on the fact that

this is an important national resource with crucial local ties. The implications of this are a set of restrictions on lasting ownership on these resources. However, these regulations do have a flip side. The implications of 'hjemfall' discussed in this article are that it

- locks up public ownership to water resources;
- leads to a direction of state monopoly;
- makes water power resources a less attractive commercial investment option;
- gives negative incentive effects for maintenance towards the end of the concession period.

In this paper, we have presented the reasons and historical conditions for these regulations. We have presented the arguments as to why it is necessary to reconsider the existing framework. In particular, it is important to adjust the regulations so that *ownership neutrality* is achieved.

It is, however, also mandatory to ask if 'hjemfall' still is a necessary instrument. We have presented two stylized alternatives to the current regime: one where the state's right of reversion is kept for all waterfall rights, public as well as private, and the other where the right of reversion is removed. The last regime implies privatization of waterfall rights in the sense that the public, represented by the state, no longer maintained ownership of the underlying resource. Whether a private company or a company owned by a municipality exploits the resource for power generation purposes makes no difference with respect to the regulatory flexibility.

So, which regime should be chosen to achieve ownership neutrality? According to the Government Commissioned Report (NOU 1994), considerations that work in favour of public ownership can also be taken care of through different regulatory and legislative tools. However, experiences from other countries indicate that regulating the use of private waterfall rights is quite demanding on the regulatory and judiciary authority. Moreover, one must also consider to what extent regulatory flexibility might be lost in the future, for example through supranational agreements. In that case, ownership represents a tool that might be important with respect to realizing uses of the resource pursuant to public goals.

It is of course difficult to give the 'correct' answer as to which regime represents the correct solution given the different

Table 2 Choosing between two alternative regimes for achieving ownership neutrality

Keep 'hjemfall' and time-limited concessions	*Allow unlimited time concessions, that is removal of 'hjemfall'*
Ownership neutrality	Ownership neutrality
High regulatory flexibility (law + ownership)	Medium regulatory flexibility (law)
Problems with reinvestment disincentives continue	Removal of reinvestment disincentives
Tax plus auctioning can be used to tax rent; tax increasingly important as concession length increases	Tax is the only instrument to tax rent
Windfall losses for companies owned by municipalities and counties	Windfall gains for private owners of waterfall rights
Windfall gains for host municipalities	Windfall losses for host municipalities

regulatory goals and the challenges any transition presents. Table 2 summarizes some of the pros and cons of the alternative regimes.

For instance, it may very well be that the problems with reinvestment disincentives in the long run may be neglected. Moreover, different solutions can be chosen to neutralize the windfall gains and losses that will occur in the respective regimes. However, Table 2 does illustrate that creating an ownership neutral regime is not an easy task, either with respect to design or how to deal with parties with vested interests in the current regime. The preferred alternative will have to be selected based on which of the two alternatives offers the necessary regulatory flexibility with respect to the management of this vital resource, today and in the future.

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Institutional approach to regulation and competition in South Asian infrastructure sectors

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Abstract

Competition, unlike regulation, is a decentralized process where individual service providers, driven by the profit motive, compete with each other to provide services to consumers. And unlike competition, regulation is a centralized process that makes decisions about tariffs, quality standards, and investments. Where full-fledged competition is not possible, regulation is considered to be a surrogate.

Recent changes in technology and economic thinking have spurred competition in traditionally monopolistic infrastructure sectors. However, the line between regulation and competition issues and functions is becoming blurred as utility regulators, along with their competition counterparts, are increasingly being given the mandate for promoting competition in their sectors. This creates a potential overlap between utility regulators and competition regulators. In this paper, we discuss institutional approaches to utility regulation and competition regulation in South Asia, compare them with approaches adopted in other regions, and find that there are no definite approaches being observed across the countries in the region, or even across sectors within a country in the South Asia region. Given the nascent stage of development of competition authorities in the region, policy-makers, in addition to the regulatory functions, have assigned the 'competition function' to utility regulators in infrastructure sectors. Consequently, there exist potential areas of overlap between these two types of institutions, which need to be addressed.

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Introduction

The definition of competition, its advantages, and its various forms are well known. At one end of the spectrum is perfect competition, which prevails when a large number of sellers, buyers, identical goods, free entry, free exit, free access to information, and free access to available technology exist in a market. Firms are price-takers in such markets and no individual firm can influence the market price. At the other end of the spectrum is the monopoly model and its variants – duopolies and oligopolies – where firms are price-setters; there are substantial entry and exit barriers; and there exists some degree of product differentiation.

Most infrastructure sectors are characterized by a high ratio of fixed to total costs, steeply declining average and marginal costs, and increasing returns to scale. This implies that building duplicate infrastructure facilities, typically in the bulk transportation and distribution segments, is costly; thereby leading to infrastructure services being provided by one, or few, service providers. However, this gives rise to an inherently monopolistic industry structure; therefore regulation of prices, output, and other related services are deemed necessary to prevent monopolistic exploitation. In many countries, therefore, utility regulation of monopoly service providers has been justified on these grounds. Service providers are both government monopolies (as in most South Asian countries) and private monopolies (as in the US). There was an implicit belief that because monopolies can reap the benefit of economies of scale, a monopolistic arrangement for delivery of infrastructure services, with adequate regulation to protect consumers from its potential abuse, would benefit society the most.

Utility regulation, however, is not a static process because the concept of what constitutes a natural monopoly is constantly changing. Technological changes have made it possible to introduce competition in various segments of infrastructure. For example, telecommunication services used to be integrated services. The same monopoly service provider used to offer local network services, long-distance services, or even value-added services. Due to technological breakthroughs, it is now possible to unbundle these services and introduce more than one player in each of these segments, leading to more competition and its attendant benefits. In the case of electricity generation, transmission, distribution, and supply were earlier provided as

bundled services, with minimal competition. Again, due to technological innovations, it is now possible to have combined-cycle, gas-turbine-based small power plants that can compete with other power plants based on conventional fuels. Thus, in the generation segment at least, to a large extent, it is possible to reap the benefits of competition: the UK[1] experience during 1989/90 demonstrated that it can now

- restructure the state-owned electricity industry,
- separate generation from transmission,
- allocate generation capacity among various companies, and
- create spot markets for wholesale electricity to enable generation competitive.[2]

Similarly, reform in the US gas sector in the 1990s demonstrates that unbundling of gas transportation, storage, and provision of equal treatment to third party users, ultimately, led to new entrants in markets that in turn made it possible to create a liquid spot market with prices determined by market forces.

In addition to technological changes, certain policy decisions also led to the unbundling of various services and promoted competition. This was especially true in the early interconnection decisions prior to which regulated monopolies extended their activities through tied selling into requiring customers to buy products and services that did not have characteristics of a 'natural monopoly' such as telephones, electric meters, and hot water boilers.

Competition and utility regulation are dynamic and intertwined concepts, and in both cases, one needs well-defined rules (laws and policies) and institutions for them to work. In the case of competition rules, the primary purpose is to maintain, encourage, or protect the process of competition by preventing restrictive business practices that are anti-competitive. Typically, competition rules tend to be economy-wide and apply to a large number of firms. In the case of utility regulation, rules tend to be

[1] In 1998, important changes took place in the regulatory regime in the UK: the primary duty of the sector regulator changed from promotion of competition to protection of consumers. This step did put a burden on the regulators to choose market solutions only if there was a net benefit to consumers.

[2] Introducing meaningful competition is not without costs, especially in the power sector, and the challenges of doing so are increasingly becoming clearer. Moreover, even though unbundling and introducing competition may be feasible, some markets may be just too small to reap the benefits of competition (Besant and Tenenbaum 2000).

more sector-specific, govern matters such as tariffs, service standards, or obligations to supply, and apply to a smaller number of firms.[3]

Given the close dynamics between competition and utility regulation, increasingly policy-makers in South Asia are facing the question of whether some or all activities of traditionally monopolistic utility industries can be subjected to economy-wide competition rules, rather than sector-specific regulation, and how to manage the interface between competition and utility regulation. The paper begins with first outlining three typical institutional approaches towards managing competition and utility regulation (*Approaches to utility and competition regulation*). Sections on *Utility regulation in South Asia* and *Competition regulation in South Asia* discuss the evolution of utility regulatory and competition regulatory rules and institutions adopted by South Asian countries, while the section on *Overlap between competition and utility regulatory frameworks* discusses the potential overlap between the two. *Role of utility regulator in promoting competition* examines how well they have performed their 'promoting competition' function, particularly in India and Sri Lanka.

Approaches to utility and competition regulation

World over, infrastructure regulation is typically managed through two distinct sets of interventions: utility regulation and competition regulation. As discussed in the previous section, market power of infrastructure service providers stemming from declining average costs is the rationale behind utility regulation. In contrast, competition regulation protects the competitive process, and is more general and less intrusive in nature compared to utility regulation. Three distinct institutional approaches adopted in dealing with utility regulation and competition regulation are

- *Approach 1* Utility regulators – either industry specific or multi-sectoral – deal with competition issues, and the competition authority has little or no role.
- *Approach 2* Competition authorities have oversight over all competition issues, including infrastructure sectors, and utility regulators have little or no role.
- *Approach 3* Hybrid approach: either approach 1 or approach 2, with a distinct relationship between utility regulators and competition rules and bodies.

[3] See Smith and Gray (1998) for a more detailed exposition.

Approach 1

Under this approach, utility regulators deal with all issues in the specific industry or sector, and the competition authority has no role whatsoever. Pending the development of an economy-wide competition regime, utility regulators can administer industry-specific rules as well as broader competition rules in their own sectors. In Bolivia, this approach (Smith and Gray 1998) was adopted in its early stage of regulatory development: specialist utility regulators administered both utility-specific rules and broader competition rules in their respective sectors. In other countries, statutes or jurisprudence often settle jurisdictional issues. For example, judicial decisions in the US or Canada often exclude 'scrutiny' under competition laws of conduct approved by the regulator (Smith and Gray 1998). While there are advantages to internalize both utility regulation and competition regulation functions within one entity, there is a risk that a coherent approach towards competition may not develop and that differences in the way competition is handled in different sectors could induce distortions.[4]

Approach 2

Under this approach, the competition authority manages both the competition regulation and utility regulation functions. For example, in Australia, the ACCC (Australian Competition and Consumer Commission) assumed the main role for both competition and regulation in the telecommunication sector in 1997 (Asher 1999). Initially, in New Zealand regulation of the telecommunication sector was entrusted with the Commerce Commission, the economy-wide competition regulator, rather than a sector-specific utility regulator (Smith and Gray 1998).

The advantage of entrusting the competition authority with both functions is that, similar to approach 1, there is only one entity that manages both utility regulation and competition functions. And unlike approach 1, the risk that a coherent competition policy may not develop is also less likely. However, the disadvantage of this approach is that appropriate utility regulation decision-making entails specialist technical knowledge, and entrusting that to a competition agency that administers necessarily general competition rules could preclude the creation of

[4] One way of ensuring a cohesive competition policy is to replicate the competition act provisions in the regulatory policy/act so as to ensure that the same principles apply in all the sectors.

sector-specific utility regulatory rules and bodies. For example, in the case of New Zealand (Smith and Gray 1998), substantial disagreement over how specific pricing principles for interconnection should be developed led to extensive litigation and appeals over several years. Learning from New Zealand's experience, Australia (Smith and Gray 1998) recognized the need to develop sector-specific utility regulatory rules on interconnection and price controls, but to prevent the proliferation of utility regulatory bodies, entrusted its national competition agency the responsibility of administering these sector-specific rules over airports and other utilities within the purview of the national government.

Approach 3

A hybrid approach could include creating specific competition and utility regulation rules, and assigning specialist competition and utility institutions to administer and enforce these rules. The key to making this approach work is to develop appropriate mechanisms to ensure coordination between the two institutions in order to prevent possible overlaps. For example, in the UK, regular coordination meetings are held between the competition and utility regulators. And in Zambia, a member of the ZCC (Zambia Competition Commission) also acts as an ex-officio member in regulatory boards of other sectors (CUTS 2003).

Which of the three institutional approaches is optimal for promotion of competition? This depends on various factors ranging from stages of economic development of a country to the credibility of policy-making, regulatory institutions, and competition authorities. Depending on the circumstances, a country could also adopt one approach and later evolve to another with changing circumstances.

Utility regulation in South Asia

Until the 1990s, most South Asian governments in addition to owning, financing, and operating, also regulated their infrastructure sectors.[5] The outcome was far from satisfactory,

[5] For instance, in the telecom sector, the archaic Telegraph Act, 1885 and the Wireless Telegraphy Act, 1933 regulated the telecom sectors in India and Bangladesh. The Department of Telecommunication in India and the Bangladesh Telegraph and Telephone Board in Bangladesh used to be service providers as well as regulators. In Sri Lanka, before the enactment of the Telecommunications Act No 25 of 1991, the line ministry in charge of telecom used to regulate the sector. Until a few years ago, India's electricity

resulting in high operational inefficiency and poor quality of service, lack of transparency in the decision-making, high barriers to entry and inadequate flow of capitals, financial mismanagement, and lack of protection of consumer interests with non-competitive choices for consumers.

In line with the global trends, many countries in South Asia in the 1990s began opening up their infrastructure sectors for private investment with the liberalization of the telecommunication sector in India, Sri Lanka, and others. However, regulatory reforms by way of positioning independent regulators came much later in these countries. There was a lack of understanding that regulatory frameworks, on the basis of which competition and private sector participation was sought, had to be established first, if not concurrently with the sector opening. Benefits of regulatory innovations were not fully recognized by policy-makers, and consequently, sufficient efforts to develop adequate regulatory frameworks were lacking.

Eventually, new regulatory institutions were established in South Asia.[6] These new institutions differ from their previous administrative counterparts: their decision-making process is more transparent compared to the closely guarded, 'need to know' basis, decision process of usual administrative government departments that result in opaqueness, and lack of public accountability and scrutiny. Because these institutions are required to balance the interests of different stakeholders, they were formulated as autonomous bodies (Appendix A depicts attributes of independence across regulatory bodies in the South

Footnote 5 *continued*

sector was governed by outdated acts such as the Indian Electricity Act, 1910 and the Electricity (Supply) Act, 1948, while in Bangladesh, the Electricity Act, 1910, the Dhaka Power Supply Authority Act, 1990, and the Bangladesh Petroleum Act, 1974 used to govern the energy sector. Similarly, in India's port sector, the Indian Ports Act, 1908; the Major Port Trusts Act, 1963; the Merchant Shipping Act, 1958; and the Dock Workers (safety, health and welfare) Act, 1986 formed the legal and regulatory basis for the sector.

[6] Historically, in many developing countries, utility services were entrusted to public monopolies and utility pricing was perceived to be the prerogative of the political executives. At the same time, many governments felt equally compelled to restrict monopolistic tendencies in private industry and that explains the enactment of legislation to regulate restrict trade practices. While laws to restrict monopolies and promote competition came into existence much earlier, legislation that creates quasi-judicial utility regulatory authorities distinct from the political executives is of recent origin, following a series of measures launched in many countries since the late 1980s and early 1990s.

Asian region) armed with features as required under 'maximal definition' of independence and accountability. Their functions ordinarily include mandatory ones such as tariff setting and establishing and monitoring quality standards, recommending functions such as licences, and playing an advisory role on sector development. The scope of these functions varies across countries and sectors depending on the stage of sector development and regulatory tasks.

By 2003, 30 independent regulatory bodies in Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka were established. They regulate the telecommunication sector in all these countries, the electricity sector in all countries except Bhutan and Nepal, the water sector only in Sri Lanka, the oil and gas sector in Bangladesh and Pakistan, and the port sector only in India.

The approach to arms-length regulation in South Asia is by and large sector-specific. With the exception of Sri Lanka, most countries have positioned their regulators on a sectoral basis. In Sri Lanka, the PUC (Public Utility Commission) of Sri Lanka Act, 2002 positioned an MSR (multi-sector regulator) for electricity, water, and transport. It was recognized in Sri Lanka that regulatory skills common across these sectors are in short supply, and with MSR, chances of regulatory capture by either the industry or government would be difficult, and that an MSR would be more cost-effective.[7]

Competition regulation in South Asia

In the early 1990s, many South Asian countries moved from a command and control approach to a market-driven economy structure. While market liberalization and globalization have the potential to improve the economic welfare of consumers, they can pose a challenge if and when they fail to protect consumer

[7] An MSR (multi-sector regulator) is also favoured if there is a convergence of technologies (for example in telecommunication, broadcasting, and information technology areas). This rationale is taking hold in India's telecommunication sector, and the Indian government is in the process of finalizing its Communication Convergence Bill for positioning an MSR covering telecommunication and broadcasting industry. But unlike in the energy sectors of Bangladesh and Sri Lanka, at the central level in India, in all probability there will be two regulators: one for the electricity sector, and the other for the oil and gas sector. At India's state level, an MSR may not emerge, as other sectors like water are yet to be recognized as suitable for bringing it under the purview of independent regulation in the near future (Garg, Kabra, and Kacker 2003). In Pakistan too, there is an independent regulator in electricity as well as in gas sector.

interests. Second, governments have found that without a comprehensive competition framework, there is a tendency to regulate markets in an ad hoc manner. Third, some markets may not exhibit anti-competitive behaviour at present, but have the potential to do so, and in the absence of a competition framework could affect price levels by virtue of anti-competitive practices.[8] Poor consumers, who are often at the receiving end of the market failures, are affected the most (Mehta, Qureshi, and Bansal 2003).

While there is an emerging need to enhance competition in local and national markets in South Asia, some countries in the region have begun either revising or formulating their competition law/policy framework, which has implications for their infrastructure sectors. Appendix B lists features of selected competition bodies that guarantee their independence. Countries such as Bangladesh, Bhutan, Nepal, and Maldives are now recognizing the need for establishing a competition framework (OECD 2004). In contrast, India, Pakistan, and Sri Lanka have competitive frameworks in place but are being revised as a result of the pro-market shift. We now examine the development of competition frameworks in India and Sri Lanka, which have a relatively richer history of competition regulatory evolution.

The Indian approach

As early as 1969, India established an umbrella anti-trust agency—the MRTP (Monopolies and Restrictive Trade Practices) Commission. However, the Commission was not successful in attaining its objective of ensuring a competitive environment in the economy, as it became interventionist. Moreover, the provisions of the Act did not extend/apply to state/public enterprises. In 1991, the government attempted to remove this anomaly by deleting certain provisions relating to pre-entry restrictions regarding prior approval of the central government for establishing a new undertaking, expanding an existing undertaking, amalgamations, and mergers. The

[8] On occasions, strong political will could substitute for the lack of a competition framework. For example, in Bhutan, Hindustan Lever, the Indian subsidiary of a multinational corporation, was forced to widen its network of wholesale dealership even in the absence of competition law with the active intervention of Bhutan's Ministry of Trade and Industry (Mehta, Qureshi, and Bansal 2003). However, policy-makers are in a better position to address anti-competitive practices when the requisite rules and institutions for safeguarding the competitive process are in place.

government, thereafter, realized that given the existing liberal environment of the economy, there was a need to revise the competition framework. Consequently, a high-level committee on competition policy and law (Raghavan 2000) made a series of recommendations, which, among others, included

- enactment of a new competition law,
- the establishment of a CCI (Competition Commission of India),
- pre-notification for mergers only beyond a threshold limit,
- adjudication of anti-competitive practices by the commission, and
- repeal of the MRTP Act.

In 2002, based on the above recommendations, the government enacted a new Competition Act which aims '...to prevent practices having adverse effects on competition, promote and sustain competition in markets, protect interests of consumers, and ensure freedom of trade carried on by other participants in markets in India'. It prohibits anti-competitive agreements, examines abuse of dominant positions, and regulates combinations. The Act is applicable to all sectors in the economy *including* infrastructure sectors (such as energy, telecommunication, ports, and water and sanitation). Under the Act, anti-competitive agreements are defined as those agreements that, in the case of production, supply, provision of services, have an adverse effect on competition or that result in exclusive supply and distribution agreements on different stages of production chain. The abuse of a dominant position occurs if there is an imposition of discriminatory conditions on the purchase or sale of goods. Other provisions include predatory pricing, denial of market access, and restrictions on scientific or technical development to the prejudice of consumers. To administer the provisions of the new Competition Act, the government positioned a Competition Commission. Under the Act, the Commission is duty bound to eliminate practices that have an adverse effect on competition, promote and sustain competition, protect the interests of consumers, and ensure freedom of trade carried out in India.

Indian policy-makers have not adopted the approach of explicitly entrusting utility regulators with the function of 'promoting competition' (Approach 1). This is probably because utility regulators were established much later than the already existing anti-trust bodies. They have not adopted the approach

of entrusting the competition authority with administering both the competition and utility regulation functions (Approach 2), but instead, preferred the establishment of specialist utility regulators and are attempting to build sufficient expertise within the utility regulators to handle issues of access regulation on a sector-by-sector basis. India has therefore adopted a hybrid approach (Approach 3) whereby there are separate and distinct competition and utility regulation rules and bodies. However, the roles and functions of utility regulators and competition authorities are far from being well defined, creating the possibility of significant overlap. This is discussed in more detail in *Overlap between competition and utility regulatory frameworks*.

Sri Lankan approach

Unlike India and Pakistan, which established their competition laws in the 1970s, in Sri Lanka, these came much later. The FTC (Fair Trading Commission) Act, 1987 established a FTC for the control of monopolies, mergers, and anti-competitive practices and for the formulation of a national price policy. Earlier, the Consumer Protection Act, 1979 was also enacted to regulate internal trade and to establish fair trading practices through the DIT (Department of Internal Trade). In essence, while the FTC provides an oversight for anti-competitive behaviour and price manipulation, the DIT regulates day-to-day transactions between traders and consumers. Price control powers of the FTC were later restricted through the enactment of the Industrial Promotions Act, 1990. There is also noticeable duplication of powers between these two bodies. For instance, DIT deals with practices such as exclusive dealing and price discrimination, while FTC allows traders to engage in these activities if these serve a national interest (Knight-John 2002).

There is an attempt in Sri Lanka to enact a new Consumer Protection Authority Bill, 2001 for creating an effective competitive regime, and for positioning a CAFTA (Consumer Affairs and Fair Trading Authority) by merging the FTC (being the competition authority) and DIT (also being the consumer protection authority). The proposed CAFTA will comprise an authority and a council for appeal. It will have the authority and powers for investigations, implementation, and imposition of penalty. The CAFTA is proposed to cover both public and private businesses, locally or foreign-owned, in shore or off shore, including both articles and services inclusive of professional and

technical services (UNCTAD 2002). The proposed Act is yet to be passed.

Under the existing laws, an industry is said to have a monopolistic character, if it falls beyond a 'prescribed' market share. As applicable to industries, it varies from 40%–50%—an arbitrary threshold fixed by the government. While exercising its power on issues such as monopolies, mergers, and anti-competitive practices, the FTC has to use 'public interest' considerations when dealing with

- maintenance and promotion of effective competition between suppliers of goods and services;
- promotion of the interests of consumers with respect to prices, quality, and variety of goods and services;
- promotion through competition, reduction of costs, development and use of new techniques and products;
- facilitation of entry of new competitors into existing markets; and
- maintenance and promotion of balanced distribution of industrial activity and employment, and competitive export activity in export markets (Knight-John 2002).

Section 12 of the FTC Act says that the FTC will intervene, if an item in question is listed as a prescribed article.[9] Telecommunication is 'prescribed' as a monopoly industry under the Act, as some telecom players have more than the prescribed market share (e.g. 50%): SLTL (Sri Lanka Telecom Ltd),[10] being a monopoly service provider in telecom sector, has a market share more than the prescribed 50%. Thus, it is the duty of the FTC to ensure that the SLTL, being the dominant operator, does not abuse its market power 'by methods such as discriminatory routing of traffic, imposition of unreasonable terms of interconnection, and discriminatory tariff' (UNCTAD 2002).

[9] For example, when ACL Cables acquired Kelani Cables leading to a 70% market share, FTC (Fair Trading Commission) did not intervene, as cables were not a gazetted item (CUTS 2002).

[10] SLTL (Sri Lanka Telecom Ltd) is the pioneer in telecommunications in Sri Lanka and is the successor to the former government-owned telecommunications department. It leads the telecommunication industry with 87% of the fixed line network. In 1996, SLTL was incorporated as a public limited company. The government now owns 49.5%, and NTT (Nippon Telegraph and Telephone Corporation) owns 35.2% of the market share.

In other infrastructure sectors such as electricity, water, transport, etc., the FTC has no role, since under the new PUC Act, 2002, the government has positioned an MSR that assumes the role of the economy-wide competition authority (such as the FTC) in dealing with these sectors. By replicating the usual 'competition provisions' in the new PUC Act of Sri Lanka has consciously adopted the approach of entrusting its multi-sectoral utility regulator (other than in telecommunications) the functions of promoting competition (Approach 1).

Overlap between competition and utility regulatory frameworks

There exists an overlap of power and jurisdiction between competition and utility regulatory rules and bodies. In the absence of a clear-cut demarcation of roles and responsibilities of these two bodies, tensions have indeed arisen in managing economic regulation. For instance, in Tanzania, the competition authority filed a case against the TCC (Tanzania Communication Commission) for allowing dominance of two cellular phone companies (such as Mobile and Tritel). The TCC had to explain its conduct, and later on allowed another cellular phone operator (Vodafone) to operate (Adhikari and Knight-John 2003). We now examine the scope of such overlapping issues in countries such as India and Sri Lanka.

Indian approach

Under the 2002 Indian competition law, there is considerable overlap in the scope of competition authorities vis-à-vis the scope of utility regulators.[11] For example, in any network industry, non-discriminatory network access is an important issue, and generally falls into the domain of the utility regulator. However, in the event of introducing competition in a vertically integrated industry, denial of access on reasonable terms may constitute an unlawful 'refusal to deal', and could thus fall within the jurisdiction of economy-wide competition rules, leading to an overlap between the competition authority and

[11] It should be noted that there can be some multiplicity in various pieces of competition legislation in India. For example, the Indian Consumer Protection Act defines 'restrictive trade practice' as one that restricts competition and empowers consumers to file cases in special consumer courts for speedy action. The Consumer Protection Act could therefore lead to overlapping jurisdictions and conflicting interpretations vis-à-vis the Competition Act.

utility regulator.[12, 13] Second, competition rules are applicable if an enterprise by abusing its dominant position imposes, directly or indirectly, unfair or discriminatory prices of goods and services.[14] Pricing in most utility regulation falls within the jurisdiction of the utility regulator, and in some cases, charging high prices may be pro-competitive, rather than anti-competitive. Thus, there could be a potential scope for overlap or conflict between competition rules and industry-specific pricing rules.

In the electricity sector, utility regulation has not removed the scope of overlapping functions. In the new Electricity Act, 2003, the electricity regulator 'may issue such directions as considered appropriate to a licencee or a generating company if such a licencee or generating company enters into an agreement, or abuses its dominant position, or enters into a combination which is likely to cause or causes adverse effect on competition of the electricity industry'.[15] This clearly points to potential conflicts between the Electricity Act and the Competition Act, as it is now possible that on the same issue, the competition commission and a utility regulatory could come out with different positions, without a clear-cut way of resolving their respective positions.[16, 17] Similarly, in the proposed Petroleum Regulatory Board Bill, 2002, the Regulatory Board is required to protect the interest of consumers by 'fostering fair trade and competition among the entities' (Section 12[a]). Different regulators can interpret 'fair' differently.

In India, the potential conflict areas between the competition and utility rules and bodies could include situations such as

[12] Section 3(4)(d) of the Indian Competition Act, 2002.

[13] In the US and New Zealand, competition law has been used to test whether access regimes in some cases would be allowed (Smith and Gray 1998).

[14] Section 4(2)(a)(ii) of the Indian Competition Act, 2002

[15] Section 60 of the Electricity Act, 2003.

[16] The recent task force chaired by NK Singh of 2004 on power sector investments and reforms recognizes the need to address the overlap between the Electricity Act, 2003 and Competition Act, 2002. It recommends: '… study on potential incidence of market power and the mitigation mechanisms that would have to assess the interplay between the Electricity Act, 2003 and the Competition Act, 2002 while dealing with this issue. The recommendations of the study should cover (a) role of the appropriate commission and Competition Authority; (b) nature of ex-ante and ex-post control of competitive conditions by the regulators; (c) segments of the electricity sector to be covered by the authorities; (d) enforcements mechanisms and penalties; (f) information requirements' (Ministry of Power, Government of India 2004).

[17] Section 19 of the Indian Competition Act, 2002.

- if a direction is issued to a licencee which tends to abuse a dominant position or enters into anti-competitive practices, and both the regulators differ in their perception on the subject;
- if a utility regulator issues a tariff determination containing terms and conditions for encouraging competition, efficiency, safeguard consumer interests, which the competition regulator does not agree with;
- if a utility regulator approves merging of utilities in licensed areas, and the competition regulator does not agree; and finally,
- if a utility regulator regulates supply, distribution, and consumption so as to secure equitable distribution and promote competition, while the competition regulator disagrees.

Thus, institutional approaches have to be carefully crafted in order to deal with the potential for overlapping rules of the two agencies.

The scope for overlap should be minimized as early as possible. The UK experience is illustrative in ensuring consistency between utility regulatory and competitive frameworks (Sundar and Sarkar 2000). The Competition Law, 1998 of the UK provides for concurrent jurisdictions for the utility regulators in sectors such as electricity, telecommunication, gas, water, and the DGFT (Director General of Fair Trading) was created under the law. The general principle is that either the utility regulator or DGFT will have the jurisdiction for dealing with a case or complaint depending on who is best placed to handle the specific case, and that authority would handle the investigation, and have the decision-making and enforcement powers, even though the other body should be consulted as required. In addition, there is a Concurrency Working Party headed by the DGFT and represented by the utility regulators in order to ensure that more than one authority does not investigate a single case or complaint. This forum is also used to coordinate the use of concurrent powers, and to ensure consistency of approach in their casework. Appeals against the regulatory decisions lie with the Competition Commission[18] of the UK.

[18] The Competition Commission in the UK is an independent public body established under the Competition Act, 1998, which replaced the Monopolies and Merger Commission in April 1999. The Commission conducts in-depth inquiries into mergers, markets, and regulation of major regulated industries.

Sri Lankan approach

The latest PUC Act, 2002 of Sri Lanka has vested the power of ensuring competition with the sector regulator in infrastructure sectors other than telecommunication. Section 22 of the Act says that the 'Commission shall in relation to each public utilities industry, regulate and inquire into anti-competitive practices, monopolies, acquisitions and abuses of a dominant position, merger situations and may carry on investigations, either on its own motion or on a complaint or request made to it by any person with respect to

- the existence or suspected existence of any anti-competitive practices;
- the acquisitions, existence or suspected existence of abuse of a dominant position that may affect domestic trade or economic development in one or more markets in which a regulated entity operates; and
- the creation or suspected creation of merger situation'.

The PUC can investigate these activities, and has enforcement powers. Thus, the potential for overlap, as was the case in India, is minimized in Sri Lanka in these sectors.

In contrast, in the telecommunication sector, the scope of the overlap still exists. For example, under the Telecommunication Regulatory Commission Act, 1991 (amended in 1996) 'national interest criteria' should be used 'to maintain and to promote effective competition between persons engaged in commercial activities connected with telecommunication and promote efficiency on the part of the persons'.[19] However, the FTC also has to take the 'national interest criteria' into its decision-making process, creating a potential conflict with the telecom regulator which is also mandated to use the same criteria in discharging its functions.

While in practice, the exercise of powers of the FTC and the TRC so far have not yet overlapped,[20] the proposed competition law in Sri Lanka needs to address this issue as the CAFTA (likely to replace the FTC and DIT) will have more powers and will be guided by the 'public interest' criteria in the area of anti-competitive behaviour, price regulation, universal services,

[19] Section 4(c) of the Telecommunication Regulatory Commission Act, 1996.

[20] This was because the FTC referred all matters regarding telecoms to the TRC, even without any formal links between these bodies (Adhikari and Knight-John 2003).

and consumer protection (UNCTAD 2002). However, since the 'public interest' criteria will be used by the telecommunication regulator to promote competition in the sector, there is scope of overlapping jurisdiction in the proposed competition rules. Like in the other infrastructure sectors, the telecommunication sector could adopt Approach 3 with the Competition Act provision replicated in the telecommunication regulatory legislation.

Role of utility regulator in promoting competition

While designing economic regulatory institutions in South Asia,[21] policy-makers felt that these institutions are also best equipped in terms of resources, powers, and competencies to 'promote competition', as they deal with infrastructure industries on a day-to-day basis, and as the so-called 'competition authorities' in a new market economy setting are yet to gain credibility in the region.

In South Asia, the role of the utility regulator in promoting competition has been mandated in a different manner across countries and sectors. In some cases the utility regulator has a mandatory role to promote competition, whereas in others, it has either a recommendatory role or no role. Table 1 summarizes the South Asian countries and their infrastructure sectors showing the nature of 'competition function' assigned to the utility regulators.

Table 1 Nature of 'competition function' of South Asian utility regulators

Country	*Infrastructure sector(s)*	*Mandatory function*	*Recommendatory/ Advisory function*
India	Electricity, telecom		✓
Bangladesh	Energy	✓	
Sri Lanka	Telecom, electricity, water, gas, transport	✓	
Nepal	Telecom	✓	
Pakistan	Telecom, oil and gas, electricity	✓	

[21] The 'competition function' is one of the many functions of economic regulators in the region. For example, the Public Utility Commission Act, 2002 of Sri Lanka says that the Commission will exercise, perform, and discharge the powers, functions, and duties conferred on it by this act or any other industry act, in a manner that it considers best calculated to (1) protect the interest of all consumers, (2) promote competition, (3) promote efficiency, (4) promote efficient allocation of resources, (5) promote service quality, (6) benchmark the utility services against international standards, and (7) ensure that price controlled utilities become financially viable.

We now examine how utility regulators in the South Asia region perform against their 'promoting competition' mandate.

Indian approach

In India, some regulators are restricted in promoting competition due to the fact that the licensing authority for introduction of new services (and thus the introduction of competition) rests with the government.

In the telecommunication sector, the licensing authority is the government, and the regulator is required to recommend licensing issues to the government. This is a constraint on the part of the regulator if the regulator has the mandate of promoting competition. Despite this, the telecommunication regulator has sought to promote competition in various services by recommending to the government (1) introduction of competition in national long distance services, (2) entry of cellular mobile services in various circles, and (3) opening of ILD (international long distance) services. It has also rebalanced tariffs for the first time in 1999 with a view towards introducing competition in the sector, and also ensured that there is adequate interconnection among the service providers; that there is public availability of interconnection arrangements; and that obligations of universal services are administered in a transparent, non-discriminatory, and competitively neutral manner. It has also recommended to the government the procedure for allocation and use of resources including frequencies, and numbers that should be carried out in an objective, timely, transparent, and non-discriminatory manner. On the basis of regulatory recommendations, the government has introduced competition in many telecommunication services with positive effect on prices, quality, availability, and innovation.

In contrast, in the electricity sector, regulators have faced substantial barriers to introducing competition because of the lack of financially viable entities in the market; resistance from incumbents; restrictive provisions of power trading and of direct third party sales; infrastructure bottlenecks especially in the transmission network; and finally, distortions in related markets, particularly capital goods and fuel.

Electricity regulators, however, have begun working on the competition agenda. The central electricity regulator in its consultation paper on bulk power tariff (CERC 1999) noted that the regulator will work to facilitate market determination of prices by removing distortions, which would include demand/

supply mismatch, few suppliers in bulk supply market, no merchant generators, and no bottlenecks in transmission capacity. Some of the state electricity regulators have, in their recent tariff awards, noted the need for restructuring and introducing competition. For example, the regulator in UP has noted that competition and privatization are desirable objectives and that the public monopolies have led to inefficiencies.[22] The Gujarat regulator has moved one step further by actually recommending to the Government that separation of generation, distribution, and transmission of electricity should be seriously considered for improving efficiency in the functions of the Gujarat Electricity Boards (Sarkar 2000).[23]

There have been moves to institute 'benchmark competition' as evident from the tariff awards issued by regulatory commissions in the region in the recent past. Electricity regulators in many Indian states are actively adopting performance benchmarking by indexing various cost elements to industry averages as well as industry best practices. For example, in Uttar Pradesh, the regulator benchmarked the administrative and overhead costs of the utility to the national average as a target, and on that basis reduced the allowable expenditure. It similarly compared the performance of the generation segment with the national performance benchmarks and found it severely lower.[24]

In the electricity sector, even when there appears to be a demonstrated will to introduce independent regulation as well as recognition of the efficacy of competitive markets, the approach and consequent attempts in introducing competition, whether for the market or in the market, have been limited. This is not surprising, as policy statements and facilitating legislations in most cases did not specify competition, till very recently, as the primary objective, or wherever it exists, has not been the regulator's primary objectives. Until recently, a softer approach towards regulation with inadequate attention to market forces at best has characterized the state of reform in the electricity sector. The new Electricity Act, 2003 is expected to address some of the earlier pitfalls.

[22] Uttar Pradesh Electricity Regulatory Commission, 27 July 2000. Tariff order issued on the UPPCL filing.

[23] Gujarat Electricity Regulatory Commission, 10 October 2000. Tariff order issued on the GEB filing.

[24] Ruling on petition No. 1 of 1999/2000, Petition No. 2 of 2000 and Petition No. 8, 27 July 2000. Tariff Order 2000/01.

Sri Lankan approach

Until 1996, Sri Lanka introduced a managed competition approach in technology-defined telecom sub-sectors. In the late 1980s, the government attempted to privatize SLTL, but various stakeholders opposed its long-planned partial privatization, which involved a foreign strategic partner, NTT (Nippon Telegraph and Telephone Corporation). While various policy pronouncements were made about the number of licences that would be issued, no formal market-position guarantees were given to any operators during this phase (Samarajiva 1997).

With the amendment of the TRC Act, 1991 in 1996, an independent regulatory commission has been established. Like its Indian counterpart, it can only make recommendations for issuing licences to the minister, who may disapprove of the recommendation, but with reasons. In 1996, with the licensing of two fixed-access operators using WLL (wireless local loop) technology, competition was directly introduced in the basic services. In contrast to the previous licences that were issued on an ad hoc basis, two fixed-access licences were granted through competitive bidding. The new entrants were promised a continuation of the prevailing duopoly, as well as exemption from price regulation, subject to specified good-performance targets being met (Samarajiva 2000). In August 1997, the government of Sri Lanka entered into several agreements with the NTT, and the consequent licence amendments did not allow the government to issue further wire line licences until 5 August 2002. It was required to approve adjustments to rentals, call charges, and connection charges in a manner that would yield a minimum 148% increase in domestic revenue (not adjusted for inflation) over a five-year period. This had an adverse reflection on rate rebalancing by the telecom regulator. Furthermore, interconnection was a major issue as the two-fixed line operators were unable to enter into an agreement on interconnection with the SLTL. This resulted in a 1998 interconnection determination by the regulator. An inadequate interconnection regime, however, had an adverse effect on the development of the sector (Samarajiva and Goonewardene 2003). In March 2003, the regulator issued comprehensive 'Interconnection Rules' that provided a framework to compensate domestic network operators and refrain them from illegal interconnection. The regulator has played a major role in facilitating interconnection to the new entrants, and thus enabled competition in the sector.

Regulatory efforts towards promoting competition have been complemented by government's intervention as well. For example, it ended SLTL's monopoly in external gateway services in March 2003, when 30 new licences were issued for this service. Consequently, the government allowed an unlimited number of external gateway operators and laid the foundations for telelinking villages to a broader community.

Conclusion

There are no definite institutional approaches being adopted by policy-makers in designing utility regulatory and competition bodies in South Asia. Reform of the region's infrastructure sectors is recent, and with the exception of the telecommunications' sector, competition is yet to come in a big way. Based on current and expected future trends, there is likely to be an increase in competitive forces in traditionally monopolistic infrastructure segments facilitating the need for well-defined competition rules and institutions. This is expected to be most prevalent in the telecommunication sector, where the scope of a residual natural monopoly is the least compared to power, water, and transport.

As regards promoting competition in infrastructure industries, there is a potential overlap between competition and utility regulation rules and institutions. A utility regulator's role in promoting competition is assuming more importance in the near future.[25] However, as the Indian and Sri Lankan examples show, given the possibility of significant overlap between the roles of competition authorities and utility regulators, care should be taken to avoid harmful conflict to resolve the overlap through careful design and coordination that could otherwise lead to unnecessary uncertainty and undermine the credibility of both systems.

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[25] This is not to suggest that competition is always worthwhile in infrastructure sectors. It should be pursued only when there is significant gain outweighing its costs. For standard network products, there are differing views as to whether markets are always worthwhile in themselves. For example, in the electricity sector, when a consumer wants cheap and reliable electricity supply, they care very little as to whether this could be achieved via market or monopoly.

Appendix A Comparative provisions of regulatory legislations in India, Sri Lanka, Pakistan, and Nepal which guarantee regulatory 'independence'

Subject	*TRAI Act 1997 and TRAI (Amendment) Ordinance 2000, India*	*Electricity Act 2003, India*	*TRC Act 1991, Sri Lanka*	*RGTDEP Act 1997, Pakistan*	*TA 1997, Nepal*
Selection process	Selection of Chairman/ members by government	Selection of Chairman/members by government on advice by selection committee	Secretary of the ministry is Chairman; DG and 3 members appointed by minister	Chairman by Federal government, and 4 members each from each of the four provinces	Appointed by government on the advice of a selection committee
Qualifying criteria	Chairman/members with experience in telecom, industry, finance, accountancy, law, management, consumer affairs	Chairman/members with adequate knowledge and experience in dealing with problems relating to engineering, law, economics, commerce, finance, management	Members to hold recognized qualification and distinguished in law, finance, and management	Chairman (members) of known integrity and competence with at least 25(15) years of experience in law, business, engineering, accounting, economics, or electric utility business	Chairman and members to be qualified and experienced in the financial, technical, market management, accounts, and auditing or legal fields
Disqualifying criteria	No financial/other interest prejudicial to his functioning as a member	No financial/other interest prejudicial to his functioning as a member	If declared as a person of unsound mind	Not specified	Not specified
Removal criteria and procedure	Criteria laid down; removal after giving an opportunity to be heard	Criteria laid down; removal with advice from Appellate Tribunal	Criteria specified for members; DG and members may be removed by the minister	Criteria laid down; removal by Federal government on advice from Federal Public Service Commission	Criteria specified; removal by government after providing a reasonable opportunity to explain
Tenure	Five years	Five years; not eligible for reappointment in the same office	Minister determines terms of DG. For other appointed members, tenure is 3 years, and eligible for reappointment	Chairman and members for 4 years, and eligible for reappointment	Five years; eligible for reappointment
Staff appointment	Can appoint staff/officers only with government's approval	Can appoint secretary, and determine the number, nature, and categories of other staff, but with government approval	Can appoint staff, dismiss them, determine terms and conditions	Authority to employ officers, members of staff, experts, consultants, advisors, and others	Appointment in the manner as prescribed
Staff salary	Staff salary determined by government	Staff salary to be determined with the approval of government by regulations	Can fix salary	Can fix salary	As prescribed

Finances	TRAI to have general fund with grants, fees, charges, etc. received by it; salaries/expenses to be met from this Fund	CERC to have a fund in the grants, salaries/expenses to be met from this fund	Commission to have own fund with money voted upon fixed/ allocated/budgeted by Parliament; money paid as cess, proceeds imposed on annual turnover of operator, subject to government regulations	Grants of Federal government, fees and fines collected	Authority to have own fund with grants from government fees (licensees/grants from foreign governments and other services)
Relationship with government	Statutory body, but subject to policy directions by government	Quasi-judicial body, but subject to policy directions by government	Government department, and subject to policy direction by the government	Quasi-judicial body, but bound by government direction on tariff issue	Not quasi-judicial, but bound by directives from government
Dispute settlement power	Has no powers for arbitration or adjudication. Separate authority set up for adjudication	Adjudicate matters involving generating companies, transmission companies, or refer for arbitration	Can settle disputes between operator and local authority or public corporation, and can investigate complaints against the service providers	RGTDEP Act is silent on dispute settlement, but can investigate complaint against the licencee	Authority to settle disputes among licensees or between licensees and customers
Appellate bodies	Telecom Disputes Settlement and Appellate Tribunal	Appellate Tribunal for Electricity	Court of Appeal	RGTDEP Act is silent	Provision for appeal to a prescribed authority, only when a person is punished for contravention of the act or for operating without licence, or misusing the service for causing damage, etc.; no appeal against the order of the authority in all other cases
Decision-making process	Consultative	Hearings	Public hearing through a committee of inquiry	Process to give opportunity for consumers and other interested parties to participate meaningfully	No provision for the constitution or public hearing

TRAI – Telecom Regulatory Authority of India; CERC – Central Electricity Regulatory Commission; TRC – Telecommunication Regulatory Commission; RGTDEP – Regulation of Generation, Transmission, and Distribution of Electric Power; TA – Telecommunication Act; DG – Director General; NTA – Nepal Telecommunication Act

Source Adapted from Sundar (2000)

Appendix B Features of selected competition bodies that guarantee independence from government

Features of competition bodies	*Argentina*	*Australia*	*Canada*	*Mexico*	*United States*	*India*
Name of the agency	Commission Nacional D Defensa de la Competencia	Competition and Consumer Commission	Competition Tribunal	Commission Federal de Competencia	FTC (Federal Trade Commission); and Antitrust Division of the DOJ (Department of Justice)	Competition Commission
Decision-making structure	5 Commissioners; the president is an under secretary of commerce; the four other members include two attorneys and two economists	6 full-time commissioners; also a number of part-time 'associate' commissioners	4 judicial members, 8 lay members	5 commissioners	FTC=5 Commissioners; Antitrust Division headed by an Assistant Attorney General	Chairman and members (2–10)
Appoint-ment procedure	Commissioners are designated by the Ministry of Economy	Commissioners are appointed by the Governor-General, who traditionally acts on the advice of the cabinet; associate commissioners are appointed by the Ministry of Consumer Affairs	Judicial members are appointed from among federal judges by the Governor in Council on the recommendation of the Minister of Justice; non-judicial members are appointed by the Governor in Council on the recom-mendation of the Minister of Industry	Appointed by the President	FTC commissioners are appointed by the President with advice and consent of the Senate; no more than 3 commissioners may belong to the same political party; Assistant Attorney General is appointed by the President with the advice and consent of the Senate	Chairman and members selected by government
Term	4-year term; terms are renewable but are not staggered	Up to 5-year term; terms are renewable	Up to 7-year term; terms are renewable	10-year term; terms are renewable and staggered	FTC=7-year term; terms are staggered; DOJ=political appointment, no fixed term	5 years

Qualifications	Commissioners must have recognized expertise in relevant matters, be at least 30 years of age, and have a minimum of 4 years professional experience	Commissioners must have knowledge of, or experience in, industry, commerce, economics, law, public administration or consumer protection; at least one full-time commissioner must have knowledge of, or experience in, consumer protection	Judicial members must be a judge of the federal court	Commissioners must be Mexican citizens with professional standing in the field of competition policy and an established public service or academic record; age 35–75 years	None specified	Knowledge and professional experience of not less than 15 years in international trade, economics, business, commercial, law, finance, accountancy, management, industry, public affairs, administration
Removal from office	Removal of commissioners for inefficiency, disorderly conduct, negligence, criminal misconduct, ineptitude, or violation of relevant laws; may only be removed by vote of a special tribunal headed by the procurator of the treasury, composed of 4 attorneys with 10 years' professional experience appointed by the Executive	Termination of a member of the commission by Governor-General for misbehaviour, physical or mental incapacity, personal bankruptcy, engaging in other paid employment, or absence from duty	Judicial members hold office so long as they remain judges of the Federal Court; lay members hold office during good behaviour but may be removed by the Governor in Council for cause (Smith and Gray 1998)	Removal only for duly proven gross misconduct	Removal of FTC commissioners by the President for inefficiency, neglect of duty, or malfeasance in office	Removal by government subject to enquiry by the Supreme Court
Source of funds	General budget	General budget; some user fees recovered	General budget	General budget	General budget	Competition Fund, comprising grants from government, fees, many as costs from parties from procedures
Salary rules	Civil service rules	Civil service rules	Civil service rules	Civil service rules	Civil service rules for DOJ and FTC	As per government rules

Source Adapted from Smith and Gray (1998)

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Electricity Act, 2003 and the emerging regulatory challenges

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Abstract

The Electricity Act, 2003 promises to bring about competition and choice in the electricity industry in India. However, since the Electricity Act, 2003 does not mandate any particular market design, there is considerable risk of state electricity regulatory commissions implementing different market structures in their respective states as per their own priorities and preferences. Such action is fraught with dangers and can severely limit consumer choice. A common market design evolved through a process of consensus among policy-makers and regulators can obviate such risks to a great extent.

Regulators must articulate clear and unambiguous principles that they would adopt. A well-defined regulatory work plan would be essential to ensure that the complex and interrelated tasks are addressed in a cohesive manner. Considerable emphasis should be placed on information dissemination. Regulators also need to be vigilant on the risk of over-regulation while implementing the Electricity Act, 2003.

Lack of institutional capacity in the regulatory bodies to address these challenges is a cause for concern. Efforts should be made to attract desired talent through suitable compensation structures, training inputs, etc. A separate central training institute focusing on regulatory matters would greatly benefit the regulators and their staff.

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Background

The Electricity Act, 2003 has been in force in India for almost a year since its notification on 10 June 2003. The Act brings about several changes to the manner in which the electricity industry in the country has been traditionally structured. The 'cost-plus' pricing framework applicable for setting tariffs of the electricity monopolies in the past is to give way to a more competitive framework. Wherever feasible, competition is intended as a means to ensure that adequate supply is available for consumers at competitive prices. Key changes brought about by the Act include

- mandatory open access to transmission networks for licensees
- open access to networks mandatory for consumers in phases as determined by regulatory commissions in various states
- delicensing of generation
- permission for captive generation freely along with immediate open access to networks
- recognition of trading as a distinct licensed activity
- organizational separation of transmission and system operations from generation and distribution/supply functions mandatory. Transmission operators prohibited from trading
- parallel networks permitted in distribution of electricity.

The focus of all the above changes is on promotion of competition in every possible manner in the electricity industry in the country. The superiority of competition over monopoly is well established in economic theory. A competitive firm is a price-taker while the monopolist is a price-maker. The competitive firm takes the market price as given and adjusts its output until its marginal cost equals price, because in theory a competitive firm is so small in the market that it sells all it wants at the market price. However for a monopolist, the price will move down with incremental production and the monopolist has the incentive to raise prices by restricting output to maximize profits. This can greatly be obviated to a large extent if market power is reduced and the monopolist is subjected to competition.

However, ushering competition in infrastructure industries, particularly in electricity, is a difficult task that demands commitment, wisdom, and hard work on the part of the agents of change. There are several prerequisites for effecting competition in infrastructure industries, including multiplicity of buyers and sellers, liquid marketplaces, and the capability of users and suppliers, to respond to demand and supply conditions. By these

measures only parts of the electricity industry – generation and retail supply – are amenable to competition. However, implementing competition even in these segments will call for a review of the business models in the other parts of the value chain as well. Competition in generation, for example, depends heavily on the organization of the transmission business and on system operations, which may continue to operate in a regulated framework.

Several institutions have important roles to play in the transformation of the electricity industry, including the government, utilities, and the regulatory bodies. Among them, the role of the regulators is by far the most important. This paper highlights some of the challenges that the regulatory institutions face for effectively implementing the new regime envisaged in the Act, and the capacity-building requirements in the regulatory bodies for effectively meeting the challenges. In the concluding part of this paper, we discuss the risk of over-regulation and its impact on competition in the electricity industry.

Need for a common market design: essential lessons from the US

Competitive power markets offer considerable potential for savings for consumers through lower charges. The Department of Energy in the US has estimated that a move towards competitive power markets has saved consumers as much as 13 billion dollars (60 billion rupees, approximately) a year (FERC 2003). In the opinion of the FERC (Federal Electricity Regulatory Commission), '*It (competitive markets) has stimulated innovation in generation and transmission technologies. It has freed customers from being forced to pay for the "stranded costs" of unwise investments. This competitive market framework came about as a result of national legislation and a series of Commission initiatives in both the wholesale gas and electric industries. In particular, these actions were intended to provide all wholesale power sellers with equal access to the transmission grid.*'

The Electricity Act, 2003 lays down the basic requirements of unbundling the vertically integrated utility structure, separation of transmission and system operations from other parts of the industry, and also an enabling framework for trading of power. However beyond these basic elements dealing with introduction of open access and competition, the Act does not provide any specific guidance on market design, leaving this in the policy and regulatory domain. Experience in various countries has

demonstrated beyond doubt that inadequacies in market design and improper sequencing can expose market participants and stakeholders to enormous uncertainties and risks.

To limit such possibilities, a common view of market design is essential. Changes in the electricity industry market structure in the US over the past decade provide useful pointers on the matter. The evolution of the industry in this period can be traced to the following milestones.

- 1992 EP Act (Energy Policy Act) required utilities to provide transmission service to generators.
- 1996 FERC Order 888 and 889 required all utilities to open transmission grid to generators and *functionally* unbundle their operations.
- 1999 FERC Order 2000 established criteria and requirement for utilities to file regarding participation in RTOs (Regional Transmission Organizations), as functional unbundling was clearly inadequate for promoting non-discriminatory transmission access and wholesale markets.
- 2002 Standard Market Design to standardize market rules for competitive wholesale electricity marketplace and transmission open access.

The reasons for the series of changes over time were several. Joskow (2003a) believes that restructuring and competition initiatives got off on the wrong foot partly, because the nature and magnitude of the technical and institutional challenges associated with successfully introducing competitive wholesale and retail markets were underestimated. Several factors – including lack of storability of electricity, low-price elasticity in the short run, dynamic nature of the flows of electricity, network congestion, frequent and unanticipated changes in demand, and presence of a rather rigid legacy arrangements – all make competition in electricity rather difficult. Unless a common set of principles and rules are applied for all transactions, competition would be severely hampered by 'seams' in the market rules. This was the genesis of the SMD (Standard Market Design) in the US. The FERC views SMD as a standard set of principles and rules that are vital to promote electricity markets and competition, reduce inefficiencies and attract efficient operators, and also enable demand response on part of consumers (FERC 2002). Although the specifics of the SMD framework continues

to be debated, the need for a well-defined template for market design and development is now universally acknowledged.

There are several similarities between the situations in the US and in India. Both have federal administrative structures in common where regulators in states have independent but complementary jurisdictions with the national regulator. The electricity grids in both countries operate over several interconnected regions. The market rules must be fundamentally compatible across the states/regions, and should also be technically sound if efficiencies of coordinated system are to be harnessed. Currently, in India (as in the US where SMD is attempting to fix the problems), 'seams' exist between markets across states and regions where physical power flow occurs across a line, but where the rules and procedures for pricing, measuring, tracking, recording and settling that power, and its associated markets are different on each side of that line.

Basic architecture for competitive electricity markets in India

The basic architecture for a transition to competitive electricity markets had already been developed in theory and applied in practice in several countries. It involves several key components described below (Joskow 2003b).

- Vertical separation of competitive segments (e.g. generation, marketing and retail supply) from regulated segments (distribution, transmission, system operations) either structurally or functionally.
- Horizontal integration of transmission and network operations to encompass 'natural' wholesale markets and the designation of a single independent system operator to manage the operation the network, to schedule generation to meet demand, and to maintain the physical parameters of the network (frequency, voltage, stability).
- The creation of wholesale spot energy and operating reserve market institutions to support requirements for real-time balancing, and to facilitate economical trading opportunities among suppliers and between buyers and sellers.
- Creation of institutions to facilitate access to the transmission network by buyers and sellers to facilitate economical production and exchange, including mechanisms efficiently to allocate scarce transmission capacity.

- Horizontal restructuring, forward supply commitments, and/or behavioural rules to mitigate regional and localized market power in wholesale markets.
- Unbundling retail tariffs to separate retail power supplies and associated support services to be supplied competitively from distribution and transmission services that would continue to be provided by regulated monopolies.
- Requiring eligible retail consumers to purchase their power supplies from competing retail suppliers, which in turn buy their power in wholesale markets, or own generating facilities to support their retail supply commitments.

Within this overall framework, variants are applied in individual jurisdictions depending on the legacy organization of the grid assets, the legal framework applicable, political priorities, and the institutional capacity in the entities involved. The solutions and the specific framework adopted depend heavily on local conditions. Development of the framework is also an evolutionary process that generally starts with basic arrangements envisaged in law and policy, and progressively graduates to more complex and sophisticated frameworks. In India, the provisions of the Act contained in Table 1 broadly define the basic market construct.

It needs to be mentioned that while the provisions of the Act provide the broad construct, additional clarity would be necessary for the application of the provisions. On several important aspects, the Act is either silent or is ambiguous in its language. For example, while the role of regulators would presumably include development of wholesale markets, the treatment of variation in wholesale market costs for distribution licensees is not clarified in the Act. Section 62 (4) of the Act dealing with tariff amendment specifies that '*No tariff or part of any tariff may ordinarily be amended, more frequently than once in any financial year, except in respect of any charges expressly permitted under the terms of any fuel surcharge formula as may be specified*'. This provision deals with fuel cost variation in procurement of power through a two-part tariff structure (featuring separate fixed and variable costs). However this provision could also be interpreted to mean that wholesale market cost variations would not be permitted as pass-through in retail tariffs. This potentially exposes the Indian power sector to a California-type situation where the wholesale prices were subject to price competition, while retail prices were

Table 1 Market construct of Electricity Act, 2003

Market design concepts	*Minimum prerequisites*	*Relevant provisions of the Act defining prerequisites*
Wholesale competition	■ Open access to transmission network ■ Power procurement through trading in conjunction with bilateral contracting ■ Surrogate regulations, technical codes, commercial contracts, metering, billing, and settlement arrangements	10(1), 10(2), 38, 39, 40, 42(2,3), 42(4)
Retail competition	■ Open access to transmission as well as distribution networks ■ Flow-through of wholesale costs in retail tariffs	9(1), 9(2), 10(1), 10(2), 38, 39, 40, 42(2,3), 42(4), 62 (4)
Operationalizing non-discrimination in network access	■ Transparent information disclosure rules ■ Fair allocation and tradability of transmission rights ■ Prevent gaming and safeguard abuse of dominant position	Definitions (47) 38(2), 39(2), 40(c), 42(3)
Competitive neutrality (abuse of dominant position)	■ Independent system operation (requires segregation of transmission and system operation functions) and neutrality of RLDC/SLDC from market participants ■ Defined rules of corporate governance ■ Separate policy on abuse of dominant market position	38(2), 39(2), 40(c), 42(3), 60, 134
Efficiency[a]	■ Operationalizing economic despatch and integrated operations of the grid ■ Capacity procurement progressively through tariff bidding, covering both long- and short-term purchases ■ Tradability of PPA (power purchase agreement) and short-term power purchase contracts ■ Competition in trading and generation ■ Tradability of transmission rights ■ Optimal location of generation and transmission facilities ■ Time differentiated and cost-responsive wholesale and retail tariffs	Preamble 29, 33, 61, 63, 79(2), 86(2), 134(5)
Power markets	■ Development of power markets by regulators taking into consideration the prevailing policy framework	66, 79, 86

RLDC – regional load despatch centre; SLDC – state load despatch centre
[a] Efficiency here is referred from a market construct point of view. It does not allude to performance improvement potential for licensees.

capped, contributing to market failure.[1] Such infirmities must be addressed adequately.

Issues related to development of competitive markets are inherently complex and pose severe implementation challenges. Experience in various countries has invariably demonstrated that the devil lies in the details of implementation. While the power markets are expected to produce just and reasonable prices and offer choices to users, such markets are not likely to develop without a strong policy framework and adequate coordination between the various entities involved (Hogan 2001). The federal structure and differing jurisdictions of the central and state governments and commissions pose a formidable challenge in fostering integrated grid operations in the country and allowing the power flows to be consistent with the underlying economics. A robust policy framework as envisaged in Sections 3–5 of the Act would provide the essential link between the operations of the central and state regulators. The policy framework has to promote the objectives set out in the Act, and address the issues involved within the overall mandate of the Act and other applicable legislations.

Policy and regulatory framework

The Electricity Act, 2003 stands for two basic elements of freedom: freedom to purchase and freedom to sell. A laudable feature of the Act is that it has not limited any possibility artificially by being judgemental on what is economically feasible and what is not. This, in effect, would result in competitive pressures being exerted on the incumbents to become efficient or face financial consequences. The entire set of provisions related to delicensing of generation, open access, parallel distribution networks, elimination of cross-subsidy surcharges, dedicated transmission lines, definition of captive generating station are designed to allow the freedom to purchase and sell.

However, while the structural provisions of the Act are based on conceptually sound premises, the instruments of implementation do not (rightly) feature in the Act. The durability of the Act is expected to transcend implementation approaches which

[1] Subsequent studies indicate that consumers in California are more responsive to pecuniary and non-pecuniary incentives for altering consumption patterns than commonly believed (which was the rationale for the imposition of price caps) (Reiss and White 2003).

would evolve over time, responding to emerging requirements. The role of determining the specific direction to be given to the reform process within the overall framework of the Act primarily lies with the central government (and to a lesser extent the state governments) as the policy-maker, and with regulatory bodies such as the CERC (Central Electricity Regulatory Commission) and the SERCs (state electricity regulatory commissions).

Section 3 of the Act requires that '*The Central government shall, from time to time, prepare the national electricity policy and tariff policy in consultation with the state governments and the authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy*.' On a cursory reading, it would appear that the scope of such a policy is restricted to development and optimal utilization of generation sources. However the section is referred to in other parts of the Act, including Section 66, which requires the appropriate commission to be guided by the National Electricity Policy and Tariff Policy for market development. In the absence of specificity in the law on market design, it is imperative that the policy framework must define and articulate the principles and philosophies for market design. It must provide a transition road map to reduce the present heterogeneity in philosophies, principles, and regulatory treatments across different states in India, while insisting that appropriate commissions use these philosophies as guiding principles to develop their market rules. It may be mentioned here that the purpose of defining a common set of philosophies would neither rob the flexibility and independence nor dilute the mandate of the CERC and SERCs derived from the statute. On the other hand, the purpose of a policy framework – particularly on market design – would be to address consistency at the following levels.

- Time consistency is the philosophy to be consistent across time
- Consistency across regulatory jurisdictions / similar market participants
- Overall consistency with reform objectives

Although an overall policy framework is urgently needed particularly for evolving a common philosophy of market design and market rules; for various reasons such a framework is yet to emerge. This situation must be remedied at the earliest. The

regulatory commissions have made initial moves on setting the direction to regulatory practices in the new regime. The CERC has circulated several discussion papers and draft regulations on open access, transmission pricing and power trading, culminating in the recent regulations on these aspects. Several SERCs have also circulated draft regulations on matters related to supply code, consumer complaint procedures, office of ombudsman, etc. It is likely that many of the SERCs will finalize some of these in the coming months. However, the question is: are the core issues being addressed and addressed adequately? Or are we still scratching the surface and losing precious time?

Let us look into the issues of open access, transmission pricing, and trading. Apart from the CERC, there has hardly been any move by the state commissions (barring isolated instances). Yet it is the role of the state commissions that will be the most important one because the last mile connectivity lies in the jurisdiction of the state commissions. Further, the best of approaches at the inter-state level can be negated by either lack of will in the states or through restrictive practices adopted at the state level. It needs to be recalled that most of the problems and difficulties in the Indian power system is not at the inter-state level but in the states. It also needs to be mentioned that though the inter-state orders till date have addressed the relatively simpler issues, yet the more complex aspects are still pending (Table 2).

Thus it is apparent that the state commissions, which have not made any moves on the emerging issues as yet, will face a formidable task in tackling the issues in a cohesive manner. The need of the hour is for regulators to accord the highest priority to these emerging issues, individually and as a group. Unless this is done, there is a strong likelihood that events will overtake the regulators, affecting their credibility and impairing market development.

Establishing regulatory principles and action plans

To address the complex emerging requirements, the regulatory bodies need to draw up concrete action plans keeping in mind the overall objectives sought to be attained and the most efficient way to attain these objectives. A piecemeal approach could easily result in over-regulation that could seriously impair the development of the power markets. At the same time, lack of essential regulation could also result in abuse of market power and

Table 2 Coverage of recent CERC orders consequent to the Electricity Act, 2003

Order on	*Addresses*	*Does not address*
Trading (CERC 2004a)	■ Licensing issues ■ Procedural aspects of scheduling and despatch ■ Basic staffing requirements	■ Market power mitigation mechanisms ■ Development of power markets/ exchanges ■ Definition of conditions warranting regulatory intervention ■ Need for separate licensing for intra-state transactions
Open access (CERC 2003)	■ Jurisdiction issues	■ Elimination of market power of incumbents ■ Jurisdiction issues not translated into necessary action on transmission pricing of inter-state transactions ■ Definition of market
Transmission (CERC 2004b)	■ Transmission hierarchy of access ■ Basic pricing mechanism (current pricing arrangements continued)	■ Trading of transmission rights ■ More advanced pricing arrangements that would address 'pancaking' ■ Effective expansion of the transmission system

CERC – Central Electricity Regulatory Commission

response by regulators on an ad hoc basis, thus increasing the risks for the market participants. To execute their role effectively, regulators must establish, at the outset, the principles of regulation that they would adopt and initiate consequent actions. The Act is explicit on some of these principles (and the consequent regulatory roles) including

- enhancement of the financial viability of the electricity sector,
- facilitation of competition through non-discriminatory access and neutrality of system operators,
- incentivization of superior performance,
- certainty on pricing and linkage to underlying economics,
- tariff rationalization and progressive removal of cross-subsidy, and
- protection of consumer interest.

However, there are several other principles that are important to implement competitive power markets that are either implicit or are inadequately addressed in the Act. Such aspects include

- encouragement of data discovery and disclosure of data that influences power market operations,
- promotion of adequate investments to facilitate competitive power markets (particularly in transmission and system operation),
- mechanisms for independent process and data verification,
- adequate framework for dispute resolution, and
- limiting regulation to essential elements only and progressive deregulation of the sector.

Irrespective of whether the Act addresses the above adequately or not, these principles need to be established and translated into instruments of market development and regulation. As this paper has pointed out, policy would have an important role to bring about a cohesive framework for market development that is applied across the country. Beyond this, it would be the responsibility of the regulatory bodies to implement the framework. The key institutional initiatives that would be necessary on the part of the regulators would include

- development of a strategic framework for regulation;
- development of an overall regulatory work plan;
- framing of regulations and other regulatory instruments;
- implementation of regulations; and
- review of performance and information dissemination.

Development of a strategic framework for regulation

It will be important to define the medium-term *strategic implementation framework* on all issues at the outset rather than addressing the various issues in isolation. This will help establish a structured regulatory agenda and provide a greater degree of certainty to all sector participants. The Act recognizes the role of regulators in policy formulation in certain places (e.g. rural electrification and local distribution). The regulators are also required to be guided by certain policies like the National Tariff Policy to be framed by the Government of India. However it is inconceivable that the coverage of policies will be adequate for all actions required on the part of the regulators, and working out the implementation requirements will squarely be in the

regulatory domain. The Act also leaves certain decisions (like the phasing of open access) to the judgement of the regulators. The strategic framework and implementation policies on such matters would need to be formulated by the regulators in line with the principles established upfront. Particular areas where flexibility is required in the regulatory agenda due to uncertainty on future developments can also be identified. The development of power markets would be an important part of the strategic framework.

Development of an implementation road map

The overall regulatory strategy should ideally translate into an *implementation road map*. This will provide the critical element of regulatory certainty that is desired by all stakeholders and is essential to reduce regulatory risks. It will be useful for each of the regulatory bodies to publish a 'statement of regulatory intent' to ensure that the regulatory objectives, principles, and action intended are well understood by all the key stakeholders. The overall statement of regulatory intent should become the basis of more detailed annual plans; development and publication of which should be a mandatory requirement.

Development of regulations and other regulatory instruments

The strategic and regulatory objectives would need to be translated into specific *regulatory instruments*. Regulations framed by the Commissions, along with the licences are the key regulatory instruments. Considerable application would be necessary to ensure that such regulatory instruments are robust and effective, yet without being intrusive into the operational issues of sector participants.

Tariff determination for regulated segments of the power sector is one of the key functions of regulatory commissions in India. The structure of the tariffs and their linkage to underlying economics would be the key determinants of efficient market functioning. The Act permits continuation of existing tariffs principles for a year after notification (i.e., till 9 June 2004), beyond which new tariff regulations would need to be framed.

Transmission pricing is an important aspect that exemplifies the emerging challenges. In the past, all regulatory commissions in India had adopted 'postage stamp' tariff principles, resulting in socialization of costs. This has sufficed till date since open

access was neither mandated by law nor was it widely prevalent. These principles will certainly need a re-look and new regulations will have to be framed. This will be a challenging task for most regulators, as current institutional capabilities often fall short of the demands placed by complex tariff methodologies. Even the CERC, which suffers from relatively lesser institutional capability issues, prefers to continue with the existing 'postage stamp' tariff principles to limit complexity in pricing and avoid jurisdiction issues. As a consequence, the issue of pancaking transmission tariffs – arising out of regional organization of the grid and transfer of electricity across regulatory jurisdictions with tariff charges of individual jurisdictions being added up for deriving the overall tariff – has not been addressed. The reliance of the CERC on physical transmission rights also does not appear to have considered the complexities in implementing such rights in a regime that is likely to witness considerable trading activity. Experience in several countries, including the US, indicates that physical rights are difficult to implement unless the energy flows are well defined and transmission constraints are few.

The recent report of the Task Force on Investment and Reforms constituted by the Government of India (Ministry of Power 2004) has made several recommendations on transmission pricing, including introduction of connection (entry and exit) charges, zonal transmission pricing, information disclosure, and other related issues. However the National Tariff Policy (which was to be based on the Task Force report) is yet to be issued, and the implementation of the policy will depend on the manner in which regulations are framed by the CERC and the SERCs.

Implementation of regulations

Often it happens that the intended users do not adequately follow the various guidelines framed. The complex and intense regulatory agenda could result in inadequate monitoring of the guidelines by the regulators. To make implementation of the guidelines effective, the regulators need to put in place *monitoring processes* that incorporate

- periodic review of performance and compliance specifically against the guidelines issued;
- feedback to the licensees and generators on the findings of the commission;
- review of the guidelines to streamline or strengthen them.

The above process is very important for a focused and effective regulation of the sector. It needs to be mentioned that these comprehensive reviews of performance against the guidelines should be over and above any routine monthly reviews that the commission may undertake.

Review of performance and dissemination of information

An important component of succeeding in building acceptability of reforms is *effective communication* and *information dissemination*. While communication and effective public relations cannot simplify measures per se that are inherently difficult and often apparently harsh for certain groups of consumers, it can however reduce uncertainty and create an environment of trust and confidence. In such an environment, the stakeholders appreciate the causes for harsh measures such as the need to raise tariffs and thus offer less resistance.

As the sector moves towards broader reforms, it would be necessary for the regulatory bodies to develop strong and structured information dissemination and communications programme with the following objectives.

- Increasing awareness and knowledge of the initiatives taken and progress achieved within the reforms programme among the politicians, civil servants, media and other stakeholders.
- Disseminating information to provide the stakeholders on the performance of the sector (particularly the utilities).
- Increasing commitment and buy-in from employees of utilities and other key external and internal stakeholders of the regulators in terms of their awareness and acceptance of the reforms process, and bridging the gap between organizational and individual needs.

The instruments of information dissemination could typically include

- annual performance reports of the sector;
- comparison of actual performance with plans (including the annual plans framed by the regulators);
- review reports published on a need basis;
- regular data reporting systems (typically through dedicated regulatory websites).

Capacity building

Implementing the regulatory agenda would require strong institutional capabilities in the regulatory bodies, including creation of systems and processes and knowledge capital. The need for a competent staff for accomplishing the tasks ahead also cannot be understated. Several states have only recently established the offices of independent sector regulators. The development of regulatory capabilities across the country has also not been uniform. While, on the other hand, certain regulators have adequate funding and staff and had the support of multilateral agencies, there are several others that do not have the basic infrastructure and staffing as yet. The quality of personnel (including the commission members) is far from uniform. This gives rise to severe doubts about the capabilities of these organizations to meet the emerging challenges.

To obviate these problems there is a need to

- ensure minimum level of staffing through policies;
- centrally develop model regulations and guidelines for adoption by all state regulators; this will not only improve consistency and reduce costs, but also enable the states that are lagging behind others in regulatory development;
- ensure adequate funding of the regulatory bodies;
- develop staffing norms and compensation structures to attract the desired talent;
- provide adequate training inputs to the commission and its staff.

The need for effective and sustained training initiatives cannot be overstated. Training remains by far the single most important issue to be dealt in organizational development. It is also essential for attracting and retaining the best talent. In view of the complexities involved in implementation of the new framework, it is essential to develop standard training courses for regulatory bodies from across the country. The following aspects would need to be considered for the training.

- Training should be a combination of on-the-job and structured off-site training.
- A separate training institute focusing on regulatory issues should be established.
- The course content should be developed with professional expertise for the structured training courses to be delivered centrally.

- The institute should have a combination of a full-time resident faculty, part-time faculty, and special faculty drawn from expert bodies and professionals.
- The institute should publish courses on offer well in advance with the necessary information on the detailed course content, faculty expected to deliver the courses, and the cadre the training is intended for.
- Competent faculty drawn from national and international sources should deliver the initial courses. Thereafter the resident faculty of the institute should take up core courses based on the initial courses delivered by the experts. Special courses may continue to be delivered by experts.
- In the annual plan each regulatory body must specify the minimum number of hours its personnel (members and staff) would go through during the year.
- The year-end report should clearly include the actual training hours received by each of the personnel.
- Most, if not all, consultancy assignments should include clauses for transfer of technology and skills to commission personnel.

In the past, it has been the experience that there has been much reliance on external consultants due to lack of trained personnel in the commissions (although some regulators have made training an important prerequisite for granting consulting assignments). This aspect needs to be addressed and it needs to be ensured that core functions are carried out by the regulatory body itself, with external assistance sought only for specific one-off needs. The terms of employment of the commission and its staff should be attractive enough to invite personnel of the required calibre.

Capacity development in the regulatory bodies will inevitably be a long drawn exercise. Hence, it is essential to make a start as early as possible.

Avoiding the over-regulation trap

The evolution of the industry will bring in its fair share of surprises. For the regulatory bodies that are at the helm of implementing sector reforms, this will essentially mean a heightened risk perception since they would be exposed to criticism. Regulators, in general, are extremely sensitive to criticism on failure to protect public interest. The instinct in such circumstances

would be to regulate the sector entities to prevent adverse situations. This, in turn, could severely stymie sector operations and actually *increase* regulation instead of deregulating the sector.

It is essential to avoid this trap. To do this, the first need is for regulators to articulate a clear philosophy of regulation that they subscribe to. The regulatory approach, principles, and instruments for the same would need to be developed consistent with this regulatory philosophy, and whenever there is a need to develop fresh regulations or undertake an approach that appears to be increasing the intensity of regulation, the regulators should conduct necessary consistency checks before proceeding.

It must be mentioned here that the Act, for all its merits, does not always provide clear direction on the regulatory approach to be adopted. A case in point is on the regulation of trading, as illustrated in the following points.

- Sections 79 and 86 of the Act empowers the appropriate commission to impose trading margins, but does not provide any direction on the conditions under which such margins can be imposed.
- Section 62 of the Act permits the appropriate commission to fix caps on short-term contracts (less than one year duration) between generating companies and licensees only if there is a shortage of electricity. The conditions of application of this provision are not precisely defined in the Act. Regulators have tended to ignore this provision, treating all contracts between generating companies and distribution licensees as price-regulated contracts.
- It is unclear from the provisions of the Act to what extent the state commissions can require traders to furnish data regarding their cost of procurement while determining retail tariffs. Several regulators have indicated (informally) that they would use the provisions to investigate the portfolio costs of traders.
- The Act does not clarify whether the costs of purchases by distribution companies from traders would be allowed as a pass-through.
- Above all, the definition of 'non-discriminatory' open access, which is fundamental to development of trading, is not defined. This has resulted in regulators assigning pre-existing rights to incumbents. Current evidence from the US and other jurisdictions point at exactly opposite approaches to definition of open access.

Thus, while activities like power trading are a fundamentally unregulated activity, they could easily be shackled on account of various provisions of the Act to a point. This would occur where it is inefficient and limited in volumes to make any real contribution to the evolution of competitive power markets.

It can well be argued that defining such details should be a part of policy and regulatory framework and not the law. This would however require policy-makers and regulators to develop the sagacity and deep capabilities to address these challenges, else the entire premise of the Act on competition benefiting the consumer could fail badly. There cannot be any half measures in the introduction of competition in the electricity industry. To quote Joskow (2003c) in conclusion, 'We must either move forward to bring the restructuring, regulatory and competition reform process to a successful conclusion or return to the past. We cannot stay stuck in the middle without creating much more serious long-term problems for electricity consumers and the economy.'

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Reiss P C and White M W. 2003
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