CHAPTER 1

Andhra Pradesh

The Limits of Effective Regulation

Introduction

Andhra Pradesh has, over the last decade, acquired a reputation as a leader in the area of economic reform. This reputation has also spilt over to the electricity sector. Andhra Pradesh has demonstrated performance improvements well above the average Indian state (Table 1). In public discussion, much credit for this is laid at the door of the Andhra Pradesh Electricity Regulatory Commission (APERC), which is seen as an example of a well-functioning regulator. For example, ICRA has rated the APERC highest of all state electricity regulatory commissions in India. Moreover, APERC has moved into a leading role with regard to implementation of the Electricity Act 2003. Its orders and output are scrutinised by other regulators for insight into various regulatory processes. For all these reasons, the APERC is a critical institution from the perspective of this report.

The APERC has a reputation of a leader among Indian electricity regulators, having pioneered the segregation of retail supply and distribution, implementation of the multi-year tariff, and a number of other regulations. In this report we examine in detail how the APERC functioned in practice, with particular attention to its decision-making process.

* The authors are grateful for comments on this chapter received from Dr Geeta Gouri, Mr G P Rao, Mr Sreekumar, Mr Thimma Reddy, and Mr K Swaminathan. Responsibility for all remaining errors and for the arguments and views presented here remains entirely with the authors.

This chapter draws on information obtained through interviews and documentary evidence. All interviews were conducted on a not-for-attribution basis. Consequently, while specific points obtained in interviews are referenced in a note, interviewees are only identified by their broad institutional affiliation.

Table 1: Performance Statistics for Andhra Pradesh Power Sector

Particulars	*1999-2000*	*2000-1*	*2001-2*	*2002-3*	*2003-4*	2004-5 *(T.O.)*	2005-6 *(R.E.)*
T&D Losses (%)	37.1	34.8	30.2	26.5	23.3	23.7	23.1
Cost Recovery (%)	61	67	69	83	85	88	
Tariff Increase (%)		14.5	0.76	0.71	–0.71	–1.5	
Government Subsidy (Cr)	3,064	2,936	2,457	1,876	1,513	1,303	1,303
Tariff Order Issued		May 2000	March 2001	March 2002	March 2003	March 2004	March 2005

Source: Data adapted from AP Transco 'Lessons from Andhra Pradesh Power Sector Reform' March 2005, unpublished paper.

Following this introduction, we examine the reform context, and then the institutional structure and development of APERC. Next follow sections on the tariff review process, agricultural consumption estimation, a discussion of performance, of investment scrutiny and of tariff setting. The following two sections examine generation planning and the APERC in its rule-making role. The last substantive section addresses stakeholder engagement in practice. We end with brief conclusions.

Reform Context

The Andhra Pradesh Electricity Regulatory Commission (APERC) was established as part of a far larger power sector reform effort, which in turn was part of a state-wide financial restructuring programme. Embedding of the APERC within larger structural changes played an important role in shaping its early years. In this section we discuss alternative early visions of reform with different implications for the regulator, the impact of the reform eventually agreed upon for APERC, and the concrete implications for the start up period of the regulator.

Different Reforms, Different Regulator

Reform of the power sector in AP had been on the anvil for a number of years, dating back at least to the high level Hiten Bhaya Committee (1995) composed largely of former AP State Electricity Board (APSEB) Chairpersons. The recommendations of this committee were to fix the tariff structure to cover costs, unbundle APSEB and maintain it as a holding company for the new entities, commercialise the successor entities, gradually and cautiously move toward privatisation, and establish a regulatory commission limited to fixing distribution tariffs.[1] In its general thrust, these recommendations were very similar to the eventual reform plan.

Soon thereafter, and before these recommendations could be implemented, the government changed hands. The new Chief Minister, Chandrababu Naidu, initiated a dialogue with the World Bank for a set of far reaching reforms, of which power sector reform was only one component, albeit the largest. As part of these deliberations, the power sector reform agenda was sent back to the drawing board, with external consultants charged with drawing up a comprehensive plan. As part of its larger commentary on economic reforms, the World Bank noted that while the Bhaya Committee report pointed in the right direction, they did not go far enough nor were bold enough. Instead, they called for reforms that are '. . . bold, making a sharp break with the past'.[2]

Most important for this study, the World Bank view summarised in a January 1997 document suggested a vastly enhanced role for the regulator, including not only distribution tariff setting but also bulk supply tariff, licensing, connection charges and related monitoring and enforcement.[3] In addition, the Bank negated the idea of retaining the APSEB as a holding company, suggested moving away from a single buyer toward a competitive model, and required broad new legislation.[4]

The merits of the two approaches continue to be debated, as also the underlying case for major reform.[5] At the time, however, the Naidu government acted rapidly to implement the World Bank recommendations by releasing a policy statement in mid 1997, and passing the Andhra Pradesh Electricity Reforms Act in April 1998.[6]

Regulation to Support Privatisation-Oriented Electricity Reform

The embedding of the regulator within a larger agenda had two significant substantive implications and one procedural implication for the APERC. First, and perhaps most important, was an implicit presumption that the regulator would use its tariff setting authority in a manner consistent with the financial restructuring plan worked out between the World Bank and the Government of AP. In its loan document, the World Bank condition requires the companies to make tariff submissions 'to an extent not less than indicated in the financial restructuring plan and satisfactory to the Bank' followed by a requirement that the 'Regulatory Commission has issued the tariff orders'.[7] At the same time, the larger purpose in establishing a regulator was to 'reduce the interference of the state government, minimise the politicisation of key sector decisions . . . bring transparency . . . and balance the interests of various stakeholders'.[8] Thus conditions agreed to by the state government required, at least implicitly, certain regulatory actions, even as the raison d'etre of the institution was insulation from the government.

Second, the World Bank loan requires growing private sector involvement as part of a larger objective of a move toward a competitive electricity market. This macro policy direction set the policy framework within which the regulator was intended to operate. Specifically, it required the regulator to support a larger government policy of moving towards the medium term end of privatising the unbundled utilities. It also placed on the regulator the task of developing institutions and procedures for a competitive electricity market.

Third, working within the larger World Bank supported reform effort also gave the APERC a more structured start than most state regulatory commissions. As part of the larger donor assistance package, the UK's Department for International Development (DFID) funded a five-year contract for technical assistance to the APERC, as well as to the unbundled utilities. As a result, the APERC had extensive, and continued access to consultants who, as discussed in greater detail below, played an important part in the regulatory process and in the development of the APERC.

Institutional Structure and Development

Initial Orientation and Culture Established on Start-up

Consultants supported by the UK Department for International Development (DFID) helped APERC to set up their initial systems, and in so doing, instilled in APERC a commitment to a regulatory approach that continues to this day. The US economic consultant National Economic Research Associates (NERA), recommended by the World Bank to the Government of Andhra Pradesh (GoAP), assisted APERC in a training programme over several months, which was followed by appointment of Price Waterhouse Coopers (PWC) to work on-site at APERC for five years in a relationship of ongoing support. APERC had a role in assessing the bids for the second consultant, and in requesting particular personnel.[9] These consulting relationships set in place technical procedures but also laid down a larger regulatory approach.

The initial consultants set up APERC's cost-to-serve (COS) model, trained APERC staff on the methodology of tariff determination based on COS and helped draft the first tariff order.[10] In addition to COS, they introduced the concept of multi-year tariff (MYT), and oriented the APERC's analysis toward the long-term goal of its implementation, such as by separating the 'wires' and 'service' component of the tariff right from inception, even though MYT was implemented only in FY 2007. These concepts – COS and MYT – have remained critical features of APERC's operations to date, an importance that stems from their early introduction by consultants.[11]

APERC's initial training appears to have focused heavily on imparting techno-economic skills, such as on the COS approach, and minimally on the nature of regulation as an institution of governance, either as a result of limited terms of reference or due to the expertise base of the consultants. Thus questions of the role of procedures, consultation, accountability, communication with stakeholders, building public credibility and the like do not appear to have been addressed by the consultants in their initial training.[12] Moreover, the initial set of operating regulations, such as conduct of business regulations, were also drafted by the consultants, further reducing the direct engagement and familiarity of APERC staff with governance practices relating to regulation.

However, some of these issues do appear to have been discussed in the course of training conducted as part of a 'twinning' programme between US and Indian regulators. As part of this programme, APERC staff visiting the Pennsylvania Public Utilities Commission, and had an opportunity to interact with their staff and attend hearings. For example, the APERC adopted the idea of having a dedicated and separate 'staff analysis' section in the tariff order to represent a consumer perspective from US practice.[13]

In sum, the APERC got off to a rapid start, particularly with regard to techno-economic capacity and systems, due to considerable support from external consultants. This support considerably strengthened APERC's ability to work as an effective regulator from the start. At the same time, critical regulatory trajectories – such as a COS approach and a determination to move toward MYT – were influenced by consultants. Although these approaches were discussed within APERC, given the lack of internal experience and expertise with regulation, this process arguably proceeded without sufficient and full consideration of alternatives. In addition, the limited attention to governance procedures is a failing of the start-up phase. The latter is particularly a problem and could, arguably, be one reason why the APERC has, as discussed later, a muddled policy when it comes to governance issues such as transparency.

Selection of Commissioners

The most significant feature of the process of selecting Commissioners for the APERC is how little discussion this issue elicits. This is in striking contrast to other states, where selection issues are often the source of much discussion and questions about regulatory credibility.

The first Chairperson, Mr G P Rao, was hand-picked by the then-Chief Minister, Mr Naidu, as an individual with a reputation for probity and effective management skills.[14] An IAS officer, he had engineered an impressive financial turnaround of a public sector company, Singareni Collieries, which brought him to the attention of the Chief Minister. This appointment, by

all accounts, was very successful, as Mr Rao went on to attain a reputation of being an effective and strong regulator. While the ends appear to have been met, it is worth noting that the legal safeguards for regulatory selection – a three person selection committee – do not appear to have been followed in spirit but merely in letter in this particular case.

The second and current Chairperson, Mr Swaminathan, brings a background as former chief secretary of the state. Also an IAS officer, Mr Swaminathan's appointment follows a growing trend of appointing senior bureaucrats, on their retirement, as chairpersons of regulatory commissions.

While both are regarded as effective, public perceptions hold Mr Swaminathan to be more given to a consensus building regulatory style than Mr Rao, while Mr Rao was seen as more willing to force issues and push debates.[15] Despite these positives, there is still a sentiment that, even in AP, the regulatory selection process should not be in the hands of the state government, suggesting that the required separation between regulator and government has been hard to sustain.

Staff Selection

Unlike other regulators, staff capacity has not been an overwhelming problem for APERC. In its early years, APERC built its staff with a proactive, rigorous hiring process for senior positions. For example, outside industry experts were brought in to interview candidates for senior positions.[16] Unlike other ERCs, APERC was able to attract staff from outside the utilities for these positions, including PowerGrid (Director Engineering) and Industrial Development Bank of India (IDBI) (Director Tariffs).[17] In addition, APERC took advantage of past networks to hire staff on deputation from the utilities.[18]

As Table 2 suggests, APERC has historically been at about 2/3 of its full strength of 28 officers, but appears not to have taken steps to increase toward full strength as indicated by low vacancy rates. Notably, about 40–50 per cent of officers have a background with AP utilities. A relatively small number – 2 out of 18 – are on deputation from AP utilities, although in the past this number has been as high as 1/3 of officers on deputation. Finally, APERC claims to have spent none of its own budget on consultancies given the substantial support provided by DFID.[19]

With regard to quality, consultants also spoke favourably of the staff members' competence.[20] For their part, staff stated they learned from consultants and were able to take on tasks that were originally undertaken by consultants.[21]

Overall, staff development at APERC is a positive story, both in terms of their capabilities and in their ability to learn from consultants. While there was considerable, and perhaps inevitable reliance on staff with a

Table 2: Staff Profile of APERC

Category	*March 2000*	*March 2001*	*March 2002*	*March 2003*	*March 2004*	*March 2005*
Sanctioned Staff (Officers)	81 (28)	81 (28)	81 (28)	81 (28)	81 (28)	81 (28)
Total Staff	33	36	35	59	59	54
Officers	16	18	18	17	20	18
Officers with Background from AP Utilities	9	10	8	6	7	7
Officers with Background from any other Public Electricity Utility	2	2	3	3	3	1
Officers on Deputation from AP Utilities	5	6	5	3	2	2
Number of Positions Previously Filled Left Vacant for 6 Months or More	0	0	0	0	0	1
Budget (Rs Lakh)	205	227	311	328	309	335

Source: Information in this table was provided by APERC.

background from the regulated utilities, this was counterbalanced by a proactive, and successful, effort to recruit from outside the state and the sector.

The Tariff Review Process

The Process Itself

The tariff review, or annual revenue requirement (ARR) process is best understood through description and analysis of specific functions, but there are some common aspects of the process that help reveal the internal dynamics at APERC. Below, we briefly discuss patterns of interaction between regulators, staff, and consultants in the ARR process.

The regulators see their role as being 'like judges' within the APERC, deliberating upon and deciding between views presented to them by consultants and staff.[22] Another metaphor used was that of the relationship between a minister and a civil servant, with the role of the civil servant being to provide analysis and implications of alternative courses of action. Within the three-person commission, the first chairperson strove to introduce a deliberative format, where any disagreements were deliberated upon and resolved between the commissioners on a regular basis.[23]

While the process was designed to provide input to the commissioners for their final decision, there was also an interesting separate provision for an independent staff view, which was meant to present a 'public analysis'. Thus, tariff orders include separate sections for staff analysis and commission

analysis, along the lines of many American regulators, and unlike most other electricity regulators in India. Hence staff plays a dual role – providing a 'public' analysis, and assisting the regulators to come up with their own views. On occasion these may be different, as discussed further below.

Consultants have also always played an important, if changing, role in the ARR process. In the early days of the APERC, consultants 'did everything' starting with developing and applying the basic cost of service model, and drafting orders.[24] However, unlike in other states, the role of consultants in applying models and writing orders has diminished over time. APERC's own staff has increasingly taken on primary responsibility for production of tariff orders, with active involvement and direction from the commissioners, while consultants have been redeployed to 'second-generation' issues such as multi-year tariff and market arrangements. Consequently, they continue to produce first drafts of all policy documents even as they have handed over details of the ARR process.[25] This transition suggests that APERC has a level of staff capacity that has allowed them to take on basic regulatory tasks, which, as the other cases make clear, is not true of many electricity regulators in India.

In most cases staff and consultants work closely together as a single team. A close and productive relationship appears to have been built between the two, perhaps facilitated by the employment of the same consulting firm, Price Waterhouse Coopers, as the regulatory consultant almost since the start of APERC, and by locating them within the APERC office.

On occasion, however, there is evidence of a distinctly three-way interaction between commissioners, staff, and consultants. As mentioned above, staff writes a separate public analysis section in each tariff order, which can differ from the Commission's analysis. For example, in an early tariff order (2000), the staff argued for close adherence to the 6th schedule of the 1948 Electricity Act as the basis for decisions about various financial details pertaining to the ARR. The Commission analysis, however, differed with this view and modifies the 6th schedule provisions on working capital.[26] This difference in turn, reflects a debate within the Commission. In response to utility requests, staff had argued for a more rigid approach to the question of working capital. Based on their own separate and informal discussions with consultants working with the licensees, the APERC consultants disagreed. Having failed to persuade staff, they attempted, and succeeded, in persuading the regulator to take cognisance of the need to flexibly access working capital. The final tariff order duly reflects this concern and makes appropriate provisions.[27] This example suggests that while for the most part consultants work as part of the staff team, they also have separate lines of communication directly to regulators. Moreover, due to their own contacts with a broader network of consultants, they can bring additional information to bear to the regulatory process.

Finally, there appear to be some divisions in perspective across all parts of the Commission between an engineering/technical and a financial/economic perspective. These came out most strongly in the case of power purchase agreements (PPAs), which were initially understood to be driven by technical considerations, and only secondarily as financial issues. In part, the division reflects the shift from a vertically integrated sector, in which engineering concerns predominate, and which is that perspective most familiar to the bulk of APERC staff, and the shift to an unbundled market-oriented sector, in which the relatively uncharted terrain of economics and finance predominates.

On balance, APERC's internal process reflects considerable staff capacity, a healthy and open discursive style of internal decision-making, and a productive interaction between consultants and staff, marked by a transition in responsibilities. At the same time, there is scope for confusion caused by the tripartite division between consultants, staff and commissioners, and the internal division between technical and financial perspectives on the sector and the regulatory role.

Interaction with Utilities

The ARR process calls for significant interaction with utilities, in concentrated periods during technical validation sessions during the tariff determination, and on an ongoing basis to monitor directives and investment schemes. Between formal directive issuances and correspondence, a lot depends on this interaction to foster cooperation from utilities and reduce the information asymmetry between utilities and the Commission.

Two observations are pertinent to the interaction between the Commission and utilities. First, the Commission diligently pursued data validation, maintained good relationships with the Discom management, and even proactively initiated dialogue outside the technical validation process on specific matters of import to reform. For example, the Commission met on several occasions with certain Discoms on implementing measures to attract HT customers.[28] Utility management spoke favourably of the Commission's involvement in performance measures, although they take greater credit for changes than would the Commission.

The second observation, as revealed in the subsequent discussions on performance review, is that this interaction was strongest on issues where utilities had the incentive to cooperate, namely in matters that impacted their bottom line, such as HT tariff revision. In matters that did not, such as with agricultural consumption estimation or metering, they proved significantly less cooperative, and the nature of interaction was more adjudicatory than interactive. Thus, the Commission's style helped reduce the information gap, but only to the extent that utility cooperated.

Agricultural Consumption Estimation

As in other states, the APERC had to face the significant handicap of enormous data gaps. Of these, none was more significant than the confusion over the actual consumption of electricity for agriculture. For example, in 2000-1, AP Transco projected agricultural use of 10,500 MU while independent civil society groups projected use of 4,753 MU against a total consumption of about 28,000 MU.[29] While APERC staff strongly contend that civil society groups have an inadequate basis for their projections, that such a considerable gap exists in competing estimates points to a significant problem. Since agricultural use is almost entirely unmetered due to the legacy of past populist actions, a higher estimate of agricultural use translates to lower estimates of losses, including theft, which in turn is a critical performance benchmark against which APERC measures utility performance. Also, since agricultural use is considerably subsidised, the estimate of use strongly affects the total subsidy payment by the Government of AP to the utility, and hence to the utility's finances. Given the importance of the issue to both technical and financial performance, understanding APERC's approach to agricultural consumption is an important component of understanding the Commission's agency in influencing reform in utilities.

Sustained Stakeholder Pressure

Since its inception, the APERC has been under strong and consistent pressure by civil society groups and stakeholders of all sorts to better monitor and plug holes in agricultural consumption data. In the first order of 2000, a consumer intervention was reported as 'hotly disputing' the agricultural consumption numbers and arguing that these numbers were inflated to keep subsidies high and losses low.[30] These interventions have gone beyond exhortations to include independent studies and evaluations. For example, in 2001, the Peoples' Monitoring Group on Electricity Reform conducted a study which suggested agricultural consumption was less than half that was projected by AP Transco. AP Transco vigorously contested this study, arguing that it was based on a small number of days of the year. APERC staff agreed with this observation, while also noting that AP Transco's own numbers were based on assumption that could also be subject to question. In its comments, the Commission stated that the work by the Peoples' Monitoring Group had 'engaged its attention', and reiterated the need to move beyond guesstimates. Notably, in this early phase of its work, while it had suggested the urgent and practical measure of metering transformers, the APERC argued firmly that in the long run 'there is no alternative to metering of agricultural services'.[31]

The pressure on agricultural consumption figures features prominently in each tariff order, with various consumer groups questioning the AP Transco's estimates, seeking release of census data, questioning the veracity of the sample survey, and keeping the pressure on for more accurate assessment of losses.[32] While this pressure has failed to contribute toward full metering, the originally stated long-term objective of the APERC, it has accomplished two more moderate, but also significant purposes.

First, the APERC has required that all consumption data be made available publicly at the mandal level.[33] In the first order under the second Chairperson in 2005 the APERC ordered proactive efforts to disseminate information on the basis for agricultural consumption estimates.[34] Thus, the interaction between stakeholder groups and a responsive Commission has introduced a degree of transparency on the estimation process.

Second, consumer groups have pointed out that the failure to credibly solve the agricultural consumption data problem calls into question the viability of a multi-year tariff (MYT) approach linked to loss reductions.[35] By pointing out the logical implications of the failure to transcend the political obstacles to full metering and hence to better agricultural consumption data, this external scrutiny may limit or slow the extent to which the problem is compounded through further sectoral developments. As the Commission notes, given continued data constraints, it has sought to introduce other measures, notably an efficiency gain target, to start bringing down losses, rather than waiting until all complex data issues are resolved.[36]

A Proactive Effort to Improve Data but with Limited Results

The APERC took ambitious steps to address the agricultural consumption problem in its very first order. In 2000, it directed a census of all agricultural pumpsets in order to get a realistic and databased understanding of agricultural consumption. However, this census was not completed even by 2002, and in its analysis, the staff noted inconsistency in reporting and failure to capture variations in use across the year, both of which limited the utility of the census.[37] As noted above, the APERC recognised in its 2001 order that both the census and the survey approach, while necessary and useful, were second best to the desired outcome of full agricultural metering.

As a result, in 2002, the APERC partially changed tack, and shifted to a survey-based approach. Specifically, they ordered a 20 per cent sample of metre reading on the low voltage side of distribution transformers.[38] This effort confronted tremendous implementation challenges, such as relocation of transformers, non-matching of transformer codes, and fictitious metre readings.[39] Consequently, the APERC took two further steps in 2003 to refine the approach. First, it continued an extensive dialogue with

AP Transco to resolve these problems and agreed with them on a survey methodology. Second, it sought independent statistical advice from the Indian Statistical Institute (ISI) on the methodology adopted for the survey. At the same time, the Commission reiterated that a completely correct assessment would require full agricultural metering.[40]

While all these data gathering efforts were underway, the Commission still had to base its orders on some estimate of agricultural consumption. Despite protests from consumers, it took the approach of using the AP Transco's submitted numbers, and adjusting them marginally downward. For example, in 2002, the Commission used the base year figures and adjusted upward to reflect new connections, with the final numbering being less than the AP Transco submission.[41] In 2003, the APERC used an estimate based on ISI's feedback on upper and lower consumption bounds using the sample survey, which again came to less than the utility's request. In both cases, however, the final number was also considerably greater than estimates by consumer groups. Finally, the APERC also issued a directive in 2000 that the utility had to specifically seek its permission to buy power for agriculture in excess of the sanctioned amount. Given the murkiness of the situation, this combination of seeking new information, drawing on independent advice, using safe and defensible estimates in the short term, and giving notice to the utility that it did not have a free hand in purchasing power for agriculture reflected a proactive initial approach to resolving the agriculture conundrum.

Despite this sensible approach in the early years, however, the APERC's efforts have not resulted in the data problem being fully solved. While the APERC has repeatedly stated the importance of full agricultural metering, the political problem of getting farmers to agree to meter their pumpsets has proved to be overwhelming. Over time, the directive for full metering, which was issued in 2001 with a deadline of March 2003, has been progressively pushed back. In 2004, the deadline was reset to 2007; in 2006, it was adjusted to 2008.[42] By 2005, the APERC had changed its public stance to suggest that sampling was the best available basis for estimating agricultural consumption, downplaying the need for a full census and metering. While APERC suspicion of manipulation by AP Transco continues, the APERC leadership appears to have concluded that it has little choice but to accept reliance on utility estimates, the checks of an imperfect census survey and, ultimately compromise numbers. This is less a criticism of the APERC in the face of overwhelming political obstacles, and more a salutary lesson in the limits of independent regulation to overcome entrenched politics.

Senior officials at APERC note that given the shift to a commercial impulse, distribution companies have no incentive to implement metering, which comes with high installation and maintenance costs, contributes nothing to revenue since farmers are loss-making customers, and puts strain

on utility staff at a time of broad labour downsizing.[43] In other words, the APERC has been powerless to either force or incentivise the utility to take measures that are so directly against its commercial interest, even if they are in the public interest. In the words of former Chairperson G P Rao, the directive to meter agricultural pumpsets was entirely flouted and the 'Commission has to realise its limits.'[44]

Agriculture: What Lessons about the APERC?

The agricultural issue shows how stakeholder pressure can help keep regulatory feet to the fire by forcing continued attention to an issue. In this case, stakeholder comments included not only persistent comments, but also independent analysis and an articulation of larger concerns, as with the difficulty of implementing a multi-year tariff framework without agricultural metering. The APERC's own track record on agriculture demonstrates substantial initiative, including proactively commissioning independent studies, seeking expert external advice, and finding new approaches when initial efforts were not rewarded. At the same time, regulatory effort could not enable the APERC to swim against the political tide and bring about full metering, even in the context of considerable support from the political leadership.

Performance Review

Performance, simply put, translates to operating costs of the utilities. In a cost-plus regime, regulators have to judge and alter utilities' cost projections in their ERC filings, but also to proactively induce them to improve performance.

In AP in particular, the utilities have a reputation of high performance. In this complex environment, we investigate the approach APERC chose to discipline utilities. Of interest is how they contributed to utilities' achievements, and the other factors that influenced their efficacy as performance drivers.[45]

In this section we first summarise the basis for reputation for strong performance that AP has earned. We then examine the roles of the Government of AP, the utilities themselves, and the APERC in bringing about this perceived performance. What emerges clearly is that all three parties were pushing in the same direction, towards improved performance, introducing complementarities between the actions of each. This is unfortunately an unusual circumstance among Indian states. Allocating credit for success to each actor is not straightforward, but the AP case certainly suggests that both the strong governmental support and a proactive utility were at least as important, and perhaps even more so, than the regulator.

Summary of Performance

The Andhra Pradesh electricity sector has achieved the reputation as a success story in terms of turning around financial and technical performance. Table 3 summarises the basis for this reputation. In brief, loss levels went down 15 per cent over 5 years, [46] while the gap between cost recovery and cost per unit narrowed edging the utility from a dismal starting point of 61 per cent cost recovery in 1999-2000 to the far more respectable figure of 88 per cent in 2004-5.

Table 3: Performance Statistics for Andhra Pradesh Power Sector

Particulars	*1999-2000*	*2000-1*	*2001-2*	*2002-3*	*2003-4*	*2004-5 (T.O.)*	*2004-5 (R.E.)*
T&D Losses (%)	37.1	34.8	30.2	26.5	23.3	23.7	23.1
Cost Recovery (%)	61	67	69	83	85	88	
Tariff Increase (%)		14.5	0.76	0.71	–0.71	–1.5	
Metered Sales (% of input)	37.9	38.7	40.9	44.5	48.3	52	49.3
Revenue Gap before Subsidy (Cr)	3,065	2,936	2,823	1,634	1,589	1,303	1,639
Government Subsidy (Cr)	3,064	2,936	2,457	1,876	1,513	1,303	1,303
Subsidy as % of Revenue (%)		20.7	20.1	19.0	16.0	14.0	
HT 1 Revenue as % of Total Revenue (%)		27.8	27.2	32.9	35.0	33.2	
Cross Subsidy as (%) of total Revenue (%)		27.7	24.9	24.8	22.2	18.7	

Source: Data adapted from AP Transco 'Lessons from Andhra Pradesh Power Sector Reform' March 2005, unpublished paper and from APERC Tariff Orders.

It is also noteworthy that the government subsidy has fallen in absolute terms, and as a percentage of total revenue. A large part of these gains may be attributed to the success in retaining and increasing revenues from HT consumers. Revenue from this category increased as a percentage of total revenue by about 6 per cent over five years. Examining these performance figures in detail and attributing significance to particular measures is beyond the scope of this report. For our purpose, it is sufficient to note that performance has, by most measures been positive, with the success in lowering losses and increasing HT revenues being particularly noteworthy.

Role of Government

Throughout the AP reform process, the government signalled political commitment at the highest levels. This signalling often took the form of personal intervention and attention by the then Chief Minister, Chandrababu Naidu. For instance, he hand-picked leaders of both APERC

and AP Transco, both of whom were universally complimented for their probity and competence among interviewees. He personally conducted monthly review meetings with the Discoms and Transco on a set of twelve performance parameters to keep pressure on the management and to signal government commitment.[47]

Mr Naidu also provided direct support to the APERC. He used APERC's directives in review meetings to assess utility progress. This enhanced the credibility of the APERC and its directives, and signalled to utilities the cohesive nature of reforms. As the first Chairperson of APERC emphasised, 'unless government is serious about the importance of a commercial direction, no one will perform'.[48] He also cited government support as the main takeaway message from AP's success.

As important as what the government did is what they did not do – for the most part they did not undercut efforts to reform the sector by sending contradictory signals. For example, the government provided its subsidy on a timely basis at more or less the promised level each year. According to the regulator, there was also limited direct interference with the regulatory process. The few reported instances are, arguably, examples of political realities around tariff setting, and efforts, at times to influence regulatory approval of power purchase agreements, both discussed later. Nonetheless, compared to other states, the overall picture that emerges is a government that abides by the policy direction it has set its utilities and regulator.

In sum, the government emerges as a necessary enabler of performance-oriented reforms. By both signalling intent and support, and by refraining from working at cross-purposes, the government's role was a necessary one. From this perspective, reform has to be driven by the government, and cannot be achieved by the regulator or the utility alone without clear and unambiguous government support. As the chief minister states 'government has to go for reform, not the regulator. If you introduce reforms the regulator's work will be easy.'[49]

Role of Utility Leadership

Among SEBs, the AP utilities stand out as a curious exception. By most accounts, these organisations overcame entrenched resistance to change and implemented management reforms. In the public eye, among varying opinions on the extent and cause of this change, all give some credit to the leadership skills of upper management in some Discoms and in particular at the unbundled AP Transco, who really oversaw the implementation of reforms in all the distribution utilities. The measures introduced at AP Transco and the Discoms fall under three broad categories.

First, they introduced incentive-based operational reforms. Divisional engineers were given targets for revenue realisation (separate for billing and collection) based on average realisation and energy input into their jurisdiction. Significantly, this also included a deal with unions to seek their commitment to improving revenue realisation in exchange for a favourable wage revision. AP Transco held monthly meetings with unions and engineers' associations to review progress. Performance gradings for employees were introduced at all levels.[50] Apparently this strategy worked, according to union representatives, as also reflected in performance, and the absence of a strike in four years.[51]

Second, in coordination with the Commission, a deliberate strategy was developed to retain and improve service to HT consumers. The utilities separated feeders to them so as to provide higher power quality, reduced interruptions, provided tariff incentive schemes and improved customer service to them. These measures appear to have had the effect of better power quality for industrial users.[52] At the same time, the focus on revenue enhancement appears to have neglected, or in marginal cases even hurt, smaller HT customers.

Finally, the reforms were backed by a set of strategic changes. In agriculture, 'crop-centric' use of electricity allowed farmer needs to be met while decreasing agricultural consumption while introduction of single phase Distribution Transformers (DTR) were used to discourage line tapping. Spot billing, outsourced billing, consumer service centres and accounting to different entities helped to reduce field-level corruption. Information management tools were strengthened to track customer usage, changes in consumer class, and other auditing functions.

For our purpose, the central question is whether these activities were stimulated, supported or in some way rested on the regulator, or whether they were largely independently generated and carried out. From the utility perspective, the answer is very clearly that the impetus has come from the utilities.[53] We return to this question in the conclusion to this section below.

Regulator Proactiveness vs *Reactiveness*

The APERC cultivated an impression of a hands-on and proactive regulator. However, like other regulators, the APERC had to operate within a larger information vacuum, which led to a penchant for rather broad, overarching directives. Under these circumstances, the APERC's actions show a mix of proactive and reactive measures.

Among the proactive steps introduced by the Commission, the single most successful measure was that of attracting HT customers back to the utility, through a tariff incentive schemes and use of its policy on non-conventional energy to discontinue third party sales. The first Chairperson's

efforts to signal seriousness of intent by conducting quarterly visits to Discoms and their service territories, along with members, also stands out as a bold and important measure.[54] These visits appear to have contributed to a culture of accountability, by demonstrating that some measures of oversight were in place.[55] As one observer put it, the APERC was acting 'like a boss to the distribution companies'.[56]

An additional important proactive measure taken by APERC includes attention to filling the data gaps plaguing the sector, thereby creating the basis for accountability. For example, the regulator undertook independent statistical analyses of load growth to verify sales forecasts.[57] In another example, APERC commissioned an independent research agency Central Power Research Institute (CPRI) to conduct a study to assess transmission losses, the results of which revealed that the utilities' estimate contained metering and calculation errors and commercial losses. The APERC subsequently issued a trajectory for loss reduction and specific compliance measures, with which Transco complied in a timely fashion.

In other cases, however, the regulator was forced into a reactive stance. This is particularly true on distribution losses, the key performance measure for the utilities. Citing data constraints (particularly on agricultural consumption) as a limitation, the APERC deferred consistently to the utility filings and projections.[58] Until FY 2004, APERC deferred setting targets until a study was conducted to estimate losses, for which it directed the utilities to submit a methodology. When a methodology for loss estimation was proposed by two Discoms, the APERC accepted these without discussion.[59]

APERC's issued between 10 and 17 specific directives over its existence, which range from the very specific, to the extremely broad. Many of these directives, particularly in the early years, seek to fill the information vacuum. For example, APERC directs installation of 0.2 accuracy meters at all interface points, which was only partially complied with after several years. In another example, the APERC directed creation of a sales database which took two years for compliance. Other directives forced utilities to develop consistent approaches to issues, such as developing a procedure for merit order dispatch and preparation of a discussion paper on working capital. In general, the picture that emerges is of a regulatory body that is relatively well informed and close to the ground. At the same time, the approach rests heavily on the utilities to generate their own solutions. For example, in 2004, the APERC asked for a report from utilities on the achievable levels of losses.

The ability of the regulator to steer the sector is partially weakened by what appears to be a relatively poor record of reporting on and therefore of enforcing compliance with directives (see Figure 1). The data show that while the APERC tracks the directives for the year immediately following issuance of a directive, by the third year, several directives that are uncomplied with are simply also not reported on. For example, looking

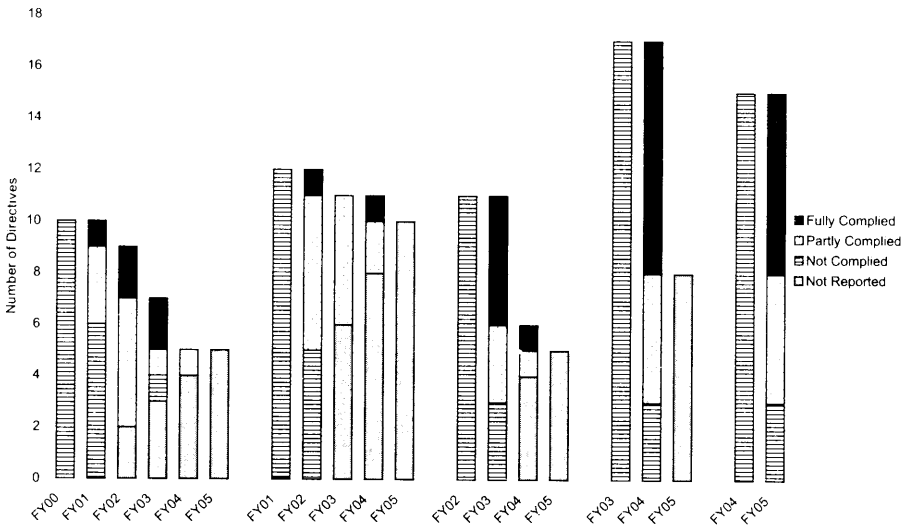

Figure 1: APERC Directive Compliance Status

Note: Each cluster of bars tracks compliance and reporting status – fully complied, partly complied, not complied or not reported – for directives issued in the first year of the cluster. Thus, the first cluster of bars tracks and reports on directives issued in FY 2000, the second covers those issued in FY 2001, and so on. The data are drawn from successive years of APERC tariff orders.

at directives issued in 2001, only one directive was fully complied with, six partially complied, and five not complied with by FY 2002, leaving 11 directives that still required monitoring. However, in FY 2003, only five of the remaining 11 directives were reported as partially complied with. By FY 2005, there were 10 outstanding directives, but they were not reported upon. This analysis suggests that APERC is less than completely thorough on following through its directives.

The APERC is also extremely reluctant to use its statutory punitive powers to enforce compliance. Indeed, the APERC does not appear to have ever fined a utility for non-compliance with its directives. The dominant perception is that one should 'be very wary' of punitive measures and that they should only be used for 'flagrant violations . . . not as part of basic utility management'.[60] Instead, a more collaborative regulatory style is preferred, particularly under the direction of the second Chairperson. Underlying this reluctance to use punitive measures appeared to be a concern with fining a public body, while there would be less reluctance to apply a fine on a private body. The net result, however, is that the APERC has effectively decided not to use an instrument that is arguably needed to enforce better compliance.

Regulator as a Critical Supporting Actor

An important explanation for the improved performance of AP utilities is that the three key actors – government, utilities and regulator – were all largely pushing in the same direction. This also makes it difficult to assign relative credit to the regulator versus the other two actors. Government support was a key enabling factor. That the utilities, strongly led by AP Transco, developed into an effective implementing body was also a necessary condition.

Within this larger picture, APERC did undertake several proactive measures, understood the weak points in the system, pushed the utilities towards better information management, and forced modest performance improvements (such as transmission loss reduction). Where the APERC ran up against either politically laden obstacles, such as the reluctance to install agricultural meters, or lack of cooperation by AP Transco, it was relatively powerless to enforce its views. The regulator was also limited in its ability to play a steering role by the information vacuum. Here it performed creditably to fill information gaps, notably around agricultural consumption. APERC may have built adequate systems of oversight that in the future may allow for more targeted directives, so long as leadership within the regulator remains proactive.

Finally, the electricity sector in AP has been relatively free of some of the political pressures in other states due to its creditable financial performance largely because of increased HT revenues, toward which the APERC has contributed with its own measures. As a result, apart from the first year the financial health of the sector has been gradually improved without increasing government subsidies or tariffs. The ability of all three actors to push in the same direction – for performance enhancing reforms – is partly due to the fact that the sector has not bumped up against political constraints that would come with pressures for either subsidy increases, or tariff increases. How the APERC would have fared under these conditions, which prevail in many other states, has not been fully tested.

Investment

Besides operating cost, capital investment comprises the other major subject of regulatory scrutiny of utilities. Since most Indian systems are underinvested, utilities are expected to invest, at least to maintain if not upgrade the system (e.g. replace burnt out transformers). Thus, the regulator faces the difficult task of pruning investments amidst pressures to invest. Regulators also inherited a culture where politicians often played a role in shaping utilities' investment patterns. In this environment, how did regulators conduct their scrutiny? What decision criteria did they adopt, and how did utilities respond?

Our research shows that investment scrutiny is the weakest aspect of the regulatory process in AP. Investments largely slip through the cracks of the public hearing process, and have therefore escaped public scrutiny. Regulators review the rate of investment, and to some extent cost prudence and assumptions, but not project prioritisation, justification and design. This limitation arises as much due to self-imposed restrictions as to external pressures.

APERC's Investment Review Process: Out of the Public Eye

The APERC's review of investment is almost exclusively an internal process, in part because it is substantially delinked from the tariff process. While the review of tariff filings is the most comprehensive and transparent process followed at the APERC, the ERC filings do not contain details of investment schemes. Instead, the investment component of tariff filings typically contain only proposed budgets for new investments, occasionally a breakdown of the budget into scheme categories, and high-level decision criteria for planned investments. As a result, investment schemes are not subject to public hearings, comment and other forms of external scrutiny enshrined in the APERC procedures. This is problematic, since as part of the tariff determination process, investment approvals ought to fall in the same category as any other cost component, and the regulator should be obligated to justify the inclusion or exclusion of an investment in the tariff.

Moreover, our experience, and those of stakeholders, suggests that details of investment schemes are not easily available to the public.[61] As discussed in greater detail in the section on Stakeholder Engagement in Practice, access to Detailed Project Reports (DPRs) was extremely reluctantly obtained from the APERC, and after repeated request. The current Chairperson expressed awareness that the investment schemes were out of the public eye, and expressed a desire to remedy the situation, perhaps by introducing a summary of schemes in the tariff order and being more open to requests for details.[62] However, the problem with transparency on investment schemes appears to lie more at the implementation level, where senior regulatory staff are opposed on principle to sharing these details, which are viewed as a technical and internal matter that is and should be beyond the public's scope and interest.[63]

Finally, the timing of the APERC's process suggests that even internal approval of investments is not well meshed with the tariff process. As of 2001, utilities are supposed to obtain approval for schemes prior to their inclusion in investment proposals for tariff orders. In reality, schemes may come to the APERC for approval after the tariff process.[64] Since the APERC fine-tunes the DPRs in an iterative process, the result is both delays in

approval (we documented one case of nearly a year delay in approval[65]) and a lack of coordination between the tariff approval process and the investment review.

Internal Review: Missing the Forest for the Trees

The internal APERC review of investment projects is impressive in its detail and in the level of knowledge the staff brings to the review process. At the same time, the review process remains mired in details, and fails to ask higher level questions about the appropriateness of the project for the purpose intended.

Procedurally, the APERC engineering staff first prepares a memo summarising their critique of each DPR. This is circulated among members, who make notes based on their reading of the DPR. Through a process of internal meetings drawing on the memo and notes, the members and staff formulate a position on the final feedback they wish to issue to utilities, which are then drafted in a letter by engineering staff for approval. During this process, the regulators often discuss their review with utility staff.

In their review, regulatory staff examine the reasonableness of analysis and data assumptions, methodology, and self-consistency in DPRs. With regard to the budgets proposed in the ERC filings, the regulator focuses mostly on ensuring a realistic implementation schedule based on historical expenditure. In addition, the APERC developed a rigorous process of ensuring capital was deployed and projects initiated before their costs were amortised into the rate base. They also pay close attention to financial and accounting aspects of investment, such as capitalisation, interest rates, and working capital, since these feed into the final rate calculations. Interaction with Commission staff make clear that investment scrutiny has been a work in progress, requiring constant adjustment to develop ever-improved systems of review as new information or obstacles come to light.[66]

This process of review is better understood by reference to APERC comments in a specific case of High Voltage Distribution System (HVDS) schemes reviewed for this research. HVDS, in principle, is an increasingly well accepted solution to reduce operational line losses and reduce theft. However, it is expensive, and questions remain about whether it is the most suitable alternative. In particular, HVDS schemes can be overcapitalised or not be a least cost option.

In practice, the APERC reviewed cost and other data assumptions for this scheme quite thoroughly, which reflected an understanding of industry practice. The Commission pointed out calculation errors, inappropriate assumptions and inconsistencies. For example, in one case they pointed out that for the number of distribution substations proposed, upstream transmission capacity in the 132 KV system was inadequate. In another

instance, they corrected an assumption of the number of unauthorised connections assumed on a feeder based on the transformer rating at the feeder head. The incorrect assumption led to an overestimation of savings from the HVDS upgrade. The Commission also modified cost assumptions (e.g. of DTRs) based on their independent opinion of industry practice. In some cases they draw on planning guidelines from other technical bodies, such as the Central Electricity Authority (for distribution planning guidelines, for example) or the Rural Electrification Corporation (for Return on Investment, for example).

Thus, the review revealed considerable depth of knowledge and thoroughness. But it also confirmed that the approach to project review was confined to details and calculations. The review did not examine at a higher level the site selection and prioritisation, project design, or the potential alternatives at that site. This is despite improvements in the utilities' data system, which the regulator could request and analyse to force justification of projects.[67] For instance, the APERC did not scrutinise details on transformer loading to verify the need for upgrade. Nor have they hired third parties to conduct independent review, which would be one way of supplementing in-house capacity. They also limited project monitoring to soliciting reports from utilities, rather than conducting field inspections to ensure that projects get constructed and deliver stated benefits as proposed.[68] So far, all HVDS schemes have been approved, though a technical staff member felt many were unviable.[69]

Constraints in Scrutiny

What drives the Commission's restricted review? One view expressed within the Commission is its lack of internal expertise: '. . . in what way is the regulator better suited technically' than the utility to assess investment schemes? The internally drawn conclusion is that the regulator must 'realise its own limits'.[70] However, since the APERC always has the option of hiring independent expertise to conduct review, such views are less revealing about issues of capacity, than about a seemingly internalised deference toward the utility, particularly on project selection. This deference may also be reinforced by the crossover between utility staff and regulatory staff, particularly in the technical wing. The dire need for system upgrade may also increase pressure on the regulator to soften scrutiny, based on the argument that some investment, even if sub-optimal is better than none. Staff indicate that they have had this implicit attitude particularly toward projects in rural areas.[71]

That all these factors shape the practice of investment review is facilitated by the absence of a clear policy for investment review that lays out criteria and methods.[72] The absence of clear direction leaves room for discretion, personal biases and deference.

Information asymmetry exacerbates the lack of capacity to examine investment schemes. Commission staff point out the lack of cooperation from utilities in submitting data as per the Commission's investment guidelines. The Commission interacts regularly with utilities, requesting data or explaining errors.[73] This process of interaction has been evolving. With the first implementation of the multi-year tariff for the distribution companies, utilities have had to file long-term capital expense projections, which include requirements for greater detail.

In addition to these issues, there appears little doubt that government pressures or involvement play a role in focusing regulatory eyes on the trees rather than the forest. This opinion is shared by a range of people involved in and observing the regulatory process. Thus, site selection by utilities for investment projects is often 'political and indiscriminate, without much focus on prioritisation based on highest payback.'[74] While the situation has improved in recent years, a former Discom official suggested that politicians still influence project selection.[75] That the first sites for HVDS schemes were in Chittoor, the then chief minister's constituency and a stronghold of the opposition CPI party, was cited to us as a case in point, and provides circumstantial evidence toward that conclusion. In this particular example, a senior APERC official conceded that he was not particularly convinced of the HVDS's value, particularly without complete metering. However instead of disallowing the scheme, the APERC chose to approve it, but only in a staged manner, subject to step by step approval.[76]

Even in the absence of political pressure, the Commission pays less attention to the viability of projects under the Accelerated Power Development Reform Programme (APDRP), wherein projects receive funding from the Central Government.[77] These instances illustrates a larger belief with the APERC that directly confronting government is unproductive. Where political manipulation may play a role, corruption 'is not to be tackled at the regulator level'.[78]

In summary, there appears to be a line beyond which investment review does not cross. Regulators review budgets and finances of projects more thoroughly than they review investment choices. They review cost and technical assumptions and methodology, but do not question project selection and design. They ensure projects get implemented, but do not monitor project performance post-implementation. It seems that internal capacity constraints are real, but do not limit the depth of investment scrutiny as much as personal attitudes, which are, in turn, influenced by staff background, and regulatory reluctance to question political decisions.

The Politics of Tariff Setting

The political significance of the various tasks performed by the regulator, as discussed above, often crystallise in one set of politically charged numbers

– the tariff. While the tariff determination is intended to be an arithmetic exercise in practice the AP experience suggests there are several intervening factors. Here we discuss the political sensitivity of the tariff process based on past experience, the role of communication between the government and the regulator and prior knowledge of the subsidy.

Political Context: The Tariff Agitation of 2000

APERC's early experience was baptism by fire and appears to have shaped its, and the Government of AP's, subsequent approach to tariff setting. As part of the first tariff setting process in 2000, AP Transco proposed that the government cover 63 per cent of its expected losses through subsidy, requested a tariff hike to cover 22 per cent and suggested it would meet 14 per cent through efficiency gains.[79] When the government only allocated about half the requested subsidy amount, the APERC went by the book and raised tariffs by 15 per cent overall, and by 54 per cent for domestic users. This decision was greeted by extensive public protests and demonstrations, with particular public ire directed at the APERC's decision to raise domestic tariff more than industrial tariff. During this process, the leadership of the APERC was in touch with the chief minister. While the advice from APERC was not to compromise, the political pressure was sufficiently great for the chief minister to announce a countervailing subsidy.[80]

Different constituents interpret this event in different ways. Consumer groups point out that the 15 per cent hike was exactly what was laid out in the World Bank's policy documents, and attribute the protest to public questions about the need for the tariff hike.[81] Regulatory staff draw the lesson that better and more sophisticated communication strategies are necessary, in particular a media outreach effort.[82] Significantly, in subsequent years the APERC announced minimal tariff hikes, despite projections that further tariff hikes would be required. As a paper by an APERC staff member puts it, '. . .the Government of AP muted tariff increases by the Commission by providing subsidy in exercise of its prerogative provided under . . . the Reform Act . . .'[83] It would seem likely that the consumer protests of 2000 sent a clear early signal to the APERC that there were political limits to its operation, and even stronger signals to the government that it would have to provide political cover to the APERC.

Tariff Setting Process: Not Pure Arithmetic

The formal procedure of tariff determination as laid out in APERC documents – the tariff determination process as an arithmetic exercise that falls out as a residual from the 'fully allocated cost' calculation, and the revenue requirement – belies its subjective and political nature. It is more

likely that the regulator, and not only the government, has to pay attention to the political fallout of tariff setting. This is not the same as saying that the regulator was not autonomous or was dictated to by the government. But it is to suggest that the formal procedure is not the full picture.

The boundary between regulator and government was porous during the process of crafting the tariff order. During the Naidu government, the Chief Minister himself and his ministers were involved in discussing the tariff filings and their implications, which is entirely appropriate since these remain public companies.[84] However, once the ARRs are filed and reviewed by the APERC, there are also indications that the finalisation of tariffs is subject to consultation between APERC, the government, and the utilities, although some interviewees suggest that the utilities are not involved.[85] As a politically charged decision, it is hard to imagine how the tariff setting decision could be otherwise, particularly in a period of dramatic change where the tariff requirements change more than incrementally.

The formal procedure requires that the APERC first determine tariffs based on the 'fully allocated cost' of serving consumer classes and the revenue requirement. As discussed earlier, there are various sub-components of the cost calculation process that are subject to interpretation – investment approvals, performance criterion, agricultural consumption estimates and other costs. Further, even after finalisation of the revenue requirement, the Commission sets the HT tariff, which heavily influences the potential tariff burden on other consumers. Subsequent to tariff determination, the Government of AP may allocate a subsidy to reduce the burden to certain consumers. By the process, the bulk of tariffs should largely fall out of finalisation of the revenue requirement, after accounting for subsidies and the HT tariff. In practice, the Commission has an ex-ante indication of the subsidy from budget pronouncements that can and may play a role in the calculation of revenue requirement.[86]

One mechanism observed of the potential use of this knowledge is the APERC's use of 'efficiency gain' targets for the utility as part of its orders. This mechanism was initially proposed by the utility, and over time has come to be adopted by the regulator as an incentive setting device. Initial tariff orders left to the discretion of utilities how to meet this target, while later orders associated them with loss reduction targets. However, these additional targets are presented without justification or explanation, besides being additional and unrelated to the loss reduction targets proposed by the utility and accepted by the Commission.[87] Coupled with the fact that for multiple years the resulting revenue requirement almost exactly matches revenues without need for a tariff increase reinforces an impression that the efficiency gain target is the result of an ex-post adjustment. The APERC insists that the efficiency gain is a useful device for promoting performance increases, particularly in a context where information is scarce making more

pointed interventions hard to achieve.[88] However, within the AP Transco there is a clear perception that the efficiency gain has become a device for the regulator to avoid having to declare tariff decisions that are politically challenging, by placing the burden of adjustment on the utility.[89]

In sum, the formal arithmetic bounds of the tariff-setting process do not, in practice, appear to bind regulatory decision-making. There continues to be an irreducibly subjective element involved in tariff setting which allows space for the consideration of political implications of tariff choices. This is likely a structural issue inherent to regulation under these conditions, and not a feature unique to the APERC. In other words, whatever their technical mandate, regulators are hard-pressed to convince the public of the merits of tariff decisions on technical grounds alone, and as much as the government have to factor in public perceptions and the bounds of public acceptance. At the same time, with the exception of 2001, the APERC has been successful at ensuring regulatory decisions work towards commercial discipline within the sector even while staying within political constraints. In part, this success may be because as revenues from industry have gone up due to a range of creative measures, the regulator is not placed in the position of making trade-offs between political and commercial objectives. This summary leaves unanswered the question of how the APERC would act if the situation should change for reasons beyond its control (for example, a spike in generation costs), and it were forced to choose between commercial discipline and political expediency.

Generation Planning

Generation planning has been a contentious issue for the regulator, not least because they comprise a high share of tariffs. The matter of Power Purchase Agreements (PPAs) between Independent Power Producers (IPPs) and purchase from non-conventional energy (NCE) sources have got the most attention.

To get a sense of magnitude, power purchase costs as a whole comprise 78 per cent of total filed revenue requirements in AP of 12,323 crore for 2006-7, which includes costs of existing utility-owned power plants, IPPs, NCEs and short-term purchases.[90] The costs of IPPs and NCEs alone comprise 26 per cent of power purchase costs, and 20 per cent of total costs. The four new IPPs would increase annual fixed costs, and tariffs, by 1,020 crore, or over 8 per cent, without even including fuel costs.[91] The other factor contributing to the regulatory challenge is that APERC inherited several controversial PPAs and policies governing buyback from them (including NCEs). Thus, from the outset, the regulator was faced with the challenge of fulfilling its obligation toward the consumer and

undoing, or respecting, past political decisions. It important to mention, though, that the regulator has the statutory authority to regulate the pass-through of all PPA costs to consumers, even if in some cases it may not have the authority to review the PPAs themselves.

As with the other regulatory functions, in this section we examine how regulators made decisions, through what procedures, with what input from stakeholders and other influences, and how these inputs were used. This section first examines the situation inherited by the APERC and how it dealt with this situation. We then turn to the decision-making approach pursued by the APERC, and finally conclude with some reflections on the impact of the regulatory process and stakeholder participation on the overall debate over generation projects.

Inherited Projects and Policies: Sustained Government Influence

The APERC inherited a large and complex portfolio of generation projects. Among the most problematic were past PPAs, where its jurisdiction was contested. Specifically, the regulator inherited several high-cost PPAs from the fast-track process entered into between the utilities (but mostly driven by government) and IPPs. Right from the first order, consumers lobbied the regulator to reopen and reassess these PPAs, as well as force their operation into the merit order sequence based on their average cost.

In response, the Commission was silent on the first two orders, despite repeated stakeholder pressure to take a stand on which PPAs (only signed or signed and operating before Commission establishment) the Commission was willing to reopen. Eventually, based on a legal consultation, they took a safe and defensible position of not reopening any PPAs signed before they came into existence, as per the Reform Act.[92] Notably, the first Chairperson was open to reconsidering this decision in the future on the basis of a pending Maharashtra High Court judgement on a similar issue with the Dabhol PPA.[93] He even identified cost reduction possibilities in these PPAs, and directed AP Transco to renegotiate the PPAs with IPPs in light of these possibilities. Given the clarity of the law on the matter, this can be considered a reasonably proactive, independent stance.

A second set of issues inherited by the APERC pertained to several Amendment Agreements to PPAs for new projects. These projects, and particularly four gas-based IPPs, were developed before establishment of APERC, but were revised to switch the primary fuel from naphtha to natural gas. This revision opened the door for full review of the PPAs, but in the face of considerable political pressure to approve them.

The AP Government was clearly the prime mover, having endorsed the projects and set expectations for developers. Indeed, the government

continued to actively participate in PPA Amendment deliberations behind the scenes and in APERC proceedings. It communicated with both the developers and AP Transco. It is clear from their representations that the government had as its primary interest the expedited and successful start to the projects. For example, in the controversy surrounding the use of an alternative fuel, APERC mediated between AP Transco's position of paying fixed costs only to the extent of natural gas availability, and the developers' position of ensuring enough fuel flexibility to prevent any restrictions on the project. The government, in a letter addressed to AP Transco, assured them that gas supply would materialise, and stressed that the project financers may not accept the project without a fuel backstop – thus, effectively backing the developer.[94]

Government thus seemed to play the role of a backroom dispute resolution negotiator in parallel with the Commission's proceedings, even taking the matter up with the Central Government. The APERC would see the outcome of these deliberations when they were placed before them for approval. An AP Transco official at the time revealed that the government forced them to retain the alternative fuel clause.[95] GoAP eventually resolved the standoff on the alternate fuel issue by proposing to postpone the matter till January 2007 after negotiations with the IPPs, which AP Transco also consented to. From here on, the Commission's task of approval (under the second Chairperson) was purely mechanical.

The APERC, based on presentations from Central Government and fuel suppliers, including Oil and Natural Gas Corporation, and Gas Authority of India Ltd., gave them the benefit of doubt. However, there was no argumentation in APERC's orders on the certainty of fuel supply beyond acceptance of a letter of assurance from gas suppliers, nor any citations of data from the suppliers or detailed consideration of the objections from stakeholders.[96] Perhaps there was room for the Commission to suggest compromises or risk mitigation measures, or to encourage a more transparent and substantive discussion of the issue, something that it successfully did on many other occasions.

That the Commission changed chairpersons in the midst of the dispute may not have helped matters. The first Chairperson expressed clear opposition to start-up of the project on an alternative fuel.[97] However, with the matter unresolved when the second Chairperson took office, and the apparent consensus achieved by government with the parties on abeyance, the new Commission may have been hard pressed to disrupt this compromise so early in its tenure.

The above discussion suggests that government continued to call the shots on IPP projects. However, the APERC did force issues into a public forum, though it limited debate and deferred to the overwhelming support from government agencies for these projects. In this next section we examine

decision-making further for new projects and policies approved by the Commission.

Regulatory Decision-Making: Deference to Authority

Indeed, while the Commission's argumentation appears detailed and thorough in particular PPA cases, higher-level rulings that shape investment decisions are less detailed, and show a deference to higher government authority in justifying action. The approval of AP Transco's load forecast necessary to justify the approval of all new IPPs, including four debated gas-fired IPP projects, stands out as a case in point, as do aspects of the Non-Conventional Energy (NCE) tariff policy.

The Commission had approved a reserve margin of 14 per cent based on a new planning criterion of a 1 per cent loss of load probability (LOLP). In this order, the Commission questioned and changed several assumptions, eventually reducing the capacity requirement by almost 1,000 MW to 3,180 MW.[98] However, within 8 months of its previous petitions, AP Transco submitted a revised capacity requirement for 5,251 MW, citing among other factors an additional planning criterion of 0.15 per cent unserved energy. The Commission sought the opinion of CEA, who submitted that a 29 per cent reserve margin would achieve this target. On the basis of CEA's opinion, the Commission approved the forecast and the change in reserve margin. Notably, the Commission did not question why planning criteria and resulting margin were so different between the two virtually contemporaneous (in planning terms) forecasts, or seek justification for the change in criteria. The Commission was satisfied that its basis came from a credible source, the 'highest technical authority'.[99] The tone and level of scrutiny in this order were markedly different from the first, wherein the Commission even issued a show-cause notice that laid the burden of proof for the forecast on the utility.[100]

Some stakeholders believe that the Commission's actions on the reliability margin reflected implicit and explicit pressures from developers and the government.[101] A senior official at APERC noted that the generous assumptions on reliability margin allowed the regulator to approve all four new gas-based IPP projects. Since the four projects were almost identical, it would have placed the regulator and the government under enormous pressure had they been required to selectively reject a subset of them.[102] More explicitly, there are some reports that the government pressed the APERC to act quickly to approve one project, citing pressure from MLAs and growing electricity shortages, although this pressure was reportedly resisted.[103]

In the NCE tariff policy, the Commission initially (2001) deferred to MNES on terms of purchase, but later (2004) conducted a detailed examination. The Commission's NCE policy was a suo motu action that

reviewed and extended an expiring set of government incentives for non-conventional energy sources. As mentioned earlier, the Commission in 2001 forced NCE developers to sell to Discoms in order to stem the migration of HT customers. Presumably, the Commission felt an obligation to continue the precedent set by government for NCE developers on the terms of purchase. The Commission adopted a baseline rate derived from MNES's 1993 guidelines for buyback rates and a 5 per cent annual cost escalation, and retained the escalation factor without explicit justification.[104]

Some stakeholders also expressed concern that the regulator faced pressures regarding the NCE policy. The Commission *suo motu* created a minimum purchase obligation of 0.5 per cent for wind.[105] Several stakeholders questioned the motivation for an unprecedented technology-based purchase obligation. In response, the Commission only defended its authority to issue such a standard, without providing a substantive justification for one.[106] Suspicions of political pressure were stoked by the apparent disregard for public involvement. While the Commission solicited proposals and held hearings from the utilities and developers several months prior to its ruling, it held a public hearing the day before passing its order.[107] All these indications find due process wanting in several aspects of the NCE policy development.

Regulatory Style and Process: Hands-off Regulation, Platform for Transparency and Debate

The observed rule-making style of the Commission in generation planning was more of a judge than that of an independent reviewer. Rather than delving into technicalities of disputed issues, the Commission preferred to hear multiple views, sought expert opinion, and exercised its judgement using simple principles – credibility of sources, industry practice, historical experience, and practicality. To a large extent, generation planning calls for such an arbitration role, since it involves multiple technical fields of expertise, such as fuels, technology and operating experience, in which the Commission cannot be expected to be conversant. Though this may have been unavoidable, the resulting reliance on external sources occasionally substituted for reasoning, and hence raised doubts as to their reasonableness.

As discussed earlier, the Commission gave significant weight to source credibility on decisive matters. On technical issues, such as terms of purchase, the Commission sought compromises between divergent viewpoints – for example, selecting a mid-point for a range of capital costs, or length of proposed control periods for buyback rates. Where the Commission found no common ground or basis for judgement, it did on occasion take matters into its own hands. For example, in the NCE policy formulation, the Commission sent its staff to visit some NCE projects to obtain data on fuel and operating characteristics.

In areas of bread and butter utility operations, obviously areas familiar to most regulatory staff, the Commission argued in much greater depth of detail and verbosity, the sophistication of which were of the highest level seen in this research. For instance, the Commission went to great lengths to address the controversy around merit order dispatch of AP Genco and IPP units. Buried in this issue were some obvious conceptual misunderstandings on the part of some stakeholders. The Commission explained the issue in detail, and directed utilities to file, as well as included in its own orders, detailed merit order dispatch data.[108]

The technical strength of ex-utility staff also posed a barrier to the Commission. In some sense, regulatory staff expressed an internal working divide within the Commission between engineers and economists, one that could be equated to 'old' and 'new' thinking, because they (predominantly) comprised utility and non-utility personnel respectively. Initially matters of generation planning were of strictly technical purview, handled by the technical member and staff. It was only when the first PPA came to the Chairperson for his approval did the Chairperson notice that there were significant commercial implications of the PPA that needed the review of the tariff division. Interviews revealed a modest tension or wariness of each others' approaches and perspectives.

Thus, the process of project review was detailed and thorough in issues that the Commission was comfortable, but hands-off otherwise. In any case, stakeholders had the general impression that the process of review created a platform of transparency. In the case of new IPP gas projects, even though the government led the negotiations, the parties were forced to the negotiation table by the regulatory process, which created a forum for AP Transco to protest the otherwise inexorable push toward a start-up with expensive alternative fuel. Although the openness of the forum stopped short of a public debate of the issues, in the least it revealed enough to expose the negotiation process and the forces at work in the negotiation.

In the case of the NCE projects, the Commission created a forum for open argumentation and demanded justification of all cost and performance assumptions in order to determine buyback criteria for each type of NCE.[109] In most cases, this process led to a reduction in buyback rates from those proposed. Besides squeezing buyback rates, the Commission also forced NCEs to sell only to AP Transco, rather than to third parties (which they did earlier) in order to ensure the gains of additional power were passed on to the bulk of consumers, and not select large customers.[110] In its first NCE order in 2004, the Commission elaborated detailed argumentation and calculations to determine cost assumptions, tariff basis for merit order, fuel availability, and various other details.[111]

A widespread view among many stakeholders is that new and modified PPAs definitely benefited from the Commission's review process. Either

spurred by stakeholder suggestions, or by the Commission's own analysis, the PPAs went through a due diligence process, after which performance incentives were improved and costs trimmed. Some stakeholders cited the example of one project, BPL, where regulatory intervention was credited with raising the base from 68.5 to 85 per cent, and lowering the profit margin on the same PPA.[112]

In summary, regulatory decision-making on generation planning reflects different levels of scrutiny and methods for issues depending on their political sensitivity. On issues that affected investment decisions or involved the government's credibility, particularly those made prior to the Commission's existence, the Commission appears to have erred on the side of conservatism, holding back on critical reasoning, and preferring to defer to government authorities to justify its actions. However, within the confines of more benign PPA terms and policy details that the Commission promulgated, rulings reflected more detailed, transparent and balanced reasoning. In this space, the regulator forced argumentation into a public forum, encouraged and entertained wide stakeholder input.

The Rule-Making Function

The rule-making role of APERC is geared toward implementing policy related to market development, and updating and refining regulatory process. These changes are also often directed toward greater reach of performance based and market principles and are labelled 'second-generation' reforms. Andhra Pradesh has been in the forefront of experimenting with these measures. The APERC is the first regulator in India to implement the multi-year tariff in an institutional environment where retail supply service is fully separated from the distribution 'wires' business. The APERC has led with regulations for implementation of the open access provision in the national Electricity Act 2003. In this section we discuss the initiation and framing of rules, the procedural dimensions of rule-making, the politics of making rules as they emerge in the consultative process, and the role of multiple internal cultures in shaping how rule-making works in practice. Throughout we draw on one example – open access regulations and related cross subsidy surcharge.

Initiation, Framing and Construction of Rules

Experience with framing second generation electricity regulations is highly limited in India, and the APERC is no exception. As a result, much of the momentum, technical knowledge, and framing of the policy choices is undertaken by consultants working with the APERC. As discussed earlier, the AP power sector is supported by a net of consultants who work with each of the key actors in the sector – utilities, regulator, and government.

The terms of reference for the regulatory support consultant, Price Waterhouse Coopers, clearly states their role: '. . . the focus of support is to enable APERC to develop the regulatory approach in the evolving market'.[113] Specific focal areas include open access, power trading, non-exclusivity of licences and so on. These terms of reference are jointly agreed to by the funder, DFID, and the regulator.

In keeping with these terms, the impetus and the first draft of major rule-making efforts comes from the consultants.[114] For example, the consultant suggested that it was time to move toward performance-based regulation and prepared the first draft of a discussion paper. Similarly, consultants drafted the open access discussion paper circulated by APERC. These initial documents then form the basis for further deliberation within the APERC, and as discussed below, the basis for stakeholder consultations and eventual regulations.

The process of refining these ideas occurs through formal and, more important, informal interactions between consultants, who have developed dense networks by working in each others firms in a rapid staff-turnover industry. For example, in advising the state government on policy related to electricity supply for agriculture, the government's consultant explored various options with the utility's consultant before finalising their advice.[115] Thus, the communication that would normally happen between two government agencies occurred first between two consulting firms.

While through their role as producers of first drafts, consultations play a leading role in framing the issues for regulation, there are a diverse set of additional perspectives within the regulatory process that weigh in to shape subsequent drafts. In APERC, there were at least three distinct perspectives within the Commission, perspectives that were shaped by past experience, and academic background.

One point of view was very consistent with the consultants' perspective, and highlighted the need for reform oriented toward competition. This view is exemplified by economists within APERC, informed by their own professional training and background. Regulatory reluctance to move toward open access is understood as an artefact of a culture of safety that comes from a government career, and a reluctance to take decisions that may subsequently be challenged.[116] A second perspective is held by those who come from a technical, and particularly utility background. This background brings a loyalty and a faith in the ability of the utility itself, which is expressed, for example, in a reluctance to unduly question the utility on matters such as investment choice. Finally, a third perspective can best be described as politically sensitive, and aware of the need for regulators to balance political interests and choices. This perspective is informed by a career in government, and within the APERC was certainly represented among the Commissioners. From this perspective, the regulator perceives

its role in open access as balancing the interests of industry against the interests of the consumer, and particularly the small consumer.[117]

Procedural Dimensions of Rule-Making

The APERC follows a clear and predictable procedure for it's rule-making in significant areas, which involves preparation of a discussion paper, posting of information about the paper along with a call for comments, a hearings process, followed by deliberation and final decision. Here, we discuss this process with reference to the open access regulation and the separate, but related cross subsidy surcharge decision.

Preparation of the open access regulation took place in a larger climate of considerable uncertainty. While open access provisions were included in the national Electricity Act 2003, there was lack of clarity about how much discretion regulatory agencies would have in implementing these provisions, and how much would be decided by the Central Government. Thus, the APERC went through three separate consultative processes on the open access surcharge. First, deferring the decision until more guidance had been received from the Central Government. Second, preparing their policy once national the electricity policy and draft tariff policy were available. Finally, revising the policy after the final national tariff policy was produced.[118]

On the open access regulation itself, the APERC acted relatively rapidly, by preparing and airing a draft regulation in August 2004, a little over a year after the omnibus Electricity Act was passed. It received 23 comments on the draft regulation (of which 10 are substantively distinct comments since many comments are reproductions of a single set of views). However, in a significant flaw in the process, there is no interim step through which the APERC summarises and reflects on these comments, and makes clear how it has incorporated the views in its final order. Without this sort of reasoned order, the impact of the stakeholder comments on the final regulation is unclear.

The related decision on the highly debated open access surcharge does not suffer from the same failing. Since the decision was passed in the form of an order, the APERC provides a detailed summary of various stakeholder views, and the basis for its own decision. The importance of the stakeholder comments and reasoning in the manner in which they are addressed becomes clear from a closer look at the issues debated in the course of setting regulations, and the politics embedded in them.

Rule-Making as Politics

The rule-making process for open access illustrates that the APERC's hearing and comment process does indeed provide the space for representation of

various interests, and that industries, consumer groups and others are using this space to contest the nature of emerging regulations. Two issues were particularly hotly contested: whether existing open access customers with separate wheeling contracts would be subject to the new regulations, and the basis for calculating the open access surcharge. We discuss these issues below to illustrate the political nature of the rule-making process.

The APERC received 22 submissions in response to their draft open access regulation, but of these 13 were duplicate submissions sent by various generating companies or their associations. The majority of the comments are from generating companies (15, including duplicates). Other comments include two from industrial users, one from an individual voicing a consumer perspective, one from the Confederation of Indian Industries, one from a fuel supply company and one from an integrated energy company.[119]

The single strongest message came from the generation companies, often wrapped up in outraged language. These companies argued strenuously that existing access to the grid through wheeling contracts should not be subject to new open access rules as the draft regulations proposed but should be honoured for the duration of the contracts.[120] The common statement sent by thirteen companies or associations forcefully argued that the regulation '. . . discriminated against generation companies . . . in favour of monopoly distribution licensees'. The further represented that 'it cannot be that the regulatory process is used to negate and defeat all private enterprise. . .'[121]

These representations appear to have had some effect. The final regulation allows existing users to avail themselves of their ongoing agreements, and exempts them from paying any newly imposed cross subsidy surcharge. Notably, there is no counteracting voice that the regulator could draw on to support its initial stance. The sole consumer submission makes the larger argument that private companies will have to share the burden of the social responsibility that governments and distribution companies have to bear, but does not specifically call for existing users to be subject to the new regulations.[122]

The merits of the argument would appear to depend on whether sanctity of contracts in agreement is used as an overriding principle, or whether the underlying spirit behind the open access surcharge – facilitating a smooth transition for the public distribution companies – is the guiding objective. Since the final regulations (APERC Regulation No. 2 of 2005) are not accompanied by an order providing discussion of the Commission's reasoning, it is difficult to know the exact reasons behind the Commission's shift in position. From the information available, however, it does appear that the volume and intensity of the developer's views had an effect in causing the APERC to shift its position. [123]

In contrast to this experience, during the subsequent process of formulating a companion order on the cross-subsidy surcharge, the balance

of representation was slightly weighted toward consumer and public utility perspectives. Of 17 submissions received in response to the APERC's consultation paper of 13 July 2005, six were from generation companies (of which three substantively different submissions), three from HT consumers (of which two are also generators), four identical submissions from the distribution companies, and five submissions (four substantively different submissions) from individuals, political parties or consumer groups. In addition, the Government of AP submitted a letter that is referred to in the order, but that was not made available to us.

While the debate was, on the surface about methodological issues about how to compute the cross subsidy surcharge, at stake was actually a deeper contestation about the principle behind the surcharge.[124] Distribution companies and consumers argue for an 'embedded cost' approach (resulting in a higher surcharge) that more accurately reflects the cross-subsidy position and would help maintain the financial viability of the utilities. From this perspective, the surcharge is intended as a direct substitute for the cross-subsidy provided. The AP Transco, in particular, is reported to have made 'fierce representations' that the Electricity Act requires that the cost of service approach be used to calculate the surcharge.[125] Generation companies and HT users argued that an avoided cost of generation approach (which leads to a low surcharge) should be used to determine the surcharge, largely on the grounds that the surcharge should not be prohibitive and deter all open access customers. Moreover, they argued that the cross-subsidy is only intended to soften the impact of open access, but that the surcharge need not be equal to the cross-subsidy levels.[126] An insightful comment from an individual, who is also a former member of Telecom Regulatory Authority of India, makes clear the dilemma: 'The Commission seems to have taken the responsibility of simultaneously maintaining the financial health of the distribution companies and also paving the way for increased open access usage . . . this is like riding, at the same time, two horses which pull in opposite directions. . .'[127]

From the stakeholder comments, it is quite clear that the issue is not only a methodological one but a choice between competing, and highly politically charged objectives. Choosing promotion of open access would benefit industrial and generating interests, while choosing financial stability of the distribution companies would benefit the incumbent utilities and small consumers. Significantly, the Government of AP also clearly weighed in on this debate, stating that they would not be in a position to increase their contribution to the subsidy to compensate for any revenue loss from open access. Accordingly, they recommending that the embedded cost approach be used and the surcharge set to fully compensate for lost revenues from open access.[128]

In its order, the Commission chose the embedded cost approach. In its reasoning, the Commission rests on the argument that the embedded cost approach is most closely related to existing cross-subsidies, thereby implicitly agreeing with the view that the surcharge must be determined wholly by the need to compensate for cross subsidies. In its order revisiting the issue a year later following release of the National Tariff Policy, the Commission is more explicit that 'the Commission agrees with the GoAP that introduction of competition cannot be at the cost of financial viability of the utilities'.[129] Interviews confirm that the regulator viewed the need to cushion utilities from a revenue shock as an important part of their job.[130] The government's clear statement that they would not substitute for any revenue loss left the regulator to choose whether or not to risk undermining utility finances and a likely resultant political fallout. Ultimately, the decision inevitably had to factor in the political implications of alternative regulatory choices.

Rule-Making as a Balancing Act

Although stakeholders in the regulatory process tend to see the APERC in black and white shades, the open access experience suggests that a diversity of perspectives are, indeed reflected within its internal processes. Consultants play an important role as drivers of a pro-market perspective, and their role is particularly important as initial framers of choices between alternative rules. This framing is then filtered through the various perspectives within the APERC, notably the reality check of political viability and acceptability. Viewing the APERC as having built in mechanisms for articulation of various perspectives through various factions is probably more accurate than viewing it either as entirely given to one or another approach.

In cases such as the open access rules which have potentially large political implications, the regulator's internalisation of the government's political constraints is likely to prevail, as it explicitly did in this case. The government argued before the APERC that the utility could not be allowed to go bankrupt, and the APERC agreed, even at the cost of muzzling the development of open access.

In this case, following due process plays an important, but also limited role. Stakeholder comments provided the APERC justification for balancing the various interests represented before it. Notably, generating companies with existing access won a major concession – exemption from the cross-subsidy surcharge for the duration of their contract – through the force of their representation. However, due process provided only limited legitimacy because the nature of the decision required the regulator to pick among competing interests associated with competing beliefs – reform

through bold measures even at the risk of upheaval, versus reform subject to orderly politics. Reasoned arguments play only a limited role when confronted with strongly held beliefs.

Stakeholder Engagement in Practice

Like other regulatory commissions, the APERC has provisions in its operating procedures to ensure that stakeholders views can be represented before the Commission. In theory, stakeholder involvement can provide additional information, lend credibility to regulatory proceedings, and help inform regulators on the likely public response to their decisions, thereby helping them make better informed decisions. In this section we examine how APERC's involvement with stakeholders through both formal provisions and actual practice. The discussion is organised around three categories: transparency, participation and accountability.

Transparency: A Strong Framework, but a Guarded Gatekeeper

The APERC presented a mixed story on transparency. The Commission had instituted some robust formal processes for providing information, but at the same time there was lack of clarity on how far to extend transparency, leaving room for discretion and a considerable amount of cautious gatekeeping.

The APERC's conduct of business regulations clearly state that 'records of the Commission ... shall be open to inspection by all.'[131] While it also provides for some documents to be kept confidential, these have to be clearly marked as such by an explicit order. The presumption, in other words, is for full transparency unless explicitly specified otherwise.

In keeping with this presumption, the APERC has a clear and thorough web site on which regulations, orders and other critical documents are readily available. Examples of particularly good and innovative practice are the web sites section on cases that are related to APERC decisions, and a section devoted to consumers. Thus, the APERC web site is an important resource for consumers and other stakeholders.

However, as with other Commission, below the top level of the Commission's public documents - orders and regulations - there is considerable lack of clarity on both the available records of the Commission and the means through which they are available. The APERC has failed to prepare a well-indexed database of documents other than orders and regulations, to better enable stakeholders to access source material on the basis of which it prepares its decisions. While the APERC's business

regulation make clear that there is a presumption of transparency, in practice, these documents are hard to access, with access determined on a case to case basis by a gatekeeper, normally the APERC secretary. Examples of documents that fall into this grey zone include details of APERC scrutiny of investment schemes, and Government of AP communication with APERC, both of which were difficult for the research team involved in this project to obtain.

As a key function of the APERC, permitting scrutiny of investment schemes proposed by the utility should be an important part of the APERC's commitment to transparency. In practice, however, there was considerable confusion within the APERC as to whether this information could and should be made public. Indeed, the argument given was that consumers should only be interested in material that directly impacts consumers, while investment schemes were technical matters beyond the consumers competence or interest. Only after direct intervention from the Chairperson, who agreed with the principle that all information should be made available, and that the public should be at liberty to decide what is relevant, not the Commission, was the team allowed to look at a few files relating to investment scrutiny. Similar difficulties were reported by consumer groups. It is to the credit of the APERC that the information was finally made available, but this instance also points to the need for greater clarity and more systematic procedures.

In a second example, the team requested correspondence between the government and the APERC on the controversial issue of the cross-subsidy surcharge. The thrust of this correspondence was reported in the Commission's own order on the subject. However, we were informed that we would have to seek the documentation directly from the government, or that the correspondence could only be shared after permission was sought from the government.[132]

In sum, while the APERC has strong rules that favour full transparency, and APERC leadership agrees in full with this principle, a presumption toward transparency has not been internalised, in particular by APERC administrative staff. While there may indeed be good reason to keep some documents confidential, it would help the APERC's credibility to have clear and well communicated rules on which documents are to be kept confidential and why, with a high threshold for declaring documents off limits. Instead, there is a tendency to draw a discretionary line between what a consumer needs to know, and what is internal, technical, and should remain within the Commission. Having in place such a discretionary 'gatekeeper' is a flawed basis for the APERC to operationalise its commitment toward transparency.

Stakeholder Participation: Active Participation by a Few

The APERC consultation process is characterised by a small number of high active participants, who include among them a few intervenors of considerable knowledge and capacity. From among consumer-oriented groups, about a half dozen intervenors, including farmers' groups, a couple of NGOs, a political party – the CPM, make up the consistent participants in the regulatory process. Some of these interlocutors have established a track record of credibility with the APERC, and are considered 'almost equivalent to Commission staff in calibre'.[133]

APERC has had in the range of 100 objections filed each year that are targeted toward Discoms (See Appendix). In addition, since FY 2004 a growing number of objections have been targeted towards Transco (presumably related to power purchase and the new IPP projects), numbering 329 in FY 2005 and 117 in FY 2006.

From industry, associations of generating companies have been active, but industry participation as a whole is limited, and reducing over time. In FY 2002, industry contributed about 25 per cent of objections, but only about 10 per cent of objections in FY 2005. Within the industrial segment, only about 4-5 members of the 25,000 strong Federation of Andhra Pradesh Chambers of Commerce and Industry actually participate in its Energy Committee that examines regulatory orders.[134] This impression of narrow participation from industry is confirmed by APERC insiders.[135]

Farmer groups, on the other hand, have been consistently active, particularly from the Southern and Eastern Discoms. In FY 2003, farmers (like in Karnataka) filed about 460 objections in duplicate to gain attention. A few farmer group representatives constitute the core group of intervenors that actively participate in the regulatory process, and make substantive interventions.

The APERC has not, so far, taken any proactive measures to stimulate stakeholder participation, or to reach out to disadvantaged and under-represented groups. Recognising that participation is limited to a few groups, the Chairperson was open to the idea of support for consumer groups, but was unsure how it could be undertaken.[136] So far, unlike the notable example of Karnataka, the APERC has not seen its role as proactively stimulating consumer or stakeholder participation in its processes. The APERC was, however, flexible and responsive in holding public hearings based on where a large number of objections were filed.

The regulators themselves approach stakeholder participation and the hearings process in particular with a judicial manner. As the first Chairperson put it, '. . . we coolly sit down like judges. . .' and while there are several participants for whom hearings are simply an opportunity to

vent their frustration, comments at hearings gives the Commissioners insight into where support exists for particular measures.[137] For example, farmers represent on the type of agricultural tariff structure they would consider fair, which serves as an input into Commission deliberations. The hearings also provided an opportunity for the Commissioners to garner information from others within the system, such as retired Chief Engineers, to provide insight into the functioning of the electricity system. Particular stakeholder groups were also able to use the hearings as an opportunity to put forward suggestions for regulatory approaches that were consistent with their own interests, such as power factor based incentives as well as penalties.[138]

For their part there was considerable scepticism from stakeholders about the extent to which their concerns were addressed and to which the APERC was truly independent from the government. This scepticism was common across consumer groups, farmers groups, and industry. One consumer organisation vividly described participation in the regulatory process as 'blowing a conch near a deaf man's ear'.[139] Another gave a telling example of an order on purchase of non-conventional energy that was released a day after a hearing, suggesting that the APERC cannot possibly have done justice to stakeholder comments in such a short period.[140] In particular, stakeholders felt that at the end of the day, the APERC is but an 'extension of government' and is occupied with balancing tariff raises against the available subsidy, which is not very different from what occurred prior to creation of the APERC.[141] As a result, HT consumers in particular prefer to exercise their own channels to government and care little about participation in regulatory processes.[142]

Although the comments above captured the first reaction of most stakeholders, when further pressed on whether there had been any improvements compared to the pre-APERC situation, almost all offered a more optimistic view. There was broad agreement that regulation had introduced a much-needed element of transparency into the sector. Thus, consumers are now able to have access to ARRs, study them, and interact with regulatory staff. [143] Previously, this entire process had been closed and non-transparent. The hearings process had also provided a place for consumers voice their opinions, providing a measure of hope that their voices would, over time, have more impact. The APERC also had some credibility as providing a check on utilities, which previously were unchecked.[144]

Closing the Loop: Ease of Accountability

For stakeholder participation to be productive, stakeholders must have some sense of how their input is used. In other words, the loop must be

closed. To do this, stakeholder comments must form part of the regulatory record, as must a discussion by the regulator of how their reasoning uses stakeholder views.

The APERC has established a track record of reasoning in their orders, but with two flaws. First, the tariff orders do not refer to specific stakeholder comments, but only in a general way to submissions received by the Commission. Without clear response to specific comments, stakeholders cannot have an accurate sense of whether and how their input has been used. Second, as discussed earlier, while the APERC does produce draft regulations on which it seeks input, it does not provide public reflections on and reasoning for its final orders.

Another area where the APERC performs sub-optimally from an accountability perspective is in its tracking and monitoring of its directives. In its early years, the APERC tariff orders carried a list of directives, but without clear reference to how the regulated utilities had performed on its early directives. In more recent orders, the APERC has included an appendix reporting on directives carried forward and new directives. But far more useful would be a clear referencing system that allows stakeholders to track through the extent of compliance with directives from the year in which they are issued, until they are either fulfilled or abandoned. As the directive compliance analysis discussed earlier suggests, several APERC directives simply disappear from one tariff order to the next without appropriate follow through.

Finally, production of annual reports that both summarise the activities of the Commission and provide budgetary details are an important part of ensuring accountability, not only to stakeholders but also to the state legislature. On this count the APERC's track record has been weak. It produced annual reports for its first four years, but the web site records no annual report after 2002-3. In correspondence, the APERC indicates that reports have been prepared for each year up to 2004-5 and tabled before the legislature, although reports after 2002-3 have not been placed on the web site. The delay in finalising annual reports is attributed to delays in the audits of Commission accounts.[145] Both prompt finalisation of audits, and reliable postings of reports on the web site are areas requiring improvement.

The Bottom Line: Limited, but Significant Impact of Stakeholder Participation

In the end analysis, both regulators and stakeholders will only continue to be committed to an open and participatory regulatory process if the process leads to substantive changes on the ground. In AP, there are some initial indications of gains from participation in two dimensions: substantive impacts and procedural impacts.

Power purchase has consistently been an area of considerable focus for stakeholders. Thus in the 2000 tariff order, consumer groups argued that inefficient negotiation of PPAs had led to high costs.[146] In 2001 consumer groups specifically asked the APERC to widen its scope to examine PPAs that came into being prior to establishment of the Commission.[147] In 2002 they questioned the wisdom of contracts that required AP Transco to pay fixed costs for IPPs irrespective of the amount of power drawal.[148] These demands appear to have been a factor in persuading the APERC to seek to persuade voluntary renegotiation of some PPAs, albeit without success.

However, this established track record by consumer groups does appear to have sent signals of serious intent when it came to negotiation of new PPAs. For example, the BPL PPA is considered by insiders to be a considerable improvement over earlier PPAs, a gain attributed in part to active public scrutiny and involvement in the PPA hearing.

Procedurally, stakeholder pressure has resulted in several gains. For example, in response to stakeholder requests, the Commission forced distribution companies to make public their agricultural census reports.[149] Similarly, the APERC ordered that the dispatch order be posted on the web in order to allow stakeholders to assess for themselves whether AP Generation Company was being disadvantaged in dispatch. Finally, the Commission has expressed its willingness to be more proactive in stimulating participation by, for example, agreeing to translate its orders into Telugu to facilitate greater awareness in rural areas and among lower income groups. It has also opened the door to considering special outreach efforts for rural areas and to establish a dedicated mechanism to support consumer advocacy.[150]

Conclusion

The APERC emerges from this review as a competent, capable regulatory body. However, it operates within a larger regulatory space occupied by an engaged government and a strong, reformist utility, and subject to considerable political constraints. This tends to focus its approach on details, which keep it below the political radar, rather than on larger and potentially more sensitive issues.

Institutional and Political Context: A Supportive Government

The APERC began its existence as part of a larger World Bank supported reform programme. One immediate effect of doing so was to provide the APERC with unique access to support and training, including on-site presence of consultants. While consultants helped build technical capacity, they also shaped substantive decisions and the future trajectory of the APERC. While these mechanisms have received praise, this experience raises

the larger question of whether substantive directions for a regulator should be set in a more deliberate fashion, and not be the by-product of choice of consultant. One significant lacuna in the APERC's set-up period was attention to governance considerations such as procedural safeguards. This lacking has, perhaps contributed to subsequent murkiness in implementing procedures around transparency, communication with stakeholders, and requirements for hearings.

In addition, the APERC operated within the larger framework of a government that was actively engaged in supporting a reform process, and that lent considerable support and authority to the regulator. It also worked with a utility that has been unusually proactive and reformist. Unusually in the Indian context, government, utility and regulator were often pushing in the same direction. While the initial goal of reform was to move toward privatisation, once this goal was abandoned, reforms have substantially continued on track with notable and impressive gains. While there are certainly cases of conflict, this larger picture of cooperation frames the discussion of how regulation operated in practice.

Regulation in Practice: Competent, Cautious and Pragmatic

The internal personnel structure of APERC revolves around three distinct networks, each of which contributes a different approach to the regulatory culture. The first set is staff with a largely technology and engineering perspective from past or ongoing careers and networks with the AP state utilities; in March 2005, fully half the officers of APERC fell in this category. A second set bring a disciplinary orientation toward finance and economics. This set includes both external consultants, and APERC officers (and here APERC is unusual in having skilled economists among its staff). A third shaping influence comes in the form of the Chairperson of the APERC, which in both cases so far has been an IAS officer, who brings a far broader familiarity with the pragmatics of implementation. The internal culture of APERC reflects the interaction of these three perspectives, which combine to different extents in different decisions to result in a final outcome. For example, investment scrutiny has been the province of the technical arm, and as a result has been conducted in a detail-oriented fashion using the insider knowledge of APERC technocrats. In politically charged decisions, such as the regulation on cross-subsidy surcharge, enthusiasm by consultants and APERC economists was contained after it was subject to a political reality check by the leadership.

Given the predominance of former employees of the public utility, the APERC operated at its best within the realm of technical analysis and scrutiny. Its scrutiny of investment schemes was detailed, within the confines

of each scheme. In seeking to fill the data gap on agricultural consumption, it skilfully sought wide buy-in and credibility for its approach by both consulting AP Transco and by bringing in outside statistical expertise to advise on the sampling techniques. Similarly, it brought pressure on utilities to reduce transmission losses by commissioning independent assessments of these losses. Finally, APERC has a track record of timely and thorough tariff orders, which are a precondition for a well-functioning sector.

However, the Commission slipped into a different, more cautious, and judicial rather than investigative mode on any issues that had political overtones. Thus, while detailed scrutiny of investment schemes were carried out thoroughly, the APERC avoided larger questions of suitability and alternatives that may have called into question implementation of the scheme. Taking on these bigger issues may have exposed the APERC to pressure from elected officials with an interest in particular schemes, a challenge it did not seem willing to accept. A tendency toward defensibility rather than independent scrutiny is also evident in APERC's approval of four gas fired plants based on a rather uncritical acceptance of a high reserve margin, which reversed a significantly lower estimate just a few months earlier. In this case, the APERC accepted a recommendation by the Central Electricity Authority, although the dramatic shift in estimates within a few months warranted further query.

On only a few occasions did the Commission adopt a bargaining and diplomatic approach to finding regulatory solutions. For example, confronted with pressure from stakeholders to reopen existing PPAs, it explored its legal options, concluded it did not have the standing to do so, and then identified cost reduction options and sought to persuade the parties to renegotiate, albeit without success. The Commission's effort to construct a credible sampling basis for measuring agricultural consumption is another example of sensitive mediation. However, the APERC's ability to play a bargaining game may be limited by its lack of a big stick with which to threaten repercussions. Faced with relatively low compliance rates, the APERC was self-restrained in imposing any penalties or fines since its inception. This self-restraint is due to a regulatory space dominated by a large and powerful utility that, unbundling notwithstanding, remains centrally directed. In addition, the government retains an active role beyond that of enabler, by closely monitoring the utility, and by steering the sector away from politically fraught waters. The APERC is, in many ways, a junior, if essential, partner in this three-way relationship.

At most times, the three entities were steering the sector in the same direction – towards better financial and technical performance, lower loss levels, and greater use of management incentives. While the APERC played a capable supporting role by stimulating plugging of data gaps, producing

orders on time, and so on, it has only in a few cases been an active driver of change. This role has most often fallen to AP Transco with the government's support.

On occasion, interests of the three bodies have differed. The issue of non-conventional energy (NCE) is one such example, when the APERC order supporting NCE, perhaps due to pressure from the government, was opposed by AP Transco. In another example, the regulator's insistence on agricultural metering ran afoul of political realities. On such occasions, neither APERC nor AP Transco has been able to reverse political decisions.

Instead of trying to free itself of political constraints, APERC has sought to maximise its effectiveness within them. For example, instead of refusing to approve an HVDS project, it chose to allow it to proceed on a pilot basis with step by step approval. In many ways, this pragmatic approach reflects the political reality that the APERC's own existence, credibility and future is by no means separable from the government's actions. Thus, following the political outcry after the APERC's first tariff order substantially increasing tariffs, an implicit coordination appears to have developed, whereby the APERC uses the ambiguities in the tariff process to limit the revenue requirement, while the government faithfully provides a subsidy sufficient to stem tariff hikes. This accommodation is made possible by superior revenue performance by AP Transco, in particular by attracting and retaining HT customers, thereby keeping the subsidy requirement in check. Under different financial circumstances that placed there relationships under pressure, a similar regulatory space could result in more confrontational outcomes.

Given the pressures to accommodate, the APERC was unlikely to be able to serve as a steward of reform without explicit support from the other two players. Instead, its ability to influence change has depended on how well it exploits the available opportunities it has and builds credibility as an agent of change, particularly with the larger group of stakeholders.

Role of Stakeholders: Narrow Participation, Limited Gains

The APERC has built a reasonably robust infrastructure to support its public consultations and engagement based on a strong web site, and a track record of engagement with at least a few dedicated groups. However, there are at least a few serious shortcomings in their stakeholder process. Most problematic, there remains confusion on how far transparency should extend, exemplified by reluctance to share APERC scrutiny of investment schemes. On the rule-making side, while the APERC holds consultations on regulations, the public is never informed about how their input is used. In one notable case, an order was issued the day after a consultation, leaving little confidence that public comments were taken into account.

Finally, the absence of regular annual reports, which are meant to be tabled before the legislature, undermines the basis for legislative accountability.

The APERC has cultivated productive relationships with a relatively small number of informed and regular interlocutors including farmers groups, consumer advocates, NGOs, and industry, with whom interaction is respectful and detailed. Some of these groups have accumulated a formidable body of knowledge through interaction with APERC over the years. Moreover, at least some of the interaction rises above the parochial to speak to the public interest, as in the scrutiny of PPAs or the example of consumer groups pointing out that incentive-based regulation will be extremely difficult to implement in the absence of full agricultural metering. However, this interaction rests on a very small number of groups. The APERC has considered but not acted, as yet, on creating a dedicated mechanism for outreach and support to stakeholders to stimulate greater and more in-depth participation.

The track record of accomplishments through stakeholder engagement remains thin. Some notable procedural gains, such as transparency in agricultural census reports, have been achieved through consumer pressure. Substantively, stakeholder comments and analysis appear to have contributed to more detailed scrutiny of PPAs and resultant gains to the public, although establishing causality in such a case is extremely hard. Based on these modest gains, stakeholder sentiment is dominantly that the APERC has brought welcome transparency, but does not signal a dramatic change from business as usual in the governance of the sector.

If the APERC has failed to change the established politics of the sector, it is at least in part because it limits itself to a technocratic framing that seeks to formally deny the existence of political influences in its functioning. As a result it operates only within politically safe limits. For example, the APERC reasoning in its cross-subsidy surcharge order is technical in its tone, even while the issue is suffused with political considerations. Based on this approach, stakeholders do not currently see the APERC as a site for resolution of these sorts of charged political issues that lie at the heart of sector reform. To build this level of credibility, the APERC would have to be willing to substantially expand its stakeholder engagement and embrace a substantial role for democratic process in its decision-making structures.

Notes

1. N Sreekumar, M Thimma Reddy and K Uma Rao, 'Analysis of Policy Process in Power Sector in Andhra Pradesh', Monograph, Centre for Economic and Social Studies, Hyderabad, 2003.
2. Quoted in Sreekumar et al., p. 12.

3. Sreekumar et al.
4. In the view of one member of the Hiten Bhaya Committee, T L Sankar, these changes did not amount to anything very different. The introduction of the World Bank led to considerable additional expenditure on consultants and the loss of time, with very little gain. Interview with T L Sankar, 1 May 2006.
5. Critics point out that the reformers had not adequately looked into the sudden rise in APSEB's losses after several decades of creditable performance. As a result, they focused too much on agricultural subsidies, and not enough on increasing power purchase costs and loss of lucrative customers due to joint ventures with private industrial consumers. Moreover, they note that demand estimates were overblown, leading to greater emphasis than needed on attracting private capital for generation. For details, see Sreekumar et al.
6. Notably, the government embarked on an extensive communication effort to win support for reforms, which included releasing a policy document for discussion, initiating dialogue with unions and opposition leaders, and holding a public forum. The reform was controversial nonetheless, with a major tariff hike by the APERC in 2000 providing a flashpoint. Madelene O'Donnell and Parmesh Shah, Andhra Pradesh, India, 'Participation in Macroeconomic Policy Making and Reform', *Social Development Notes*, 78, World Bank, March 2003.
7. World Bank, 1999, p. 12-3.
8. World Bank, Project Appraisal Document, Andhra Pradesh Power Sector Restructuring Project, Report No. 18849 IN, 25, January 1999.
9. Interview with G P Rao, first Chairperson APERC, 1 May 2006.
10. Interview with APERC staff, 1 May 2006.
11. Interview with APERC staff, 1 May 2006 and Commissioner, 1 May 2006.
12. This view is inferred by examining NERA training materials used to train the Orissa Electricity Regulatory Commission. It is possible, but unlikely, that the approach has changed significantly between the two regulatory training efforts.
13. Interview with APERC staff member, 25 May 2006.
14. Interview with Mr Chandrababu Naidu, former Chief Minister of AP, 1 June 2006.
15. Interview with senior management of AP Transco, 2 May 2006, consultant, 2 May 2006 and APERC staff, 25 May 2006.
16. Interview with first Chairperson, APERC, 1 May 2006.
17. Interview with Secretary, APERC, 25 May 2006.
18. An APERC member brought in staff known to him during his prior work at the utilities.
19. However, this may be simply an accounting artifact, with consultancies noted under other categories such as professional services.
20. Interview with consultant, 2 May 2006.
21. Interview with APERC staff member, 25 May 2006.
22. Interview with first Chairperson, 1 May 2006.
23. Interview with first Chairperson, 1 May 2006.
24. Interview with consultant, 2 May 2006.
25. Interview with first Chairperson, 1 May 2006.
26. APERC Tariff Order, 2000.

27. Interview with regulatory consultants, 26 April 2006 and 2 May 2006.
28. Interview with regulatory official, January 2007.
29. APERC Tariff Order, 2001, p. 169.
30. APERC, Tariff Order, 2000, p. 55.
31. APERC, Tariff Order, 2001, p. 60-2.
32. APERC Tariff Order, multiple years.
33. APERC, Tariff Order, 2003.
34. APERC, Tariff Order, 2005, p. 72.
35. APERC Tariff Order, 2005, p. 21.
36. Personal correspondence, APERC, 1 January 2007.
37. APERC Tariff Order, 2002, p. 57.
38. APERC Tariff Order, 2003, p. 83.
39. Personal Communication, APERC, 1 January 2007.
40. APERC Tariff Order, 2003, pp. 82-3.
41. APERC Tariff Order, 2002, p. 83.
42. APERC Tariff Orders, various years.
43. Interview with senior APERC official, 1 June 2006.
44. Interview with first Chairperson, APERC, 1 May 2006.
45. Note that we aim to understand the workings of the regulator, not to assess the utilities' true performance. We also do not have the scope or data to relate cause and effect and therefore draw conclusions on the regulators' effectiveness; rather we wish to gain insights into the forces at play.
46. It is noteworthy that some experts and consumer groups believe that performance statistics may overstate true gains. In particular, they voice a suspicion that through manipulation of billing data, the percentage of high-tariff customers is over-inflated, making billing look better and reducing losses. Interview with electricity expert, 1 May 2006 and consumer representative, 2 May 2006.
47. Interview with Discom Consultant, KPMG, May 2006.
48. Interview with first Chairperson, APERC, 1 May 2006.
49. Interview with Chandrababu Naidu, former Chief Minister of AP, 1 June 2006.
50. Interview with former Director, Commercial at APCPDCL, 1 June 2006.
51. Interview with CMD, AP Transco, 2 May 2006.
52. Chairman of Energy Committee, Federation of Andhra Pradesh Chamber of Commerce, India (FAPCCI), 25 May 2006.
53. Interview with senior AP Transco official, 2 May 2006.
54. Interview with first Chairperson, APERC, 1 May 2006.
55. Interview with consultant, 2 May 2006.
56. Interview with consumer advocate and member of Engineer's Association, 2 May 2006.
57. Tariff Order FY 2003, p. 217
58. See early APERC tariff orders including Tariff Order 2002, p. 83, 2004, p. 91 and 2005, p. 134, for deference to utility projections.
59. APERC Tariff Order, 2004, p. 92.
60. Interview with senior APERC official, 1 June 2006.
61. 'Electricity Governance in India: An Analysis of Institutions and Practice', Electricity Goveranance Initiative, February 2006.

62. Interview with Chairperson, APERC, 1 June 2006.
63. Interview with senior regulatory official, 1 June 2006.
64. Paragraph 10.5 of the License contains the provision to include in investment proposal in ERC filings only those schemes already approved by the APERC. But more often than not utilities failed to comply. For example, see Tariff Order, FY 2003, p. 123.
65. One HVDS Scheme was submitted in Jan 2003, received feedback from APERC only in December 2003 to alter certain cost assumptions.
66. Personal communication, APERC staff, 1 January 2007.
67. Interview with retired Discom official, 1 June 2006.
68. Members ask for updates from Discoms on projects during their quarterly site visits, according to Member, Technical, but do not individually track project implementation, 25 May 2006.
69. Interview with staff member, APERC, 1 June 2006
70. Interview with senior regulatory official, 1 June 2006.
71. Interview with regulatory official, January 2007.
72. Interview with first Chairperson, 2 June 2006.
73. These comments are based on personal review of the APERC's file for this project, 2 June 2006.
74. Interview with staff member, APERC, 1 June 2006.
75. Interview with former Discom official, 1 June 2006.
76. Interview with senior regulatory official, 2 June 2006.
77. The Accelerated Power Development Reform Programme is a Central Government programme that provides financial support to upgrade physical infrastructure.
78. Interview with senior regulatory staff, 1 June 2006.
79. Madelene O'Donnell and Parmesh Shah, 'Andhra Pradesh, India: Participation in Macroeconomic Policy Making and Reform', *Social Development Notes*, 78, World Bank, March 2003.
80. Interview with senior official of APERC, 1 May 2006.
81. Interview with consumer group, 2 May 2006.
82. Interview with regulatory staff, 25 May 2006.
83. Geeta Gouri, 'Design and Governance of the Institution exercising the Regulatory Function: The Indian Case'.
84. Interview with consultant, 3 May 2006.
85. Interview with consultant, 3 May 2006; interview with AP Transco representative, 2 May 2006.
86. Government sources insist that the subsidy is not known ex ante (Interview with former Energy Secretary, 3 May 2006). However, others involved in the process insist that the subsidy is known prior to tariff determination (Interview with reform consultant, 3 May 2006 and senior official of AP Transco, 2 May 2006). Moreover, the approximate subsidy amount is known from the state budget (Interview with APERC official, 25 May 2006).
87. Tariff Order 2004-5, issued March 2004, p. 159.
88. Personal communication, APERC staff, 1 January 2007; and personal communication with first Chairperson, APERC, 2 January 2007.

89. Interview with senior AP Tranco official, 2 May 2006.
90. APERC Tariff Order, 23 March 2006 for Distribution and Retail Supply Businesses, Table 35.
91. PPA Amendment Agreement between Vemagiri Power Gen Ltd and AP Transco, 18 June 2003 (APERC web site, posted 1 July 2006), p. 15.
92. This contrasts with the Karnataka case of Tannir Bhavi, where the KERC stretched its legal interpretation to protect the consumer interest. This only suggests the extent to which – right or wrong – regulatory powers can be exercised if desired.
93. Interview with former APERC Chairperson, 2 June 2006.
94. APERC Order of 14 December 2004, In the matter of Consent for proposed amendments to Power Purchase Agreement between AP Transco and GVK Industries. Available at www.ercap.org.
95. Interview with senior AP Transco official, 19 May 2006.
96. Consumer representatives argue they had pointed out fallacies in the fuel suppliers' representations of fuel availability. Interview with consumer advocates, 2 May 2006. We were unable to judge the basis for these arguments, since the Commission preferred not to release these letters without obtaining the permission of the Government of AP.
97. Interview with first Chairperson of APERC, 2 June 2006.
98. 29 July 2002 Order on demand forecast.
99. 8 April 2003 Order.
100. See APERC Order O.P. No. 506, 29 July 2002 and O.P. No. 179, 8 April 2003.
101. Interviews with Independent journalist, and union representative, June 2006.
102. Interview with senior APERC staff member, 25 May 2006.
103. Interview with senior regulatory official, 2 June 2006.
104. Suo Motu proceedings on NCE incentives, 20 June 2001.
105. APERC Order on purchase from non-conventional energy sources, 27 September 2005.
106. Tariff Order for Distribution Companies 2006-7, Paragraph 136.
107. Developers, associations and AP Transco were heard on 22 December 2003 and 23 December 2003 Public hearing held on 19 March 2004 order passed on 20 March 2004.
108. Tariff Order 2001-2, 24 March 2001.
109. APERC Order for Purchase of Power from Non-Conventional Energy Projects, 20 March 2004.
110. Interview with first Chairperson, 2 June 2006.
111. APERC Order on Purchase from Non-Conventional Energy Sources, 20 March 2004, R.P. No. 84/2003 in O.P. No. 1075/2000.
112. Interview with senior official, AP Transco, 19 May 2006 and interview with Consumer representative.
113. Terms of Reference for Support to APERC (Section 3). Document obtained from APERC, 4 August 2003.
114. Interview with first Chairperson, APERC, 1 May 2006 and with regulatory consultant, 2 May 2006.

115. Interview with utility consultant, 3 May 2006.
116. Interview with APERC staff, 25 May, 2006.
117. Interview with senior APERC official, 1 June 2006.
118. APERC, O.P. 16 of 2005 and O.P. 13 of 2006, Available at www.ercap.org Accessed on 16 November 2006.
119. Submissions on Draft Open Access Regulations (2004) obtained from APERC.
120. This issue is covered in Section 7 of the draft and final Open Access regulations.
121. Comments by Small Hydro Power Developers Association (26 August 2004) to APERC on Draft Open Access Regulations. Also repeated in several other comments.
122. A precise rebuttal to the private developers' argument was put forward in a consumer submission during subsequent open access surcharge discussions, but by this point the regulation had been passed, and the APERC dismissed the argument with reference to the Government of India order referred to above.
123. Although it is not mentioned in the final Open Access Order (Regulation 2 of 2005), in subsequent orders (O.P. 13 of 2006, p. 9) the APERC does make mention of a Government of India notification (08-06-05, SO 789 (E)) stating that no surcharge is required to be paid by companies that have existing wheeling contracts. It is unclear whether the APERC's decision to accede to the developers' requests was driven by this Government of India notification or was arrived at independently, since the APERC's decision followed less than a month after the Central Government's order, and the APERC makes no mention of this order in its final regulation. This is also discussed in Open Access Regulation (No. 2 of 2005) vide Clause 1(d).
124. APERC, O.P. 16, 2005, pp. 5–9.
125. Interview with consultant, 3 May 2006.
126. The APERC's discussion paper included a third approach – the difference between retail tariff of the consumer category and the average retail tariff – but this approach did not figure prominently in the discussions.
127. K P Rao, Submission to the Secretary, APERC, 5 August 2005. Obtained from APERC. He goes on to argue that since the APERC has evolved the practice of using the cost of service approach to tariff regulation, the same principle should be used to compute the cross-subsidy, which points to the embedded cost approach. Anything else, he suggests, will be seen as a blatant attempt by the APERC to change the methodology simply to provide advantage to open access and private generators.
128. While the APERC went through a second round of consultation and revision of this order following release of the National Tariff Policy, the substantive content of the order did not change (APERC, OP 13 of 2006).
129. APERC, O.P. 13 of 2006, p. 8.
130. Interview with senior regulatory official, APERC, 1 June 2006.
131. APERC, Business Rules of the Commission Regulations, Clause 53. Regulation 2, 5 July 1999. Available at www.ercap.org. Accessed on 18 November 2006.
132. Interview with Chairperson and Secretary of APERC, 1 June 2006.
133. Interview with Chairperson of APERC, 1 June 2006.

134. Interview with Chairperson of Energy Committee, FAPCCI, 25 May 2006.
135. Interview with senior APERC official, 1 June 2006.
136. Interview with Chairperson, APERC, 2 May 2006.
137. Interview with first Chairperson, APERC, 1 May 2006.
138. Interview with Chairperson, APERC, 2 May 2006.
139. Interview with consumer representative, 2 June 2006.
140. Interview with consumer organisation, 1 June 2006.
141. Interview with consumer representative, 1 June 2006 and industry representative, 25 May 2006.
142. Interview with industry representative, 25 May 2006.
143. Interview with consumer organisation, 1 June 2006.
144. Interview with consumer organisation, 2 June 2006.
145. Personal correspondence with K Swaminathan, Chairman of APERC, 4 January 2007.
146. APERC Tariff Order, 2000, p. 14.
147. APERC Tariff Order, 2001, p. 23.
148. APERC Tariff Order, 2002, pp. 29–32.
149. APERC Tariff Order, 2002, p. 84.
150. APERC Tariff Order, 2005, p. 65.