

PHILIPPINE RURAL ELECTRIC COOPERATIVES

A PRIMER

With a Few Opinions and Some Analytical Research

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Institutions Involved in Rural Power Supply

The rural electrification program in the country could be said to have formally begun with the National Electrification Administration Act in 1969, which declared as national policy the total electrification of the countryside on an area coverage basis¹. The National Electrification Administration (NEA), a state corporation, is the core government agency responsible for conducting rural electrification. It accomplishes this through the establishment, coordination, and substantial regulation of Rural Electric Cooperatives (RECs), of which there are currently one hundred nineteen (119) throughout the country. The rural electric system, as it exists today in the Philippines, was completely established under the aegis of NEA.

The 119 RECs themselves, now that they are established, are the institutions that are carrying out rural electrification today, with the assistance and oversight of NEA. They are non-stock, non-profit corporations that provide electric distribution under a franchise issued by NEA for a geographic territory. The RECs purchase power at wholesale (primarily from the National Power Corporation - "NPC"), construct, own, and operate electric distribution facilities, and provide retail electric service to its member-consumers. As a public utility, the retail tariffs of the RECs are regulated by the Energy Regulatory Board, a quasi-judicial body that regulates pricing for all electric utilities in the country.

Most of the capital required for the establishment of the RECs and for the funding of economically-justifiable system extension and rehabilitation projects has been provided through loans by foreign-donor banks to NEA. NEA re-lends these funds, which have historically received a government guarantee, to individual REC's who are responsible for the repayment. The RECs also receive substantial funds from the Philippine government country-wide assistance programs. These funds are allocated annually by Congress and are coursed through individual legislators for their discretionary spending. NEA coordinates

¹ Area Coverage is defined in Presidential Decree No. 269 (1973) as "dependable and adequate service that, on the basis of reasonable and standard extension and service policies, rates, charges and other terms and conditions, will be or is being made available to all persons within the affected area as above defined who request such service and are able and willing to abide by and comply with all reasonable and standard terms and conditions, regardless of the relative location of such persons within the affected area or of their proximity to existing or proposed service facilities: Provided, that the financial feasibility of the public service entity's entire operation is not thereby impaired."

and handles the actual disbursement of these subsidy funds to the individual RECs. Such funds from the Government are considered subsidies to the rural electric program and are used typically for capital requirement portion of “non-viable” line extensions and projects (i.e., projects that do not meet the NEA economic return criteria to qualify for loan-funding).

The National Electrification Commission (NEC) is the franchising authority of the RECs. The existing NEC is composed of the board members of the National Electrification Administration (NEA). The NEA board members essentially serve two distinct functions: as NEA board members and as NEC commissioners. Although its rate regulatory oversight of the RECs has since been transferred to the Energy Regulatory Board (ERB), it was actually the NEC which regulated the tariffs of the RECs under NEA.

NEA, along with the NPC and the Philippine National Oil Company (PNOC), is an “attached” agency to the Department of Energy (DOE)². It effectively comes under the supervision of the DOE and the Secretary of Energy sits as ex-officio Chairman of the Board of NEA. The DOE essentially sets energy sector policy³, including that on electricity utilization and distribution, and the NEA effectively implements that DOE policy relative to rural electrification. In particular, DOE sets the Government’s agenda on electrification coverage goals and timetable. NEA is tasked as the primary (but not necessarily only) agency for achieving that through the RECs.

NPC, because of its charter, has the obligation for providing the electric bulk power requirements (through generation and transmission) of the country (in general), including that of the RECs. RECs may enter into supplemental power purchase agreements with Independent Power Producers (IPPs) but, to date, relatively very little energy is supplied from entities other than NPC. Most RECs are connected to the integrated network transmission grids of NPC and purchase power at an ERB-regulated rate that varies by major national grid (Luzon – Visayas – Mindanao). Power supply to RECs on isolated islands is provided by the Strategic Power Utility Group (SPUG) of NPC, which installs and operates small

2 See Republic Act 7638 (1992), creating the Department of Energy.

3 The DOE prepares, integrates, coordinates, and controls plans, programs, projects, and activities of the government on energy exploration, development, utilization, distribution, and conservation.

diesel engine-generator sets that supply power at a single standard subsidized rate throughout the isolated grids.

As a government corporation, NEA works closely with the National Economic and Development Authority (NEDA), which reviews all of the projects of the RECs to be included in the government's Medium Term Public Investment Plan. NEDA evaluates the projects against set economic and financial parameters (an economic return of 15% and a financial return of 12%; the EIRR is considered binding) to ensure that the NEA and RECs allocate loan funds to only those that are viable. Non-viable projects are recommended by NEDA for subsidy from the government or other entities. NEDA also plays a major role in fund sourcing, particularly grants and loans from international financing institutions.

The ERB regulates both the tariffs for NPC sales to the RECs as well as the REC's retail tariffs to their member-consumers. However, the loan agreements between NEA and the RECs specify (pursuant to PD 269) that the borrower's rates be subject to the approval of NEA also in order to insure achievement of the loan purposes. In practice, NEA approves any tariff modifications prior to submittal to the ERB.

Rural electrification in the country is generally understood to be all of the Philippines except for the metropolitan Manila area and about sixteen other urban centers. These are served by private investor-owned utilities and one municipal utility. To some extent, rural electrification involves more than just the 119 RECs. There are un-electrified communities in the franchise areas of many of the private distribution companies also – but the scope of such is much less than with the RECs.

RELATIVE IMPORTANCE OF THE RECs

The RECs are the most dominant retail supplier group of electricity in the Philippines except for Meralco itself. Figures 1 and 2 shows the approximate 1998 peak demands and energy in each major grid for the RECs, the non-Meralco investor-owned utilities (IOUs), and for the direct-served customers of NPC.

Figure 1

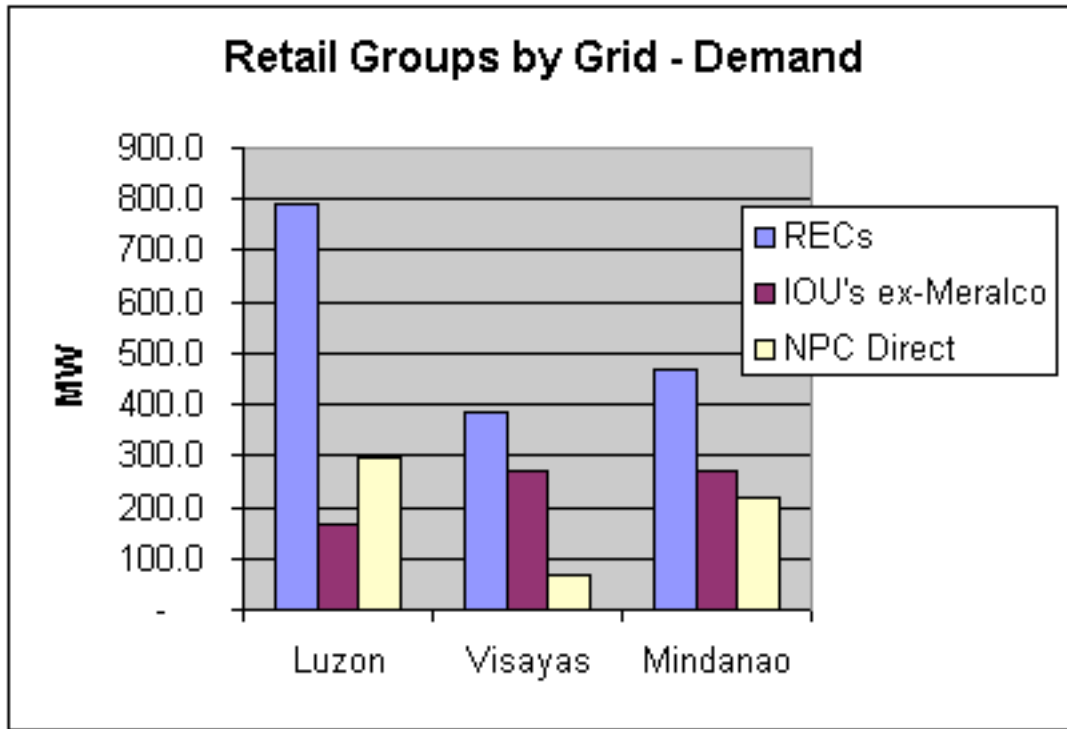
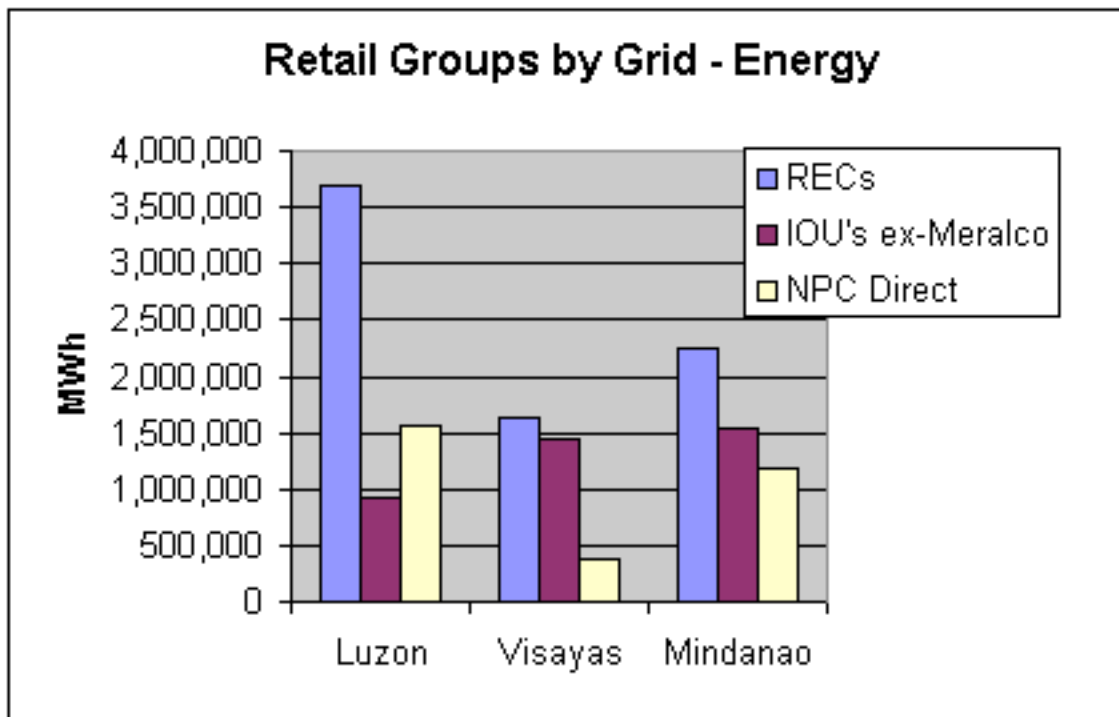


Figure 2



As of 1998, the RECs accounted for more than half (51%) of all connections (9.234 million) in the country. The area under their franchises encompassed 61 percent of all potential household connections. Meralco, on the other hand, accounted for 39 percent of all connections and its area for 30.6 percent of national potential connections.

Countrywide, the RECs supply about 1,600 MW and 7,000 GWh (Figure 3 and Figure 4). Meralco, in comparison, provides about twice the peak demand of the RECs countrywide and almost three-times the energy.

Figure 3

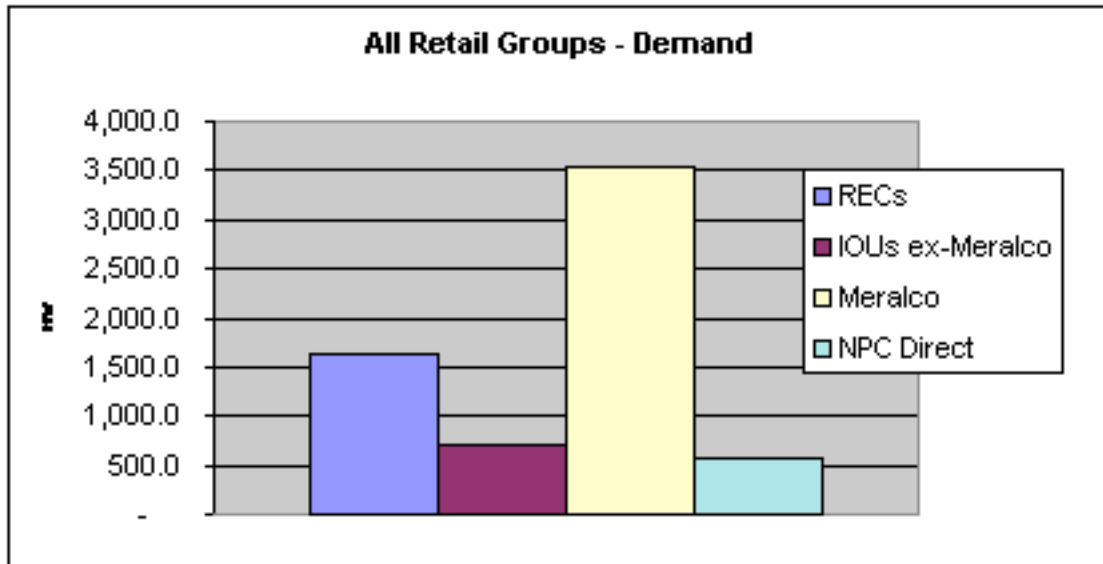
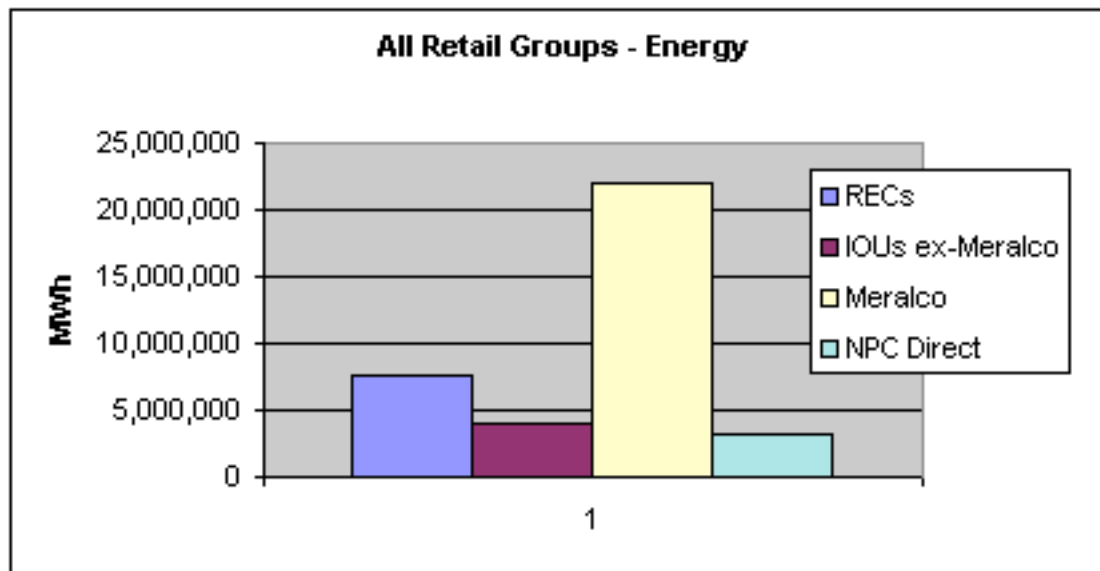


Figure 4



Relevant Laws and Regulations for RECs

The most relevant statutory documents regarding the current legal bases and operations of NEA and the RECs can be outlined as follows:

◆ Presidential Decree 269 (1973)

This is entitled the National Electrification Administration Decree. It repealed, in entirety, Republic Act 6039 of 1969 entitled the National Electrification Administration Act. PD 269 created a public corporation of the already existing NEA, empowered NEA to issue orders, rules and regulations on matters affecting RECs, delegated franchising powers to NEA, and empowered NEA to fix retail rates of RECs.

◆ Presidential Decree 1645 (1979)

PD 1645 modified, in part, PD 269 relating to the powers of NEA. It essentially strengthened (tightened) the control of NEA over the individual RECs and expanded NEA power to supervise and control the technical and managerial activities of the RECs.

◆ Republic Act 6938 and 6939 (1990)

These are known, respectively, as the Cooperative Code of the Philippines and the Cooperative Development Authority Act.

◆ **Republic Act 7638 (1992)**

This is the DOE Act. It placed electricity price regulation of the RECs under the regulation of the Energy Regulatory Board and re-established NEA as an attached agency of the DOE.

◆ **Implementing Guidelines on the Conversion of Electric Cooperatives Under RA 6938 (1996)**

These were jointly promulgated by CDA and NEA. These guidelines specify how the capitalization of the stock cooperative shall be computed, defines two kinds of memberships (voting and non-voting), and defines rules on the general assembly quorum requirements, voting system (one member, one vote), Board of Directors, and Officers.

Corporate Organization of RECs

The organization of the RECs is specified in PD 269 as modified by PD 1645.

“The Management of a Cooperative shall be vested in its Board, subject to the supervision and control of NEA which shall have the right to be represented and to participate in all Board meetings and deliberations and to approve all policies and resolutions of the Boards⁴.”

The REC Board consists of not less than five directors elected by the consumer-members. The specific number, manner of election, and terms are set by individual by-laws of the RECs. Although not defined in the statutes, each REC Board nominates, for NEA’s approval, a General Manager for the REC to oversee the day-to-day operations.

REC Tariff Issues

INSTITUTIONAL

The Department of Energy Act of 1992 transferred the rate regulation of RECs from the NEA to the ERB, which has adopted the former’s “cash-based” methodology used up to the end of 1992. Doubts were raised then about the institu-

⁴ PD 1645

tional capability of the board to take on the new task, burdened as it was then with regulating and enforcing prices of oil products throughout the downstream industry, and electricity tariffs for about 17 private distribution utilities.

METHODOLOGY

Under the NEC⁵ rate regime, tariffs were set on a cash-based methodology to recover the following cost-of-service items:

- Purchase Power Costs
- Non-Power Costs
- Loan Principal Amortization
- Interest on Loans
- Reinvestment Fund Allowance

There are four classifications for the Non-Power Costs:

- Distribution Expense – Operations
- Distribution Expense – Maintenance
- Consumers Account Expense
- Administrative & General Expense

The Reinvestment Fund Allowance was initiated in 1990 to cover a portion of investment requirements and was initially set at 5 percent of gross revenue. It was expected that in the longer term, the reinvestment part would be gradually adjusted for the RECs to achieve an overall self-financing ratio of 20 percent. It is still currently being allowed at the original 5% level.

It was also at this time, 1990, that the National Electrification Commission (NEC) authorized the RECs to adopt adjustment clauses to effect immediate changes in purchased power cost and mandatory wage increases. Once the non-power operating costs, the reinvestment portion, and the debt service components were fixed, these applied until the next resolution of rate review cases. There are two automatic adjustment clauses currently allowed by the ERB -- the Power Purchase Adjustment (PPA) and the mandatory Wage Adjustment Clause (WAC).

⁵ This is mentioned in the system design discussion in the revitalization program report. Of course, technical losses may exceed this figure because of poor or improper maintenance.

The WAC provides for automatic recovery of mandated wage increases and associated employer's contributions. The PPA recovers increases in power purchase costs.

All REC tariff filings before the ERB are audited by the Commission on Audits. Expenses disallowed by COA (and thus ERB) include:

- Voluntary contributions
- Representation expenses
- Major repairs and overhauling that have a value exceeding one year
- Expenses accruing to properties and equipment not in service
- Advertising expenses which are promotional and institutional
- Theoretical provisions like self-insurance

Because of regulatory lag, the ratio between net margins (the difference between operating margins and net non-operating expenses, mainly debt service) and gross revenue show a consistent decline (except in 1994) up to 1998, after jumping to 5.1 percent in 1991 from 0.4 percent in 1990. The mean ratio for the nine-year period is 1.8 percent. In 1998, just over 20 percent of the coops had a ratio greater than the desired 5 percent. (Refer to Tariffs Table 1). In any case, the negative effects of the declining ratios may have been largely offset by demand growth during the period, when positive net margins were still earned.

Tariff Policy

A tariff policy manual was approved by the NEA board in June of 1992 but its implementation was overtaken by events. The manual contained a simplified cost-of-service methodology that addressed the rate-design problems of the RECs, which revolved around the failure of tariff levels to reflect the true cost of supply and service to the different customer classes, who were distinguished according to type of use rather than load characteristics. The preparation of the manual was part of the agency's commitment to the World Bank under the revitalization program.⁶

⁶ After the transfer of NEC's rate-setting powers to the ERB, the director of the NEC-Tariffs explained the tariff manual to the Board presumably in an effort to persuade it to adopt the proposed methodology. However, the Board was reluctant to do so. That director was subsequently appointed member of the Board and became its chair in 1999.

The proposed tariff policy would have gradually eliminated the cross-subsidies accorded residential consumers by larger loads by setting charges according to delivery voltages. However, the setting of the rate levels was still in tune with the old system which contained a degree of arbitrariness in regard to the reinvestment provision, exacerbating the method of reckoning amortization cost as an analogue to depreciation in traditional rate of return regulation. The fact is that the cash-based methodology does not even resemble RORB regulation even superficially. This lack of correspondence had been justified by invoking the special character of coops as opposed to private utilities. This problem has however been mitigated by the adoption of reasonable investment guidelines for the RECs starting in 1991.

The arbitrariness of rate setting under the cash methodology is underlined by a look at the price elasticity of demand. Our investigation shows that rates may have been set above the hypothetical 'monopoly price' for both residential consumption and worse, for industrial and commercial loads. In our numerical exercise using household income data and average EC rates for the franchise areas, we found that three coops charged higher than monopoly prices for households and more than half charged higher than monopoly prices to large loads, which exhibit a very elastic demand compared to households. (Refer to Annex-Tariffs).

A charge above the monopoly price means that it makes sense to reduce rates because doing so increases net revenues. Prices set to recover fixed costs uncritically can lead to a self-defeating cycle: if in the first place, demand cannot make the service viable, charging to recover all fixed costs would only lead to larger operating deficits. The results suggest that removing cross-subsidies from large to residential loads, especially those related to capacity costs, will redound to the benefit of all consumers in the long run. In the case of large loads, think that correcting prices charged to them will have large direct and indirect economic effects to the franchise areas.

Those who invoke the different character of the cooperative enterprise are often nonchalant about the level of prices, because whether these result in profits or losses, these will be enjoyed or borne by the owner-members anyway. If we grant

that argument, there would be no need whatsoever for any price regulation because the consequences of pricing decisions are borne by the members.⁷

SYSTEM LOSSES

In July 1994, the legislature enacted the anti-electricity theft and pilferage law (RA 7832) providing stiff penalties for thieves and capped, on a declining schedule, the amount of system losses recoverable through rates of the private distribution utilities and the Recs.⁸ Prior to the enactment of RA 7832, the NEC had instituted a limited incentive scheme⁹ for allowable system loss recovery in REC rates.

In the implementing rules the ERB issued in July 1995, it gave the utilities and RECs up to September of the same year to apply for new purchased power adjustment clauses setting for each a new basic reference power cost. However, no REC complied with the deadline, forcing the ERB to issue another order in February 1997, this time mandating the adoption of its own rigid formula for the reference costs, but virtually forgiving the RECs for non-compliance with the first-year cap (22%). This it did by allowing any excess power cost due to non-compliance to be transferred to the non-power operating cost component in the

⁷ In the case of an unregulated coop, pricing for optimal profitability still imposes a deadweight loss to its members, if traditional theory is to be believed.

⁸ The cap schedule for the private utilities for the years 1996 through 1999 is: 14.5%, 13.25%, 11.75%, and 9.5%, respectively. The cap schedule for the RECs for the years 1996 through 2000 is: 22%, 20%, 18%, 16%, and 14%, respectively. Meralco, the country's largest private distribution utility, recently appealed to Congress for relief from the 1999 cap.

⁹ Between January 1984 and March 1992, the NEC (NEC Memo 1) allowed RECs to apply a fixed multiplier of 1.4 to increases in power cost (predicated on an average system loss of 23 percent and an allowance for an increase in operating costs of 10 percent of the bulk power rate increase). Many REC managements reportedly welcomed power rate increases at this time because those with losses below 28.6 percent stood to gain from each adjustment. New multipliers were implemented with NEC Memo 1A in this schedule: 1.2 for those with losses of 15 percent and below; 1.3 for those with losses of 16 to 22 percent; and 1.4 for those with 23 percent and above. These rates effectively created incentives for loss reduction up to a point. Those in the first bracket captured all gains from loss reduction, and would also be better off just waiting for bulk power rate increases without doing anything. Those in the second and third brackets were also encouraged to engage in some loss reduction but not to below the minima in the ranges. Only those with losses above 28.6 percent were effectively penalized. It was this schedule that was in effect when the anti-theft and pilferage law was enacted. It should also be noted that the tariff policy manual mentioned above imposed more stringent reduction targets for systems losses. Furthermore, the current rating system for the RECs acknowledges that losses above 12 percent are due mainly to non-technical factors.

basic rates breakdown¹⁰ for each coop. The reference power costs were set at either bulk power costs plus allowance for system loss, using either the initial cap or actual loss, if lower. In the latter case, if the reference power rate were higher than that which would apply using the actual loss for complying coops, the margin was also transferred to non-power cost.

Our analysis indicates that had the ERB not ignored the letter of the law, 22 RECs with an average system loss of 28 percent should have refunded consumers a total of P314 million through a mean reduction of P0.28/kwhr. (Refer to Tariffs Table 2). As the table shows, six of these RECs would have incurred a net operating deficit of P100 million for failing to achieve the required system loss reduction.

The ERB, upon prodding from President Estrada himself, is now in the process of vigorously enforcing the caps for 1997 and 1998. We estimate that non-achievers will owe consumers P321 million for 1997 and over P490 million for 1998. If no radical reductions are achieved this year, 55 RECs may have to refund to their consumers close to P1 billion.

The ERB has anticipated and appreciated the cash flow problems the RECs face with the refund orders and may be prepared to give them breathing space by extending the refund period to as much as three years. Since the ERB is not imposing any interest charges on the refundable amounts, its action is equivalent to further postponing the effectivity of the caps.

The system loss problem in the RECs underscores the fact that the policy concept of loss reduction cap penalties applied to consumer-owned utilities may be flawed. If the ERB were to be stricter in the enforcement of loss reduction caps, the solution to the cash-flow problem would have to be borne by reductions to member equity, effectively transferring the cost burden from the left to the right pockets of the member-consumers. However, this issue has not really been well publicized and were this to be, we expect some coalitions of consumers would register their vehement protests. Alternatively, the problem could resolve itself by further transfers from other taxpayers through the national treasury, through the indirect path of NEA having to forgive or relax on the debt obligations of the non-complying RECs.

¹⁰ The basic schedule was inherited from the NEA.

SUBSIDIES

Overall, subsidies and cross-subsidies are significant factors in the determination of retail electricity rates in the country, be they those of private distribution utilities or RECs. Almost all RECs receive subsidized power supply rates, even after correcting for inter-grid subsidies across the major grids. All RECs enjoy hidden subsidies from NPC regardless of grid at the expense of the private utilities through the cost allocation methodologies applied in the NPC tariff classes. The key challenge, insofar as rate setting is concerned, is finding an acceptable phase out program and for those subsidies that are determined to be socially desirable, determining how to address them in ways that are more transparent.

Performance and REC Rating Systems

Determining good and bad management performance in the RECs, which differ greatly in operating conditions and scale of operations, can be a tricky enterprise. It is important to avoid rating management on matters beyond its control. Furthermore, a rating system that is not linked to a system of rewards and penalties serves little purpose, even in not-for-profit, cooperative systems.

The RECs are currently graded by NEA under a category system which considers promptness in loan amortization (25 points), system loss (25 points), collection efficiency (20 points), promptness in payments for power supply (10 points), and adherence to approved budgets for non-power operating expenses (15 points). A schedule of demerits completes the rating system.¹¹ The grades are converted to discrete ratings from A+ (outstanding) to E (hopeless).¹²

RECs rated A+ and A are exempted from NEA review and approval over their operating budgets and are subject to “minimal supervision ... provided that they

¹¹ The other criteria are: cash advances to officers and employees (minus 1 for every P50,000 in advances); non-submission of cash flow reports and non-provision of sinking fund for reinvestment (5 percent of gross revenues), a point less for each.

¹² Score category description

>90 A+ outstanding

75-89 A very satisfactory

65-74 B satisfactory

55-64 C fair

30-54 D poor

<30 E no improvement

are institutionally sound.” More important, the system of rewards to management is linked to the categorization of the REC.

NEA also uses a classification system that aims to group the RECs according to scale of operation. Instituted in 1994, this system considers amount of amount of sales (40%); number of connections (30%); and circuit-kilometer of lines (30%) and classifies the RECs into extra-large, large, medium, and small. This grading system, according to NEA, “is meant to improve upon the basis of granting of rewards based solely on categories, which proved inequitable. It also is meant to establish appropriate guidelines for the upgrading of benefits and incentives which may be afforded to officers and employees of RECs that are reasonably proportionate to the nature and scope of management responsibility and financial capability in granting such...”

In addition, the NEA has also established key performance indicators based on ratios of expense categories to operating revenues.¹³ It is not clear to us, however, how results based on these indicators are used.

Since the capability to amortize loans and pay power costs promptly might depend on scale of operations as indicated by sales, we tested statistically whether the ratings were independent of sales figures. Secondly, ratings might also improve simply because of sales growth, which may happen independently of management initiatives. More rigorously, we also need to test for any relationship between categorization and classification, which is a better indicator of scale of operations. A deeper investigation might show that persistent bottom-dwellers might be RECs that have no hope of ever being economically viable in the near future. It would also be necessary to ascertain whether ratings might be associated with higher selling margins, as this could have implications to the overall proper balance between corporate fiscal and member equity considerations. We also need to test whether location has an influence on performance.

¹³ power cost 50-60%
distribution operations 5- 7%
distribution maintenance 5- 8%
consumer account expenses 3- 5%
total operating expenses 90-95%
net margins 5-10%

The cross-tabulation in Table 1 Annex 4 shows that half the A+ RECs in 1995 were in Mindanao, where 42 percent of the 33 RECs (28 percent of the national total) were rated A+. In contrast, only 11 percent in Luzon and 23 percent in the Visayas received the same rating. In the same year, 92 percent of the bottom-dwellers were in Luzon and the rest were in Mindanao. This suggests that that higher sales and lower power costs in the island do influence performance.

More direct tests as shown in the succeeding tables show co-relations ratings between performance (rating) and sales and between performance and size classification. All three cross-tabulations indicate that the rating system fails to consider factors that may be beyond management control.

The rating system employed by NEA appears, overall, reasonable for purposes of monitoring the Government's financial interests. It is a different matter as to whether it provides an effective system for evaluating management performance, especially in the area of rates and customer services.

We are also concerned that the rating system does not give enough weight to system losses. The weight and scaling still allows RECs with losses of 16 percent to be rated as "outstanding" and those with losses greater than 26 percent to be rated as "very satisfactory."

The area of system loss reductions is a key testing ground for management initiatives, since it is acknowledged by the NEA that losses above 12 percent are attributable, generally, to non-technical factors. The generally poor performance with respect to this key indicator indicates poor management and incentives overall.

We note that the Cebeco I, II, and III Cooperatives have consistently been rated A+. There are other good performers in the rural electric program. We suggest that a management audit be carried out of selected good performers and selected poor performers to determine, in detail, the practices which the good performers have put in place or lessons they have learned which can be adapted by other RECs throughout the system.

Table 4

ECs Categorization and Classification

Category	1993		1994		1995		1996		1997	
	ECs		ECs		ECs		ECs		ECs	
A+			25	21%	27	23%	28	24%	38	32%
A	56	47%	34	29%	41	35%	39	33%	36	31%
B	11	9%	16	14%	16	14%	15	13%	14	12%
C	14	12%	7	6%	6	5%	5	4%	12	10%
D	38	32%	19	16%	16	14%	18	15%	4	3%
E			17	14%	12	10%	12	10%	14	12%
Sum	119		118		118		117		118	
Extra-Large	21	18%	23	19%	24	20%	32	27%	38	32%
Large	42	35%	40	34%	44	37%	39	33%	36	31%
Medium	28	24%	30	25%	30	25%	29	25%	26	22%
Small	28	24%	25	21%	20	17%	17	15%	18	15%

MERGER OF RECS

Historically, the argument for mergers and consolidation has been driven by a general notion of scale economies. Our evaluation of the evidence suggests that the expected efficiency gains from reductions in overhead and operations are overestimated.

The problem of viability, in many cases, springs from low demand in the franchise areas, carved on the basis of political boundaries and geography, in the case of the small island coops. There seems to be confusion of the notion of minimum efficient or economic scales with the strict notion of returns to scale.¹⁴

Consider, for instance, a franchise area where low demand is the cause of either non-viability or non-competitive tariffs. Merging an REC with another with similar demand characteristics would entail a replication, for a utility with vertically integrated distribution and supply functions, of most of the fixed costs. Though it is undeniable that some of the 'fixed costs,' such as management and inventory

¹⁴ Increasing returns to scale implies that with a production function $y=f(x)$ where x is the input vector, $f(t*x) > t*f(x) = t*y$ for all $t > 1$.

costs could be spread across a broader output base, we are not sure whether such savings per unit of energy delivered are significant. Our examination of the cost components of tariffs, based on incomplete data, indicate that savings are small. Furthermore, there is no apparent reason why such efficiency gains cannot be captured through innovative joint action mechanisms applicable to inventory and maintenance costs.

There has also been the argument that mergers would automatically lead to improvements in load factors and thus gains in power costs. From a power supply standpoint, this is certainly not the case since the load at the power supply level does not change through mergers of distribution utilities. Even should the RECs achieve conjunctive billing of numerous delivery points, the power suppliers would simply, over time, re-allocate costs over fewer billing units. As to higher utilization of existing assets, there is also probably little gain from merger since there is not significant diversity in peak demand utilization.

The historical experience with mergers also tends to validate our conclusions. In the case of the aborted mergers of five Leyte RECs, the main resistance came from the two better performing ones whose rates would have increased after the merger. In addition, problems with the displacement of labor and other institutional rigidities rendered the whole process unmanageable. Similar difficulties were faced in the merger of RECs in Albay, where any efficiency gains still have to be shown. In the case of the proposed merger of the Cebu REC, it was reported that resistance came from the boards of directors.

What has lent credence to notions of efficiency gains from mergers and consolidation are stylized facts, in scatter plots that show, for instance, that there are efficiencies in capital utilization with increased sales, which is to be expected. However, this is unique within each franchise area. Relative margins, which we define as gross revenue less revenue over power cost, would give a similar misleading indicator of 'scale economies.' Efficiencies in the utilization of management and labor are also indicated by plots of operating margins against sales and of connections per employee against connections. (See Annex 5).

A form of equity argument has also been forwarded. To the extent that high operating margins per kilowatt-hour are associated with low sales and sales per connection (See Figure 12), in turn linked to low per capita incomes in the fran-

chise areas (thus poorer households tend to face higher rates, except in Mindanao compared to the rest of the country), mergers can be an indirect but crude redistributive tool, in which case the cooperative 'spirit' has to be invoked to execute a zero-sum exercise. That proposed mergers of this nature have been resisted by the potential losers indicates that this spirit is weak.

It is no wonder then that as of this writing, no division within the NEA is seriously studying potential mergers. It is also not surprising that earlier versions of the power restructuring bill, in the past administration, eventually fell silent on the issue.

Implications of Sector Reforms on the RECs and NEA

The overall thrust of the power sector restructuring is to introduce market forces into the framework for managing the electricity sector in order to lower rates. This is first being introduced at the generation supply level. Another major component is the introduction of direct retail access. Even in the regulatory arena, the government's supported restructuring bill endorses alternative regulatory mechanisms to rate-base regulation such as consideration of performance-based mechanisms.

Lowering rates for the majority of retail electricity consumers throughout the country is the overall purpose. The RECs are a major retail segment – the purpose of restructuring is not meant to apply to everyone but the RECs. One can argue, therefore, that the focus of REC (or rural electrification) initiatives over the next few years must be on developing market-competitive electric service – whether it be in densely-populated areas or far-flung, non-grid connected areas.

In a restructured environment, a clear delineation must be made between the conduct of missionary electrification (subsidized by the national government) and the provision of competitive electric service. RECs do not have a sole mission to conduct missionary electrification. They will have, in the restructured sector, a dual mission – provide competitive electric service and conduct missionary electrification. The IOUs have a similar mission but the level of missionary electrification in their franchise areas is such that it does not jeopardize their business

to the extent it does for most RECs¹⁵. The challenge is to define regulatory and financing methods that will allow the RECs to conduct a dual role – it can be no other way, for whatever type of entity has the franchise in these areas will face the same dual dilemma.

POWER SUPPLY ISSUES

NPC's historic statutory obligation to provide power supply to the RECs carried with it absolute command of the generation market. This has been only minutely mitigated by the introduction of IPPs. If the benefits of competition in the production sector are to reach the RECs, they must be able to access that market in the same way that Meralco and the IOUs access that market. As discussed below, it is not known how NPC will assign (or if they will assign) multi-year power supply contracts among the "gencos" and residual IPPs to their existing customer base, but the method must not put the RECs at a disadvantage in timely access to a competitive market.

For the major interconnected grids, a spot power market will be operated which will be accessible by qualified distributors. It is fully expected that there will be financial and credit qualifications for participating in the power pool and not all RECs may meet the yet-to-be-defined credit qualifications. HB 4579 provides an expanded role for NEA to act as a guarantor for purchases of electricity in the wholesale spot market by RECs and small distribution companies to support their credit standing.

The bulk power market will operate through both bi-lateral contracts as well as the spot market. It is expected that, at least initially, most bulk power energy transactions will take place through bilateral contracts – such as the Meralco contracts with First Gas Holdings (1500 MW) and Quezon Power (400 MW) and other utility contracts such as the East Asia Power Development Corporation contracts with Visayan Electric Company and the Mactan Export Processing Zone. It is not yet determined exactly how the "gencos" and the residual IPP

¹⁵ While the obligation to serve is provided for in the certificates of public convenience issued by the ERB, the ERB has not actually taken any private utility to task for failure to comply, allegedly because of concerns with regulatory lag. The experience in Cebu in 1996 is instructive. After constituents in an 'unviable' part of the franchise area of the Visayan Electric Company (Veco) approached Rep. Eduardo Gullas, the private utility protested that it would not electrify the area with its own funds. Thus, Cebeco I, with access to subsidies, electrified that part in the Veco franchise area.

contracts with NPC will interact with the power market. Should the privatization plan include an assignment of bilateral power sales agreements between the gencos/residual IPPs and the existing NPC market, then the RECs could end up with bilateral contracts for the supply of their power requirements over a multi-year period. Such contracts could possibly “freeze” the RECs out of the competitive bulk power market for some period of time. It is recommended that further investigation be conducted directly with NPC on planned or possible REC power supply scenarios.

Should the RECs be put in a position of securing their own power supply through their own decision of participating solely in the spot market or a combination spot market and securing of bilateral contracts, further work needs to be conducted related to investigating and defining how the RECs will participate in the bulk power market.

Today, RECs have the option to pursue bulk power supply options from independent power producers (IPPs) as an alternative to or supplement to their NPC supply. However, to date, such pursuit has been conducted on an individual REC basis and several power purchase agreements have been entered into. The majority of these arrangements involve diesel-fired plants that initially operated in the 10-15 MW range (the average REC is about 12 MW peak demand). It is very difficult to attract foreign equity capital for projects much less than 12-25 MW (the transaction costs simply are too large a percentage of the overall project to make them easily feasible for smaller sizes). Diesel-fired projects can be economically feasible only when operated in a base-load mode. The base load of an individual REC rarely exceeds much more than about 40% of its peak demand. Therefore the opportunities for developing base-load projects on an individual REC basis is very limited.

The RECs must be able to aggressively exploit the competitive market for generation services on behalf of consumers who choose to remain with them as a utility. If the RECs are to competitively compete in the bulk power market, some type of joint-action may be required such that a single entity can enter into a bulk power arrangement on behalf of a number of smaller RECs. The most important credit aspect to the successful development of a bulk power project is the underlying revenue base of the entity financing the project. The individual REC franchise is the critical key and this franchise should be translated to the joint-action agency

through long-term, full-requirements power purchaser agreements with the joint-action agency. However, retail open-access (depending on the threshold level down to which it is implemented) can erode the power supply value of this franchise¹⁶ and further analysis should be given to modes of participation in the power supply market.

DISTRIBUTION OPERATION ISSUES

Retail competition and the threat of losing customers is at the core of the RECs concerns with sector restructuring. However, this is exactly what drives the restructuring concept. At some point, cross-subsidizing residential and missionary service from industrial customers becomes self-defeating and the lowering of industrial tariffs can create profitable load growth that better utilizes the investment in assets. There is financial risk in the transition and this must be mitigated by the ERB in granting consumers choice gradually. But the RECs must take advantage of the transition period to prepare to compete.

The RECs must be given the ability to tailor electric service to the needs of the customers. The concept of one size fits all will no longer work.. This means, in one respect, that substantial work needs to be done in retail pricing research and studies (rate design, if you will). Substantial institutional strengthening will be required in this area.

There are many components of retail electric service, such as the purchase of bulk electricity, metering and information systems, energy efficiency services, pricing and billing options, and reliability and load management options. This even applies to non-grid connected areas where new and renewable technologies can possibly be used and priced at commercially viable rates to meet the needs of the community. In a competitive retail market, each of these components can be tailored to increase consumer satisfaction.

The RECs will need to be able to adaptively and pro-actively address changes and innovations in these areas – but it may not necessarily be to the same extent across all RECs. The RECs serving more urban areas will need to meet the challenges in a different way and possibly to a different extent than isolated, rural ar-

¹⁶ The value of the subtransmission franchise, referred to in the subtransmission discussion for possible assignment to a joint-action agency, however, will persist in a wires-only business and is not eroded by open-access.

eas. The rural electrification program, therefore, must provide a technical assistance and institutional strengthening framework that also is not a one-size fits all approach anymore.

Direct access can, in the end, benefit the rural consumers (if not the existing REC organization serving them) – that is, consumers that stay with the REC as a retail supplier. In order to remain competitive, the REC will have to procure and deliver power in a least-cost manner. If the REC fails to do so, it risks losing consumers and market share to suppliers who better meet their needs. To the extent that direct access does not extend to the individual rural consumers, the same competitive pressure can be brought by exposing the REC to the risk of buy-out by a private utility or entity.

It is just this risk that can vitalize the sector and provide adequate incentive to management and Boards to increase the value of service provided to the member-consumers. It is just this risk that could create the incentive (out of self-preservation) for self-initiated mergers where there are, in reality, efficiencies to be gained. It is just this risk that could provide the drive to create joint-action efforts among RECs that make sense in the Philippine context.

In order to make the buy-out threat real, certain equity issues need to be clarified so that the market knows what it is dealing with. Generally, in a non-stock cooperative corporation such as the Philippine RECs, one would expect that the equity of the organization lies completely with the consumer-members and is founded on their contributions, through rates, to net margins over cost (all net margins contribute to equity) as well as the membership fees. However, the issue in the Philippines is less clear and additional work needs to be done to clarify (with stated government policy) who has an equity claim on the corporation and precisely how it is to be determined. For example, the national government (through the legislature possibly) could claim that the historical subsidies (and any debt condonation) provided to the RECs provide it with an equity claim. Similarly, NEA itself could claim an equity share.

The RECs must be prepared for the restructured, competitive market. There needs to be a transition period during which certain institutional strengthening, public awareness, and other transition activities can take place. For example, already mentioned has been the need for pricing studies, development of varia-

tions in service options, and the exploration of mechanisms for competitive bulk supply. There needs to be work in defining alternative and multiple financing mechanisms for the RECs.

It also seems that a necessary part of this preparatory, transition to competitive electric markets may entail certain changes in the statutory authority of NEA over the RECs and in NEA's policies with the RECs. There were good reasons in the past for NEA's statutory authority and policy guidelines (such as those relating to tariffs and operating standards) in order to protect the government's interest in the assets acquired through national debt. However, restructuring may require a new pact.

For example, in a competitive environment the utility must be in a position to understand the variations in consumer value (different reliability needs, different supply characteristic needs) and to be flexible enough to provide it in a timely manner. It seems impossible that NEA, a central organization with centrally determined service standards, to be as in-tune with the market needs (and be able to act quickly enough) to allow the RECs the flexibility they need to compete. It also seems that if the Boards and management, and consumer-members who elect the Boards, are to be adequately susceptible to market pressures, they must be adequately susceptible to the consequences and opportunities.

The need for decentralized management and mobilization of local populations¹⁷ goes to the heart of the Philippine cooperative concept – it is the precise reason the cooperative model was selected in the first place to electrify the countryside. It was recognized over twenty-five years ago that a centralized, Manila-based entity was not a feasible option for organizing and building the RECs. Over the intervening years, NEA's centralized intervention over the RECs has increased significantly (for good reasons such as technical support, combating unduly politicized Board situations and local REC corruption). Sector restructuring, however, also signals the need for rapid response to local population needs and the need for, and extent of, local control should be revisited in light of changed circumstances.

¹⁷ This point is developed by Gerald Foley and Jose Logarta in a 1999 draft report to ESMAP.

The statutory authority of NEA over the RECs should first be studied closely for recommended changes to address the restructured environment. After those are determined, NEA and the RECs need to review the existing policy manuals and directives in place which conflict with those new authorities or which need to be modified to accommodate competition.

For the debate to be adequately held regarding possible buy-out, the consumer-members must also be adequately knowledgeable of the cooperative concept and their rights and obligations under it. It is the responsibility of the rural electrification sector (through NEA, PhilRECA, and the RECs themselves) to conduct aggressive campaigns to get their points across about the benefits of the cooperative structure.