Regulation of the Argentine Network Utilities: Issues and Options for the National Government

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FOREWORD

At the request of the Government of Argentina, a team of regulatory experts visited Buenos Aires in June 1996 to provide a diagnostic assessment of post-privatization regulation in the electricity, telecommunications, and gas sectors. The team led by Ioannis Kessides (PSD) comprised Alfred Kahn (Cornell University), Jeff Makholm (NERA), Janusz Ordover (New York University) and Pablo Spiller (University of California at Berkeley). Clemencia Torres (Boston University) assisted with the analysis of the electricity and telecommunications sectors.

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This report was written by Ioannis Kessides and summarizes the findings of the mission. The members of the team prepared the following background papers:


This work was carried out under the direction of Asif Faiz, Division Chief, Infrastructure and Urban Development. Claudia Kandel provided secretarial support.
REGULATION OF THE ARGENTINE NETWORK UTILITIES: ISSUES AND OPTIONS FOR THE NATIONAL GOVERNMENT

OBJECTIVE AND SCOPE

1. The objectives of this report are to: (i) provide a diagnostic assessment of post-privatization regulation in the telecommunications, electricity and gas sectors of Argentina; (ii) identify the major regulatory issues that need to be addressed in the medium term by the Argentine regulatory agencies and propose strategies for addressing these issues; (iii) synthesize the emerging international experience in the regulation of network utilities that are subject to increasing competition and determine its applicability to the unique circumstances of the Argentine sectors.

2. The report has both procedural and substantive aspects. It gives almost equal emphasis to how regulators make their decisions, as it gives to the substantive regulatory policies and determinations. So long as regulation is necessary, if only to effect a transition to an essentially unregulated competitive market, regulatory procedures may be capable of performing that function efficiently or rendering achievement of the substantive goal impossible.

3. One of the fundamental tenets of the report, that is shared by the Argentine policy makers, is that undistorted and effective competition is the most powerful force towards economic efficiency and towards the guidance of technological change to serve the public interest. However, the potential benefits of competition could be significantly undermined, and indeed perhaps transformed into harms, if the traditional regulation that evolved in a franchise monopoly environment in other countries is uncritically applied to the Argentine network utilities while they are subjected to the pressures of competitive entry.

4. Despite the progress already experienced in moving towards competition in these sectors in Argentina, additional policy changes are needed in order to harmonize regulation with open entry, thereby enabling the realization of more of the benefits of competition and free entry, and avoiding some of the predictable harms from a mismatch between open entry and traditional regulation. The report identifies several facets of the requisite policy approach. It places particular emphasis on the rational determination of prices of end-user (retail) services that are based on both cost and demand conditions; and the design of access (interconnection) prices which promote dynamic efficiency through efficient entry and investment decisions while enabling the owners of the respective networks to remain financially solvent.

5. An important source of impediments to solving the regulatory problems of the Argentine network utilities is the inflexibilities built into the privatization agreements that established the structure of these sectors. Such inflexibilities were necessary to create commitments to reform, to ensure consumer protection, and to mobilize the private capital needed for privatization. However, they have also made it difficult to create adaptations to help solve emerging problems, because many find such adaptations threatening to the privatization commitments that protect their interests and the whole fabric of reform. The report highlights the primacy of the privatization commitments and strongly recommends the avoidance of any steps that "smack of retroactivity". Still, it advocates a process for creating problem-solving adaptations of the regulatory regime to protect the interests of investors at the baseline levels established by the terms of privatization, to
safeguard the interests of consumers, and to promote economically efficient competition.

6. The report adopts the basic premise that the efficiencies of privatization stem fundamentally from the insulation it provides from arbitrary politicized influences. Indeed, a prerequisite for effective privatization and sustained large-scale private investment in network utilities is the country's institutional capacity to restrain arbitrary administrative action and ensure a stable regulatory regime. The stability of the regulatory process in Argentina has been undermined by the lack of a clear demarcation of responsibilities between the regulatory agencies, the Ministry of Economy, and other governmental bodies. Especially problematic has been the extent to which ultimate power for making regulatory decisions rests with the Ministry, and the willingness of the Ministry to adopt an interventionist stance. The report makes several proposals for an appropriate division of responsibilities between the public authorities involved in the regulatory oversight of the network utilities, in particular the regulatory agencies and the Ministry, in order to ensure that policy and implementation functions are clearly defined and coherently harmonized.

7. Finally, the report emphasizes that the Argentine network utilities are business firms with the responsibilities, problems and needs of other commercial enterprises. Their special cost structure does, however, raise problems that many other firms do not face, and that lead to their special pricing requirements. Along with other business firms, they and the general public will benefit from as much freedom from regulation as can reasonably be allowed, given their circumstances and the requirements of the public interest.

BACKROUND

8. Argentina has implemented one of the world's most ambitious and successful structural reform and privatization programs in infrastructure. Since 1990, the Federal Government has divested its holdings in telecommunications, natural gas and petroleum, electricity (except the nuclear segment and the Yacyreta hydroelectric plant), railroads, water and sanitation, and ports. By-and-large, divestiture in these sectors was carried out in a manner that reflects the state-of-the-art in policy and has brought already several of the expected benefits of private enterprise: enhanced productivity and cost effectiveness, improved output quality, and increased investment driven by market demand and considerations of efficiency rather than political and bureaucratic interference. In the newly-privatized firms, there is clearly increased entrepreneurial spirit and greater attention to customers and service.

9. The electricity and gas sectors underwent significant restructuring prior to privatization. The new structures, introduced in 1992, divided these sectors into three activities: generation/production, transmission and distribution. Transmission and distribution being bottleneck segments for most customers of delivered power/gas were to be regulated under a price-cap regime, while the increasingly competitive segments of generation and production were opened to entry without detailed regulatory scrutiny. The restructured electricity and gas industries entailed non-discriminatory access to their transmission networks.

10. In telecommunications, the 1990 privatization led to the creation of two regional monopolies. The two monopolists provide
basic telecommunications services in geographically distinct markets, and are owners in equal parts of two subsidiaries offering international and value-added services. In the provision of basic services (local, domestic long distance, and international), the privatized operators were granted exclusivity for a period of 7 years (with a 3-year extension if certain performance targets are met), and are subject to incentive regulation. Value-added and cellular services were immediately opened to competitive entry.

**CURRENT AND FORTHCOMING REGULATORY ISSUES**

11. The Argentine network utilities have been privatized, restructured and placed under regulation in a manner that reflects genuine creativity applied for the public interest. There is much to applaud in these sectors from their new architectures to the skills and vitality of those who crafted them, who operate them, and who regulate them.

12. The Argentine policy makers deserve high praise for their forthright privatization of utility industries and commitment to subjecting them to the greatest extent possible to the disciplines of the market. However, the second of these tasks has been incompletely achieved. Several aspects of industry performance can be identified where unintended consequences of privatization and restructuring seem likely to arise and cause problems with some measure of significance. In particular, the report contains criticisms both of perceived failures to establish the conditions necessary for effective competition; to permit the free play of competitive forces and, where direct regulation continues necessary, to institute policies and devices that supply market-like signals and incentives for efficient behavior.

13. It is not surprising that even an excellent process of restructuring will leave open some opportunities for further improvements, especially as experience accumulates in the workings of the new systems. The emerging regulatory problems in the Argentine network utilities are endemic to infrastructure sectors everywhere and largely reflect issues that arise after privatization, particularly when combined with unbundling. In fact, the asserted deficiencies of the Argentine system are characteristic of the performance of economic regulation as observed all over the world.

**Establishment of Conditions for Efficient Competition**

14. The electricity, telecommunications and gas sectors are vertical industries characterized by transportation and distribution networks linking upstream production with downstream consumption. These networks consist of: a hierarchy of transmission links in electricity; transmission media and switching centers in telecommunications; and national pipelines and regional distributional links in gas. Infrastructure networks entail substantial fixed costs that are largely sunk because the assets are of minimal value for other purposes. These sunk cost pose restrictions to freedom of entry, especially when there are natural monopoly conditions as well.

15. The cost conditions relating to upstream production and downstream supply activities (electricity and gas), certain portions of the network (interexchange services in telecommunications), or the operation of services on the physical network, are less
inimical to competition. Although there are important economies of scale and inevitably some sunk costs associated with these activities, they are small in relation to those encountered in network infrastructure. Therefore, there is no question that substantial competition could emerge in many activities in these sectors. Still, in some portions of their networks, competition is weak or nonexistent. When competition is introduced in the competitive segments, rival firms will often seek to gain access to "bottleneck" facilities which are essential inputs for the provision of services—inputs without which suppliers cannot hope to operate.

16. One of the primary challenges facing the Argentine regulators is to set a level and structure of access prices which promote dynamic efficiency through efficient entry and investment decisions while enabling the owner of the network to remain financially solvent. Indeed, perhaps the single most important element in the design of public policy towards the Argentine network utilities should be the design of arrangements which render benign the exercise of market power associated with operating sunk bottleneck facilities. Regulation should, therefore, ensure that there is sufficient pressure on the owner of the infrastructure to operate in an efficient manner, but that no unnecessary duplication of network construction takes place.

17. As technological change and deregulation reduce entry barriers in utilities, a greater number of rival firms will seek to interconnect their networks than in the past. At each interconnection point an access price will have to be determined. The terms of access should not distort the process by which prices are adapted to consumer preferences and demands for services. Prices should be sufficiently high to be compensatory (at least cover the long-run incremental cost of the use of the network by the entrant), yet not so high as to preclude efficient operations by the entrant.

18. The removal of legal barriers to competitive entry is therefore not sufficient in itself to install regimes of effectively functioning competition in the network utilities. Competitors must have access to essential network facilities on non-discriminatory terms if they are to have a reasonable opportunity to compete. If then competition is to prevail, it will ordinarily require explicit regulatory intervention to ensure such access, particularly in situations where, as is the case in the telecommunications sector, those essential facilities are themselves owned or controlled by the incumbent monopolists, who will have every incentive to deny rivals access to those facilities on fair terms. Establishment of the rules for such access and interconnection is an extremely complex as well as tendentious process, which clearly requires governments to play an active role in propagating rules for fair competition and arbitrating disputes over the terms of access.

19. Electricity. In the electricity sector, the methodology used to apportion the revenue requirements of an existing transmission line is based on a determination of the "energy" benefits of the various beneficiaries. These assessments, therefore, are somewhat unrelated to economic or market benefits and unrelated as well to incremental transmission costs of service. Since this methodology sets the payments that the "beneficiaries" are required to make for transmission services, and since these payments will vary by the location of a generation plant, the beneficiary methodology may influence the location that is chosen for a
new generation facility. In fact new generation plants are likely to be gas-fired, so that the business decisions on their locations will be driven by the balance of the costs of receiving gas via pipeline at the various possible generation sites and the costs of transmitting electricity to centers of load from these sites. As a result, the economic inaccuracy of the beneficiary system that is embedded in the present structure of access prices may have significant adverse impacts on the economy.

20. The design of an appropriate structure of access prices is complicated by three factors. First, the addition of new sources of supply on the network may have considerable but not readily predictable consequences upon the costs of operating the network. The question then arises as to what extent should these indirect costs be attributed to particular suppliers in setting prices. From the standpoint of providing efficient entry signals, access charges should reflect all the costs that entrants impose on the network by breaching capacity constraints, wherever those costs were incurred. The effects might, however, be highly adverse to entry. Second, a considerable degree of averaging is often present in retail tariffs. If access prices, by contrast, are based upon the fully deaveraged costs of individual components of the network, a combination of averaged retail prices and deaveraged interconnection prices will clearly divide customers into those that are profitable and those that are not. The third element to be considered is the extent to which access prices should reflect peak loading.

21. **Telecommunications.** Interconnection and access to unbundled network elements on rates, terms, and conditions that are just, reasonable, and nondiscriminatory are essential to effective competition among alternative service providers and will be indispensable preconditions for transforming the monopolistic structure of the Argentine telecommunications industry into a competitive one after the expiration of the exclusivity period.

22. One of the most difficult regulatory issues in telecommunications is the pricing of access to the local loop and other monopolized segments of the network. This problem is especially acute when the carrier who controls the monopolized part of the network—the "bottleneck"—competes with other providers of telecommunications services who require access to the bottleneck in order to offer their services. Monopoly control of bottleneck facilities can create irresistible incentives to behave anticompetitively and cross-subsidize unregulated competitive activities from regulated monopoly ones. Absent regulatory constraint, the holder of the bottleneck monopoly could repress competition by creating artificial handicaps for its rivals in the market for the final products sold to consumers. Indeed, it is very difficult to ensure that competition in the final product market will be preserved and not tilted to favor either the owner of the essential input or its rivals. The monopolist can impose costs on its competitors by impeding their access to the bottleneck, thereby raising the prices that they must charge to cover their elevated costs, and thus weakening their ability to compete.

23. The problem of establishing a level-playing field (competitive neutrality) has not reached its full dimension in Argentina yet. This is due to the line-of-business restrictions that have been imposed on the monopoly carriers that prohibit them from directly participating in competitive markets (such as data transmission and mobile telephony).
Instead, they provide these services through jointly-owned subsidiaries. This regulatory arrangement lessens, but does not obviate, the regulator's task to ensure that the owner of the bottleneck provides interconnection on fair and nondiscriminatory terms. Clearly, the problem of ensuring provision of interconnection on nondiscriminatory terms will become much more acute when the period of exclusivity ends.

24. The Comision Nacional de Telecomunicaciones (CNT) has not formulated as yet principles or procedures for resolving disputes involving the level of access charges imposed on independent firms, who offer services that may be imperfect substitutes for services sold by the regulated operator (e.g., store and forward voice mail and fax services), as well as for directly competitive services that may be forthcoming after the end of the exclusivity period. Some disputes have already arisen. However, CNT has been unduly slow to respond and largely unable to resolve these disputes. Many more disputes will surely arise as time goes on, and the competitive health and vitality of the industry requires that appropriate principles be announced and applied consistently by the regulator.

25. The definition and implementation of an access regime is not a matter that can be settled once and for all; rather it is an on-going process. Nor is this a process that can be guided by simple rules—there are inevitably difficult issues of interpretation which must be tackled and resolved by the regulatory agency. A first crucial step is for CNT to announce fundamental principles that will govern intervention in the sector, establish clear guidelines by which it will judge operators' behavior, and set the conditions under which it will intervene in private negotiations when necessary to obtain outcomes in the public interest. As a second step, CNT must issue interconnection regulations which move these principles towards implementation. These regulations should provide all industry participants with a clear understanding of how, and on what basis, regulatory action would be taken and also commit CNT simultaneously to uphold these principles and to adhere to a restricted set of interventions.

26. Gas. In the gas sector, there are important issues pertaining to access pricing for the pipeline. Currently, there are no off-peak pipeline rates available, reflecting rigidities in the tariff structure. Economic efficiency clearly requires reductions in the price of transportation service, perhaps on an interruptible basis if necessary, all the way down to the very low variable costs in these circumstances. Such off-peak pricing would not in itself be discriminatory, since marginal costs are lower off- than on-peak. But these reductions are highly likely to take the form of pricing on the basis of what the respective traffics will bear. It may take a very low price to achieve the more efficient and fuller use of the capacity in sales to large customers that have access to substitute fuels, for example; or to big users that make very intensive use of natural gas but can either by installing storage or shutting down or turning to alternative fuels operate on an interruptible basis alone.

27. The gas regulatory agency, ENARGAS, prohibits such discriminations. Any reduced rates for interruptible service must be posted and made available to all applicants on the same terms. Such prohibitions may make pipelines or distribution companies flatly unwilling to cut prices—that is, while willing to do so selectively in places where demand is highly elastic, they could find themselves losing money if they had to extend those same
discounted prices to all. The result of the prohibition could therefore be an inefficiently low utilization of the pipeline capacity. This is the anticompetitive situation that has blocked the off-peak rates needed to make storage facilities profitable as a way to alleviate peak congestion of the pipeline. Moreover, these regulatory restraints on price differentiation represent a clear instance in which regulatory-prescribed access pricing rules interfere with free competition and produce inefficient results.

Economically Efficient Pricing/Competitive Pricing Flexibility

28. In industries without substantial fixed costs, competition tends to result in prices which approximate marginal or incremental costs. However, in the utility industries, the prevalence of large fixed and common costs make it impossible for the supply of services to become financially self-supporting with marginal cost pricing. The financial infeasibility of marginal cost pricing rules out any sensible mechanical or formula-based procedure for regulatory determination of rates. In particular, compensatory rates cannot be determined by the regulator on the basis of cost data alone since the financial viability of any price depends also on the quantity of services customers are willing to buy at that price. This is true because there is no correlation between demand considerations and any cost accounting convention.

29. Allocation of fixed and common costs in accord with any non-demand based apportionment rule will almost invariably produce inconsistencies with the patterns of customer demands. Some rates will be too low, and consequently the utility will receive less than the optimal contribution from those services. Other rates will be too high, so that the utility will either earn less than the optimal contribution or no contribution at all. In short, in industries with substantial fixed and common costs, the pricing of individual services on the basis of any cost allocation is contrary to the interests of both the operating entities and the public. Rational determination of prices must be based on both cost and demand conditions—demand considerations as well as cost data must enter into decision making, in order to permit adequacy of revenues and achieve efficiency.

30. Ramsey (demand-differentiated) prices apportion all unattributable fixed and common costs of the utility among its services on the basis of their demand characteristics. Each service is priced at a mark-up over marginal cost which is inversely related to the elasticity of demand for that service—services whose demands are highly elastic are assigned prices which approximate marginal costs. The financial infeasibility of marginal cost pricing rules out any sensible mechanical or formula-based procedure for regulatory determination of rates. In particular, compensatory rates cannot be determined by the regulator on the basis of cost data alone since the financial viability of any price depends also on the quantity of services customers are willing to buy at that price. This is true because there is no correlation between demand considerations and any cost accounting convention.

31. Regulators, typically with a mandate to prevent or disallow unreasonable price discriminations, have a natural tendency to insist that all prices be openly published and available to all buyers on the same terms. Competitive markets in the real world, however, are frequently characterized by a great deal of price discrimination. In the deregulated United States airline industry, for example, as markets have become more competitive, discrimination has tended to increase—taking the form of special discounts to particular classes of customers on special occasions, in the presence of excess capacity or
incompletely exploited economies of scale or scope.

32. **Electricity.** There is now, to a rapidly increasing extent, the opportunity for and the reality of competition for large electricity users. Since privatization, the Secretary of Energy has twice lowered the threshold for users to contract directly with generators, from 5MW at the time of privatization (accounting for 8% of consumption) to 1 MW and then 100kW (roughly 40% of consumption). On the one hand, competition cannot work to do its job of assuring efficiency and appropriate pricing without cross-subsidy unless the rules defining the extent of the freedoms of response by the local distribution companies (LDCs) are well-constructed. On the other hand, if those rules are too restrictive of LDCs' market freedoms, then the financial health of the LDCs and the commitments implicitly made to their shareholders will be compromised.

33. Prices and proffered contract terms in undistorted effectively competitive markets respond flexibly and rapidly to changing conditions. Such prices are important elements in the market mechanism that assure efficient match-ups between supply and demand. Rival suppliers may bid for business, and the more efficient will prevail by offering prices and terms that are at once compensatory to the bidder's costs, attractive to the customer, and too low for rivals to beat. Under the existing regulatory constraints, by contrast, the LDCs cannot flexibly and rapidly respond to bids and counterbids of rivals, and to requests for bids by large users. In the face of such constraints, the outcome of price competition for large users' business cannot be assured to be efficient.

34. For the economy to receive the benefits of competition that motivate pro-competitive policy in the first instance, the LDCs must be permitted to compete with flexibility of prices and terms. In order to cover their fixed costs, sunk cost, costs of various obligations, and the revenue requirements promised by the privatization agreements, the LDCs' prices will best serve the total interests of users and the economy if they are permitted by regulation to vary among users and classes of users in accordance with value of service (or elasticity of demand) as well as in response to marginal costs of service. Within the boundaries determined by the avoidance of cross-subsidization, the need to set some prices aggressively low in order to retain the business, means that other prices should be permitted to take up the slack to secure adequate returns.

35. The methodology used to determine the "beneficiaries" of a new transmission line and what are the percentage levels of the benefits of the various beneficiaries seems to be based on "energy benefits," rather than on economic or market benefits. Since this methodology sets the payments that the "beneficiaries" are required to make towards the costs of constructing a new line, significant problems are likely to arise from the unwillingness of some parties to pay more for new facilities than they expect to gain from the facilities in economic benefit. Moreover the danger arises that the proposed new line is actually not a worthwhile investment, or not the best choice of an investment, or not a well-timed investment. There is also the allied danger that a desirable project would be missed, because those to whom the project might bring the most benefit would be unable to pay accordingly for an assured portion of its services.
36. These dangers are a consequence of any methodology that fails to focus on economic benefits, and that fails to require that a new private-sector project meet the market test of voluntary and flexible payment of its costs by the users of its services. Only voluntary payments that can be differentiated on the basis of demands, or economic benefits, consistent with the regulatory and market principles of "Ramsey Pricing", can assure incentives for efficient investment in infrastructure facilities and for the efficient allocation of their services.

37. It seems that some of the problems associated with the unintended consequences outlined above have already arisen in the context of the issues surrounding the construction of the "Fourth Line." On the one hand, some generators were unwilling to pay the amounts dictated by the "beneficiary method", because their economic benefits were not consonant. On the other hand, there was some uncertainty about whether the proposed new line was indeed the best project—perhaps a different line would also alleviate the capacity constraint to the south, while adding important reliability to the country-wide system. While interventions and negotiations arranged by the Ministry, the Ente Nacional Regulador de la Electricidad (ENRE), and CAMMESA may resolve the existing issues and disputes, any such solution will not inspire the same confidence that would be assured by a market test fully lodged in the private sector.

38. **Telecommunications.** Like in many other countries, rates for basic telecommunications services are unbalanced. For historic and other reasons, rates for local calling and access are too low relative to underlying long-term costs, while inter-urban and international rates substantially exceed long-term costs. Distorted telephone rates impose significant costs on the economy by providing wrong economic signals to the users of the telephone network. Low rates for local calling over-stimulate local usage while long-distance calling is inefficiently repressed because of excessive rates. In addition, unbalanced rates create incentives for uneconomic bypass.

39. Whatever its rationale, such an unbalanced tariff structure is not sustainable in a competitive environment. Entrants will be impelled by the profit motive to deliver the overpriced business, regardless of these entrants' efficiency, while entrants are unlikely to relieve the incumbent from the financial burden of serving the customers whose prices are not compensatory of the costs required to serve them. The outcome then must be the end of cross-subsidies—the incumbent loses its ability to cross-subsidize the underpriced local services, including network access, with revenues from over-priced services (such as inter-urban or international calling). Therefore, either new sources of subsidy must be found, or the rates that were below incremental costs must be raised to compensatory levels.

40. The incumbent operators claim that the existing rate structure does not allow them to compete fairly with their wireless rivals. The incumbents' problems will be greatly aggravated after wireline competition is introduced. As Argentina moves towards a fully liberalized telecommunications market, its rate structure must be rationalized. Such rebalancing will surely be necessary—both for the operators and for the public interest—as competition becomes closer with the end of the exclusivity period, as international call back and other arbitrage mechanisms spread, and as
value-added services become ever closer substitutes for basic services.

41. Although it is widely recognized that the tariff structure in Argentina is extremely unbalanced and that this structure needs to be reexamined, there is a widespread concern that there is insufficient information to estimate what the appropriate structure of tariffs should be. Moreover, there are significant disagreements among policy makers and operators on what standards to apply to rebalancing and how fast to proceed. In addition, no principles have been articulated for the promotion of universal service in a manner that is competitively neutral. This issue will become particularly vexing after the end of the exclusivity period.

42. Gas. In the gas sector, there is a fundamental issue of rate rigidification—currently all customers must pay the same rates for the same distance move—whether or not the customers have the same value for the service. While this rule may have the best of non-discrimination intentions, it particularly means that a pipeline cannot give a discount to encourage business without giving the same break to everyone else shipping at roughly the same time and distance. There is need to analyze a more flexible pricing for the sake of encouraging more appropriate capacity utilization, and assess the market power that may underlie a pipeline's unwillingness to bring down a rate element because other similar rates have to follow.

43. Another powerful potential use of the market to produce economically efficient results but so far not exploited in Argentina, would be promotion or development of secondary markets for transport capacity. If shippers were permitted to contract for transportation capacity and then to sell those rights to the highest bidder, it would ensure the most efficient use of that capacity, in the same way as if the charges were set at incremental capacity costs—to the holder of such a contract, the true economic cost of exercising that right would be its opportunity cost, i.e., the price it would receive if the shipper were to sell the right to the highest bidder. This price (reflecting marginal congestion cost) could of course be as low as zero in time of excess capacity and at whatever level was necessary to clear the market in time of shortage.

44. Moreover, provision of efficient incentives to the pipeline owners with respect to capacity expansion would require that the charges for new capacity be based on incremental capacity costs rather than rolled-in costs (combining the new capacity costs with the old and charging all customers the same price. Shippers seeking transport capacity construction, willingly pay those charges only if they could not purchase the right in the market from existing holders at a lower cost. At times of congestion, then, when short-term marginal or congestion costs (and therefore the price of capacity in the secondary market) exceeded the cost of adding to capacity, the pipeline company would itself have the proper incentives to follow the latter course. If, instead, shippers could purchase those rights in the second-hand market, from existing holders, at rates below cost of building additional capacity, they would choose that former alternative and it would have the efficient result—no new capacity should be constructed.
Complementing Regulation with Antitrust Policy

45. The first step in instituting a regime of direct economic regulation—prescription of prices, conditions of entry, service quality and the like—is to determine which markets or services are to be subject to such a regime and which are best left instead to the discipline of the market. The determination is rarely an easy one—competition in the real world is almost invariably imperfect, as is regulation, as well. Conventional wisdom predicts that the benefits of even highly imperfect competition will typically exceed those of thoroughly regulated franchised monopoly. Still it will ordinarily be necessary to regulate directly essential services supplied under conditions of natural monopoly—although, here again, it is often impossible to be certain which markets or services are naturally monopolistic, which perhaps only temporarily so, and which sufficiently so to justify imposing direct regulation on them.

46. In the case of industries that are not to be subject to direct regulation, pure laissez-faire will rarely be adequate to protect the public: unregulated businesses may pursue their interests by colluding or combining to suppress competition or excluding rivals from a fair opportunity to compete. For this reason, most societies relying on open markets have felt it necessary, in the absence of comprehensive direct regulation, to enforce general, non-industry-specific antitrust or anti-monopoly policies, directed against private suppressions of competition. The nature of such laws varies from country to country: some statutes envision the possibility of remedying unacceptably monopolistic markets by subjecting them to restructuring or direct regulation of one kind or another. In other countries, it is generally felt sufficient, for the preservation of reasonably effective competition, merely to frame antitrust policies in terms of prohibiting or correcting actions by firms operating in those markets to restrain competition among themselves or by a market-dominating firm to exclude potentially equally efficient competitors.

47. One important distinction between the antitrust and the direct regulatory approach is that whereas direct regulation tends to be industry-specific—and administered by agencies each specializing in the control of a particular industry—antitrust or anti-monopoly enforcement authority is typically better vested in an agency with surveillance over the entire range of industries and markets. Such agencies tend to develop a high degree of expertise in appraising the structure, behavior and performance of markets, the identification of possibly excessive market power and in fashioning remedies that permit competition to continue as the major governor of industry performance—remedies such as the dissolution of excessively monopolistic companies, mandatory divestiture of assets by dominant companies, the prohibition of specific tactics such as predatory pricing, tying-in, requirements of exclusive dealing or mergers, acquisitions or other business combinations that are deemed to threaten to impair competition.

48. Gas. It is now plain that YPF (petroleum company) has substantial monopoly power over gas production, and it may be seeking to exercise it through its pricing. YPF produces some forty percent of total national output and in addition acts as a purchasing agent or broker with control over an additional 35 percent or so. It may have therefore been taking deliberate steps to augment and preserve its market power by buying gas in order to
control its resale, and by taking equity positions in other producing firms and in reserves.

49. YPF's consequent market share of some seventy-five percent would almost certainly invite scrutiny in a country with a strong antitrust policy. Such an agency might well conclude that YPF's contracts with independent producers giving it the exclusive right to distribute their gas—and subjecting them to penalties if they seek to market the gas themselves—which accounts for the large augmentation of its own market share beyond what it obtains from its own production are neither required for efficient functioning of the market nor are compatible with effective competition.

50. In the absence of an effective antitrust policy and in the belief that the field price of gas is excessively high, ENARGAS has used its authority to regulate the transportation and distribution part of the industry in effect to regulate the field price as well, by refusing to permit the regulated entities to pass it through entirely, reasoning that the ultimate purchasers of gas should not be subjected to such assertedly monopolistic exploitation. The representatives of YPF protest that they do not have monopoly power; that the concentration of control in their market is no greater than in other industries that are not subjected to direct regulation; and that ENARGAS is in effect illegitimately regulating them under the guise of regulating transportation of the gas.

51. There is a fundamental policy issue as to whether YPF's alleged market power should be regulated through refusals by ENARGAS to permit pass through of "excessive prices" to distribution companies' prices; through structural remedies such as mandating that YPF divest some reserves, resale arrangements, or equity positions in other production assets; or with less formal and less transparent pressures towards deconcentration over time.

52. Gas production is not a natural monopoly and should therefore be subject not to direct regulation but to the discipline of competition. If there were a separate aggressive agency charged with enforcing antimonopoly laws, it would be in a superior position to evaluate the conflicting claims about the presence or absence of effective competition at the production end of the business and to seek remedies, if necessary—such as voiding the exclusive sales contracts with independent producers—that might on the one hand invigorate competition and, on the other, make it unnecessary for ENARGAS to regulate the field price by the indirect method it has actually chosen. In our view neither direct price regulation nor the indirect method adopted by ENARGAS is the proper way to prevent exploitation of consumers by an industry that ought to be competitive.

Regulatory Commitment

53. In many of the infrastructure sectors, the establishment of transportation and distribution networks requires very large investments that are mostly sunk. Private utilities that are vulnerable to administrative intervention can be expected to invest less than the optimal amount, and to make disproportionately low investments in activities characterized by large sunk costs. Without Government commitment to regulatory stability, frequent changes in the regulatory regime can have the same effect as outright expropriation of sunk investment.

54. A necessary condition for effective private participation and investment in network
Regulation of the Argentine Network Utilities: Issues and Options for the National Government

utilities is the creation of mechanisms that enforce substantive and procedural restraints on regulatory discretion and limit regulatory opportunism. However, regulatory mandates and rules should adopt to new problems, changed circumstances, and new information and experience concerning the workings of the regulated sectors. Regulatory flexibility is especially imperative in sectors that are experiencing rapid technological and market changes. Too much regulatory flexibility, on the other hand, leaves inordinate scope for administrative expropriation. Thus, striking a proper balance between regulatory flexibility and commitment is an indispensable precondition for the success of regulatory reform.

55. **Telecommunications.** The lack of a well-defined regulatory regime and the high level of policy uncertainty during the privatization process in telecommunications resulted in investors demanding high risk premia. Subsequently, these risk premia seem to have declined as the government made progress in implementing its regulatory regime. The reduction in regulatory risk was accompanied by substantial investment by the two newly privatized entities. However, recent executive decrees, as well as a number of policy fluctuations, have generated considerable uncertainty and confusion in the sector. First, these decrees have created contradictions and instability in the demarcation of responsibilities between CNT, the Secretariat of Communications and other governmental bodies. Second, frequent interventions by the Ministry of Economy have created instability in the CNT management at the highest level, leading to policy shifts and frustrating the establishment of a credible and sustainable regulatory regime.

56. **Gas.** In the natural gas sector, investors are concerned about the transparency and predictability of decisions by ENARGAS and point to two examples. In one case, ENARGAS did not permit the pass-through to consumers of wholesale prices charged by YPF to distribution companies. ENARGAS' decision was a means of indirectly controlling the market power of YPF, the dominant producer. ENARGAS has stated no coherent principles or predictable basis for what it would consider to be acceptable levels of the price of gas. In a second example involving gas quality standards, ENARGAS reversed its earlier decision after operator complaints. Although investors were ultimately satisfied with the decision, there was criticism about the lack of structure and transparency of the process.

57. In a way, it may be plausibly argued that the regulatory agency should have some discretion (over pass-through of wellhead price increases) given the limited number of producers. However, this "discretion" by ENARGAS, in the absence of clearly articulated principles, is precisely what concerns investors. In rejecting the pass-through, ENARGAS did not provide a transparent rationale. Investors have since expressed serious concerns with the continuing lack of transparency, stability and predictability, and may delay or add new uncertainty premia to new energy projects. Arbitrary steps like those taken by ENARGAS should be avoided in favor of ones that protect privatization commitments, while promoting the public interest in efficiency and competition.

**Providing Signals and Incentives for Efficient Behavior**

58. Industry observers have raised a number of contentions that specific policies of
regulatory authorities have been insufficiently guided by a rational cost/benefit calculus. The fundamental principle that should underlie such decisions is quite clear: the costs of deficient performance be borne by the parties responsible and in a position to remedy them, and that the penalties be correctly reflective of the costs imposed on the public by those deficiencies, so as to provide those parties with the proper signals and incentives to incur (or not incur) the costs of abatement.

59. **Electricity.** The current regulatory scheme in the electricity sector entails an inappropriate allocation of rights and responsibilities. The actual price in the spot market—and the system of penalties ultimately reflected in such price—does not appropriately reflect the costs that generators, distributors, and transmission companies impose on the system.

60. Penalties levied on the transmission company TRANSENER, are paid to the grid users affected by the problems, but the reciprocal is not true—TRANSENER cannot recover part of the penalty for transmission failures even if such failures are caused by the generators. Similarly, the distribution companies do not have to compensate the transmission company when the problem in the high voltage grid originates in a failure of the distributor. Moreover, the penalties levied on TRANSENER for transmission failures are unrelated to the costs that they impose on the system—they are computed on the basis of a pre-set value for energy rather than actual spot prices. So far, the difference between penalties and costs imposed has not prevented TRANSENER from fulfilling the quality standards stipulated in the concession. However, this may become a problem if at any time, the social cost of poor quality deviates significantly from the pre-set penalties.

61. There is no doubt that TRANSENER has succeeded remarkably well in reducing transmission down-time and time for restoration of service. However, the penalty system has what seem to be inefficient unintended consequences. For example, TRANSENER now does as many as possible of its repair and maintenance operations with the lines live, whether or not they are needed for service at that time, so as to avoid penalties for time unavailable and down.

62. **Gas.** ENARGAS has inflexibly enforced the terms of the privatization contract related to the schedule of pipeline maintenance and replacement investment by TGS. Ex-post some of these terms have proven to be very inefficient. Should ENARGAS be inflexible about inefficient terms of the contract, or should there be a process that practically permits adjustment of the terms, with appropriate offsets? On the issue of quality standards, ENARGAS has reached decisions unsupported by genuine rationale. As a result the industry has expressed well-founded fears about the exercise of discretion by ENARGAS unsupported by transparent principles.

**THE REGULATORY PROCESS**

63. In view of the importance and number of the substantive regulatory issues that have already been identified, as well as the depth of concern over the regulatory process, the regulatory agencies must:

- have competent, non-political, professional staff, expert in the relevant economic, accounting, engineering and legal principles
and familiar with good regulatory practice elsewhere;

- operate within a statutory framework that stipulates a preference for competition and market-like regulatory policies and practices; and

- be subject to a variety of substantive constraints and procedural requirements, such as those developed in other countries to ensure the integrity, independence, transparency and accountability of the regulatory process, particularly (1) insulation from the executive and legislative branches of government, (2) accountability for decisions to some non-political review agency such as the courts and (3) procedural requirements such as affording all competent interested parties an opportunity to be heard on major issues of policy; stipulated deadlines for reaching decisions; and the obligation to supply reasoned justifications of decisions.

64. It is not easy to characterize these requirements clearly and unequivocally because the ideal is a balance between affording the protections of “due process” to all interested parties—which means quasi-judicial procedures, hearings, written opinions and formal avenues for appeal—on the one side, and administrative efficiency—the intent of which may be more clearly characterized as avoiding overjudicialization of the regulatory process. Not all policies should be formulated, not all decisions made via a quasi-judicial process, with open testimony subject to cross-examination, filings of briefs and all the complementary protections such as are necessary in criminal cases. Wherever feasible, for example, recourse should be taken to informal negotiations between expert staff and interested parties—as always, open at some point to public scrutiny, review and possible appeal—or other informal dispute resolution procedures—such as reliance on negotiations among interested parties, with the regulatory agency intervening only as an arbitrator of otherwise unresolvable issues.

65. The mandate to rely to the greatest extent feasible on market-like solutions—such as price caps, auctions and negotiated settlements—is one aspect of the quest for administrative efficiency as well as of compliance with the overriding policy of minimizing the need for direct regulatory determination of results. Another example would be a preference for price caps over continuous cost-plus or rate base/rate of return regulation, with the caps offering the regulated companies competitive market-like incentives for efficiency and innovation while also providing a reasonable opportunity for efficient providers to recover prudently-incurred costs, including a going return on investments commensurate with risk.

66. At the same time, there is a widespread feeling in Argentina of need for the procedures and decisions of the regulators to be subject to prescribed deadlines and to the requirement that both the processes of decision-making and the decisions themselves be transparent, rationally defended, apolitical and accountable to some impartial non-political arbitrator—and not be subject to review or alteration by officials from the executive branch of government.

**Due Process**

67. There are many claims of abuse of power by the regulatory agencies, of failure to
meet deadlines, of a rigid insistence on the enforcement of rules in situations in which the result was manifestly irrational and failure to respond to requests for relaxation of rules in such circumstances. Beyond observing that such controversies are inevitable under even the most enlightened regulation, it is very difficult to ascertain the merits of such complaints and of the often conflicting versions of the asserted problems by the opposing parties.

68. One possible way of resolving such issues and, more important, suggesting methods of producing satisfactory resolutions might be to institute management audits of regulatory agencies by outside consultants capable of examining asserted incidents of excessive regulatory rigidity or irrationality. Another arrangement that might come closer to resolving issues promptly as they arise, rather than subjecting them to major reexaminations after the fact, would be the constitution of some such office as an ombudsman for each regulatory agency or for regulatory agencies collectively—an agency, independent of the regulators, competent to resolve such disputes at the time of their occurrence. Conceivably committees of the legislature could serve such an oversight function; but there is a genuine danger, particularly if such committees attempted to resolve specific controversies, that the entire purpose of preserving the political independence of the regulatory process would be defeated. An office of ombudsman located in the Executive branch of government might combine in optimal proportions the objectivity and independence of regulatory agencies necessary for prompt, expert and non-political resolution of such controversies and accountability of the regulators to informal, impartial, external scrutiny.

**Political Independence**

69. Effective regulation clearly requires some independence of the regulators from political influences, especially on a day-to-day or decision-by-decision basis. The posture of the agency must be one of impartial, objective, non-political enforcer of policies set forth in the controlling statutes, free of transitory political influences.

70. The question of the extent to which members of the Executive branch should have authority to determine regulatory policies is not a simple one. The argument becomes particularly difficult when the performance of a regulatory role by such officials is justified in terms of ensuring continuation of the spirit of the Cavallo reforms beyond the possibility of regulatory reversal.

71. Clearly absolute independence of these agencies is neither possible nor really desirable. The Executive can hardly be denied the authority to ensure that regulators appointed by it are sympathetic with the reforms and with Administration policy generally. On the other hand, if the regulators have no insulation from political intervention, then the regulatory process will itself be politicized, its decisions discredited with no policy continuity, resulting in situations in which the only legitimate way of redress would be via the legislative process.

72. Reconciliation of these two imperatives—insulation particularly on a day-to-day basis from political pressures and the necessity or inevitability of regulatory policy being broadly consistent with the philosophy of democratically chosen leadership—clearly requires some compromise between continuity and independence, on the one side, and responsiveness to the broad policies of the
elected Administration, on the other. One such compromise would be to have the regulators serve staggered terms, so that an incoming Administration could replace them only gradually—and perhaps with a Chairman subject to annual appointment or reappointment by the President. This solution is clearly not directly feasible where the regulator is a single individual. Such appointees should, at the least, have some fixed tenure, which cannot be terminated except in case of abuse of authority.

Avoidance of Regulatory Opportunism

73. While all these procedural recommendations are designed to ensure that regulatory agencies will be responsible in exercising their authority, their policies predictable and their individual decisions consistent with one another, the report also is emphatic in warning against arbitrary changing of the rules of the game and thereby frustrating the reasonable expectations of investors. The importance of this caveat is clearly intensified to the extent that Argentina continues to depend in part on the importation of foreign capital and managerial skills for the efficient development of these industries.

74. All the procedural recommendations that are made by the report are in effect attempts to assure investors that the rules will not be changed arbitrarily to their disadvantage—a practice that cannot, but, discourage economically efficient investments in the future and be ultimately inconsistent with reliance on a privatized system of industrial organization. This issue is especially significant in the case of network utilities which entail large sunk investments. Utilities are particularly vulnerable to administrative expropriation, with regulators setting prices below long-run replacement costs so as to capture the quasi-rents associated with the operation of assets with high sunk costs. Faced with this risk, private utilities might be expected to make disproportionately low investments in services where sunk costs are high, investing less than the optimal amount in order to reduce their exposure to administrative expropriation.

SUMMARY AND RECOMMENDATIONS

75. Argentina's transformation of its major utility industries in the short space of a few years has been a truly impressive achievement. It should not be surprising that the development of the requisite accompanying regulatory institutions and policies has been a slower process; and that it has generated criticisms of the kinds that we have summarized in this report. Our listing of the most prominent among these—which should be interpreted as questions that need to be answered rather than formal criticisms—is intended in no way to detract from the World Bank's expression of appreciation of the impressiveness of that achievement.

76. Still, several of the issues that have been identified are fundamental in nature rather than questions of fine-tuning. Perhaps the economic language of the report has obscured somewhat the significance of these issues to the operation and growth of the Argentine utility sectors. Any program for restructuring the relationship between Government and industry, and developing effective regulatory policy, should explicitly derive from the industry's underlying economic characteristics. The Argentine Government has not clearly articulated a set of principles delineating the role of the State in these sectors, nor established economically sound criteria
distinguishing between those activities in which intervention by the public sector is warranted and those in which it is not. In addition, the design of regulatory mechanisms should place greater emphasis on identifying the issues that require regulatory resolution, and on developing the requisite expertise in critical regulatory areas. In fact, the present structure of the regulatory entities is likely to accentuate the tendency of regulation to expand its jurisdiction, often with dysfunctional consequences, and spread to situations in which it is not justified.

77. In Argentina, achieving the benefits of privatization and competition in network utilities requires that significant new policy measures be adopted in parallel with the opening of these markets to entrants. Otherwise, impediments to reaching regulatory goals and harm to the public interest will arise if the regulators apply, within the new market setting, traditional approaches to regulating franchise monopolies. For example, some of the franchised private utilities are subject to restraints and burdens that are not present in unregulated markets, and that do not apply to potential new entrants. These restraints and burdens distort the forces that would otherwise drive market outcomes to efficiency, and might systematically tend to create inefficiencies of supply. Also, regulation-induced inefficiencies in pricing (e.g. cross-subsidization) that may be tolerable in the traditional monopoly setting can create instability and serious social costs in the new market context, by encouraging various forms of uneconomic bypass and discouraging efficient entrepreneurial and competitive activities.

78. The government's transition from being a direct operator to a regulator of private utilities has been a learning experience for both the regulators and the private operators. This transition requires a major change in focus and skills on the part of the government. No regulatory entity has, as yet, articulated a set of principles guiding its decision-making. In general, the regulatory agencies have not clearly defined their regulatory responsibilities, nor developed a medium-term regulatory agenda, identifying the issues that are likely to emerge and the types of decisions which will be required. Moreover, many agencies are staffed in part by former employees of the state-owned companies or ministries who lack the requisite expertise to handle the new regulatory issues. In addition, many of the agencies are generously funded by fees on the operators, which has led to unnecessary expansion and overstaffing (with resultant incentives to intervene).

CURRENT AND EMERGING REGULATORY ISSUES

79. In the post-privatization period, Argentina will face several important regulatory challenges.

- First, there is a need for a clear demarcation of responsibilities between the Ministries, national-level regulators, and provincial regulators. Regulatory responsibilities that must be coherently and delicately harmonized should be kept together within a single agency and not counterproductively splintered. Moreover, to provide regulatory stability, an indispensable precondition for attracting private investment, substantive restraints on administrative action must be embedded in the regulatory framework—it is especially important to mitigate political intrusion on the sectors' tariff policies.
Second, the regulators will need to adopt measures that seek to harmonize competition with regulation and create a "level playing field". Such policies should ensure that regulatory obligations (e.g. universal service goals, lifeline services to the elderly and poor, etc) are pursued in a manner that is competitively neutral--i.e. that avoids interference with the ability and incentives of any firm to compete for business on the basis of its efficiency. Otherwise, incumbent burdens (e.g. obligation to provide service on demand to all customers at rates that do not cover their incremental costs) can distort competition to the point that entry may become inefficient. In addition, the reciprocal interpenetration of markets by regulated and unregulated companies will require regulatory prevention of cross-subsidization and abuse of monopoly power.

The third challenge is to design and implement efficient access pricing and interconnection rules. All the infrastructure sectors are characterized by transportation and distribution networks linking upstream production with downstream consumption. These networks consist of: a hierarchy of transmission links of diminishing voltage in electricity; high-pressure national pipelines and regional distributional links in gas; transmission media and switching centers in telecommunications. As technological change and deregulation reduce entry barriers in utilities, a greater number of rival firms will seek to interconnect to these networks than in the past. At each interconnection, an access price will have to be determined. The regulators will have an important role in ensuring that access prices promote dynamic efficiency through efficient entry and investment decisions while enabling the owner of the network to remain financially solvent.

Fourth, the regulators will need to adopt pricing principles which promote economic efficiency while simultaneously removing impediments to adequate returns for the privatized operators. These principles would: (i) lead to economically efficient demand-differentiated prices which apportion all unattributable fixed and common costs of a utility among its services on the basis of the value of those services to consumers; (ii) discourage regulatory intervention in any market where there is evidence that competition is sufficiently powerful to protect the public interest; (iii) readily permit an assessment of the reasonableness of those rates which are judged to require continued regulatory oversight.

Fifth, a general issue that needs to be addressed by all regulators is dispute resolution. Consumers' expectations for improved service have led to extensive consumer complaints with the operators. At the same time, there will be increasing complaints between operators and new entrants. While such disputes can, perhaps, be resolved through negotiation, "fair" outcomes that balance the interests of the competing parties are unlikely to always serve the public interest well. Instead, it is important for the regulators to articulate certain public-interest goals and policy solutions to such disputes that reinforce and strengthen competition, and that avoid an anticompetitive division of the market. There should be transparency, accountability and consistency in the procedures and decisions of the regulatory
agencies. In some cases, the administrative procedures of the regulatory agencies will have to be modified to meet these criteria.

80. In each sector, several current or predictably forthcoming issues will require regulatory resolution. A cursory summary is provided below.

81. In electricity, the main regulatory issues pertain to: (i) the extent to which the local distribution companies should be accorded pricing freedom to respond to commercial bypass by large users and efficiently defray their infrastructure costs through Ramsey pricing; (ii) the methodology used to determine the payments by the "beneficiaries" of existing and new transmission lines; and (iii) the design of a dispatch system which in addition to fuel costs and transmission losses also reflects the impacts on stability, reliability, and system congestion. In telecommunications: (i) tariff regulation is splintered between the Ministry (end-user rates) and the regulatory agency (access charges); (ii) a framework defining access rules and interconnection standards has not been established; and (iii) the structure of tariffs requires substantial further rebalancing. In gas, the pressing issues are: (i) whether market dominance at the production level should be controlled through the regulation of retail tariffs or more direct structural remedies; (ii) whether pipelines should be permitted to engage in peak-load and demand-differentiated pricing; and (iii) whether parties with pipeline contracts for firm capacity should be permitted to engage in resale.

82. The Government's ability to address these regulatory issues is subject to a number of limitations:

- First, the Government has not yet put in place institutional mechanisms restraining arbitrary administrative action. Indeed, the Ministry of the Economy intervenes extensively in many activities in these sectors without substantive or procedural constraints. At present, there is likely to be a strong reluctance on the part of the Government to support any regulatory design which substantially limits its own discretion. The Government might be motivated to modify the existing institutional arrangements once it recognizes that the present regulatory system is incapable of sustaining long-term private participation and efficient investment.

- Second, the regulatory agencies would naturally be hesitant to submit to fundamental and potentially disruptive restructuring of their internal organizations and procedures. They might be equally reluctant to support regulatory reforms that impose significant restraints on regulatory discretion. Still, the agencies seem to recognize that they lack the expertise to handle some of the complex issues that have already emerged; and

- Third, solutions to the regulatory problem in the infrastructure sectors generally involve very sophisticated regulatory policies. However, Argentina's institutional endowment, although superior to that of many developing countries, may constrain the successful undertaking of such complex regulatory frameworks.
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- Third, solutions to the regulatory problem in the infrastructure sectors generally involve very sophisticated regulatory policies. However, Argentina's institutional endowment, although superior to that of many developing countries, may constrain the successful undertaking of such complex regulatory frameworks.
the economy where the strength of competitive forces is inadequate. The new regulatory principles have already been used in the U.S and other western nations and have largely lived up to their promise by significantly reducing the burden of regulation while contributing to efficiency. The Argentine regulatory agencies can profit substantially from a study of those principles.

Third, creation and assembly of Argentine expertise in the economics of regulation, available to the agencies first from a centralized organization (such as a University or foundation research center), and later from internal staff with specific training and background. This would require that economists with the requisite background and training make an Argentine organization their professional homes for at least two years. Due to the limited prevalence of private sector activity and assets in Argentina’s infrastructure in the past, there are few Argentine economists with this specialty area. Perhaps a coterie of specialists from elsewhere could congregate in an Argentine organization for a few years, solve regulatory problems for the agencies, train regulatory staff, and teach in a postgraduate economics program enough courses to qualify the students for a certificate in regulatory economics. A few years later, these students would themselves have the experience to carry the educational program forward and to populate the staffs of the regulatory agencies with the requisite skills.