

ARGENTINA

**PROGRAM TO SUPPLY ELECTRICITY TO THE COUNTRY'S
VARIOUS REGIONS UNDER THE FEDERAL ELECTRICITY
TRANSMISSION PLAN**

(AR-L1079)

LOAN PROPOSAL

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ELECTRONIC LINKS (REQUIRED)	
1.	Environmental and Social Management Report http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35375991
2.	Annual work plan (AWP) and itemized budget for the program http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35376036
3.	Itemized procurement plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35376118
4.	Monitoring and evaluation arrangements http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35376330

ELECTRONIC LINKS (OPTIONAL)	
1.	Technical and economic evaluation of the program sample – consulting report http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35384932
2.	Evaluation of unserved energy for works under Federal Plan II, draft version prepared by Mercados Energéticos Consultores, September 2010. http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35376146
3.	Evolution of Argentina’s Energy Sector, seventh semiannual report for loan 1764/OC-AR, August 2010 http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35376300
4.	Report on fiduciary arrangements and requirements http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35376027
5.	Updated report on rates and subsidies http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35378550
6.	Links to technical and program support files http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=35376165

ABBREVIATIONS

AWP	Annual work plan
CAF-SE	Comité de Administración del Fondo Fiduciario para el Transporte Eléctrico Federal [Federal Electricity Transmission Trust Fund Management Committee]
DVA	Distribution value-added
GWh	Gigawatt-hour
HTL	High-tension line
IRR	Internal rate of return
km	Kilometer
kV	Kilovolt
kWh	Kilowatt-hour
MMBTUs	One million British thermal units
MVA	Megavolt-ampere
MW	Megawatt
NPV	Net present value
PEU	Program execution unit
PFTE	Federal Electricity Transmission Plan
PFTE-II	Federal Electricity Transmission Plan II
SECCI	Sustainable Energy and Climate Change Initiative
SEPA	Sistema de Ejecución de Planes de Adquisición [Procurement Plan Execution System]

PROJECT SUMMARY

ARGENTINA

PROGRAM TO SUPPLY ELECTRICITY TO THE COUNTRY'S VARIOUS REGIONS UNDER THE FEDERAL ELECTRICITY TRANSMISSION PLAN (AR-L1079)

Financial Terms and Conditions					
Borrower: Republic of Argentina Executing agency: Secretaría de Energía [Department of Energy]			Amortization period:		25 years
			Grace period:		3.5 years
			Disbursement period:		3.5 years
Source		Amount	%	Interest rate:	
IDB (Ordinary Capital)		US\$120 million	50	LIBOR-based	
Local		US\$120 million	50	Inspection and supervision fee:	
Total		US\$240 million	100	Credit fee:	
				Currency:	
				U.S. dollars from the Single Currency Facility	
Project at a Glance					
Project objective/description: The general objective of the program is to support improvements in the efficiency and reliability of electricity services in the various regions that make up Argentina’s electric power grid. The specific objectives of the program are to: (i) restore electricity transmission capacity at the provincial level; and (ii) enhance the efficiency and reliability of the transmission and distribution grid.					
Special contractual clauses: Conditions precedent to the first disbursement under the program: As conditions precedent to the first disbursement of loan proceeds, the borrower will meet the following requirements: (i) present evidence that the program execution unit (PEU) has been established and that sufficient staff have been appointed to execute program activities (paragraph 3.1); (ii) deliver the Operating Regulations for the program (paragraph 3.2); and (iii) deliver the updated annual work plan for the program (paragraph 3.8). Special execution conditions: (i) Prior to incorporating any work into the program, it will be demonstrated that the work meets the eligibility conditions established in paragraph 3.4; and (ii) prior to tendering any program works, the executing agency will meet the requirements related to environmental and social conditions established in the Environmental and Social Management Report and summarized in paragraph 2.4. Exceptions to Bank policies: Partial waiver of the Bank’s Public Utilities Policy, in accordance with the explanation provided in paragraph 2.13.					
Project consistent with country strategy:			Yes [X]	No []	
Project qualifies as:			SEQ [X]	PTI []	Sector [] Geographic [] Headcount []

* The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable provisions of the Bank's policy on lending rate methodology for Ordinary Capital loans. In no case will the credit fee exceed 0.75% or the inspection and supervision fee exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem addressed, and rationale

- 1.1 **Background.** Argentina has been taking important steps to normalize its energy sector, which was hit hard by the severe macroeconomic crisis that engulfed the country in 2002. The main challenge for the sector is to guarantee service in a context of rising energy demand, while performing a complete overhaul of the energy sector as consumers regain their ability to pay. Key imperatives include adjusting electricity generation capacity to keep pace with growth in demand, guaranteeing the supply of fuels used to generate power, and continue to expand electricity transmission capacity. The electricity transmission grid is saturated in a number of locations, and new interconnections are needed to enhance energy efficiency, serve rural areas far removed from the country's major cities, and support regional integration.
- 1.2 The country's regional electricity transmission systems and the transmission infrastructure deficit, particularly at the 132-kilovolt (kV) tension level, have led to transmission restrictions. In the short and/or medium term, load shedding will be the only way to handle peak-load times without risking a total blackout. Already, between 2003 and 2008, the capacity of existing systems was overloaded during hours of peak demand.
- 1.3 In some areas, service interruptions are no longer a risk but rather a reality.¹ If the necessary infrastructure investments are not made, it will be impossible to meet actual demand, even with all transmission and generation equipment running at full capacity. This would plunge a number of provinces into an energy emergency. Unserved energy would reach unacceptable levels, both in terms of compliance with quality standards and from an economic productivity and social standpoint.
- 1.4 **The country's sector strategy.** The country's power grid has 39 generators. Seven are State- or province-owned, and the rest are owned by 16 private groups. Installed capacity is some 25,000 megawatts (MW), of which 40% is hydroelectric capacity, 56% is thermal capacity, and 4% is nuclear capacity. Most thermal power is generated by natural gas. Coal, fuel oil, and gas oil are used in situations where there are restrictions, primarily in the winter months, when natural gas is reserved for residential consumption.
- 1.5 The electricity sector was governed by a central planning system with State-owned enterprises until 1991, when Law 24,065 was enacted, introducing major reforms. The State went from being an entrepreneur to a regulator of private agents, and the sector was divided into generation, transmission, and distribution subsectors. The generation market was opened to competition, while transmission and distribution continued to be regulated as natural monopolies. The Wholesale Electricity Market

¹ The transmission quality indicators regularly presented in the reference guides of each regional transmission provider show significant deterioration (see technical files).

was created, enabling generators to sell to distributors, marketers, and large customers. The electricity market was also opened to neighboring countries.

- 1.6 The country entered a recession in 1998 that lasted until 2002, when it sank into a severe crisis. In January 2002, Congress enacted the Economic Emergency Law (Law 25,561), ending the convertibility regime and forcibly converting foreign currency-denominated contracts into peso-denominated contracts, as well as authorizing the executive branch to renegotiate public utility contracts with privatized companies or concessionaires. Rates on public utilities were frozen, which hit the energy sector hard. As explained in detail in the proposals for Bank-financed operations in support of the country's Federal Electricity Transmission Plan (PR-3064 and PR-3486), the Argentine government has launched a process to overhaul the country's energy market.
- 1.7 **Bank support for the sector.** In August 2006, the Bank approved a loan (1764/OC-AR; PR-3064) for the Norte Grande Electricity Transmission Program. At that time, Argentina's electricity sector departed from the basic conditions of the Bank's Public Utilities Policy (OP-708), particularly with regard to the rate regime and concession contract renegotiation processes with electricity transmission and distribution companies. Considering that the authorities publicly had announced that they expected to conclude the sector normalization process by late 2007 or early 2008, the Bank approved a partial waiver of Policy OP-708.
- 1.8 In November 2009, the Bank approved additional financing for the same program (1764-1/OC-AR; PR-3486) and extended the waiver of policy OP-708 that had been approved in 2006 given the progress made with respect to rates and that the contract renegotiation process with the transmission and distribution companies had been concluded. A summary of progress made since 2006 to fully normalize Argentina's electricity sector follows.
- 1.9 **Progress in Argentina's electricity sector since 2006.** With respect to electricity rates and subsidies, the Argentine government has restructured and increased rates and continued to reduce subsidies in the energy sector rates since 2006.² Table 1 shows the variations in the rates paid by end users for a representative sample of distribution companies in Argentina, which serve about 60% of the market.³ While average rates have climbed between 32% and 60% since 2006, that variation can be primarily attributed to an increase in the part of electricity rates that recovers the transmission and distribution costs. At the same time, the part of the rate that recovers generation (supply) costs has increased only marginally, reflecting a decision by the national government to absorb the increase in generation costs

² Department of Energy Resolution 1169, adopted in 2008, introduced changes to reduce supply cost subsidies to residential users taking into account the level of consumption. In May 2010, the Department of Energy temporarily suspended Resolution 1169/08 for residential customers only but reinstated all rates in October 2010 in continuation of the policy to reduce the subsidy to the supply cost.

³ EDENOR (northern Greater Buenos Aires), EDESUR (southern Greater Buenos Aires), EPESF (Santa Fe), EPEC (Córdoba), and EDEMSA (Mendoza).

resulting mainly from fuel price increases, rather than assessing it as a charge to the users. It should be noted that the decision to recover generation costs is made at the federal level while the decision to recover transmission and distribution costs is made mostly at the provincial level. Over this time period, regulators at the provincial level have authorized electricity companies to adjust their rates at least once per year.

Table 1. Increase in average end-user rates (Arg\$/MWh)

	2006	2007	2008	2009	2010	Variation
EDEMSA	112	114	134	152	171	53%
EPEC	165	165	189	238	260	58%
EPESF	162	163	198	234	259	60%
EDENOR	102	114	122	134	136	33%
EDESUR	105	119	127	140	139	32%

- 1.10 The rate increases were accompanied by better targeting of subsidies, as presented in Table 2. However, despite the progress made in targeting the subsidies, there are still distortions, with a large portion of residential and nonresidential consumers receiving a large share of the subsidies. The subsidy levels are inversely proportional to consumption, as residential users consuming less than 150 kWh/month receive subsidies of about 60%, while residential users consuming over 1,500 kWh/month receive subsidies of less than 10% in general. Commercial and industrial users receive subsidies that are below the national average and have been steadily shrinking. However, there are no subsidies for the transmission and distribution subsectors, with the exception of investment subsidies in the transmission sector.

Table 2. Implicit subsidy by end-user categories as of mid-2010

RATE CATEGORIES	EDENOR			EDEMESA		
	Current rate	Rate w/out subsidy	Implicit subsidy	Current rate	Rate w/out subsidy	Implicit subsidy
	Arg\$/MWh	Arg\$/MWh	%	Arg\$/MWh	Arg\$/MWh	%
RESIDENTIAL						
150 kWh/month	96	230	58%	110	280	61%
600 kWh/month	120	249	52%	193	329	41%
1,000 kWh/month	161	251	36%	215	318	32%
1,500 kWh/month	247	247	0%	274	312	12%
NONRESIDENTIAL (< 10 kW)						
400 kWh/month	227	327	31%	260	396	34%
1,000 kWh/month	207	318	35%	245	381	36%
2,500 kWh/month	180	290	38%	249	375	34%
MEDIUM AND LARGE USERS						
T2 – Medium demand	208	298	30%	N/A	N/A	
T3 – Low tension -1	156	247	37%	202	327	38%
T3 – Low tension -2	190	248	23%	235	327	28%
T3 – Medium tension -1	108	195	44%	146	263	45%
T3 – Medium tension -2	141	196	28%	178	263	32%
AVERAGE	136	245	44%	171	300	43%

- 1.11 Regarding the transparency of subsidies, the Argentine government had adopted measures to make subsidies more transparent: (i) through contributions to the Stabilization Fund included in the National Budget, which will amount to approximately Arg\$11 billion in 2010, closing the income and expenditure gaps of previous years; and (ii) through an obligation requiring distributors to explicitly itemize subsidies paid by the State on invoices delivered to end-users. Although subsidies to the electricity sector in 2010 represent approximately 0.75% of GDP, Argentina's fiscal position in the short and medium term is solid, largely due to accelerated growth in tax and nontax revenue, associated with the expectation of robust nominal GDP growth and sustained high export prices. In 2010, even with annual public spending growth at about 31%, the primary balance will show a surplus of 2% of GDP. This performance has been supported by revenue transfers from the Central Bank and the Social Security Agency to the government treasury accounts. The sole risk to fiscal sustainability would be a sharp drop in export prices, which is not likely.
- 1.12 With respect to distortions in generation, the Argentine government has designed and implemented the Energy Plus Program in order to close the gap between real costs and actual rates. That program establishes incentives for large industries to cover the cost of any increases over 2005 levels in their electricity consumption and recognize the real price of power generation. At the same time, it supports rate hikes as a way of promoting efficient energy use and incentivizing self-generation and cogeneration of electricity. This has led to the installation of new capacity on

the order of 1,600 MW at thermoelectric power plants,⁴ which is remunerated at total production cost plus a return. In addition, a recent auction using market-based rate pricing attracted bids promising over 1,200 MW in renewable energy. Actions taken in recent years to normalize the regular functioning of the Wholesale Electricity Market as a competitive market and expand power generation capacity have produced concrete results between 2008 and 2010. During this period (as yet unfinished), nearly 3,700 MW of capacity will be added at various plants throughout the country.

- 1.13 **The Bank's country strategy.** The program is consistent with the priorities established in the Bank's country strategy with Argentina for the 2004-2008 period (document GN-2328-3), in which electrification is identified as a focal area of intervention in the region for expanding production infrastructure. The strategy update for the period 2009-2011 (document GN-2570) calls for support for investments in the electricity transmission subsector, for economically viable operations. The program is also in line with the Bank's Sustainable Energy and Climate Change Initiative (SECCI) inasmuch as it promotes energy efficiency projects in national transmission systems.
- 1.14 Recently, the Bank has been supporting the energy sector through several loan operations. These include the aforementioned Norte Grande Electricity Transmission Program (1764/OC-AR and 1764/OC-AR-1) and the Multiphase Program for the Development of Production Support Infrastructure in Entre Ríos (1914/OC-AR), which includes a component to support the electricity transmission sector in that province. In addition, prior to the 2002 crisis, the Bank approved several nonsovereign guaranteed loan operations in the electricity and natural gas subsectors. And in response to the need to diversify the energy matrix, the Bank has supported operations under the SECCI framework to provide technical assistance on power generation from wind, solar, biofuel, and other alternative energy sources (ATN/KK-11892-AR and ATN/OC-11500-AR).
- 1.15 **Problem to be addressed.** Transmission capacity is saturated at various points on the country's electricity grid, and major problems include: (i) the design capacity of many components of regional transmission systems has been exhausted, chiefly at the 132-kV tension level. Generally, these components are: high-tension overhead lines, power transformers, and reactive power compensation devices; (ii) these components are being operated at full capacity and in some cases beyond the capacity for which they were built or designed. This practice of overloading, in some cases, compromises the integrity of the equipment or drastically shortens its useful life; (iii) when it is impossible to operate these components beyond capacity, scheduling rolling blackouts during peak-demand hours becomes the only way to prevent damage to or destruction of the equipment, or prevent a regionwide blackout. These restrictions⁵ have a direct impact on the quality of life of the

⁴ The supply cost is subsidized at the same rate as projects outside the Energy Plus Program.

⁵ See the economic and technical evaluation of the program sample in other references.

consumers and on the production capacity of plants and other economic activities in which electricity is a key input; and (iv) even when there are no capacity restrictions with all available equipment up and running, the lack of reserve capacity means that in the event that a component were to fail or had to be taken off line for a prolonged period of time, there would in some cases be a risk of widespread blackouts and/or restrictions of such duration or magnitude as to have a significant adverse economic and social impact.

- 1.16 **Rationale.** To address these restrictions, the Argentine government prepared the Federal Electricity Transmission Plan (PFTE). The first phase of the PFTE helped free up structural bottlenecks along the extra high voltage backbone transmission system, remove dispatch restrictions, and guarantee better supply to the provinces. This phase of the plan is underway and has partial financing through Bank operations 1764/OC-AR and 1764/OC-AR-1, which are proceeding satisfactorily with disbursement rates of 84.7% and 28.7%, respectively. In 2003, the Energy Department and the Federal Electric Energy Council prepared the second phase of the Federal Electricity Transmission Plan (PFTE-II), which includes investments in the provinces in the form of targeted priority works to resolve local problems associated with the investment deferrals noted in paragraph 1.4. The PFTE-II emerged in response to the need to maintain quality and reliability standards in the delivery of electricity services, restore performance, and modernize operations to meet the new security and reliability requirements set by the national system and the regulatory agency. The PFTE-II was prepared in consensus with sector entities at the provincial and regional levels and the transmission providers. An initial selection of 379 works were ranked according to the actual contribution they would make to resolving supply problems and transmission restrictions. Of these, 109 were selected as priority works because they would address situations in which unserved energy was already a problem or would be in the period 2003-2010.
- 1.17 Due to investment constraints in Argentina's electricity sector, very few of the identified works have been executed. The authorities have requested support from the Bank and the Andean Development Corporation to finance the proposed operation, known as the Program to Supply Electricity to the Country's Various Regions under the Federal Electricity Transmission Plan II, which will support the most pressing priority investments in the various provinces included in the PFTE-II. Works have been identified on a preliminary basis. They include the construction of 132-kV high tension lines (HTL) and 132-kV/33-kV/13.2-kV transformer stations, the extension of 132-kV high tension lines, and the expansion and repowering of existing transformer stations. These works are identified in Annex II.

B. Objective, components, and cost

- 1.18 **Objective.** The general objective of the program is to support improvements in the efficiency and reliability of electricity services in the various regions that make up Argentina's electric power grid. The proposed works will help Argentina's electricity transmission sector overcome the problems and risks it faces.

- 1.19 The specific objectives of the program are to: (i) restore electricity transmission capacity at the provincial level; and (ii) enhance the efficiency and reliability of the transmission and distribution grid. The program will provide financing for the following activities.
- 1.20 **Components.** The proposed program has the following components:
- 1.21 **Component I: Engineering, supervision, and administration (Total US\$14.8 million; Bank US\$7.4 million).** This component will finance activities necessary for proper implementation of the program. This will include technical, economic, environmental, and social feasibility studies for the infrastructure works in component II, as well as the required socioenvironmental supervision activities, audits, and evaluations.
- 1.22 **Component II. Investments in the electricity transmission grid (Total US\$214.4 million; Bank US\$107.2 million).** This component will finance works to expand and strengthen the provincial and regional transmission and subtransmission systems covered by the PFTE-II. Works in 18 provinces have been preliminarily identified and include both new works and repowering works. In all, the works encompass some 837.3 kilometers of transmission lines (voltages below 500 kV) and include 292.5 megavolt-amperes (MVA) of capacity at substations and other complementary works to strengthen the security and reliability of the grid. The pre-identified works are in various stages of readiness. During program preparation, eight works were evaluated on their economic, financial, socioenvironmental, and institutional merits and determined to be eligible for program financing. The other works to be financed under the program must meet the eligibility criteria listed in paragraph 3.4.
- 1.23 The program will have a total cost of US\$240 million, broken down as shown in Table 3:

Table 3. Cost and financing (US\$ million)

Investment category	Program total		
	IDB	Local	Total
1. Engineering, supervision, and administration	7.4	7.4	14.8
1.1 Studies	2.0	2.0	4.0
1.2 Administration, inspection, and audit	5.4	5.4	10.8
2. Direct costs	107.2	107.2	214.4
2.1 Investments in transmission works	107.2	107.2	214.4
3. Escalation and contingencies	5.4	5.4	10.8
Total	120.0	120.0	240.0

C. Results matrix

- 1.24 The results matrix (Annex II) presents the results indicators for the program components. An itemized database of those indicators can be found in the technical

files.⁶ The corresponding means of verification (data sources and collection systems) and the key assumptions and risk proxies can be found via the electronic link for the monitoring and evaluation arrangements. The outcome indicators include the relevant baselines, as well as intermediate and final targets, and have been formulated to contribute to the program impact evaluation.

- 1.25 The program is expected to produce the following outcomes: (i) prevent situations in which the design capacity of the components making up the regional transmission systems is overloaded, ensuring that the equipment is not operated beyond the capacity for which it was built or designed, which could compromise its integrity or drastically shorten its useful life; (ii) prevent situations in which scheduling rolling blackouts during peak-demand hours is the only way to prevent damage to or destruction of the equipment or prevent the risk of a regionwide blackout; and (iii) prevent the risk that the failure of a component or its removal from service for a prolonged period of time would lead to widespread blackouts and/or restrictions of a duration or magnitude totally unacceptable for society and production-related activities and with a profound economic and social impact.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 The program is structured as an investment loan for US\$120 million. The Government of Argentina will contribute US\$120 million equivalent in local counterpart resources. The government has arranged a loan—already signed and approved—from the Andean Development Corporation for US\$84 million, which will cover 70% of its counterpart contribution. The borrower will be the Republic of Argentina; the executing agency will be Argentina's Department of Energy, acting through the Federal Electricity Transmission Trust Fund Management Committee (CAF-SE), which was created to execute works under the Federal Electricity Transmission Plan. The CAF-SE is chaired by the Secretary of Energy and has one member appointed by the Energy Department and two members appointed by the Federal Electric Energy Council. The Deputy Secretary of Energy performs the duties of executive officer and serves as the legal representative for the CAF-SE.
- 2.2 Program funds will be disbursed as shown in Table 4:

⁶ The output indicators for all works that have been preliminarily identified for program financing are listed in the annex. Outcome indicators have been calculated for the eight works in the sample and will be updated in the first 12 months of the program once the corresponding studies have been completed and the additional works to be financed under the program have been selected.

Table 4. Tentative disbursement schedule (US\$ millions)

Source of financing	Program TOTAL				
	2011	2012	2013	2014	Total
IDB	49.2	44.5	18.7	7.5	120.0
Local	49.2	44.5	18.7	7.5	120.0
TOTAL	98.4	89.1	37.5	15.0	240.0

B. Environmental and social safeguard risks and mitigating measures

- 2.3 The program will produce strong positive impacts throughout the country by enhancing the reliability and quality of electricity services, reducing losses, addressing the need to deliver greater quantities of energy, and boosting the local economy by ensuring that beneficiaries have a constant supply of better quality energy. The possible negative socioenvironmental impacts⁷ would be generated primarily during construction of the new transformer stations and high- and medium-tension lines planned under the operation, and to a lesser extent during operation of these components. These impacts will be moderated and easily managed with standard procedures. Based on the Bank's Environment and Safeguards Compliance Policy (OP-703), this program has been classified as a category "B" operation. Given the nature of the program, Bank policy OP-704, scenario I, and Bank policy OP-765 will also apply.
- 2.4 To mitigate the socioenvironmental risks to the program, in addition to the operating conditions to be established, the disbursement of program funds for each of the planned construction or expansion works will be contingent upon presentation of the following by the program execution unit (PEU) to the Bank's satisfaction: (i) final social and environmental impact assessments; (ii) environmental and construction permits and licenses; (iii) right-of-way orders for high-tension lines; (iv) evidence of legal ownership of the lots where the transformer stations will be located; (v) evidence of adoption by the PEU of a system for receiving and resolving complaints and grievances; (vi) inclusion of the applicable environmental technical specifications and the Environmental and Social Management Plan in the construction and inspection contracts for the works; and (vii) adoption of environmental and social guidelines for managing program investments. In addition, the Bank will perform direct supervision of the operation's environmental and social performance on a semiannual basis and will make

⁷ These include: (i) an increase in particulate matter and combustion gases; (ii) a temporary increase in noise levels; (iii) an increased risk of water and soil contamination; (iv) an increased risk to worker health and safety; (v) temporary disturbances due to an increase in heavy vehicle traffic to the transformer stations; (vi) changes in soil permeability; (vii) permanent changes in the landscape (in the case of high tension lines); (viii) introduction of magnetic fields where there were previously none; (ix) possible minor impacts on indigenous communities; and (x) possible social impacts in the process of obtaining rights-of-way for transmission lines. See the Environmental and Social Management Report in the program annexes.

environmental monitoring and supervision visits at startup and upon receipt of the station and high-tension line construction works planned under the program.

C. Fiduciary and execution risks

- 2.5 The institutional capacity assessment found no significant weaknesses in the institution's programming, execution, and control systems but did identify the need to strengthen the activities planning system and the internal control system. During program preparation, a participatory workshop was held to identify potential risks to the operation, especially those relating to fiduciary issues in procurement and financial management processes, as well as in the administrative organization for program execution. In order to mitigate the effects of these risks, activities have been incorporated into the risk mitigation matrix, which is being implemented as part of preparations for program implementation. The main activities are intended to ensure that the PEU quickly adopts systems used in other similar Bank operations in the country to facilitate management of the operation. These include the UEPEX accounting system for externally financed projects in Argentina, the Procurement Plan Execution System (SEPA), and planning and consolidation mechanisms.

D. Other key issues and risks

- 2.6 **Technical and economic viability.** The technical and economic viability of the program were analyzed with the support of a consulting firm hired by the executing agency and an international expert hired by the Bank. Their reports can be found in the technical annexes for the program.
- 2.7 The works budgets are for reasonable amounts, and variations in their unit indicators can be explained by their different characteristics. They were reviewed for: (i) homogeneity in factory gate prices for the main equipment and materials; (ii) reasonability of direct and indirect construction costs; and (iii) the main equipment quantities and line lengths.
- 2.8 Multiple analytical exercises were used to verify that the works fall within the scope of efforts to expand the country's high-tension transmission system. The works were individually selected on the basis of: (i) the power flow analyses and other technical support, which in most cases consider multiple demand scenarios; (ii) studies prepared by the respective transmission operators, which show how the works will have a positive effect on their systems; and (iii) technical simulations of the functioning of each work over the 2010-2015 horizon and corresponding analyses to assess whether the objectives of the respective works would be met, as well as identification of well-considered economical engineering options. It was determined that a global system optimization analysis would not yield additional information on the specific cases.
- 2.9 For each work, unserved energy was estimated by calculating how much power would need to be cut in order for the system associated with the work to function in its absence under full steady-state operating conditions with voltage quality levels

at $\pm 10\%$, while also ensuring that each work would meet its objectives and prevent the blackouts otherwise expected by 2015. The economic analysis takes as its numeraire values expressed in June 2010 constant prices less the VAT transfer. The value of unserved energy is calculated as the cost to the economy. The unserved energy values were estimated by the consulting firm Mercados Energéticos Consultores for 2005 for the various regions of the country. These costs were updated to December 2009 prices. The replacement energy value was determined using the long-term marginal cost, the variable thermal generation cost, or the total thermal generation cost, depending on what the best replacement option was in each case for solving the supply problem.

Table 4. Results of the cost-benefit analysis for the projects in the sample

Project	Investment	Base scenario		Extreme sensitivity		Min. NPV / Investment
		NPV	IRR	NPV	IRR	
P2. Mendoza	8,690	1,290	425%	153,104	339%	17.62
P3. Tucumán	10,635	195,467	266%	155,253	265%	14.60
P6. Córdoba	17,335	22,463	49%	632	14%	0.04
P8. Catamarca	6,918	562,969	671%	104,222	186%	15.06
P11. Chaco	17,966	26,252	53%	7,489	22%	0.42
P15. Entre Ríos	8,010	2,664,391	923%	772,844	322%	96.48
P18. Buenos Aires	35,229	716,125	330%	91,347	87%	2.59
P20. Salta	5,443	121,641	344%	30,748	97%	5.65

- 2.10 The eight works in the sample have internal rates of return (IRR) several times higher than the discount rate, reflecting the major benefit derived from preventing blackouts. The values assigned to avoided unserved energy were based on the indicators estimated in 2006 for each of the six zones into which the country was divided to take into account differences in population, load density, and socioeconomic characteristics. These values are expressed in 2010 price levels through appropriate price indices. The evaluation was conducted using June 2010 market prices, not including taxes. Net present value was calculated for January 2010 using a 12% discount rate. All of the works have been scheduled. Only two of the eight works in the sample have some leeway in terms of the construction schedule; the others must break ground as soon as possible as the areas they will serve are expected to start experiencing unmet demand in 2012.
- 2.11 **Bank policies.** The program is consistent both with the objectives established in policy OP-708 and with the Energy Policy (OP-733), the Electric Energy Policy (OP-733-1), and other Bank initiatives associated with the sector. An objective of the Bank's Energy Policy is "to efficiently meet the energy requirements of its member countries derived by the process of socioeconomic development," and the Electric Energy Policy promotes the financing of projects that increase the availability and reliability of the energy supply. The proposed operation is in line with both objectives inasmuch as it will increase electricity transmission capacity at

- the provincial level and enhance the efficiency and reliability of the transmission and distribution grid, making the electricity supply accessible so demand can be met and ensuring that power generated in areas with restrictions can be delivered to consumers. The program is also consistent with the objectives of the Public Utilities Policy inasmuch as it will help: (i) “ensure long-term sustainability of the services” by financing the investments needed to maintain and upgrade assets related to the services; (ii) “achieve economic efficiency” by boosting regional transmission efficiency and taking better advantage of generation capacity; and (iii) “safeguard quality” by increasing the reliability and quality of electricity services.
- 2.12 Argentina’s electricity sector complies substantially with the “basic conditions” stipulated in the Bank’s Public Utilities Policy (OP-708) and is moving forward in fulfilling the policy objectives: (i) the roles of policy formulator, regulator, and entrepreneur are separate; (ii) a sector structure is in place that fosters efficiency by separating natural monopoly activities from competitive activities; (iii) an institutional vehicle has been adopted that is appropriate to the specific conditions of the country and the sector, through regulatory entities appropriate to the federal structure of the country; (iv) sound governance models have been adopted, with the vast majority of agents operating under entrepreneurial systems; and (v) the authorities remain committed to the objectives of policy OP-708 and the process to achieve full normalization of the sector.
- 2.13 With respect to the regulatory framework, a basic condition of policy OP-708, Argentina’s electricity sector has made progress in terms of major rate increases, targeting and transparency of subsidies, and financing of subsidies. Despite this progress, further adjustments are still needed in the rate normalization process, especially to improve the targeting of subsidies granted by absorbing the supply cost, as pointed out in chapter I (paragraph 1.9 and subsequent). The authorities have provided confirmation to the Bank that the energy policy guidelines set forth in the April 2005 document “Situation of the Energy Sector” remain in full effect, but the rate adjustment process will proceed in tandem with the gradual recovery of the country’s economy, as permitted by the consumers’ ability to pay. In view of these strides and the commitment of the authorities, **the recommendation is to maintain the partial waiver of policy OP-708** with respect to the basic condition related to the regulatory regime. Progress towards full normalization will continue to be monitored in the policy dialogue with sector authorities on the evolution of the energy sector, based on the semiannual reports on the evolution of Argentina’s energy sector (clause 4.05 of loan contract 1764/OC-AR) until the sector has been fully rehabilitated.

III. IMPLEMENTATION PLAN AND MONITORING ARRANGEMENTS

A. Summary of implementation arrangements

- 3.1 Program implementation and administration will be the responsibility of the program execution unit (PEU), which will report directly to the Federal Electricity

Transmission Trust Fund Management Committee (CAF-SE) and will take advantage of the structures and experience resulting from the current program in execution (1764/OC-AR and 1764/OC-AR-1). The PEU will coordinate and execute all activities, including procurement, contracting, payment, and accounting activities. It will be led by an executive coordinator who will report to the national office for the program. The executive coordinator will lead and supervise the various specific areas within the PEU. The CAF-SE will have an environmental and social unit to handle environmental and social aspects related to program execution. It will also be responsible for executing all program resources, including CAF resources. **Establishing the administrative structure of the PEU and designating the core staff needed to run it will be a condition precedent to the first disbursement under the program.**

- 3.2 **Program Operating Regulations.** The Operating Regulations will contain the terms and conditions of program implementation, including procurement criteria and procedures; financial, technical, and environmental and social requirements; the functions and responsibilities of each area of the PEU; and criteria for project eligibility under the program. The Operating Regulations for this program will be based on the Operating Regulations for the program currently in execution, a revised version of which will be approved prior to the first disbursement of the Bank's loan. **Delivery of the Operating Regulations, in accordance with the terms and conditions previously agreed upon with the Bank, will be a condition precedent to the first disbursement under the program.**
- 3.3 During program preparation, the principal fiduciary measures that would be applied to the proposed operation were identified and can be found by following the "fiduciary arrangements and requirements" link. They mostly relate to the following issues: (i) disbursements in the form of advances of funds for the subsequent 180 days; (ii) exchange rates to be used; (iii) annual project audits; (iv) procurement modalities and thresholds (in accordance with the Bank's policies and procedures as set forth in documents GN-2349-7 and GN-2350-7); and (v) procurement plan for the first 18 months of execution.
- 3.4 **Eligibility of projects under component II** (investments in the electricity transmission grid). A preliminary list of 23 projects for this component has been identified and agreed upon. In the event that one of these projects stalls at the preparation stage or is found to be ineligible for program financing, the executing agency may replace it and present another project that meets the following eligibility criteria and those established in the Operating Regulations: (i) they are electricity works that complement and meet the transmission, subtransmission, and transformation needs of the provinces and benefit the electric power grid with improvements in quality and/or security, and/or lower dispatch costs; (ii) once executed, the works are operated and maintained by the electricity transmission concessionaires that operate in the respective region or by the provincial electricity utility in the case of works in provinces with no electricity transmission concessionaire; (iii) they cannot be executed or financed exclusively by the private

- sector; (iv) their technical, economic-financial (including an economic internal rate of return above 12%), legal, institutional, and environmental and social feasibility has been evaluated and approved by the PEU and has the Bank's no objection; and (v) they comply with the country's environmental laws and with the Bank's policies.
- 3.5 **Procurement.** Goods, services, and works will be procured in accordance with the "Policies for the procurement of works and goods financed by the IDB" (document GN-2349-7) and the "Policies for selection and contracting of consulting services financed by the IDB" (document GN-2350-7), as established in the loan contract and the procurement plan. The procurement plan for the first 18 months of the program is presented in Annex III. It will be updated annually or whenever substantial changes are made, through the SEPA. Program procurements will be subject to ex ante review by the Bank in the case of international competitive bidding contracts and ex post review for all others.
- 3.6 **Audit.** The PEU will conduct all financial accounting during the execution period and keep financial records for the program. The executing agency, through the PEU, will deliver annual audit reports on the program, in accordance with the December 2009 Guidelines for Financial Reports and Audits, Version 1.0. In the event that auditing is performed by a private firm, this firm must be acceptable to the Bank and hired in accordance with the Bank's current requirements. Audit costs may be financed with program funds.
- 3.7 **Special execution conditions.** (i) Prior to incorporating any work into the program, it will be demonstrated that the work meets the eligibility conditions established in paragraph 3.4; and (ii) prior to tendering any program works, the executing agency will meet the requirements related to environmental and social conditions established in paragraph 2.4.
- B. Summary of arrangements for monitoring results**
- 3.8 **Monitoring and evaluation.** The results matrix will be the basic instrument used to monitor program achievements. The CAF-SE will prepare annual work plans (AWP) that reflect the status of program implementation and the schedule of activities for the subsequent year of execution, including the timelines and funds needed for execution. The AWP will also specify corrective measures for any elements identified as risks that could interrupt program execution. **Presentation of the updated AWP will be a condition precedent to the first disbursement under the program.**
- 3.9 Once 50% of the loan proceeds have been committed, a midterm evaluation will be commissioned to verify the overall level of program implementation and progress towards fulfillment of the targets established in the results matrix. A final evaluation will be performed when 95% of the loan proceeds have been disbursed. That evaluation will report on program implementation and fulfillment of the targets established in the results matrix, as well as compile and analyze lessons

learned from the program. Both evaluations will be financed with proceeds from the loan and will be prepared by an independent consultant.

Development Effectiveness Matrix Summary

Indicator	Score	Maximum Score
I. Strategic Relevance	Low	
1. IDB Strategic Development Objectives	3.2	10
Country Diversification	0.7	2
Corporate Initiatives	2.5	2.5
Harmonization and Alignment	0.0	3.5
Beneficiary Target Population	0.0	2
2. Country Strategy Development Objectives	4.6	10
Country Strategy Sector Diagnosis	4.2	6
Country Strategy sector objective & indicator	0.4	4
II. Development Outcomes - Evaluability	Satisfactory	
3. Evidence-based Assessment & Solution	7.4	10
4. Evaluation & Monitoring Plan	4.8	10
5. Cost-Benefit or Cost-Effectiveness	10.0	10
6. Risks & Mitigation Monitoring Matrix	7.5	10
III. IDB's Role - Additionality		
7. Additionality	3.0	10
Technical Assistance provided prior the project	3.0	3
Improvements in management of financial, procurement, monitoring or statistics internal controls	0.0	4
Improvements in environmental, health and labor performance	0.0	3

I. Strategic Relevance: This is an investment project that will take place in Argentina, classified as an A country. The project falls under the corporate initiative related to infrastructure. Although the Country Strategy approved in 2006 does not include the energy sector as a priority area for Bank intervention, it does raise it as a risk factor for economic recovery, indicating that energy shortages could accrue if the government's proposed energy projects are not undertaken on a timely basis.

II. Evaluability: The problems being addressed through the project are clearly defined and its diagnosis is empirically based. The main factors that contribute to these problems are clearly specified, as are the interrelationship among factors. The magnitudes of their deficiencies, however, are not provided and thus do not allow to see a relationship between the dimension of the project to the magnitude of the problem.

The project's outcomes and outputs are clearly stated and show vertical logic. All indicators provide solid metrics to measure changes resulting from the project. All indicators have baselines, targets and sources of information. Not all indicators are SMART given that the ex-post economic rate of return of the project was not included as an indicator.

The project has a monitoring and evaluation plan, and a budget allotted for the evaluation activity. The documentation does not provide clarify on the budget assigned for monitoring activities. The project will be evaluated using a reflexive methodology. The project has a cost-benefit analysis which generated rates of return above 12%. The risks of the operation are identified and classified and present mitigation measures, however, no indicators, baselines and targets are included to monitor these measures.

III. Additionality: A technical cooperation was provided the increase the likelihood of success of the project.

**PROGRAM TO SUPPLY ELECTRICITY TO THE COUNTRY'S VARIOUS REGIONS
UNDER THE FEDERAL ELECTRICITY TRANSMISSION PLAN**

(AR-L1079)

RESULTS MATRIX

Program objective	The general objective of the program is to support and contribute efficiently to the supply of electricity in the various regions that make up Argentina's electric power grid. The proposed works will help Argentina's electricity transmission sector overcome the problems and risks it faces. The specific objectives of the program are to: (i) restore electricity transmission capacity at the provincial level; and (ii) enhance the efficiency and reliability of the transmission and distribution grid.
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Regional development goal indicators (AB-2764)	Base level (2010)	Target level (2015)
Kilometers of transmission and distribution lines constructed or rehabilitated under the program (km)	0	937.3

Outcome indicators	Base level (2010)	Target level (2015)
Peak load served in the areas of influence of program-financed projects (MW)	876.1	1085.7
Increased capacity to serve additional peak load in the areas of influence of program-financed projects (MW)	66.0	270.5
	Base level (2015 without program)	Target level (2015 with program)
Avoided unserved energy in 2015 in the areas of influence of program-financed projects (GWh/year)		756.2
Number of transformer stations in the areas of influence of program-financed projects with voltage levels outside a narrow range ($> \pm 5\%$)	30.0	15.0

Intermediate outcome indicators	Base level (2010)	Target level				
		2011	2012	2013	2014	Program completion
Component II – Investments in the electricity transmission grid						
<i>High-tension transmission lines brought on line (km)</i>	0.0	0.0	3.8	307.5	526.0	837.3
<i>Transformation capacity installed at substations (MVA)</i>	0.0	0.0	100.0	110.0	82.5	292.5

**PROGRAM TO SUPPLY ELECTRICITY TO THE COUNTRY'S VARIOUS REGIONS
UNDER THE FEDERAL ELECTRICITY TRANSMISSION PLAN**

(AR-L1079)

PROCUREMENT PLAN

Ref.	Category and description of the procurement contract	Estimated cost (US\$000)	Procurement method	Review	Source of financing		Prequali- fication	Estimated dates		Status	Execution period for work
					IDB (%)	Local (%)	(Yes/No)	Publication of specific procurement notice	Completion of contract		
1. Works											
1	132-kV single-circuit high-tension line (HTL) measuring 22 kilometers between the Gran Mendoza and Cruz de Piedras transformer substations. Province of Mendoza	11,800.0	ICB	Ex ante	50%	50%	No	5/30/2011	3/30/2013	Pending	540 days
2	132-kV double-circuit HTL measuring 52.5 km between the El Bracho and Villa Quinteros transformer substations. Province of Tucumán	15,340.0	ICB	Ex ante	50%	50%	No	3/30/2011	7/27/2013	Pending	720 days
3	132-kV HTL measuring 110 km between Las Higueras and General Levalle. Province of Córdoba.	25,228.4	ICB	Ex ante	50%	50%	No	2/15/2011	6/14/2013	Pending	720 days
4	Transformer substation at Valle Viejo. Province of Catamarca	7,080.0	ICB	Ex ante	50%	50%	No	4/24/2011	10/25/2012	Pending	420 days
5	220-kV HTL between Sáez Peña and J.J. Castelli and a new 132-kV transformer substation at J.J. Castelli (completed section measuring approx. 50 km between Tres Isletas and the J.J. Castelli transformer station). Province of Chaco	25,240.2	ICB	Ex ante	50%	50%	No	5/28/2011	9/27/2013	Pending	720 days
6	Transformer substation at Villaguay	7,670.0	ICB	Ex ante	50%	50%	No	5/28/2011	9/27/2013	Pending	420 days

Ref.	Category and description of the procurement contract	Estimated cost (US\$000)	Procurement method	Review	Source of financing		Prequalification (Yes/No)	Estimated dates		Status	Execution period for work
					IDB (%)	Local (%)		Publication of specific procurement notice	Completion of contract		
7	132-kV HTL measuring 68 km between Henderson and Pehuajó and new 132-kV transformer substations at Pehuajó; 132-kV HTL measuring 145 km between Pehuajó and General Villegas and new transformer substation at General Villegas. Province of Buenos Aires	48,380.0	ICB	Ex ante	50%	50%	No	5/28/2011	9/27/2013	Pending	720 days
8	132-kV terminal transformer substation at Tartagal. Province of Salta	7,080.0	ICB	Ex ante	50%	50%	No	1/1/2011	7/4/2012	Pending	420 days
9	New 132/13.2-kV transformer substation at San Martin and 132-kV HTL between the Rosario Sur and San Martin transformer substations	14,750.0	ICB	Ex ante	50%	50%	No	5/30/2011	3/30/2013	Pending	540 days
2. Goods											
	Computer equipment and furnishings – PEU	200.0	S	Ex ante	50%	50%	No	2/2/2011	8/1/2011	Pending	
3. Consulting services (firms and individual consultants)											
	External audit (*)	450.0	QCBS	Ex ante	73%	27%	N/A	N/A	12/31/2012	Pending	
	Consultant 1	48.0	NICQ	Ex post	100%	0%	N/A	N/A	12/31/2012	Pending	
	Consultant 2	36.0	NICQ	Ex post	100%	0%	N/A	N/A	12/31/2012	Pending	
	Consultant 3	36.0	NICQ	Ex post	100%	0%	N/A	N/A	12/31/2012	Pending	
	Consultant 4	36.0	NICQ	Ex post	100%	0%	N/A	N/A	12/31/2012	Pending	
	Technical inspection 1	460.0	QCBS	Ex ante	100%	0%	Yes	1Q 2011	2Q 2013	Pending	
	Technical inspection 2	460.0	QCBS	Ex ante	100%	0%	Yes	1Q 2011	2Q 2013	Pending	
	Technical inspection 3	460.0	QCBS	Ex ante	100%	0%	Yes	3Q 2011	2Q 2013	Pending	
	Technical inspection 4	460.0	QCBS	Ex ante	100%	0%	Yes	4Q 2011	1Q 2014	Pending	
4. Nonconsulting services											
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Goods and works: ICB: International competitive bidding; NCB: National competitive bidding; S: Shopping; DC: Direct contracting; **Consulting firms:** QCBS: Quality- and cost-based selection; QBS: Quality-based selection; FBS: Selection under a fixed budget; LCS: Least-cost selection; CQS: Selection based on the consultants' qualifications; SSS: Single-source selection; **Individual consultants:** NICQ: National individual consultant selection based on qualifications; IICC: International individual consultant selection based on qualifications

(*) 24 months

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/___

Argentina. Loan ___/OC-AR to the Argentine Republic
Program to Supply Electricity to the Country's Various
Regions under the Federal Electricity Transmission Plan

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Argentine Republic, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Program to Supply Electricity to the Country's Various Regions under the Federal Electricity Transmission Plan. Such financing will be for an amount of up to US\$120,000,000 from the Single Currency Facility of the Ordinary Capital resources of the Bank, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.