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APPRAISAL STAGE

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I. Country Context

1. Armenia's economy grew by 3% per year on average since it gained independence in 1991 to date, but the average masks large fluctuations. Armenia's growth episode can be distinguished into five phases: (i) the time after independence between 1991-1993, in which the economy contracted by half; (ii) the transition phase during 1999-2003, in which growth was built on high productivity growth and exports; (iii) the construction boom period 2003-2008, driven by the government's campaign to actively encourage investments from Armenians living abroad into real estate in Armenia; (iv) the crisis related recession and recovery of 2009-2012, when the construction sector stabilized, and a strong growth in exports contributed to an improving external balance – the average growth rate of merchandise exports was 45% in US dollar terms during 2010-2011, while imports grew only by 14 percent; and (v) the current new phase, where the growth momentum seems to have been lost by a stumbling rebalancing process and weak domestic demand, further weakened by contraction of the Russia's economy.

2. The economic slowdown that began in 2013 was further exacerbated in late 2014 by the substantial deterioration of the external environment. GDP growth registered 3.5% in 2014, but was expected to decline sharply in 2015, reflecting the sluggish global price of base metals—which account for nearly half of Armenia's exports—as well as the contraction of the Russian economy resulting from the sharp fall in oil prices and Western sanctions. For Armenia, the negative economic developments in Russia represent a major external shock since Russia is the destination for close to 25% of Armenia's exports, as well as the source of 40% of inward FDI inflows and 80–90% of remittance inflows. Preliminary data suggest remittances from Russia declined by 36% during January-June of 2015, further dampening already weak domestic demand.

3. Concerned about weakening economic activity, the government has scaled up budget lending and capital spending to boost domestic demand, focusing on infrastructure and social projects, while providing interest subsidies to small enterprises. In addition, faced with massive street protest against a 17% electricity price increase, the government introduced subsidies to compensate households and small businesses for increased tariffs that came into effect in August 2015 (about US$2.2 million per month).

In the first half of 2015, the fiscal balance stood at 3% of GDP, compared with a surplus of 0.6% for the same period in 2014. To finance the higher than expected budgeted deficit, the government issued a US$500 million Eurobond in March 2015, and lined up concessional budget support from the Asian Development Bank (ADB), Eurasian Bank's Anti-crisis Fund (EBAC) and World Bank.

II. Sectoral and Institutional Context

4. The power system is unbundled and consists of independent electricity generation, transmission, and distribution companies as well as the electric power system operator (EPSO) and the settlement center. The power system is regulated by an independent regulatory agency – the Public Services Regulatory Commission (PSRC). The sector achieved financial sustainability with tariffs that assured recovery of eligible and reasonable expenses and collections that reached 100% of sales. The implicit and explicit subsidies to the power sector were eliminated and the largest sector companies were among the top taxpayers in the country.

5. However, the financial viability of the state-owned power generation companies (ANPP and YTPC) and the private power distribution company (ENA) started to deteriorate since 2011 due to a number of factors. Specifically, the financial standing of ANPP and YTPC deteriorated due to non-core business related borrowing, lending and expenses by those companies; and ENA became financially distressed due to inadequate mechanism for compensating its losses resulting from mismatch between actual and forecast electricity purchase cost, which is the main determinant of its margin.

6. *Large cash deficits at ANPP and YTPC due to non-core business related spending*. As of December 1, 2015, the aggregate cash deficit of ANPP and YTPC was estimated at US$91 million[1] (0.8% percent of estimated 2015 GDP) or 71% of their total revenue requirement for 2015 as approved by PSRC.[2]

7. The financial standing of ANPP and YTPC deteriorated due to non-core business related borrowing, lending and expenses. Specifically, the state-owned power generation companies: (a) provided loans to Nairit and Vanadzor chemical plant to finance their recurrent expenses; (b) supplied heat to Nairit chemical plant and did not recover the payments; and (c) financed the lifeline gas subsidy for the poor and some other expenses (financing of renovation of the Government house of receptions).

8. The Government tasked MENR to support the struggling chemical plants and the financial resources of state-owned power companies were used to that end. Specifically, the state-owned generation companies provided a total of US$54 million in short-term loans to struggling Nairit and Vanadzor chemical plants since 2011 and have not yet recovered those loans. YTPC is the largest lender with total size of loans provided at US$46 million. The loans were provided to support timely payment of staff salaries (despite the fact that the plants were not producing any output), maintenance given large number of specialized equipment and chemical processes, and security expenses given the large territory of those plants.

9. The state-owned power generation companies also financed the life-line gas subsidy for the poor and lent money for some other non-core business related activities. Following 40% increase of end-user gas tariff since 2012, the Government introduced life-line gas subsidies for the poor families involved in

[1] As measured by the cash flow from operating activities less cash flow from investing activities and debt service.
[2] Estimated based on the tariffs for ANPP and YTPC, which were approved by the PSRC, and the estimated annual generation forecast by the EPSO.

the Poverty Family Benefit Program.[3] The state-owned generation companies were tasked to finance the subsidy, which cost the sector US$4 million in 2012-2013.

10. The above non-core business related spending coupled with payment delays from ENA resulted in US$101 million of cash deficit, which was financed with short-term expensive commercial loans (US$28.8 million), accumulation of payables (US$62 million), and underspending on operation and maintenance (US$10 million). Had the state-owned generation companies not squeezed their O&Ms and drained their depreciation expenses, the cash deficit would have been larger. Presented below are the details on commercial borrowings by state-owned power generation companies and accumulated payables.

- *YTPC and ANPP took US$28.8 million equivalent of short-term loans from local commercial banks at annual interest rate of 9-13%*. Most of the loans are denominated in US$. Those loans are not serviced through the tariff (rightly so) and are a significant drain on the cash flows of those companies. Those are commercial loans with maturities of 3-36 months, which are continuously rolled over due to inability of the state-owned generation companies to repay. Those require urgent refinancing to avoid insolvency of the companies with resulting consequences on supply reliability because those two generating companies account for 43% of power generation in the country.

- *YTPC accumulated US$62 million payable to Gazprom Armenia for natural gas supply*. The payable was built up since 2011 due to shortage of cash.

- *ANPP accumulated US$10 million backlog* of expenditures for operating and maintenance needs, which could not be financed due to shortage of cash.

11. *Financial losses at ENA due to suboptimal methodology for adjustment of its margin*. In 2012-2014, ENA incurred a cumulative loss of US$56 million due to revenue shortfall because its margin was not adjusted by the PSRC to fully reflect the difference between the actual and forecast cost of purchased energy. The difference between the actual and forecast cost of purchased energy is essential for financial health of ENA because it is the single buyer of electricity under the existing market structure and its margin is the difference between the end-user electricity tariff (one-part tariff) and the capacity charge,[4] weighted average cost of electricity generated by all power plants, transmission charge, and the service fees of the power system operator and the settlement center. Thus, if the actual weighted average cost of electricity is larger than the forecast, which EPSO computes and based on which PSRC sets ENA's margin, then ENA incurs a loss. As per the current regulatory approach (specified in the ENA's License), that loss is recovered in equal installments in three years and it does not include compensation for interest costs ENA incurs to finance the shortage of working capital until the losses are compensated.

12. There was material deviation between the actual and forecast weighted average cost of electricity due to poor hydrology conditions in 2012-2014, longer-than-planned periodic maintenance of ANPP in 2013, and under-supply by YTPC (the lowest cost thermal power plant) due to the need to honor the electricity export commitments under the existing "gas-for-electricity" international agreement with Iran. ENA had to make up for electricity under-supply from those low-cost plants by buying substantially more expensive electricity from Hrazdan TPP and Hrazdan-5 thermal power plants, which are the two most expensive generating companies in the power system. The resulting unplanned additional costs of ENA were not fully compensated during subsequent adjustments of its margin.

[3] The tariff for poor families was set at AMD100/m^3 for the first 300m^3 of gas consumed compared to the regular tariff of AMD156/m^3.

[4] A payment, which most of generation companies receive irrespective of the generation volume, in order to recover their fixed costs.

13. The above shortcoming in the methodology for adjustment of ENA's margin resulted in substantial deterioration of ENA's financial condition and led to: (a) increase of expensive and short-term commercial loans taken to finance shortage of working capital, and (b) accumulation of US$40 million of payables for electricity to ANPP and YTPC (US$15 and US$25 million accordingly).

14. Considering the above, improvement of financial standing of the state-owned power generation companies and the private power distribution company is critical for maintaining adequate and reliable electricity supply at affordable tariffs.

15. *ANPP and YTPC are essential in ensuring low-cost and adequate electricity sup***ply**. If the financial difficulties of the state-owned power companies are not overcome, it will have significant impact on ability of ANPP and YTPC to maintain the current level of generation with resulting negative consequences on the cost and adequacy of electricity supply. In 2012-2014, those two plants accounted for 40% of total annual electricity generated for domestic needs. Inability of ANPP and YTPC to maintain the current level of generation will result in increase of the average cost of electricity supply because they will need to be replaced by substantially higher-cost Hrazdan-5 TPP and Hrazdan TPP. Moreover, generation units of Hrazdan TPP are 50 years old and severely dilapidated. Thus, excessive reliance on Hrazdan TPP will jeopardize reliability of supply due to increasing incidence of equipment failures and lack of reserve capacity in the power system because currently Hrazdan TPP carries out the function of a reserve generator.

16. *ENA is essential for reliable electricity supply to end-users*. Recovery of ENA from financial distress is essential for reliability of electricity supply in the country because under the existing market structure and rules ENA is the single buyer and supplier of electricity to end-users. Therefore, financial difficulties of ENA will translate into lower spending for O&M and reduction of investments to modernize the infrastructure, which will lead to deterioration of the reliability of electricity supply. In 2012-2014, ENA managed to maintain the reliability of supply as tracked by the System Average Interruption Frequency Index (SAIFI), which is computed by dividing the total number of customer interruptions in a year by the total number of customers in the country. In 2013, SAIFI was equal to 1.1 (the lower the better) as computed and reported by PSRC. However, it may increase (deterioration of reliability) due to under-spending on maintenance and investments in modernization of the network.

III. Program Scope

17. To restore the financial viability of the state-owned generation companies, the Government and the independent regulator, Public Services Regulatory Commission (PSRC), will implement the below activities.

18. **Results Area 1: Elimination of cash outflows of state-owned power generation companies for non-core business related reasons**. This will be achieved through:

19. *Decision by the Shareholder's Meeting of the state-owned power generation companies to prohibit the non-core business related expenditures, lending and borrowing by those companies.* This *decision* will ensure that state-owned power companies do not incur expenditures, lend resources to other entities or borrow for reasons not related to their core business activities of power generation. The core businesses of ANPP and YTPC will be clearly defined in the *decision* of the Shareholder's Meeting (see Annex 1 for detailed definition of core business activities). This decision is within the authority of the Shareholder's Meeting as stipulated in the Law on Joint Stock Companies.

20. *Liquidation of Haigasard*. This will be achieved through dissolving Haigasard CJSC, an existing 100% state-owned company, which does not conduct any real economic activity. The Government is the sole owner and discharges its ownership functions through MENR. Haigasard has historically been used to park liabilities of various companies before privatization of the power sector assets in late 1990s and channel funds among state-owned power companies to finance non-core business expenses.

21. **Results Area 2: Reduction of expensive commercial loans of state-owned power generation companies, and recovery of receivables**. This will be achieved through:

22. *Refinancing of the principal amounts of commercial loans of state-owned generation companies*. Those cost the sector US$3.1 million per year in interest cost, with more concessional IBRD resources under the proposed operation. The concessional resources will cost the sector less. Thus, YTPC and ANPP would substantially reduce debt service costs, thus, increasing funds available for better maintenance of assets.

23. *Recovery of receivables*. The Government has negotiated with ENA a schedule for recovery of state-owned power generation companies' receivables for electricity sales. The schedule assumes gradual repayment of receivables by the end of 2017. ENA owes the state-owned power generation companies US$40 million (US$25 million to YTPC and US$15 million to ANPP). ENA will repay the receivables from the incremental revenue it will earn from 17% increase of average end-user tariff, which is effective from August 1, 2015.

24. **Results Area 3: Setting of tariffs reflecting changes in the cost of electricity supply**. This will be achieved through:

25. *Amendment of ENA's License to allow adjusting the margin by the full size of loss (profit) incurred due to mismatch between actual and forecast cost of electricity purchased by ENA.* The PSRC will amend ENA's License to clearly specify that ENA's margin for each new tariff period will reflect 100% of the loss (profit) accrued due to difference between the forecast and actual cost of electricity purchased by ENA during the preceding tariff period plus interest cost (income).

26. *Revision of tariff-setting methodology to allow adjusting the tariff by the full size of natural gas purchase related loss (profit) incurred due to fluctuation of US$/AMD exchange rate.* The PSRC will revise the existing tariff-setting methodology to allow YTPC and Hrazdan TPP tariffs for each new tariff period to fully reflect the loss (profit) accrued due to difference between forecast and actual cost of natural gas purchased during preceding tariff period. The tariff for natural gas for all large consumers (with monthly consumption of more than 10,000 cubic meters), including thermal power plants, is fixed in US$ and the consumers are billed in equivalent local currency (AMD) at the exchange rate prevailing as of the date of billing.

27. **Results Area 4: Maintaining the generation capacity of the gas turbine at YTPC's CCGT plant**. This will be achieved through replacement of some components of the gas turbine at the existing CCGT plant of YTPC as part of the regular maintenance. The overhaul will allow preserving the generation capacity of the gas unit and, thus, the capability of the CCGT plant to supply the required amount of electricity. The gas turbines typically require maintenance after 36,000 equivalent operating hours (EOH) as per recommended schedules of the manufacturers. Overhaul is required because some critical components of the gas turbines, such as turbine blades, are exposed to stress caused by high temperature and variable loading. The components to be replaced will be turbine and compressor parts.

IV. Program Development Objective

28. The proposed Program Development Objective is to support the Borrower's efforts to maintain adequate and reliable electricity supply through improvement of the financial standing of the state-owned power generation companies and the private power distribution company.

V. Environmental and Social Effects

29. **Environmental Impacts**: The environmental impacts of the proposed Program are very limited given its focus primarily on improvement of the legal and regulatory framework for the power sector to stop use of financial resources for non-core business related expenses and refinancing of expensive commercial debt with concessional resources. Therefore, the Program activities under Results Areas 1, 2, and 3, which do not imply any type of physical works, do not carry environmental implications.

30. The activity under the Results Area 4 – replacement of key components of the gas turbine of Yerevan Thermal Power Centre – has associated physical activities with potential environmental impacts. Physical activity under this item of the Program implies replacement of the key components of the gas unit of existing CCGT plant of YTPC. The main components to be replaced include rotor blades, stator vanes, and heat shields. The proposed overhaul is part of the maintenance that needs to be done to maintain the unit in good operational condition. The overhaul does not imply alteration of technological processes and/or increase in the design capacity of the thermal plant. The works are limited to replacement of worn-out components with new ones. Hence, according to the national environmental legislation, this activity is not subject to environmental impact assessment and permitting. Based on the information provided, no hazardous waste will be generated as a result of repair works because the units to be replaced are metallic parts of the gas turbine that had not been in touch with any toxic substances such as battery acids, transformer oils, or other.

31. The replacement of the gas turbine components will not create any significant occupational risk hazards and will be implemented by well-trained personnel, including staff of the original equipment manufacturer, and following the health and safety guidelines applicable to such activities. Those guidelines are mandatory for YTPC. Moreover, YTPC has prior experience with implementation of such repair works and the technical staff to be involved in replacement of equipment and associated works is knowledgeable about the requirements of such safety guidelines. There have been no accidents during the operation and maintenance of the gas turbine unit of YTPC.

32. **Social Impacts**: The overall social impact of the Program is expected to be positive because it will preclude electricity shortages throughout the country in case the proposed measures are not undertaken to improve the overall financial standing of the power sector, including the two power generation companies, which together account for almost 40% of total supply. The Program will create benefits for all electricity consumers, including vulnerable and impoverished households. The proposed operation will generate benefits for consumers across both genders. It should be noted that adequate and reliable electricity supply is especially beneficial for people who spend most of their time at home such as the elderly, children and women.

33. The negative social impact of the Program is the retrenchment of 40 employees of the Haigasard CJSC. Under certain circumstances, the Program may also lead to increase of end-user tariffs. Such increase may be required only if: (a) ENA's margin is revised upward due to higher-than-expected cost of generation in the country (e.g. due to poor hydrology) and/or higher-than-expected cost (in local currency) of natural gas for TPPs in case of steep depreciation of local currency. In case of lower-than-expected cost of electricity and appreciation of local currency, the end-user tariffs will reduce.

34. The retrenchment will be governed by the Labor Code of the Republic of Armenia, enacted in November 2004, and monitored by the State Labor Inspectorate. The provisions of the Labor Code are

compliant with the minimum internationally accepted requirements for retrenchment of employees. Retrenched employees will be able to use general services that are offered by the Government free of charge to all unemployed citizens of Armenia. These services are provided by the State Employment Agency (SEA), which operates under the Ministry of Labor and Social Affairs in all major regional cities (20+) and in all administrative regions in Yerevan.

35. The retrenchment process of Haigasard employees is not formally subject to the Bank's safeguards policies, but it does comply with international standards, such as the IFC's Performance Standard 2 on Labor and Working Conditions.

36. The implementation of the program may require upward or downward adjustments to the tariffs depending on changes in variables that impact the costs of YTPC and ENA. The Government has been using the existing Family Benefit Program (FBP) - a means-tested unconditional transfer currently covering about 105,000 households - to mitigate the impact of increase energy prices on end-users. In 2009-2014, the Government has been adjusting the budget for FBP to reflect the increase in the cost of living (measured by Consumer Price Index), which helped to mitigate the impacts of electricity tariff increases that happened during the same time period taking into account that spending on electricity comprised not more than 10% of an average poor household's budget.[5]

37. The impact of the most recent tariff increase effective since August 1, 2015, was mitigated through universal subsidy for all residential and commercial end-users with consumption below the threshold level. In order to mitigate the impact of the last tariff increase when the universal electricity subsidy is phased out as of August 1, 2016, the Government plans to increase the size of FBP by 3.9% in 2016.

38. Given the importance of ensuring that poor households can afford electricity consumption for basic needs, the World Bank has been providing advisory and analytical support to the Government to help improve affordability of electricity for poor households. Specifically, under the Armenia Social Inclusion and Labor Knowledge for Reforms, Operations and Development Technical Assistance (SILK ROAD TA), the Bank provided TA to:

- Develop recommendations on policy options available for maintaining affordability of energy services, including estimate of the fiscal costs associated with each option.
- Conducted diagnostic analysis of the Social Protection system in order to identify the key issues that could be addressed to enhance its effectiveness and efficiency to achieve greater poverty reduction.
- Developed a set of options—policies and reforms—for the Government to consider as it continues to strengthen its poverty-reduction strategy. The focus was on social assistance and labor market policies for vulnerable groups. The recommendations related to redesign of the targeting system, preparation of social services for activation and reforming of benefit design to improve the impacts on poverty and incentives.
- Provided recommendation on improving the Poverty Means Testing (PMT) formula, which will improve the targeting of benefits and allow reducing strong disparities in progress access currently observed across different marzes (administrative units) with similar poverty rates, and reduce the biases of the program against households with formal income earnings.
- Conducted targeting formula validation survey, including establishment of coherence between household survey and administrative database and collection of key household variables that predict consumption level.

[5] This is a conservative estimate because the share of electricity and gas in the expenditures of an average poor household reached 20% in 2013.

- Conducted qualitative assessment on impacts of and attitudes to energy reforms in Armenia, including: (a) assessment of energy consumption patterns and associated financial payment burden; (b) evaluated of the impact of tariff increases on households; (c) identification of the different types of measures households resort to in order to cope with price increases; (d) identification of the type of programs that participants use to support basic needs, and perceptions on most effective measures for protecting poor households from adverse impacts of energy tariff increase; and (e) assessment of the different effects that tariff increases have across genders.

VI. Financing

39. The total financing required for the Government program for Financial Recovery is US$40 million.

Table 1: Expenditures of the Government Program (in US$)

Financing Source	Amount (in US$)	% of Total
State Budget (salaries of the Financial-Economic, Accounting and Internal Audit Departments of the MENR)	$500,000	1%
YTPC own funds (tariff-regulated revenue)	$9,500,000	24%
Proposed PforR (IBRD)	$30,000,000	75%
Total	**$40,000,000**	**100%**

VII. Program Institutional and Implementation Arrangements

40. There is adequate capacity in place to implement the Program by the respective entities. The decision-making authority at all responsible agencies and the chain of reporting is clear. MENR will be the responsible agency for activities under the Results Areas 1, 2, and 4. It is adequately staffed and the key departments/divisions, which will be substantially involved in implementation of the Program, have clearly defined roles and responsibilities. Those departments will be Financial-Economic, Accounting, and Internal Audit. The state-owned entities, YTPC and ANPP, will also be part of the Program given that the Program will help them refinance their expensive commercial debts. Moreover, YTPC will be responsible for implementing the overhaul of the gas turbine at its CCGT plant. Thus, their financial and accounting functions are import for the Program and were assessed and found satisfactory from the perspective of implementation of relevant parts of the Program. The independent regulator, the PSRC, will be responsible agency for tariff-setting related activities under Results Area 3, which include making the required revisions/amendments to the ENA License and tariff-setting methodology for thermal power plants. PSRC has the required in-house expertise to implement the relevant activities under the Program.

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