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Report No. 104386-AM

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROGRAM APPRAISAL DOCUMENT

ON A

PROPOSED LOAN
IN THE AMOUNT OF US$30 MILLION

TO THE

REPUBLIC OF ARMENIA

FOR A

POWER SECTOR FINANCIAL RECOVERY PROGRAM-FOR-RESULTS

APRIL 6, 2016

CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2016)

Currency Unit = AMD
AMD480.79 = US$1
US$1.41 = SDR 1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ACG	Anti-Corruption Guidelines	IFRS	International Financial Reporting Standards
ADB	Asian Development Bank		
AF	Additional Financing	ISA	International Standards on Auditing
AMD	Armenian Dram	FDI	Foreign Direct Investment
ANPP	Armenian Nuclear Power Plant	FIRR	Financial Internal Rate of Return
ARMEPS	Armenian Electronic Procurement System	FM	Financial Management
CBA	Central Bank of Armenia	HVEN	High Voltage Electric Networks
CCGT	Combined Cycle Gas Turbine	IBRD	International Bank for Reconstruction and Development
COC	Chamber of Control	IVA	Independent Verification Agent
CPAR	Country Procurement Assessment Review	kV	Kilovolt
CPS	Country Partnership Strategy		
DLI	Disbursement Linked Indicator	kWh	kilowatt-hour
DSCR	Debt Service Coverage Ratio	M&E	Monitoring and Evaluation
EBAC	Eurasian Bank’s Anti-crisis Fund	MENR	Ministry of Energy and Natural Resources
EBRD	European Bank for Reconstruction and Development	MW	Megawatt
EEU	Eurasian Economic Union	NPV	Net Present Value
EIRR	Economic Internal Rate of Return	O&M	Operation and Maintenance
EOH	Equivalent Operating Hours	PCR	Polychloroprene Rubber
ENA	Electric Networks of Armenia	PPL	Public Procurement Law
EPSO	Electric Power System Operator	PSRC	Public Services Regulatory Commission
ESSA	Environmental and Social Systems Assessment	ROAD	Reforms, Operations and Development
ESMAP	Energy Sector Management Assistance Program	SIGMA	Support for Improvement of Governance and Management in Central and Eastern Europe
ETNIP	Electricity Transmission Network	SILK	Social Inclusion and Labor Knowledge

	Improvement Project		
FBP	Family Benefit Program	SOE	State-Owned Entity
FIRR	Financial Internal Rate of Return	SPV	Special Purpose Vehicle
GDP	Gross Domestic Product	STA	Single Treasury Account
GRS	Grievance Redress Services	TA	Technical Assistance
GWh	Gigawatt-hour	TCM	Thousand Cubic Meters
HPP	Hydropower Plant	TOR	Terms of Reference
IBRD	International Bank for Reconstruction and Development	TPP	Thermal Power Plant
IFAC	International Federation of Accountants	WTO	World Trade Organization
		YTPC	Yerevan Thermal Power Centre

Vice President:	Cyril Muller
Country Director:	Mercy Tembon
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Practice Manager:	Ranjit Lamech
Task Team Leader:	Artur Kochnakyan

REPUBLIC OF ARMENIA

Power Sector Financial Recovery Program for Results

Table of Contents

ANNEXES

PAD DATA SHEET

Republic of Armenia

Power Sector Financial Recovery Program for Results

PROGRAM APPRAISAL DOCUMENT

Europe and Central Asia Region
Energy and Extractives Global Practice

Report No. : 104386-AM

Basic Information

Date:	March 31, 2016	Sectors:	Power Generation (100%)
Country Director:	Mercy Tembon	Themes:	Infrastructure Services for Priva
Practice Manager/Senior Global Practice Director:	Ranjit Lamech / Anita Marangoly George		Sector Development (80%); Oth Urban Development (20%)
Program ID:	P157571		
Team Leader(s):	Artur Kochnakyan		

Program Implementation Period:	Start Date:	April 28, 2016	End Date:	Jul. 30, 2021
Expected Financing Effectiveness Date:		June 10, 2016		
Expected Financing Closing Date:		Jul. 30, 2021		

Program Financing Data

[X] Loan	[ ] Grant	[ ] Other
[ ] Credit		

For Loans/Credits/Others (US$M):

Total Program Cost: US$43.2	Total Bank Financing: US$30.0
Total Co-financing : US$13.2	Financing Gap: US$0

Financing Source	Amount
BORROWER/RECIPIENT	US$0.0
YTPC	US$13.2
IBRD	US$30.0
Total	US$43.2

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Borrower: Republic of Armenia			
Responsible Agency: Ministry of Energy and Natural Resources			
Contact:	Mr. Levon Yolyan	Title:	Minister of Energy and Natural Resources
Telephone No.:	+37411-52-19-64	Email:	minenergy@minenerg.am

Expected Disbursements (in USD Million). Bank's Fiscal Year

Fiscal Year	FY16	FY17	FY18	FY19	FY20	FY21	
Annual	0	19.8	3.7	3.0	2.0	1.5	
Cumulative	0	19.8	23.5	26.5	28.5	30.0	

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Program Development Objective: 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.

Compliance

Policy

Does the program depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]

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Does the program require any waivers of Bank policies applicable to Program-for-Results operations?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the program meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Overall Risk Rating: Substantial

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**

ANPP and YTPC Subsidiary Agreements	X		CONTINUOUS

Description of Covenant

The obligation of the Borrower to make available to ANPP and to YTPC under the ANPP Subsidiary Agreement and the YTPC Subsidiary Agreement the respective Loan proceeds’ portion allocated to each ANPP and YTPD.

Name	Recurrent	Due Date	Frequency
Non-core business related expenditures of ANPP and YTPC	X		CONTINUOUS

Description of Covenant

ANPP and YTPC shall not incur any expenditures, indebtedness, or provide loans or grants, for purposes not related to ANPP’s and/or YTPC’s core business of providing energy generation services.

Name	Recurrent	Due Date	Frequency
Activities of ANPP and YTPC in compliance with respective Subsidiary Agreements	X		CONTINUOUS

Description of Covenant

ANPP and YTPC shall carry out their respective activities under the Program as set forth in the Loan Agreement, the ANPP Subsidiary Agreement and the YTPC Subsidiary Agreement respectively, all in a manner satisfactory to the Bank.

Name	Recurrent	Due Date	Frequency
	X		CONTINUOUS

Description of Covenant

Except as the Bank shall otherwise agree, the Borrower shall not assign, amend, abrogate or waive the ANPP Subsidiary Agreement and/or the YTPC Subsidiary Agreement or any of their provisions.

Conditions

Source Of Fund	Name	Type
IBRD	ANPP Subsidiary Agreement	Effectiveness

Description of Condition

The ANPP Subsidiary Agreement has been executed on behalf of the Borrower (acting through MOF) and ANPP, in a manner acceptable to the Bank.

Source Of Fund	Name	Type
IBRD	YTPC Subsidiary Agreement	Effectiveness

Description of Condition

The YTPC Subsidiary Agreement has been executed on behalf of the Borrower (acting through MOF) and YTPC, in a manner acceptable to the Bank.

Team Composition			
Bank Staff			
Name	**Role**	**Title**	**Unit**
Andres MacGaul	Procurement	Senior Procurement Specialist	GGODR
Ani Balabanyan	Team Member	Senior Energy Specialist	GEEDR
Artur Kochnakyan	Team Leader (ADM Responsible)	Senior Energy Economist	GEEDR
Benedicta Oliveros	Procurement	Procurement Analyst	GGODR
Darejan Kapanadze	Environmental safeguards	Senior Environmental Specialist	GENDR
Garik Sergeyan	Financial Management	Senior Financial Management Specialist	GGODR
Hiwote Tadesse	Operational Support	Operations Analyst	GEEDR
Imad Saleh	Operational Quality	Operations Adviser	OPSPQ
Irina Tevosyan	Team Member	Program Assistant	ECCAR
Jennifer Shkabatur	Safeguards Specialist	Consultant	GSURR
Joel Maweni	Peer Reviewer	Operations Adviser	GEEDR
Jose C. Janeiro	Disbursement	Senior Finance Officer	WFALA
Marina Lysiakova	Team Member	Language Program Assistant	GEEDR
Rocio Mariela Malpica Valera	Legal	Senior Counsel	LEGLE
Sameer Shukla	Peer Reviewer	Senior Energy Specialist	GEEES
Extended Team			
Name	**Title**	**Office Phone**	**Location**
Emil Zalinyan	Financial Analyst	Energy Consultant	GEEDR

I. STRATEGIC CONTEXT

A. 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 during 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, and declined further 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 economic downturn in Russia represents 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. Notwithstanding the spillover from Russia and the low prices for Armenia's key export commodities, the economy has performed well over the past year, due in part to one-off factors. The economy grew by nearly 4% in the first half of 2015 (year on year), faster than in the same period in 2014 (2.3%), reflecting strong agricultural performance, and the opening of a new copper mine, which more than offset the poor performance of other sectors, particularly manufacturing, retail and real estate. On the demand side, falling remittance inflows, of 30% year on year (in US dollar terms), coupled with the dram depreciation (see below), led to a sharp contraction of domestic demand, in particular, imports (-17%). Declines in private consumption and capital formation were offset by strong growth of public consumption (15.5% all year on year).

4. 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 on August 1, 2015 (about US$1.1 million per month split equally between Tashir Charity Foundation and the Government). 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.

5. Inflation has moderated since March 2015, allowing the Central Bank of Armenia (CBA) to ease the monetary policy stance. Annual inflation declined from 5.7% in March 2015 to 3.5% in August 2015, reflecting the decline in food prices due to a good sprint harvest, subdued domestic demand, and the easing of pass-through of the 10% depreciation of the dram.

6. Despite some progress during the post-crisis recovery period, poverty incidence remains higher and income distribution more unequal than in 2008. In 2013, 32.0% of Armenians were living in poverty, compared with 27.6% in 2008, the lowest poverty level achieved since independence. The crisis has left the income distribution slightly more unequal than in 2008, and the poor have not benefited as much from the post-crisis economic recovery.

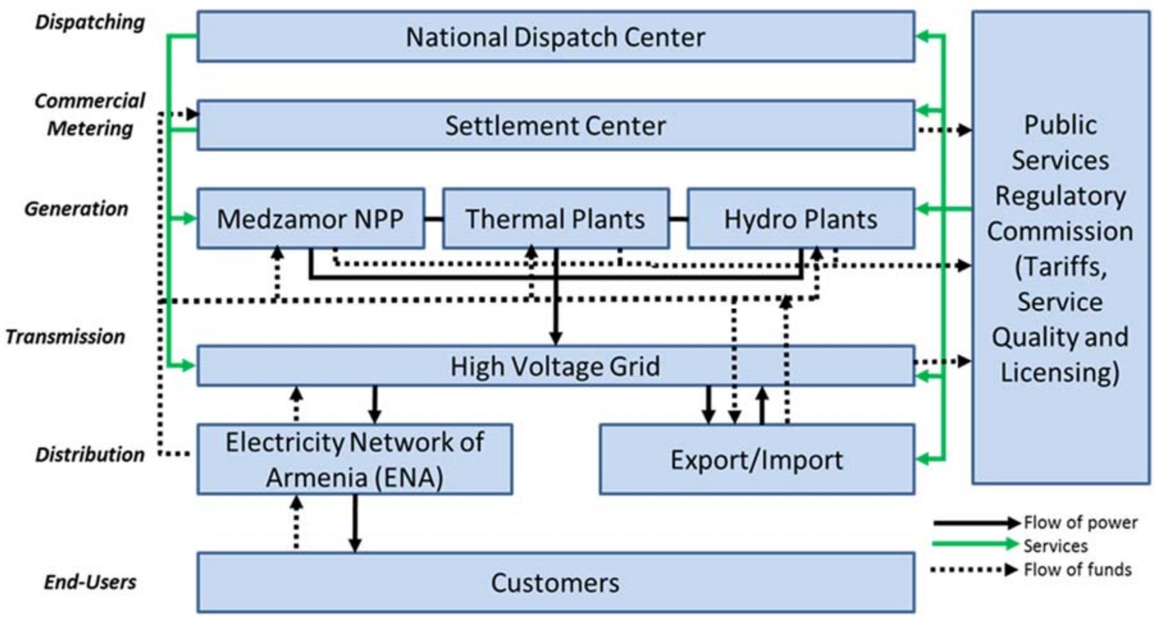
7. In January 2015, Armenia formally became a member of the Eurasian Economic Union (EEU). The decision to join the EEU was taken in September 2013 and has led to a number of measures to harmonize Armenia's tax and customs regime with that of the EEU. Armenia could expect economic gains through an increase of customs revenue by 1-1.5% of GDP and avoidance of a worsening of its trade position due to higher tariffs Russia applied to non-EEU countries. Agreements between Armenia and EEU members Belarus, Kazakhstan, the Kyrgyz Republic, and Russia effectively apply duty-free treatment to all trade in merchandise with these countries but do not cover trade in services, investment, or government procurement.

8. Armenia negotiated a number of concessions related to EEU accession, but the extent to which the accession will promote domestic structural reforms is not clear. Armenia obtained a transition period of five-seven years to 2020–2022 for harmonizing its import tariffs with higher EEU levels for over 800 types of goods, which allows for smoother adjustment to the new trade regime. In addition, Armenia benefited from natural gas price discounts (2013 and 2015), estimated at about US$750 million to US$1billion compared to prices paid by other energy-importing countries in the region. By joining the EEU, Armenia also secured easier access to the Russian labor market as well as to an alternative source of concessional financing.

B. Sectoral and Institutional Context

9. 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 regulatory framework is overall adequate with tariff-setting methodology allowing for cost-recovery. Presented below is the summary description of key entities in the power sector and their responsibilities:

Figure 1: Power Sector Structure



Source: Bank team.

- Generation: Independent companies providing capacity and energy services as per schedules agreed upon with the EPSO and under the contracts with the power distribution company. Most of the power generation capacity was privatized. The remaining two state-owned power generation companies – Armenian Nuclear Power Plant (ANPP) and Yerevan Thermal Power Centre (YTPC) - account for 42% of electricity generation for domestic needs.
- Transmission**:** The state-owned High Voltage Electric Networks of Armenia (HVEN) maintains and develops the high-voltage electric network in the country.
- Distribution: The privately-owned Electrical Networks of Armenia (ENA) operates and develops the distribution network and is the single buyer of electricity in the country. In September 2015, following a wave of public discontent about end-user tariff increases and concerns over efficiency of ENA operations, the Government and the PSRC approved the sale of ENA by Russian RAO UES to the Russian Tashir Group. The objective of such change in ownership was the need to further improve operational efficiency (e.g. reduce commercial losses; optimize costs), which is expected to also contribute to improvement of financial standing of the company and, thus, reduce pressure on increase of end-user tariffs.
- System Operation and Dispatch: EPSO is managing the dispatch of generation to meeting the domestic demand and for exports.
- Settlement Centre: The Settlement Centre conducts commercial settlements between electricity generators and the single buyer.
- Regulation: The sector is regulated by independent regulator –PSRC – responsible for tariff setting, service quality and licensing.

10. The PSRC is responsible for approving the tariffs of the power sector companies, including the large generation companies such as ANPP and YTPC. The PSRC uses the "cost-plus" tariff-setting methodology to determine the allowed revenue of the main power sector companies. Under this regime, the revenue that the companies are allowed to collect covers: (a) eligible costs related to licensed activities; (b) asset depreciation; and (c) an allowed return on invested capital. The large power generation and other power sector companies, including ENA, file tariff review computations at least once a year, which PSRC reviews to ensure those are consistent with the approved methodology and contain only eligible and reasonable expenditures.

11. In 2003-2010, the sector achieved financial viability 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.

12. 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.

Reasons behind Financial Distress of ANPP and YTPC

13. The state-owned generation companies[1] have been experiencing shortage of cash to finance the expenditures required for their core business of generating and supplying energy[2] because they:

14. *Provided US$41.7 million of loans to Nairit and Vanadzor Chemical Plants for purposes not related to their core business*. Specifically, YTPC provided US$37.5 million of loans using its revenues from electricity tariff. The remaining loans were provided by Vorotan Cascade, which is now privately-owned company. The state-owned generation companies also lent money for some other non-core business related activities, e.g. renovation of the government-owned facility for official receptions. The total amount of debt owed to state-owned generation companies by those chemical plants is US$59.8 million, including accumulated fines and penalties.

15. *Accumulated US$44.2 million in uncollected bills for energy supplied*. In 2013-2015, ANPP and YTPC accumulated US$30.7 million in receivables from ENA for electricity supplied. ENA was struggling to make timely payments given the shortcoming in the methodology for adjustment of its tariff margin. Specifically, ENA was not able to pay in timely manner since it was building up losses because actual cost of electricity it was purchasing was higher than the forecast cost. This difference between actual and forecast cost was not compensated by PSRC in full, as the good practice requires, when revising its tariff margin each year. Additionally, YTPC supplied US$13.5 million worth of heat to Nairit chemical plant and did not receive the payment until now.

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[1] Including Vorotan Cascade of HPPs before it was privatized.
[2] Core business for ANPP = generation and supply of electricity; core business for YTPC = generation and supply of electricity and heat.

16. *Incurred US$6 million of non-core business expenditures*. Following 40% increase of end-user gas tariff since 2012, the Government introduced life-line gas subsidy for poor families involved in the Family Benefit Program (FPB)[3] and tasked to finance it from previous years' profits of power sector companies, which were retained after payment of dividends to the state budget. The state-owned generation companies spent US$5.6 million on the subsidy in 2012-2014. Those companies also incurred some other expenditures (US$0.5 million) not related to their core business of energy supply (e.g. purchase of a motorized boat by YTPC).

Consequences of Imprudent Financial Decisions by ANPP and YTPC

17. As a result of the above lending and spending for purposes not related to the core business of supplying energy, ANPP and YTPC have accumulated large cash deficits amounting to US$104 million[4] (0.9% percent of estimated 2015 GDP) or 80% of their total estimated revenues for 2015.

Table 1: Estimated Cash Deficit of ANPP and YTPC[5]

Entity	Cash Deficit
ANPP	US$18.5 million, which includes US$8.5 million of cash needed to repay the principal amounts of outstanding commercial loans + US$10 million of deferred expenditures for operation and maintenance
YTPC	US$85.3 million, which includes US$4.6 million of cash needed to repay the principal amounts of outstanding commercial loans + US$80.7 payable for natural gas

18. In order to close the financing gap that emerged due to the factors discussed above, the state-owned generation companies started: (a) building up payables by delaying payments to their suppliers; (b) taking expensive commercial loans to finance the required expenditures related to generation and supply of electricity; and (c) deferring the expenditures required for main operational needs.

19. *YTPC accumulated US$80.7[6] million payable to Gazprom Armenia CJSC and its associated entity (the gas transmission company – Transgaz LLC) for natural gas supply and transportation.* The payable was built up since 2011 primarily due to shortage of cash. YTPC was not able to pay because it was using substantial share of its cash flow to lend to the above chemical plants and incur some other expenses not related to its core business.

20. US$25 million out of the $80.7 million in total payables is associated with purchase of gas from Gazprom Armenia to generate electricity for domestic consumers. Thus, repayment of this particular payable is important from perspective of ensuring adequate and reliable electricity supply in the country. Specifically, in case of default under this particular contract, YTPC will not be getting

[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] As of February 1, 2016.
[5] The cash deficit was estimated using the official exchange rate by the Central Bank of Armenia as of February 1, 2016: US$1=489.16AMD; EUR1=531.03AMD.
[6] As of February 1, 2016 official exchange rate of the Central Bank of Armenia: US$1=489.16AMD; EUR1=531.03AMD. The size of the payable in the Government Program is stated as equivalent of US$75.6 million (as of February 1, 2016) because YTPC committed to repay US$5.2 million before February 1, 2016, however, the payment actually took place on February 3, 2016.

timely and uninterrupted gas supply to generate electricity required for domestic needs. Therefore, repayment of this payable will be contributing to the Government's efforts of ensuring adequate electricity supply in the country as stated in the Program Development Objective. The remaining US$56 million payable is also owed to Gazprom Armenia, however, it is not related to purchase of gas to generate electricity for domestic needs and does not jeopardize the adequacy of electricity supply to domestic consumers.

21. *ANPP and YTPC took short-term and expensive commercial loans, which totaled US$13.1 million as of February 1, 2016.* The loans are from local commercial banks at high annual interest rate of 9-11.5% and maturities of 12-24 months. The loans are denominated in US$ and EUR. Those loans have not been serviced through the tariff (rightly so) and have been a significant drain on the cash flows of those companies. The loans were continuously rolled over due to inability of the state-owned generation companies to repay them. However, starting from the end of January 2016, the generation companies were able to start repaying the loans because of the recovery of receivables from ENA. Specifically, the outstanding principal amount of commercial loans reduced from US$28.8 million as of December 1, 2015 to US$13.1 million as of February 1, 2016. The repayment of the part of expensive commercial loans was a financially prudent decision given the large interest expense associated with these loans.

22. The recovery of the part of receivables by ANPP and YTPC was possible due to an increase of ENA's tariff margin effective from August 1, 2015, which allowed ENA to receive additional revenue to cover the losses incurred in prior years. As per schedule reflected in the agreement signed between ENA and the state-owned generation companies, the remaining balance of US$30.7 million shall be repaid by the end of July 2016.

23. *ANPP accumulated US$10 million backlog* of expenditures for operating and maintenance needs (related to its substation used to evacuate electricity to the transmission network), which could not be financed due to shortage of cash. The recovery of receivables from ENA will allow financing the backlog of expenditures for recurrent repairs and maintenance (which cannot be delayed further), however, additional cash injection is needed to allow ANPP to repay the outstanding commercial loans. If ANPP uses the receivables recovered from ENA to finance the deferred expenditures, then it will not be able to repay the commercial loans and will fall into a debt trap again.

24. The forecast of reduction of the cash deficit due to activities under the Program and contribution of main sources of additional cash under the Program are presented in the Table 2 in Section B.

Impact of Suboptimal Tariff Adjustment Methodology on ENA's Financial Condition

25. ENA incurred financial losses due to suboptimal methodology for adjustment of its margin. Specifically, 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 electricity. The difference between the actual and forecast cost of purchased electricity is important for financial health of ENA because if the actual cost of electricity is larger than the forecast, then ENA incurs a loss. As per 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.

26. There was material deviation between the actual and forecast cost of electricity due to lower-than-forecast generation from HPPs (from poor hydrology conditions) in 2012-2014, and longer-than-planned periodic maintenance of ANPP in 2013. ENA had to make up for electricity supply shortfall from low-cost HPPs and ANPP by buying substantially more expensive electricity from Hrazdan TPP and Hrazdan-5 Thermal Power Plants, which are the two most expensive generating plants in the power system. The additional electricity purchase costs of ENA were not fully compensated within one-year period, which is the accepted practice.

27. 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). As of February 1, 2016, US$9 million has already been paid by ENA. Although the tariff increase, which is effective since August 1, 2015, will allow ENA to repay the accumulated debts to YTPC and ANPP, the methodology for adjustment of ENA's tariff margin will need to be revised by PSRC to avoid similar build-up of debts in future.

28. Considering the above, improvement of the 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.

Role of ANPP and YTPC in Ensuring Low-cost and Adequate Electricity Supply to End-users

29. If the financial difficulties of the ANPP and YTPC are not overcome, they will have significant impact on their ability to maintain the current levels of generation with resulting negative consequences on the cost and adequacy of electricity supply in the country.

30. In 2012-2014, those two plants accounted for 42% of total annual electricity generated for domestic needs. Inability of ANPP and YTPC to maintain the current level of generation would result in an *increase of the average cost of electricity supply*. Substitution of state-owned power generation companies with other existing power plants on the system would lead to AMD16.6/kWh or 48% increase of average end-user electricity tariff (see Annex 4 for details). If ANPP and YTPC do not maintain the current levels of generation, then in the short to medium-term (until 2019) they would be substituted by substantially more expensive Hrazdan-5 TPP and substantially less reliable and more expensive Hrazdan TPP.

31. Substituting ANPP and YTPC with generating plants, which have lower electricity costs compared to Hrazdan-5 and Hrazdan TPP, is not technically and economically feasible because: (i) all other existing generation plants are operated at full capacity and cannot substitute ANPP and YTPC; and (ii) construction of new generation plants would require at least 2-3 years from now, which would result in substantial electricity deficit, and (iii) electricity from any new generation plant would have higher cost compared to ANPP and YTPC because: (a) ANPP is almost fully depreciated, and, thus, has small depreciation related component in its tariff; and (b) YTPC was constructed with a sovereign

40-year concessional loan from JICA and, thus, the debt service costs do not significantly impact its tariff.

32. *Electricity deficit starting from 2020.* The generation capacity of Hrazdan TPP will not be sufficient for fully meeting the domestic electricity demand starting from 2020 due to forecast average annual 2.6% growth of electricity demand. Therefore, deficit of electricity will emerge if ANPP and YTPC do not revert to adequate financial footing and maintain their current levels of electricity generation. Moreover, generation units of Hrazdan TPP are 50 years old and severely dilapidated. Thus, excessive reliance on Hrazdan TPP would 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.

Role of ENA in Ensuring Reliable Electricity Supply to End-users

33. ENA is the only company operating the power distribution network, which is used to deliver the electricity to end-users. Therefore, recovery of ENA from financial distress is important for ensuring reliability of electricity supply to end-users. If not addressed, the 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 avoid major deterioration of reliability of supply. However, if the financial condition of ENA does not improve, the reliability of supply will inevitably reduce due to under-spending on maintenance and investments in modernization of the network.

The Government's and PSRC's Commitment to Improve Financial Condition of the Sector

34. The Government and PSRC are committed to improvement of the financial standing of the state-owned power generation companies and the private power distribution company, and have already undertaken a number of steps in that direction.

35. *In 2015, PSRC increased the end-user tariff to compensate ENA for accumulated losses due to mismatch between the forecast and actual cost of energy purchased by ENA.* The PSRC increased the end-user tariff by 16%, effective from August 1, 2015. This tariff increase has already allowed ENA to start repaying the US$40 million of payables to ANPP and YTPC. In particular, ENA has already paid US$9 million and will complete repayment of the remaining amount by the end of July 2016. However, the tariff increase triggered a public discontent, which led the Government to commission a study to confirm whether tariff computation by PSRC is compliant with the tariff-setting methodology for ENA and includes capital and operational expenses of ENA that are reasonable and economically justified. The Government committed to subsidize until August 1, 2016 the electricity bills of all residential and small commercial consumers with monthly consumption of up to 250/kWh. The amount of subsidy is equal to the difference between the new tariff (effective from August 1, 2015) and the previous tariff. The average monthly cost of the subsidy is estimated at around US$1.1 million, which is financed in equal proportions by the Government and Tashir Charity Foundation. There is no decision whether the universal subsidy will continue after August 2016. If it does not, then the existing social safety net – the Family Benefit Program - will most likely be the primary tool for mitigating the impacts of tariff increases.

36. *ANPP and YTPC started repaying their commercial loans using the repayments from ENA*. In particular, the above two companies have already reduced their commercial loans from US$28.8 million to US$13.1 million. This was a financially justified step given that those commercial loans had very high interest rates and, thus, the burden of interest expenses was reduced.

37. *MENR approved a new guidance for preparation of the electricity demand and generation forecast*. This was prepared to improve the accuracy of the forecast of electricity generation, especially the share of low-cost generation from HPPs. The unrealistic forecast of large supply from low-cost generation plants led to under-estimation of average cost of electricity supply, which is used to determine ENA's margin in which the cost of energy purchased is the most important determinant. Such under-estimation of average generation cost coupled with poor hydrology conditions led to financial distress of ENA. The new methodology requires HPP generation to be forecast taking into the observed mean historical water flows and considering the reservoir levels in case of storage HPPs. The electricity demand forecast requires using the average growth rate of demand during the preceding 3-year period.

38. *The Government discontinued the use of financial resources of state-owned power companies to subsidies the gas tariffs for the poor*. Starting from 2015, the state-owned power companies have not been financing the gas subsidy for poor consumers. The decision was made following clear signaling from the MENR that such financing will lead to financial collapse of the state-owned generation companies.

C. Relationship to the CAS/CPS and Rationale for Use of Instrument

39. The proposed operation is consistent with the current FY13-17 Country Partnership Strategy (October 9, 2013) for Armenia since it is centered on the Engagement Area 1.3 of the CPS (Improved access, quality, and sustainability of key infrastructure) to eliminate constraints to competitiveness and job creation.

40. The proposed operation is aligned with the Bank's twin goals of reducing poverty and promoting shared prosperity. Specifically, by improving the financial viability of the state-owned generation companies, the proposed operation supports the twin objectives in the following way:

(a) *Avoiding substantial increase of electricity tariffs with poverty implications*. The inability of ANPP and YTPC to maintain the current levels of generation would lead to increase in the cost of electricity supply for all consumers because those two plants would need to be replaced by Hrazdan-5 TPP and Hrazdan TPP, which have higher generation cost. In this scenario, the cost of electricity would have to increase by 48%. Assuming no changes in other factors impacting poverty, such an increase of cost of electricity alone, if it were to materialize, would result in 1.6% increase of poverty.[7] Thus, the proposed operation would help preclude an increase in poverty due to substantial hike of the cost of electricity, which could happen if the proposed operation does not support the financial recovery of the state-owned power generation companies.

[7] World Bank team estimate.

(b) *Boosting shared prosperity by ensuring adequate and reliable electricity supply to all consumers of electricity in the country*. If Hrazdan TPP was used to replace some of the generation from ANPP and YTPC, then the reliability of power supply in the country would be jeopardized because: (a) it is more than 50 years old with most of the key equipment beyond useful economic life; and (b) there would be no reserve generator on the system in case Hrazdan TPP (which is the marginal plant) has a forced outage. Thus, the proposed operation will generate benefits for all electricity consumers in the country, including residential and over 140,000 registered commercial consumers, which account for all of the employment in the private sector.

41. The PfoR instrument will be used to support the Government's Power Sector Financial Recovery Program with a total cost of US$43.2 million and to be implemented in 2016-2020. The use of the PforR instrument is justified for the following reasons: (a) it creates financial incentives for achievement of results, thus, shifting the focus to achievement of tangible and verifiable improvements in the regulatory framework for the power sector, financial management decisions and overall financial standing of the sector companies; and (b) by supporting the Government's own Program, using country systems with due attention to system strengthening, the PforR will enhance development impact and sustainability of results achieved.

II. PROGRAM DESCRIPTION

A. The Government's Financial Recovery Program

42. In order to ensure adequate and reliable electricity supply through restoring the financial viability of the state-owned generation companies, the Government intends to undertake a number of critical steps, which are reflected in the Government's Program (No. 6, approved on February 18, 2016):

a. 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.
b. Reducing the payables for natural gas.
c. Recovery of receivables from ENA to allow state-owned power companies to finance the required maintenance costs.
d. Refinancing of the principal amounts of commercial loans of state-owned generation companies with concessional resources attracted from an International Financial Institution.
e. Overhaul 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.
f. 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.
g. 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 AMD/US$ exchange rate.
h. Preparation and adoption of liquidation program for Haigasard and its implementation.
i. Recovery of the debts provided to Nairit and Vanadzor Chemical Plants through a legal process to collect those debts.

j. Negotiations with Gazprom Armenia to agree on a long-term schedule for repayment of the payable for natural gas.

B. Scope of the Program Supported under PforR

43. The part of the Government Program supported under the proposed PforR (the Program) includes the activities from (a) to (h) as presented above. Those activities are grouped into four Results Areas described below. MENR, together with ANPP and YTPC, will be responsible for activities under Results Areas 1, 2, and 4. The Government secured PSRC's written confirmation that the latter will implement the activities under Results Area 3.

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

(a) *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.

(b) *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.

45. **Results Area 2: Reduction of expensive commercial loans of state-owned power generation companies, recovery of receivables, and repayment of YTPC's payable for natural gas**. This will be achieved through:

(a) *Refinancing of the principal amounts of commercial loans of state-owned generation companies*. These loans 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 around US$0.85 million during the grace period and US$2.9 million per year thereafter (including repayment of the principal) with declining schedule. YTPC and ANPP would substantially reduce debt service costs, thus, increasing funds available for better maintenance of assets.

(b) *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. As of February 1, 2016, ENA owes the state-owned power generation companies US$30 million (US$19 million to YTPC and US$11 million to ANPP). ENA will repay the receivables from the incremental revenue it will earn from the recent 16% increase in average end-user tariff.

(c) *Repayment of YTPC's payable for natural gas*. The support under the proposed PforR will be limited to YTPC's payable associated with purchase of natural gas from Gazprom Armenia CJSC for generating electricity for domestic needs. The payable will be repaid using the additional cash inflows under the Program from recovery of receivables from ENA and disbursements under the proposed IBRD loan. Repayment of this payable is important from the stand-point of ensuring adequate and reliable electricity supply in the country because default on this payable may result in discontinuation of gas supply YTPC needs to generate electricity for domestic needs.

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

(a) *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 tariff margin for each new tariff period will reflect 100% of the loss (profit) accrued due to difference between the forecast and actual tariff margin[8] during the preceding tariff period plus interest cost (income); and

(b) *Revision of tariff-setting methodology to allow adjusting the tariff of the large thermal plants by the full size of natural gas purchase related loss (profit) incurred due to fluctuation of AMD/US$ exchange rate.* The PSRC will revise the existing tariff-setting methodology to allow the tariffs of large thermal power plants, including YTPC and Hrazdan TPP, 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.

47. **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.

[8] ENA's tariff margin is the difference between the average end-user tariff and the cost of energy purchased, which includes the cost of electricity generation, transmission, the dispatch fee and the for commercial settlements.

48. **Sustainability of Results**: The proposed activities under the Program will have sustainable impact on the financial standing of the state-owned power companies and the private power distribution company. Therefore, those activities will contribute to ensuring adequate and reliable electricity supply in the longer term. The sustainability is ensured through changes in the regulatory framework for the power sector and dissolution of the vehicle (Haigasard), which was used to channel state-owned power companies funds for non-productive and non-core business related purposes. The details on how each of the activities in the program will contribute to sustainable improvement of the financial standing of the sector companies are presented below.

- The *decision* of the Shareholder's Meeting will contribute to sustainable improvement of the financial standing of the state-owned generation companies because the senior management of the respective entities or their Management Boards will no longer be able to force the entities to incur non-core business related expenditures.
- Liquidation of Haigasard will contribute to sustainable improvement of financial standing of the state-owned generation companies because there are no other special purposes vehicles (SPVs) in the sector to be used for channeling of funds to finance expenditures not related to their core business. Even if new SPVs are established, the state-owned generation companies will legally no longer be allowed to lend to them given the prohibition of non-core business expenditures to be imposed by the *decision* of the Shareholder's Meeting.
- Sustainability of improvements in financial standing due to refinancing of commercial debts will be ensured through servicing of the refinanced debts with return on assets that ANPP and YTPC will receive from their tariffs approved by the PSRC.
- Recovery of receivables will generate additional cash for state-owned generation companies and, combined with legal ban on non-core business spending, allow them substantially reduce reliance on expensive commercial loans with long-term balance sheet level implications as confirmed by the financial analysis of the Program.
- Repayment of the payable under the contract for supply of gas for domestic needs is essential for ensuring that YTPC is capable of operating its power plant and supplying electricity to domestic market. If this payable is not repaid, then YTPC may not be able to reliably supply electricity and earn revenue because it will not receive gas.
- The proposed amendment to the ENA License contributes to long-term financial viability of ENA because once the License is amended, the adjustment becomes automatic and legally binding for implementation according to the terms of the License and the Law of the Republic of Armenia on Licensed Activities. Specifically, the proposed amendment of ENA's License will allow precluding build-up of losses at the company in case the actual cost of electricity purchased exceeds the forecast cost. Improvement of ENA's financial viability will also contribute to reduction of cash deficit of state-owned power generation companies because ENA will be able to make timely payments for electricity supplied by those companies. This will also be ensured through enforcement of the use of escrow account, which requires ENA to pay generators and other sector entities in full and then only access the remaining funds.
- The proposed revision of the tariff methodology will contribute to sustainable improvement of financial standing of YTPC since the compensation of exchange rate driven additional costs associated with natural gas purchase will need to be automatically included into the required revenue computation for YTPC for each subsequent tariff period.

- The proposed overhaul of the gas turbine will ensure YTPC can continue operating its existing CCGT plant at the available installed capacity and generating the electricity required for domestic needs.

49. The review of the Program expenditures suggest that the availability of financial resources is predictable, the expenditure management system is well functioning and the budget execution system allows effective delivery. The Program budgeted expenditures are realistic and will be executed in an orderly and predictable manner. The Program budget adequately reflects the resources required for achieving the expected results. The break-down of Program expenditures by implementing entity is presented in the Table below.

Table 2: Program Expenditure by Implementing Entity[9]

Implementing Entity	Amount (in million US$)	% of Total
Total for ANPP	**$8,525,191**	
- Refinancing of commercial loans	$8,525,191	20%
Total for YTPC	**$34,699,499**	
- Repayment of the payable for natural gas (the payable under the contract with Yerevan GGM of Gazprom Armenia CJSC for supply of gas to generate power for domestic needs)	$16,973,996	39%
- Overhaul of the gas turbine	$12,821,981	29%
- Refinancing of commercial loans	$4,603,522	11%
- Program audits and IVA	$300,000	1%
Total	**$43,224,690**	**100%**

50. The planned expenditure for overhaul of the gas turbine at YTPC's CCGT plant is predictable because the proposed overhaul of the gas turbine has been included into 2016-2018 Investment Plan for YTPC. The supply of components and installation will be conducted under the single-source contract with the original manufacturer of the turbine. The estimated cost of US$12.8 million is realistic and consistent with recently completed overhauls for similar gas turbines. The efficiency of the previous expenditures, incurred by YTPC in 2014, for the overhaul of the gas turbine were also reviewed and found to be consistent with average market prices for similar supply and install contracts.

51. Refinancing of principal amounts of ANPP's and YTPC's commercial loans is predictable because ANPP and YTPC will be using disbursements under the PforR and repayments of receivables by ENA (which are already taking place) to refinance those commercial loans. The proposed refinancing is effective because it will contribute to long-term financial viability of those state-owned generation companies.

[9] Converted to US$ using the official exchange rate of the Central Bank of Armenia as of February 1, 2016: US$1=489.16AMD; EUR1=531.03AMD.

52. The Program has one large contract (US$12.8 million) for overhaul of the gas turbine at YTPC's CCGT plant. However, the value of the contract does not exceed the OPCS thresholds specified for works contracts in Armenia.

53. The activities under the Program, coupled with expected recovery of debts from Nairit and Vanadzor Chemical Plants (which are not part of the Program), are anticipated to eliminate the cash deficit by the end of 2020. The Table below presents impact of various activities on reduction of the cash deficit of the state-owned power companies.

Table 3: Reduction of Cash Deficits (in million US$) from Program Activities

Measures under the Government Program Supported by PforR						
ANPP	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Cash inflow from recovery of receivables from ENA	-	11.4	-	-	-	-
Cash inflow from disbursement of IBRD loan proceeds	-	3.6	3.1	0.7	0.5	0.6
Cash deficit of ANPP	18.5	3.5	0.4	No cash deficit	No cash deficit	No cash deficit
YTPC	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Cash inflow from recovery of receivables from ENA	-	19.2	-	-	-	-
Cash inflow from disbursement of IBRD loan proceeds	-	9.0	7.9	1.6	1.3	1.6
Cash deficit of YTPC	85.4	57.2	49.3	47.6	46.4	44.8
Other Measures in the Government Program						
Partial recovery of debts provided to Nairit and Vanadzor Chemical Plants by YTPC	-	-	-	10.0	15.0	19.8
Cash deficit of YTPC with partial recovery of debts from chemical plants	**85.4**	**57.2**	**49.3**	**37.6**	**21.4**	**no cash deficit**

54. The predictable and realistic additional cash that YTPC will get under the Program (recovery of receivables and IBRD loan proceeds) will be sufficient to repay US$36 million of the payables, including the priority payable of US$25 million. As the Table above shows, in order to fully eliminate the cash deficit of YTPC by repaying the other payables to Gazprom Armenia, the Government plans to use the debts recovered from the chemical plants.

55. The Government will need to recover at least US$45 million out of the total US$72.7 million owed by chemical plants so as to be able to repay YTPC's payables in full and eliminate the entire cash deficit. However, the recovery of such large amount may not be feasible given dire financial standing of those chemical plants. The Government is preparing a more detailed analysis regarding the prospects of such recovery. The recovery of debts from Nairit is expected to begin immediately after the Government completes the registration of the government's ownership of the plant and revaluation

of its assets. The recovery of debts from Vanadzor chemical plant may require a lengthier legal process given its private ownership.

56. Repayment of YTPC's US$56 million of payables to Gazprom Armenia, which is not part of the Program supported under the proposed PforR, depends upon recovery of debts from chemical plants and the results of ongoing negotiations with Gazprom Armenia to agree on a long-term schedule for repayment. Under worst-case scenario, if no or very small amount of debt is recovered from chemical plants, then YTPC will have to repay using its profits and full repayment may happen not earlier than 2026. However, delayed repayment of this particular payable for natural gas will not jeopardize adequacy of electricity supply to domestic consumers, which is the objective of the proposed operation.

Program Beneficiaries

57. The beneficiaries of the Program are all electricity consumers in the country as well as the state-owned generation companies and the private power distribution company.

58. *Electricity consumers*: The Program will contribute to the ongoing efforts of the Government in ensuring adequate and reliable electricity supply. In particular, improvement of the financial standing of the state-owned power generation companies will help ensuring they supply the required amount of electricity to the network, thus, precluding any un-met electricity demand due to unavailability of those plants. Moreover, improvement of the financial standing of the private power distribution company will help to at least maintain the current adequate level of electricity supply reliability. Financial health of the power distribution company will ensure it has enough resources to spend on maintenance and new investments required for reliable supply of electricity to end-users. Thus, the entire 2.98 million population of the country (including 1.43 million females) will benefit from the Program. Moreover, 140,000 legal entities connected to the electricity network will also benefit because the Program will help to fully meet their demand for electricity in a reliable manner.

59. *ANPP and YTPC*: Improvement of the financial standing of ANPP and YTPC will allow it to maintain electricity supply at current levels. Without the Program, ANPP and YTPC may become insolvent and incapable of continuing their operations.

60. *ENA*: Improvement of the financial standing of ENA will allow it to finance the required expenses on maintenance and repair as well as invest in modernization of the power distribution network. Without the Program, ENA will struggle to maintain reliable operation of the power distribution network without heavy reliance on commercial loans, which are attracted to finance shortage of working capital due to deficiency in the current methodology for adjustment of its margin.

C. Program Development Objective

61. 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.

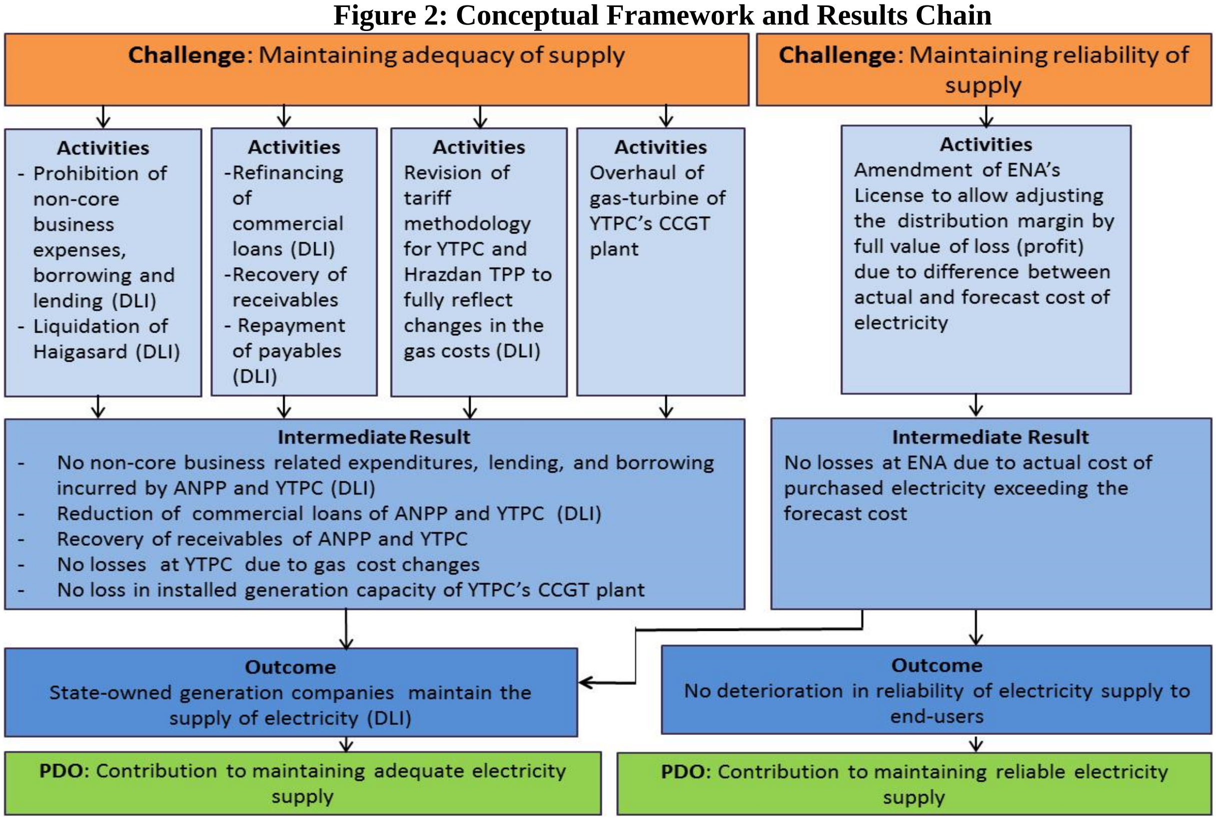
D. Program Key Results and Disbursement Linked Indicators

62. The Key Program Results Indicators are:

- PDO Level Indicator 1 (Custom): Annual electricity supply by ANPP is maintained.
- PDO Level Indicator 2 (Custom). Annual electricity supply by YTPC is maintained.
- PDO Level Indicator 3 (Custom): Average interruption frequency per year in the project area is maintained. The project area for the purposes of this project includes the entire country.
- PDO Level Indicator 4 (Core): Direct project beneficiaries.

63. The first two indicators relate to maintaining adequacy of electricity supply in the country. The third indicator relates to maintain reliability of electricity supply services of the private power distribution company. The fourth indicator measures the total number of people benefiting from the proposed operation. All PDO-level indicators are supported by several intermediate results. These represent key stages in the results chain required for the achievement of the PDO.

Figure 2: Conceptual Framework and Results Chain



Source: Bank team.

64. Ten DLIs were chosen for the Program to address the bottlenecks along the results chain. The DLIs were selected considering the most essential results that need to be achieved in order to restore the financial standing of the state-owned generation companies and the private power distribution company. Therefore, several of the Intermediate Results Indicators are also used as DLIs. Some DLIs are related.

Table 4: Disbursement Linked Indicators

	Disbursement Linked Indicators	Amount Allocated (US$ million)
1	*Decision* at the shareholder meetings of ANPP and YTPC, prohibiting the non-core business related expenditures, lending and borrowing by the above companies.	2.832
2	Liquidation of Haigasard.	2.000
3	No new non-core business related expenditures, borrowing and lending incurred by ANPP.	2.500
4	No new non-core business related expenditures, borrowing and lending incurred by YTPC.	2.500
5	Reduction of the principal amount of outstanding commercial loans of ANPP.	4.260
6	Reduction of the principal amount of outstanding commercial loans of YTPC.	2.300
7	Reduction of YTPC's payable for natural gas under Contract referred to in Supplemental Letter No. 3	4.982
8	ENA's margin for each new tariff period fully reflects the loss (revenue) accrued due to difference between the forecast and actual cost of electricity purchased by ENA during the preceding tariff period	2.000
9	Tariffs for YTPC and Hrazdan TPP for each new tariff period fully reflect the loss (revenue) resulting from difference between forecast and actual cost of purchased natural gas due to fluctuation of AMD/US$ exchange rate during the preceding period.	2.000
10	Electricity supplied by YTPC	4.551
	Total	**29.925**

65. The proposed PforR will contribute to improvement of the financial standing of: (i) state-owned power generation companies by reducing their cash deficit by US$30 million (30%) – the total disbursements under the proposed PforR against achievement of results under highest-priority activities mentioned in the Table above; and (ii) ENA given the change in the methodology for adjustment of its margin, which precludes build-up of financial losses at ENA due to mismatch between actual and forecast cost of purchased electricity.

E. Key Capacity Building and Systems Strengthening Activities

66. The Bank team will also be using a US$300,000 Bank-executed grant from ESMAP to provide capacity building and advisory support to the Government with respect to key activities supported under the Program. Specifically, the following activities will be supported, which are essential for long-term sustainability of the results to be achieved under the Program:

(a) *Analytical support to PSRC to inform their thinking on good-practice approaches to eliminating the identified deficiencies in tariff-setting methodology.* This will include review of good-practice international experience to inform PSRCs' thinking on methodology for adjusting ENA's margin to reflect the differences between the actual and forecast cost of purchased energy.

(b) *Advisory and analytical support to the Government in assessment of social impacts of tariff increases.* End-user tariff increases may result due to regular adjustments of ENA's margin and tariffs for YTPC and Hrazdan TPP. This will include also targeted training to build capacity to analyze the distributional impact of electricity tariff increases among staff of Ministry of Labor and Social Protection, which is responsible for social assistance programs and is in the process of building their analytical wing. This is an important component of the capacity building support given that average household is already spending almost 10% of the disposable income on energy (gas and electricity). If the policy makers do not have good understanding of distributional and poverty impacts of tariff increases, then the results under the Program may be jeopardized due to limited public support.

(c) *Development of strategies to mitigate the impact of tariff increases on vulnerable consumers.* Some mitigation strategies have been tried by the Government, but these have been either inefficient or inadequate. In previous years, Armenia had implemented targeted lifeline tariffs for gas, but these proved to be inadequate compared to the challenges that poor households had faced and will continue to face in future years. This was due to the small generosity (2% of family benefit program (FBP) budget) and of limited outreach (16.2% of the poor) of the mitigation option. Simulations suggested that the impact of this measure on mitigating the increase on poverty given by higher energy prices was practically undetectable. Under this component, the following options will be explored in greater detail: (a) use of Proxy Means Testing to deliver targeted cash compensation to those eligible; (b) introduction of a block tariff design; and (c) introduction of a life-line tariff.

(d) *Strengthening coordination, communication, and capacity on energy subsidy reform.* While the above activities will provide analytical evidence to the Government and the PSRC, the ability to develop coordinated action and communicate effectively with consumers are essential ingredients for an effective response to mitigating the impacts of energy price increases. The Government does not yet have a clear plan for mitigating the impacts of tariff increases on the population once the existing electricity subsidies are phased out on August 1, 2016. While the response of the Government to the 2015 tariff increases must be read in the context of broader political pressure, the reactions also underscore the lack of early planning and coordination at the policy level between different ministries in charge of energy, social programs and finance. The need for these increases in tariffs had been known well in advance, and yet the Government failed to put forward a credible strategy to address its social and political consequences. Therefore, this component will support the following activities:

- Communication: Support the PSRC and MENR to improve public communication strategy on power sector related issues. International experience shows that for major reforms, the consultative process undertaken through the Working Group must be complemented with a strong communication strategy. This component of the task will provide recommendations to the Ministry of Energy and Natural Resources and PSRC on improvements in public communication around tariff issues and broader energy sector related topics.
- Capacity building: Conduct targeted training to build capacity to analyze the distributional impacts of electricity tariff increases among staff of certain Ministries such as Ministry of Labor and Social Protection, which is responsible for social assistance programs and is in the process of building their analytical wing.

III. PROGRAM IMPLEMENTATION

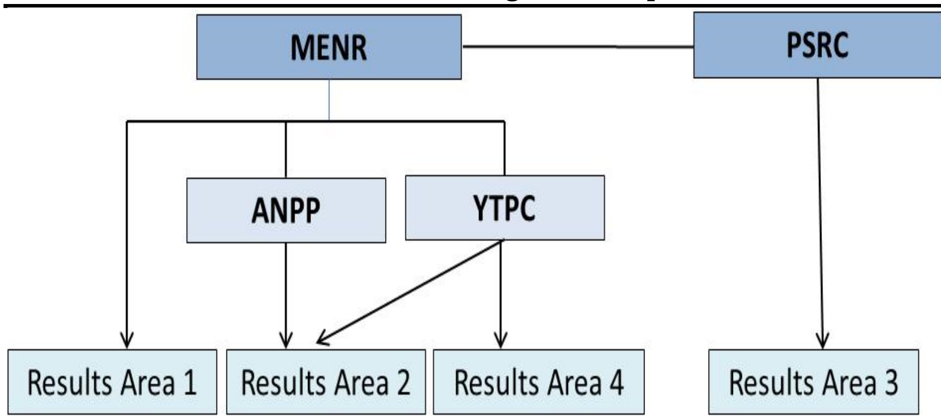
A. Institutional and Implementation Arrangements

67. 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 together with ANPP and YTPC will bear the responsibility for activities under the Results Areas 1, 2, and 4. Specifically, Minister of Energy and Natural Resources, as the authorized person acting on behalf of the Shareholder (the Government), will be responsible for making the decision prohibiting the non-core business related expenditures, borrowing and lending of state-owned power companies and liquidation of Haigasard. ANPP and YTPC will be responsible for reducing their outstanding expensive commercial loans; and YTPC will be responsible for the overhaul of the gas turbine at its CCGT plant. MENR will closely supervise ANPP and YTPC to ensure they implement the above relevant activities in timely manner and to meet the specified targets.

68. MENR 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 are the Financial-Economic, Accounting, and Internal Audit. ANPP and YTPC were also assessed to have overall adequate capacity to implement the relevant parts of the Program.

69. The independent regulator, the PSRC, will be responsible agency for tariff-setting related activities under Results Area 3. The PSRC has the required in-house expertise to implement the relevant activities under the Program.

Figure 3: Responsible Entities



Source: Bank team.

70. The financial management function under the Program will be assigned to MENR as well as ANPP and YTPC. MENR will also be responsible for coordination activities under the Program and between the ANPP and YTPC.

71. YTPC will be responsible for selection of the Independent Verification Agents (IVAs), the auditor for its annual financial statements, and the annual Program auditors. YTPC will also be responsible for procurement of goods and services for overhaul of the gas turbine at its CCGT plant. ANPP will be in charge of the selection of the auditor for its annual financial statements.

72. The funds will be disbursed directly to the Program's two segregated accounts, which will be opened for and managed by ANPP and YTPC. The Bank will disburse funds based on the submission of verified information on the performance of the DLIs.

73. MENR will be responsible for oversight over the Program accounting and financial reporting arrangements. It will be responsible for submission of Program financial/monitoring reports to be verified / audited by IVAs or auditor. MENR will be responsible for ensuring that YTPC selects and appoints the required IVAs and the auditor for the annual Program audit.

74. Implementation agreements (Subsidiary Agreements) will be signed: (i) between MOF and ANPP and (ii) between MOF and YTPC, for the purposes of implementing by ANPP and YTPC their respective activities under the Program. The IBRD Loan proceeds will be made available to ANPP and YTPC as sub-loans.

B. Results Monitoring and Evaluation

75. MENR will be responsible for monitoring and evaluating the PDO Level and Intermediate Results Indicators during implementation, and submitting semi-annual implementation progress reports to the World Bank. MENR has sufficient in-house capacity to collect and process data required for the M&E system as well as monitor and report on achievement of the Results Indicators under the proposed operation. All of the data required for monitoring of progress towards achievement of PDO Level Indicators is available from the Settlement Centre CJSC, PSRC and the UN Population Surveys. The audited annual financial statements of ANPP and YTPC, PSRC publications, MENR and YTPC reports will be the source of data for monitoring of the progress with achievement of Intermediate Results Indicators. The baseline values for the results indicators were provided by MENR.

76. For disbursement purposes, achievement of DLIs will be verified by IVAs, which will be procured by YTPC. Depending on the substance and specifics of the DLIs, the following IVAs will be needed:

(a) *An independent law firm for DLIs 1 and 2.* Preparation of the Terms of Reference (TOR) is underway and the selection of a law firm is expected to be completed by end of May 2016 (expected effectiveness of the Program) allowing sufficient time for verification of results under relevant DLIs achieved by the end of the first semester of 2016.

(b) *An auditor from the list of auditors and under Terms of Reference (TOR) acceptable for the World Bank for DLIs 3, 4, 5, 6, and 7.* The TORs for verification for achievement of those DLIs were prepared and agreed with the Bank. This will allow sufficient time to complete selection of an auditor by end of May 2016 and verification of results under DLIs 5, 6 and 7. Verification of achievements under DLIs 3 and 4 will be done starting from the end of the first semester of 2017 within the scope of the audit of annual financial statements of entities (ANPP and YTPC) because the annual audited financial statements of ANPP and YTPC for 2016 will be available only by then.

(c) *A financial consultant for DLIs 8 and 9:* The TOR for the financial consultant is under preparation and will be finalized and agreed with the Bank by approval of the proposed loan. This will allow sufficient time to complete selection of an auditor by end of May 2016 and verification of results under DLIs 8 and 9.

(d) *The Settlement Centre state-owned CJSC for DLI 10.* The Settlement Centre is responsible for commercial settlements between the power generation companies and the power distribution company (ENA). Therefore, the Settlement Centre registers through various meters the amount of electricity supplied to the network and, thus, is best-placed to carry out credible verification of the supply from YTPC. For verification purposes, the Settlement Centre relies on meters readings and other automated supervisory control and data acquisition systems, which provide objective data and information without manual interference.

77. The verification reports will be submitted for review by the IVA simultaneously to the Government and the Bank, and neither party can modify such reports except for factual errors. The verification protocols for each DLI are presented in the Annex 3. The Bank will also review compliance with the DLI targets during implementation review missions. The World Bank team will supervise implementation progress at least semi-annually, including results indicators defined in Annex 1.

C. Disbursement Arrangements and Verification Protocols

78. As one of its results areas, the Program will support ANPP and YTPC to reduce the principal amounts of their expensive commercial loans (denominated in US$ and EUR) and YTPC's payable to Gazprom Armenia CJSC under the contract associated with purchase of gas to generate electricity for domestic consumers. Considering that the current economic slowdown in Armenia may have adverse impact on the efficiency of Treasury operations and delay allocation of funds from the State Budget, and given the nature of expenditures of the Program to be supported by the Bank, and the fact that the funds disbursed will support those state-owned generation companies to reduce the financial burden of the commercial loans, channeling of the Program funds to the entities through the budgetary account of the Government will be avoided. It has been agreed that the most effective way of disbursing the Program funds is via two Segregated Accounts (each for ANPP and YTPC to support their part of Program expenditures) to be managed by ANPP and YTPC, respectively, and to be opened and maintained at the State Treasury. The accounts will be in US$.

79. When a specific DLI has been achieved, MENR will inform the Bank and will provide evidence as per the Verification Protocol that the DLI has been achieved. The Bank will review the documentation submitted. After the Bank formally considers the DLI(s) met (including satisfactory evidence that there is no reversal of earlier achievements), MENR will submit Withdrawal Applications for the disbursement of the relevant amount. The DLI formula, Verification Protocols and DLI Disbursement schedule are described in the Table in Annex 3.

80. For disbursements under all DLIs as well as advance payments and disbursements against prior results, separate Withdrawal Applications will be submitted for funds to be received by each entity considering the agreed-upon proportion of distribution of disbursed funds between entities – 28.5% to ANPP and 71.5% to YTPC.

81. Following the effectiveness of the legal agreement, the Bank will provide an advance payment of US$7.22 million (24% percent of the total loan size) and disburse against achievement of prior results - US$0.78 million under DLI 7 (Repayment of YTPC's payable for natural gas under Contract referred to in Supplemental Letter No. 3) and US$1.086 million under DLI 5 (Reduction of principal amount of outstanding commercial loans of ANPP). YTPC plans to start repaying the payable as more cash is recovered from ENA. ANPP plans will start repaying the commercial loans as it continues recovering receivables from ENA. Therefore, the Prior Result will allow disbursing some resources against a reduction in the payable YTPC plans to achieve from the baseline date of the Program until the signing of the Loan Agreement, thus, allowing YTPC to start receiving much needed funds to use (together with the advance) to be used for repaying the remaining balance of commercial debts and the payables. The same applies to ANPP.

82. Whenever the DLIs are achieved, the amount of the advance will be deducted (recovered) from the amount due to be disbursed under the DLIs to each entity. The amount of the advanced recovered by the Bank then will be available, as needed, for additional advances ("revolving advances"). The Bank requires that the Borrower refunds, no later than six months after the legal agreement closing date, any advances (or portions of advances) if the DLIs have not been met (or have been partially met) by the Program closing date. The need for the advance is driven by the requirement of relatively large financing needed during the first two years of operation in order to make tangible impact and preclude insolvency of the state-owned generation companies with resulting consequences on supply of electricity. The amounts for advance, prior results, and the subsequent disbursements under DLIs are specified in the Disbursement Table (refer to Annex 3 below).

83. At the end of the Program, any amount disbursed under DLIs that will exceed the actual Expenditures level for the whole Program period till the Program closing date, will be reimbursed to the Bank.

IV. ASSESSMENT SUMMARY

A. Technical

84. <u>Strategic Relevance</u>: The proposed operation will help the Government revert the state-owned generation companies and the private power distribution company back to adequate financial condition, and, thus, maintain the adequacy and reliability of electricity supply. The proposed Program is consistent with and contributes to achievement of one of the key objectives of the Government in the power sector – adequate and reliable supply, and financial viability - as stipulated in the Government's National Concept of Energy Security (2013) and the Armenian Development Strategy for 2015-2025 (2014).

85. <u>Technical Soundness</u>: The Government program is technically sound and includes all of the key measures required for reverting the power sector to adequate financial condition. The Program also incorporates several of key activities that were recommended by the World Bank as part of the earlier analytical work (Power Sector Financial Recovery Note, 2015; Power Sector Policy Note, 2014) and high-level discussions on energy sector challenges.

86. The Program targets to implement: (a) urgent measures required to avoid impending insolvency of the state-owned generation companies and continued distress of the private power distribution company with negative consequences on adequacy and reliability of electricity supply in the country; and (b) legal and regulatory changes, which are essential for long-term financial viability of the sector; and (c) productive expenses, which are essential from perspective of long-term adequacy and reliability of electricity supply in the country (overhaul of the gas turbine at YTPC's CCGT plant).

87. Results Chain and DLIs: Implementation of the activities under the Program enables to maintain electricity supply from ANPP and YTPC as well as the reliability of electricity supply to end-users by ENA through improvement of financial standing of those companies. The activities under the Program lead to reduction of cash deficits at state-owned power generation companies due to: (a) no new non-core business related expenditures and liquidation of the Haigasard that was used to channel funds for non-core business related reasons (Results Area 1); (b) refinancing of expensive commercial loans with resulting reduction in debt service related cash expenditures (Results Area 3); (c) avoidance of gas purchase related losses at YTPC from fluctuations of AMD/US$ exchange rate; and (d) maintaining the generation capacity of the gas turbine at YTPC's CCGT plant to allow for electricity supply from the plant. The resulting reduction of cash deficits at ANPP and YTPC coupled with overhaul of YTPC's gas turbine would allow those companies to maintain the current levels of electricity supply.

88. Elimination of shortcomings in the methodology for adjustment of ENA's margin will preclude build-up of financial losses at ENA due to mismatch between actual and forecast cost of purchased electricity. Therefore, the financial performance of ENA will improve, which will allow to fully finance the required O&M costs and investments in modernization of distribution network, thus, allowing to maintain the reliability of electricity supply to consumers.

89. Ten DLIs were chosen for the Program to address the bottlenecks along the results chain. The DLIs were selected considering the most essential results that need to be achieved in order to restore the financial standing of the state-owned generation companies and the private power distribution company. Therefore, several of the Intermediate Results Indicators are also used as DLIs.

90. Economic Evaluation of the Program: The economic evaluation of the Program includes justification of the rationale for public financing of the Program, assessment of economic impacts of the Program, and the value added from the Bank involvement.

91. *Rationale for Public Financing*. The public financing of the Program is justified given that activities supported cannot be undertaken with private financing. Specifically, the interest rates and maturities of the existing outstanding commercial loans of state-owned generation companies should be refinanced only with lower rate and longer maturity resources, which are not available from private financiers given the cost of funding in the country and financial situation of troubled entities.

92. *Economic Impact of the Program*. The Program will generate direct and indirect economic benefits. The direct economic benefit will be generated under the Results Area 4 from overhaul of the gas turbine at the CCGT plant of YTPC. Such overhaul will allow avoiding reduction of the available generation capacity of the gas turbine. Thus, the main economic benefit is the avoided increase in the un-served energy due to unavailability of the CCGT plant. This investment is estimated to have an

NPV of US$136 million. The large economic benefit (high NPV) of the investments in overhaul of the gas turbine are due to the fact that economic cost of supply from YTPC is substantially lower than the economic cost of supply from the substitute plant (Hrazdan-5 TPP).

93. The activities under the Results Areas 1-3 will generate indirect economic benefits in the form of: (a) avoided cost of un-served electricity demand; and (b) avoided increase in the cost of electricity supply.

94. *Avoided cost of un-served electricity demand*. When Hrazdan 5 and Hrazdan TPP and (the substituting plants for ANPP and YTPC), experience a forced outage, there will be no reliable reserve capacity in the system. Specifically, if severely dilapidated Hrazdan TPP has 10% forced outage rate (not available for 800 hours a year to meet the demand), then this will create an unmet electricity demand of 320 million kWh, which will cost the economy around US$80 million per year.[10]

95. *Avoided increase in the cost of electricity supply*. The substitute generating plants (Hrazdan TPP and Hrazdan-5), which will be run to make up for shortfall of supply from financially distressed YTPC and ANPP, have substantially higher economic costs. The use of the substitute generation facilities will increase the overall annual economic cost of electricity supply by US$150 million.

96. The total indirect annual benefits from the Program are the sum of the above indirect economic benefits, which amount to US$230 million per year and will reach US$250 million per year in 2025. The large indirect economic benefits are due to large avoided increase of electricity supply cost if ANPP and YTPC are replaced by substantially higher-cost generation plants. EIRR and NPV indicators were not calculated for the indirect benefits of the Program given that the Program activities, which generate indirect benefits, do not entail investment costs.

97. Program will also create economic benefits in form of avoided increase in un-served electricity demand due to precluded reduction in reliability of the power distribution. If ENA's financial standing does not improve, that will impact its ability to conduct recurrent repairs, maintenance of infrastructure and invest in modernization of the network. This will result in deterioration of reliability of electricity supply to end-users. The economic benefit of avoided increase in un-served electricity demand due to reduction in reliability of power distribution network was not quantified given the lack of disaggregated input data.

98. *Value Added by the Bank Support*. The Bank has been providing substantial advisory and analytical support to inform the Government thinking on key challenges facing the power sector and measures to address them. The Bank will be able to add substantial value given: (a) the depth of the Bank's analytical engagement in the sector; (b) previous experience with helping the Government fix the financial standing of the sector in late 1990s; and (c) global knowledge and expertise in similar projects.

99. Financial Analysis: The financial analysis of the Program was conducted from the perspective of the Program impact on ANPP and YTPC's financial condition. Specifically, the financial analysis of state-owned power generation companies was conducted to demonstrate the impact of the Program

[10] Estimated assuming a conservative cost of unserved energy at US$0.25/kWh.

on their forecast financial performance. The results of the financial analysis suggest that the proposed program will reduce the financing gap of ANPP and YTPC due to discontinuation of non-core business related activities and refinancing of expensive commercial debts with concessional IBRD resources. The Program activities will improve the liquidity and solvency of both companies because their short-term liabilities will no longer be draining most of the available cash. Presented below is the summary of key ratios of ANPP and YTPC before the Program and after the Program.

100. Implementation of the Program will preclude ANPP from building up expensive commercial debt and enable to save on interest expenses due to lower-than-market interest rate on the refinancing loan and principal repayments over available grace period. Cash from operations is expected to increase to a level sufficient to ensure sustainable debt service for ANPP's loans. Current ratio will reach 2.1 and 0.6 by 2019 respectively from before-Program levels of about 1.8 and 0.

101. Implementation of the Program will contain the build-up of YTPC's debts and enable to save on interest expenses due to lower-than-prevailing interest rate on the refinanced debt and principal repayments over available grace period. Debt service coverage ratio will stay at sustainable levels of at least 1.0. Cash deficit will be gradually eliminated by 2020. Current ratio is expected to jump to above 0.9 and 0.4 respectively from before-Program levels of about 0.77 and 0.01. Efficiency-enhancing repair of CCGT plant in 2018 will be an additional boost to cash flow from operations. As presented in Annex 4, the Program will lead to gradual improvement of financial standing of ANPP and YTPC because the impacts of activities will be materializing over the 5-year implementation period of the Program.

102. The Program will also positively impact the financial performance of ENA by precluding build-up of any financial losses due to mismatch between actual and forecast cost of electricity purchases.

103. The Technical Risk of the Program is Low given that none of the activities is technically complex, all of the measures under the Program are well-tested globally, and there are no substantial difficulties related to their implementation.

104. In summary, the proposed Program has all of the critical building blocks required for delivering results. These include: (a) strong government commitment to achieving agreed results; (b) focus on the key factors that drove the power sector into financial distress; (c) clearly defined interventions, which are technically sound and supported by relevant international experiences; and (d) specific, measurable, relevant, and time-bound results indicators to assess Program performance (those are described further in the next section). Thus, no improvements are proposed to the Program as part of the Program Action Plan.

B. Fiduciary

105. The Program's fiduciary systems and institutions provide overall reasonable assurance that the financing under the Program is used for intended purposes, with due regard to the principles of economy, efficiency, effectiveness, transparency and accountability. The fiduciary risk of the Program is Substantial.

106. **Financial Management**: The financial management assessment of the Program confirmed that the budgeted expenditures under the Program are realistic, prepared with due regard to relevant government policies and will be executed in an orderly and predictable manner.

107. The assessment confirmed that overall adequate Program records are to be maintained and there are overall adequate Program accounting and financial reporting arrangements for implementation. The accounting and financial reporting systems of MENR, ANPP and YTPC are overall adequate, and the quality and timelines of key financial reports, record management and reconciliation of accounts and the usage of financial reports for managerial decision-making are overall satisfactory. As it was agreed, YTPC hired a team of accounting consultants with sufficient experience and knowledge in international accounting standards to enhance the accounting function in place. Meanwhile, YTPC shall retain adequate professional level of accounting staffing.

108. Cash basis accounting will be used for the Program accounting and financial reporting purposes, while for the entities' (ANPP and YTPC) accounting and reporting purposes IFRS is used.

109. Both ANPP and YTPC will prepare semi-annual financial reports[11] on refinancing of commercial loans and repayment of payables, which will be reviewed / confirmed by the MENR to allow verification by an IVA. The reports accompanied by the IVA's verification will be submitted to the Bank for review and disbursement under DLI 5, 6 and 7.

110. MENR will also prepare and submit Program annual audited financial statements that will include disbursements made to ANPP and YTPC. The format of the financial statements, to be presented in US$, was agreed with the Bank by MENR, ANPP and YTPC.

111. For purposes of Program audit and reporting, the Bank will rely on the existing entities' audited financial statements of ANPP and YTPC. The scope of the audit of the entities' financial statements will be extended to include the review and confirmation (or otherwise) by the auditor that the entities did not incur any non-core business related expenditures, borrowing and lending for the period (DLIs 3 and 4).

112. The assessment confirmed that there are adequate treasury management and fund flow systems for the Program implementation. As one of its results areas, the Program will support ANPP and YTPC to reduce the level of their expensive commercial loans and payables. The list of the loans and payables selected and the baseline date are indicated in the Supplemental Letter No. 3.

113. In general, there are overall adequate arrangements for the exercise of control and stewardship of the Program funds. There is overall adequate internal audit function at the MENR. There is an overall adequate internal control system at ANPP and YTPC for the Program implementation. Meanwhile, cases of overriding of internal controls were recently observed at ANPP that led to embezzlement of funds during procurement of goods and equipment required for recurrent repairs and maintenance of the plant. This was possible due to collusion of some previous staff of ANPP

[11] The first financial report will cover the period till June 30, 2016, and will also include the prior result period from February 1, 2016 till the Loan Agreement date. The frequency of the financial report will become once a year starting 2018, when it is expected that all disbursements under DLIs 5 and 6 will be completed, and the reports will only indicate the results under DLI 7.

presented at evaluation committee for procurement of goods. Once the cases were identified, a number of mitigation measures were undertaken by MENR.

114. There are overall adequate independent audit and verification arrangements under the Program, which is planned to be conducted by independent private auditors, acceptable to the Bank, as the capacity of the Chamber of Control (CoC), the Armenian Supreme Audit Institution, is weak. The major constraint for the CoC capacity enhancement is scarcity of financial resources, which limits its ability to attract and retain qualified staff.

115. For the Program audit, the existing independent auditing and reporting arrangements of ANPP and YTPC will be used. Currently both entities use independent auditors, and this arrangement will be continued under the Program. However given the weak oversight function over the quality of audit firms in Armenia, it has been agreed to enhance the existing auditing arrangements by conducting the Program and entities' audits and verifications by external auditors acceptable to the Bank.

116. The Program annual financial statements to be audited will be prepared by MENR based on inputs provided by ANPP and YTPC. The audit of the entities (ANPP and YTPC) and the Program annual financial statements will be conducted (i) by independent private auditors acceptable to the Bank, on terms of reference (TOR) acceptable to the Bank, and (ii) according to the International Standards on Auditing (ISA) issued by the International Auditing and Assurance Standards Board of the International Federation of Accountants (IFAC). The audit of the entities' annual financial statements should be conducted by auditors, which have relevant experience in energy sector. Audited financial statements will be presented to the Bank within 6 months after the end of each reporting period and will be publicly disclosed as required by the Bank's policy on access to information. The same auditor will be appointed to conduct the audit of the Program annual financial statements and the verification of the achievements under DLI 5, 6 and 7. The scope of the audit of the entities' financial statements will be extended to include the review and confirmation (or otherwise) by the auditor that the entities did not incur any non-core business related expenditures, borrowing and lending for the period (DLIs 3 and 4).

117. **Procurement under the Program:** The only procurable expenditures under the Program are: (a) US$12.8 million supply and installation direct contract to replace key components (e.g. rotor blades, stator vanes, heat shields) of the gas turbine at the CCGT plant owned and operated by YTPC. Those components will need to be replaced as part of the periodic maintenance conducted by YTPC due to wear and tear; and (b) US$300,000 of consultant services in 5-year implementation period (6-7 contracts) for the Program audits and IVA to verify achievement of DLIs.

118. The procurement of the goods and works for replacement of key components of gas turbine will be conducted using direct contracting. YTPC has long-term service agreement (until 2026) with the original equipment manufacturer of the gas turbine (Alstom) to conduct the required inspections to assess the condition of the gas turbine, supply the required components to be replaced, and support with replacement works. Both PPL and Bank Procurement Guidelines allow for direct contracting in situations when spare parts/replacement for equipment needs to be purchased from the original equipment manufacturer to ensure compatibility.

119. YTPC will select the IVA for verification of DLI achievement. It has some experience in using the country systems for selection of consultants for similar services (e.g. annual entity audits and specialized technical services). The PPL contains sound stipulations ruling the selection of consultant services. It prescribes a prequalification process, which would lead to a bidding process. The selection could be done following different selections methods, which consider quality and cost similarly to Bank Procurement Guidelines. YTPC will also select the Program auditor(s) and the auditor for its annual financial statements. ANPP will be responsible for selection of the auditor for its annual financial statements. Both ANPP and YTPC have some experience in selecting consultants for small-value assignments, including entity audits and specialized technical consultancy.

120. **Anti-Corruption**: The risk of fraud and corruption under the Program is Moderate. To further reduce the risk of fraud and corruption associated with the Program implementation, it will be aligned to the Anti-Corruption Guidelines (ACG) applicable to PforR operations (Guidelines on Preventing and Combating Fraud and Corruption in Program-for-Results Financing, dated February 1, 2015 and revised July 10, 2015). In particular, the Government will implement the following: (a) Sharing of debarment list of firms and individuals; (b) Sharing of information on fraud and corruption allegations; and (c) Investigation of fraud and corruption allegations (see Annex 5 for details). The implementing agencies will provide full support to the Anti-Corruption Council and the Bank when carrying out investigations related to fraud and corruption allegations made during the Program implementation. The Bank will be informed on all credible and material allegations or other indications together with the investigative and other actions that the Borrower proposed to take with respect thereto. The Bank will retain a right to investigate allegations, and the Borrower will provide the Bank the necessary access to needed persons and information applicable to the Program.

C. Environmental and Social Effects

121. **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.

122. 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.

123. 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.

124. **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 42% 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.

125. Regarding **gender issues** in particular, women disproportionately carry the responsibility for household related work and are vulnerable to costly and unreliable electricity supply. Thus, the proposed operation is expected to translate into positive impacts for women. To that effect, women's questions and inquiries related to the tariff-setting process will be encouraged and monitored.

126. The negative social impact of the Program is the retrenchment of 40 employees of the Haigasard CJSC. 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.

127. 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 (please see the ESSA for more details).

128. Implementation of the improved methodology for adjustment of ENA's margin and revised methodology for computation of YTPC's and Hrazdan TPP's tariffs will require adjustments to end-user tariffs depending on changes in variables that impact the costs of above companies. The end-user tariffs may increase 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. If such tariff increase happens due to adjustment of ENA's margin and thermal power plants' tariffs due to new methodology, then those will be mitigated by the existing social safety net of the Government.

129. 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.[12]

130. As mentioned above, 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. The Government will continue relying on FBP to mitigate the impact of the last tariff increase when the universal electricity subsidy is phased out as of August 1, 2016. The spending on FBP in 2016 are planned at the same level as in 2015 given limited fiscal space due to economic slow-down. Therefore, the existing size of FBP may not be sufficient to mitigate the impact of the increase in electricity tariffs on the poor once the universal subsidy is phased out. Thus, the Government will need to further improve the coverage and targeting of FBP to ensure benefits reach to a large number of vulnerable consumers.

131. 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 through improved coverage and targeting as well as some other measures. 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.
- Conduct 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.
- Develop 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.
- Provide recommendation on improving the Poverty Means Testing (PMT) formula, which will improve the targeting of benefits and allow reducing strong disparities in 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.
- Conduct targeting formula validation survey, including establishment of coherence between household survey and administrative database and collection of key household variables that predict consumption level.
- Conduct 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) evaluation of the impact of tariff increases on households; (c) identification of the

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

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.

132. The Program will promote citizen engagement for activities under the Results Area 3 related to improvements to the methodology of adjustment of ENA's margin and setting of tariffs for YTPC and Hrazdan TPP. Specifically, PSRC will disclose on its web-site and seek feedback from electricity consumers: (a) regarding the proposed changes in the methodology for adjustment of ENA's margin and revised methodology for computation of YTPC's and Hrazdan TPP's tariffs; and (b) on tariff review applications filed by the power sector companies or tariff reviews initiated by PSRC at least once a year. PSRC will respond to questions and inquiries (disaggregated by gender) received from feedback providers. See Annex 6 for details.

133. Communities and individuals who believe that they are adversely affected as a result of a Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance redress mechanism or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

134. The ESSA was disclosed for public feedback through publication in InfoShop and distribution through email to key stakeholders, including the MENR, PSRC, Ministry of Nature Protection, Ministry of Labor and Social Protection, Non-governmental Organizations (NGOs) representing the consumer interests, and Civil Society Organizations (CSO) active in the energy sector.

D. Risk Assessment

135. The overall implementation risk of the Program is Substantial as reflected in Annex 7. The proposed risk rating is due to Substantial Macroeconomic, Sector Strategies and Policy, Fiduciary and Stakeholder Risks. Presented below is the discussion of key risks that were rated as Substantial and relevant mitigation measures.

136. *Macroeconomic Risk is Substantial* because economic growth will remain subdued in the medium term with a sluggish recovery tied to the bottoming out of the crisis in Russia and gradual improvement in external conditions. At the same time, Armenia's macroeconomic framework remains vulnerable given that the reforms needed to ensure new and resilient sources of growth and job creation have been interrupted by global shocks, first in 2008 and then in 2014, with the government needing to re-orient policy priorities towards mitigation and recovery. Another risk is posed by the winding down of the transitory factors that drove growth in 2015. Slow credit and falling metal prices

also suggest that near-term risks are on the downside. The on-track IMF program anchors the government's resolve to maintain a flexible exchange rate within the inflation target and to seek enhanced reserves management. To mitigate risks to the financial system, the CBA has introduced measures to strengthen contingency planning, safety nets, and risk assessments. The authorities are committed to close monitoring of the banks and to intensifying their asset quality review of the most affected banks.

137. *Sector Strategies and Policy Risk is Substantial* given the Government intervention in the financial management decisions (borrowings and lending for non-core business related activities) of the state-owned power sector companies, which impacts the financial condition of those companies. The DLIs under the proposed Program as well as the loan covenants for YTPC under the ongoing Bank-financed Electricity Transmission Network Improvement Project will help eradicate non-core business related expenditures.

138. *Fiduciary Risk is Substantial* given weaknesses identified FM arrangements, including internal controls, accounting, financial reporting, and SOEs governance as well as due to reliance on Direct Contracting for procurement of the gas turbine overhaul. In particular, (i) cases of overriding internal controls at ANPP were previously observed, and (ii) professional quality of the accounting division at YTPC was weak, while recently the YTPC management hired a team of accounting consultants with sufficient experience and knowledge in international accounting standards, to enhance the accounting function in place. Meanwhile, YTPC shall ensure that the accounting staffing acceptable to the Bank is retained for the whole Program implementation period. For details refer to A Summary of Key Fiduciary risk and Mitigation Measures Table in *Annex 5: Summary Fiduciary Systems Assessment.* To mitigate the risks respective time-bound action plan has been agreed (for details refer to Table 14 in Annex 5).

139. *Stakeholder Risk is Substantial* because there may be an opposition to end-user tariff increases, which may be required when methodology for adjustment of ENA's margin and the tariff-setting methodology for thermal power plants are revised to eliminate the current deficiencies contributing to sector's financial distress. Increases in the size of the FBP budget are planned by the Government to partially mitigate the impact of tariff increases. Furthermore, the Bank will provide support to: (a) the Government on improvements to FBP system to further increase coverage and targeting of the poor; (b) to the Government on alternative mechanisms that may be used to mitigate the impact of increasing electricity tariffs (e.g. block tariffs; energy efficiency); and (c) to PSRC and MENR under the ESMAP grant to help educate the stakeholders on tariff-setting principles and importance of cost-recovery tariffs for long-term reliability and adequacy of power supply, thus, helping to build public support for changes in the regulatory framework.

E. Program Action Plan

140. The Program has all of the critical building blocks required for delivering results. These include: (a) strong government commitment to achieving agreed results; (b) focus on the key factors that drove the power sector into financial distress; (c) clearly defined interventions, which are technically sound and supported by relevant international experiences; and (d) specific, measurable, and relevant indicators to assess Program performance (those are described further in the next section). Thus, no improvements are proposed to the Program as part of the Program Action Plan. However, the

Government will need to implement the below steps related to the Program, which are not related to its substantive aspect.

Action Description	DLI	Covenant	Due Date	Responsible Party	Completion Measurement
Include the Program budget into the state budget for 2016	No	No	May 31, 2016	MENR	Planned program expenditures for 2016 are included in the state budget using the budget amendment process
Include the Program review into the annual work-plan of the internal audit unit of the MENR	No	No	May 31, 2016	MENR	The work-plan of internal audit department, containing the Program review, is approved by the Minister of Energy and Natural Resources

Annex 1: Detailed Program Description

A. Background

1. The proposed Program Development Objective is to support the Borrower's efforts to ensure adequate and reliable electricity supply through improvement of financial standing of the state-owned power generation companies and the private power distribution company. The proposed Program focuses on a number of key activities of the Government's new 5-year program (2016 - Dec. 31, 2021) for financial recovery of the power sector. The Program, supported under the proposed PfoR, is based on the Government program and there is no ambiguity over its boundaries. The proposed PforR is expected to help restoring the financial standing of the power sector, and, therefore, contribute to ensuring adequate and reliable electricity supply. The funds will be disbursed against achievement of results, which are the priority actions for restoring the financial standing of state-owned power generation companies and the private power distribution company.

B. Description of the Program

2. The proposed PforR supports the below key activities under the Government Program. The focus of the Program was determined based on the following considerations: (a) the most urgent measures to avoid impending insolvency of the state-owned generation companies and continued distress of the private power distribution company with negative consequences on adequacy and reliability of electricity supply in the country; and (b) supporting productive expenses, which are essential from perspective of long-term adequacy and reliability of electricity supply in the country (overhaul of the gas turbine at YTPC's CCGT plant).

3. **Results Area 1*:* Elimination of cash outflows of state-owned power companies for non-core business related reasons.** This includes:

(a) *Decision by the Shareholder's Meeting of state-owned power generation companies to prohibit the non-core business related expenditures, lending and borrowing by those companies.* The *decision* of the Shareholder's Meeting will ensure that state-owned power companies do not incur expenditures, lend resources to Nairit Chemical Plant or other entities or borrow for reasons not related to their core business activities. The core businesses of ANPP and YTPC will be clearly defined in the respective decisions.

(b) The core business for YTPC are the generation services, which means the production of electric and/or thermal energy at generation facilities owned or controlled by YTPC and sold or to be sold to electricity and/or heat distribution networks, and/or exported or to be exported. The core business for ANPP are the generation services, which means the production of electric energy at generation facilities owned or controlled by ANPP and sold or to be sold to the electricity distribution networks, and/or exported or to be exported.

(c) *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.

4. The Government will need to prepare, adopt and implement the liquidation plan for Haigasard. Liquidation process will include the following steps:

- MENR prepares and the Shareholder's Meeting approves the liquidation plan;
- The shareholder's Meeting adopts the decision on liquidation and creation of a liquidation committee;
- The shareholder's Meeting approves the final balance sheet and determines the procedure and terms of liquidation, as well as the procedure of distribution of the property left after meeting creditor claims;
- The liquidation committee requests the state registry of legal entities to change the status of the company as being "in the process of liquidation."
- From the time a liquidation committee is appointed, it will receive the rights to manage the company.
- The liquidation committee posts an announcement about the company's liquidation and the conditions and deadline for submission of creditor claims on the official website for public announcement of the Republic of Armenia, www.azdarar.am. The deadline cannot be shorter than two months after the placement of the announcement.
- The liquidation committee re-evaluates the company's property, takes measures to discover creditors and collect receivables, and informs creditors about the company's liquidation.
- When the deadline for submission of creditor claims expires, the liquidation committee prepares an interim liquidation balance sheet, which shall contain information on the composition of company's property, the list of creditor claims received, as well as the results of claim review.
- The interim liquidation balance sheet is approved by the Shareholder's Meeting.
- If the company does not have sufficient cash to satisfy creditor claims, then the liquidation committee sells the property in a public auction in the manner stipulated by the legislation.
- The liquidation committee makes payment to creditors in the sequence stipulated by the Civil Code of the Republic of Armenia, and in line with the interim liquidation balance sheet.
- The property of the company is divided amongst its shareholders in the manner stipulated by Law on Joint Stock Companies Having and after satisfying all creditor claims.
- The liquidation committee prepares a liquidation balance sheet, which shall be approved by the shareholder's meeting. The liquidation committee submits the approved liquidation balance sheet and the other documents stipulated by legislation to the body carrying out state registration of legal entities to register the company's liquidation. The liquidation will be deemed completed upon its state registration.

5. **Results Area 2: Reduction of expensive commercial loans of state-owned power generation companies, recovery of receivables, and repayment of YTPC's payable for natural gas.** This will be achieved through:

(a) *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 around US$0.85 million during the grace period (14.5 years) and US$2.9 million per year thereafter with declining schedule. YTPC and ANPP would substantially reduce debt service costs, thus, increasing funds available for better maintenance of assets.

(b) *Recovery of receivables*. The Government has negotiated with ENA a schedule for recovery of state-owned power generation companies' receivables for electricity sales. The scheduled assumes repayment of receivables by the end of 2016. ENA owes to state-owned power generation companies US$30.7 million (US$19.2 million to YTPC and US$11.5 million to ANPP).

(c) *Repayment of payables*. YTPC will start gradually repaying the payables totaling US$80.7 million. The support under the proposed PforR will be limited only to YTPC's US$25 million payable associated with purchase of natural gas for generating electricity for domestic needs. The payable will be repaid using the additional cash inflows under the Program: (a) recovery of receivables from ENA and (b) disbursements under the proposed IBRD loan. The repayment of the remaining US$56 million payable to Gazprom Armenia will not be part of this operation, and it will be repaid using recovery of debts from chemical plants and profits of YTPC. The Government is currently negotiating with Gazprom Armenia CJSC a long-term schedule for repayment of the balance of payables.

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

(a) *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 margin driven by the cost of electricity purchased by ENA during the preceding tariff period plus interest cost (income).

(b) Under the existing License, the PSRC revises ENA's margin at least once a year in a way to allow the recovery of the loss due to difference between actual and forecast generation mix in equal installments within 3-year period and without any interest cost on working capital attracted to finance such loss. The proposed amendment of the License will mandate PSRC to adjust the revenue requirement of ENA for each subsequent tariff period to include 100% of the difference between the forecast and actual cost of electricity generation plus the interest on working capital. The weighted average cost of electricity generation is the cost of sales/energy for ENA given that it is the single buyer of electricity under the existing power sector structure. In case ENA earns extra profit if forecast cost of generation exceeds the actual, then margin will be revised downward accordingly.

(c) *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 AMD/US$ exchange rate.* The PSRC will revise the existing tariff-setting methodology to allow the tariffs of large thermal power plants, (including YTPC and Hrazdan TPP) 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, which may be fluctuating due to difference between forecast and actual US$/AMD exchange rate.

7. Historically, there has been no compensation of losses of YTPC and Hrazdan TPP incurred due increase of gas costs driven by depreciation of local currency (AMD). This jeopardizes financial sustainability because gas costs account for almost 85% of the total costs of those thermal power plants. The gas tariff for thermal power plants is fixed in US$ and the entities pay the local currency equivalent using the AMD/US$ official exchange rate of the Central Bank of Armenia as of the 25th of the month preceding the billing month. Therefore, if US$ appreciates relative to local currency, then the actual price paid by the above thermal power plants increases. Historically, when the thermal plants submitted tariff review filings to PSRC, the PSRC used to reject compensation of additional gas costs incurred for the reason of depreciation of local currency. For example, since April 2014, YTPC and Hrazdan TPP incurred a combined loss of US$5 million, which were not compensated during June 2015 tariff increase. Those losses had to be absorbed by the entities with very limited return on assets and depreciation expenses.

8. **Results Area 4: Maintaining the generation capacity of the gas turbine at YTPC's CCGT plant.** In order to retain the generation capacity of the gas turbine, YTPC will need to conduct regular overhauls. Gas turbines require overhauls after 36,000 equivalent operating hours (EOH) during which some components of the gas turbines are replaced because they are exposed to stress caused by temperature or static and dynamic loading, low-cycle fatigue and high-cycle fatigue, erosion, high-temperature corrosion as well as mechanical stress and wear. The most recent overhaul was done in the summer of 2014 and the next one is planned in spring of 2018. The replacement of rotor blades, stator vanes, and some other components of the gas turbine will allow improving the reliability of the generating unit, reduce the frequency of planned and forced outages, and maintain the rated output. 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.

9. The consultant services under the Program will include annual Program audits and IVAs. The total cost of the consultant services is estimated at US$300,000 during the implementation of the Program. There will be a total of 6-7 consultant contracts.

C. Implementation Arrangements of the Program

10. MENR will be responsible for overall implementation of the Program activities under the Results Areas 1, 2, and 4, including coordination and supervision of the implementation of the Program activities that will need to be implemented by the state-owned ANPP and YTPC at the entity level (Results Area 2).

11. MENR has the required functional division of responsibilities and adequately qualified staff to ensure timely implementation of the Program. The decision-making authority is clear and unambiguous and there is a clear chain of reporting. Specifically, the Deputy Minister of Energy and Natural Resources, which is responsible for financial and economic matters in the sector, will be coordinating the overall implementation of the Program under the appropriate Results Areas. The Economic-Financial Department (which directly reports to the Deputy Minister) will be responsible

for daily implementation of the Program activities under the Results Areas, which are the responsibility of MENR:

(a) Draft and adopt the decisions for the Shareholder's Meeting to prohibit the non-core business expenditures, lending and borrowing by state-owned generation companies;

(b) Agree on the text of the decision with the key stakeholders, which include representatives from other government bodies;

(c) Control and supervise state-owned power generation companies' repayments of principal amounts of commercial loans, specified in the Supplemental Letter No.3; and

(d) Prepare and implement the liquidation plan of Haigasard.

12. PSRC will be responsible for Results Area 3 related to regular adjustment of the ENA's margin and thermal power plants' tariffs. PSRC is adequately staffed and has the required functional division to implement the relevant activities. The decision-making authority is clear and unambiguous and there is a clear chain of reporting. Specifically, the Tariff Department will be responsible for implementation of those activities with inputs from other relevant departments, including the Financial Department and the Legal Division.

13. YTPC will be responsible for implementation of Results Area 4 related to overhaul of the gas turbine at its existing CCGT plant. YTPC has the required technical expertise, management skills, and experience in conducting such overhaul with support from the original equipment manufacturer under the long-term service agreement.

14. The financial management function under the Program will be assigned to the MENR as well as ANPP and YTPC. The MENR will also be responsible for coordination activities under the Program and between the ANPP and YTPC.

15. YTPC will be responsible for the procurement under the Program. Specifically, YTPC will conduct selection of the IVA and the annual Program auditors. YTPC will also be responsible for procurement of goods and services for overhaul of the gas turbine at its CCGT plant.

16. The funds will be disbursed directly to the Program's two segregated accounts, which will be opened for and managed by ANPP and YTPC. The Bank will disburse funds based on the submission of verified information on the performance of the DLIs.

17. MENR will be responsible for oversight over the Project accounting and financial reporting arrangements. It will be responsible for submission of Program financial/monitoring reports to be verified / audited by Independent Verification Agent (IVA)/auditor. MENR will be responsible for ensuring that YTPC selects and appoints the required IVAs and the auditor for the annual Program audit.

18. MENR will be responsible for implementing the retrenchment of Haigasard staff in a manner consistent with the requirements of the local legislation. MENR has the required capacity to

implement it as it has recently completed retrenchment of 1800 workers of Nairit chemical plant. YTPC will be responsible for environmental compliance of gas turbine overhaul works with the requirements of the local legislation. YTPC has an environmental consultant, which will ensure that the overhaul of the gas turbine is done in accordance with the requirements of the local legislation.

19. Implementation agreements (Subsidiary Agreements) will be signed: (i) between MOF and ANPP and (ii) between MOF and YTPC, for the purposes of implementing by ANPP and YTPC their respective activities under the Program. The IBRD Loan proceeds will be made available to ANPP and YTPC as sub-loans.

Annex 2: Results Framework Matrix

Program Development Objective: 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

PDO Level Results Indicators	Core	DLI	Unit of Measure	Baseline	Target Values					Frequency	Data Source / Methodology	Responsibility for Data Collection
					2016	2017	2018	2019	2020			
PDO Indicator One: Total annual electricity supply by ANPP is maintained	☐	☐	GWh	2300[13]	At least 2300	-[14]	At least 2300	At least 2300	At least 2300	Annual	Settlement Centre	MENR
PDO Indicator Two: Total annual electricity supply by YTPC is maintained	☐	X	GWh	1400[15]	At least 1400	At least 1400	At least 1400	At least 1400	At least 1400	Annual	Settlement Centre	MENR
PDO Indicator Three: Average interruption frequency per year in the project area[16] is maintained	X	☐	Number	1.1[17]	Equal to or less than 1.1	Equal to or less than 1.1	Equal to or less than 1.1	Equal to or less than 1.1	Equal to or less than 1.1	Annual	PSRC	MENR
Customers served in the project area[18]	X	☐	Number Sub-Type Supplemental	1,040,000	1,040,000	1,040,000	1,040,000	1,040,000	1,040,000	Annual	ENA/PSRC	MENR
PDO Indicator Four: Direct Project Beneficiaries[19]	X	☐	Number	3,018,000[20]	3,026,000	3,032,000	3,035,000	3,037,000	3,038,000	Annual	UN World Population Prospects Report	MENR

13 Average for 2012-2014.
14 ANPP will be stopped for one year for maintenance and other investments in 2017.
15 Average for 2012-2014.
16 Interruption of service due to planned maintenance works, unplanned repair works, and equipment failures at the distribution network level.
17 Actual for 2013.
18 The total number of electricity service customers/connections in the country. The target values are based on the UN Population Prospects Report, 2013.
19 The total population in the country given that the project will generate country-wide benefits.
20 The annual interpolated mid-year population as per UN forecast under medium variant. The baseline is the estimate for 2015. Source: World Population Prospects, The 2015 Revision, Volume 1.

Results Area 1: Elimination of cash outflows of state-owned power companies for non-core business related reasons											
Intermediate Result Indicator One: No new non-core business related expenditures, borrowing and lending incurred by ANPP	☐	X	Text	No	Yes	Yes	Yes	Yes	Yes	Annual	Audited annual financial statements of ANPP	MENR
Intermediate Result Indicator Two: No new non-core business related expenditures, borrowing and lending incurred by YTPC	☐	X	Text	No	Yes	Yes	Yes	Yes	Yes	Annual	Audited annual financial statements of YTPC	MENR
Intermediate Result Indicator Three: Liquidation of Haigasard	☐	X	Text	No	Decision on liquidation is made and liquidation plan is approved by the Shareholder's Meeting	-	Revaluation of assets is completed	-	Liquidation is completed and registered by the authorized state agency	Annual	MENR report with description of key steps undertaken as part of the liquidation	MENR
Intermediate Result Indicator Four: Reduction of cash deficit of ANPP due to the Program	☐	☐	Million US$	18.5	11.4	No deficit	No deficit	No deficit	No deficit	Annual	Audited annual financial statements of ANPP	MENR
Intermediate Result Indicator Five: Reduction of cash deficit of YTPC due to the Program	☐	☐	Million US$	85.4	56.5	49.3	47.7	464	44.8.	Annual	Audited annual financial statements of YTPC	MENR
Results Area 2: Reduction of expensive commercial loans of state-owned power generation companies, recovery of receivables, and repayment of YTPC's payable for natural gas											
Intermediate Results Indicator Six: Reduction of the principal amount of outstanding commercial loans of ANPP to be refinanced under the Program	☐	X	Million US$	0.0	6.6	1.9	n/a	n/a	n/a	Annual	Audited annual financial statements, accounting records and other financial data of ANPP	MENR based on the report from IVA
Intermediate Results Indicator Seven:	☐	X	Million US$	0.0	3.3	1.3	n/a	n/a	n/a	Annual	Audited annual	MENR

Reduction of the principal amount of outstanding commercial loans of YTPC to be refinanced under the Program											financial statements, accounting records and other financial data of ANPP	
Intermediate Results Indicator Eight: Recovery of ANPP's receivables from ENA	☐	☐	Million US$	0.0	15.0	n/a	n/a	n/a	n/a	Annual	Audited annual financial statements, accounting records and other financial data of ANPP	MENR
Intermediate Results Indicator Nine: Recovery of YTPC's receivables from ENA	☐	☐	Million US$	0.0	25.0	n/a	n/a	n/a	n/a	Annual	Audited annual financial statements, accounting records and other financial data of ANPP	MENR
Intermediate Results Indicator Ten: Reduction of YTPC's gas payable under Contract referred to in Supplemental Letter No. 3	☐	X	Billion AMD	12.16	10.66	6.16	5.16	4.16	3.86	Annual	Audited annual financial statements, accounting records and other financial data of ANPP	MENR
Results Area 3: End-user tariffs reflecting changes of electricity supply costs												
Intermediate Results Indicator Eleven: Loss (profit) at the private power distribution company due to difference between actual and forecast cost of electricity purchased.	☐	☐	Text	Yes	No	No	No	No	No	Annual	PSRC	MENR
Intermediate Results Indicator Twelve: Loss (profit) at YTPC due to US$/AMD exchange rate	☐	☐	Text	Yes	No	No	No	No	No	Annual	PSRC	MENR

fluctuation driven changes to AMD denominated payments for natural gas.												
Intermediate Results Indicator Thirteen: Percent of tariff-setting related questions and inquiries (gender-disaggregated) responded to by PSRC within stipulated service standards for response time[21]	☐	☐	Percentage	100%	100%	100%	100%	100%	100%	Annual	PSRC	MENR
Intermediate Results Area 4: Maintaining the generation capacity of the gas turbine at YTPC's CCGT plant												
Intermediate Results Indicator Fourteen: Overhaul of the gas turbine at YTPC's CCGT plant	☐	☐	Text	-	n/a	Inspection completed	Overhaul is completed and the CCGT plant is in operation	n/a	n/a	Annual	YTPC	MENR

[21] Within 15 business days for information/data requests and within 30 business days for complaints.

Indicator Description

Program Development Objective Indicators

Indicator Name	Description (indicator definition etc.)
Total annual electricity supply by ANPP is maintained	This indicator measures the electricity supplied by ANPP to the power transmission network.
Total annual electricity supply by YTPC is maintained	This indicator measures the electricity supplied by YTPC to the power transmission network.
Average interruption frequency per year in the project area is maintained	This indicator measures the average number of interruptions per year in the project area. The indicator is computed by dividing the total number of customer interruptions in a year by the total number of customers in the project area. The project area for the purposes of this Program includes the entire country.
Direct project beneficiaries	Direct beneficiaries are people or groups who directly derive benefits from an intervention.

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)
No new non-core business related expenditures, borrowing and lending incurred by ANPP	This indicator measures the progress towards discontinuing the expenditures, lending and borrowing of ANPP for activities, which are not related to its core business of electricity generation.
No new non-core business related expenditures, borrowing and lending incurred by YTPC	This indicator measures the progress towards discontinuing the expenditures, lending and borrowing of YTPC for activities, which are not related to its core business of electricity and heat generation.
Liquidation of Haigasard	This indicator measures the progress with liquidation of Haigasard.
Reduction of cash deficit of ANPP due to Program	No explanation provided. For the purposes of this Program, the cash deficit of ANPP is calculated as the sum of the total amount of outstanding commercial loans of ANPP + payables + backlog of expenditures.
Reduction of cash deficit of YTPC due to Program	No explanation provided. For the purposes of this Program, the cash deficit of YTPC is calculated as the sum of the total amount of outstanding commercial loans of YTPC + payables + backlog of expenditures.
Reduction of the principal amount of outstanding commercial loans of ANPP to be refinanced under	This indicator measures the progress with reduction of the principal amounts of outstanding commercial loans due to improvement of the financial condition of ANPP resulting from the

the Program	impacts of the Program activities.
Reduction of the principal amount of outstanding commercial loans of YTPC to be refinanced under the Program	This indicator measures the progress with reduction of the principal amounts of outstanding commercial loans due to improvement of the financial condition of YTPC resulting from the impacts of the Program activities.
Recovery of ANNPP’s receivables from ENA	This indicator measures the progress with repayment by ENA of accumulated debts for electricity purchased from ANPP.
Recovery of YTPC’s receivables from ENA	This indicator measures the progress with repayment by ENA of accumulated debts for electricity purchased from YTPC.
Reduction of YTPC's gas payable under Contract referred to in Supplemental Letter No. 3	This indicator measures the progress with reduction of YTPC’s payable under this particular contract for purchase of natural gas to generate electricity for domestic supply.
Loss (profit) at the private power distribution company due to difference between actual and forecast cost of electricity purchased	This indicator measures impacts of improved tariff-setting for ENA, which is important for its long-term financial viability.
Loss (profit) at YTPC due to US$/AMD exchange rate fluctuation driven changes to AMD denominated payments for natural gas.	This indicator measures impacts of improved tariff-setting for YTPC and Hrazdan TPP, which is important for their long-term financial viability.
Percent of tariff-setting related questions and inquiries (gender-disaggregated) responded to by PSRC within stipulated service standards for response time	This indicator measures efficiency of citizen engagement under the Program.
Overhaul of the gas turbine at YTPC’s CCGT plant	No explanation provided.

Annex 3: Disbursement Linked Indicators, Disbursement Arrangements and Verification Protocols

Disbursement-Linked Indicator Matrix

				Time frame for achievement of DLI						
	Total financing allocated to DLI	**% of total financing**	**DLI baseline**	**1S 2016**	**2S 2016**	**1S 2017**	**2S 2017**	**2018**	**2019**	**2020**
Results Area 1: Elimination of cash outflows of state-owned power companies for non-core business related reasons										
DLI 1: Decision at the shareholder meetings of ANPP and YTPC, prohibiting the non-core business related expenditures, lending and borrowing by the above companies.			No decision	Decision is made	-	-	-	-	-	-
Amount allocated (US$ million)	2.832	9%		2.832	-	-	-	-	-	-
DLI 2: Liquidation of Haigasard			Exists as legal entity	Exists as legal entity	Decision on liquidation is made and liquidation plan is approved by the Shareholder's Meeting			Revaluation of assets is completed		Liquidation is registered by the authorized state agency
Amount allocated (US$ million)	2.000	7%		-	1.0	-	-	0.5	-	0.5
DLI 3: No new non-core business related expenditures, borrowing and lending incurred by ANPP			ANPP incurs non-core business related expenditures	-	-	Yes	-	Yes	Yes	Yes
Amount allocated (US$ million)	2.500	8%		-	-	1.90	-	0.20	0.20	0.20

DLI 4: No new non-core business related expenditures, borrowing and lending incurred by YTPC			YTPC incurs non-core business related expenditures	-	-	Yes	-	Yes	Yes	Yes
Amount allocated (US$ million)	2.500	8%		-	-	1.90	-	0.20	0.20	0.20
Results Area 2 : Reduction of the outstanding principal amounts of YTPC' and ANPP's commercial loans										
DLI 5: Reduction of principal amount of outstanding commercial loans of ANPP (in million US$)			0.00	2.17	2.83	3.52	-	-	-	-
Amount allocated (US$ million)	4.260	14%		1.086	1.414	1.760	-	-	-	-
DLI 6: Reduction of principal amount of outstanding commercial loans of YTPC (in million US$)			0.00	1.000	1.600	2.000	-	-	-	-
Amount allocated (US$ million)	2.300	8%		0.500	0.800	1.000	-	-	-	-
DLI 7: Reduction of YTPC's gas payable under Contract referred to in Supplemental Letter No. 3 (in billion AMD)			12.16	10.66	9.66	8.16	6.16	5.16	4.16	3.86
Amount allocated (US$ million)	4.982	17%		0.90	0.60	0.90	1.20	0.60	0.60	0.182
Results Area 3: End-user tariffs reflecting changes of electricity supply costs										
DLI 8: ENA's margin for each new tariff period fully reflects the loss (revenue) accrued due to difference between the forecast and actual cost of electricity purchased by ENA during the preceding tariff period			No	-	Yes	-	Yes	Yes	Yes	Yes
Amount allocated (US$ million)	2.000	7%		-	1.00	-	0.40	0.20	0.20	0.20
DLI 9: Tariffs for YTPC and Hrazdan TPP for each new tariff period fully reflect the loss (revenue) resulting from difference between forecast and actual cost of purchased natural gas due to fluctuation of			No	-	Yes	-	Yes	Yes	Yes	Yes

AMD/US$ exchange rate during the preceding period										
Amount allocated (US$ million)	2.000	7%		-	1.00	-	0.40	0.20	0.20	0.20
Results Area 4: Maintaining the generation capacity of the gas turbine at YTPC's CCGT plant										
DLI 10: Electricity supplied by YTPC			1400 GWh	At least 1400 GWh		At least 1400 GWh		At least 1400 GWh	At least 1400 GWh	At least 1400 GWh
Amount allocated (US$ million)	4.551	15%			1.721		1.630	0.400	0.400	0.400
Total Disbursements	**29.925**	**100%**		**5.317**	**7.536**	**7.460**	**3.630**	**2.300**	**1.800**	**1.882**

DLI Verification Protocol Table

DLI	Definition/ Description of achievement	Scalability of Disbursements (Yes/No)	Protocol to evaluate achievement of the DLI and data/result verification		
			Data source/agency	**Verification Entity**	**Procedure**
DLI 1: *Decision* at the shareholder meetings of ANPP and YTPC, prohibiting the non-core business related expenditures, lending and borrowing by the above companies.	The target will be considered achieved if the shareholder meetings of ANPP and YTPC makes a *decision* prohibiting non-core business related expenditures, lending and borrowing.	No	Data source: Copies of the decisions by the Shareholder's Meeting of ANPP and YTPC, Agency: MENR	Independent Verification Agent (IVA), i.e. a law firm, under TOR acceptable to the World Bank.	Review by IVA of the *decision* to determine whether those are legally binding upon the relevant entities.
DLI 2: Liquidation of Haigasard					
- *Decision* on liquidation is made and liquidation plan is approved by the Shareholder's Meeting	The target will be considered achieved if the Shareholder's Meeting makes the decision on liquidation and approves the liquidation plan.	No	Data source: Copy of the Shareholder's Meeting's *decision* on liquidation and approval of the liquidation plan and a copy of the liquidation plan. Agency: MENR	IVA, i.e. a law firm, under TOR acceptable to the World Bank.	Review by IVA of the Shareholder's Meeting's decision to confirm it is consistent with the Armenian legislation and legally binding; and review of the liquidation plan and the Shareholder's Meeting's approval to confirm whether the liquidation plan: (a) covers all key aspects and steps required for liquidation of entities under the applicable Armenian legislation; (b) does not contain provisions contradicting the Armenian legislation; and (c) contains a time-table for liquidation with clear indication of responsibilities of involved parties.
- Revaluation of assets is completed.	The target will be considered achieved if revaluation of assets is completed.	No	Data source: Information from MENR on all key liquidation steps undertaken as per local legislation. Agency: MENR	IVA, i.e. a law firm, under TOR acceptable to the World Bank.	Review by IVA of the report on revaluation of assets to confirm whether it was done in compliance with applicable standards for this kind of activity as stipulated in the applicable legislation of the country.

DLI	Definition/ Description of achievement	Scalability of Disbursements (Yes/No)	Protocol to evaluate achievement of the DLI and data/result verification		
			Data source/agency	Verification Entity	Procedure
- Liquidation is completed and registered by the authorized state agency.	The target will be considered achieved if the authorized government body registers the liquidation of Haigasard, which is the final step in the liquidation process.	No	Data source Information from MENR on all key liquidation steps undertaken as per local legislation. Agency: MENR	IVA, i.e. a law firm, under TOR acceptable to the World Bank.	Review by IVA to confirm whether liquidation of Haigasard was registered by the authorized state agency in compliance with relevant legislation of the country and it constitutes the final step in liquidation process.
DLI 3: No new non-core business related expenditures, borrowing and lending incurred by ANPP.	The target will be considered achieved if ANPP incurs no new non-core business related expenditures and do not provide and take any new non-core business related loans.	No	Data source: Annual financial statements and other accounting records of ANPP. Agency: MENR	IVA, i.e. an audit firm, acceptable to the World Bank.	Review by IVA of the annual financial statements and other accounting and financial records, data and information of ANPP to confirm absence of non-core business related expenditures, borrowing and lending.
DLI 4: No new non-core business related expenditures, borrowing and lending incurred by YTPC.	The target will be considered achieved if YTPC incurs no new non-core business related expenditures and do not provide and take any new non-core business related loans.	No	Data source: Annual financial statements and other accounting records of YTPC. Agency: MENR	IVA, i.e. an audit firm, acceptable to the World Bank.	Review by IVA of the annual financial statements and other accounting and financial records, data and information of YTPC to confirm absence of non-core business related expenditures, borrowing and lending.
DLI 5: Reduction of the principal amount of outstanding commercial loans of ANPP.	The target will be considered achieved if ANPP reduces the outstanding commercial loans.	Yes	Data source: Financial statements, accounting records and other financial data of ANPP. Agency: MENR	IVA, i.e. an audit firm, acceptable to the World Bank.	Review by IVA of the financial statements, accounting records and other financial data of ANPP and comparison with the base-line level (established through independent audit) and target levels.
DLI 6: Reduction of the principal amount of outstanding commercial loans of YTPC.	The target will be considered achieved if YTPC reduces the outstanding commercial loans.	Yes	Data source: Financial statements, accounting records and other financial data of YTPC. Agency: MENR	IVA, i.e. an audit firm, acceptable to the World Bank.	Review by IVA of the financial statements, accounting records and other financial data of YTPC and comparison with the base-line level

DLI	Definition/ Description of achievement	Scalability of Disbursements (Yes/No)	Protocol to evaluate achievement of the DLI and data/result verification		
			Data source/agency	**Verification Entity**	**Procedure**
					(established through independent audit) and target levels.
DLI 7: Reduction of YTPC's gas payable under Contract referred to in Supplemental Letter No. 3	The target will be considered achieved if cumulative reduction of the gas payable is not less than the target specified in DLI matrix for each time period	Yes	Data source: Financial statements, accounting records and other financial data of YTPC.	IVA, i.e. an audit firm, acceptable to the World Bank	Review by IVA of the financial statements, accounting records and other financial data of YTPC and comparison with the base-line level (established through independent audit) and target levels.
DLI 8: ENA's margin for each new tariff period fully reflects the loss (profit) accrued due to difference between the forecast and actual cost of electricity purchased by ENA plus the associated interest expense (revenue).	The target will be considered achieved if ENA's margin is revised by PSRC at least once a year and for each new tariff period fully reflects the loss (revenue) accrued due to difference between the forecast and actual cost of electricity purchased by ENA during the preceding tariff period.	No	Data source: (a) tariff margin computation for ENA for tariff period subject to review with break-down by main line item costs as published and approved by PSRC; (b) data from PSRC on approved tariffs for all large generating plants for the period preceding the tariff review period; and (c) forecast generation numbers used by the PSRC, provided by EPSO, to compute the tariffs for the preceding period; and (d) actual generation numbers reported by the Settlement Centre. Agency: MENR	IVA, i.e. a financial consultant, under TOR acceptable to the World Bank.	Review by IVA of the ENA margin approved by the PSRC to confirm that it fully reflects the loss (revenue) accrued due to difference between the forecast and actual cost of electricity purchased by ENA
DLI 9: Tariffs for YTPC and Hrazdan TPP for each new tariff period fully reflect the loss (profit) resulting from difference between forecast and actual cost of purchased natural gas due to fluctuation of AMD/US$ exchange rate during the preceding period.	The target will be considered achieved if the tariffs for YTPC and Hrazdan TPP are revised by PSRC at least once a year and for each new tariff fully reflect the loss (revenue) accrued due to difference between forecast and actual cost of natural gas purchased during preceding tariff period.	No	Data source: (a) regulation for adjustment of exchange rate fluctuation driven fuel cost changes for YTPC and Hrazdan TPP; (b) tariff computation for YTPC and Hrazdan TPP for tariff period subject to review with break-down by main line item costs (including cost of natural gas) as published and approved by PSRC; (c) data	IVA, i.e. a financial consultant, under TOR acceptable to the World Bank.	Review by IVA of tariffs for YTPC and Hrazdan TPP to confirm they fully reflect the changes in the cost of natural gas due to changes in US$/AMD exchange rate.

DLI	Definition/ Description of achievement	Scalability of Disbursements (Yes/No)	Protocol to evaluate achievement of the DLI and data/result verification		
			Data source/agency	Verification Entity	Procedure
			from PSRC on gas tariffs effective for subject thermal power plants during the period for which compensation is computed; and (d) actual generation numbers of YTPC and Hrazdan TPP as reported by the Settlement Centre. Agency: MENR		
DLI 10: Electricity supplied by YTPC.	The target will be considered achieved if YTPC supplies to the power transmission network the specified amount of electricity in GWh.	No	Data source: Meters of YTPC at its substation registering the amount of electricity supplied to the power transmission network. Agency: YTPC	The Settlement Centre.	Settlement Centre to report the annual amount of electricity supplied by YTPC to the power transmission network.

Bank Disbursement Table

DLI	Bank financing allocated to the DLI (million US$)	Of which Financing available for		Deadline for DLI Achievement	Minimum DLI value to be achieved to trigger disbursements of Bank Financing	Maximum DLI value(s) expected to be achieved for Bank disbursements purposes	Determination of Financing Amount to be disbursed against achieved and verified DLI value(s)
		Prior results (US$ million)	Advances (US$ million)				
DLI 1: *Decision* at the shareholder meetings of ANPP and YTPC, prohibiting the non-core business related expenditures, lending and borrowing by the above companies.	2.832	0.00	0.68	June 30, 2016	Shareholders of ANPP and YTPC have met and made a decision prohibiting their non-core business related expenditures, lending and borrowing.	N/A	100% disbursement for compliance
DLI 2: Liquidation of Haigasard.							
- *Decision* on liquidation is made and liquidation plan is approved by the Shareholder's Meeting	1.00	0.00	0.48	Dec. 31, 2016	The Shareholder's Meeting approved the liquidation plan for Haigasard.	N/A	100% disbursement for compliance
- Revaluation of assets is completed.	0.50	0.00		Dec. 31, 2018	Haigasard completed revaluation of assets.	N/A	100% disbursement for compliance
- Liquidation is completed and registered by the authorized state agency.	0.50	0.00		Dec. 31, 2020	The State Register of the Legal Entities of the Ministry of Justice of Republic of Armenia registered the liquidation of Haigasard.	N/A	100% disbursement for compliance
DLI 3: No new non-core business related expenditures, borrowing and lending incurred by ANPP.	2.50	0.00	0.60	- For the period from the date of signing of the Loan Agreement till the end of the Borrower's fiscal year 2016: June 30, 2017 - For Borrower's fiscal year 2017: June 30, 2018 - For Borrower's	No new non-core business related expenditures, borrowing and lending by ANPP.	N/A	100% disbursement for compliance

DLI	Bank financing allocated to the DLI (million US$)	Of which Financing available for		Deadline for DLI Achievement	Minimum DLI value to be achieved to trigger disbursements of Bank Financing	Maximum DLI value(s) expected to be achieved for Bank disbursements purposes	Determination of Financing Amount to be disbursed against achieved and verified DLI value(s)
		Prior results (US$ million)	Advances (US$ million)				
				fiscal year 2018: June 30, 2019 - For Borrower's fiscal year 2019: June 30, 2020 - For Borrower's fiscal year 2020: June 30, 2021			
DLI 4: No new non-core business related expenditures, borrowing and lending incurred by YTPC	2.50	0.00	0.60	- For the period from the date of signing of the Loan Agreement till the end of the Borrower's fiscal year 2016: June 30, 2017 - For Borrower's fiscal year 2017: June 30, 2018 - For Borrower's fiscal year 2018: June 30, 2019 - For Borrower's fiscal year 2019: June 30, 2020 - For Borrower's fiscal year 2020: June 30, 2021	No new non-core business related expenditures, borrowing and lending YTPC	N/A	100% disbursement for compliance
DLI 5: Reduction of the principal amount of outstanding commercial loans of ANPP	4.26	1.086	1.03	- For the period from Feb. 1, 2016 till the day preceding the date of signing of the Loan Agreement: July 30, 2016 - For 2nd semester 2016: Jan. 30, 2017 - For 1st semester	- US$2.17 million reduction during the period of Feb. 1, 2016 – the day preceding the date of signing of the Loan Agreement - US$2.83 million reduction during the period of Jul.1, 2016 - Dec. 31,	US$8.52 million	Formula: US$0.50 for each US$1 of reduction in outstanding principal amount of the loan compared to the baseline value.

DLI	Bank financing allocated to the DLI (million US$)	Of which Financing available for		Deadline for DLI Achievement	Minimum DLI value to be achieved to trigger disbursements of Bank Financing	Maximum DLI value(s) expected to be achieved for Bank disbursements purposes	Determination of Financing Amount to be disbursed against achieved and verified DLI value(s)
		Prior results (US$ million)	Advances (US$ million)				
				2017: July 30, 2017	2016 - US$3.52 million reduction during the period of Jan. 1, 2017 - June 30, 2017		
DLI 6: Reduction of the principal amount of outstanding commercial loans of YTPC	2.30	0.00	0.55	- For the period from Feb. 1, 2016 till June 30, 2016: July 30, 2016 - For 2nd semester 2016: Jan. 30, 2017 - For 1st semester 2017: July 30, 2017	- US$1.00 million reduction during the period of Jan.1, 2016 - June 30, 2016 - US$1.60 million reduction during the period of Jul.1, 2016 - Dec. 31, 2016 - US$2.00 million reduction during the period of Jan. 1, 2017 - June 30, 2017	US$4.60 million reduction	Formula: US$0.50 for each US$1 of reduction in outstanding principal amount of the loan compared to the baseline value.
DLI 7: Reduction of YTPC's gas payable under Contract referred to in Supplemental Letter No.3	4.982	0.78	1.20	- For the period from Feb. 1, 2016 till the day preceding the date of signing of the Loan Agreement: July 30, 2016 - For the period from the date of signing of the Loan Agreement till June 30, 2016: July 30, 2016 - For 2nd semester 2016: Jan. 30, 2017 - For 1st semester 2017: July 30,	- The balance of the payable is at least AMD10.86 billion as of the day preceding the signing date of the Loan Agreement - The balance of the payable is at least AMD10.66 billion as of June 30, 2016 - The balance of the payable is at least AMD9.66 billion as of Dec. 31, 2016 - The balance of the payable is at least AMD8.16 billion	AMD8.303 billion	Formula: US$0.6 for each AMD1, 000 of difference between the cumulative reduction as of the end of each review period less the cumulative reduction as of the end of the previous period.

DLI	Bank financing allocated to the DLI (million US$)	Of which Financing available for		Deadline for DLI Achievement	Minimum DLI value to be achieved to trigger disbursements of Bank Financing	Maximum DLI value(s) expected to be achieved for Bank disbursements purposes	Determination of Financing Amount to be disbursed against achieved and verified DLI value(s)
		Prior results (US$ million)	Advances (US$ million)				
				2017 - For 2nd semester 2017: Jan. 30, 2018 - For 2018: Jan. 30, 2019 - For 2019: Jan. 30, 2020 - For 2020: Jan. 30, 2021	as of June 30, 2017 - The balance of the payable is at least AMD6.16 billion as of Dec. 31, 2017 - The balance of the payable is at least AMD5.16 billion as of Dec. 31, 2018 - The balance of the payable is at least AMD4.16 billion as of Dec. 31, 2019 - The balance of the payable is at least AMD3.86 billion as of Dec. 31, 2020		
DLI 8: ENA's margin for each new tariff period fully reflects the loss (profit) accrued due to difference between the forecast and actual cost of electricity purchased by ENA during the preceding tariff period plus the associated interest expense (revenue).	2.00	0.00	0.48	- For 2nd semester 2016: any time until December 31, 2016 - For 2nd semester 2017: any time until December 31, 2017 - For 2018: any time until December 31, 2018 - For 2019: any time until December 31, 2019 - For 2020: any time until December 31, 2020	ENA's margin for each new tariff period fully reflects the loss (revenue) accrued due to difference between the forecast and actual cost of electricity purchased by ENA during the preceding tariff period	N/A	100% disbursement for compliance
DLI 9: Tariffs for YTPC and Hrazdan TPP for each new	2.00	0.00	0.48	- For 2nd semester 2016: any time	Tariffs for YTPC and Hrazdan TPP for	N/A	100% disbursement for compliance

DLI	Bank financing allocated to the DLI (million US$)	Of which Financing available for		Deadline for DLI Achievement	Minimum DLI value to be achieved to trigger disbursements of Bank Financing	Maximum DLI value(s) expected to be achieved for Bank disbursements purposes	Determination of Financing Amount to be disbursed against achieved and verified DLI value(s)
		Prior results (US$ million)	Advances (US$ million)				
tariff period fully reflect the loss (profit) resulting from difference between forecast and actual cost of purchased natural gas due to fluctuation of AMD/US$ exchange rate during the preceding period.				until December 31, 2016 - For 2nd semester 2017: any time until December 31, 2017 - For 2018: any time until December 31, 2018 - For 2019: any time until December 31, 2019 - For 2020: any time until December 31, 2020	each new tariff period fully reflect the loss (revenue) resulting from difference between forecast and actual cost of purchased natural gas due to fluctuation of AMD/US$ exchange rate during the preceding period		
DLI 10: Electricity supplied by YTPC.	4.551	0.000	1.10	- For 2016: Dec. 31, 2016 - For 2017: Dec. 31, 2017 - For 2018: Dec. 31, 2018 - For 2019: Dec. 31, 2019 - For 2020: Dec. 31, 2020	- 1400 GWh/year - 1400 GWh/year - 1400 GWh/year - 1400 GWh/year - 1400 GWh/year	Annual electricity supply in excess of the specified minimum value is acceptable.	100% disbursement for compliance

Annex 4: Summary Technical Assessment

A. Strategic Relevance

1. The proposed operation is consistent with and contributes to achievement of one of the key objectives of the Government in the power sector – reliable electricity supply and financial viability - as stipulated in the Government's National Concept of Energy Security (2013) and the Armenian Development Strategy for 2015-2025 (2014). The proposed operation will help the Government revert the state-owned generation companies back to healthy financial condition, and, thus, prevent deterioration of electricity supply reliability due to financial distress of power sector companies. Reliable and adequate electricity supply is crucial for economic growth and reduction of poverty. Moreover, the proposed operation contributes to social development by ensuring adequate and reliable electricity supply to residential, social and other public sector consumers.

2. The Program is also consistent and complements the other ongoing major investment programs in the power sector aimed at improving the reliability of power supply. Specifically, the proposed Program is well aligned with the ongoing and planned investment projects of HVEN, the state-owned power transmission company, to rehabilitate the power transmission lines and transmission substations. Although HVEN is not in financial distress and is not a direct beneficiary of the financial recovery Program, nevertheless, the US$135 million of ongoing and committed power transmission projects is contributing to its financial sustainability. Those ongoing projects will allow completing the rehabilitation of 10 out of 14 transmission/evacuation substations and 40% of the 220 kV back-bone overhead transmission lines in the country. The rehabilitation of power transmission lines and substations reduces incidence of outages, thus improving the reliability of supply, and contributes to increase of HVEN revenues resulting from the increase in the amount of energy transmitted.

B. Scope and Technical Soundness

3. The Program is robust, very focused, and incorporates all of the key high-impact activities, which, as the international good practice suggests, are usually implemented, as a matter of priority, to restore the financial standing of the power sector.

4. The Program addresses both the direct short-term needs of the sector to improve the financial situation as well as introduces legal and regulatory changes, which will safeguard the achievements under the Program from reversing. Presented below is the assessment of technical soundness of specific activities included into the Program.

5. *Legal prohibition of non-core business related spending and lending by state-owned generation companies through a decision by the Shareholder's Meeting of those companies.* This is in line with prudential financial management practices for corporate entities, including SOEs. Such decision is within the authority of the Shareholder's Meeting of join-stock companies (including ANPP and YTPC) as per the Law on Joint Stock Companies.

6. *Liquidation of Haigasard* will ensure that the Government does not have special purpose vehicles (SPVs) for channeling funds among entities and using this particular SPV without any real economic activities for transactions not related to core activities of the power sector companies.

Liquidation of Haigasard coupled with legal ban on non-core business spending will contribute to financial sustainability of the sector. Even if the Government creates a new SPV, the legal ban on non-core business spending will be helpful safeguard against such imprudent behavior in future.

7. *Reduction of expensive commercial loans of state-owned generation companies***.** Refinancing of the principal amounts of outstanding expensive commercial loans is justified approach to relieve the debt service obligations of troubled state-owned generation companies. The use of the borrowed concessional and long-term financial resources for refinancing is needed for the following reasons: (a) the state budget is under pressure given the economic slow-down in the country and the Government cannot increase the equity of the distressed state-owned generation companies to inject more liquidity; and (b) the use of credit-enhancement instruments to soften the terms of borrowing and the tenures of the private loans will not result in substantial improvement of financing terms given that those companies are very risky from perspective of private lenders. The refinanced loans will be serviced through returns generated through tariffs of YTPC and ANPP.

8. *Collection of receivables from ENA*. Recovery of receivables is an important contributor to improving the financial standing of the state-owned generation companies, especially YTPC, given the size of those receivables and debts. The fact that MENR has already agreed with ENA a schedule for full recovery of receivables (within 4 years) is an important first step in that direction. The recovery of US$30 million of receivables from ENA is highly probable given that ENA's margin was increased (effective from August 1, 2015), which will allow it to settle all the payments it owes to state-owned power generation companies by the end of 2016, and there is an repayment schedule signed between ENA and the relevant state-owned companies.

9. *Repayment of payables*. Repayment of the payable is important for long-term financial viability of YTPC because it does not have any free cash flows to repay it and ultimately will have to borrow commercially to repay. Negotiations with Gazprom Armenia CJSC may result in favorable long-term schedule for YTPC to redeem the payable, however, ultimately, if YTPC does not repay using the additional cash flows during the life of the Program, it will need to borrow commercially to repay given: (a) it will not have enough free cash flow; and (b) tariff increase specifically for the purpose of repayment of the gas payable will not be allowed by PSRC given that YTPC was receiving the required allocation for gas expenses through the tariff, however, was channeling the resources for non–core business related needs. Therefore, use of the receivables recovered from ENA, the cash injection from IBRD loan as well as expected recovery of debts provided to Nairit and Vanadzor Chemical Plants to immediately start settling the payable is a financially prudent decision to avoid financial distress in future if YTPC borrows commercially to repay it.

10. *Setting tariffs at levels reflecting the cost of electricity supply*. Cost-recovery tariffs are the corner-stone of long-term financial viability of any power sector. There is plenty of international evidence clearly indicating that below cost-recovery tariffs are leading to poor quality of electricity service and pile-up of unsustainable liabilities at the sector companies, which ultimately become a direct liability for the state budget. The two key issues that are addressed through this result area are: (a) build-up of losses at ENA due to actual cost of purchased electricity exceeding the forecast cost and lack of full compensation of such difference, which is beyond ENA's control; and (b) no compensation of losses incurred by YTPC and Hrazdan TPP due to increase in the cost of natural gas

in AMD because of depreciation of the local currency vs US$ in which the gas tariff is fixed for thermal power plants.

11. The proposed solution of amending ENA's License to clearly specify that revision of ENA's margin will reflect the full value of the change in the cost of purchased electricity plus interest cost is technically sound solution and consistent with good regulatory practice considering that ENA is the single buyer in the power market and its tariff is the difference between the end-user electricity tariff (one-part tariff) and the capacity charge of generating plants (fixed charge that most of generators receive irrespective of the generation volume to recover their fixed costs), weighted average cost of the energy charge of generating plants (kWh based charge), transmission charge, and the service fees of the power system operator and the settlement center.

Table 5: Estimated ENA Losses due to Mismatch Between Forecast and Actual Generation Mix

2012	**Planned (mln. kWh)**	**Actual (mln.kWh)**	**Deviation**	**Tariff (AMD/kWh)**	**Planned energy cost (mln. AMD)**	**Actual energy cost (mln. AMD)**
Hrazdan TPP Units 1-4	0	746	Large	29.9	0	22,313
Hrazdan TPP new Unit 5	1,259	618	-51%	26.0	32,714	16,056
Yerevan TPP	972	507	-48%	2.5	2,400	1,253
ANPP	2,097	2,135	2%	5.5	11,618	11,828
IEC	539	622	15%	0.9	496	572
Vorotan	1,175	1,067	-9%	4.8	5,616	5,101
Total					52,843	57,122
Loss due to difference between planned and actual mix					**-4,279**	
No end-user tariff increase; thus, no increase in margin					**0**	
2013	**Planned (mln. kWh)**	**Actual (mln.kWh)**	**Deviation**	**Tariff (AMD/kWh)**	**Planned energy cost (mln. AMD)**	**Actual energy cost (mln. AMD)**
Hrazdan TPP Units 1-4	138	644	366%	34.2	4,730	22,021
Hrazdan TPP new Unit 5	401	632	58%	34.3	13,742	21,684
Yerevan TPP	829	702	-15%	13.0	10,783	9,127
ANPP	2,354	2,168	-8%	5.9	13,888	12,789
IEC	520	459	-12%	0.9	468	413
Vorotan	1,098	983	-11%	6.7	7,357	6,584
Total					50,968	72,619
Loss due to difference between planned and actual mix					**-21,651**	
Increase of margin due to end-user tariff increase					**7,679**	
Net loss					**-13,972**	
2014	**Planned (mln. kWh)**	**Actual (mln. kWh)**	**Deviation**	**Tariff (AMD/kWh)**	**Planned energy cost (mln. AMD)**	**Actual energy cost (mln. AMD)**
Hrazdan TPP Units 1-4	219	904	314%	37.1	8,110	33,538
Hrazdan TPP new Unit 5	505	406	-20%	40.1	20,257	16,261

Yerevan TPP	842	741	-12%	17.9	15,064	13,259
ANPP	2,380	2,266	-5%	6.0	14,281	13,594
Vorotan	1,000	844	-16%	8.1	8,100	6,839
IEC	550	465	-15%	1.2	660	558
Total					66,472	84,048
Loss due to difference between planned and actual mix					**-17,577**	
Increase of margin due to end-user tariff increase					**5,904**	
Net loss					**-11,673**	

Source: Bank team estimates.

12. The proposed solution of revising the existing regulation to allow exchange rate driven adjustments to gas cost component of tariffs for large thermal power plants, including YTPC and Hrazdan TPP, is technically sound and consistent with good regulatory practice. Those adjustments to fully reflect the loss (profit) accrued due to difference between forecast and actual cost of natural gas purchased during preceding tariff period will allow improving cash flows of those companies given that those losses will no longer be absorbed by the generators.

13. Historically, there has been no compensation of losses of YTPC and Hrazdan TPP incurred due to increase of gas costs driven by depreciation of local currency (AMD). This jeopardizes financial sustainability because gas costs account for almost 85% of the total costs of those thermal power plants. The gas tariff for thermal power plants is fixed in US$ and the entities pay the local currency equivalent at the exchange rate set by the CBA for 25^{th} day of the month preceding the billing month. Therefore, if US$ appreciates relative to local currency, then the actual price paid by the above thermal power plants increases. For example, since April 2014, YTPC and Hrazdan TPP incurred a combined loss of US$5 million, which were not compensated during June 2015 tariff increase. Those losses had to be absorbed by the entities with very limited return on assets and depreciation expenses.

14. *Overhaul of the gas turbine at YTPC's CCGT plant*. The proposed overhaul is justified and is an accepted practice to preserve the generation assets in normal working condition and ensure it is operated without major failures. The gas turbines typically require overhaul after 36,000 equivalent operating hours (EOH) during which some components of the gas turbines are replaced because they are exposed to stress caused by temperature or static and dynamic loading, low-cycle fatigue and high-cycle fatigue, erosion, high-temperature corrosion as well as mechanical stress and wear. The last such overhaul was done in 2014 and the next one is planned in 2018. The replacement of some components of the gas turbine will allow improving the reliability of the generating unit, reduce the frequency of planned and forced outages, and maintain the rated output. The components to be replaced include the turbine blades, stator vanes, and heat shields. The estimated cost of US$12.8[22] million is justified and consistent with costs for similar works observed in other countries. The cost break-down is presented below.

[22] Converted to US$ using the EUR/US$ cross-rates based on the following official exchange rates of the Central Bank of Armenia as of February 1, 2016: US$1=489.16AMD; EUR1=531.03AMD.

Table 6: Cost Break-down of Gas Turbine Overhaul

Rotor Blades and Heat Shields	**Euro**	**US$**
Blade row 1	310,623	337,211
Blade row 2	230,869	250,630
Blade row 3	210,682	228,715
Blade row 4	1,340,488	1,455,228
Blade row 5	1,396,385	1,515,910
RHS A row	194,136	210,753
Stator Vanes and Heat Shields		
Vane row 1	370,957	402,709
Vane row 2	234,109	254,148
Vane row 3	142,871	155,100
Vane row 4	867,379	941,623
Vane row 5	1,309,372	1,421,449
SHS row A	23,728	25,759
SHS row B	37,947	41,195
SHS row C	49,643	53,892
Thermal Unit		
EV Burner row	319,609	346,966
Oil/dual lance row	498,760	541,452
Front segment row	114,031	123,792
Outer segment row	114,239	124,017
Inner segment row	186,629	202,604
Zone 2 (fully coated)	522,042	566,727
Compressor		
Blade 1 to 5 rows	663,648	720,453
VIGV row	307,910	334,266
Vane 1 to 4 row	392,256	425,831
Installation works	1,350,000	1,465,554
Contingencies	600,000	675,996
Total	**11,788,313**	**12,821,981**

C. Institutional Arrangements

15. 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 together with ANPP and YTPC will bear the responsibility for activities under the Results Areas 1, 2, and 4. Specifically, MENR will be responsible for making the decision prohibiting the non-core

business related expenditures, borrowing and lending of state-owned power companies and liquidation of Haigasard. ANPP and YTPC will be responsible for reducing their outstanding expensive commercial loans; and YTPC will be responsible for the overhaul of the gas turbine at its CCGT plant. MENR will closely supervise ANPP and YTPC to ensure they implement the above relevant activities in timely manner and to meet the specified targets.

16. MENR is overall 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/divisions are the Financial-Economic, Accounting, and Internal Audit. ANPP and YTPC were also assessed to have overall adequate capacity to implement the relevant parts of the Program.

17. The independent regulator, the PSRC, will also be responsible entity since it will implement the activities under the Results Area 3, which are related to revisions/amendments to the ENA License and tariff-setting methodology for thermal power plants. The PSRC has the required in-house expertise and is adequately staffed to implement the relevant activities under the Program. The Bank will also be providing analytical support/overview of international good practice experience to help the PSRC implement improvements to tariff-setting for ENA and thermal power plants.

18. The Government and the PSRC are committed to restoring the financial health of the power sector and that was demonstrated by a number of key measures and activities that have already been implemented:

19. *PSRC increased the end-user tariff to compensate ENA for accumulated losses*. The end-user tariff increase by 17%, effective from August 1, 2015. This tariff increase should allow ENA to repay the US$46 million of payables to state-owned power companies. However, the tariff increase triggered a public discontent, which led the Government to commission a study to confirm whether capital and operational expenses of ENA are economically justified. The Government committed to subsidize until August 1, 2016 the energy bills of all residential and small commercial consumers with monthly consumption of up to 250/kWh.

20. *MENR prepared and approved a new guidance for preparation of the electricity demand and energy generation forecast*. This was prepared to improve the accuracy of the forecast of electricity generation, especially the share of low-cost generation (especially HPPs) as was the case before, which resulted in the above distress for ENA. The new methodology for electricity demand forecast requires using the average growth rate of demand during the preceding 4-year period. The hydropower generation is forecast taking into the observed mean historical water flows and taking into the reservoir levels in case of storage hydro.

21. *The Government discontinued the use of financial resources of state-owned generation companies to subsidies the gas tariffs for the poor*. Starting from 2015, the state-owned generation companies have not been financing the gas subsidy for poor consumers.

22. *Assessment of technical and financial viability of Nairit Chemical Plant operation was completed*. It was required to make an informed decision on the future of the chemical plant. The assessment, financed by the World Bank and conducted by Jacobs Engineering, concluded that revival

of the plant is not viable due to large capital investment needs and high cost of production of polychloroprene rubber (PCR). Therefore, the Government committed to liquidate the plant and requested the World Bank support to prepare a liquidation plan.

D. Expenditure Framework

23. The review of the Program Expenditures suggest that the availability of resources is predictable, the expenditure management system is well functioning and the budget execution system allows effective service delivery. The financing structure of the proposed operation is simple and some of the activities will be implemented by the PSRC (Results Area 3) and do not require financing under the Program.

24. The Program budgeted expenditures are realistic, prepared with due regard to relevant domestic policies, and will be executed in an orderly and predictable manner. By the time of the assessment, the Program was not yet included in the annual budget approved by Parliament, and the MENR plans to do it immediately after the loan is approved by the Bank. The Program budget adequately reflects the resources required for achieving the expected results; the medium-term budget is overall sustainable; and, in general, there are no major discrepancies expected between the budget allocation, release and actual expenditure.

Table 7: Financing Sources of the Program[23]

Financing Source	Amount (in US$)	% of Total
YTPC own funds (tariff-regulated revenue)	$13,299,690	30%
Proposed PforR (IBRD)	$29,925,000	70%
Total	**$43,224,690**	**100%**

Table 8: Program Expenditure by Implementing Entity[24]

Implementing Entity	Amount (in million US$)	% of Total
Total for ANPP	**$8,525,191**	
- Refinancing of commercial loans	$8,525,191	20%
Total for YTPC	**$34,699,499**	
- Repayment of the payable for natural gas (the payable under the contract with Yerevan GGM of Gazprom Armenia CJSC for supply of gas to generate power for domestic needs)	$16,973,996	39%
- Overhaul of the gas turbine	$12,821,981	29%
- Refinancing of commercial loans	$4,603,522	11%
- Program audits and IVA	$300,000	1%
Total	**$43,224,690**	**100%**

[23] Converted to US$ using the official exchange rate of the Central Bank of Armenia as of February 1, 2016: US$1=489.16AMD; EUR1=531.03AMD.

[24] Converted to US$ using the official exchange rate of the Central Bank of Armenia as of February 1, 2016: US$1=489.16AMD; EUR1=531.03AMD.

25. YTPC is expected to have enough additional cash flows to repay at least US$17 million of the gas payable during the Program life. The sources of the additional cash will be a portion of the remaining US$19 million balance of receivables to be recovered from ENA by end of July 2016, and proceeds of the IBRD loan to be received by YTPC.

26. The funding for overhaul of the gas turbine at YTPC's CCGT plant is predictable because the proposed overhaul of the gas turbine has been included into 2016-2018 Investment Plan for YTPC. The expenditures will be recovered through the tariff-regulated revenues of YTPC. The estimated cost of overhaul at US$12.8 million is realistic and within the range of such works in other countries. Typically, the cost of overhaul is in the range of 6-8% of the initial capital investment into CCGT plant. The CCGT plant at YTPC had a capital cost of US$260 million. Therefore, the estimated cost of US$12.8 million is 5% of the total initial capital cost. The proposed overhaul is limited to replacement of the worn-out components of the gas turbine such as rotor blades, stator vanes, heat shields, etc. The supply of components and installation will be conducted under single-source long-term service agreement (2014-2025) with the original manufacturer of the turbine (Alstom).

27. YTPC has been effective in preparing and executing similar expenditures related to new investments or overhauls of existing assets. Specifically, YTPC carried out construction of its US$260 million CCGT plant project in 2008-2010 without any delays, at very good quality, and without cost over-runs. Moreover, the efficiency of the previous expenditures, incurred by YTPC in 2014, for the overhaul of the gas turbine were also reviewed and the actual final cost was found to be consistent with average market prices for similar supply and install contracts.

28. Tariff revenues of YTPC are predictable and determined based on the tariff methodology approved by the PSRC, which allows for recovery of: (a) fuel costs (based on the forecast generation); (b) operation and maintenance expenses, which do not change much from year to year; (c) salary expenditures; (d) debt service for loans taken for core business activities; and some other costs. The expenditures are also predictable and all of the planned activities, which were included into the revenue requirement of YTPC (approved through the tariff), were fully implemented. The Table below presents the planned and actual expenditures (including repairs and investments)[25] of YTPC during the last three years, which were generated through the tariff as well as financed through other sources. The forecast expenditure equals the forecast revenues because YTPC depreciation and profits during those years were not included into YTPC's tariff. The actual expenditures were higher because YTPC was incurring non-core business related spending and servicing commercial debts.

Table 9: Planned and Actual Expenditures of YTPC (million AMD)

	2012	2013	2014
Tariff revenues of YTPC	6,211	19,973	29,420
Forecast expenditures	6,211	19,973	29,420
Actual expenditures	21,251	26,460	29,815

29. Refinancing of principal amounts of ANPP's and YTPC's commercial loans is predictable because ANPP and YTPC will be using disbursements under the PforR and repayments of receivables by ENA (which are already taking place) to refinance those commercial loans. The proposed

[25] Inclusive of debt service.

refinancing is effective because it will contribute to long-term financial viability of those state-owned generation companies.

E. Results Framework, Monitoring and Evaluation

30. The Bank assisted MENR in developing indicators to monitor the results to be achieved under the Program. Following the close cooperation with MENR, the following indicators were defined for the Program: (a) Program Development Objective Indicators, (b) Intermediate Results Indicators, and (c) Disbursement-Linked Indicators. Some of the DLIs are also Intermediate Results Indicators. The completed tables including baseline, yearly targets and verification protocol for all the indicators are provided in Annexes 2 and 3. The section below presents how the Intermediate Results link with the PDO Indicators as well as the Results Chain of the operation.

31. The PDO Level Results Indicators One and Two – "Total annual electricity supply by ANPP is maintained" and "Total annual electricity supply by YTPC is maintained" - are easily measurable and well-suited for capturing the contribution of the Program to ensuring adequate electricity supply in the country. The PDO Level Indicator 3 – "Average interruption frequency per year in the project area is maintained" – is an internationally accepted indicator for measuring the reliability of power supply to consumers. The indicator is computed and reported by PSRC.

32. The Intermediate Results Indicators capture the outputs, which are essential for achievement of PDO Level Results Indicators. The targets to be achieved under the PDO Level Results Indicators are realistic and achievable during the 5-year implementation period of the Program. The expected results are within the Borrower's sphere of influence and are dependent on the agencies involved in the implementation of the Program.

33. *Intermediate Results associated with PDO Level Indicators One and Two*: In order to achieve the PDO Level Indicators One and Two, the Program will need to achieve a number of Intermediate Results Indicators, which are essential for ensuring adequate electricity supply from those state-owned generation plants. Specifically, the state-owned generation companies will need to: (a) discontinue incurring new non-core business related expenditures and providing loans, which are a drain on the cash flows that can and should be used for core operational needs; (b) complete the liquidation of Haigasard to eliminate the last remaining SPV in the power sector, which was used for channeling of funds between state-owned power companies; (c) reduce the principal amounts of outstanding commercial loans in order to reduce the debt service costs and, therefore, increase the resources available for core business activities of electricity supply; (d) collect receivables for electricity, which will increase the available cash; and (e) avoid any natural gas cost related losses at YTPC due to depreciation of the local currency.

34. *Intermediate Results associated with PDO Level Indicator Three*: In order to achieve the PDO Level Indicator Three, the methodology for adjustment of ENA's margin will need to be revised to avoid build-up of losses at the power distribution company due to mismatch between the forecast and actual cost of electricity purchased.

35. Results Chain and DLIs: Implementation of the activities under the Program enables to maintain electricity supply from ANPP and YTPC as well as the reliability of electricity supply to end-

users by ENA through improvement of financial standing of those companies. The activities under the Program lead to reduction of cash deficits at state-owned power generation companies due to: (a) no new non-core business related expenditures and liquidation of the Haigasard that was used to channel funds for non-core business related reasons (Results Area 1); (b) refinancing of expensive commercial loans with resulting reduction in cash expenditures (Results Area 3); (c) avoidance of gas purchase related losses at YTPC from fluctuations of AMD/US$ exchange rate; and (d) maintaining the generation capacity of the gas turbine of YTPC's CCGT plant to allow for electricity supply from the plant. The resulting reduction of cash deficits at ANPP and YTPC coupled with overhaul of YTPC's gas turbine would allow those companies to maintain the current levels of electricity supply.

36. Ten DLIs were chosen for the Program to address the bottlenecks along the results chain. The DLIs were selected considering the most essential results that need to be achieved in order to restore the financial standing of the state-owned generation companies and the private power distribution company. Therefore, several of the Intermediate Results Indicators are also used as DLIs. Some DLIs are related. For example, outstanding principal amounts of commercial loans of state-owned generation companies (DLIs 5 and 6) can be reduced if those entities stop incurring additional non-core business related expenditures (DLIs 3 and 4); YTPC does not incur gas-cost related losses (DLI 8); and ENA's margin is adjusted accordingly (DLI 9) to avoid build-up of losses, and, thus delayed payments to state-owned generation companies.

37. MENR has the capacity to generate, collect, collage and process data required for the M&E system. In addition, the World Bank team will supervise implementation progress each quarter, including results indicators. All of the data required for monitoring of progress towards achievement of PDO Level Indicators is available from the Settlement Centre CJSC, PSRC and the UN Population Surveys. The audited annual financial statements of ANPP and YTPC, PSRC publications, MENR and YTPC reports will be the source of data for monitoring of the progress with achievement of Intermediate Results Indicators. The baseline values for the results indicators were provided by MENR. Given its stewardship role, MENR will ultimately be responsible for monitoring progress on these indicators and for ensuring timely collection and reporting of monitoring data and provision of necessary verification documents to the Bank.

F. Economic Evaluation of the Program

38. The economic evaluation of the Program includes justification of the rationale for public financing of the Program, assessment of the economic and financial impacts of the Program, and the value added from the World Bank involvement.

39. The economic evaluation of the Program includes justification of the rationale for public financing of the Program, assessment of the economic impacts of the Program, and the value added from the World Bank involvement.

40. *Rationale for Public Financing.* The public financing of the Program is justified given that activities supported cannot be undertaken with private financing. Specifically, the interest rates and maturities of the existing outstanding commercial loans of state-owned generation companies should be refinanced only with lower rate and longer maturity resources, which are not available from private financiers given the cost of funding in the country and financial situation of troubled entities.

41. The following key assumptions are underlying the economic assessment of the Program:

Table 10: Key Assumptions Underlying Economic and Financial Analysis of the Program

Evaluation period for the Program	10 years	Source: Bank team assumption
Social opportunity cost of capital	10%	Source: Bank team estimate
Base-case forecast average annual growth of electricity demand	2.8%	Source: Armenia Power Sector Policy Note, The World Bank, Dec. 2014
Border price of imported gas during evaluation period	$165/tcm[26]	Source: MENR
Marginal T&D margin for gas	$40/tcm	Source: PSRC
Cost of unserved energy	$0.25/kWh	Source: Bank team estimated based on observed electricity demand function

42. *Economic Impact of the Program*. The Program will generate direct and indirect economic benefits. The direct economic benefit will be generated under the Results Area 4 from overhaul of the gas turbine at the CCGT plant of YTPC. Such overhaul will allow avoiding reduction of the available generation capacity of the gas turbine. Thus, the main economic benefit is the avoided increase in the un-served energy due to unavailability of the CCGT plant. This investment is estimated to have an NPV of US$137 million. The large economic benefit (high NPV) of the investments in overhaul of the gas turbine are due to the fact that economic cost of supply from YTPC is substantially lower than the economic cost of supply from the substitute plant (Hrazdan-5 TPP). For the purposes of this analysis, the economic costs were assumed to equal only to the cost of natural gas required to generate a unit of electricity.

43. The activities under the Results Areas 1-3 will generate indirect economic benefits. If the state-owned generation companies do not manage to revert to adequate financial standing, then they will increasingly struggle to finance the essential operating and maintenance costs, and this will result in zero generation from those two power plants, which combined account for 42% of total annual supply in the country.

44. *Avoided cost of un-served electricity demand*. When Hrazdan 5 and Hrazdan TPP (the substituting plants for ANPP and YTPC), experience a forced outage, there will be no reliable reserve capacity in the system. Specifically, if severely dilapidated Hrazdan TPP has 10% forced outage rate (not available for 800 hours a year to meet the demand), then this will create an unmet electricity demand of 320 million kWh, which will cost the economy around US$80 million per year.[27] The amount of unmet electricity demand and, thus, the related cost of unserved electricity demand are estimated to increase by annual rate of 2.8%, which corresponds to the base-case forecast of electricity demand growth in the country.[28]

[26] Thousand cubic meters.
[27] Estimated assuming a conservative cost of unserved energy at US$0.25/kWh.
[28] Armenia Power Sector Policy Note, The World Bank, Dec. 2014.

Table 11: Generation "without" and "with" Program

With Program	Total generation (GWh)	Share in total	Electricity tariff (VAT exclusive)
ANPP generation	2464.8	38%	4.6
YTPC generation for domestic	253.7	5%	18.5
Hrazdan TPP generation	839	13%	44.4
Hrazdan 5 generation	857.5	13%	35
Vorotan	833.1	13%	6.7
IEC	474.7	7%	4.14
Other generation (primarily small HPPs)	715.1	11%	24
Total	6437.1	100.0%	22.7
Average energy cost			**16.8**
Without Program	**Total generation (GWh)**	**Share in total**	**Electricity tariff (VAT exclusive)**
ANPP generation	0	0%	4.6
YTPC generation for domestic	0	0%	18.5
Hrazdan TPP generation	1138	18%	44.4
Hrazdan 5 generation	3276	51%	35.0
Vorotan	833.1	13%	6.7
IEC	474.7	7%	4.14
Other generation (primarily small HPPs)	715.1	11%	24
Total	6437	100%	
Average energy cost (AMD/kWh)			**33.4**
Difference (AMD/kWh)			**16.6**
Increase in end-user tariff			**48%**

45. *Avoided increase in the cost of electricity supply*. The substitute generating plants (Hrazdan TPP and Hrazdan-5), which will be run to make up for shortfall of supply from financially distressed YTPC and ANPP, have substantially higher economic costs as can be seen from the Table above. The economic cost of electricity supply will increase because: (i) Hrazdan TPP has thermal efficiency of only 32% compared to 50% for YTPC; and (ii) economic cost of supply from the existing ANPP is lower than for thermal power plants in the system. The use of the substitute generation facilities will increase the overall annual economic cost of electricity supply by US$150 million.

46. The total indirect annual benefits from the Program are estimated at US$230 million per year and will reach US$250 million per year in 2025. Typical EIRR and NPV indicators were not calculated for the indirect benefits of the Program given that the Program activities, which generate indirect benefits, do not entail investment costs.

47. The Program will also create economic benefits in form of avoided increase in un-served electricity demand due to precluded reduction in reliability of the power distribution. If ENA's financial standing does not improve, that will impact its ability to conduct recurrent repairs, maintenance of infrastructure and invest in modernization of the network. This will result in

deterioration of reliability of electricity supply to end-users. The economic benefit of avoided increase in un-served electricity demand due to reduction in reliability of power distribution network was not quantified given the lack of disaggregated input data.

48. *Value Added by the Bank Support*. The Bank has been providing substantial advisory and analytical support to inform the Government thinking on key challenges facing the power sector and measures to address them. The Bank will be able to add substantial value given: (a) the depth of the Bank's analytical engagement in the sector; (b) previous experience with helping the Government fix the financial standing of the sector in late 1990s; and (c) global knowledge and expertise in similar projects.

49. **Financial Impact of the Program**: The financial analysis of the Program was conducted from the perspective of impact on entities affected by the Program. Specifically, the financial analysis of state-owned power generation companies was conducted to demonstrate the impact of the Program on their forecast financial performance. The results of the financial analysis suggest that the proposed program will reduce the financing gap of ANPP and YTPC due to discontinuation of non-core business related activities and refinancing of expensive commercial debts with concessional IBRD resources. The Program activities will improve the liquidity and solvency of both companies because their short-term liabilities will no longer be draining most of the available cash. Presented below is the summary of key ratios of ANPP and YTPC before the Program and after the Program.

50. *Financial Impact on ANPP***:** As of December 31, 2014, total assets of ANPP amounted to about US$190 million. The Property, Plant and Equipment (PP&E) of the Company depreciated by US$70 million over the period of 2011-2014. Average operating profit margin for the observed period was around -23%, which suggests insufficiency of revenues from tariffs to cover all of the expense. Such short-fall in revenues was due to the fact that servicing of expensive commercial loans was not included in the tariff. Interest expenses of ANPP have been rapidly increasing due to accumulation of large debts.

51. As a result, the company's long-term solvency continued to deteriorate. Eroding equity due to continuous operating losses, coupled with growing financial liabilities, lead to doubling of leverage, as measured by the debt-to-equity ratio. Despite the upward revisions of the power tariff for ANPP, swelling debt led to decline of debt service coverage ratio. As of December 31, 2014, total equity of the company was about US$ 94 million. Liquidity of the Company, as measured by the current ratio of current assets to current liabilities, also fell from 2.04 in 2011 to 1.56 in 2014, though staying above the minimum required threshold of 1.0. However, the most liquid current assets, excluding inventories, were sufficient to meet only about 40% of current liabilities in 2014.

52. Implementation of the Program will preclude ANPP from building up expensive commercial debt and enable to save on interest expenses due to lower-than-market interest rate on the refinancing loan and principal repayments over available grace period. Cash from operations is expected to increase to a level sufficient to ensure sustainable debt service for ANPP's loans. Another substantial improvement will come from expected recovery of receivables from ENA for purchased electricity; current ratio will reach 2.1 and 0.6 by 2019 respectively from before-Program levels of about 1.8 and 0.

Table 12: ANPP's Financial Ratios

	2011	2012	2013	2014	2015f	2016f	2017f	2018f	2019f	2020f
Liquidity										
Current ratio w/o Program	2.04	1.73	1.56	1.56	1.94	1.97	1.95	1.91	1.85	1.76
Current ratio w/ Program	2.04	1.73	1.56	1.56	1.94	1.99	2.05	2.09	2.13	2.15
Quick ratio w/o Program	0.41	0.22	0.27	0.40	0.71	0.72	0.71	0.70	0.68	0.65
Quick ratio w/ Program	0.41	0.22	0.27	0.40	0.71	0.77	0.81	0.84	0.86	0.87
Solvency										
Debt-to-equity w/o Program	0.10	0.13	0.20	0.21	0.18	0.20	0.23	0.28	0.36	0.48
Debt-to-equity w/Program	0.10	0.13	0.20	0.21	0.18	0.20	0.22	0.25	0.27	0.30
Debt-to-assets w/o Program	0.09	0.12	0.17	0.17	0.09	0.09	0.10	0.10	0.12	0.13
Debt-to-assets w/ Program	0.09	0.12	0.17	0.17	0.09	0.09	0.09	0.10	0.10	0.10
Debt coverage										
Debt service coverage ratio (DSCR) w/o Program		12.31	6.09	0.09	0.35	0.25	0.25	0.23	0.21	0.19
DSCR w/ Program		12.31	6.09	0.09	0.35	0.29	14.32	14.02	13.69	13.36

53. *Financial Impact on YTPC*: In 2011-2013, YTPC's solvency and liquidity substantially deteriorated. The cash shortage was due to substantial spending and lending for non-core business related reasons and delayed payments for electricity purchased by ENA. The shortfall was covered with borrowings from Vorotan HPP and expensive short-term commercial bank loans, which amounted to about US$36 million. In 2014, debt service requirement ratio stood at 0.63.

54. The company's debt-to-capital ratio improved between 2011-2013, which was largely attributable to fixed asset revaluation gain and measurement gain due to favorable changes in the foreign exchange rate. However, cash based debt and interest coverage deteriorated. In 2014, debt-to-capital ratio was 0.83. Almost all of the company's long-term debt (about 96%) consisted of borrowing from JICA under Yerevan CCGT construction project. Total equity of the company as of December 31, 2014, was US$53.2 million. Accumulated earnings were US$0.4 million.

55. Liquidity of YTPC also reduced primarily due to fast build-up of payables to Gazprom for gas (about US$50 million as of December 31, 2014, which increased to US$72 million by December 1, 2015) and short-term liabilities to Vorotan HPP. YTPC struggled to generate enough cash to meet its current liabilities. Current ratio of the Company slid from 1.18 in 2011 to 0.78 in 2014.

56. Implementation of the Program will contain the build-up of YTPC's debts and enable to save on interest expenses due to lower-than-prevailing interest rate on the refinanced debt and principal repayments over available grace period. Debt service coverage ratio will stay at sustainable levels of at least 1.0. Cash deficit will be gradually eliminated by 2020. Improvement of liquidity due to recovery

of receivables from ENA for purchased electricity will be substantial. Current ratio is expected to jump to above 0.9 and 0.4 respectively from before-Program levels of about 0.77 and 0.01. Efficiency-enhancing repair of CCGT plant in 2018 will be an additional boost to cash flow from operations.

Table 13: YTPC's Financial Ratios

	2011	2012	2013	2014	2015f	2016f	2017f	2018f	2019f	2020f
Liquidity										
Current ratio w/o Program	1.18	0.89	0.82	0.78	0.76	0.76	0.77	0.77	0.77	0.77
Current ratio w/ Program	1.18	0.89	0.82	0.78	0.76	0.93	0.95	0.96	0.97	0.99
Quick ratio w/o Program	0.81	0.59	0.60	0.61	0.60	0.59	0.59	0.59	0.59	0.59
Quick ratio w/ Program	0.81	0.59	0.60	0.61	0.59	0.72	0.73	0.74	0.75	0.76
Solvency										
Debt-to-equity w/o Program	(11.93)	15.64	4.87	5.04	3.56	3.92	4.44	4.82	5.25	5.79
Debt-to-equity w/ Program	(11.93)	15.64	4.87	5.04	3.56	3.88	4.28	3.62	3.78	3.97
Debt-to-assets w/o Program	0.99	0.83	0.71	0.68	0.63	0.63	0.65	0.65	0.64	0.64
Debt-to-assets w/ Program	0.99	0.83	0.71	0.68	0.63	0.64	0.65	0.63	0.63	0.63
Debt coverage										
DSCR w/o Program	0.34	10.00	0.60	0.63	0.48	0.45	0.50	0.49	0.49	0.49
DSCR w/ Program	0.34	10.00	0.60	0.63	0.48	0.48	1.13	2.73	1.10	1.09

57. The Program will also positively impact the financial performance of ENA by precluding build-up of any financial losses due to mismatch between actual and forecast cost of electricity purchases. However, accurate forecast of ENA's financial standing under "w/o Program" scenario will not be possible given uncertainty involved with projection of hydropower generation and other factors that may impact the generation mix (e.g. forced outage of a large low-cost generating plant, which will be substituted by more expensive plants). Therefore, the financial benefit of the Program for ENA was estimated for a hypothetical scenario assuming ENA incurs a loss of US$30 million during one year period due actual electricity purchase cost exceeding the forecast cost, which resulted from unfavorable hydrology and longer-than-planned maintenance of a large generating plant. Under "without Program" scenario, ENA will incur US$4.9 million in incremental debt service costs, which will not be compensated through tariff and will need to be covered by its regulated profit or, under worst-case scenario, absorbed by reduction in equity. The root cause of such losses is the existing methodology for adjustment of ENA's margin. Under "with Program" scenario, there will be no incremental debt service cost, which is not recovered through tariff, because all of the incurred losses plus the interest on the working capital (attracted until adjustment of the margin) will be compensated entirely during the subsequent tariff period through adjustment of the margin.

58. In summary, the proposed Program has all of the critical building blocks required for delivering results. These include: (a) strong government commitment to achieving agreed results; (b) focus on the key factors that drove the power sector into financial distress; (c) clearly defined interventions, which are technically sound and supported by relevant international experiences; and (d) specific, measurable, relevant, and time-bound results indicators to assess Program performance (those are described further in the next section).

59. The Technical Risk of the Program is Low given that none of the activities is technically complex, all of the measures under the Program and there are no substantial difficulties related to their implementation.

Annex 5: Summary Fiduciary Systems Assessment

1. The Program's fiduciary systems and institutions provide overall reasonable assurance that the financing under the Program is used for intended purposes, with due regard to the principles of economy, efficiency, effectiveness, transparency and accountability. The key institutions - MENR, YTPC and ANPP - have overall adequate procurement and financial management systems, adequate financial and accounting staff to plan budgets, execute and record transactions and produce the Program's in-year and annual financial reports subject to the actions to be implemented as per the Implementation Support Plan. The assessment findings conclude that the fiduciary framework for the Program is overall adequate to support its implementation and to achieve its desired results. The Fiduciary Risk for the operation is assessed as Substantial given weaknesses identified in FM arrangements, including internal controls, accounting, financial reporting, and state-owned generation companies' governance as well as due to reliance on Direct Contracting for procurement of goods and works for overhaul of the gas turbine of YTPC's CCGT plant.

2. **Program Planning and Budgeting:** The assessment confirmed that the Program budgeted expenditures are realistic, prepared with due regard to relevant government policies and will be executed in an orderly and predictable manner. It was observed that funds proposed to be remitted to ANPP and YTPC were underpinned by the respective entities' financial situation. The structure and purpose of the Program expenditures captured on MENR, ANPP and YTPC budgets will be a part of the consolidated State Budget,[29] and, therefore, the Program progress will be monitored through the regular budget execution reports as well as audited financial statements of ANPP and YTPC. Program's expenditure framework is comprehensive, clearly defined, and will be managed as part of the Borrower's regular budget and fiduciary management process.

3. **Transparency**: The Program budget and the financial information will be accessible to the general public. Consistent with the requirement of the local legislation, the Government releases the draft State Budget Law (except for classified information) to the media, and posts it on the official websites. The budget execution related consolidated Government annual financial statements are also published on the MOF web-site. To audit the annual financial statements, the CoC is granted access to the underlying data in the MoF. The audit report is posted on the CoC website (www.coc.am). In addition to the audit report, the CoC also prepares annual reports, which focus on compliance issues. Those reports are also accessible on the CoC website.

4. Meanwhile, the general public has no access to entity annual financial statements of ANPP and YTPC, as those are not legally required to be published given that they are Close Joint-Stock entities. Within the frame of this Program, the Bank will monitor the financial performance and position of ANPP and YTPC, therefore, for this purpose the Bank requires that the annual financial statements of ANPP and YTPC be audited and submitted to the Bank. As per the Bank Policy on Access to Information, the Bank will require MENR to make publically available the audited financial statements of both entities as well as the Program annual financial statements by posting the annual audited financial statements on its web-site (www.minenergy.am). The Bank will also make them available to the public in accordance with this policy.

[29] Except for part funded directly from the entity own resources.

5. **Program Accounting and Financial Reporting Systems:** The assessment confirmed that overall adequate Program records are to be maintained and there are overall adequate Program accounting and financial reporting arrangements for the Program implementation. Accounting and financial reporting systems of MENR, ANPP and YTPC are overall adequate, and the quality and timelines of key financial reports, record management and reconciliation of accounts and the usage of financial reports for managerial decision-making are overall satisfactory. As it was agreed, YTPC hired a team of accounting consultants with sufficient experience and knowledge in international accounting standards, to enhance the accounting function in place. Meanwhile, YTPC shall retain adequate professional level of accounting staffing.

6. Cash basis accounting will be used for the Program accounting and financial reporting purposes, while for the entities' (ANPP and YTPC) accounting and reporting purposes IFRS is used. The entities' audited financial statements together with semi-annual financial reports[11] will be relied on for purposes of monitoring progress with refinancing of commercial loans and payables and disbursements. The semi-annual financial reports accompanied by an independent verification agent's certification will be submitted to the Bank for review and disbursement under DLI 5, 6 and 7 (refer to Annex 3 below).

7. For purposes of Program audit and reporting, the Bank will rely on the audited financial statements of ANPP and YTPC. The scope of the audit of the entities' financial statements will be extended to include the review and confirmation (or otherwise) by the auditor that the entities did not incur any non-core business related expenditures, borrowing and lending for the period (DLIs 3 and 4). MENR will also prepare and submit Program annual audited financial statements that will include disbursements made to ANPP and YTPC. The format of the financial statements to be prepared by MENR and additional disclosures in the entity financial statements of ANPP and YTPC was agreed with the Borrower. Audited financial statements will be presented to the Bank within 6 months after the end of each reporting period and will be publicly disclosed as required by the Bank's policy on access to information.

8. **Treasury Management and Fund Flow Mechanism**: The assessment confirmed that there are adequate treasury management and fund flow systems for the Program implementation. The government operates a robust treasury system with a Treasury Single Account (TSA) of MOF maintained at the Central Bank of Armenia (CBA). The CBA's foreign exchange management is transparent and subject to adequate operational controls, and the CBA maintains safeguards in its financial reporting practices, the external audit mechanism, and the internal audit function. The efficiency of budget execution processes has strengthened through the introduction of the Treasury-Client system in 2010. All the Bank-financed projects' designated accounts were transferred into the treasury in December 2010 and have been satisfactorily maintained.

9. Under one of its results areas, the Program will support the state-owned generation companies to reduce the level of their expensive commercial loans and payables. The list of those loans and payables to be supported by the Program are presented in Indicative Baseline Table in the Supplemental Letter No. 3.

10. Considering that the current economic slowdown in Armenia may have adverse impact on the efficiency of Treasury operations and delay allocation of funds from the State Budget, and given the nature of expenditures of the Program to be supported by the Bank, and the fact that the funds

disbursed will support the state-owned generation companies to reduce the financial burden of the commercial loans and payables, channeling of the Program funds to the entities through the budgetary account of the government will be avoided. It has been agreed that the most effective way of disbursing the Program funds is via two Segregated Accounts (each for ANPP and YTPC to support their part of Program expenditures) to be managed by ANPP and YTPC, respectively, and to be opened and maintained at the State Treasury. The accounts will be in US$.

11. When a specific DLI has been achieved, MENR will inform the Bank and will provide evidence as per the Verification Protocol that the DLI has been achieved. The Bank will review the documentation submitted. After the Bank formally considers the DLI(s) met (including satisfactory evidence that there is no reversal of earlier achievements), MENR will submit Withdrawal Application (WA) for the disbursement of the relevant amount. The DLI formula, Verification Protocols and DLI Disbursement schedule are described in the Table in Annex 3 below.

12. For disbursements under all DLIs as well as advance payments and disbursements against prior results, separate Withdrawal Applications will be submitted for funds to be received by each entity considering the agreed-upon proportion of distribution of disbursed funds between entities – 28.5% to ANPP and 71.5% to YTPC.

13. Following the effectiveness of the legal agreement, the Bank will provide an advance payment of US$7.22 million (24% of the total loan size) and disburse against achievement of prior results - US$0.78 million under DLI 7 (Repayment of YTPC's payable for natural gas under Contract referred to in Supplemental Letter No.3) and US$1.086 million under DLI 5 (Reduction of principal amount of outstanding commercial loans of ANPP). YTPC plans to start repaying the payable as more cash is recovered from ENA. ANPP plans will start repaying the commercial loans as it continues recovering receivables from ENA. Therefore, the Prior Result will allow disbursing some resources against a reduction in the payable YTPC plans to achieve from the baseline date of the Program until the signing of the Loan Agreement, thus, allowing YTPC to start receiving much needed funds to use (together with the advance) to be used for repaying the remaining balance of commercial debts and the payables. The same applies to ANPP.

14. Whenever the DLIs are achieved, the amount of the advance will be deducted (recovered) from the amount due to be disbursed under the DLIs to each entity. The amount of the advanced recovered by the Bank then will be available, as needed, for additional advances ("revolving advances"). The Bank requires that the Borrower refunds, no later than six months after the legal agreement closing date, any advances (or portions of advances) if the DLIs have not been met (or have been partially met) by the Program closing date. The need for the advance is driven by the requirement of relatively large financing needed during the first two years of operation in order to make tangible impact and preclude insolvency of the state-owned generation companies with resulting consequences on supply of electricity. The amounts for advance, prior results, and the subsequent disbursements under DLIs are specified in the Disbursement Table (refer to Annex 3 below).

15. At the end of the Program, any amount disbursed under DLIs that will exceed the actual Expenditures level for the whole Program period till the Program closing date, will be reimbursed to the Bank.

16. **Program Internal Controls (including Internal Audit):** In general, there are overall adequate arrangements for the exercise of control and stewardship of the Program funds. The introduction of the Client-Treasury system in 2010 enhanced the efficiency of controls over budget execution, by enabling public bodies to have direct access to Treasury IT system. Although the internal controls at central government, line ministries and state-owned companies are generally adequate, the inspections and audits conducted by the Finance Inspectorate of the MOF, the internal and external auditors, and the CoC identify some cases of bypassing the controls, which include improper oversight over contract implementation, inadequate accounting of transactions, etc.

17. The internal audit function in Armenia is still in its early days of operation, and the Bank continuously supported the development and capacity building of the function. There is overall adequate internal audit function at MENR, which has four auditors and a department head. The internal audit function at the ministry is supported by Audit Committee, headed by the Minister. The recent work-plan of the Internal Audit unit of MENR included Procurement audits at ANPP and YTPC, with respective resulting actions implemented by the entities. The Internal Audit unit also carries out the role of the Controls Commission (the Controller) for ANPP and YTPC.

18. There are overall adequate internal control systems at ANPP and YTPC for the Program implementation. Meanwhile, cases of overriding of internal controls had been recently observed at ANPP that led to embezzlement of funds during procurement of goods and equipment required for recurrent repairs and maintenance of the plant. This was possible due to collusion of some previous staff of ANPP presented at evaluation committee for procurement of goods. Once the cases were identified, a number of mitigation measures were undertaken by MENR.

19. **Program Audit.** There are overall adequate independent audit and verification arrangements under the Program. The audit is planned to be conducted by independent private auditors, acceptable to the Bank, as the capacity of the CoC is weak. The major constraint for the CoC capacity enhancement is scarcity of financial resources, which limits its ability to attract and retain qualified staff.

20. For the Program audit, the existing independent auditing and reporting arrangements of ANPP and YTPC will be used. Currently both entities use independent auditors, and this arrangement will be continued under the Program. However given the weak oversight function over the quality of audit firms in Armenia, it has been agreed to enhance the existing auditing arrangements by conducting the Program and entities' audits and verifications by external auditors acceptable to the Bank.

21. The Program annual financial statements to be audited will be prepared by MENR based on inputs provided by ANPP and YTPC. The audit of the entities (ANPP and YTPC) and the Program annual financial statements will be conducted (i) by independent private auditors acceptable to the Bank, on terms of reference (TOR) acceptable to the Bank, and (ii) according to the International Standards on Auditing (ISA) issued by the International Auditing and Assurance Standards Board of the International Federation of Accountants (IFAC). The audit of the entities' annual financial statements should be conducted by auditors, which have relevant experience in energy sector. Audited financial statements will be presented to the Bank within 6 months after the end of each reporting period and will be publicly disclosed as required by the Bank's policy on access to information. The same auditor will be appointed to conduct the audit of the Program annual financial statements and the

verification of the achievements under DLI 5, 6 and 7[30]. The scope of the audit of the entities' financial statements will be extended to include the review and confirmation (or otherwise) by the auditor that the entities did not incur any non-core business related expenditures, borrowing and lending for the period (DLIs 3 and 4).

22. **Governance Issues**: Similar to many other post-Soviet countries, the State Owned Entities (SOEs) in Armenia, in particular the energy sector SOEs, underperform. The underperformance in fact results in high economic, financial and opportunity costs for the wider economy and society. The poor SOE performance is mostly caused by fundamental problems in governance. In addition, the underperformance is affected by tariff setting policy exercised. Fair tariff settings along with good governance are the pillars on which the energy sector SOEs performance should stand.

23. The SOE governance would benefit substantially, in particular, from (i) establishing and maintaining proper ownership arrangements for effective state oversight and enhanced accountability; (ii) developing sound performance monitoring system; (iii) enhancing SOE transparency and disclosure, and (iv) enhancing legal and statutory framework for corporate governance. Given the fact of 100% of ownership for energy sector SOEs, it is still challenging to effectively exercise the state oversight and ownership functions to serve the best the public interest. The exercising its unlimited power over the state owned SOEs, the government's interference into the SOEs' activities are uncontrollable and sometimes are destructive to the continuation of business activities, financial viability and stability of the SOEs. Using its unlimited power over the SOEs, the government, in some instances, instructs the SOEs to take course of actions that are aimed at getting short-term gains for the government at the SOEs long-run expenses, putting under a danger the continuity of the entities' operations in future. There are several instances when the SOEs made financing and investment decisions involving large transaction which did not relate to their core business, but were instead instructed by the government. As an example, some of those decisions instructed by the government resulted in building a large portfolio of expensive commercial loans for SOEs that were used to finance financial gaps at other state owned entities. 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.

24. From the better governance prospective, this Program-For-Results is aimed at improving the SOEs governance by prohibiting SOEs to incur any non-core business related expenditures, lending and borrowing by the state-owned power companies. This will be achieved by adopting a respective legal instrument (Shareholder Decision), satisfactory to the Bank.

25. **Country Procurement Framework**: Armenia's public procurement legal and regulatory framework enacted in 2011 is conducive to competitive, economic, efficient and transparent procurement. Armenia is a member of the GPA-WTO since 2011. With the support of Eurasian Bank for Reconstruction and Development (EBRD), Support for Improvement of Governance and Management in Central and Eastern European Countries (SIGMA), and the United Nations Commission on International Trade Law (UNCITRAL), the Government is currently drafting an amendment to the Public Procurement Law (PPL) to meet both the Agreement on Government Procurement (GPA-WTO) and the EEUT (Eurasian Economic Union Treaty) requirements. The country is also working on implementing a fully independent appeals system. At present, the

[30] Only DLIs 3, 4, 5. 6 and 7 need to be verified by auditing firm.

Procurement Support Center (that operates within the Ministry of Finance) is responsible for resolving complaints.

26. Transparency and service delivery improvements were enabled through various electronic government systems, including the e-procurement platform known as ARMEPS (Armenian electronic procurement system). ARMEPS was introduced under World Bank financing and will constitute a total solution for the implementation of public procurement. Starting from 2015, the use of the ARMEPS became mandatory for all methods of procurement stipulated by the PPL.

27. Oversight is quite effective. An internal audit system operates within each line ministry, which should provide a complete report on procurement on a quarterly basis. CoC conducts the compliance audit within its annual plan. Details about the operation of the audit system are given in the FM section.

28. As for Bank financed procurement, there are no major issues as procurement implementation is concerned in Armenia. Moreover, progress has been made towards the use of country systems, including authorization to use the e-procurement platform for low value procurements and agreement on the publication of bidding documents by PIUs in the Armenia Procurement Portal. Although the 2009 Country Procurement Assessment Review (CPAR) concluded that the public procurement environment in Armenia is in the medium- to high-risk category; this assessment will very likely need to be upgraded based upon the above.

29. **Procurement under the Program:** The only procurable expenditures under the Program are: (a) US$12.8 million supply and installation direct contract to replace key components (e.g. rotor blades, stator vanes, heat shields) of the gas turbine at the CCGT plant owned and operated by YTPC. Those components will need to be replaced as part of the overhaul to be conducted by YTPC; and (b) US$300,000 of consultant services (6-7 contracts) during implementation of the Program audits and IVA to verify achievement of DLIs.

30. The procurement of the goods and works for replacement of key components of gas turbine will be conducted using direct contracting. YTPC has long-term service agreement (until 2026) with the original equipment manufacturer of the gas turbine (Alstom) to conduct the required inspections to assess the condition of the gas turbine, supply the required components to be replaced, and support with replacement works. Both PPL and Bank Procurement Guidelines allow for direct contracting in situations when spare parts/replacement for equipment needs to be purchased from the original equipment manufacturer to ensure compatibility.

31. YTPC will select the IVAs for verification of DLI achievement. It has some experience in using the country systems for selection of consultants for similar services (e.g. annual entity audits and specialized technical services). The PPL contains sound stipulations ruling the selection of consultant services. It prescribes a prequalification process, which would lead to a bidding process. The selection could be done following different selections methods, which consider quality and cost similarly to Bank Procurement Guidelines. YTPC will also select the Program auditor(s) and the auditor for its annual financial statements. ANPP will be responsible for selection of the auditor for its annual financial statements. Both ANPP and YTPC have some experience in selecting consultants for small-value assignments, including entity audits and specialized technical consultancy.

32. **Anti-Corruption**: The risk of fraud and corruption under the Program is Moderate given overall adequacy of internal controls in place at MENR, YTPC and ANPP. To further reduce the risk of fraud and corruption associated with the Program implementation, it will be aligned to the Anti-Corruption Guidelines (ACG) applicable to PforR operations. In particular, the following will be implemented.

33. *Sharing of debarment list of firms and individuals.* The Borrower will use the World Bank's List of Debarred and Cross-Debarred firms and individuals to ensure that persons or entities debarred or suspended by the Bank are not awarded contracts under the Program during the period of such debarment or suspension. The list can be accessed on the World Bank's website (www.worldbank.org/debarr). The compliance with this requirement would be checked will be checked by the Program's auditor.

34. *Sharing of information on fraud and corruption allegations*. The Borrower will share with the World Bank information on all complaints and actions taken or being taken on complaints and grievances received on fraud and corruption under the Program. The World Bank will be also informed about the actions and decisions taken by the relevant institutions to address the matter raised in the complaint.

35. *Investigation of fraud and corruption allegations*. The implementing agencies will provide full support to the Anti-Corruption Council and the World Bank when carrying out investigations related to fraud and corruption allegations made during the Program implementation. The World Bank will be informed on all credible and material allegations or other indications together with the investigative and other actions that the Borrower proposed to take with respect thereto. The World Bank will retain a right to investigate allegations, and the Borrower will provide the World Bank the necessary access to needed persons and information applicable to the Program.

Table 14: A Summary of Fiduciary Risk and Mitigation Measures

Key Fiduciary Risks	**Potential Impact on Program**	**Key Mitigation Measure**
1) Planning and Budgeting		
The Government Program and the Program budget has not yet been included in the State Budget and approved by the Parliament	The budget allocation to ANPP and YTPC and the respective disbursements to the entities would be delayed.	The Government Program was approved, while the MENR will submit the Program budget to be included into the State Budget.
2) **Accounting and Financial Reporting**		
Weak professional quality of the accounting division at YTPC.	This may lead to inaccuracies in preparation annual financial statements at entity level.	As It was agreed YTPC has hired a team of accountants with sufficient experience and knowledge in international accounting standards, who would also will be responsible for the Program accounting and reporting. Meanwhile, YTPC shall retain adequate professional level of accounting staffing.
3) Treasury Management and Funds Flow		
The economic slowdown may have	The disbursements under	To avoid possible delays in the Program

adverse impact on the efficiency of Treasury operations and delay allocation of funds from the State Budget.	the Program might be delayed.	disbursement resulted by the economic slowdown, the channeling of the Program funds to the entities through the budgetary account of the government will be avoided. Instead, the funds will be disbursed by the Bank directly to the segregated accounts, which although will be maintained at the Treasury but will be directly managed by ANPP and YTPC.
4) Internal Controls and Internal Audit		
Although the internal control arrangements at both entities are overall adequate, cases of overriding those controls were previously observed.	The Program funds might be used inappropriately	The Program review will be included into the annual work-plan for 2016, 2017, 2018, 2019 and 2020 of the internal audit unit of the MENR
5) Transparency		
SOEs, which are CJSC, have no requirement for disclosing financial statements	The use of the public funds would not be disclosed to taxpayers, thus undermining or putting under doubt by general public the effectiveness and efficiency of the use of the Program funds.	ANPP and YTPC's audited annual financial statements will be disclosed on the MENR website as per the Bank Policy on Public Disclosure.
6) External Audit and Oversight		
The CoC (Armenian Supreme Audit Institution) capacity constraint in terms of qualified staff and budget allocation.	The timeliness and quality of the audits will be adversely affected.	Alternative auditing arrangement with involvement of the private auditors acceptable for the Bank will be applied
7) SOE Governance		
Non-core business related expenditures, lending and borrowing are occurring at the state-owned power companies by the government instruction. 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.	The financial sustainability of the SOEs would be endangered resulting in possible disruption of operations, if the practice continues.	Shareholder's meeting decision, which prohibits the non-core business related expenditures, lending and borrowing by the state-owned power companies, would be adopted. Also approval of liquidation plan for Haigasard.
The need of heavy reliance on Direct Contracting given that the original Supplier is the only one in a position to provide spare parts and the necessary expertise for the overhaul of the gas turbine.	Payment of prices higher than reasonable would jeopardize the impact of the Program.	The Bank conducted due diligence and confirmed with a knowledgeable and independent expert that the cost estimate for the proposed US$12.8 million overhaul of the gas turbine is reasonable. Additionally, the Bank confirmed that the PPL requires publication of contract award information for -inter alia- direct contracts.

		Moreover, the procurement items, cost estimates and procurement methods should be disclosed in the procurement plan. The publication of this information reduces the likelihood of abusing the direct contracting.

Annex 6: Summary Environmental and Social Systems Assessment

A. Environmental and Social Impacts

1. *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.

2. The activity under the Results Area 4 – the overhaul of the gas turbine of YTPC's CCGT plant – 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 turbine and compressor parts such as turbine blades, stator vanes and heat shields. The proposed repair is one of the regular periodic repairs that need to be done to maintain the unit in good operational condition and, thus, preclude increased frequency of planned and forced outages. The repair does not imply alteration of technological processes and/or increase in the design capacity of the thermal plant. The Government's investment in the proposed repair is confined to the 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.

3. 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.

4. *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 generation companies, which together account for 42% of total supply for domestic needs. The Program will create benefits for all electricity consumers, including vulnerable and impoverished households.

5. The negative social impact of the Program is the retrenchment of 40 employees of the Haigasard CJSC. Under certain circumstance, 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. The Government is the sole owner of Haigasard CJSC 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. The liquidation of Haigasard will contribute to sustainability of improved financial standing of the state-owned power companies because there are no other special purposes vehicles (SPVs) in the sector to be used.

B. Description of Program Environmental and Social Management Systems

6. *Environmental*: The only excess material that is likely to be generated from the expected replacement works are the old metallic components, which are valuable alloys. The national waste legislation promotes the principle of waste minimization, recycling, and re-use. Recycling and re-use of a variety of wastes is a common practice in Armenia. Recycling of metal/metallic components is wide-spread. It does not require any type of environmental procedures and clearances. It is subject to agreement between an entity producing/collecting metals and an entity processing it. There are companies in Armenia specializing in processing of metal, such as Mikmetal Ltd (the largest processor), and are capable of processing over 20,000 tons of scrap and other metallic parts per year. The amount of metal to be generated from replacement of key components of the gas turbine is less than 1% of the above processing capability. It should be noted that recycling of non-toxic waste is not legally binding and an entity generating such waste may opt to either discard it at a landfill or keep in storage for possible re-use. Given the value of those valuable worn-out metallic alloys, YTPC will either put them to storage at YTPC's warehouse or sell to recyclers. Based on the example from other industrial facilities in general and power generation and transmission facilities in particular, non-toxic storage facilities operated in Armenia meet general safety requirements: they have sufficient space, are properly ventilated, fenced, and guarded.

7. *Social: Liquidation of Haigasard*: The Government will need to prepare and adopt a liquidation plan for Haigasard and initiate the liquidation process. The retrenchment will be done as part of the liquidation plan for the facility. 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. All retrenchment measures that will be undertaken by the government will be explained as part of a chapter on "Social and Labor Issues" that will be included in the Haygazrd liquidation plan. Approval of the liquidation plan is a DLI milestone under the Program and this approach will ensure that it contains the appropriate chapter on Social and Labor Issues as required by the local legislation.

8. Notification requirements: According to the Labor Code, the retrenchment of Haigasard staff is regarded as "collective dismissal for economic reasons" since the entire workforce will be dismissed. Such collective dismissal requires the Government to inform employees and their representatives regarding the planned retrenchment at least two months in advance. The retrenchment announcement for Haigasard will be published in online media outlets, and the Human Resources Department will notify the employees to be dismissed in a written form.

9. Monetary compensation: According to the Labor Code, compensation should be paid to retrenched employees by the day of their dismissal from work, unless a different procedure is specified in the Code or as part of a specific agreement between the employer and the employee. The compensation mandated by the Labor Code includes a full salary payment up to the dismissal date and reimbursement for any accrued vacation or leave days that the employee was entitled to and has not used. Haigasard will fully compensate the retrenched employees in accordance with the Labor Code.

10. Training and Redeployment: The Labor Code does not mandate employers to offer training or redeployment options to retrenched employees. However, retrenched employees can take advantage of the 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. The SEA's services include the following:

- Consultation on issues connected to job search, recruitment, the hiring process, etc.
- Information on open vacancies and employment programs;
- Connecting jobseekers and potential employers;
- Support in identifying appropriate professional training possibilities;
- Support and consultation related to entrepreneurial activities;
- Calculation of unemployment benefits;
- Organization of job fairs.

11. 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 (please see the ESSA for more details).

12. *Social: Potential Direct Tariff Impacts of the Program*: Implementation of the improved methodology for adjustment of ENA's margin and revised methodology for computation of YTPC's and Hrazdan TPP's tariffs will require regular adjustments to end-user tariffs depending on changes in variables that impact the costs of above companies. For example, the proposed adjustment of ENA's margin may lead to upward adjustment of the end-user tariff if actual cost of supply is higher than the forecast cost. A downward adjustment will need to be done if the actual cost of supply is lower than the forecast cost. Additional details are presented in the Technical Assessment of the Program. If adjustments lead to end-user tariff increases, then those will be mitigated by the existing social safety net of the Government.

13. The Government has been using the existing social assistance programs to mitigate the impact of increase energy prices on end-users. Social assistance consists of several programs, including the flagship Family Benefit Program (FBP), a means-tested unconditional transfer currently covering about 105,000 households, and an Emergency Benefit Program (EBP) covering about 9,000 socially vulnerable households that do not qualify for the FBP. While pensions have the greatest impact on poverty due to their size and coverage, the FBP remains the most pro-poor government transfer. Due to budget limitations, however, the FBP reaches only 12.5% of the population; consequently, targeting the extreme poor is critical. At about 60%, the FBP's targeting accuracy is broadly in line with global standards, but it has significant room to improve to match the highest performing programs in the region. The government has already reduced leakages and increased the coverage of poor households. As a result, the number of FBP beneficiaries grew from 86,138 households at end-2011 to about 104,000 at end-2014. This was facilitated by streamlining the application process for FBP eligibility, harmonizing the eligibility criteria for both FBP and basic health services, and increasing the funding for FBP healthcare support in the 2014 budget.

14. 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.[31] The real increase in FBP allocations and the impact of real tariff increase on spending are presented in rows 8 and 6 of the Table below.

Table 15: FPB Spending and Electricity Tariff Increases

		2008	2009	2010	2011	2012	2013	2014	2015	2016f
1	Nominal monthly average spending per household from FBP (in AMD)	19,824	22,612	24,523	26,402	28,650	28,086	28,355	30,358	30,158
2	Nominal average billed electricity tariff (in AMD/kWh)	24.3	27.6	29.1	28.3	28.9	31.2	38.3	42.0	42.0
3	CPI (period average)	9.0%	3.4%	8.2%	7.7%	2.5%	5.8%	3.0%	4.3%	3.5%
4	Real billed electricity tariff (in AMD/kWh)	22.3	26.7	26.9	26.3	28.2	29.5	37.1	40.3	40.6
5	**Change in real electricity tariff**	**-8.4%**	**19.6%**	**0.8%**	**-2.3%**	**7.3%**	**4.6%**	**25.9%**	**8.4%**	**0.9%**
6	**Impact on spending assuming no price elasticity**	**-**	**2%**	**0.08%**	**-**	**0.7%**	**0.5%**	**2.6%**	**0.8%**	**0.09%**
7	Real monthly average spending per household from FBP (in AMD)	18,187	21,868	22,665	24,514	27,951	26,521	27,529	29,107	29,138
8	**Change in real average monthly spending per household**	**-**	**20.2%**	**3.6%**	**8.2%**	**14.0%**	**-5.1%**	**3.8%**	**2.0%**	**-0.1%**

15. As mentioned above, 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 was planning to increase the size of FBP by 3.9% in 2016. However, the increase was not approved given limited fiscal space due to economic slow-down. Thus, the Government will need to further improve the coverage and targeting of FBP to ensure benefits reach to a large number of vulnerable consumers.

16. Given the importance of affordability of electricity, the World Bank has been providing advisory and analytical support to the Government to help improve affordability of electricity for poor households through improved coverage, targeting, and some other measures.

17. Under the Armenia Poverty TA, and the Social Inclusion and Labor Knowledge for Reforms, Operations and Development Technical Assistance (SILK ROAD TA), and previous ESMAP funded regional work, the World Bank provided advisory support specifically focused on mitigation of

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

impacts of energy tariff increases on the poor as well as broader reforms that are required to social protection system to ensure adequate protection of the poor. Presented below are the details on the focus of key analytical pieces prepared.

18. Distributional Analysis of Energy Tariffs in Armenia.

- Conducted distributional impact analysis to assess the impact of electricity and gas tariff changes on consumers, differentiated by the income levels, and over time.
- Identified the changes in poverty levels.

19. Protecting Vulnerable Households from Rising Energy Tariffs.

- Provided recommendations on policy options available for maintaining affordability of energy services for the poor under two benefit generosity assumptions: (i) increase of benefit to compensate only for the tariff increase; and (b) setting the benefit at a higher value to reduce deprivation in energy consumption among the very poor by closing the consumption gap between the bottom and the second lowest quintile of income-earners. The options included compensation through the targeting system used to allocate the FBP at the moment, at varying levels of coverage.
- Estimated the fiscal costs associated with each option for mitigating the impact of energy tariff increases on the poor.
- Provided recommendations on improvements that can be made to the FBP targeting formula to further improve its targeting accuracy, and other changes to enable the inclusion of a larger share of poor households than it does at the moment. A second set of policy scenarios simulated the distribution of an energy benefit if a new targeting formula was put in place based on proxy means testing.

20. Options to Enhance Targeting of Social Safety Nets in Armenia.

- Provided recommendation on adopting a regression-based Poverty Means Testing (PMT) formula, which will generation improvements to the targeting of benefits in Armenia. The best-performing PMT model was assessed to allow increasing the existing coverage for the bottom quintile and for the total poor (at the poverty line).
- Estimated improvements in coverage are the result of reduction in coverage of individual in the intermediate and upper quintiles.
- Proposed changes to PMT would allow reducing strong disparities in progress access currently observed across different marzes with similar poverty rates, and reduce the biases of the program against households with formal income earnings.

21. Targeting Formula Validation Survey (Ongoing).

- The survey is intended to be a pre-pilot of the new formula on a representative sample of existing beneficiary households and potential new beneficiaries.
- The survey will allow to established coherence between household survey and administrative database in terms of variables used for the computation of the proxy means score.

- The survey would also serve as a baseline to understand the effect of an eventual targeting reform on the behavior of households
- The survey includes few questions to clarify issues related to expenditure on utilities and heating products.

22. <u>Qualitative Assessment on Impacts of and Attitudes to Energy Reforms in Armenia.</u>

- Assessed energy consumption patterns and associated financial payment burden.
- Evaluated the impact of tariff increases on households.
- Identified the different types of measures households resort to in order to cope with price increases;
- Assessed perception on the quality of service and interaction with energy service providers including transparency, clarity of tariff-setting process, accountability, issues of arrears and non-payment;
- Explored attitudes to energy reforms and tariff reforms more broadly;
- Identified the type of programs that participants use to support them with basic needs, and perceptions on most effective measures for protecting poor households from adverse impacts of energy tariff increase.
- Assessed the different effects that tariff reforms have across genders.

23. The Bank will be providing additional advisory and analytical support to the Government in 2016 to: (1) Help assess the social impacts of recent tariff increases; (2) Develop strategies to mitigate the impact of tariff increases on vulnerable consumers. The following options will be explored in greater detail: (a) use of Proxy Means Testing to deliver targeted cash compensation to those eligible; (b) introduction of a block tariff design; and (c) introduction of a life-line tariff; and (3) Strengthening coordination, communication, and capacity on energy subsidy reform**.** While the above activities will provide analytical evidence to the Government and the PSRC, the ability to develop coordinated action and communicate effectively with consumers are essential ingredients for an effective response to mitigating the impacts of energy price increases.

24. *Citizen Engagement and Gender*: The Program will promote citizen engagement through seeking and responding to feedback from electricity consumers: (a) regarding the proposed changes in the methodology for adjustment of ENA's margin and revised methodology for computation of YTPC's and Hrazdan TPP's tariffs; and (b) on tariff review applications filed by the power sector companies or tariff reviews initiated by PSRC at least once a year.

25. The drafts of the amendments to the ENA License and changes to the tariff setting methodology for YTPC and Hrazdan TPP will be disclosed by PSRC on its web-site at least five business days prior to the session of the PSRC to make decision on this particular matter. The PSRC will also be disclosing for public feedback, which is required under the existing legislation, the tariff review filings submitted by the power sector companies or initiated by PSRC. A phone number is also available to ask questions or provide feedback on the disclosed documents. Typically, the tariff review fillings with all of the supporting material/computations are disclosed 70 days before the PSRC session to make final decision on tariffs.

26. The PSRC will respond in writing: (a) within 15 business days to any questions and requests for additional information/data; and (b) within 30 business days to complaints. The Bank team agreed with the PSRC that it will prepare a report with all comments received (disaggregated by gender) and submit to the Bank in one month after adoption of the regulatory amendments under the Program and subsequent tariff reviews during each year of the Program.

27. The implementation of such citizen engagement approach will be monitored through the Intermediate Result Indicator under the Program – "Percent of tariff-setting related questions and inquiries (gender-disaggregated) responded to by PSRC within stipulated service standards for response time."

C. Program Capacity and Performance Assessment

28. The details related to implementation capacity and performance of the Government and YTPC in use/application of the environmental and social systems applicable to the Program is presented below.

29. The components of the gas turbine, which were dismantled during previous overhaul in 2014, was put to storage at the territory of YTPC in a warehouse and remain there. No other environmental impacts were observed / registered by the Ministry of Environmental Protection as a result of those repair works.

30. The Government has adequate capacity to implement the retrenchment process and it has complied with the provisions of the Labor Code in previous retrenchment instances. For example, in the case of Nairit Chemical Plant, the company announced in December 2014 that retrenchment was planned for February 2015 and that it would be guided by the Labor Code. The retrenchment announcement was published in online media outlets, and the Human Resources Department notified all 2,200 employees in a written form. The official press release emphasized that 400-500 employees out of the 2,200 would be contracted for new employment. Nearly 1,800 employees were dismissed in September 2015, while the remaining 400 have already been notified about the retrenchment plans, but will only be laid off as part of the final decommissioning of Nairit. Compensation was provided to employees in accordance to the Labor Code.

31. Another relatively large retrenchment took place in 2007 as part of the restructuring of the Armenia Railway (AR). Around 500 employees were retrenched before the Government started the international competitive bidding to select a concession contractor. The retrenchment was conducted in compliance with the requirements of the Labor Code and the same notification and compensation requirements were followed

32. 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.[32]

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

33. As mentioned above, the last 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 will need to either top up the FBP budget with additional cash or put in place alternative mechanism for mitigation the impact.

34. *Timeline for repair works*. The works for replacement of the key components of the gas turbine, as described above, are planned to be conducted in May-June 2018. The gas turbine will be disconnected from the power grid during that time and reconnected immediately after completion of replacement works.

35. *Timeline for retrenchment of Haigasard staff*. The retrenchment process is expected to be initiated in 2017 and the contracts with all of the employees will be discontinued by the end of 2017 upon paying in full all of the compensation specified in the Labor Code and described above.

D. Assessment of Program Systems

36. The environmental and social systems applicable to the Program activities are consistent with the core principles of the Bank Policy on Program-for-Results.

37. *Core Principle # 1*: Promote environmental and social sustainability in the Program design; avoid, minimize, or mitigate adverse impacts, and promote informed decision-making relating to the Program's environmental and social impacts.

38. The Program environmental impacts are negligible given that the repair of the gas turbine of YTPC will result only in limited number of worn-out metallic components (maximum of 2 tons), which will most likely be stored at an existing warehouse or sold to metal processing companies. The metal is not toxic and/or hazardous because it has not been in contact with such substances. The Program minimizes the social impacts because: (a) the number of employees to be retrenched at Haigasard is small; and (b) the impacts from potential tariff increases will be mitigated through existing social safety net or other measures to be put in place with the support provided by the Bank.

39. *Core Principle # 2*: Avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the Program.

40. The Program would neither impact nor convert critical natural habitats, does not generate any adverse impact on terrestrial flora. There are no anticipated impacts on physical cultural resources. The Program will not support civil works except for replacement of key components of the gas turbine and the works will take place within the premises of YTPC.

41. *Core Principle # 3*: Protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the Program; (ii) exposure to toxic chemicals, hazardous wastes, and other dangerous materials under the Program; and, (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards.

42. The only activity under the Program, which may create risks for the workers' safety, is the replacement of key components of the gas turbine at YTPC. Those works will be conducted by the well-trained staff and following the requirements of the Safety Guidelines for Operation and Maintenance of Power Plants, which are mandatory for YTPC and clearly defined all safety measures and precautions during such works. 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 overhaul of the gas turbine at YTPC's CCGT plant.

43. *Core Principle # 4*: Manage land acquisition and loss of access to natural resources in a way that avoids or minimizes displacement, and assist the affected people in improving, or at the minimum restoring, their livelihoods and living standards.

44. The Program does not support any civil works outside of the existing YTPC facility. Additional land acquisition will not be required.

45. *Core Principle # 5*: Give due consideration to the cultural appropriateness of, and equitable access to, Program benefits, giving special attention to the rights and interests of the Indigenous Peoples and to the needs or concerns of vulnerable groups.

46. The Program does not support provision of basic services to communities. The Program gives due consideration to the needs of the vulnerable groups in case electricity tariff increases are required. Those impacts will be mitigated through the existing FPB program and/or other mechanisms/measures that the Government may decide to put in place with the support of the World Bank.

47. *Core Principle # 6*: Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.

48. The Program does not support any activities that may exacerbate social conflict, including those in fragile states, post-conflict areas, or areas subject to territorial disputes.

E. Inputs to the Program Action Plan

49. The ESSA does not propose activities to be included in Program Action Plan. The challenges identified through the ESSA are included in the program implementation support plan.

F. Environmental and Social Risks Ratings

50. The Program mainly consists of soft activities aimed at improving the legal and regulatory framework for the power sector and eliminating the vehicle (Haigasard) that was used to drain the cash flows of the state power companies. Those activities include a *decision* by the Shareholder's Meeting of ANPP and YTPC prohibiting the non-core business related expenditures of state-owned power companies, improving the methodology for computing the margin of the power distribution company and the tariffs for thermal power plants, and liquidation of Haigasard. Those activities are not expected to create direct environmental impacts. The only social impacts are limited to retrenchment of employees of Haigasard and potential welfare impacts on the poor if tariff increases are required due

to revision of the tariff-setting methodology. The existing social protection system will help the retrenched employees to find new occupation. The well-functioning FBP will allow mitigating the impacts of tariff increase on the poor.

51. The only physical activity under the Program is the small-scale repair works of the YTPC gas turbine. Those works will not generate any hazardous, toxic or other dangerous waste and do not pose substantial risks to health and safety of workers. There is no land acquisition required for the implementation of the Program and no anticipated issues related to social conflicts.

52. Therefore, the environmental and social risks of the Program are Low.

G. Public Consultation

53. The draft ESSA was disclosed for public feedback through publication in InfoShop (on Dec. 29, 2015) and distribution through email (on Dec. 25, 2015) to key stakeholders, including the MENR, PSRC, Ministry of Nature Protection, Ministry of Labor and Social Protection, Non-governmental Organizations (NGOs) representing the consumer interests, and Civil Society Organizations (CSO) active in the energy sector. The key stakeholders were requested to submit comments and suggestions. The World Bank received only one feedback from the "Centre of Political, Legal and Economic Research and Forecasting" NGO. The feedback provider concurred with the key steps required to bring the sector to adequate financial standing and also mentioned the need for update of the power sector expansion planning analysis, which was conducted in 2013, given that several of the assumptions are obsolete. It was recommended that the update should also focus on the following key questions: (a) objectives of power sector development; (b) main electricity consumers; and (c) whether new investments are economically justified. Details are presented in the Report on Assessment of Environmental and Social Systems for the Program.

Annex 7: Systematic Operations Risk Rating (SORT)

Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Low
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Substantial
7. Environment and Social	Low
8. Stakeholders	Substantial
9. Achievement of DLIs	Moderate
OVERALL	**Substantial**

Annex 8: Program Action Plan

1. The Program has all of the critical building blocks required for delivering results. These include: (a) strong government commitment to achieving agreed results; (b) focus on the key factors that drove the power sector into financial distress; (c) clearly defined interventions, which are technically sound and supported by relevant international experiences; and (d) specific, measurable, relevant, and time-bound results indicators to assess Program performance (those are described further in the next section). Thus, no improvements are proposed to the Program as part of the Program Action Plan.

Annex 9: Implementation Support Plan

1. This Implementation Support Plan is in line with the Program-for-Results operational guidelines. The Borrower is in charge of the implementation of all Program activities in support of achievement of the agreed DLIs, as well as of elimination of inefficiencies/bottlenecks identified in the social, environment and fiduciary assessments. The Bank's implementation support will cover, but not limited to the below key areas:

- Implementation of Program Action Plan.
- Review of program implementation progress, including review of program progress reports, audit reports, IVA reports, and other relevant data and information.
- Monitoring of the financial performance of the power sector.
- Monitoring of changes in the Program risks.
- Review of compliance with legal agreements, and proposing remedy actions to improve program performance, if and as needed;
- Support in resolving any operational issues pertaining to the project.

2. In particular, the Bank team will be working with the Government, PSRC and other key stakeholders in the following main areas:

- Technical advice: The Bank team will be providing required technical advice to the PSRC on substantive issues related to revision of ENA's License to allow for full reflection in the tariff margin calculation of the accumulated loss (revenue) due to mismatch between forecast and actual power generation mix; and revision of tariff-setting methodology to allow adjustment of YTPC and Hrazdan TPP tariffs to fully reflect the loss (revenue) resulting from difference between forecast and actual cost of purchased natural gas due to fluctuation of AMD/US$ exchange rate during the preceding period. The World Bank team will also provide technical advice to MENR, which will be preparing the liquidation plan for Haigasard.

- Financial management: The Bank team will regularly review the previously mentioned fiduciary indicators. The Bank team will pay particular attention to: (i) progress in the implementation of the Program Action Plan, and (ii) quality and timeliness of the Program semiannual and annual financial statements, as well as on ANPP and YTPC annual financial statements. In addition, the Bank fiduciary team will also work with the Borrower to monitor overall implementation progress and address areas which need improvement as identified above, as well as it will have a continued involvement as follows:

  (i) Reviewing implementation progress and achievement of program results.
  (ii) Providing support for implementation issues and institutional capacity building, as relevant.
  (iii) Monitoring the performance of the fiduciary systems, regular reports and audits, as well as compliance with fiduciary provisions of the legal covenants.

- Procurement: The Bank team will provide some guidance and advice to MENR and YTPC when drafting the TORs for selection of IVAs to ensure there are well-defined, non-restrictive and in line with the existing needs. The Bank team will also provide the needed guidance and advice to YTPC when preparing the contracts for procurement of key components of gas turbine. The Bank team will also be reviewing the progress with selection of the Program auditors, IVAs, and procurement of components required for repair of the gas turbine of YTPC.

- Fraud and corruption: The Bank team will monitor implementation of fraud and corruption mitigation measures and will stay abreast of any developments that could potentially create conflict of interest situations thus providing guidance in resolving any emerging issues or early prevention of fraud and corruption practices.

- Social: The Bank team will be helping the Government to draft a comprehensive social chapter of the liquidation plan for Haigasard. The Bank team will also provide analytical and advisory support by the World Bank to analyze alternative options for mitigating impacts of tariff increases, including use of Proxy Means Testing to deliver targeted cash compensation, introduction of life-line tariffs, energy efficiency retrofits in the apartments of vulnerable consumers.

- External communications: The Bank team will also provide ssupport to strengthen the institutional capacity of PSCR capacity on public communication and education on electricity tariff related issues.

3. Key members of the Bank's implementation support team (technical, fiduciary, M&E and social), are either based in the Country Office or in the Region. This will help to ensure timely, efficient, and effective implementation support to MENR.

Table 16: Main focus of Implementation Support

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First twelve months	(a) Review of the progress with timely implementation of the changes to ENA License and revisions to the tariff methodology for thermal power plants; (b) technical advice to MENR during preparation of liquidation plan for Haigasard; (c) review of the status of implementation of the Program Action Plan; (c) support with preparation of the TORs for IVAs; (d) review of the progress with other key activities under the program and overall financial standing of the state-owned generating companies and ENA; (e) analytical and advisory support by the World Bank to analyze alternative options for mitigating impacts of tariff increases on vulnerable consumers; (f) support to	Regulatory/tariff-setting specialist; FM specialist; Financial analyst; Procurement specialist; Social and Poverty Economists; Ext.	At least two missions	The World Bank team will cooperate with relevant teams of IMF and Eurasian Development Bank, which included a number of the Program activities into their respective programs.

Time	Focus	Skills Needed	Resource Estimate	Partner Role
	strengthen the institutional capacity of PSCR capacity on public communication and education on electricity tariff related issues.			
12-60months	(a) Support in preparing comprehensive social chapter for liquidation plan for Haigasard; (b) review of tariff computations done by PSRC to ensure the proposed revisions to the methodology for computation of ENA's margin and tariffs for YTPC and Hrazdan TPP are applied; (c) procurement related guidance and advice to YTPC when procuring components for the gas turbine; (d) update of the financial standing of the power sector; (e)	FM specialist, Tariff-setting specialist; Financial analyst; Procurement specialist; Social Development Specialist	At least six missions	The World Bank team will cooperate with relevant teams of IMF and Eurasian Development Bank, which included a number of the Program activities into their respective programs.

Table 17: Task Team Skills Mix Requirements for Implementation Support

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Task team leader	14	4	HQ based
Financial analyst	2	0	Country based
FM specialist	4	0	Country based
Procurement specialist	2	2	HQ based
Social specialist	2	2	Israel based
Legal specialist	2	1	HQ based

Table 18: Role of Partners in Program Implementation

Name	Institution/Country	Role
IMF	Multilateral	Policy Dialogue
Eurasian Development Bank	Multilateral	Policy Dialogue

Map: IBRD 33364