

ECONOMIC ANALYSIS

A. Introduction

1. The analytical framework of determining efficient and sustainable use of resources is based on relevant Asian Development Bank's (ADB) publications, including *Guidelines for the Economic Analysis of Project (2017)*.

B. Economic Analysis of ADB's Program Loan for the Pakistan Energy Sector Reforms and Financial Sustainability Program

2. Energy sector in Pakistan has been facing liquidity crises due to the following reasons: (i) accumulation of circular debt due to uncontrolled flows, (ii) expensive generation, (iii) uncompetitive power market structure, (iv) blocked tax refunds due to high incidence of taxation on electricity and gas prices, (v) regressive subsidy structure and (vi) high capacity payments to power suppliers. These add to longstanding structural challenges in the energy sector that in turn undermine fiscal sustainability and underscore other macroeconomic challenges.

3. Pakistan's economic growth averaged 4.8% during FY2015–FY2018 before it slowed down to 3.3% in FY2019. The improvement in economic performance was supported by improved security situation and better energy supplies. However, macroeconomic challenges reemerged with gradually rising fiscal and current account deficit totaling 13.7% of gross domestic product (GDP) in FY2018 as structural issues such as low investment rate, weak revenue collection and low industrial competitiveness and governance challenges remain. Continued structural issues in the energy sector contribute to the macroeconomic vulnerabilities thereby raising fiscal and current account deficits and undermine competitiveness.

4. The government was able to contain energy shortages in the recent years with additional power generation capacity of 12.2 gigawatts (GW) supporting supply-side growth. Stable and affordable energy supply and the level of energy consumption are found to have strong and positive links with economic growth. In case of Pakistan, GDP growth was estimated to increase significantly with increase in energy use. However, high cost of energy in Pakistan adds to the cost of production rendering the industry uncompetitive in international market. Pakistan's average industrial tariff rates of electricity are highest at PRs18.78 per kilowatt-hour¹ (kWh) when compared to Vietnam, Bangladesh and India ranging between PRs6–PRs12 per kWh. Higher cost of power generation (\$0.072 per kWh) is a result of multiple system inefficiencies and the energy mix dominated by thermal generation based on imported oil. The latter exposes Pakistan to the external price shocks and jeopardizes current account balance when global fuel prices are high. The absence of monitoring of the capacity payments (fixed payments to power suppliers) against actual generation implies that there are likely excessive payments at the time of under-utilized capacity with additional fiscal burden.

5. High losses of public sector enterprises (PSEs) including in the energy sector result in significant fiscal transfers to them and add to budget deficits and erode fiscal sustainability. Spending on public subsidies (largely power subsidies of PRs230 billion out of PRs255 billion in total in FY2019) has declined over the years but continues at 0.4% of GDP in FY2018 contributing to high fiscal deficits. Outside the budget, power sector circular debt is another drain on the limited

¹ IESCO.com.pk, Islamabad Electric Supply Company Ltd (IESCO). Islamabad.

- Central Electric Agency Government of India, 2018
- Vietnam Electricity Prices, Thomson Reuters, 2019
- The Bangladesh Energy Regulatory Commission, 2018

fiscal resources. Due to persistent failure in implementing reforms, circular debt has increased from average PRs634 billion during FY2014–2016 to PRs1,600 billion in FY2019 (4.1% of GDP), on top of the already high public debt.

6. Addressing challenges in the energy sectors continues to be a priority of the government with various reforms undertaken to bring financial sustainability in the sector, supported by various development partners. The proposed Pakistan Energy Sector Reforms and Financial Sustainability Program (Energy Program) envisage reforms that will put the sector on track and address the underlying inefficiencies to curb the flow of circular debt to stop the government bleeding caused in the form of fiscal transfers through subsidies. Given the background, the proposed reforms under the energy program will help the government to make the sector viable and facilitate in the privatization of power sector entities in the long through a robust privatization program.

7. The proposed reform program will support to reduce energy insecurity, improved foreign exchange reserves, reducing cost of production and increasing competitiveness. This is expected to be achieved from three reform areas. These include:

(i) Improving financial sustainability

8. The reforms will help eliminate quasi-fiscal losses, reducing circular debt to improve sector liquidity through effective circular debt management plan, facilitating the refund of required tax refunds and improving governance. Development of national electricity and renewable energy policy and introducing required amendments in NEPRA Act will help automate the tariff notification process and contribute to the long run financial sustainability of sector. Energy security will be enhanced through reduction in circular debt and reduction in generation cost through effective measures introduced under the policy and plan.

9. The previous National Power Policy 2013 could not achieve all its objectives. Under subprogram 1, the government has notified the power tariff for FY2019 which substantially covers components of cost monthly fuel price, capacity charges and losses adjustments, budgeted the full amount of the required subsidy for electricity for FY2020 and committed to a monthly release pattern and institutionalize for subsequent years. The circular debt capping action plan including handling of flow and stock will be a critical reform to address issues around financial sustainability of the sector supplemented by the regulatory reforms including preparation of the draft National Electricity Policy 2019 and Renewable Energy Policy 2019.

10. The subprograms 2 and 3 will further strengthen and build upon the reforms initiated under first subprogram. Financial sustainability will be improved by adopting a system of multiyear tariff and notified the power tariffs for all DISCOs as determined by NEPRA, and by improving collection and payment mechanism of CPPA, implementing the differential tariff for all DISCOs (with zero subsidies). These will be supplemented by other policy and institutional reforms such as approval of the National Electricity Policy, rolling 5-year integrated generation, transmission and distribution plan clearly linking investments with targets and financing, and dispute resolution with FBR on tax refunds based on guiding principles preparing refund schedule.

(ii) Strengthening institutional and regulatory governance

11. Energy sector in general and power subsector in particular have been facing governance issues for long and several reforms initiated in the past remained incomplete. The unbundling of Water and Power Development Authority into power generation (GENCOs), distribution (DISCOs) and transmission companies (NTDC) was not followed by their financial and human resources

autonomy. Appointment of professional Chief Executive and Board of Directors have not been optimal, as required under the Companies Ordinance 1984² and corporate governance rules.³ Establishment of a competitive power market system through operationalization of an independent power market operator is in progress. Despite establishment of NEPRA in 1997 under an Act, there remained several disputes and in some cases litigation against NEPRA determinations that have resulted in abnormal delays in the tariff notification process, putting sector liquidity at risk. Since government's plan of privatization in 1993, the privatization program for power sector entities has had limited progress. In order to ensure the timely achievement of program objectives, an effective monitoring mechanism is required to be put in place.

12. Several institutional and policy reforms are in process and/or initiated to improve governance in the sector including the appointment of key positions in various agencies in energy sector and independent Board of Directors of selected DISCOs, an updated roadmap with implementation timelines for transition from single buyer to multi buyer market and competitive market, separation of policy making and regulatory functions in the gas subsector and the establishment of the appellate tribunal for NEPRA decisions. The subsequent reforms (under subprograms 2 and 3) will support reform measures to prepare for and initiate privatization of two regasified liquefied natural gas plants, and to complete the separation of policy making and regulatory functions in the gas subsector.

(iii) Reinforcing energy (power and gas) Infrastructure

13. With limited gas resources, further government efforts are required to control the existing gas losses and plan for exploration of new natural resources including oil and gas. The reforms to be initiated under subprogram 1 include preparation of plans for gas loss reduction to address *Unaccounted For Gas* (UFG) and a plan (to improve bidding procedures) to encourage sustained and reliable exploration in oil and gas sectors. The subsequent two subprogram will support approval and implementation of the plans.

C. Economic Benefits

14. The three pillars of the program build on various reforms previously initiated in the energy sector with benefits at sector level and economywide secure a reliable, sustainable, and affordable energy sector. The implementation of legal institutional and governance reforms under the program will significantly contribute to the power subsector financial sustainability and better governance. Given the scale of the fiscal and macroeconomic impact of the weaknesses in the energy sector, the reforms are critical for addressing the challenges and improve service delivery, improve competitiveness of the firms, and enhance fiscal and macroeconomic stability.

15. The program will address sector inefficiencies, strengthen sector governance, and eliminate quasi-fiscal losses. Reducing circular debt will improve sector liquidity, protect funds for infrastructure expansion, finance technological improvements, phase out subsidies, and reduce consumer tariffs. Improved financial sustainability and infrastructure improvements in the energy sector will in the long run reduce cost of generation and consumer prices that in turn will support the competitiveness of Pakistani products in the international markets.

² National Assembly of Pakistan. [Companies Act, 2017](#).

³ Securities and Exchange Commission of Pakistan. [Public Sector Companies Corporate Governance Rules, 2013 \(amended in 2017\)](#).

16. The appointment of professional management and independent boards will reinforce accountability mechanisms and autonomy of power entities that will facilitate functional outsourcing and management contracting to lower inefficiencies, thereby leading to phased private sector participation and eventual graduation to an accountable competitive power market.

17. Reforms will bring economy wide spillover effects through backward and forward linkages. Reduction in inefficiencies including line losses will result in improved sales volume of power and gas and will ultimately lead to increased tax revenue for government. This in return will also facilitate higher growth with improved industrial productivity. Limiting and eliminating circular debt flows will create fiscal space for development spending. Through exploration of indigenous resource, the precious foreign exchange reserves will be saved that will improve country's current account position and foreign reserves. However, sustainability of reforms will be critical for long run economic benefits.

D. Conclusion

18. The comprehensive Pakistan Energy Sector Reforms and Financial Sustainability Program aims to help address critical binding constraints in the energy sector that are increasingly contributing to fiscal pressures and are undermining growth prospects. Governance and financial sustainability issues in energy sector including circular debt, losses in power sector PSEs, inefficiency and repayment. Three subprograms will support and augment recently initiated reforms of the government reforms by addressing institutional and regulatory inefficiencies, collection and payment issues, and reinforcing improvements in gas infrastructure and supply.

Box 1: Energy Consumption in Pakistan

Economic literature suggests a strong correlation between energy use and sustainable economic growth. A cointegration test for energy use, investment and GDP per capita in Pakistan during 1971-2013 reveals that there exists a positive long run relationship for energy consumption per capita, investment and GDP growth (per capita). The equation below shows positive long run impacts of investment and energy use at 0.64% and 1.41% respectively on GDP.

However, the higher per unit cost of energy in Pakistan, that reflects financial and governance challenges in the sector, adds to the cost of manufacturing which in turn can discourage energy consumption with negative effects on economic growth. The policy reforms under the energy sector reform program are expected to help remove this constraint to growth by helping improve financial sustainability in the energy sector that will contribute to reliable energy supplies positively contribute to sustainable economic growth of the country.

Cointegration results:

$$\text{IGDP capita} = 0.64 * \text{investment} + 1.41 * \text{IEU}$$

Adjustment coefficient = -0.092. A small coefficient reflects faster adjustment to regain system equilibrium.

*(All variables are in log form) where; IGDP capita = GDP per capita; investment = Total investment; IEU = Energy Use