

ENVIRONMENTAL ASSESSMENT OF POLICY MATRIX

A. Introduction

1. The proposed Sustainable Energy Sector Reform Program aims to support the plan of the Government of Pakistan to make the energy sector affordable, reliable, sustainable, and secure to support the country's economic growth. The structure of the program is based on the government's National Power Policy (Power Policy) approved in 2013. The government has prepared an action plan of the Power Policy. In order to support the implementation of the action plan, the policy matrix has been prepared by a joint mission of Asian Development Bank (ADB), World Bank (WB) and JICA.

2. The program assistance to be provided through the agreed policy matrix has been categorized as "B" for environmental safeguards. As required by ADB's Safeguards Policy Statement (SPS) 2009, an environmental assessment of policy matrix (EAPM) has been prepared and is presented in the following sections.

3. The proposed program is spread over 5 years with a subprogram for each year. The EAPM covers the entire program, however, if new policy actions are agreed with the government in subsequent tranches, they will separately undergo a safeguards due diligence process as required under SPS 2009.

B. Description of Policy Interventions

4. The policy matrix of the proposed program is divided into three areas: (i) Policy Area A - managing tariffs and subsidies; (ii) Policy Area B - improving sector performance and opening the market to private participation, and; (iii) Policy Area C - accountability and transparency. The objectives of each area are described below and the policy matrix is attached.

5. **Policy Area A:** This area aims to (i) adopt clear policies on tariffs and subsidies to target low income consumers; (ii) ensure policy implementation through the National Electric Power Regulatory Authority (NEPRA) rules and regulations, and; (iii) reduce discretionary policy decisions and lag in tariff approval and implementation. This area aims to mitigate the unsustainability of the sector – partial cost recovery by utilities. In particular it will ensure implementation through tariff and subsidy rules and regulations to reduce discretion and lag in tariff approval. This will reduce the subsidy burden on the government while maintaining its social responsibility.

6. **Policy Area B:** This area aims to create the conditions that will lower the high cost of electricity generation in the future.

7. **Policy Area C:** This area aim to implement the mechanisms to allow information access and strengthening the transparency of operation of energy sector for all stakeholders.

8. The policy matrix is attached as Annex 1.

B. Environmental Assessment of Policy Interventions

9. In the policy matrix, managing generation cost through least-cost planning (LCP), and ensuring new generation entry follows the LCP and increasing gas supply and opening the gas

market to direct contracting sales to large gas consumers may have adverse environmental impact in the long term. The impacts of these actions are described as below.

10. The expected outcome for least-cost generation plan is to decrease the electricity tariff by shifting to least-cost generation. More than 50% of the thermal power plant generation is produced from expensive imported fuel oil currently and this increases the cost of generation. Shifting to least-cost generation options may result in pressures on the natural resource base and will have the possibility of impacting the air and water quality depending on the source used for power generation. To ensure the LCP is environmentally feasible, it is important to take environmental issues into consideration in the LCP at a broader level.

11. Increasing gas supply is also expected to bring the same outcome to decrease the generation cost. Therefore, increasing the gas production from local fields and expanding its supply to power sector is one of the most economical solutions for the time being. However, sustainability of the source will have to be assessed, and resulting environmental impacts will need to be assessed at a broader scale.

Table 1: Environmental Assessment of Policy Matrix

Policy Intervention	Economic and Social Outcomes	Environmental Impact	Mitigation Measures
Managing generation cost through Least-Cost Planning (LCP), and ensuring new generation entry follows the LCP	The generation cost will be decreased by LCP.	Shifting to the least cost generation mix involving hydro, coal or natural will have various different types of impacts. Additionally, siting the power sources will also have to be examined carefully from an environmental perspective.	<p>Before finalizing the LCP, a comprehensive Strategic Environmental Assessment (SEA) should be conducted that will examine the plan's broad environmental implications, it will provide siting options from a strategic environmental view point. The SEA will also include measures for climate change vulnerability; and estimating, and monitoring expected GHG emissions.</p> <p>Subsequently, while developing each individual option under the LCP Environmental Impact Assessment as required under Pakistan's national and international environmental and climate change commitments will have to be conducted and clearances obtained from the competent authority.</p>
Increasing gas supply and opening the gas market to direct contracting sales to large gas consumers	To shift from oil thermal power plant to gas thermal power plant so that the generation cost of electricity can be decreased.	Shifting to gas thermal plant instead of fuel oil will decrease the GHG emission. However, policy of increasing gas supply promotes gas extraction, which may cause adverse impact on the surrounding environment, additionally, sustainable use of the	<p>Environmentally sustainable extraction of natural gas will have to be ensured through performing a strategic environmental assessment for the national plan for exploiting this natural resource.</p> <p>For each individual extraction project the appropriate level</p>

Policy Intervention	Economic and Social Outcomes	Environmental Impact	Mitigation Measures
		natural resource will have to be assessed.	of environmental impact assessment as required by by the national and provincial environmental protection acts will need to be performed and cleared by the concerned Environmental Protection Agency.

C. Environmental Management

12. For LCP, a strategic environmental assessment (SEA) will be conducted and reviewed prior to finalization and approval of the plan, furthermore, the SEA will include measures to address climate change vulnerability.

13. Similarly, a SEA will be conducted prior to finalizing the gas supply enhancement measures.

D. Conclusion

14. Development of the least-cost generation plan and increasing gas production may have long term impacts on the environment. However, these plans need to be finalized only after conducting detailed strategic environmental assessments that will examine the environmental viability of these plans at a broader national level. The SEA for both plans will need to be conducted and agreed upon by the government prior to finalization of the plans.

POLICY MATRIX

Objective	Prior Actions Subprogram 1 To be completed by 31 March 2014	Indicative triggers to be supported through Operation 2	Indicative triggers to be supported through Operation 3	Indicative triggers to be supported through Operation 4	Indicative triggers to be supported through Operation 5	Results
Policy Area A: Managing Tariff and Subsidy						
<p>Adoption of clear policies on tariffs and subsidies to target low income consumers; ensuring policy implementation through NEPRA rules and regulations; and reduction of discretionary policy decisions and lag in tariff approval and implementation.</p>	<p>1. The Economic Coordination Committee (ECC) approved the Tariff and Subsidy Policy Guidelines covering: (i) subsidy policy for low-income residential customers, (ii) multi-year tariffs, (iii) guidance for tariff setting as envisaged in the NEPRA Act, including forward-looking fuel price adjustment through NEPRA proceedings, and (iv) guidance for circular debt management (a) monthly accounting for arrears of payment by DISCO to CPPA, (b) mechanism to cap the overdue payables to the power generators.</p> <p>2. NEPRA published on its website for consultation draft guidelines for DISCO tariff determination covering principles, methodologies, timetable, formula and procedures for both annual and multi-year tariff (MYT), including (a) procedure for DISCO to submit investment costs prior to filing of petition; and (b) adjustment mechanisms during the year including formula-based forward-looking automatic fuel price adjustment (FPA).</p>	<p>1. Further to consultation referred to in prior action 2 of subprogram 1, NEPRA [notifies] guidelines for DISCO tariff determination covering principles, methodologies, timetable, formula and procedures for both annual and multi-year tariff (MYT), and including (a) procedure for DISCO to submit investment costs prior to filing of petition; and (b) adjustment mechanisms during the year including formula based forward-looking automatic fuel price adjustment (FPA).</p> <p>2. Further to the Tariff and Policy Guidelines 2014 Government (i) publishes on the CPPA website monthly overdue payables to the power generators disaggregated to DISCO level; (ii) MOWP publishes cap for overdue payments not to exceed [PRs 220 billion];¹ and (iii) maintains overdue payments below the cap for at least [3] months.</p>	<p>1. NEPRA issues determination on multi-year tariff for at least 2 DISCOs.</p>	<p>1. NEPRA issues determination on multiyear tariff for at least 4 additional DISCOs.</p>	<p>1. NEPRA issues determination on multi-year tariff for at least 4 additional DISCOs.</p>	<p><i>Result Indicator A1: Time taken for DISCO tariff determination.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): more than 4 months after admission of petition for all DISCOs. • Target (FY16/17): within 4 months admission of petition for all DISCOs. <p><i>Result Indicator A2: Regulation for DISCO tariff determination covering methodologies, timetable, formula and procedures for both annual and multiyear tariff (MYT), procedure for earlier submission of investment costs by DISCOs, and forward-looking automatic FPA.</i></p> <ul style="list-style-type: none"> • Baseline (FY11/12): not notified. • Target: notified by NEPRA by April 2014. <p><i>Result Indicator A3: Subsidies reduced.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): 1.8% of GDP. • Target (FY16/17): 0.3%–0.4% of GDP.

¹ The cap is indicative and will be determined based on third party circular debt audit which is currently ongoing and mechanism which is being developed.

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Policy Area B: Improving Sector Performance and Opening the Market to Private Participation						
Loss reduction and improving collections in DISCOs.	3. (i) MOWP instructed PESCO, HESCO, SEPCO, and MEPCO to outsource to the private sector collection of their respective feeders with losses of 50% or above ; (ii) MOWP instructed all DISCOs to implement revenue protection program that ensures correct billing, reduces losses, in particular theft, and improves collections; (iii) Council of Common Interests initiated discussion for mechanism to automatically adjust amount of receivables owed by provincial governments and agencies; and (iv) Federal Government adjusted receivables of federal agencies or entities not to exceed 90 days of billing by DISCOs.	3. Each DISCO identifies and assesses existing consumer receivables and their respective recoverability to reflect, in accordance with the Companies Ordinance and the General Accounting Practices, re-classification and provisioning of the qualified receivables in its audited financial statements for fiscal year ended 30 June 2014.	2. At least 3 DISCOs have developed and started implementation of their revenue protection programs.		2. All remaining DISCOs have developed and started implementation of their revenue protection programs.	<p><i>Result Indicator B1: Reduction in distribution and transmission losses.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): 21.86% for DISCOs and NTDC. • Target (FY16/17): 17.86% for DISCOs and NTDC. <p><i>Result Indicator B2: Increase collection in DISCOs.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): 86% of bills collected by DISCOs. • Target (FY16/17): 94% of bills collected by DISCOs. <p><i>Results Indicator B3: Reduction of government receivables.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): provincial 410 days, federal 180 days. • Target (FY13/14): 90 days.
Improving demand side efficiency and strengthening energy conservation.		3. MOWP issues regulation(s) on (i) minimum energy performance standards (MEPS) for at least 3 energy-intensive consuming appliances or technologies, and (ii) appliance labeling.	4. MOWP establishes a steering committee on national energy conservation policy coordination and implementation which includes ENERCON as secretariat.	2. MOWP notifies national energy efficiency standards in accordance with the approved Energy Conservation Act.		<p><i>Result Indicator B4: Notification of energy efficiency standards.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): no MOWP issued MEPS. • Target (FY16/17): at least five MEPS issued by MOWP.

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Managing generation cost through Least Cost Planning (LCP), and ensuring new generation entry follows the LCP.	4. MOWP issued an instruction establishing the principles and process for NTDC to prepare the long-term least-cost generation and transmission expansion plan ² and its periodic update.		4. NTDC submits and NEPRA approves long-term least-cost generation and transmission expansion plan. 5. PPIB updates procedures and documentation of 2002 IPP policy to ensure consistency with least-cost plan for competitive and unsolicited bids from IPPs for new capacity.			<p><i>Results Indicator B5: Introduce LCP and entry of new generation based on LCP.</i></p> <ul style="list-style-type: none"> • Baseline: no approved LCP. • Target (FY16/17): LCP issued and additions to new generation capacity based on LCP. <p><i>Result Indicator B6: Increasing gas supply.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): 3.8 billion scfd. • Target (FY16/17): 5 billion scfd.
Increasing gas supply and opening the gas market to direct contracting sales to large gas consumers.	5. (i) MPNR disclosed the 2013 Model Petroleum Concession Agreement on their website; (ii) MPNR announced the award of petroleum exploration blocks for the 2013 bidding round; and (iii) OGRA issued at least 3 pricing notifications under the 2012 Petroleum Policy.	4. MPNR notifies rules for enhancing gas production from producing, dormant or under-producing concessions.	6. Government approves a restructuring plan for the mid- and down-stream gas sector. 7. MPNR reviews and notifies enhanced/ revised 2012 Petroleum Policy to promote additional gas production from domestic on- and off-shore areas.	3. MPNR has started implementation of a restructuring plan for the mid- and down-stream gas sector.		

² The plan will be prepared in accordance with the government of Pakistan's standing commitments on national and international policies and conventions on climate change and environmental safeguards as well as include for the environmental and social costs.

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Commercializa- tion and improving performance of public companies in the power sector.	6. MOWP signed performance contract including operational and financial performance indicators and the monitoring framework with at least 3 DISCOs.	5. MOWP signs performance contract including operational and financial performance indicators and the monitoring framework with all GENCOs, NTDC and all remaining DISCOs.		4. MOWP signs enhanced performance contract with DISCOs, GENCOs and NTDC taking into account the results of the audit referred to in Indicative Trigger 11 of Operation 3.		<p><i>Result Indicator B7: DISCOs meet key targets in performance contracts.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): 3 DISCOs signed performance contracts. • Target (FY16/17): DISCOs meet set performance targets.
Commercial Operation of CPPA as independent agency to buy power on behalf of DISCOs, and implementation of a multiple buyers market by allowing generators to contract sales directly with large consumers.	7. (i) CPPA's memorandum and Articles of Association amended to establish CPPA as an agent to purchase electricity on behalf of distribution companies (including DISCOs); and (ii) CPPA signed on behalf of DISCOs with GENCO's Holding Company on behalf of GENCOs, Heads of Agreement (HoAs) reflecting key principles for power purchase agreements for existing thermal plants, with energy price based on heat rate testing; which HoAs have been endorsed by the respective Board of Directors.	<p>6. (i) NTDC files request and NEPRA amends NTDC license to remove CPPA functions and NTDC's authority to purchase or sale electricity; and (ii) CPPA signs an energy supply agreement with each DISCO to procure power on their behalf.</p> <p>7. (i) CPPA signs on behalf of DISCOs PPA with WAPDA Hydel and PPAs with all GENCOs, one PPA for each operational thermal plants of GENCOs; and (ii) WAPDA enters into agreement with CPPA for administration of PPAs of IPPs under 1994 policy.</p>	8. CPPA submits and NEPRA approves the market rules, allowing generators direct contract sales to bulk power consumers, and covering market registration, balancing operations, and settlement and billing among market participants.	5. CPPA implements approved market rules allowing direct contracting with bulk power consumers.		<p><i>Result Indicator B8: CPPA legally, institutionally and operationally independent from NTDC.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): CPPA still a unit within NTDC. • Target (FY15/16/19): All contracted power generated by IPPs, GENCOs and WAPDA Hydel are traded through an independent CPPA.

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Policy Area C: Accountability and Transparency						
Increasing access to information in the energy sector.	<p>8. NTDC implemented web-based open access to operational information, including merit order, and daily payment instruction to generators.</p> <p>9. Each DISCO (i) included subsidy amount in customer's bills; and (ii) published on its website monthly billing and collection data aggregated by consumer category.</p>	8. CPPA implements web-based access to monthly amount due and payment by DISCOs to CPPA, and by CPPA to generators.	9. MOWP implements public web-based access to monthly information results of performance contract, provided by DISCOs, NTDC and GENCOs.			<p><i>Result Indicator C1: Access to operational and payment information publicly available from website.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): information not available on website. • Target (FY16/17): information available on CPPA and DISCO websites. <p><i>Result Indicator C2: Access to licensees' performance available on NEPRA website.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): information available only in NEPRA annual State of Industry Report. • Target (FY16/17): information available on NEPRA website and updated monthly.
Strengthening NEPRA.		9. NEPRA publishes at least monthly on its website, monthly information provided by all licensees on selected performance standards results and indicators.	10. NEPRA publishes review of WAPDA Hydel, GENCOs, DISCOs, KESC and NTDC compliance with license provisions.	6. NEPRA publishes review for at least 30 IPPs on compliance with license provisions.	3. NEPRA publishes review for all remaining IPPs on compliance with license provisions.	<ul style="list-style-type: none"> • Baseline (FY12/13): information available only in NEPRA annual State of Industry Report. • Target (FY16/17): information available on NEPRA website and updated monthly.
Monitoring and Surveillance.	10. ECC approved establishment of monitoring units within both MOWP and MPNR with the responsibilities of monitoring the energy sector, reporting on quarterly basis and make public disclosure of the quarterly report; and MOWP and MPNR formulated the scope of work for advisors to review quarterly monitoring reports and provide advice and recommendations on the implementation of the reforms which will be made public.		11. MOWP discloses on its website annual operational audit reports provided in accordance with the signed performance contracts.			<p><i>Result Indicator C3: Quarterly reporting and public disclosure on the implementation status of the energy sector reforms.</i></p> <ul style="list-style-type: none"> • Baseline (FY12/13): not available. • Target (FY13/14): first report published by September 2014.