



The World Bank

Second Programmatic Energy Sector Development Policy Credit (P170248)

Program Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 10-Apr-2020 | Report No: PIDA28960



BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Project Name	Parent Project ID (if any)
Nepal	P170248	Second Programmatic Energy Sector Development Policy Credit (P170248)	P154693
Region	Estimated Board Date	Practice Area (Lead)	Financing Instrument
SOUTH ASIA	10-Jun-2020	Energy & Extractives	Development Policy Financing
Borrower(s)	Implementing Agency		
Nepal	Ministry of Energy, Water Resources and Irrigation		

Proposed Development Objective(s)

The Energy Sector Development Policy Credit (DPC) operation aims to support the government's efforts to improve the financial viability and governance of the electricity sector. The programmatic DPC series has two pillars: (i) improving the financial viability of the electricity sector; and (ii) improving the governance of the electricity sector.

Financing (in US\$, Millions)

SUMMARY

Total Financing	100.00
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DETAILS

Total World Bank Group Financing	100.00
World Bank Lending	100.00

Decision

The review did authorize the team to appraise and negotiate

B. Introduction and Context

Country Context

- Access to reliable, affordable, and sustainable electricity services is fundamental to Nepal's economic growth and competitiveness. While electricity connections – grid and off grid combined - are now available to 95% of the



population,¹ the annual per capita electricity consumption in Nepal, at 190 kWh, remains low and represents 6% of the global average and 25% of the South Asian average. The economic loss from load shedding during 2008–2016 in Nepal was estimated to be as high as US\$1.6 billion per year.² Improved management of generation, reduced system losses, and increased electricity imports from India have helped eliminate the nationwide load shedding. The Nepal Development Update (World Bank, 2018) finds that improved electricity supply is one of the key factors for sustained GDP growth in FY2017 and FY2018. Further structural reforms and investments are needed to ensure reliability, affordability and sustainability of electricity services.

2. Poverty in Nepal has been on a declining trend. The proportion of Nepalese households living in poverty (as measured by the international extreme poverty line) fell from 46 percent in 1996 to 15 percent in 2011.³ Nepal has also had an impressive performance on shared prosperity. From 2003 to 2010, consumption growth of the bottom 40 percent was 7.5 percent compared to 4 percent on average across all households. With a higher poverty line of \$3.20 a day, the poverty rate is projected to decline to 42 percent in 2019, from 51 percent in 2010. The key drivers of improvement in the twin goals included an increase in the amount and number of households receiving remittances, an increase in labor income derived from wage and non-wage employment, and changes in the demographic structure with a lowering of the dependency ratio.
3. The proposed operation supports the World Bank's twin goals of poverty reduction and shared prosperity and is consistent with the World Bank's Mobilizing Finance for Development (MFD) approach and the Country Partnership Strategy for FY2019–2023. The DPC series complements the World Bank Group's existing engagement in generation, transmission, distribution and off-grid, renewable-based solutions in the form of investment operations and technical assistance (TA). In addition, the operation has synergy with WBG's engagement in social protection, environmental and social risk and impact management, and water resources management. It also complements with the activities by other development partners supporting various aspects of sector reforms.

Relationship to CPF

4. **The proposed DPC series is fully aligned with the second pillar of Nepal's new Country Partnership Framework for FY2019–FY2023**, which supports growth and employment through the World Bank's support to Nepal's electricity sector and business environment. It is consistent with the priority of the Nepal's 2017 Systematic Country Diagnostic.

C. Proposed Development Objective(s)

5. The Energy Sector Development Policy Credit (DPC) operation aims to support the government's efforts to improve the financial viability and governance of the electricity sector. The programmatic DPC series has two pillars: (i) improving the financial viability of the electricity sector; and (ii) improving the governance of the electricity sector.

¹ Alisha Pinto and Han Kyul Yoo, 2019. "Nepal Beyond Connections: Energy Access Diagnostic Report Based on Multi-Tier Framework". World Bank.

² Timilsina Govinda, Prakash Raj Sapkota, and Jevgenijis Steinbuks, 2017. "How Much Has Nepal Lost in the Last Decade due to Load Shedding? An Economic Assessment Using a CGE Model." Policy Research Working Paper WPS 8468, World Bank, Washington, DC.



Key Results

6. In line with the objectives, the key results expected under Pillar 1 are as follows: (a) average electricity tariff covers the full cost of electricity supply from a baseline of average electricity tariff 32 percent below the cost of electricity supply, (b) Nepal Electricity Authority's (NEA's) Profits before interest, tax, depreciation and amortization is at least NPR40 billion from a baseline of NPR 0.49 billion in FY2016, and (c) transmission and distribution losses are reduced to less than 18 percent from the baseline of 25.8 percent in FY2016. The key results expected under Pillar 2 are: (a) electricity traded and exchanged has increased by at least 20 percent from a baseline of 2,178 GWH, (b) Power Purchase Agreements (PPAs) are signed based on posted tariff and/or competitive bidding from a baseline where PPAs were signed based on negotiations, and (c) NEA recruitment policy is informed by GESI guidelines with a mandated 45% target for women and socially excluded groups, of which 33% is targeted for women only in new NEA recruitment; the baseline is that NEA recruitment policy is not informed by GESI guidelines.

D. Project Description

7. The policy and institutional measures included in the proposed operation are consistent with the actions laid out in GoN's power sector strategy and action plan. The proposed operation is the second in a programmatic series of three operations and is organized under two pillars: (a) improving the financial viability of the electricity sector and (b) improving the governance of the electricity sector. Under these pillars the credit supported the following specific prior actions:
 - Prior Action 1. (i) ERC has issued Electricity Consumer Tariff Fixation Directive; and (ii) NEA has published tariff rates based on the said Directive and following ERC decision on its tariff application.
 - Prior Action 2. (i) NEA Board of Directors has approved NEA Corporate Development Plan; and (ii) MoEWRI has assigned the responsibility for regulating operation of electric vehicle charging stations to NEA.
 - Prior Action 3. NEA has (i) implemented immediate priority institutional measures, satisfactory to the Association, to reduce power transmission and distribution losses; and (ii) established a monitoring and evaluation mechanism for the performance of its provincial and distribution center chiefs.
 - Prior Action 5. The Ministry of Finance has approved NEA institutional restructuring plan to separate its generation, transmission and distribution business functions.
 - Prior Action 6. NPTCL Board of Directors has approved NPTCL's business plan aiming at its transition from a service provider for NEA to a power trading company.
 - Prior Action 7. NEA has amended Solar Photovoltaic Electricity Generation Guidelines to increase renewable energy-based generation.
 - Prior Action 8. NEA has adopted the Gender Equity and Social Inclusion Strategy and Operational Guidelines to mainstream gender and social inclusion in its projects and work force.

E. Implementation

Institutional and Implementation Arrangements

8. Ministry of Finance (MoF) is leading the effort in coordinating the overall implementation of the DPC in close coordination with the MoEWRI and other line ministries. Both MoF and the MoEWRI have extensive experience and are fully conversant with World Bank policies and procedures through investment lending and TA operations.

F. Poverty and Social Impacts, and Environmental, Forests, and Other Natural Resource Aspects



Poverty and Social Impacts

9. **The proposed operation is expected to have mostly positive or neutral poverty and social impacts.** The reforms supported by the operation will help improve access to reliable and affordable electricity. These welfare gains are likely to significantly outweigh adverse impact of tariff increase in the long run. Increased electricity access can be expected to have positive spillover benefits. The poverty and social impact analysis carried out for this operation finds that gaining access to grid and mini-grids in Nepal is associated with a 34 percent and 16 percent increase in per capita total expenditure, respectively. Grid electrification also increases the probability of being enrolled in a school for children. It increases total years of schooling by about 0.3 years for girls and about 0.2 years for boys.
10. **The impact of tariff reforms supported in this operation (DPC2-Prior Action 1 and DPC3-Trigger 1) on electricity affordability is likely to be small based on the current consumption.** Expenditures on electricity have been a moderate component of the total budget of the Nepali households because of the extremely low electricity consumption, only accounting for 1.35 percent in 2017. A simulation analysis based on multi-tier household survey in 2017 was carried out to assess the impact of the recent ERC-approved tariff structure on electricity affordability. As the new tariff structure slightly reduces residential electricity tariff (to be cross-subsidized by higher industrial tariffs), the expenditure share of electricity of an average household would further decrease to 1.23 percent. Under a pessimistic scenario where electricity prices increase by 51% between FY2018 and FY2022, the analysis finds that the budget share of electricity would only increase to 1.5 percent for the average population, and 2.2 percent for the poorest quintile.
11. **The impacts on the poor will be greater if electricity consumption levels increase.** If electricity consumption reaches to 302 kWh after price hike in a less suppressed demand scenario, the budget share of electricity would reach to 3.4 percent for the average population and 5.1 percent for the poorest income group in the pessimistic scenario mentioned above. If the electricity consumption were at 700kWh, a five-year government target and 400 percent higher than the baseline consumption in 2017, electricity expenses would rise to 7.8 percent of total expenditure for the average population and 11.7 percent for the poorest income group. For the poorest households who were not connected to the grid in 2017, electricity expenses could account for 3.8 percent of their disposable income after the price hike if they gain access to the grid.
12. **GoN is committed to instituting mechanisms to mitigate the adverse impacts of the tariff reforms on the poor and improving access to electricity by all.** Nepal currently has an increasing block tariff structure for electricity where the tariff charged per kilowatt hour (kWh) increases with the level of electricity consumption. In the near term, mitigation mechanisms such as the strengthening of social assistance mechanisms and simplification of the current social assistance system, and tariff structures that differentiate according to consumption levels such as lifeline tariffs can be implemented. However, international experience in countries such as Brazil, Chile, Philippines, Ukraine, and Dominican Republic has shown that a simple compensation policy via tariffs may not be enough to properly protect the poor and vulnerable. Cash transfer, vouchers or subsidy programs can be put in place, building on the systems developed for social protection programs, to more effectively reach the poor. The Bank is currently engaged in an active dialogue with the government on strengthening such systems, including a Social Registry which would help identify and include the poor and vulnerable and a platform of electronic payments through bank accounts (used to pay social security allowances). The reforms proposed under this operation, reflected in Trigger 8 under DPC3, will help to advance the dialogue on a central delivery system – namely the Social Registry – a key foundation to set up programs to support and compensate the “economically” poor.

Environmental, Forests, and Other Natural Resource Aspects



13. **The division of roles and responsibilities regarding environmental and natural resource (ENR) governance under the federal system is increasingly clarified as key acts and regulations are updated.** The 2015 Constitution devolved many environmental and natural resource (ENR) management functions to the newly created provincial and local governments, while prescribing concurrent mandates between two or more tiers of governments for various ENR themes. Two newly adopted umbrella acts, namely the Environment Protection Act 2019 and the Forestry Act 2019, helped clarify some of the division of labor among the three tiers of government, such as assigning the review and approval of environmental impact assessments (EIA) of risky projects to the federal Ministry of Forests and Environment, while less risky projects requiring an initial environmental examination (IEE) would be reviewed by provincial or local government environment units. Roles and responsibilities for inspecting compliance with approved EIA/IEE conditions are similarly distributed. Management of national forests that are not classified as protected forests, is with provincial governments, while the federal government is entrusted with setting national forest policy and managing protected forests. However, there are still areas where further clarification is needed, and the revision of the Environment Protection Rules 1997 and the Forest Regulation 1995 is expected to achieve this goal⁴. The policy framework comprises several other key pieces of legislation mirroring the country's ENR issues, including a Solid Waste Management Act and Rules 2011, a Water Resource Act 1992, National Ambient Air Quality Standards 2012, a National Parks and Wildlife Conservation Act 1973; but management of hazardous and electronic waste which is an increasingly important environmental issue not regulated through a dedicated act and regulation.
14. **The regulatory framework around the EIA/IEE system embraces several principles of the World Bank Environmental and Social Framework, but there are also important differences, including in implementation.** The shared principles include risk-based classification of projects, changing the risk rating throughout the project implementation, requirement for stakeholder engagement during the EIA study, and monitoring activities. It is also notable that EPA 2019 has provisions for in-depth analysis of alternatives and strategic environmental analysis. Furthermore, regulations are complemented by sectoral EIA guidelines for forestry, industry, and hydropower development, and various manuals for social and environmental management in infrastructure development. On the other hand, the EIA/IEE-related acts and regulations lack reference to a mitigation hierarchy, differentiated measures for the vulnerable groups, assessment of the possible impacts caused by associated facilities, consideration of possible impacts associated with the primary suppliers, consideration of transboundary and global impacts, and importantly, cumulative impacts. In addition, implementation of public consultation and participation, and information sharing fall short of international standards.
15. **Insufficient institutional capacity, especially in the provincial and local governments constrains the implementation of ENR policies and regulations.** Institutionally, the federal Ministry of Forest and Environment (MOFE) is the key ministry responsible for carrying out federal mandates; provincial and local government mandates are implemented respectively by the provincial Ministries of Industry, Tourism, Forestry and Environment, and Environment and Disaster Units under the local governments. The Federalism Needs Assessment (World Bank 2019) found that 68% of local governments saw services disrupted / lacking due to insufficient staff qualified to perform environmental functions; 24% reported that they do not have any resources and 31% reported that they had no physical infrastructure to monitor sector outcomes and performance. In response to the severe capacity deficiencies at the subnational levels, EPA 2019 mandated that the EIA of all national priority projects and those promoted by the Foreign Investment Board, regardless of initially envisaged environmental impact, would be reviewed by MOFE. Furthermore, environmental impact studies and alternatives analyses are often done in perfunctory manner and are of low quality. This may be a result in part of weak enforcement of the EIA/IEE regulations and in part of a weak cadre



of EIA professionals. An accreditation system of EIA consultants is not yet in place; however, EPA 2019 provides for punitive measures against project proponents⁵ who do not meet standard and quality requirements for environmental study reports determined by the Government of Nepal.

- 16. DPC prior actions that support tariff reform, transmission and distribution (T&D) loss reduction and increased use of electric vehicles will have potentially positive impacts on the environment.** Increased vehicular traffic has been one of the main contributors to the worsening ambient air pollution in the Kathmandu valley and other growing urban centers in the recent years. Use of biomass for cooking is the single largest cause of the extremely high levels of indoor air pollution observed rural and to a lesser extent, in urban areas, also contributing to ambient air pollution. The introduction in the Electricity Consumer Tariff Fixation Directive of preferential tariffs for electric vehicles (Prior Action 1) and eventual adoption of guidelines for regulating and managing charging stations for electric vehicles (Prior Action 2) are likely to act as a positive factor motivating car owners to switch to electric vehicles. Replacing internal combustion engine with electric vehicles will lead to a reduction in emissions of air pollution and greenhouse gas emissions and improvement in urban air quality. Reduction of electricity tariffs for low-consumption residential consumers under Prior Action 1 may incentivize households to shift to electric stoves from those using kerosene and biomass. To the extent reductions in T&D losses translate into reduced cost of electricity for households, Prior Action 3 may have a similar impact on consumer preferences for electric stoves and lead to a reduction in indoor air pollution.
- 17. Reforms supported by DPC2 Prior Actions may have potential positive as well as adverse impacts on the environment mainly due to an incomplete regulatory framework and weak institutional capacity.** On the one hand, increased availability of reliable hydropower supply can lead to rapid expansion of electrification and solar PV generation, and thus reduce the need for polluting diesel-based generation and use of imported fossil fuels. On the other hand, the expansion in the use of off-grid solar systems is likely result in increased generation of hazardous waste from the panels and batteries used in the solar PV system. In the absence of an adequate hazardous and e-waste waste management system, this could lead to water and soil pollution. Furthermore, investments in hydropower development can have adverse impacts on the environment if not managed wisely. Key potential impacts arise from modification of the flow regime downstream of the dam, inundation of areas upstream of the dam, and associated facilities, such transmission lines and roads, which may lead to deforestation or critical habitat loss among others. These impacts may be exacerbated by climate change. Due to the weak EIA/IEE system discussed above, these risks are often not adequately assessed, avoided, minimized, or mitigated (mitigation hierarchy). Consequently, the residual risk that must be offset may be large. In case of projects that require forest clearance, however, until satisfactory operating guidelines for the Forest Development Fund are in place, offsets may not take place, leading to a net decrease in Nepal's forest cover, eventually compromising Nepal's NDC commitment to maintain forest cover above 40%.
- 18. The GoN, with assistance from the Bank and other development partners, is making efforts to address environmental risks in hydropower development and T&D infrastructure.** DPC1 supported adoption of a Manual for Environmental Impacts Assessment of Hydropower Projects and DPC3 will support MOFE to develop a training handbook for building the capacity of staff reviewing and monitoring EIAs. In addition, the Bank, with ESMAP support, is providing technical assistance to NEA to strengthen its staff capacity for managing environmental and social risk in the sector. These elements complement government's regulatory strengthening efforts mentioned above. Furthermore, as part of its forest landscape engagement, the Bank will support government's planning of hydropower development in a manner that internalizes the mitigation hierarchy. Concurrently, to offset any residual

⁵ EPA 2019 does not define "proponent", so it is unclear whether the provision applies to the EIA author, the project developer, or both.



impacts caused by forest clearance, the Bank will support GoN to develop operational guidelines for the Forest Development Fund related to offset afforestation/reforestation and compensation of former users, as well as fiduciary management, following international good practice. The adoption of these guidelines will be a trigger under DPC3.

19. **Climate co-benefits assessed for this operation for this operation are significant**, thanks to the emphasis of the prior actions on loss reduction and expansion of hydropower generation and solar generation for domestic consumption and exports, displacing diesel generation, imported thermal generation and fossil fuels and fuelwood. Climate adaption and resilience will be strengthened with a more diversified and sustainable power system and strengthened environmental and social risk management framework. The climate adaptation and mitigation co-benefits of the operation are expected to increase exponentially over the medium to long term through export of hydropower to displace thermal generation in the Indian electricity system.

G. Risks and Mitigation

20. **The overall risk of the proposed operation is Substantial.** The main risks to achieving the results of the proposed policy measures are related to political and governance, macro-economic framework, institutional capacity, fiduciary, and stakeholders.
21. **Political and governance risks are Substantial.** In contrast to the frequent changes in government that characterized Nepal's decade-long transition to federalism, the new government until recently had enjoyed two-thirds majority in Parliament. However, with the pull out by the Samajbadi Party, the government now has only simple majority. At the same time, state restructuring on this scale is uncharted territory for Nepal and smoothing the transition from the previous unitary system to the new federal one will remain a challenging task. The new system, in principle, provides opportunities to decentralize development benefits and make service delivery more effective and accountable. However, the risks of jurisdictional overlap between the three tiers of government, lack of clarity and coherence between policies and devolved powers, and duplication of efforts will remain during the coming few years. Key aspects of the new system require further definition and may continue to be contested by different population groups. Despite the lack of clarity at this stage to define roles, rules and create governance capacity at the provincial and local levels, the overall political and governance risk has decreased.
22. **Macro-economic risks are Substantial** based on risks posed by the COVID19 pandemic and resulting disruptions to economic activity. GDP growth is expected to be strongly impacted by disruptions to agriculture production. The lockdown and travel bans have shutdown tourist arrivals and is expected to significantly reduce growth of the service sector. Industrial output is expected to contract due to a reduction in imports of intermediate goods and capital. Also, a reduction in outmigration and remittance is expected to significantly impact liquidity in the financial sector. A large shock to growth would also reduce revenues, impacting the fiscal deficit, particularly given increasing spending needed for federalism, and to mitigate the impacts of COVID19. These risks are mitigated by the government's ongoing commitment to reforms to support growth and also by the government's proposed package of support to affected households and firms to mitigate the impacts of the pandemic. Nepal's debt-to-GDP is low (30 percent in FY19). Even with increased borrowing to meet expected COVID19 financing needs, public debt is estimated to rise to around 40 percent of GDP, well under the Low-Income median threshold of 50 percent. As of January 2020, reserves stood at over 8 months of imports, and are projected to decline but remain above 4 months of imports, over the medium term.



23. **Institutional capacity risks are Substantial.** This operation supports the creation of new institutions in the electricity sector and restructuring of the existing institutions. These institutions will become operational in a low-capacity environment. To address this risk, the World Bank led a capacity needs identification exercise in coordination with donors with an expectation of implementing quick capacity-building activities to strengthen the existing service delivery institutions, systems, and processes. In addition, NEA's financial status, though improving, is vulnerable to internal shocks such as change of management and external shocks such as COVID-19. Reinforcement of institutional measures and disciplines including those supported under this DPC series as opposed of one-off actions will help build NEA's long-term financial viability.
24. **Fiduciary risks are substantial.** With the implementation of federalism, the fiduciary risks have increased in all aspects of Public Financial Management (PFM), vis-à-vis, budgeting, procurement, internal controls, accounting, reporting, audit and oversight, particularly due to capacity constraints of sub-national governments. The federal government has issued guidelines to sub-national governments on various aspects of PFM. The Financial Procedures and Fiscal Accountability Act provides the PFM framework in the federal context. The federal government has also provided accounting software to sub-national governments to ensure timely and quality accounting and reporting. The Office of the Auditor General conducts audit of the three tiers of the government and the annual audit report is published in their website. The World Bank administered PFM Multi-Donor Trust Fund is supporting in capacity building of sub-national governments in various PFM aspects including procurement. There are other capacity building initiatives supported by various development partners, which is being coordinated with PFM Multi-Donor Trust Fund. The Central Bank is working on implementation safeguards measures to further strengthen the foreign exchange control environment although it is adequate for this operation.
25. **Stakeholders risks are Substantial.** Reforms are likely to be opposed by vested interest groups—many political in nature—as this operation supports greater transparency, commercialization, and accountability in the sector. These risks will be mitigated through (a) extensive consultations in a systematic approach of sector reforms; and (b) consensus building among all key stakeholders on how NEA restructuring would fit into the holistic approach of the GoN in sector reforms.

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APPROVAL

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Approved By

Country Director:	Faris H. Hadad-Zervos	18-Mar-2020
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