



## Technical Assistance Report

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Project Number: 51093  
Transaction Technical Assistance (TRTA)  
August 2017

# Socialist Republic of Viet Nam: Preparing the Northern to Central 500 kV Transmission Grid Reinforcement Project

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**Asian Development Bank**

### **CURRENCY EQUIVALENTS**

(as of 25 August 2017)

Currency unit	=	Dong (D)
D1.00	=	\$0.000044
\$1.00	=	D22,732

### **ABBREVIATIONS**

ADB	–	Asian Development Bank
CPMB	–	Central Power Project Management Board
IEE	–	Initial Environmental Examination
NPT	–	National Power Transmission Corporation
NPMB	–	Northern Power Project Management Board
PPMB	–	power project management board
RRP	–	Report and Recommendation to the President
TA	–	technical assistance

### **WEIGHTS AND MEASURES**

cct-km	–	circuit-kilometer
kV	–	kilovolt

### **NOTE**

In this report, "\$" refers to US dollars

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## CONTENTS

	<b>Page</b>
TRANSACTION TECHNICAL ASSISTANCE AT A GLANCE	
I. THE ENSUING PROJECT	14
II. THE TECHNICAL ASSISTANCE	15
A. Justification	15
B. Outputs and Activities	15
C. Cost and Financing	15
D. Implementation Arrangements	16
E. Governance	16
APPENDIXES	
1. Cost Estimates and Financing Plan	17
2. List of Linked Documents	18

## TRANSACTION TECHNICAL ASSISTANCE AT A GLANCE

<b>1. Basic Data</b>		<b>Project Number: 51093-001</b>	
<b>Project Name</b>	Northern to Central 500 kV Transmission Grid Reinforcement Project	<b>Department /Division</b>	SERD/SEEN
<b>Nature of Activity</b>	Project Preparation	<b>Executing Agency</b>	National Power Transmission Corporation
<b>Modality</b>	Regular		
<b>Country</b>	Viet Nam, Socialist Republic of		
<b>2. Sector</b>	<b>Subsector(s)</b>	<b>ADB Financing (\$ million)</b>	
✓ Energy	Electricity transmission and distribution		1.00
		<b>Total</b>	<b>1.00</b>
<b>3. Strategic Agenda</b>	<b>Subcomponents</b>	<b>Climate Change Information</b>	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	Climate Change impact on the Project	Low
<b>4. Drivers of Change</b>	<b>Components</b>	<b>Gender Equity and Mainstreaming</b>	
Private sector development (PSD)	Public sector goods and services essential for private sector development	No gender elements (NGE)	✓
<b>5. Poverty and SDG Targeting</b>		<b>Location Impact</b>	
Geographic Targeting	No	Regional	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG7		
<b>6. Risk Categorization</b>	Complex		
<b>7. Safeguard Categorization</b>	Safeguard Policy Statement does not apply		
<b>8. Financing</b>			
<b>Modality and Sources</b>		<b>Amount (\$ million)</b>	
<b>ADB</b>		<b>1.00</b>	
Transaction technical assistance: Technical Assistance Special Fund		1.00	
<b>Cofinancing</b>		<b>0.00</b>	
None		0.00	
<b>Counterpart</b>		<b>0.00</b>	
None		0.00	
<b>Total</b>		<b>1.00</b>	

## I. THE ENSUING PROJECT

1. The ensuing project will support the Socialist Republic of Viet Nam to implement its Revised National Power Development Master Plan 2011–2020 (Revised PDP VII).<sup>1</sup> The ensuing project will (i) construct a new 500 kilovolt (kV) transmission line [approximately 372 double circuit-kilometer (cct-km)] from the northern to the central Viet Nam, ensuring more reliable power supply to load centers and (ii) install an intelligent transmission line monitoring system for efficient and proactive operation and maintenance, which will be the first intelligent monitoring system in Viet Nam introduced by the Asian Development Bank (ADB). The use of high temperature, low sag conductors and/or low loss conductors will also be reviewed for possible inclusion to increase reliability and reduce technical losses. The ensuing project will contribute to provide adequate and reliable power supply for sustainable economic growth in Viet Nam.

2. One of the core problems in the power sector is insufficient power grid infrastructure to provide adequate and reliable electricity supply to support economic development. In Viet Nam, there is an imbalance between power generation and power demand across regions. The southern region is the biggest power load center accounting for about 50% of total power demand in the country.<sup>2</sup> However, this region is short on generating capacity while the northern and central regions are in surplus. A single 500 kV backbone transmission line (about 1,487 cct-km) completed in 1994 is currently the only connection between the northern and southern region. However, this overloaded line has reliability concerns due to occasional power faults that cause blackouts in some parts of the southern region. To address this issue, the National Power Transmission Corporation (NPT)<sup>3</sup> is currently constructing a new 500 kV transmission line from the central to the southern region, and seeks ADB support for a new 500 kV transmission line from the northern to the central region.

3. The Revised PDP VII projects the average power demand growth at 10.5% through 2020 and 8% during 2021–2030. Generation expansion plans to accommodate this power demand growth require commensurate transmission grid expansion. To address this challenge, the government prepared the master plan for the development of power grids in the Revised PDP VII, and the government prioritizes a new 500 kV transmission line from the northern to the central region for ADB financing, which comprises three segments: (i) Nam Dinh-Thanh Hoa transmission line, (ii) Thanh Hoa-Quynh Lap transmission line, and (iii) Quynh Lap-Vung Ang transmission line.

4. The ensuing project has the following impact: adequate and reliable power supplied.<sup>4</sup> This will result from the following outcome: power transmission grid efficiency and reliability from Northern to Central region increased. The outputs are (i) 500kV transmission line from Northern to Central region constructed and (ii) intelligent transmission line monitoring system installed and operational capacity improved.

5. The total estimated amount of the ensuing project is \$220 million, of which \$200 million will be financed by an ADB loan from ordinary capital resources, and the balance of \$20 million will be provided by the government in counterpart financing. ADB will finance 91% of total project costs. The transaction technical assistance (TA) is included in the country operation business

<sup>1</sup> Government of Viet Nam. 2016. Prime Minister's decision No. 428/QĐ-TTg, *Approval of the Revised National Power Development Master Plan for the 2011–2020 Period with the Vision to 2030*. Ha Noi.

<sup>2</sup> World Bank. October 2015. *Appraisal of the Draft Revised PDP VII*. Ha Noi. The power demand of southern region was about 12.6 GW out of total power demand 24.2 GW in 2015.

<sup>3</sup> NPT is a subsidiary of Vietnam Electricity (EVN) and manages power transmission grids in Viet Nam.

<sup>4</sup> Government of Viet Nam. 2016. *Revised National Power Development Master Plan 2011–2020 with Vision to 2030*. Ha Noi.

plan (2017–2019) and consistent with the Viet Nam Energy Sector Assessment, Strategy, and Road Map.

## II. THE TECHNICAL ASSISTANCE

### A. Justification

6. The transaction TA will help the government to prepare the project to implement the ensuing project. The TA will conduct feasibility study and prepare the relevant project documents in accordance with ADB's requirements for approval of the ensuing project by ADB and the government.

### B. Outputs and Activities

7. The major outputs and activities are summarized in Table 1.

**Table A3.1: Summary of Major Outputs and Activities**

Major Outputs	Delivery Dates	Key Activities with Milestones
1. Output 1: Feasibility study on ensuing project prepared	project inception	1.1 Review of required all linked documents
	project inception + 7 months	1.2 Project financial and economic analyses
	project inception + 7 months	1.3 Financial analysis and financial management assessment of NPT and PPMBs
	project inception + 6 months	1.4 Assessment of procurement capacity and governance of NPT and PPMBs
	project inception + 6 months	1.5 Poverty and social impact assessment
	project inception + 9 months	1.6 Safeguards due diligence (IEE including EMP, social safeguards reports, assessment of project impacts on climate risks)
	project inception + 9 months	1.7 Draft project administration manual
2. Output 2: Preliminary engineering design and bidding documents prepared	Project inception + 4 months	2.1 Technical appraisal, cost estimates, and procurement plan
	Project inception + 10 months	2.2 Preparation of bidding documents

IEE = Initial Environment Examination, EMP = Environment Management Plan, PPMB = power project management board.

Source: Asian Development Bank estimates.

### C. Cost and Financing

8. The TA is estimated to cost \$1,100,000, of which \$1,000,000 will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF VI). The key expenditure items are listed in Appendix 1.

9. The government will provide counterpart support in the form of counterpart staff, counterpart staff salaries, office space, and other in-kind contributions. The government was informed that approval of the TA does not commit ADB to finance any ensuing project.

## D. Implementation Arrangements

10. ADB will administer the TA and will select, supervise, and evaluate consultants.

**Table A3.2: Implementation Arrangements**

Aspects	Arrangements		
Indicative implementation period	February 2018–March 2020		
Executing agency	NPT		
Implementing agencies	NPMB CPMB		
Consultants	To be selected and engaged by ADB		
	Quality- and Cost-Based Selection (Consulting Firm)	54 person-months	\$1,000,000
Advance contracting	Advance contracting will be used for recruitment of consultants.		
Disbursement	The TA resources will be disbursed following ADB's <i>Technical Assistance Disbursement Handbook</i> (2010, as amended from time to time).		
Asset turnover or disposal arrangement upon TA completion	All goods (equipment), if any, purchased under the TA will be turned over to the executing agency upon completion of the TA.		

ADB = Asian Development Bank, CPMB = Central Power Project Management Board, NPMB = Northern Power Project Management Board, NPT = National Power Transmission Corporation, TA = technical assistance.

Source: Asian Development Bank estimates.

11. **Consulting services.** A consulting firm will be engaged to provide consulting services including 26 person-months of international consultants and 28 person-months of national consultants<sup>5</sup> who are experts in the areas of power transmission grid, procurement, economy, finance, safeguards (environment and social resettlement), smart grid, and climate change. Recruitment will be by quality- and cost-based selection method with a technical: financial weighting of 90:10. The consultants will be engaged by ADB in accordance with ADB Procurement Policy and Procurement Regulations for ADB Borrowers, 2017.<sup>6</sup>

## E. Governance

12. Capacities of executing agency and implementing agencies on financial management assessments, procurement capacity assessment, risk assessment and management, and integrity due diligence will be assessed.

<sup>5</sup> Lump sum/output based contracts will be considered in the engagement of consulting services to reduce administrative burden and improve economy, efficiency, and value for money.

<sup>6</sup> Terms of Reference for Consultants is in Appendix 2.