Project Administration Manual

Project Number: 46007-002
Loan Number: {LXXXX}
September 2012

Republic of Uzbekistan: Namangan 500-Kilovolt Power Transmission Project
# Contents

I. PROJECT DESCRIPTION
   A. Objective
   B. Impact and Outcome
   C. Outputs
   
II. IMPLEMENTATION PLANS
   A. Project Readiness Activities
   B. Overall Project Implementation Plan
   
III. PROJECT MANAGEMENT ARRANGEMENTS
   A. Project Implementation Organizations – Roles and Responsibilities
   B. Key Persons Involved in Implementation
   C. Project Organization Structure
   
IV. COSTS AND FINANCING
   A. Detailed Cost Estimates by Expenditure Category
   B. Allocation and Withdrawal of Loan Proceeds
   C. Detailed Cost Estimates by Financier
   D. Detailed Cost Estimates by Outputs/Components
   E. Detailed Cost Estimates by Year
   F. Contract and Disbursement S-curve
   G. Fund Flow Diagram
   
V. FINANCIAL MANAGEMENT
   A. Financial Management Assessment
   B. Disbursement
   C. Financial Reporting and Auditing
   
VI. PROCUREMENT AND CONSULTING SERVICES
   A. Advance Contracting and Retroactive Financing
   B. Procurement of Goods, Works and Consulting Services
   C. Procurement Plan
   D. Consultant's Terms of Reference – Implementation Consultants
   E. Consultant's Terms of Reference – Transmission Asset Management Consultants
   F. Consultant's Terms of Reference – Transmission System Planning and SCADA Consultants
   
VII. SAFEGUARDS
   
VIII. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION
   A. Project Design and Monitoring Framework
   B. Monitoring
   C. Evaluation
   D. Reporting
   E. Stakeholder Communication Strategy
   
IX. ANTICORRUPTION POLICY

X. ACCOUNTABILITY MECHANISM
The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

Uzbekenergo, the executing agency, is wholly responsible for the implementation of ADB financed project, as agreed jointly between the borrower and ADB, and in accordance with government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by Uzbekenergo of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the Loan agreements. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan Agreements, the provisions of the Loan Agreements shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>EMMP</td>
<td>environmental management and monitoring plan</td>
</tr>
<tr>
<td>GWh</td>
<td>gigawatthours</td>
</tr>
<tr>
<td>GOU</td>
<td>Government of Uzbekistan</td>
</tr>
<tr>
<td>ICB</td>
<td>international competitive bidding</td>
</tr>
<tr>
<td>IEE</td>
<td>initial environmental examination</td>
</tr>
<tr>
<td>km</td>
<td>kilometer</td>
</tr>
<tr>
<td>kV</td>
<td>kilovolt</td>
</tr>
<tr>
<td>LARP</td>
<td>land acquisition and resettlement plan</td>
</tr>
<tr>
<td>MOF</td>
<td>Ministry of Finance</td>
</tr>
<tr>
<td>MW</td>
<td>megawatt</td>
</tr>
<tr>
<td>NDC</td>
<td>National Dispatch Center</td>
</tr>
<tr>
<td>PAM</td>
<td>project administration manual</td>
</tr>
<tr>
<td>PMU</td>
<td>project management unit</td>
</tr>
<tr>
<td>QCBS</td>
<td>quality- and cost based selection</td>
</tr>
<tr>
<td>OHL</td>
<td>overhead line</td>
</tr>
<tr>
<td>RFP</td>
<td>request for proposal</td>
</tr>
<tr>
<td>RTU</td>
<td>remote terminal unit</td>
</tr>
<tr>
<td>SCADA</td>
<td>supervisory control and data acquisition system</td>
</tr>
<tr>
<td>SPS</td>
<td>Safeguard Policy Statement</td>
</tr>
<tr>
<td>TPP</td>
<td>Thermal power plant</td>
</tr>
</tbody>
</table>
I. PROJECT DESCRIPTION

A. Objective

1. The Project aims to increase energy security through the diversification and expansion of energy supply routes in the Republic of Uzbekistan (Uzbekistan). It will improve power supply reliability in the country and, in particular, the Fergana Valley; reduce transmission losses; and improve operational efficiency of the power sector. The project will erect new high-voltage transmission assets to secure the power supply to Fergana Valley and implement institutional changes in the power utility company, Uzbekenergo.

B. Impact and Outcome

2. Impact. The impact of the project is improved reliability of power supply in Uzbekistan.

3. Outcome. The outcome of the project will be an expanded and modernized transmission network providing adequate and reliable power supply to Fergana Valley.

C. Outputs

(i) Construction of (a) 500 kilovolt (kV) overhead single circuit transmission line of approximately 175 kilometer (km) between Novo Angren Thermal Power Plant (TPP) and Namangan Substation, and (b) rerouting of 220 kV overhead single circuit transmission lines of approximately 32 km between Kuzyl-Ravat-Sardor and Sardor-Crystal and Namangan Substation;

(ii) Construction of 500 kV/220 kV Namangan Substation and reconstruction of outdoor switchgear 500 kV at the Novo Angren TPP; and

(iii) Implementation of the Operational Improvement Program in transmission system planning and transmission asset management and preparation of feasibility study for supervisory control and data acquisition system (SCADA).

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

<table>
<thead>
<tr>
<th>Indicative Activities</th>
<th>2012</th>
<th>2013</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>July</td>
<td>Aug</td>
<td>Sep</td>
</tr>
<tr>
<td>Advance tender preparation for consulting services</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan negotiations</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADB Board approval</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan signing</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government legal opinion provided</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan effectiveness</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ADB = Asian Development Bank; GoU = Government of Uzbekistan
### B. Overall Project Implementation Plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Loan Processing</td>
<td></td>
</tr>
<tr>
<td>1.1 Staff Review Meeting</td>
<td>ADB</td>
</tr>
<tr>
<td>1.2 Loan Negotiations</td>
<td>ADB / GoU</td>
</tr>
<tr>
<td>1.3 Board Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>1.4 Loan Signing</td>
<td>ADB / GoU</td>
</tr>
<tr>
<td>1.5 Loan Effective Date</td>
<td>ADB / GoU</td>
</tr>
<tr>
<td>2. Recruitment of Implementation Consultants</td>
<td></td>
</tr>
<tr>
<td>2.1 Preparation of RFP, incl. Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>2.2 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>2.3 Proposal Preparation Period</td>
<td>Consultants</td>
</tr>
<tr>
<td>2.4 Technical Proposal Evaluation incl. Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>2.5 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>2.6 Financial Proposal Opening/ Evaluation/ Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>2.7 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>2.8 Contract Signing, incl. Registration</td>
<td>UE/Consultants</td>
</tr>
<tr>
<td>3.1 Preparation of Bidding Documents, incl. Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>3.2 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>3.3 Bidding Period</td>
<td>Bidders</td>
</tr>
<tr>
<td>3.4 Technical Bid Evaluation incl. Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>3.5 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>3.6 Financial Bid Opening/ Evaluation/ Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>3.7 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>3.8 Contract Signing, incl. Registration</td>
<td>UE/Bidders</td>
</tr>
<tr>
<td>4. Construction of TL and S/S</td>
<td></td>
</tr>
<tr>
<td>4.1 Construction/Expansion of Substations</td>
<td>UE/Consultants</td>
</tr>
<tr>
<td>4.2 Construction of Transmission Lines</td>
<td>UE/Consultants</td>
</tr>
<tr>
<td>5. Recruitment of OIP Consultants</td>
<td></td>
</tr>
<tr>
<td>5.1 Preparation of RFP Documents, incl. Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>5.2 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>5.3 Proposal Preparation Period</td>
<td>Consultants</td>
</tr>
<tr>
<td>5.4 Technical Proposal Evaluation incl. Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>5.5 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>5.6 Financial Proposal Opening/ Evaluation/ Govt. Approval</td>
<td>UE/GoU</td>
</tr>
<tr>
<td>5.7 ADB Review and Approval</td>
<td>ADB</td>
</tr>
<tr>
<td>5.8 Contract Signing, incl. Registration</td>
<td>UE/Consultants</td>
</tr>
<tr>
<td>6. Implementation of OIP</td>
<td></td>
</tr>
<tr>
<td>6.1 Transmission Planning</td>
<td></td>
</tr>
<tr>
<td>Subtask 1. Transmission Planning System Installation</td>
<td>OP Consultants/UE</td>
</tr>
<tr>
<td>Subtask 2. SCADA Feasibility Study</td>
<td>OP Consultants/UE</td>
</tr>
<tr>
<td>Subtask 3. National Dispatch Refurbishment</td>
<td>OP Consultants/UE</td>
</tr>
<tr>
<td>3.2 Transmission Asset Management System</td>
<td>OP Consultants/UE</td>
</tr>
</tbody>
</table>

Note: GoU - Government of Uzbekistan; S/S - Substations; OIP - Operational Improvement Program; RFP - Request for Proposal; SCADA - Supervisory Control and Data Acquisition System; TL - Transmission Line; UE - Uzbekenergo
III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

<table>
<thead>
<tr>
<th>Project implementation organizations</th>
<th>Management Roles and Responsibilities</th>
</tr>
</thead>
</table>
| Ministry of Finance (MOF) on behalf of the Republic of Uzbekistan | Borrower  
- Ministry responsible for external borrowing.  
- Ensuring loan proceeds are used in accordance with the Loan Agreements  
- Handling of issues pertaining to project-related taxes and duties  
- Electricity tariff setting |
| SJSC Uzbekenergo | Executing Agency  
- Power generation, transmission and distribution  
- Funding balance of project cost and project management unit (PMU) recurrent costs  
- Implement project physical components and consultancy services  
- Submission of the withdrawal applications to ADB, retention of supporting documents, and submission of all reporting requirements |
| Asian Development Bank (ADB) | Lender  
- Main project financier |

B. Key Persons Involved in Implementation

Executing Agency

| SJSC Uzbekenergo | Officer's Name | Mr. Rikhsitila Yakubov  
Position | Project Director  
Telephone | (+998) 233 4888; (+998) 233 8006  
Email address | namangan.pmu@gmail.com; rsh.yakubov@yahoo.com; galinakhegay@gmail.com  
Office Address | Namangan Project Management Unit  
SJSC Uzbekenergo  
6 Khorezmskaya Street, Tashkent, 100000, Uzbekistan |

ADB

| Division Director | Staff Name | Rune Stroem  
Position | Director, Energy Division, Central and West Asia Department (CWRD/CWEN)  
Telephone No. | +63-2-632-6356  
Email address | rstroem@adb.org |

Mission Leader

| Staff Name | Levan Mtchedlishvili  
Position | Energy Specialist, CWEN  
Telephone No. | +63-2-632-4940  
Email address | lmmtchedlishvili@adb.org |
C. **Project Organization Structure**

4. SJSC Uzbekenergo has established a dedicated full-time PMU. The PMU will administer all consulting and procurement contracts on behalf of Uzbekenergo. It will be responsible for preparing project plans, bid evaluation reports, progress reports, applications for withdrawal of funds, and any other required reports to ADB.

5. The Director of the PMU will report directly to the Chairman of SJSC Uzbekenergo. The PMU will be the main point of contact for working communication between SJSC Uzbekenergo and ADB. The PMU will coordinate the consultants and contractors.

6. The PMU, assisted by the consultants, will submit the necessary project plans, bid evaluation reports, progress reports, applications for withdrawal of funds, and any other required reports to ADB.

7. The PMU Director and PMU staff will have appropriate academic qualifications with experience of working on large investment projects. The PMU will include the following positions: Project Manager, Transmission Engineer, Information Technology/Communications Engineer, Procurement Specialists (two positions), Financial Specialist, Safeguards Specialist, and Translators.

8. Overall project organizational structure is shown on the chart below:
IV. COSTS AND FINANCING

9. The project costs consist of:

(i) **Supply of Goods.** Supply contracts will provide all equipment and materials for transmission lines and substations. Implementation will be under Uzbekenergo’s responsibility. It is financed out of the ADB Asian Development Fund (ADF) loan proceeds which are relent by the government to Uzbekenergo in accordance with the Subsidiary Loan Agreement.

(ii) **Civil Works and Construction.** Uzbekenergo will provide necessary staff and resources to finance construction of transmission lines and substations.

(iii) **Project Implementation Consultant.** A consultant (a firm) will be recruited by Uzbekenergo to assist PMU in project implementation. It will be financed out of the ADB ADF loan proceeds which are relent by the government to Uzbekenergo in accordance with the Subsidiary Loan Agreement.

(iv) **Operational Improvement Program.** ADB ordinary capital resources (OCR) loan proceeds will finance: (a) consulting services, procurement and installation of transmission planning system; (b) consulting services, procurement and installation of transmission asset management system; (c) procurement and installation of video wall for National Dispatch Center; and (d) consulting services for SCADA feasibility study. The government will finance the taxes and duties.

(v) **Project Management Unit.** Direct and indirect costs of PMU costs will be financed by Uzbekenergo.

(vi) **Environmental and Social Mitigation Measures.** This will be financed by Uzbekenergo.

(vii) **Taxes and Duties.** Taxes and duties will be covered under government contribution as their share of the project cost.

(viii) **Financial Charges.** Uzbekenergo will finance the financial charges including interest during construction and commitment charges without capitalizing them into the loans.
### A. Detailed Cost Estimates by Expenditure Category

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>% of Total Base</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Investment Costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Civil Works</td>
<td>60.9</td>
<td>23.4%</td>
</tr>
<tr>
<td>2 Goods</td>
<td>133.4</td>
<td>51.3%</td>
</tr>
<tr>
<td>3 Environment and Social Mitigation</td>
<td>2.0</td>
<td>0.8%</td>
</tr>
<tr>
<td>4 Consultants</td>
<td>8.6</td>
<td>3.3%</td>
</tr>
<tr>
<td>a Project implementation</td>
<td>4.0</td>
<td>1.5%</td>
</tr>
<tr>
<td>b Operations Improvement Program</td>
<td>3.0</td>
<td>1.2%</td>
</tr>
<tr>
<td>c PMU Support</td>
<td>1.6</td>
<td>0.6%</td>
</tr>
<tr>
<td>5 Taxes and Duties</td>
<td>55.0</td>
<td>21.2%</td>
</tr>
<tr>
<td><strong>Subtotal (A)</strong></td>
<td><strong>259.9</strong></td>
<td><strong>100.0%</strong></td>
</tr>
<tr>
<td><strong>B. Contingencies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Physical</td>
<td>20.5</td>
<td>7.9%</td>
</tr>
<tr>
<td>2 Price</td>
<td>1.6</td>
<td>0.6%</td>
</tr>
<tr>
<td><strong>Subtotal (B)</strong></td>
<td><strong>22.1</strong></td>
<td><strong>8.5%</strong></td>
</tr>
<tr>
<td><strong>C. Financing Charges During Implementation</strong></td>
<td><strong>6.0</strong></td>
<td><strong>2.3%</strong></td>
</tr>
<tr>
<td><strong>Total Project Cost (A+B+C)</strong></td>
<td><strong>288.0</strong></td>
<td><strong>110.8%</strong></td>
</tr>
</tbody>
</table>

PMU = Project Management Unit
Source: Asian Development Bank estimates.

### B. Allocation and Withdrawal of Loan Proceeds

1. Allocation and Withdrawal of ADF Loan Proceeds

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>ADB FINANCING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Item</td>
</tr>
<tr>
<td>1</td>
<td>Goods**</td>
</tr>
<tr>
<td>2</td>
<td>Project Implementation Consulting Services**</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

ADF = Asian Development Fund
* Exclusive of taxes and duties imposed within the territory of the borrower.
** Subject to the condition for withdrawal described in Section V, Part B, para 16.
Source: Asian Development Bank estimates.
### 2. Allocation and Withdrawal of OCR Loan Proceeds

<table>
<thead>
<tr>
<th>Number</th>
<th>Item</th>
<th>Total Amount Allocated for ADB Financing ($)</th>
<th>Percentage of ADB Financing from the OCR Loan Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Operational Improvement Program Consulting Services **</td>
<td>3,000,000.0</td>
<td>100 percent of total expenditure claimed*</td>
</tr>
<tr>
<td>2</td>
<td>Unallocated</td>
<td>15,000,000.0</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>18,000,000.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

OCR = ordinary capital resources  
* Exclusive of taxes and duties imposed within the territory of the borrower.  
** Subject to the condition for withdrawal described in Section V, Part B, para 16.  
Source: Asian Development Bank estimates.
C. Detailed Cost Estimates by Financier

<table>
<thead>
<tr>
<th></th>
<th>ADB (ADF) Amount (A)</th>
<th>% of Cost Category (A/D)</th>
<th>ADB (OCR) Amount (B)</th>
<th>% of Cost Category (B/D)</th>
<th>Government /UE* Amount (C)</th>
<th>% of Cost Category (C/D)</th>
<th>Total Cost (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Investment Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Civil Works</td>
<td>60.9</td>
<td>100%</td>
<td>128.0</td>
<td>96%</td>
<td>6.0</td>
<td>100%</td>
<td>132.0</td>
</tr>
<tr>
<td>2 Goods</td>
<td>128.0</td>
<td>100%</td>
<td>5.4</td>
<td>4%</td>
<td>133.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a Goods financed by ADB</td>
<td>128.0</td>
<td>100%</td>
<td>5.4</td>
<td>4%</td>
<td>133.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b Goods financed by UE</td>
<td>5.4</td>
<td>100%</td>
<td>5.4</td>
<td>100%</td>
<td>2.0</td>
<td>100%</td>
<td>2.0</td>
</tr>
<tr>
<td>3 Environment and Social Mitigation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Consultants</td>
<td>4.0</td>
<td>47%</td>
<td>3.00</td>
<td>35%</td>
<td>1.6</td>
<td>19%</td>
<td>8.6</td>
</tr>
<tr>
<td>a Project implementation</td>
<td>4.0</td>
<td>100%</td>
<td>3.00</td>
<td>100%</td>
<td>1.6</td>
<td>100%</td>
<td>1.6</td>
</tr>
<tr>
<td>b Operations Improvement Program</td>
<td>3.00</td>
<td>100%</td>
<td>3.00</td>
<td>100%</td>
<td>1.6</td>
<td>100%</td>
<td>1.6</td>
</tr>
<tr>
<td>c PMU Support</td>
<td>1.6</td>
<td>100%</td>
<td>1.6</td>
<td>100%</td>
<td>55.0</td>
<td>100%</td>
<td>55.0</td>
</tr>
<tr>
<td>5 Taxes and Duties</td>
<td>55.0</td>
<td>100%</td>
<td>55.0</td>
<td>100%</td>
<td>55.0</td>
<td>100%</td>
<td>55.0</td>
</tr>
<tr>
<td><strong>Subtotal (A)</strong></td>
<td>132.0</td>
<td>51%</td>
<td>3.00</td>
<td>1%</td>
<td>124.9</td>
<td>48%</td>
<td>259.9</td>
</tr>
<tr>
<td><strong>B. Contingencies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Physical</td>
<td>13.90</td>
<td>68%</td>
<td>6.6</td>
<td>32%</td>
<td>20.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Price</td>
<td>1.10</td>
<td>69%</td>
<td>0.5</td>
<td>31%</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (B)</strong></td>
<td>15.0</td>
<td>68%</td>
<td>7.1</td>
<td>32%</td>
<td>22.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C. Financing Charges During Implementation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Project Cost (A+B+C)</td>
<td>132.0</td>
<td>46%</td>
<td>18.0</td>
<td>5%</td>
<td>138.0</td>
<td>48%</td>
<td>288.0</td>
</tr>
<tr>
<td>% Total Project Cost</td>
<td>46%</td>
<td></td>
<td>48%</td>
<td></td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PMU = Project Management Unit; UE = Uzbekenergo

* - Taxes and duties will be financed by the Government and other costs will be financed by Uzbekenergo.

Source: Asian Development Bank estimates.
D. **Detailed Cost Estimates by Outputs/Components**

<table>
<thead>
<tr>
<th>Item</th>
<th>Total Cost</th>
<th>Amount</th>
<th>% of Cost Category</th>
<th>% of Cost Category</th>
<th>Amount</th>
<th>% of Cost Category</th>
<th>Amount</th>
<th>% of Cost Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transmission Lines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Civil Works</td>
<td>60.9</td>
<td>45.9</td>
<td>75%</td>
<td></td>
<td>15.1</td>
<td>25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Goods</td>
<td>133.4</td>
<td>85.2</td>
<td>64%</td>
<td></td>
<td>45.2</td>
<td>34%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Environment and Social Mitigation</td>
<td>2.0</td>
<td>1.9</td>
<td>95%</td>
<td>0.1</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Consultants</td>
<td>8.6</td>
<td>2.7</td>
<td>32%</td>
<td>1.7</td>
<td>19%</td>
<td>3.0</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>a Project implementation</td>
<td>4.0</td>
<td>2.7</td>
<td>68%</td>
<td>1.3</td>
<td>32%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b Operations Improvement Program</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
<td>3.0</td>
<td>3.0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>c PMU Support</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
<td>0.4</td>
<td>25%</td>
<td>0.1</td>
<td>6%</td>
</tr>
<tr>
<td>5 Taxes and Duties</td>
<td>55.0</td>
<td>37.7</td>
<td>68%</td>
<td>17.3</td>
<td>32%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (A)</strong></td>
<td>259.9</td>
<td>173.3</td>
<td>67%</td>
<td>79.4</td>
<td>31%</td>
<td>3.0</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td><strong>500/220kV Substations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operation Improvement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Project Cost (A+B+C)</strong></td>
<td>288.0</td>
<td>192.5</td>
<td>67%</td>
<td>88.3</td>
<td>31%</td>
<td>3.1</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

$\text{KV} = \text{kilovolt}; \quad \text{PMU} = \text{Project Management Unit}$

*Source: Asian Development Bank estimates.*
## E. Detailed Cost Estimates by Year

<table>
<thead>
<tr>
<th>Item</th>
<th>Total Cost</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Investment Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Civil Works</td>
<td>60.9</td>
<td>6.1</td>
<td>15.2</td>
<td>15.2</td>
<td>15.2</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>2 Goods</td>
<td>133.4</td>
<td>13.3</td>
<td>33.3</td>
<td>33.3</td>
<td>33.3</td>
<td>20.0</td>
<td></td>
</tr>
<tr>
<td>3 Environment and Social Mitigation</td>
<td>2.0</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Consultants</td>
<td>8.6</td>
<td>0.1</td>
<td>1.7</td>
<td>2.6</td>
<td>2.4</td>
<td>1.1</td>
<td>0.6</td>
</tr>
<tr>
<td>a Project implementation</td>
<td>4.0</td>
<td>0.8</td>
<td>0.8</td>
<td>1.2</td>
<td>0.8</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>b Operations Improvement</td>
<td>3.0</td>
<td>0.6</td>
<td>1.5</td>
<td>0.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c PMU Support</td>
<td>1.6</td>
<td>0.1</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>5 Taxes and Duties</td>
<td>55.0</td>
<td>5.5</td>
<td>13.8</td>
<td>13.8</td>
<td>13.8</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (A)</strong></td>
<td>259.9</td>
<td>0.1</td>
<td>28.7</td>
<td>64.9</td>
<td>64.7</td>
<td>63.4</td>
<td>38.0</td>
</tr>
<tr>
<td><strong>B. Contingencies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Physical</td>
<td>20.5</td>
<td>2.1</td>
<td>5.1</td>
<td>5.1</td>
<td>5.1</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>2 Price</td>
<td>1.6</td>
<td>0.2</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (B)</strong></td>
<td>22.1</td>
<td>2.2</td>
<td>5.5</td>
<td>5.5</td>
<td>5.5</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td><strong>C. Financing Charges During Implementation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Project Cost (A+B+C)</strong></td>
<td>288.0</td>
<td>0.1</td>
<td>31.5</td>
<td>72.0</td>
<td>71.8</td>
<td>70.5</td>
<td>42.3</td>
</tr>
<tr>
<td><strong>% of Total Cost</strong></td>
<td>100%</td>
<td>0.0%</td>
<td>10.9%</td>
<td>25.0%</td>
<td>24.9%</td>
<td>24.5%</td>
<td>14.7%</td>
</tr>
</tbody>
</table>

PMU = Project Management Unit

Source: Asian Development Bank estimates.
F. **Contract and Disbursement S-curve**

![Diagram showing contract awards and disbursement S-curve](image)

Source: Asian Development Bank estimates.

G. **Fund Flow Diagram**

![Diagram illustrating fund flow](image)

Source: Asian Development Bank
V.  FINANCIAL MANAGEMENT

A.  Financial Management Assessment

10. A financial management assessment including assessed risks and mitigation measures, analysis on historical financial performance and projections of financial statements, were conducted according to ADB’s guidelines. Uzbekenergo, the executing agency of the project, is a 100% state-owned holding company for power generation, transmission, and distribution in Uzbekistan. It was established in August 2001 after public sector reorganization and is the legal successor of the former Ministry of Energy and Electrification. Incorporated as an open joint-stock company, Uzbekenergo has 54 subsidiaries with its shares ranging from 51% to 100% in each subsidiary. These subsidiaries include power generation, transmission, and distribution and supply companies. Most of those subsidiaries are incorporated as separate joint-stock companies.

11. Uzbekenergo is required to maintain its accounting and reporting in accordance with National Accounting Standards. Annual financial statements of Uzbekenergo, the parent company, have been prepared but without consolidating subsidiaries under its control due to the complexity. Permitted by the government, Uzbekenergo has been combining financial statements of its subsidiaries for internal use. The combination would have combined major-like items of the parent with those of its subsidiaries and would have eliminated major internal transactions.

12. The government undertook a series of measures to strengthen its national governance, including (i) legal reforms to improve the judiciary and courts; (ii) reforms to public sector management, especially public financial management and tax reforms; (iii) demonopolization measures to make the private sector more competitive; and (iv) more transparent procurement procedures. Progress has been made in public financial management, including the adoption of the Budget System Law and Treasury Law approved in 2007 and the public expenditure reform process covering 2007–2018. Uzbekistan acceded to the United Nations Convention against Corruption in July 2008.

13. The financial management assessment of Uzbekenergo found that it has a basic financial and accounting policy that adopts accrual accounting, double-entry bookkeeping, and other generally accepted accounting principles and conventions in compliance with national standards. Capacity development under the ongoing Talimarjan Power Project is strengthening Uzbekenergo’s financial management capacity and accounting and auditing practices.¹

14. Uzbekenergo’s procurement capacity was assessed during fact finding. It has limited experience working with ADB.² Smooth project implementation requires (i) that the PMU has direct access to Uzbekenergo’s management for efficient decision making, (ii) the staffing of PMU with competent specialists and translators, and (iii) an international consultant to assist in procurement and related activities.³ Procurement will follow ADB’s Procurement Guidelines

¹  ADB. 2010. Report and Recommendation of the President to the Board of Directors: Proposed Loans and Administration of Loan to the Republic of Uzbekistan for the Talimarjan Power Project. Manila (Loans 2629-UZB, 2630-UZB, and 8244-UZB).
²  Uzbekenergo has limited experience working with other multilateral and bilateral financiers; this is the second ADB project in Uzbekistan’s energy sector.
³  These key success factors were the lessons from the Talimarjan Power Project, the first ADB energy project in Uzbekistan.
Uzbekenergo's key PMU staff members have participated in a procurement workshop. Initially, an international consultant under an ADB project preparatory technical assistance will help Uzbekenergo prepare bidding documents, conduct bid evaluation, negotiate contracts, and also consultant recruitment. The consultant will also provide on-the-job training. Subsequently, the project management consultants will provide support to the PMU in procurement management. An early warning system will be established to ensure timely procurement and project implementation.

B. Disbursement

15. The loan proceeds will be disbursed in accordance with ADB’s Loan Disbursement Handbook (2012, as amended from time to time)\(^4\) and detailed arrangements agreed upon between the government and ADB. No establishment of an imprest account is envisioned.

16. Pursuant to ADB’s Safeguard Policy Statement (2009) (SPS),\(^5\) ADB funds may not be applied to the activities described in the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. The disbursement will be conditional to signing of a subsidiary loan agreement for the relending of the ADB loan from Borrower to Uzbekenergo, in form and substance satisfactory to ADB.

17. A team of implementation consultant will be recruited to assist Uzbekenergo in project management including preparing disbursement projections, collecting supporting documents, and preparing and sending withdrawal applications to ADB through MOF.

18. Before the submission of the first withdrawal application, MOF should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is $100,000, unless otherwise approved by ADB. MOF is to consolidate claims to meet this limit for reimbursement claims. Withdrawal applications and supporting documents will demonstrate, among other things, that the goods and/or services were produced in or from ADB members and are eligible for ADB financing.

C. Financial Reporting and Auditing

19. Uzbekenergo will maintain separate project accounts and records by funding source for all expenditures incurred on the project. Uzbekenergo will maintain separate accounts for the project components.

20. The project financial statements will be prepared in accordance with accounting principles acceptable to ADB. Such project financial statements will be audited annually by independent auditors, whose qualifications, experience and terms of reference are acceptable to ADB in accordance with international standards for auditing or the national equivalent acceptable to ADB. As part of each such audit, the auditors will prepare a report (which includes the auditors’ opinion on financial statements, the use of the loan proceeds and compliance with the financial covenants of the Loan Agreements) and a management letter (which sets out the deficiencies in the internal control of the project that were identified in the course of the audit, if any). Certified copies in English of such audited project financial statements of Uzbekenergo will

\(^4\) Available at: http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf

be submitted to ADB not later than six months after the end of the financial year to which they relate. Uzbekenergo was informed about ADB’s policy on submitting audited financial statements and possible penalties for delayed submission. ADB will disclose the annual audited project financial statements and the opinion of the auditors on the project financial statements within 30 days of the date of their receipt by posting them on ADB’s website. Uzbekenergo will also (i) provide ADB its entity level annual financial statements prepared in accordance with national accrual-based financing reporting standards acceptable to ADB; (ii) have its financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with international standards for auditing or the national equivalent acceptable to ADB; and (iii) furnish to ADB, no later than one month after approval by the relevant authority, copies of such audited financial statements in the English language and such other information concerning these documents and the audit thereof as ADB shall, from time to time, reasonably request.

21. PriceWaterhouseCoopers is in the process of being engaged as auditors of Uzbekenergo, which is acceptable to ADB.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

22. All advance contracting will be undertaken in conformity with ADB’s Procurement Guidelines (2010, as amended from time to time) and ADB’s Guidelines on the Use of Consultants (2010, as amended from time to time). The issuance of invitations to bid under advance contracting will be subject to ADB approval. The borrower and Uzbekenergo have been advised that approval of advance contracting financing does not commit ADB to finance the project.

23. Advance contracting will be undertaken for the procurement of contractors for goods and related services and recruitment of supervision and project management consultant. A team of individual consultants, engaged under ADB project preparatory technical assistance No. 8067, will assist PMU in bidding documents preparation for the supply contractor. PMU will undertake recruitment of project implementation consultant.

24. The project does not envisage retroactive financing.

B. Procurement of Goods, Works and Consulting Services

25. All procurement of goods will be undertaken in accordance with ADB’s Procurement Guidelines. Uzbekenergo will directly undertake and execute the works under the project.

26. International Competitive Bidding (ICB) procedures will be used for supply contracts estimated to cost $500,000 or more. ADB’s standard bidding documents for goods will be used following the Single-Stage, Two-Envelope bidding procedure. It is envisaged that ADB loan proceeds will finance 8 supply contracts of which 7 will be related to substations and transmission lines, and 1 to transmission asset management system. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract

---

6 The disclosure of audited project financial statements is guided by ADB’s Public Communication Policy 2011 which is effective 2 April 2012.

7 Available at: http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf

packages has been prepared.

27. All consultants will be recruited according to ADB’s *Guidelines on the Use of Consultants*.\(^9\) The outline terms of reference for implementation and operational improvement consulting services are detailed in Section D. All consulting firms will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality:cost ratio of 90:10, considering a high level of technical expertise and experience required.

28. **Project Implementation Consultant.** An estimated 298 person-months (78 international, 220 national) of consulting services are required to (i) provide technical, financial, and administrative support to the PMU during the entire project implementation period, and (ii) implement social awareness-raising program. Estimated contract duration is 45 months.

29. **Operational Improvement Program Consultant.** Two consulting firms will be recruited. The first consulting firm will be responsible for detailed design, procurement and supervision of the installation of the transmission asset management system. The second consulting firm will: (i) prepare detailed design, procure and install the transmission planning system; (ii) procure and install a video wall for national dispatch center; and (iii) prepare detailed feasibility study for Supervisory Control and Data Acquisition system (SCADA). An estimated 95 person-months (50 international, 45 national) of consulting services are required for the implementation of the Operational Improvement Program.

C. **Procurement Plan**

| Basic Data |
|------------------|------------------|
| **Project Name:** Namangan 500kV Power Transmission Project | **Executing Agency:** SJSC UZBEKENERGO |
| **Country:** Uzbekistan | **Loan (Grant) Number:** TBD |
| **Loan Amount:** $150 million | **Date of First Procurement Plan:** 26 August 2012 |
| **Date of this Procurement Plan:** 26 August 2012 |

A. **Process Thresholds, Review and 18-Month Procurement Plan**

1. **Project Procurement Thresholds**

30. Except as ADB may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

<table>
<thead>
<tr>
<th>Procurement of Goods and Works</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method</strong></td>
</tr>
<tr>
<td>International Competitive Bidding (ICB) for Goods</td>
</tr>
</tbody>
</table>

2. **ADB Prior or Post Review**

31. Except as ADB may otherwise agree, the following prior or post-review requirements apply to the various procurement and consultant recruitment methods used for the project.

---

\(^9\) Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: [http://www.adb.org/documents/handbooks/project-implementation/](http://www.adb.org/documents/handbooks/project-implementation/)
3. **Goods and Works Contracts Estimated to Cost More Than $1 Million**

32. The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

<table>
<thead>
<tr>
<th>General Description</th>
<th>Contract Value</th>
<th>Procurement Method</th>
<th>Prequalification of Bidders (y/n)</th>
<th>Advertisement Date (quarter/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substation and Transmission Line Equipment</td>
<td>$128 million (8 lots)</td>
<td>ICB</td>
<td>N</td>
<td>Q3/2012</td>
</tr>
</tbody>
</table>

4. **Consulting Services Contracts Estimated to Cost More Than $100,000**

33. The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

<table>
<thead>
<tr>
<th>General Description</th>
<th>Contract Value</th>
<th>Recruitment Method</th>
<th>Advertisement Date (quarter/year)</th>
<th>International or National Assignment</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Project Implementation Consultant-Firm</td>
<td>$4 million</td>
<td>QCBS with quality: cost ratio 90:10</td>
<td>Q3 2012</td>
<td>International</td>
<td>Draft TOR prepared</td>
</tr>
<tr>
<td>2. Transmission Asset Management-Firm</td>
<td>$1 million</td>
<td>QCBS with quality: cost ratio 90:10</td>
<td>Q1 2013</td>
<td>International</td>
<td>Precise TOR to be developed after needs assessment</td>
</tr>
<tr>
<td>3. Transmission System Planning/ Feasibility Studies for SCADA System- Firm</td>
<td>$2 million</td>
<td>QCBS with quality: cost ratio 90:10</td>
<td>Q1 2013</td>
<td>International</td>
<td>Precise TOR to be developed after needs assessment</td>
</tr>
</tbody>
</table>

5. **Goods and Works Contracts Estimated to Cost Less than $1 Million and Consulting Services Contracts Less than $100,000**

34. The following table groups smaller-value goods, works and consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.
6. **Indicative List of Packages Required Under the Project**

35. The following table provides an indicative list of all procurement (goods, works and consulting services) over the life of the project. Contracts financed by the Borrower and others should also be indicated, with an appropriate notation in the comments section.

<table>
<thead>
<tr>
<th>General Description</th>
<th>Estimated Value (cumulative)</th>
<th>Number of Contracts</th>
<th>Procurement Method</th>
<th>Domestic Preference Applicable</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goods</td>
<td>(i) $128 million</td>
<td>Eight (8)</td>
<td>ICB</td>
<td>Yes</td>
<td>ADB financing</td>
</tr>
<tr>
<td></td>
<td>(ii) $5 million</td>
<td>Two (2)</td>
<td>NCB</td>
<td>No</td>
<td>Executing Agency financing</td>
</tr>
<tr>
<td>Works</td>
<td>$61 million</td>
<td>Four (4)</td>
<td>Direct execution by EA</td>
<td>No</td>
<td>Executing Agency financing</td>
</tr>
<tr>
<td>Consulting Services</td>
<td>$7 million</td>
<td>Three (3)</td>
<td>QCBS</td>
<td>Full Technical Proposal</td>
<td>ADB financing</td>
</tr>
</tbody>
</table>

7. **Review of Contract Modifications**

36. ADB will review contract modifications in accordance with the procedures set forth in the loan agreements between the borrower and ADB.

D. **Consultant’s Terms of Reference – Implementation Consultants**

1. **Introduction**

37. Uzbekenergo, the executing agency for the Namangan 500 kV Transmission Project, is the vertically-integrated state owned electric power utility in Uzbekistan. Uzbekenergo wishes to strengthen its transmission system by the addition of new transmission lines and the rehabilitation and expansion of the existing substation at Namangan. Uzbekenergo wishes to
recruit a Project Management Consultant (the Consultant) to review existing designs, supervise the works of the suppliers and contractors and ensure successful commissioning. Recruitment will be in accordance with ADB’s Guidelines on the Use of Consultants by Asian Development Bank and its Borrowers.

38. The project components are:
   (i) 500 kV Namangan Substation with installation of single-phase auto-transformers, two groups 500/220/10 kV with power 2(3x167) megavolt-ampere and reserve phase of 167 megavolt-ampere;
   (ii) 500 kV overhead line (OHL) from Novo-Angren TPP to Namangan Substation with length of 175 km;
   (iii) Entries of 220 kV OHL Kizil-Ravat-Sardor and 220 kV OHL Sardor-Kristall in the 500 kV Namangan Substation with lengths of 2x8 km each for power distribution from the 500 kV Namangan Substation to the 220 kV network;
   (iv) Reconstruction of relay protection, emergency control schemes, means of communications and automatic remote controls in associated facilities such as Fazilmon, Fergana, Kizil-Ravat, Novo-Angren TPP, Obi-Khayet, Paulgan, Sardor 220 kV Substation, Sokin, Soo kV Tashkent Substation, Uzgarish, and Yulduz;
   (v) Arrangement of open switchyard new 500 kV bay in Novo-Angren TPP.
   (Note: The reconstruction of the existing bay in Novo-Angren TPP is being implemented to avoid crossing of the proposed and existing 500 kV OHLs at the TPP entrance.)

39. It is envisaged that the project components will be delivered by a number of suppliers and executed by Uzbekenergo and its subsidiaries.

40. Project sites are in multiple locations in the eastern region of Uzbekistan as indicated above. The Consultant must ensure that the suppliers deliver their material in time and the erection agencies provide sufficient staff for parallel operation at multiple sites for the timely completion of the project.

41. A designated PMU will manage the project on behalf of Uzbekenergo.

2. Scope of Consulting Services

42. The Consultant will be responsible for review of the designs and will assist the PMU in planning, as well as developing and implementing comprehensive project management plans, to ensure the most efficient, timely, and economical implementation of the project. This plan should take into consideration the engineering technology required, the resources and costs involved, and the critical time frame for completion.

43. The consulting services shall be required primarily for the construction phase during which the Consultant will be responsible for the following:
   (i) Ensure that the Environmental Management and Monitoring Plan (EMMP) for the project submitted by the contractors is adequate and are in accordance with the initial environmental examination (IEE);
   (ii) Ensure that any land acquisition and involuntary resettlement are fully compensated and other requirements stipulated in the Land Acquisition and Resettlement Plans (LARPs) are fully implemented before the commencement of works;
   (iii) Prepare a project implementation manual covering the project organization, payment procedures, and project time schedule and quality assurance program.
The Consultant will also establish a computerized project monitoring program using off-the-shelf software packages;

(iv) Prepare the overall disbursement plan, monitor costs, and maintain project accounts;

(v) Review and approve the engineering design drawings, calculations, delivery program, and documents submitted by the contractors;

(vi) Assist the executing agency in procurement, including preparing and issuing of bidding documents, organizing site visits, assisting pre-bid meetings, responding to request for clarification on bid documents, opening of bids, evaluation of technical and financial bids, preparation of bid evaluation reports, and submission of evaluation results to ADB for review and approval, and assisting in contract negotiations;

(vii) Monitor the execution of the project components in line with the project time schedules and the work programs provided by the contractors;

(viii) Assist with the implementation and, if necessary, periodic revisions of the LARPs and ensure timely reporting on LARP implementation in the quarterly report. Assist the executing agency and the local government with necessary public consultations. Liaise with the executing agency and local government to ensure that all compensations (social and environmental) are paid in a timely manner and that the right-of-way is cleared;

(ix) Certify invoices, prepare withdrawal applications and keep records of any disbursement under the project. Prepare and regularly update the forecast disbursement schedules;

(x) Prepare project financial statements recording the project expenditures, prepare annual financial reports ready for auditing by independent auditors; manage cash flows and set up financial management information system;

(xi) Identify any problem areas during project implementation, proposing remedial actions, and promptly report any outstanding issues to the executing agency;

(xii) Conduct field visits and appropriate tests at regular and appropriate times during construction, testing and commissioning;

(xiii) In line with the work programs of the contractors, prepare and advise the executing agency on the outage planning of existing facilities during implementation;

(xiv) Coordinate safety measures between live components in operation and components under construction. Giving advice and, when required, provide training to the executing agency on safety planning and safety measures;

(xv) Conduct factory inspections and performance tests within the framework of the supply contracts;

(xvi) Review and certify the commissioning test reports submitted by the contractors/suppliers; attend the commissioning phase; establish the list of deficiencies after commissioning; and prepare a time frame for the contractors/suppliers to remedy the deficiencies. Establish a monitoring program for the use of the executing agency;

(xvii) Prepare and issue provisional acceptance certificates for the works, as well as for spare parts. Prepare the final taking-over certificates, along with the final payments to be issued by the executing agency after the end of the warranty period and the remedy of all deficiencies;

(xviii) Monitor the executing agency compliance with the loan agreement covenants and report to ADB; track project outputs, outcomes and impacts against the project’s design and monitoring framework;

(xix) Prepare monthly progress reports, quarterly reports, project completion report,
and other reports deemed necessary by the executing agency and/or ADB; and Plan and execute capacity building measures (classroom lectures and on-the-job training) to enhance the executing agency’s capacity in project management. Implement workshops and study tours related to new technologies in the energy sector appropriate for the executing agency’s needs. Capacity building programs should be included in the inception report.

3. Consultant Qualifications, Experts and Person-Months

44. The Consultant shall have experience of 500 kV and 220 kV substation and overhead line design and construction. The Consultant shall have performed consulting services on at least three projects involving design and construction of 500 kV and 220 kV substations and overhead lines and in the last five years.

45. Duration of the consulting services is approximately 45 person-months. Person-months and consultant experts are as follows:

<table>
<thead>
<tr>
<th>Expertise</th>
<th>International Consultants</th>
<th>National Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of experts of Person-months/expert</td>
<td>Total Person-months</td>
</tr>
<tr>
<td>Project Manager (Substation Specialist) (National Consultant will act as Deputy Project Manager)</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>Transmission Line Engineer</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>Civil Engineer</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Environmental Specialist</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Social Specialist</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Finance Specialist</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>5</strong></td>
<td><strong>78</strong></td>
</tr>
</tbody>
</table>

4. Reporting Requirements

46. The Consultant will prepare monthly progress reports to be submitted within two weeks from the end of the month that is being reported. Quarterly progress reports will be prepared and submitted within one month from the end of the quarter that is being reported. The format of the progress reports shall be drafted by the Consultant and endorsed by the executing agency and ADB, and they should include, but not limited to, physical progress against schedule and plan for next term; disbursement against schedule and plan for next term; quality test results; safety control; survey of quantity when required; environmental monitoring; social issues including land acquisition and resettlement, as well as implementation of grievance redress mechanisms; compliance with loan covenants; and any other issues to be raised. Annual reports will be prepared by the Consultant and shall be submitted within one month from the end of the year that is being reported. Variation orders and any other documents deemed necessary by the executing agency and/or ADB will be prepared. A completion report will be prepared within one month after project completion.
47. Specifically, the Consultant will prepare the following reports (English and Russian):
   (i) quarterly progress reports that will include but not limited to: (i) introduction and basic data; (ii) utilization of the funds (ADB loan and counterpart funds); (iii) status of project scope/implementation arrangements, assessment of changes in the key assumptions and risks, etc.; (iv) implementation progress; (v) compliance with the loan covenants; (vi) major project issues and problems; and (vii) EMMP implementation status;
   (ii) annual projections in terms of contract awards and disbursement and forecast to complete the project;
   (iii) design report, if required; and
   (iv) project completion report.

5. Implementation Arrangements

48. As indicated, the executing agency will be Uzbekenergo and the PMU will be responsible for supervising and implementing the Project.

49. The executing agency will provide the needed counterpart staff, office space, including telephone and internet connection for every project office.

E. Consultant's Terms of Reference – Transmission Asset Management Consultants

50. Uzbekenergo, the executing agency for the Namangan 500 kV Transmission Project, is the vertically-integrated state-owned electric power utility in Uzbekistan. Uzbekenergo wishes to strengthen its transmission system by the addition of new transmission lines and the rehabilitation and expansion of the existing substation at Namangan and improve operational efficiency of the transmission unit of the utility. The main components are:
   (i) Construction of (a) 500 kilovolt (kV) overhead transmission line of approximately 175 kilometer (km) between Novo Angren Thermal Power Plant (TPP) and Namangan Substation, and (b) rerouting of 220 kV overhead transmission lines of approximately 32 km between Kuzyl-Ravat-Sardor and Sardor-Crystal and Namangan Substation;
   (ii) Construction of 500 kV/220 kV Namangan Substation and reconstruction of outdoor switchgear 500 kV at the Novo Angren TPP; and
   (iii) Implementation of Operational Improvement Program in transmission system planning and transmission asset management and preparation of feasibility study for SCADA.

51. Uzbekenergo wishes to recruit a firm of Transmission Asset Management Consultants (the Consultant) to design, procure software and hardware, and install a modern asset management system for the transmission company. Recruitment will be in accordance with ADB’s Guidelines on the Use of Consultants by Asian Development Bank and its Borrowers.

52. Uzbekenergo will be the executing agency for the project. A designated PMU will manage the project on behalf of Uzbekenergo.
1. **Main Tasks**

53. The Consultant will need to consider in detail the following different aspects of the computerized asset management system:

   (i) detailed design team;
   (ii) database and application hardware and software;
   (iii) system architecture;
   (iv) number of work stations and user hardware requirements;
   (v) type of system;
   (vi) asset design;
   (vii) interface with corporate systems;
   (viii) data capture;
   (ix) data entry;
   (x) standards, procedures and guidelines;
   (xi) development phases;
   (xii) detailed costs and benefits;
   (xiii) project timeframe;
   (xiv) tender documentation; and
   (xv) staff training.

54. A total of 40 consultant-months will be required divided as follows:

   (i) 30 consultant-months before delivery of asset management system to develop the detailed design and support Uzbekenergo with the tender process; and
   (ii) 10 consultant-months to supervise the installation, testing and start-up of the system, as well as data migration and report development, and to supervise and participate in the staff training exercise.

55. The terms of reference for individual consultant groups are provided herein.

2. **Pre-Delivery of Asset Management System**

56. Altogether, 30 consultant-months will be required to develop the detailed design and to support Uzbekenergo in the tender process. It is envisaged that a team of five international consultants experienced on asset management systems and, crucially, extensively experienced in electrical utilities, and five local consultants will be required. A firm of international consultants will be responsible for selecting and employing the local consultants.

57. There are many advantages in operating this way, mainly:

   (i) The local consultants, will greatly facilitate communication with Uzbekenergo and Uzelektroset staff, and the gathering of data and information;
   (ii) The local consultants will provide a communication bridge between the Consulting team and the Uzbekenergo and Uzelektroset team members of the detailed design team;
   (iii) The local consultants, who ideally will have experience in electrical utilities, can provide Uzelektroset basic technical support after the asset management system is in operation; and
   (iv) The local consultants are likely to reduce consultancy costs.

58. The firm of international consultants will be free to organize their work in whatever manner they consider most appropriate. However, there are five obvious streams in the detailed design that must be independently considered. These five streams are as follows:
(i) hardware;
(ii) maintenance organization;
(iii) asset design;
(iv) data capture and data entry; and
(v) tender process.

59. Each of these different streams is covered below.

(i) At the outset, the Consultant shall request that Uzbekenergo appoint members to the detailed design team.

(ii) The Consultant shall be responsible for the management of the team. Where a discrepancy arises between the Consultant and decisions made by the executing agency or the detailed design team, the Consultant shall record its disagreement in writing to the executing agency. Otherwise, the Consultant will be considered fully responsible for the quality of the work and for all the decisions taken by the team.

(iii) Given the complexity and uncertainties attached to this project, it may not be possible to complete all desirable components of the project implementation in a single phase. The Consultant may propose, if he considers it necessary or safer, a series of stages of development which can be executed independently and consecutively.

(iv) The Consultant shall provide detailed cost estimates at the end of the detailed design process. If a phase development is recommended, the Consultant shall estimate the cost of each phase separately.

(v) The Consultant shall also provide an estimation of the quantitative benefits that Uzelekroset may expect from the asset management system each year after implementation for the first five years.

(vi) The Consultant shall provide a detailed timetable for project implementation. If a phase development is recommended, the Consultant shall estimate a separate timetable for each phase of the project, together with an overall timeframe.

(vii) Detailed design, procurement under competitive tendering, and project implementation shall be separately shown.

3. **Hardware**

60. It is envisaged that one international and one local consultant will be required for a period of three months.

61. The international consultant looking after this area will have an Engineering or Computer Science degree and at least 15 years relevant experience in telecommunications and hardware system design. Experience of electrical utilities and a work record in developing countries is desirable.

62. The local consultant will have an Engineering or Computer Science degree and is Russian-speaking. Experience in electrical utilities is desirable.

63. At least, the following tasks need to be covered under this heading:

   (i) number of primary and secondary users of the asset management system and their geographical locations;
   (ii) number of licenses;
   (iii) hardware configuration in each of the locations involved;
in discussion with Energoaloka, telecommunication arrangements between each user location and Uzbekenergo headquarters central location where the database and application servers will be based;

(v) number and specification of work stations to be acquired for the project;

(vi) in discussion with EnergoASUnaladka, determining staffing requirements for the maintenance and operation of the central servers;

(vii) in discussion with EnergoASUnaladka, drawing up maintenance and operating procedures for users in the different geographical locations involved;

(viii) if required and in discussion with EnergoASUnaladka, specification of the database and application servers;

(ix) detailed budget for the hardware required; and

(x) in discussion with EnergoASUnaladka, impact on hardware of interface between asset management system and other corporate systems.

4. **Maintenance organization**

64. It is envisaged that one international and one local consultant will be required for a period of three months.

65. The international consultant looking after this area will have an Engineering, Business or Computer Science degree, consulting experience and at least 15 years relevant work experience in a maintenance-intensive industry or, preferably, an electrical utility. Experience of work in developing countries is desirable.

66. The local consultant will have an Engineering, Business or Computer Science degree and is Russian-speaking. Experience in a maintenance intensive industry or, preferably, an electrical utility is desirable.

67. At least, the following tasks need to be covered under this heading, working very closely with the relevant Uzelektroset staff:

(i) review of current maintenance standards and procedures;

(ii) define new maintenance strategies to progress from fault maintenance to planned maintenance with an emphasis on prevention;

(iii) define new maintenance strategies priming on condition-based maintenance;

(iv) define new maintenance standards;

(v) define new maintenance procedures to back up the strategic progression from fault maintenance to planned maintenance and condition-based maintenance;

(vi) define new inspection and condition-based techniques;

(vii) review of current capital budgeting standards and procedures;

(viii) define a new approach to capital budgeting and guidelines that will promote a substitution of refurbishment and replacement for maintenance when justified from a technical and financial point of view;

(ix) in discussion with the international consultant involved with data capture and data entry draw up standards, procedures and guidelines for data capture after the start up of the asset management system; and

(x) in discussion with the international consultant involved with data capture and data entry draw up standards, procedures and guidelines for data entry after the start-up of the asset management system, including locations and staff whose responsibility will be entry into the system of relevant data after physical work on the networks;
(xi) NB: By “standards” on data capture and data entry is meant a clear exposition of the level of quality which is required and below which data will not be accepted into the system;

(xii) NB: By “procedures” for data capture and data entry is meant a clear listing of the events and/or circumstances that will give rise to data capture or data entry and a clear exposition of the manner in which data capture or data entry shall be carried out;

(xiii) NB: By “guidelines” for data capture and data entry is meant a comprehensive list of instructions which will help the reader understand how and in what manner data capture or data entry shall be handled. For example, how should abbreviations, local geographical names, tower positions, etc., be dealt with.

5. Asset Design

68. It is envisaged that an international and a local consultant will be required for a period of three months.

69. The international consultant looking after this area will have an Engineering, Business or Computer Science degree, consulting experience and at least 15 years relevant work experience in an electrical utility. Experience of work in developing countries is desirable.

70. The local consultant will have an Engineering, Business or Computer Science degree and is Russian-speaking. Experience in an electrical utility is highly desirable.

71. At least, the following tasks need to be covered under this heading, working very closely with the relevant Uzelektroset staff:
   (i) define the assets and group of assets that will be covered in the asset management system;
   (ii) define the rules under which asset components will be separately recorded in the asset management system (such as substantive monetary value, different maintenance cycle or life cycle from the assets to which it belongs, etc.);
   (iii) define the attributes which will be recorded separately for each group of assets;
   (iv) calculate the total number of assets and total number of data records that will populate the database. Liaise with the consultants involved with hardware;
   (v) define minimum display contents of asset management system screens;
   (vi) define minimum requirements of asset management system standard reports for different levels of management. Establish present regulatory requirements;
   (vii) define interfaces with other existing corporate systems, such as Stores, Accounts, Purchasing, Supply Chain, etc.;
   (viii) in discussion with EnergoASUNaladka, define possible interfaces with future information technology systems; and
   (ix) in discussion with EnergoASUNaladka and other Uzbekenergo relevant staff, establish possible future needs and capacity requirements for extending the asset management system (such as generating stations, distribution, etc.).

6. Data Capture and Data Entry

72. It is envisaged that an international and a local consultant will be required for a period of three months.

73. The international consultant looking after this area will have an Engineering, Business or
Computer Science degree, consulting experience and at least 15 years relevant work experience in an electrical utility. Experience of work in developing countries is desirable.

74. The local consultant will have an Engineering, Business or Computer Science degree and is Russian-speaking. Experience in an electrical utility is highly desirable.

75. At least, the following tasks need to be covered under this heading, working very closely with the relevant Uzelektroset staff:
   (i) examine extensively and in detail the asset data available in Uzelektroset and the Design Institute;
   (ii) based on data samples, discuss in detail with asset management system vendors the possibility of migrating electronically the data available to populate the database;
   (iii) estimate, in discussion with possible vendors, the cost of checking, cleansing, migrating, testing and correcting the data available;
   (iv) in discussion with the international consultant working on asset design, determine what gaps exist in Uzelektroset data records and how much data available cannot be electronically migrated;
   (v) establish the cost involved in manual data entry; establish the means and time required to manually enter the data that cannot be electronically migrated;
   (vi) establish how much data is missing (even in paper records) that may need to be gathered after start-up of the asset management system;
   (vii) in discussion with the consultant dealing with the maintenance organization, ensure that the inspection and maintenance procedures and other business functions incorporate a procedure for gathering the data missing at present;
   (viii) establish a procedure to ensure that data thus gathered is entered manually into the system at a central location;
   (ix) establish the cost and time involved in gathering the missing data and entering it into the asset management system; and
   (x) in discussion with EnergoASUnaladka, define a possible function of the data manager to ensure the quality and integrity of system data.

7. Tender Process

76. It is envisaged that an international and a local consultant will be required for a period of three months.

77. The international consultant looking after this area will have an Engineering, Business, Project Management or Computer Science degree, consulting experience and at least 10 years of relevant work experience in procurement and contract management of infrastructure projects, preferably in an electrical utility. Experience of work in developing countries is desirable.

78. The local consultant will have an Engineering, Business, Project Management or Computer Science degree and is Russian-speaking. Experience in an electrical utility is highly desirable.

79. These two consultants will work intermittently. They will commence work at the beginning of the third month when the other eight consultants are maturing their specifications, will break off after the procurement packages have gone out to prospective vendors, and will resume work in time for bid evaluation and contract negotiation.
At least, the following tasks need to be covered under this heading, working very closely with the relevant Uzbekenergo staff:

(i) assess the procurement law and relevant decrees in Uzbekistan;
(ii) assess the procurement capacities and training needs of the executing agency and PMU staff as against ADB’s Procurement Guidelines, Standard Bidding Documents and User’s Guide;
(iii) train the respective executing agency and PMU staff in ADB’s Procurement Guidelines;
(iv) assist the executing agency and PMU to make advance procurement actions;
(v) prepare packaging of procurement packages aiming to attract maximum interest from international and national suppliers;
(vi) based on ADB template, prepare a procurement plan for the procurement of goods;
(vii) prepare bidding documents for each package in accordance with ADB’s Procurement Guidelines, Standard Bidding Documents and User’s Guide;
(viii) finalize bidding documents based on comments from the executing agency, PMU, ADB and any other government agencies involved in procurement;
(ix) assist the executing agency and PMU to float the bids and to conduct the bidding process in adherence to ADB’s Procurement Guidelines;
(x) Assist the executing agency and PMU to prepare bidding evaluation reports for each package for ADB’s approval and any other government agencies involved in procurement;
(xi) Assist the executing agency and PMU to prepare technical and financial evaluations for each package for ADB’s approval and any other government agencies involved in recruitment; and
(xii) Assist the executing agency and PMU to negotiate the contracts with the first-ranked firms.

Post-Delivery of Asset Management System

Altogether, 10 consultant-months will be required to monitor the full implementation of the asset management system by the system vendor. It is envisaged that an international and a local consultant involved in the post-delivery consultancy would do this work over a 12-month period depending on how the vendor deploy its own staff for the installation, start-up, data migration, report customization and staff training.

The qualification for consultants undertaking the post-delivery consultancy is the same as that required for asset design and data capture and data entry. In other words, the international consultant must have an Engineering, Business or Computer Science degree, consulting experience and at least 15 years relevant work experience in an electrical utility. Experience of work in developing countries is desirable. The local consultant will have an Engineering, Business or Computer Science degree and is Russian-speaking. Experience in an electrical utility is highly desirable.

The post-delivery consultants will deliver on the following tasks:
(i) liaison with vendor on site;
(ii) supporting vendor in their system development to ensure all Uzelektroset requirements are properly understood and fully met;
(iii) monitoring the installation, testing and start-up of the asset management system software;
(iv) monitoring the vendor’s development of interfaces with other corporate systems;
(v) monitoring data migration, data tests and cleansing and corrections, as required;
(vi) monitoring report customization and ensuring that Uzelektroset requirements are
totally understood and fully met; and
(vii) sitting in staff training sessions and imparting training directly, as required.

84. Depending on the vendor, staff training may be unnecessarily expensive. In that case, the consultants can share on the training work and indeed should be involved in its organization to ensure that all users (including EnergoASUNaladka) are trained as required while keeping costs within a reasonable level. The consultants, and very specially the local consultants, will fully check the contents of the training to ensure that they are geared to the staff receiving it and that local culture is fully taken into account.

85. Duration of the consulting services is approximately 40 person-months. Person-months and consultant experts are as follows:

<table>
<thead>
<tr>
<th>Positions</th>
<th>International Consultants</th>
<th>Local Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P-M per Expert</td>
<td>No of Experts</td>
</tr>
<tr>
<td>Hardware Expert</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Organization Expert</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Asset Design Expert</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Data Design Expert</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Procurement Expert</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Implementation Expert</td>
<td>5.0</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6.0</strong></td>
<td><strong>20.0</strong></td>
</tr>
</tbody>
</table>

9. **Main Outputs**

86. Apart from the required tender and bid evaluation documentation required, the Consultant shall provide the following outputs:
(i) inception report;
(ii) monthly progress reports; and
(iii) final report after testing, start-up, and staff training.

10. **Facilities and Services to be Provided by Uzbekenergo**

87. The following facilities and services shall be provided by Uzbekenergo, free of cost:
(i) participation in the detailed design team;
(ii) office space and basic office equipment for the detailed design team;
(iii) access to earlier relevant reports and to the documentation and information required to produce the system detailed design; and
(iv) support from the PMU, including translation services.

F. **Consultant’s Terms of Reference – Transmission System Planning and SCADA Consultants**

88. Uzbekenergo, the executing agency for the Namangan 500 kV Transmission Project, is the vertically-integrated state-owned electric power utility in Uzbekistan. Uzbekenergo wishes to strengthen its transmission system by the addition of new transmission lines and the rehabilitation and expansion of the existing substation at Namangan and improve operational efficiency of the transmission unit of the utility. The main components are:
(iv) Construction of (a) 500 kV overhead transmission line of approximately 175 km between Novo Angren TPP and Namangan Substation, and (b) rerouting of 220 kV overhead transmission lines of approximately 32 km between Kuzyl-Ravat-Sardor and Sardor-Crystal and Namangan Substation;
(v) Construction of 500 kV/220 kV Namangan Substation and reconstruction of outdoor switchgear 500 kV at the Novo Angren TPP; and
(vi) Implementation of Operational Improvement Program in transmission system planning and transmission asset management and preparation of feasibility study for SCADA.

89. Uzbekenergo wishes to recruit a firm of Transmission System Planning and SCADA Consultants (the Consultant) for two main tasks:
   (i) design, procure software and hardware, and install a modern system for transmission planning; and
   (ii) prepare a detailed feasibility study for the implementation of SCADA system in a phased manner; and, design, procure and install a large video wall in the National Dispatch Center (NDC).

90. Uzbekenergo will be the executing agency for the project. A designated PMU will manage the project on behalf of Uzbekenergo. Recruitment will be in accordance with ADB's Guidelines on the Use of Consultants by Asian Development Bank and its Borrowers.

1. Transmission System Planning

91. The Consultant will, in summary, be responsible for the following:
   (i) finalization of the system design,
   (ii) advising on the organizational structure required and the level of expertise needed,
   (iii) production of a complete comprehensive request for proposals (RFP) with detailed technical and commercial specifications,
   (iv) providing support during the bidding process including bid evaluation and contract negotiation,
   (v) providing assistance in contract administration and the supervision of the contract execution, and
   (vi) ensuring that adequate training is provided to the executing agency staff.

92. The following sections describe the obligations of the Consultant in detail.

a. Finalization of System Design

93. The Consultant shall review existing relevant documents and reports and following detailed discussions with the client shall:
   (i) finalize the study applications to be provided,
   (ii) outline the essential functionality of each application,
   (iii) determine the sizing parameters of the system to be studied,
   (iv) specify the interfaces to other applications that may be required,
   (v) determine the level of user training required,
   (vi) determine the requirements for data acquisition or data transfer at the time of switchover to the new system in order to enable the applications to be effectively used,
(vii) derive costs estimates for the entire project, including training and data acquisition, and
(viii) provide an outline project timetable.

94. The Consultant shall examine the current organization and its ability to carry out transmission system planning with modern information technology systems. The structure of the organization, numbers of persons, and levels of expertise shall be assessed. The Consultant shall propose required changes in structure, staffing levels, and training needed.

95. All of the above outcomes shall be presented in an inception report.

b. Preparation of Request for Proposals

96. The Consultant shall prepare a comprehensive RFP, which shall be suitable for international competitive procurement of the systems and services outlined in the previous section. The RFP shall be prepared in conformity with ADB policies and procedures.

97. The RFP shall include:
   (i) instructions to bidders,
   (ii) general conditions of contract,
   (iii) special conditions of contract,
   (iv) associated forms, agreements, etc.,
   (v) project scope of work,
   (vi) technical specifications, and
   (vii) technical and commercial schedules.

98. The complete RFP shall be presented to the executing agency and ADB.

c. Bidding and Contract Award

99. The Consultant shall provide support during the bidding, negotiation, and contract award process. The responsibilities shall include the following:
   (i) supporting the client during the bidding process in providing clarifications to queries from bidders,
   (ii) establishing the process and basis for comparison of bids,
   (iii) carrying out bid evaluation of technical and commercial aspects of the bids,
   (iv) attending bid clarification meetings,
   (v) assisting in contract negotiations, and
   (vi) assembling draft contract documents.

d. Supervision of Contract Execution and Administration

100. The Consultant shall provide comprehensive support to the Client during implementation of the project. The following services shall be provided:
   (i) ongoing monitoring of technical progress,
   (ii) monitoring of project progress against the agreed schedule,
   (iii) review and comment on functional specifications submitted by the contractor,
   (iv) attend and support the client during project progress and review meetings,
   (v) review and comment on system test plans and procedures,
   (vi) witness factory acceptance and site acceptance tests, and
   (vii) monitor and comment on effectiveness of all training provided.
e. **Principal Outputs**

101. The Consultant shall provide the following outputs:
   (i) inception report,
   (ii) request for proposals,
   (iii) bid evaluation report,
   (iv) monthly progress reports, and
   (v) project completion report.

102. With the exception of the monthly progress reports, all of the above shall be provided in draft form. On receipt of comments from the client and ADB, a final version shall be submitted for approval.

f. **Site Visits and Tests to be Witnessed**

103. During the course of the project, the selected Consultant shall undertake the following visits:
   (i) initial site data collection visit,
   (ii) follow-up visit to site after submission of draft RFP,
   (iii) visit to site to assist in bid evaluation,
   (iv) witnessing of factory acceptance tests for combined hardware and software, and
   (v) witnessing of final site acceptance tests.

2. **SCADA Feasibility Study**

104. The objective is to develop a strategic plan for the phased development of a modern SCADA system. The envisaged SCADA system will incorporate three closely linked subsystems, viz.:
   (i) central hardware and software,
   (ii) extensive nationwide telecommunications system, and
   (iii) remote terminal units in the main substations and generating stations.

105. Development plans to be drawn up by the Consultant shall consider the inter-dependent nature of the three subsystems. In summary, the Consultant will be responsible for the following:
   (i) gathering of information on installed systems;
   (ii) determination of detailed user needs both for current and the foreseeable future;
   (iii) establishment of performance, availability, and other parameters which will guide the detailed design of each stage of the project;
   (iv) preparation of a phased strategic development plan for each major subsystem;
   (v) production of costs estimates for each stage of the plan;
   (vi) production of a timetable for implementation of each stage of the plan;
   (vii) estimation of the cost-benefit ratio for each stage of the plan;
   (viii) advising on the organizational structure required, staffing levels, and the level of expertise needed; and
   (ix) assessment the need and priorities of other grid management and smart grid components including but not limited to Energy Management Systems, Voltage Control System, Demand Forecasting System.

106. The detailed scope of the work is described below.
a. **Principal Tasks**

107. The Consultant shall investigate and report each of the headings listed below.

b. **Overall System Configuration**

108. Detailed proposals shall be derived in consideration of:
   
   (i) A system configuration where a central dispatch system is coupled to five regional dispatch systems. This could take the form of a central SCADA system with five subsidiary SCADA systems or a central SCADA system to which five satellite remote dispatcher terminals are connected. Other options are also possible.
   
   (ii) Deployment of modern hardware and software which will be a base for phased implementation of system enhancements.

c. **Level of Functionality**

109. At the outset, a full set of SCADA facilities shall be provided. Provision shall be incorporated to add applications software to the basic SCADA system as it becomes affordable and appropriate.

d. **Design and Performance Policies**

110. Target design and performance policies shall be developed which will guide the initial procurement standards and will continue to apply during the phased development of the system. Typical areas to be addressed shall include:
   
   (i) substation signal lists,
   
   (ii) standard signal interfaces in substations,
   
   (iii) data collection cycle time,
   
   (iv) protocols for telecommunications links to remote terminal units (RTUs) and other control centres,
   
   (v) levels of redundancy in all major subsystems,
   
   (vi) response times for actions performed by dispatch operators, and
   
   (vii) information technology security policies.

e. **Remote Terminal Units**

111. Designs for RTUs shall be proposed. In cases where current equipment is judged to be deficient in providing access to essential signals, proposals shall be made as to how the desired signal interfaces might be developed over time. The following issues shall be investigated and reported upon:
   
   (i) acquisition of relevant analogue metering data according to appropriate standards,
   
   (ii) interfacing to status and alarm signals, and
   
   (iii) ultimate provision of remote control capability.

f. **Telecommunications Network**

112. Proposals shall be developed outlining how the telecommunications system should be developed in a phased manner. The design of links to locations of proposed RTUs and to the five RDCs shall be developed. Data rates and levels of redundancy shall be discussed and
relevant recommendations made.

g. **Ancillary Items**

113. The establishment of a modern SCADA system, with workplaces in the NDC and RDCs, will be enabled and supported by a number of key ancillary items. The study shall make proposals regarding:

(i) provision of appropriate uninterruptable power systems,
(ii) provision of dispatchers desks, and
(iii) provision of furniture and lighting in the dispatch rooms.

114. It is to be noted that building and detailed architectural works are outside the scope of this project, nonetheless an outline design should be prepared for these works.

h. **Installation of a Large Video Display**

115. Consultants will be required to procure and install a large video wall display in the NDC. The video wall should be a complex display capable to handle large number of information (e.g., profiles of voltage in critical areas, trends of system frequency, regional power flows, etc.). Such a display is an important feature in the upgrading of a SCADA system. The technical specifications of the video wall display should be selected carefully in order to avoid interfacing problems in the envisaged new SCADA system. Technical details of the installed video wall display should be an integral part of the specification during preparation of the bidding documents for SCADA.

i. **Organization**

116. In the context that a new generation of SCADA system is being installed, the existing organisation will be presented with organizational challenges to meet its corporate responsibilities. The Consultant shall:

(i) review the current organization, staffing and expertise levels;
(ii) propose any changes in structure, numbers and expertise that are deemed desirable; and
(iii) outline training requirements.

j. **Transition Arrangements**

117. As the new SCADA system and the new organization will call for major changes in the NDC and RDCs, careful attention shall be paid to ensuring that the proposals presented are accompanied by transition arrangements that will minimize disruption to essential power system operations.

k. **Phased Development**

118. It will not be possible to complete all desirable components of the project in a single phase, both for organizational and financial reasons. Therefore, the Consultant shall propose a series of stages of development which can be executed independently and consecutively. Each stage shall be separately costed and accompanied by an estimated work program.
l. **Cost Estimates**

119. Detailed cost estimates shall be provided for each stage of the development.

m. **Work Program**

120. A timetable for all phases of each stage of development shall be prepared. System design time, procurement under competitive tendering, and implementation shall be considered.

n. **Cost Benefit Analysis**

121. A cost-benefit analysis shall be developed for each major stage of the proposed plans.

o. **Essential Site Visits**

122. During the course of the project, the selected Consultant shall undertake the following visits:

(i) initial site data collection visit, and
(ii) follow-up visit to site after submission of draft feasibility study.

p. **Duration**

123. Duration of the consulting services is approximately 55 person-months for both tasks. Person-months and consultant experts are as follows:

<table>
<thead>
<tr>
<th>Positions</th>
<th>International Consultants</th>
<th>Local Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P-M per Expert</td>
<td>No of Experts</td>
</tr>
<tr>
<td>Team Leader / Power System</td>
<td>8.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Studies Expert</td>
<td>7.0</td>
<td>1.0</td>
</tr>
<tr>
<td>SCADA Expert</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>RTU Expert</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Telecom Expert</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>IT Expert</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Procurement Specialist</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30.0</strong></td>
<td><strong>6.0</strong></td>
</tr>
</tbody>
</table>

q. **Main Outputs**

124. Apart from the required tender and bid evaluation documentation required, the Consultant shall provide the following outputs:

(i) inception report;
(ii) monthly progress reports, and
(iii) final report after testing, start-up and staff training.

r. **Facilities/Services to be Provided by Uzbekenergo**

125. The following facilities and services will be provided by Uzbekenergo:

(i) office space and basic office equipment for three staff,
(ii) internet and international phone access,
(iii) access to earlier relevant reports and documents, and
(iv) support from PMU including translation services.

 VII. SAFEGUARDS

A. Environment
(i) Classified as environmental category B under ADB’s SPS (2009).
(ii) The IEE, including the EMMP, is attached to the report and recommendation of the President, Appendix 2, List of Linked Documents.
(iii) The EMMP will be updated in case there is any unanticipated impact.
(iv) The works contracts will incorporate applicable environmental measures identified in the IEE and the EMP.
(v) The contractors will be supervised to ensure compliance with the requirements of the IEE and the EMP.

B. Land Acquisition and Resettlement
(i) Classified as involuntary resettlement category B under ADB’s SPS (2009).
(ii) The LARPs are attached to the report and recommendation of the President, Appendix 2, List of Linked Documents.
(iii) The prepared LARPs are preliminary based on the present preliminary technical design.

C. Indigenous Peoples
(i) Classified as category C under ADB’s SPS (2009). The project is not expected to affect indigenous peoples as defined under the ADB’s SPS (2009).

126. Pursuant to ADB’s SPS (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth in Appendix 5 of the SPS.

---

### A. Project Design and Monitoring Framework

<table>
<thead>
<tr>
<th>Design Summary</th>
<th>Performance Targets and Indicators with Baselines</th>
<th>Data Sources and Reporting Mechanisms</th>
<th>Assumptions and Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact</strong></td>
<td>Improved reliability of power supply in Uzbekistan</td>
<td>Voltage variation on 220 kV grid reduced from 16% in 2011 to 5% by 2019</td>
<td><strong>Assumption</strong> The government policy will continue to prioritize energy security.</td>
</tr>
</tbody>
</table>
| **Outcome**    | An expanded and modernized high-voltage transmission grid in Fergana Valley | Power supply capacity to Fergana Valley increased from 1,800 MW in 2011 to 2,800 MW by 2017  
Losses in high-voltage transmission network reduced from 4.5% (200 GWh) in 2011 to below 2.5% (110 GWh) by 2019 | **Assumption** Uzbekenergo generates sufficient electricity to supply Fergana Valley. |
| **Outputs**    | 1. Overhead transmission line from Novo Angren thermal power plant to Namangan substation energized | 175 km of new 500 kV and 32 km of 220 kV transmission lines constructed by 2017 | **Risk** Delay in delivery of materials and equipment in high mountain part of the transmission line route |
|                | 2. New high-voltage Namangan substation energized | New 500 kV/220 kV substation constructed by 2017 | **Assumption** The government is committed to operational performance improvements in Uzbekenergo. |
|                | 3. Operational Improvement Program implemented | New transmission planning systems operational by 2016  
New transmission asset management systems operational by 2016 |  |

<table>
<thead>
<tr>
<th>Activities with Milestones</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Novo Angren–Namangan Transmission Line</strong></td>
<td><strong>ADB: $150 million</strong></td>
</tr>
</tbody>
</table>
| 1.1. Bidding documents approved by November 2012 | **Item**  
ADB: $150 million | **Amount** ($ million)  
ADB: $150 million |
### Activities with Milestones

<table>
<thead>
<tr>
<th>Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF</td>
</tr>
<tr>
<td>OCR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Government and Uzbekenergo: $138 million</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>Government of Uzbekistan</td>
</tr>
<tr>
<td>Uzbekenergo</td>
</tr>
</tbody>
</table>

ADB = Asian Development Bank, ADF = Asian Development Fund, GWh = gigawatt-hour, km = kilometer, kV = kilovolt, LARP = land acquisition and resettlement plan, MW = megawatt, OCR = ordinary capital resources, SCADA = supervisory control and data acquisition.

Source: Asian Development Bank

### B. Monitoring

127. Project Performance Monitoring. PMU and project implementation consultants will prepare separate progress reports for the project and submit to ADB on a quarterly basis within 30 days from the end of each quarter. The reports will provide a narrative description of progress made during the period, changes in the implementation schedule, problems or difficulties encountered, performance of the project management and implementation consultants, and the work to be carried out in the next period. The progress reports will also include a summary financial account for the project, consisting of project expenditures for the year to date and total expenditure to date. Performance will be evaluated on the basis of indicators and targets stipulated in the design and monitoring framework.

128. Following indicators will be updated in the quarterly progress reports and at the time of semi-annual meetings and the midterm review expected in two years from the date of loan effectiveness. The financial indicators will be monitored annually at the time of submission of:

(i) 500 kV and 220 kV transmission lines constructed (km);
(ii) voltage drops on 500 kV and 220 kV level in the project area (kV);
(iii) number and length of outages on 500 kV and 220 kV level in the project area (hours);
(iv) technical losses on 500 kV and 220 kV level in the project area (kWh);
(v) power trade volume by country (gigawatt-hour/year);
(vi) power tariff structure and level by customer groups (Sum/kWh);
(vii) collection rate by region and customer category;
(viii) annual reports, audit and financial statements of Uzbekenergo;
(ix) annual net income after tax;
(x) debt service coverage ratio of Uzbekenergo (the ratio of cash flow from 
operations to annual debt service obligations) – annually; and
(xi) self-financing ratio (the ratio of cash flow from operations to average capital 
expenditures) – annually.

129. **Compliance Monitoring.** Loan covenants—policy, legal, financial, economic, 
environmental, and others—will be monitored through semi-annual project meeting and the 
midterm review.

130. **Safeguards monitoring** will be performed by the Safeguards Unit of Uzbekenergo and 
implementation consultants, and the results will be included in the quarterly progress reports. 
Such monitoring should adhere to the requirements in the IEE and LARPs.

C. **Evaluation**

131. **Inception Mission.** ADB will field an inception mission after loan signing to (i) establish 
a working relationship between ADB and the executing agency; and (ii) to ensure that the 
borrower and executing agency understand ADB's procedures.

132. **Review Missions.** ADB will field review missions at least once a year to review overall 
implementation of the project and update project implementation schedule based on mission 
findings.

133. **Midterm Review Mission.** ADB will field a midterm review mission after two years of 
loan signing to assess whether attainment of the project’s immediate objective (purpose in 
terms of the design and monitoring framework) is still likely.

134. **Project Completion Review Mission.** ADB will field a project completion review 
mission upon physical completion of the project to commence preparation of ADB's project 
completion report. Uzbekenergo will submit a project completion report to ADB within six 
months of physical completion of the project.\(^{11}\)

D. **Reporting**

135. Uzbekenergo will provide ADB with (i) quarterly progress reports in a format consistent 
with ADB’s project performance reporting system; (ii) consolidated annual reports including (a) 
progress achieved by output as measured through the indicator’s performance targets, (b) key 
implementation issues and solutions, (c) updated procurement plan, and (d) updated 
implementation plan for next 12 months; and (iii) a project completion report within six months of 
physical completion of the project. To ensure that projects continue to be both viable and 
sustainable, project accounts and the executing agency’s audited financial statements, together 
with the associated auditor's report, should be adequately reviewed.

\(^{11}\) Project completion report format available at: [http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar](http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar)
E. Stakeholder Communication Strategy

136. Project information will be strategically disseminated through media at main milestones including loan signing, contract awards and project completion. Grievance redress mechanism will be established at the PMU, by phone and email, and through public consultation events.

IX. ANTICORRUPTION POLICY

137. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project. All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the EA and all project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB’s anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.

138. To support these efforts, relevant provisions are included in the loan agreement/regulations and the bidding documents for the project. Procurement will follow ADB’s Procurement Guidelines; consultant selection will adopt ADB’s Guidelines on the Use of Consultants; and disbursement will be made in accordance with ADB’s disbursement policies, guidelines, practices, and procedures.

139. Uzbekenergo will provide updated information on the project on Uzbekenergo’s website, including information on the performance of the project, business opportunities, bidding process and guidelines, outcome of biddings and summary progress reports of the project.

X. ACCOUNTABILITY MECHANISM

140. People who are, or may in the future be, adversely affected by the project may address complaints to ADB or request the review of ADB’s compliance under the Accountability Mechanism.

---

12 Available at: http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf
13 ADB’s Integrity Office website is available at: http://www.adb.org/integrity/unit.asp
14 For further information, see: http://compliance.adb.org/.