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**NEGROS OCCIDENTAL ELECTRIC  
COOPERATIVE, INC.  
(NOCELCO)**

**PROPOSED PROJECT DESCRIPTIONS**

**July 31, 2008**



# Development Bank of the Philippines

<b>ACCOUNT OR PROPONENT:</b> <b>Negros Occidental Electric Cooperative, Incorporated (NOCECO)</b>	<b>PROPOSED PROJECT:</b> a. Rehabilitation and upgrading of distribution system b. Acquisition of TRANSCO sub-transmission lines								
	<b>TYPE OF PROJECT:</b> Power Distribution								
<b>A. PROJECT DESCRIPTION:</b>									
<ol style="list-style-type: none"> <li>1. NOCECO is a non-stock, non-profit electric cooperative registered and incorporated with the National Electrification Administration (NEA) on February 1978. With Electric Power Industry Reform Act's (EPIRA) Chapter VII, Sec. 57 stating that EC's are given the option to convert into either stock cooperative under Cooperative Development Act (CDA) or stock corporation under the Corporation Code, the EC opted to register with CDA in September, 2006.</li> <li>2. The electric cooperative distribution system is composed of 571,227 circuit kilometers of distribution lines and 6 substations located in the municipalities of Kabankalan, San Enrique, Sipalay, Valladolid, Binalbagan and Cauayan which services the 21 municipalities of Negros Occidental. Total kilowatt-hour sold in 2006 is 123,262,320 KWh; registered peak load of 31.556 MW; and recorded system loss of 11.22% as against the NEA standard of 14%. The demand load per substation as accounted for are as follows: Kabankalan – 71%, San Enrique – 90%, Sipalay – 52%, Valladolid – 83% (also services part of CENECO franchise), Binalbagan – 91%, and Cauayan – 44%. A total of 229 Solar Home Systems were installed to energize the remote barangays.</li> <li>3. Negros Occidental source its power from the Palinpinon Geothermal Power Plants located in Negros Oriental with an aggregate capacity of 192 MW. It is transmitted thru TRANSCO's double circuit 138 KV overhead line stepped down to 69KV NPC transmission substation. As of 2006, Negros Island has a peak demand of 205 MW with dependable capacity of 180 MW. Its interconnection with Cebu allows Negros Island to satisfy its net deficit of 25 MW. Presently, a 49 MW Northern Negros Geothermal Production Field (NNGPF) is under construction in Bago City, Negros Occidental. It will total to a dependable capacity of 220 MW for Negros Island. In terms of power generation mix, Negros Island now utilizes 100% renewable energy with geothermal providing 99.6% and hydro with the remaining 0.4%.</li> <li>4. The following projects/activities are needed to be undertaken to improve their distribution system and operation:           <table style="margin-left: 40px; width: 80%; border: none;"> <tr> <td style="padding-left: 20px;">▪ Installation of 10 MVA substation at La Castellana</td> <td style="text-align: right; padding-left: 20px;">P 24,052,212.00</td> </tr> <tr> <td style="padding-left: 20px;">▪ Construction of 20-km 69 KV line</td> <td style="text-align: right; padding-left: 20px;">47,000,000.00</td> </tr> <tr> <td style="padding-left: 20px;">▪ Acquisition of TRANSCO Assets</td> <td style="text-align: right; padding-left: 20px;">51,593,000.00</td> </tr> <tr> <td style="text-align: center; padding-top: 10px;"><b>Estimated Project Cost</b></td> <td style="text-align: right; padding-top: 10px;"><b>P 122,645,212.00</b></td> </tr> </table> </li> </ol>		▪ Installation of 10 MVA substation at La Castellana	P 24,052,212.00	▪ Construction of 20-km 69 KV line	47,000,000.00	▪ Acquisition of TRANSCO Assets	51,593,000.00	<b>Estimated Project Cost</b>	<b>P 122,645,212.00</b>
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<b>Estimated Project Cost</b>	<b>P 122,645,212.00</b>								
NOCECO already applied the CAPEX for Energy Regulatory Commission (ERC) approval.									
<b>B. APPROPRIATENESS OF TECHNOLOGY</b>									

**1. Installation of 10 MVA substation at La Castellana**

The load of San Enrique and Binalbagan Substations are already at 90% and 91% respectively. Because of this, it can no longer accommodate additional load and low voltages are being experienced at the receiving end. Another factor for the low voltages is that the feeder lines of the two substations exceed the average feeder length of 25 kilometers. The 10 MVA San Enrique Substation is servicing La Carlota City and the municipalities of San Enrique, Pontevedra and La Castellana with a total feeder line length of 30 kilometers. On the other hand, Binalbagan 10 MVA substation feeder line length is at 26 km. servicing the municipalities of Hinigiran, Binalbagan, Isabela and Moises Padilla.

To relieve the two substations from overloading and to shorten the distribution lines, NOCECO will construct a new 10 MVA substation in Lalagsan, La Castellana (describe as an agricultural land) which will service the municipalities of La Castellana, Moises Padilla and Isabela. After project implementation, the load of San Enrique Substation will be reduced from 90% to 75% while Binalbagan Substation from 91% to 80%. The new La Castellana Substation will have a load of 25%. System's loss and power interruptions will be reduced by the improved substations loading and shortened length of distribution lines.

**2. Construction of 69 KV Line from Binalbagan to La Castellana**

Installation of a new 10 MVA La Castellana substation will require construction of 20 kilometers length of 69 KV transmission line to be tapped to the nearest TRANSCO 69 KV transmission line in Binalbagan.

**3. Acquisition of TRANSCO asset –** The cooperative will purchase an aggregate of 73.47 kilometers of 69 KV distribution lines.

Transmission lines are necessary for the conveyance of huge volume of electricity from source (GENCO/IPP) to distribution. In Visayas, the high voltage lines are composed of 138 KV and 69 KV transmission lines. These lines transmit electricity generated by NPC and other Independent Power Producers and distributed by several distribution utilities like NOCECO.

The sub-transmission assets to be acquired are 69 KV sub-transmission lines. These assets are dedicated for NOCECO which means that it is not being shared by other distribution utilities. It was operated and maintained by competent engineers of NPC and TRANSCO after it was transferred.