

**2014 ACCOMPLISHMENT REPORT  
OPERATIONS SECTOR**

**1.0 HYDROPOWER PROJECT**

**NIA HYDROPOWER PROJECT**

**1.1 Project Description**

Guided by the company's vision to be the catalyst and prime mover of renewable energy development in the country, PNOC RC has collaborated with National Irrigation Administration (NIA) to harness hydropower from irrigation systems. A Memorandum of Agreement (MOA) was signed in November 7, 2012 for the development of initial six (6) sites in Nueva Ecija. Two (2) of these sites were identified to have hydropower potential. These are Pampanga River Irrigation System Main Canal (PRISMC) in Rizal with a potential capacity of 1 MW, (now named 1-MW Rizal Hydropower Project) and the Super Diversion Canal (SDC) Lateral C in the Science City of Muñoz with a potential capacity of 630 kW (now named 630-kW Muñoz Hydropower Project).

**1.2 Accomplishments for 2014**

**1.2.1 One (1) MW Rizal Hydropower Project**

**1.2.1.1 Engineering, Procurement, Construction & Commissioning (EPCC)**

In January 2014, the bid documents for the Rizal Hydropower Project were completed. The project was bid out for the third time on April 28, 2014 and it was a success with the winning bidder PT Cerna Corporation. The result of the bidding was presented and approved by both PNOC RC and PNOC Mother Board of Directors in May 2014. Following the approval, the notice of award (NOA) was issued on June 10, 2014. Contract signing between PNOC RC with PT Cerna Corporation took effect on June 20, 2014 and thereafter the notice to proceed (NTP) was issued on June 30 to PT Cerna to undertake the EPCC of the project. A groundbreaking ceremony of the project was conducted on July 11, 2014 to highlight a cornerstone for both PNOC RC and NIA for the development of irrigation canal for hydropower production. The EPCC of the project started on July 14, 2014 and it is expected to be completed in June 2015.

The progresses of the EPCC are as follows:

- a. As of January 7, 2015, the project is about 68% complete. 6% out of 14% of civil/structural works is already completed while 62% (equipment manufacturing) of the 86% electromechanical works is also completed. A design review and preliminary inspection of the electromechanical was conducted.

- b. The initial factory acceptance test (FAT) for the hydropower plant accessories shall be conducted on January 19 -23, 2015 prior to the shipment of the components expected in the second week of February 2015.
- c. The construction of the project and manufacturing of the electromechanical components of the turbine-generator are still ongoing.

#### **1.2.1.2 Securing of Permits, Licenses and Clearances**

As of December 2014, the following permits, licenses, clearances and agreements were already obtained for the project:

- a. Resolution of Support from Barangay and Municipal LGUs
- b. Certificate of Non-Coverage from DENR
- c. Power Supply Contract with NEECO

Processing of NCIP application for field-based investigation and application for water permit is ongoing.

### **1.2.2 630-kWe Muñoz Hydropower Project**

#### **1.2.2.1 Engineering, Procurement, Construction and Commissioning (EPCC)**

The initial feasibility study indicated that the project has a potential hydropower capacity of at least 500 kW. As a result, all bidding documents completed last January 2014 were based on this hydropower capacity. The project was bid out twice, however failed. Its first bidding conducted last November 8, 2013 failed due to technical issues incurred by the lone bidder. The second bidding conducted on April 1, 2014 also failed due to higher bid tender (**Php49,920,780.00**) by the bidder compared to the approved budget (**Php37,811,813.00**) of the project.

With the above bid failure, a revisit of the project feasibility study was conducted in May 2014 to determine how the project can be improved satisfying both technical and financial requirements. The study shows that this can be done by increasing the power generation capacity of the project through design optimization with minimum increase in project cost. By using the same canal discharge of 43.75 cms and increasing the height by 0.5 meter of the canal's sluice gate, overflow structure and concrete walls, a gain of about 130 kW can be realized, thus increasing the capacity from 500 kW to 630 kW. Correspondingly, running the financials of the project wherein at an investment cost of Php58.075 million, the project maintained the financial internal rate of return (FIRR) requirement of not less than 12%.

In October 2014, the project was presented before the PNOC RC Board for supplemental budget approval amounting to Php17.2 million. The Board has unanimously approved the project and its bid posting short of the issuance of the notice to proceed to the winning bidder. Likewise, the Board has set a condition that the project can only proceed if the opinion of the Department of Justice (DOJ) allows PNOC RC to venture into power generation. Bid posting

of the project was done in December 2014 and currently awaiting interested bidders for the project.

#### **1.2.2.2 Securing of Permits, Licenses and Clearances**

As of December 2014, the following permits, licenses and clearances were obtained for the project:

- a. Resolution of Support from Barangay and Municipal LGU
- b. Certificate of Non-Coverage from DENR

Processing of NCIP application for field-based investigation and application for water permit is ongoing.

#### **1.2.3 Reconnaissance Survey**

As part of its mandate of developing renewable sources of energy, PNOC Renewables Corporation continues searching for potential sites for NIA-hydropower project in the provinces of Nueva Ecija and Pangasinan. The available list of potential sites was used as a quick reference in prioritizing the possible PNOC RC projects. The Operations team ranked the listed sites from highest to lowest generating capacity on a per province basis and prioritizing the highest ones as target for reconnaissance survey.

##### **1.2.3.1 Proposed NIA-UPRIIS (Upper Pampanga River Integrated Irrigation System) Hydropower Project, Nueva Ecija**

With all the available information and resources the team conducted the reconnaissance survey on September 2014 to the following sites in NIA-UPRIIS with the following results and recommendations:

- a. TRIS MC Chute – net head is about 12 meters with a flow of about 6 cms. It has a potential capacity of about 600kW. The proposed site is recommended for further study.
- b. SDA Supply – it has a net head of about 3.5 meters with a flow of 11 cms. The computed potential capacity is approximately 300 kW and is recommended for further study.
- c. SDC Lateral E – net head is about 3.5 meters and the available flow is 17 cms. It has a potential capacity of about 400kW and recommended for further study.

##### **1.2.3.2 Proposed NIA-ARIS (Agno River Irrigation System) Hydropower Project, Pangasinan**

In November 2014, the Operations team coordinated with NIA-ARIS in preparation for the conduct of site investigation along the irrigation canal. NIA-ARIS has been very optimistic on the project allowing PNOC RC team to conduct the reconnaissance survey of pre-identified eight (8) potential sites in Pangasinan. From the eight (8) sites, the team selected five (5) sites as candidate for in-depth study. The following sites are as follows:

- a. ARIS San Manuel 1 – it has an available net head of 3 meters with a discharge of 26 cms. Using this data, the potential capacity for the proposed site is approximately 650kW.
- b. ARIS San Manuel 2 - net head is approximately 5 meters and available flow is 24.5 cms. The potential capacity computed is about 1020 kW.
- c. ARIS San Manuel 3 – the available head is about 3 meters with assumed flow of 21.5 cms. The potential capacity is approximately 540kW.
- d. ARIS San Manuel 4 – it has a net head of about 4.5 meters and the available flow is about 18.5 cms. The potential capacity for the proposed project is about 690kW.
- e. ARIS San Manuel 5 – net head is about 3.5 meters, available flow is about 23 cms. The potential capacity is approximately 670kW.

## **EIGHT (8) RUN-OF-RIVER HYDROPOWER PROJECTS WITH DOE SERVICE CONTRACTS**

### **1.1 ROR Project Description**

On 05 August 2013, PNOC Renewables Corporation was granted extension of service contracts for eight (8) hydropower projects, namely: 1) Dulangan HEP in Oriental Mindoro, 2) Nalatang B HEP in Kabayan, Benguet, 3) Okoy HEP in Valencia, Negros Oriental, 4) Siaton HEP, 5) Pacuan-Guinobaan HEP in La Libertad and Guihulngan City, Negros Oriental, 6) Pasil B, and 7) Pasil C HEPs in Pasil, Kalinga, and 8) Saltan B HEP in Balbalan, Kalinga. Such extension was supported with letter of endorsements from DOE to concerned LGUs, National Commission on Indigenous Peoples (NCIP), and National Water Resources Board (NWRB) making them aware of PNOC RC's projects within their jurisdiction. Said endorsements were also required by NCIP to facilitate the Free and Prior Informed Consent (FPIC) process.

With this renewed recognition from Department of Energy (DOE), PNOC RC willfully commenced handcarrying application documents to respective Regional Offices of NCIP for its application for NCIP clearance. Same documents were also forwarded to NWRB National Office in Quezon City for water permit application. NWRB required other supporting documents following the recent policies issued.

While PNOC RC is going through the tedious process of securing clearance certificate with NCIP particularly in its Benguet and Kalinga projects, the other equally important permits or clearances from LGUs, NWRB, and DENR were undertaken.

### **1.2 Accomplishments for 2014**

#### **1.2.1 Dulangan Hydropower Project, Oriental Mindoro**

##### Feasibility Study Report

The Final Feasibility Study Report was completed and submitted by DCCD Engineering Corporation in November 2014, this in spite of the opposition issued by The Samahan ng Nagkakaisang Mangyan Alangan, Inc (SANAMA). As a result of several coordination efforts with SANAMA's leaders, SANAMA is warranting for fasttracking of their application for Certificate of Ancestral Domain Title (CADT) from NCIP, a reason that is beyond the control and responsibility of PNOC RC.

##### Permitting Process

The National Commission on Indigenous Peoples (NCIP) Provincial Office in Oriental Mindoro imposes strict compliance of policies under RA 8371 (IPRA Law) and its Administrative Order No. 3, S 2012. PNOC RC and DCCD met the NCIP personnel on several occasions in preparation for the conduct of the Field-Based Investigation (FBI) at present is still pending.

The PNOC RC, DCCD and DENR personnel conducted a site inspection of the project site required in the application for environmental compliance certificate (ECC) and water permit. Additional supporting documents and processes required by DENR and NWRB shall be complied in 2015.

Before a Sangguniang Panlalawigan resolution of support shall be issued, the Provincial LGU of Oriental Mindoro required resolution of supports from municipal and barangay level, the PSA, and the NCIP approval.

#### Power Supply Contract

The Province of Oriental Mindoro is classified to be under the Small Power Utilities Group (SPUG) areas as it is still not connected to the main electricity grid. The Oriental Mindoro Electric Cooperative (ORMECO) is the electric cooperative responsible in distributing electricity in the province. PNOC RC coordinated ORMECO for possible power supply contract (PSA) but according to its General Manager, they have signed several PSA's with RE developers with generating capacity more than the required capacity of the province for 5 years projection. However, ORMECO recommended that PNOC RC may still present the proposal to ORMECO Board scheduled in the first quarter of 2015.

### **1.2.2 Saltan B Hydropower Project, Balbalan, Kalinga**

#### Feasibility Study Report

The Final Feasibility Study Report was completed and submitted by Engineering Development Corporation in November 2014.

#### Permitting Process

The Municipal LGU of Balbalan issued a resolution of support for the conduct of the feasibility study. Another resolution shall be secured for the purpose of development and operation. The field-based investigation was already conducted by NCIP. The free and prior informed consent (FPIC) process shall be conducted next.

### **1.2.3 Pasil B and Pasil C Hydropower Projects, Pasil & Lubuagan, Kalinga**

#### Feasibility Study Report

The conduct of the Feasibility Study activities is still on hold pending approval from indigenous peoples through the regulatory process of NCIP.

#### Permitting Process

The Municipal LGU of Pasil issued its resolution of support for the conduct of the feasibility study and project development. NCIP has already conducted the field-based investigation (FBI) to be followed by the conduct of free and prior informed consent (FPIC) process scheduled in 2015.

### **1.2.4 Nalatang B Hydropower Project, Kabayan, Benguet**

#### Feasibility Study Report

The conduct of the Feasibility Study activities is still on hold pending approval from indigenous peoples.

#### Permitting Process

The Sangguniang Bayan (SB) of Kabayan, Benguet allowed the first formal project presentation in 2014. They will issue a resolution of support as soon as the certification precondition (CP) from NCIP is secured. In 2014, NCIP conducted the field-based investigation and currently requesting for the continuation of the FPIC process.

### **1.2.5 Siaton, Okoy, and Pacuan-Guinobaan HEPs, Negros Oriental**

#### Permitting Process

Water permit application for Siaton and Okoy was forwarded to NWRB. At present, NWRB received letters of clarifications informing PNOC RC to submit detailed description of the project structures. NWRB is still on its process of reviewing the submitted supporting documents forwarded by PNOC RC in response to information and complaints from other water users/applicants. The staff gauge installation and measurement of water level was undertaken for a period of six (6) months for Siaton and Okoy rivers.

The NCIP issued Certificate of Non-Overlap (CNO) for Siaton and Okoy HEPs. For Pacuan-Guinobaan HEP, NCIP recommended for the continuation of the FPIC process with the information of possible overlap in an ancestral domain area in Guihulngan and La Libertad, Negros Oriental.

## **2 SOLAR PROJECT**

### **ROOFTOP SOLAR PV SYSTEM PROJECT**

#### **2.1 Project Description**

In December 2013, the Department of Energy launched the Program on Rooftop Solar Photovoltaic System for private academic institutions. The program has already solar-powered several school and universities in Metro Manila and still ongoing. Adopting the same model, Secretary Petilla tasked PNOC RC to implement the program for government institutions. Initially, PNOC RC is looking at two (2) installations of 100-kWe rooftop solar PV system for the year 2015. Each installation costs about PhP11 million which shall be offered to government agencies through a lease agreement of 15 years at twenty percent (20%) less than the distribution utility (Meralco) rate but not lower than nine fifty Pesos (PhP9.50) per kWh. Based on the above assumptions, the project has a financial rate of return (FIRR) of not less than 12%. Installation shall be done through public bidding for the supply of labor and materials for the solar PV system. Project timeline is about five (5) months.

#### **2.2 Accomplishments for 2014**

##### **2.2.1 100-kWe Rooftop Solar PV System for Polytechnic University of the Philippines (PUP)**

In 27 August 2014, a meeting with PUP officials was conducted to explore the possibility of a rooftop solar PV installation in their facility. Following PUP's interest

and approval, a technical inspection was conducted and the possible site for the installation was identified.

In 09 September 2014, the feasibility study of the project was completed with an estimated installation cost of about PhP11 million. The project has a financial rate of return (FIRR) of 12.58% with an estimated timeline of about five (5) months.

Following the completion of the feasibility study, all documents for the project which include the terms of reference, technical specifications, bid documents and the memorandum of agreement (MOA) were completed. The MOA was submitted to PUP for their review and comments. As of 06 November 2014, according to PUP the MOA was already reviewed by their Management and was endorsed to COA also for their review and comments.

### **2.2.2 75.6-kWe Rooftop Solar PV System for the National Electrification Administration (NEA)**

On 07 November 2014, a meeting with NEA officials was conducted to explore the possibility of a rooftop solar PV installation in their facility. Following NEA's interest and approval, a technical inspection was conducted and the building's rooftop area was identified for the installation.

The effective area for installation is only 480 sq meters which can accommodate only about 75.6 kW of Solar PV capacity.

In 07 January 2015, the feasibility study of the project was completed with an estimated installation cost of about PhP7.392 million. The project has a financial rate of return (FIRR) of 12.01% with an estimated timeline of about five (5) months.

Following the completion of the feasibility study, all documents for the project which include the terms of reference, technical specifications, bid documents and the memorandum of agreement (MOA) were completed. The MOA was submitted to NEA for their review and comments on 08 January 2015.

### **2.2.3 100-kWe Rooftop Solar PV System for Department of Budget & Management (DBM)**

On 09 October 2014, a meeting and presentation with DBM officials was conducted to explore the possibility of a rooftop solar PV installation in their facility. At present, DBM was not yet provided the necessary documents and the survey of the roof-top is not yet undertaken. Initial information reveals that a private firm approached DBM for the same solar project. On 12 January 2015 meeting, DBM encouraged the support of PNOC RC for an immediate project implementation. PNOC RC is currently preparing for regulatory supporting documents to start the project with DBM and with other government agencies and establishments.



#### **2.2.4 Off-grid Solar PV System for Department of Education (DEPED)**

In 21 October 2014, a meeting and presentation with DEPED officials was conducted to explore the possibility of assisting the Department in providing solar PV system for the remote schools nationwide.

Initially, budgetary requirements in providing solar power supply for the 20 computer/tablets and 1 server which will be used as tools for teaching was requested by DEPED officials. Said information was forwarded by PNOC RC on 05 December 2014. DEPED officials commented that there may be changes in the solar power load vis-à-vis budgetary requirements. DEPED requested for a workshop scheduled in February 2015 to further consider the holistic view of the project. DEPED also informed RC that budget for the said proposed project was already approved by the DBM. The disbursement and procurement processes must carefully consider procurement policies of the government.

### **3 CORPORATE SOCIAL RESPONSIBILITY**

#### **3.1 Project Description**

In 2014, PNOC RC pursued its determination to make its presence felt in energy industry with the groundbreaking and start of civil work activities of its 1<sup>st</sup> self-initiated project, the 1MW Rizal Hydropower Project located in Barangay Poblacion West, Rizal, Nueva Ecija. It is a joint project of PNOC RC, National Development Company (NDC) and National Irrigation Administration (NIA).

In addition to this project, PNOC RC has been continuously undertaking intensive effort of resolving the social and political issues affecting its hydropower service contracts obligations from Department of Energy.

Parallel to ongoing RE developments is the CSR activity. For 2014, PNOC RC appropriated about P500,000.00 from its total approved budget for CSR and Gender and Development (GAD) client-focused related programs. However, only about P200,000 was spent owing to some permitting and joint-venture shortfalls in some of the run-of-river service contracts. Nevertheless, the CSR impact and the number of beneficiaries are astounding with the full participation of the partner LGUs and local communities particularly in Pasil, Kalinga and Barangay Poblacion West, Rizal, Nueva Ecija.

#### **3.2 Community Development and Livelihood**

The community development and livelihood program starts to gain momentum with the start of the public consultation and participatory-planning with the local communities of its 1<sup>st</sup> hydropower project in Rizal, Nueva Ecija. Although the project is located only at the small portion of the irrigation canal of NIA and has negligible impact during construction, the entire Barangay of Poblacion West, Rizal, Nueva Ecija benefited from the CSR related to the

hydropower project. Dubbed as the “Bigasang Pambarangay”, the Sangguniang Barangay of Poblacion West and PNOC RC agreed to undertake the project as this is one of the needed services that would benefit its residents. The project is designed to become sustainable with the marketing strategy that would be developed by the core-group mostly are members of the Sangguniang Barangay and Kalipunan ng Liping Pilipina (KALIPI) a women-organization at Poblacion West who actively participated in PNOC RC’s projects.

About 40 individuals representing the direct beneficiaries have been oriented and trained on the project facilitated by PNOC RC with well-experienced resource speakers from the National Food Authority (NFA) in Cabanatuan City, Nueva Ecija.



Indirect beneficiaries of the CSR project are residents of Poblacion West currently numbering 784 households (827 families/3,472 population). This is aside from the visitors and non-registered residents of Poblacion West who will avail of the rice supply.

PNOC RC assisted the core-group by providing the initial project design and procedures and oriented on the marketing, permitting, and sustainability requirements for their ready reference. About P60,000.00 equivalent to initial seed capital was turned-over for this project.



**Turn-over of check to Chairman Co, Sangguniang Barangay and KALIPI members**

### 3.2 Employment

During the public consultation and meetings before the construction of the 1MW Rizal HEP, it was informed to the local residents that priority shall be given to qualified people who are interested to apply for skilled and non-skilled position.



From May 2014 to present on-going construction, about 35 unskilled laborers were directly hired on civil works, two (2) ladies was hired as Administrative Staff at PNOC RC and PT CERNA satellite offices, and an intermittent security services provided by the Barangay Public Safety Officers (BPSO) and off-duty police

officers.

PNOC RC accommodated the available house/office rental which is now the additional source of income by the owner. The customers of the foot vendor of snacks and delicacies is said to have increased.

### 3.4 Environment

The construction of 1MW Rizal HEP required cutting of naturally grown trees along the irrigation canal. Although trees along irrigation embankments are destroying the concrete pavement and recommended for removal, PNOC RC secured a tree cutting permit from DENR CENRO in Talavera City. The DENR allowed the cutting of four (4) trees with the condition that these shall be replaced with 200 guyabano seedlings with a height of 1 meter and a pencil size diameter.

PNOC RC delivered 210 seedlings of guyabano in compliance to the requirement, of which, according to DENR shall be distributed to people's organization in Nueva Ecija to be planted at the identified planting sites for the National Greening Program (NGP), a tree planting initiative led by DENR, DA and DEPED.



Delivery of guyabano seedlings to DENR CENRO Talavera

### 3.5 Health

With the possible compliance to requirements on pre development stage, PNOC RC identified the Municipal LGU of Pasil, Kalinga as a potential development site with the showing of the LGU of support in the efforts to conduct the Feasibility Study in spite of the National Commission on Indigenous Peoples (NCIP) requirements for a free and prior informed consent prior to any related study. The Municipal LGU identified their medical mission as one of the activity where PNOC RC can extend assistance.

Together with other donors, PNOC RC provided assistance amounting to P50,000.00 for the purchase of the needed medical equipment and services on the medical mission for the senior citizens and other patients of Pasil, Kalinga. A total of 459 patients/beneficiaries benefited from the activity composed of consultation, dental extraction, eye check-up and blood-letting.



Turn-over of check by VP Pete Lite to SB Member John Dulawen Ya-o of Pasil Kalinga

From left: VP. Lite, Atty. Empino, SB Ya-o & Mr. Tercero

### 3.6 Well-Informed Stakeholders

For energy self-sufficiency to achieve environmental and social sustainability, the community must be engaged as a key stakeholder throughout the phases of the project cycle. With a purview of boosting the country's level of energy self-sufficiency through renewable sources, the PNOC-RC faces many different stakeholders with divergent views and expectations. Social and environmental concerns create the need to improve how these issues are handled, studied and presented to NGOs, governments, the media, the donor community and the general population.

For purposes of transparency and participative decision-making, interface meetings and project presentations were held with respective LGU executives and local communities of the ROR sites

particularly, three (3) in Negros Oriental, two (2) in Kalinga, one (1) in Oriental Mindoro and the two (2) NIA sites in Nueva Ecija. Information provided are related to PNOC RC as a Company, project information, benefits from power generation, and the importance of the LGUs support for sustainable development and operation of RE project in their locality. These activities are supported with photo-documentation, attendance sheet, and resolution of support. Secured during IEC's were resolution of support for the conduct of Feasibility Study and Development and Implementation of Projects. The resolution of support is one of DOE's requirements in PNOC RC's application for commerciality.