

**MISSIONARY ELECTRIFICATION DEVELOPMENT PLAN  
FOR 2009-2013**

**Electric Power Industry Management Bureau  
Department of Energy**

December 2008

## Contents

<b>EXECUTIVE SUMMARY</b>	2
<b>MISSIONARY GENERATION</b>	6
SPUG Operation and Services Improvement Program	7
Private Sector Participation Program in Power Generation in SPUG-Serviced Areas	14
Subsidy Requirements for Missionary Generation	17
<b>REMOTE AREA ELECTRIFICATION</b>	18
Status of Electrification	18
Expanded Rural Electrification Programs on Remote Area Electrification	20
Subsidy Requirements for Remote Area Electrification	26
<b>FUTURE DIRECTION OF MISSIONARY ELECTRIFICATION DEVELOPMENT PLAN</b>	27

---

## List of Tables

Table 1: 61 Remaining Areas	7
Table 2: 11 New Areas	9
Table 3: Proposed Service Hour Expansion	10
Table 4: Capacity Addition of Areas with Existing 24-Hour Service	12
Table 5: Demand Forecast	12
Table 6: Capacity Additions for Existing Areas and Transferred Areas	12
Table 7: 18 Areas for SPUG Take-Over	13
Table 8: Status of 14 First Wave Areas	15
Table 9: Missionary Generation Cost, 2004-2006	17
Table 10: Universal Charge Requirements for 2009-2013	17
Table 11: Achievements in Barangay Electrification, 2001-June 2008	18
Table 12: Regional Status of Barangay Electrification (as June 2008)	19
Table 13: Areas by LGU-based Service Providers for Conversion to QTP Approach	21
Table 14: UC-ME Requirements for 2009-2013	26

## **Executive Summary**

In compliance with Section 1(c) of Rule 13 of the Implementing Rules and Regulations (IRR) of the Electric Power Industry Reform Act of 2001 (EPIRA or Republic Act No. 9136), the Department of Energy (DOE), in coordination with the Small Power Utilities Group of the National Power Corporation (NPC-SPUG), the National Electrification Administration (NEA), new private/power providers (NPPs), independent power producers (IPPs), distribution utilities (DUs) and qualified third parties (QTPs), has prepared the Missionary Electrification Development Plan for 2009-2013 (2009 MEDP).

The 2009 MEDP sets out the government's plan that will implement policies and programs to sustain the provision of adequate, reliable, and efficient supply of electricity in missionary or off-grid areas and to enable communities in those areas receive the benefit of electrification. The 2009 MEDP covers two major components, namely: missionary generation and remote area electrification.

### **Missionary Generation**

Missionary generation subprogram and subprojects are generally taken from the Missionary Electrification Plan for 2009-2018 of NPC-SPUG. Missionary generation includes the existing generation and associated delivery systems being managed by the SPUG, IPPs and NPPs in small islands and isolated grids. The program basically involves the reliability and efficiency improvement program of SPUG through:

1. generation capacity addition to replace decommissioned (old and unreliable) generating units and to limit the rental of generating sets during emergency
2. capacity rationalization to reconfigure generating units so that units which have been deemed too large to provide efficiently power in low load areas will be transferred to larger load areas

The program covers two major activities: SPUG operation and services improvement program and private sector participation program (PSP) in power generation.

#### **1. SPUG Operation and Services Improvement Program**

In this subproject, a total of 53.75 MW of additional capacity will be provided to improve the power supply and support the expansion of service hours in the 14 first wave areas, 61 remaining areas and 11 newly-transferred areas to SPUG. In the 61 areas only seven islands and one remote area have an existing 24-hour electricity service.

As part of its mandate, SPUG has also assumed the power generation in 11 areas which used to be provided with limited supply by local private

groups or community members. The generation sets in those areas have a dependable capacity range of 25 kilowatts (kW) to 100 kW and six-hour service.

Moreover, SPUG also proposes to take over the management of 18 power generation systems that some local government units and electric cooperatives are unable to sustain the efficient operation due to high fuel and maintenance costs. However, similar to the policy on the existing areas, in such take-over, SPUG will prepare the systems to become viable and sustainable for eventual private investment through a model of electric power generation that is cost-efficient and actively responsive to the economic development needs of the areas.

## **2. Private Sector Participation Program in Power Generation**

To facilitate the effective phase in of NPPs and phase out of SPUG in the 14 first wave areas, SPUG will rationalize the capacity of its generation facilities by initially limiting them to provide supply only during peak hours or additional requirement and by operating the transmission system. Such transition period between the NPP and SPUG is expected to be done in two to three years. The detailed structure and arrangements for the Phase In-Phase Out (PIPO) between SPUG and the NPP will be subject to mutual agreement but should not to extend within the prescribed period of two years from the signing of the PIPO agreement. The PIPO should take into account the government's policy of providing adequate and reliable supply of electricity.

In support of the generation activities, associated delivery systems such as transmission lines and substation facilities will be constructed in ten areas: Catanduanes, Oriental Mindoro and Occidental Mindoro, Masbate, mainland Palawan, Tablas Island, Bantayan Island, Siquijor, Sultan Kudarat, Siasi and Basilan. The transmission lines will be energized at 69 kilovolts (kV) for 2,023.20 circuit kilometers (ckt. kms.) and 13.2 kV for 3.60 ckt. kms.. On the other hand, substations will have an aggregate capacity of 70 mega volt-amperes (MVA); substation expansion, 24 units of 69 kV power circuit breaker (PCB); and switching stations, 6 units of 69 kV PCB.

In areas where the NPPs have taken full control of the generation business, SPUG will continue to own, operate and maintain its transmission business and where there are at least two NPPs, SPUG will perform the system operation.

### **Remote Area Electrification**

Consistent with the overall objective of total barangay electrification in 2010 and 90% household electrification in 2017, all remaining unelectrified barangays in the country--which consist of unviable areas in the main island grids and unelectrified barangays in the small islands and isolated grids--will be provided with electricity service.

As part of the Expanded Rural Electrification (ER) Program, missionary and off-grid electrification will be implemented through the extension of distribution lines of electric cooperatives or installation of isolated mini or micro-grids or decentralized systems in the small islands and unviable areas. The component projects are:

1. SPUG's 14 diesel micro-grid projects in Camarines Sur, Masbate and Samar
2. SPUG's 42 Barangay Electrification Projects
3. 24 LGU-served areas for conversion to QTP management
4. QTP initiatives
  - a. Philippine Rural Electrification Service (PRES) Project in Masbate
  - b. PowerSource electrification projects in Rio Tuba, Bataraza, Palawan and Malapascua Island, Bantayan, Cebu
5. Household Electrification Program

For decentralized systems, the provision of electricity services includes mini- or micro-grids either diesel-fired or micro-hydro and operated by either Alternative Service Providers a.k.a, QTPs or SPUG as an interim operator. Meanwhile, the utilization of solar photovoltaic systems will adopt, among others, various innovative service delivery mechanisms including the Sustainable Solar Market Package (SSMP) approach and introduction of new business model for ECs for dispersed households. Harnessing of area-based renewable energy resources for decentralized power generation will likewise be a top priority.

Currently, funding for missionary electrification comes from various sources such as from the regular budget of the DOE, Electrification Fund from Energy Regulations No.1-94 and corporate social responsibility of IPPs, public-private partnerships, grants and loans. Given the next level of implementing rural and missionary electrification, which would include greater support to sitios and household electrification, the missionary electrification subsidy from the universal charge (UC-ME) will be significant.

### ***Subsidy Requirements from the Universal Charge-Missionary Electrification***

Based on the assumption that the operation of SPUG will be financed fully and solely by the UC-ME and without additional funding support (bridge financing) from the corporate budget of NPC, the required annual UC-ME to finance both missionary generation and remote area electrification activities for 2009-2013 will amount to more than P18 billion in 2009 and almost P14 billion in 2013.

Subsidy Requirement (in thousand pesos)	2009	2010	2011	2012	2013
<b>Missionary Generation</b>	17,566,034.99	13,413,826.28	14,543,944.89	15,528,684.95	13,650,606.77
<b>Remote Area Electrification</b>	500,255.00	464,994.00	633,739.00	604,291.00	172,125.00
<b>Total</b>	18,066,289.99	13,878,820.26	15,177,683.30	16,132,975.96	13,822,731.78
<b>Projected Energy Sales (MWh)*</b>	58,195,499.00	60,818,520.00	63,379,667.00	66,240,881.00	69,145,088.00
<b>P/KWh</b>	<b>0.3104</b>	<b>0.2282</b>	<b>0.2395</b>	<b>0.2436</b>	<b>0.1999</b>

\* Power Development Plan for 2008-2017

**Future Direction of Missionary Electrification Development Plan:  
Local Power Development Planning for Small Islands and Isolated Grids**

For sustainability and consistency, the next MEDP, that is 2010-2014, will evolve into an integrated power development plan (PDP) for off-grid areas. It will be a consolidation of the individual PDP of each small-island grid and isolated area which will comprise the Distribution Development Plan of concerned electric cooperatives and local government-operated utilities and the joint missionary generation plan of the SPUG, NPPs and IPPs. Electrification of the remaining unelectrified sitios and households will also be included. Moreover, the MEDP will be supported by the municipal, provincial and regional development plans of local government units in off-grid areas.

## 2009-2013 MEDP

### MISSIONARY GENERATION

Electric power supply in off-grid areas is currently generated by the Small Power Utilities Group of the National Power Corporation (NPC-SPUG), independent power producers (IPPs), new private/power providers (NPPs), qualified third parties (QTPs), local government units (LGUs) and community-based private groups.\* Among them, NPC-SPUG is the predominant generator which has the legal mandate and social obligation in the Electric Power Industry Reform Act of 2001 (EPIRA or Republic Act No. 9136). **However, the business of NPC-SPUG in missionary electrification is and will be not in competition, priority and prejudice against private investors.**

Missionary generation is programmed in the Missionary Electrification Development Plan for 2009-2013 (2009 MEDP) as formulated in the Missionary Electrification Plan for 2009-2018 (2009 MEP) of SPUG ([www.spug.ph](http://www.spug.ph)). The program involves basically the reliability and efficiency improvement program of SPUG through:

1. generation capacity addition to replace decommissioned (old and unreliable) generating units and to limit the rental of generating sets during emergency
2. capacity rationalization to reconfigure generating units so that units which have been deemed too large to provide efficiently power in low load areas will be transferred to larger load areas

The program covers two major activities: SPUG operation and services improvement program and private sector participation program (PSP) in power generation in small islands and isolated grids (SIIGs).

Missionary generation in the 2009 MEDP is derived entirely and solely from the 2009 MEP which is also the business plan of SPUG. Thus, the substantive details on missionary generation will not be discussed extensively in the 2009 MEDP but rather will be referred to the 2009 MEP as an accompanying document except for some modifications and adjustments that have been identified and proposed by the Department of Energy (DOE) in consultation with SPUG.

---

\* IPPs and NPPs are both private investments. Their difference is that IPPs came in prior to the enactment of EPIRA to supplement the power generation requirements in an area through a power purchase agreement with NPC or a power supply agreement with an electric cooperative. On the other hand, NPPs responded to an EPIRA-directed restructuring of the power industry that promotes private sector investments and will take over the power generation function of SPUG in an area through a direct power supply contracting with the electric cooperative.

## SPUG Operation and Services Improvement Program

SPUG is now operating in 78 small islands and 8 isolated grids due to the addition of 11 areas—six micro-grids in Samar in 2005 and five micro-grids in Masbate in 2007 (Tables 1 and 2). It operates 304 generating units with a total rated capacity of 128.997 megawatts (MW) in 92 land-based diesel power plants, 11 barge-mounted power plants, and one hydro-electric plant and hybrid wind turbine farm. It has 42 customers or off-taker distribution utilities (DUs), consisting of 39 electric cooperatives (ECs) and three LGUs.

At present, SPUG provides 24-hour electricity service in 23 areas. These are the 14 island grids which have been prioritized for eventual private sector take-over of the generation function of SPUG, and seven small islands and two isolated grids in the 61 remaining areas. In the other extreme, 43 areas experience only six to eight hours of service.

The 11 areas in Samar and Masbate, which the SPUG is performing both power generation and distribution functions, used to be provided with limited supply by local private groups or community members (Table 2). The generation sets in the areas have a dependable capacity range of 25 kilowatts (kW) to 100 kW and six-hour service. Thus, with the integration of distribution function, this particular activity of SPUG is included as part of remote area electrification.

**In the context of the social obligation on missionary electrification of SPUG and service obligation of DUs in their franchise areas, SPUG, together with the DOE and National Electrification Administration (NEA), will jointly develop the sustainability mechanisms to ensure the reliable and economic operations of such combined generation and distribution functions in remote area electrification.**

**Table 1: 61 Remaining Areas**

Area	Current Peak Demand (MW)	Peak Demand in 2013 (MW)	Operating Hours	Off-Takers
<b>LUZON</b>				
<b>Northern Luzon</b>				
Basco, Batanes	0.880	2.327	24	BATANELCO
Calayan, Cagayan	0.133	0.214	12	CAGELCO II
Casiguran, Aurora*	0.975	2.500	20	AURELCO
Kabugao, Apayao*	0.171	0.374	24	KAELCO
Itbayat, Batanes	0.101	0.214	18	BATANELCO
Lubuagan, Mountain Province*	0.087	0.129	12	KAELCO
Palanan, Isabela*	0.135	0.228	12	ISELCO II
Sabtang, Batanes	0.098	0.133	18	BATANELCO
<b>Southern Luzon</b>				
Agutaya, Palawan	0.065	0.090	8	PALECO
Araceli, Palawan	0.128	0.180	8	PALECO
Balabac, Palawan	0.125	0.190	8	PALECO
Banton, Romblon	0.165	0.293	8	LGU – Romblon
Batan, Albay	0.120	0.253	8	ALECO
Busuanga and Coron, Palawan	1.144	2.600	24	BISELCO



Area	Current Peak Demand (MW)	Peak Demand in 2013 (MW)	Operating Hours	Off-Takers
Cagayancillo, Palawan	0.056	0.085	8	PALECO
Concepcion, Romblon	0.132	0.157	8	LGU – Romblon
Corcuera, Romblon	0.300	0.551	8	LGU – Romblon
Culion, Palawan	0.300	0.579	12	BISELCO
Cuyo, Palawan	0.900	1.200	24	PALECO
Jomalig, Quezon	0.075	0.141	8	QUEZELCO II
Linapacan, Palawan	0.051	1.153	12	BISELCO
Lubang, Occidental Mindoro	0.580	0.850	24	LUBELCO
Patnanungan, Quezon	0.174	0.252	8	QUEZELCO II
Polilio, Quezon	1.045	1.700	16	QUEZELCO II
Rapu-Rapu, Albay	0.300	0.637	12	ALECO
San Jose, Romblon	0.145	0.352	12	TIELCO
Sibuyan, Romblon	1.095	1.937	24	ROMELCO
Ticao, Masbate	1.000	1.220	24	TISELCO
Tingloy, Batangas	0.550	1.100	12	BATELEC II
<b>VISAYAS</b>				
Almagro, Samar	0.081	0.057	6	SAMELCO I
Biri, Samar	0.170	0.374	12	NORSAMELCO
Caluya, Antique	0.140	0.167	16	ANTECO
Capul, Northern Samar	0.130	0.230	8	NORSAMELCO
Doong, Cebu	0.125	0.164	8	BANELCO
Gigantes, Antique	0.090	0.196	8	ILECO III
Guintarcan, Cebu	0.720	0.820	8	BANELCO
Limasawa, Leyte	0.125	0.166	8	SOLECO
Maripipi, Biliran	0.150	0.257	12	BILECO
Pilar, Cebu	0.230	0.300	16	CELCO
San Antonio, Northern Samar	0.200	0.349	6	NORSAMELCO
San Vicente, Northern Samar	0.090	0.150	6	NORSAMELCO
Sto. Nino, Samar	0.080	0.061	6	SAMELCO I
Tagapul-an, Samar	0.067	0.062	6	SAMELCO I
Zumarraga, Samar	0.240	0.322	24	SAMELCO II
<b>MINDANAO</b>				
Abad Santos, Davao del Sur	0.200	0.211	10	DASURECO
Balimbing, Tawi-Tawi	0.180	0.360	8	TAWELCO
Balut, Sarangani	0.120	0.144	8	DASURECO
Cagayan de Tawi-Tawi	0.350	0.600	10	CASELCO
Dinagat, Dinagat Islands	1.500	2.390	18	DIELCO
Hikop, Surigao del Norte	0.100	0.116	7	SURNECO
Kalamansig, Sultan Kudarat*	1.800	2.724	24	SUKELCO
Loreto, Dinagat Islands	0.400	0.940	8	DIELCO
Luuk, Sulu	0.079	0.115	6	SULECO
Manuk Mangkaw, Tawi-Tawi	0.080	0.100	6	TAWELCO
Ninoy Aquino, Sultan Kudarat*	0.155	0.235	12	SUKELCO
Siasi, Sulu	0.470	1.185	18	SIASELCO
Sibutu, Tawi-Tawi	0.240	0.380	6	TAWELCO
Sitangkay, Tawi-Tawi			Non-operational	TAWELCO
Talicut, Davao del Norte	0.200	0.329	10	DANECO
Tandubas, Tawi-Tawi	0.082	0.350	6	TAWELCO
West Simunul, Tawi-Tawi	0.270	0.340	6	TAWELCO

\*isolated grid

Source: Power Sitioner 2007, 2009 MEP/2009 MEDP Workshops, April-May 2009;  
Small Island Grid Power Plants/Power Barges Operational Report (25 September 2008)

**Table 2: 11 New Areas**

<b>Area</b>	<b>Dependable Capacity (MW)</b>
Ginawayan, Masbate	0.035
Guilongtongan, Masbate	0.090
Nabuctot, Masbate	0.025
Peña, Masbate	0.090
Chico, Masbate	0.035
Costa Rica, Almagro, Samar	0.040
Lunang, Almagro, Samar	0.060
Biasong, Almagro, Samar	0.060
Cabungaan, Sto. Niño, Samar	0.040
Ilijian, Sto. Niño, Samar	0.040
Takut, Sto. Niño, Samar	0.100

Source: Small Island Grid Power Plants/Power Barges Operational Report (25 September 2008)

In the series of consultation and planning workshops with each of the SPUG plants and concerned DUs for the formulation of the 2009 MEP of SPUG and the subsequent 2009 MEDP, some SPUG plants, LGUs and ECs indicated that they would require capacity addition and an expansion of electricity service hours, either gradually or immediately (Tables 3 and 4). Twenty-four small island grids and three isolated grids in Luzon can possibly be provided with 24-hour service by 2013. Eleven areas with 24-hour service will require a capacity addition within 2009-2012. **However, SPUG will evaluate such request for expansion of service hours in consideration of its manpower and configuration of the generating sets in the areas and capacity of the communities to pay their power bills. This will also be further compared with the demand forecast to determine the appropriateness and schedule of capacity addition in the planning period** (Table 5).

On the other hand, two areas--Tagapul-an, Samar and Luuk, Sulu--may maintain the service at six to eight hours due to low collection efficiency and projected demand.

In this program a total of **53.75 MW of additional capacity** will be installed in 2009-2013 to meet the growing demand and support the expansion of service hours in the 14 first wave areas, 61 remaining areas and 11 newly-operated areas in Samar and Masbate to (Tables 6).

**Table 3: Proposed Service Hour Expansion**

Area	Schedule of Requested/Planned Expansion and Capacity Addition					
	Existing Service Hour	2009	2010	2011	2012	2013
<b>Luzon</b>						
Agutaya, Palawan	8	8 0.15 MW	12	16	24	24
Araceli, Palawan	12	12 0.3 MW	16	20	24	24
Balabac, Palawan	8	8 0.15 MW	10	16	20	24
Banton, Romblon	12	12 0.24 MW	16	16	20	20
Batan, Albay	12	18	24 0.24 MW	24	24	24
Cagayancillo, Palawan	8	12 0.3 MW	12	16	16	16
Calayan, Cagayan	18	18 0.15 MW	18	24	24	24
Casiguran, Aurora	20	24	24 1.56 MW	24	24	24 1.5 MW
Concepcion, Romblon	8	12 0.24 MW	12	16	16	20
Corcuera, Romblon	8	12	12	18	18	20
Culion, Palawan	12	24 0.3 MW	24	24	24	24
El Nido, Palawan	16	24 0.675 MW	24	24	24	24
Itbayat, Batanes	18	18 0.15 MW	24	24	24	24
Jomalig, Quezon	8	12 0.3 MW	16	20	24	24
Linapacan, Palawan	12	16 0.15 MW	18	20	20	24
Lubuagan, Mountain Province	12	16 0.24 MW	16	24	24	24
Palanan, Isabela	12	18 0.15 MW	18	24	24	24
Patnanungan, Quezon	8	12 0.15 MW	12	18	18	18
Polilio, Quezon	16	24	24	24	24	24 0.5 MW
Rapu-Rapu, Albay	18	24	24	24	24 0.24 MW	24
Sabtang, Batanes	18	18 0.15 MW	24	24	24	24
San Jose, Romblon	12	18 0.48 MW	24	24	24	24
San Vicente, Palawan	16	24	24	24	24	24
Taytay, Palawan	12	24	24	24	24	24
Tingloy, Batangas	12	12	12	16	16 0.5 MW	20
<b>Visayas</b>						
Almagro, Samar	6	6 0.15 MW	8	12	12	12
Biri, Samar	12	12 0.24 MW	16	16	20	20 0.5 MW
Caluya, Antique	16	16	20	24	24	24

Area	Schedule of Requested/Planned Expansion and Capacity Addition					
	Existing Service Hour	2009	2010	2011	2012	2013
Capul, Northern Samar	8	8 0.24 MW	8	12	12	16
Doong, Cebu	8	8 0.15 MW	12	12	12	16
Gigantes, Iloilo	8	8	12	12	12	16
Guintarcan, Cebu	8	12	12 0.15 MW	16	16	20
Limasawa, Leyte	8	12	16	20 0.15 MW	24	24
Maripipi, Biliran	12	12	12	12 0.24 MW	16	16
Pilar, Cebu	16	16 0.24 MW	16	20	20	24
San Antonio, Northern Samar	18	18	20	20	20	24
San Vicente, Northern Samar	6	6	8	8	12	12
Sto Niño, Samar	12	12	12	24	24	24
Tagapul-an, Samar	6	6	6	6	8	8
<b>Mindanao</b>						
Abad Santos, Davao del Sur	10	10 0.24 MW	12	12	12	14
Balimbing, Tawi-Tawi	10	12 0.39 MW	12	12	12	12 0.24 MW
Balut, Sarangani	8	8 0.15 MW	12	12	16	16 0.24 MW
Cagayan de Tawi-Tawi	10	8	12	16 0.5 MW	18	18
Dinagat, Dinagat Islands	18 1 MW	24	24	24 1 MW	24	24
Hikop, Surigao del Norte	7	8	8	10 0.24 MW	10	10
Loreto, Dinagat Islands	8	12	12 1 MW	12	16	16
Luuk, Sulu	6	6 0.15 MW	8	8	8	8
Manuk Mangkaw, Tawi-Tawi	6	12 0.15 MW	12	12	12	12 0.15 MW
Ninoy Aquino, Sultan Kudarat	12	12 0.24 MW	16	16	18 0.5 MW	18
Siasi, Sulu	18	20	24	24	24	24
Sibutu, Tawi-Tawi	6	12 0.24 MW	12	18	18 0.24 MW	24
Sitangkay, Tawi-Tawi	non-operational system					
Talicud, Davao del Norte	10	10 0.39 MW	12	12	12	14
Tandubas, Tawi-Tawi	6	8 0.15 MW	8	12	12	12
West Simunul, Tawi-Tawi	6	8 0.39 MW	8	12	12	12 0.5 MW

Source: Power Situationer 2007, 2009 MEP/2009 MEDP Workshops, April-May 2009; National Electrification Administration-Management Assistance Group, Consolidated Output in the Workshops on MEDP 2009, June 2008; Small Island Grid Power Plants/Power Barges Operational Report (25 September 2008)

**Table 4: Capacity Addition of Areas with Existing 24-Hour Service**

Area	Capacity Addition (MW)	Year
Basilan	7.50	2009
Camotes	2.00	2009
	2.00	2012
Cuyo	0.30	2011
Jolo	4.50	2010
Kalamansig	1.20	2008
	1.00	2011
Kabugao	0.15	2009
Lubang	1.00	2009
Siquijor	4.00	2009
	5.00	2012
Sibuyan	0.50	2011
Ticao	0.30	2009
	0.50	2011
Zumarraga	0.24	2009
	0.50	2012

Source: Missionary Electrification Plan for 2009-2018

**Table 5: Demand Forecast (MW)**

Year	14 First Wave Areas	Other Luzon Areas	Other Visayas Areas	Other Mindanao Areas	Total
2009	83.769	16.873	2.961	8.740	<b>112.343</b>
2010	46.795	20.280	3.301	9.389	<b>79.765</b>
2011	49.381	22.688	3.377	10.156	<b>85.602</b>
2012	52.317	25.037	3.937	10.925	<b>92.216</b>
2013	55.900	27.430	4.230	11.693	<b>99.253</b>
<b>Total</b>	<b>288.162</b>	<b>112.308</b>	<b>17.806</b>	<b>50.903</b>	<b>469.179</b>

Source: Missionary Electrification Plan for 2009-2018

**Table 6: Capacity Additions for Existing Areas and New Areas (MW)**

Year	14 First Wave Areas	Other Luzon Areas	Other Visayas Areas	Other Mindanao Areas	Total
2009	14.68	7.43	1.85	2.73	<b>26.69</b>
2010		7.64	0.86	1.00	<b>9.50</b>
2011		1.30	0.15	2.74	<b>4.19</b>
2012	7.00	0.86	0.74	0.50	<b>9.10</b>
2013		2.64	0.65	0.99	<b>4.28</b>
<b>Total</b>	<b>21.68</b>	<b>19.87</b>	<b>4.25</b>	<b>7.96</b>	<b>53.76</b>

Source: Missionary Electrification Plan for 2009-2018

Moreover, SPUG is now studying the request for the take-over of the management of 18 power generation systems that some LGUs and ECs are unable to sustain the efficient operation due to high fuel and maintenance costs (Table 6). However, similar to the policy on the existing areas, in such

take-over, SPUG will prepare the systems to become viable and sustainable for eventual private investment through a model of electric power generation that is cost-efficient and actively responsive to the economic development needs of the areas. **To minimize if not avoid the take-over by SPUG of areas currently served by LGUs or DUs, the DOE will set the policy and guidelines to ensure reasonable but sustainable services to such areas.**

**Table 7: 18 Areas for SPUG Take-over**

Area	Dependable Capacity (MW)
Rizal, Palawan	0.5000
Cabra Island, Occidental Mindoro	0.2400
Palimbang, Sultan Kudarat	0.2400
Sacol Island, Zamboanga City	0.2400
Inabanga, Bohol	
Hambongan	0.0200
Cuaming	0.0850
Tubigon, Bohol	
Mocaboc	0.0135
Bilangbilangan	0.0200
Bagongbangwa	0.0250
Pangapasan	0.0380
Ubay	0.0063
Batasan	0.0140
Cabilao, Loon, Bohol	0.1500
Pamilacan, Baclayon, Bohol	0.0500
Balicasag, Panglao, Bohol	0.0380
Malatao, Calape, Bohol	0.0380
Naro, Cawayan, Masbate	0.0360
Paluan, Occidental Mindoro	0.1000

Source: Missionary Electrification Plan for 2009-2018

In support of the generation activities, associated delivery systems such as transmission lines and substation facilities will be constructed in ten areas: Catanduanes, Oriental Mindoro and Occidental Mindoro, Masbate, mainland Palawan, Tablas Island, Bantayan Island, Siquijor, Sultan Kudarat, Siasi and Basilan. The transmission lines will be energized at 69 kilovolts (kV) for 2,023.20 circuit kilometers (ckt. kms.) and 13.2 kV for 3.60 ckt. kms.. On the other hand, substations will have an aggregate capacity of 70 mega volt-amperes (MVA); substation expansion, 24 units at 69 kV power circuit breaker (PCB); and switching stations, 6 units at 69 kV PCB.

In areas where the NPPs have taken full control of the generation business, SPUG will continue to own, operate and maintain its transmission business and where there are at least two NPPs, SPUG will perform the system operation.

## Private Sector Participation Program in Power Generation in SPUG-Serviced Areas

In accordance with Section 3(b) of Rule 13 of EPIRA-IRR, power generation by SPUG will be offered to private sector take-over. To facilitate the implementation of this policy, the DOE issued Department Circular No. 2004-01-001 on 26 January 2004 which declared open for private sector participation (PSP) all existing SPUG areas and mandated the conduct of and set the procedures for the competitive selection process. The selection of a private generator, which is known as new private/power provider (NPP), is guided by the following considerations:

1. ability to achieve the lowest long-term cost of power and services
2. environmental compatibility with the local area
3. most advantageous implementation schedule

Likewise, the NPC, through Resolution No. 2004-66 of the National Power (NP) Board, declared on 27 July 2004 14 major islands as priority areas for privatization ("first wave areas") because they contribute to about 80% of SPUG's total deficit. Of which four (Bantayan Island, Oriental Mindoro\*, mainland Palawan and Catanduanes) started its negotiations with an NPP even before the PSP program and another five (Marinduque, Tablas, Romblon, Masbate and Basilan) are being assisted by the International Finance Corporation (IFC), the appointed transaction advisor of the DOE and NPC.

The NPPs in these nine islands are Bantayan Island Power Corporation (BIPCOR) in Bantayan Island, Cebu; Power One Corporation in Oriental Mindoro (with Mid-Islands Power Generation Corporation as project company), Palawan and Catanduanes (with Palawan Power Generation, Inc. and Catanduanes Power Generation, Inc. as project companies); 3i Powergen, Inc. in Marinduque, Tablas and Romblon; DMCI Holdings, Inc. in Masbate; and Coastal Power Development Corporation in Basilan. **Such private investments will provide an aggregate dependable capacity of 101.58 MW.**

BIPCOR, the pioneer NPP, has started commercial operations as a base load supplier in 2007. It is also the first recipient of the missionary electrification subsidy from the Universal Charge when it received from SPUG an initial subsidy payment of P28 million for its operation in 2006 to December 2007.

Power One, 3i Powergen and DMCI will start the commercial operations of their plants in 2008-2009.

The islands of Camotes and Siquijor will be assisted by the DOE, NPC-SPUG and NEA, with or without a transaction advisor upon the choice of the electric

---

\* The Energy Regulatory Commission has dismissed the application for approval/review of the Power Supply Agreement between Oriental Mindoro Electric Cooperative, Inc. and Power One Corporation.

cooperative, in their selection of an NPP. In contrast, the PSP program in Occidental Mindoro, Sulu and Tawi-Tawi will have to be deferred indefinitely due to certain contractual and management impediments.

Critical to the PSP program is the agreement on the phase in of an NPP and the phase out of SPUG in order to ensure the reliability of power supply during the transition period. The agreement originally programmed the full entry of an NPP in an area within one year. **However, the lengthy and politicized bureaucratic process in securing and complying with certain regulatory requirements and approvals from both the national and local governments is inevitably affecting the financing and implementation of a power project.** Thus, an NPP is expected to assume a complete take-over of SPUG generation within two to three years.

**Table 8: Status of 14 First Wave Areas**

SPUG Area	New Private Provider (NPP)	Dependable Capacity (MW)	True Cost Generation Rate (peso per kWh)	Subsidized/ Approved Generation Rate (peso per kWh)
Bantayan Island	Bantayan Island Power Corp. (BIPCOR)	2.7	P8.3869	P6.2553
Oriental Mindoro	Power One Corp.* (Mid-Islands Power Generation Corp. as project company for Phase 1)	28 (base-load, peaking and reserve)	P6.52 [Note: P4.92 (This is based on the DOE certification (issued on 11 Feb. 2005) that ORMECO adopted a CSP in selecting Power One.)]	P5.6404
Mainland Palawan	Power One Corp.* (Palawan Power Generation, Inc. as project company)	2 PSAs: 10 (Narra, base-load); 7.2 (peaking and reserve, leasing Puerto Princesa Diesel Power Plant)	P8.38 – Puerto Princesa; P7.79 – Narra	5.6404
Catanduanes	Power One Corp.* (Catanduanes Power Generation, Inc as project company)	8.6 (base-load, peaking and reserve)	P8.35	P5.6404
Marinduque	3i Powergen, Inc. (consortium of Coastalpower Development Corp., Korea Investment and Securities Co. Ltd., Korea Western Power Co. Ltd and Iijin Electric Co. Ltd.)	12.48	P7.171	P5.6404



SPUG Area	New Private Provider (NPP)	Dependable Capacity (MW)	True Cost Generation Rate (peso per kWh)	Subsidized/ Approved Generation Rate (peso per kWh)
Tablas	3i Powergen, Inc. (consortium of Coastalpower Development Corp., Korea Investment and Securities Co. Ltd., Korea Western Power Co. Ltd and Iljin Electric Co. Ltd.)	6	P7.171	P5.6404
Romblon	3i Powergen, Inc. (consortium of Coastal Power Development Corp., Korea Investment and Securities Co. Ltd., Korea Western Power Co. Ltd and Iljin Electric Co. Ltd.)	1.8	P7.171	P5.6404
Occidental Mindoro	<i>Deferred indefinitely</i>	16.8**		
Camotes Island	<i>Under preparation</i>	2.248** SPUG capacity addition of 2 MW in 2009 and 2 MW in 2012	10.5***	6.2553
Masbate	DMCI Holdings, Inc. (DMCI Power Corp. as project company)	13	P7.07	P5.1167
Siquijor	<i>Under preparation</i>	5.412** SPUG capacity addition of 4 MW in 2010 and 5 MW in 2013	10.5***	6.2553
Basilan	Coastal Power Development Corp.	11.8 SPUG capacity addition of 7.5 MW in 2009	11.0	5.1167
Jolo, Sulu	<i>Deferred indefinitely</i>	6.65** SPUG capacity addition of 4.5 MW in 2010	8.79***	5.1167
Bongao, Tawi-Tawi	<i>Deferred indefinitely</i>	9.32**		

\* Power One Corporation is leasing NPC-SPUG plants.

\*\* Existing rated capacity of SPUG power plants

\*\*\* Adjusted True Cost Generation Rate of SPUG

Moreover, the NPC, through its NP Board Resolution 2007-46, has opened formally to private sector investors the 61 remaining areas serviced by the SPUG. The challenge is how to market these areas considering that only five islands and one isolated area have a relatively small peak demand of at least 1 MW and electricity service of 16-24 hours and 15 islands have a peak demand of less than 100 kW and electricity service of six to 18 hours.

## Subsidy Requirements for Missionary Generation

From 2003 to 2006 the missionary generation cost of SPUG amounted to P4.4 billion to P5.6 billion, with the UC-ME providing at least 23%-30% of the total cost (Table 8).

**Table 9: Missionary Generation Cost, 2004-2006 (in million pesos)**

Component/Fund Source	2003	2004	2005	2006
SPUG Revenue	1,610.00	1,743.30	1,904.31	2,327.17
NPC (Corporate) Funding	1,447.64	1,860.94	2,422.37	1,376.65
UC-ME	1,343.32	1,340.00	1,340.00	1,340.00
Total	4,400.96	4,944.24	5,666.68	5,043.82

Source: SMEC. Final Report: Updating of the Missionary Electrification Development Plan 2006-2010 to 2007-2011 and Integration of Renewable Energy Technologies. March 2008

Based on the assumption that the operation of SPUG will be financed fully and solely by the UC-ME and without additional funding support (bridge financing) from the corporate budget of NPC, the required annual UC-ME for 2009-2013 is estimated to range from P13 billion to P17 billion. The funding for each program and activity of missionary generation is summarized in Table 9.

**Table 10: Universal Charge Requirements for 2009-2013**

Activities	Subsidy Requirement (in thousands of pesos)				
	2009	2010	2011	2012	2013
I. SPUG Operations	7,723,057.96	7,189,634.29	8,717,297.59	10,579,056.93	8,631,584.25
a. 14 first wave areas	5,480,644.80	4,121,906.18	4,902,786.54	5,896,858.94	4,759,693.21
1. generation	5,455,324.68	4,042,944.31	4,840,810.97	5,812,268.06	4,672,172.52
2. transmission	25,320.12	78,961.87	61,975.57	84,590.88	87,520.69
b. 61 remaining areas	2,028,771.78	2,726,363.00	3,431,932.70	4,198,948.26	3,340,452.03
c. 11 new areas	157,016.56	273,187.60	301,833.35	375,149.70	422,175.07
d. 18 transferred areas	56,624.82	68,177.51	80,745.00	108,100.03	109,263.94
II. SPUG Capital	9,413,742.22	5,344,598.32	4,853,817.89	3,911,285.86	3,915,157.77
a. 14 first wave areas	5,989,702.23	3,346,600.59	2,981,759.08	2,515,123.88	2,264,262.55
1. generation	3,720,020.63	1,396,459.23	1,250,939.68	1,739,421.87	1,313,652.94
2. transmission	2,269,681.60	1,950,141.36	1,730,819.40	775,702.01	950,609.61
b. 61 remaining areas	2,131,053.97	1,459,699.69	1,851,142.95	1,362,340.64	1,607,080.33
1. generation	2,007,534.98	1,305,367.32	1,507,841.26	1,362,340.64	1,607,080.33
2. transmission	123,518.99	154,332.37	343,301.69	0.00	0.00
c. 11 new areas	1,292,986.02	538,298.04	20,915.86	33,821.34	43,814.89
d. 18 transferred areas	0.00	0.00	0.00	0.00	0.00
III. NPPs	429,234.81	879,593.65	972,828.82	1,038,342.17	1,103,864.76
<b>Total</b>	<b>17,566,034.99</b>	<b>13,413,826.26</b>	<b>14,543,944.30</b>	<b>15,528,684.96</b>	<b>13,650,606.78</b>
<b>Projected Energy Sales (MWh)</b>	<b>58,195,499.00</b>	<b>60,818,520.00</b>	<b>63,379,667.00</b>	<b>66,240,881.00</b>	<b>69,145,088.00</b>
<b>P/KWH</b>	<b>0.30</b>	<b>0.22</b>	<b>0.23</b>	<b>0.23</b>	<b>0.20</b>

Source: Missionary Electrification Plan for 2009-2018, Power Development Plan for 2008-2017

## REMOTE AREA ELECTRIFICATION

Remote area electrification (RAE) covers the electrification of remaining unelectrified barangays in the country, which are classified as:

1. unviable areas in the main island grids
2. unelectrified barangays in the small islands and isolated grids

As part of the Expanded Rural Electrification (ER) Program, RAE focuses primarily in the coordination of various electrification programs in missionary or off-grid areas in support of the achievement of the overall objective of total barangay electrification in 2010 and 90% household electrification in 2017.

### Status of Rural Electrification Program

During the period of 2001 until the second quarter of 2008 (Table 11), 17% of all barangays was electrified bringing the electrification level to almost 97%. Thirteen percent was by grid extension while four percent was electrified through off-grid technologies.

**Table 11: Achievements in Barangay Electrification, 2001-June 2008**

Type of Electrification	Number of Barangays								
	2001	2002	2003	2004	2005	2006	2007	1 <sup>st</sup> Half 2008	Total
<b>Grid connection</b>	<b>1,004</b>	<b>1,390</b>	<b>978</b>	<b>794</b>	<b>357</b>	<b>362</b>	<b>423</b>	<b>92</b>	<b>5,400</b>
<b>Off-grid Connection</b>	<b>238</b>	<b>309</b>	<b>240</b>	<b>208</b>	<b>261</b>	<b>168</b>	<b>193</b>	<b>70</b>	<b>1,687</b>
- Solar	214	272	237	187	206	162	192	7	1,477
- Diesel micro-grid	21	31	2	18	51	6		3	132
- Mini-grid/Solar								57	57
- Small hydro micro-grid	3	6	1	3	4	-	1	3	21
<b>Total</b>	<b>1,242</b>	<b>1,699</b>	<b>1,218</b>	<b>1,002</b>	<b>618</b>	<b>530</b>	<b>616</b>	<b>162</b>	<b>1,779</b>

Source: ER Program Team Secretariat

**Table 12: Regional Status of Barangay Electrification (as of June 2008)**

Region	Potential Barangays	Electrified Barangays	Unelectrified Barangays	Electrification Level (%)
CAR	1,176	1,127	49	95.83%
I	3,265	3,264	1	99.97%
II	2,311	2,231	80	96.54%
III	3,102	3,097	5	99.84%
IV-A	4,011	3,947	64	98.40%
IV-B	1,458	1,409	49	96.64%
V	3,471	3,322	149	95.71%
NCR	1,695	1,695	-	100.00%
<b>Sub-Total (Luzon)</b>	<b>20,489</b>	<b>20,092</b>	<b>397</b>	<b>98.06%</b>
VI	4,051	4,024	27	99.33%
VII	3,003	3,002	1	99.97%
VIII	4,390	4,205	185	95.79%
<b>Sub-Total (Visayas)</b>	<b>11,444</b>	<b>11,231</b>	<b>213</b>	<b>98.14%</b>
IX	1,904	1,801	103	94.59%
X	2,020	1,934	86	95.74%
XI	1,160	1,157	3	99.74%
XII	1,194	1,134	60	94.97%
ARMM	2,459	2,068	391	84.10%
CARAGA	1,310	1,288	22	98.32%
<b>Subtotal (Mindanao)</b>	<b>10,047</b>	<b>9,382</b>	<b>665</b>	<b>93.38%</b>
<b>Total (Philippines)</b>	<b>41,980</b>	<b>40,705</b>	<b>1,275</b>	<b>96.96%</b>

Source: ER Program Secretariat – DOE

In terms of geographical accomplishments in barangay electrification, Luzon has reached 98.06% level; Visayas, 98.14%; and Mindanao, 93.38%. Among the regions, the Autonomous Region of Muslim Mindanao (ARMM) has the lowest level of barangay electrification at 84.10%(Table 11).

As of the planning period, many if not a significant number of unelectrified barangays are located in remote, island barangays including the conflict areas in Mindanao. The immediate extension of distribution lines is not feasible in these barangays, hence, alternative approaches such as mini- or micro-grids, stand-alone renewable energy systems and other rural electrification technology shall play the important role in their electrification.

## **Expanded Rural Electrification Programs on Remote Area Electrification**

A number of programs on RAE are being coordinated through the ER Program. Currently, funding for missionary electrification comes from various sources such as from the regular budget of the DOE, Electrification Fund from Energy Regulations No.1-94 and corporate social responsibility of IPPs, public-private partnerships, grants and loans. **Given, the next level of implementing rural and missionary electrification, which would include greater support to sitios and household electrification, subsidy from the universal charge (UC-ME) will be significant.**

In this MEDP there are two proposed funding arrangements of the UC-ME in order to complete the Government's target of total electrification:

1. complete funding support
2. partial funding support for operation and maintenance

### **Complete Funding from the Missionary Electrification Subsidy**

Existing missionary areas currently serviced by SPUG shall have a complete allocation of funding from UC-ME for its subsidy operating requirements. The underlying principle is not to diminish or cut down the electricity benefits currently enjoyed by the consumers in the existing SPUG areas as to do so would only result in the welfare loss of customers in the areas. Hence, benefits enjoyed by consumers shall be maintained, at the very least, or improved through the complete subsidy from UC-ME.

#### **1. NPC-SPUG's Completed (Micro-grid) Projects**

Since 2005 up to the present, a total of 14 diesel micro-grid systems were installed by SPUG in remote barangays in Masbate, Camarines Sur and Samar. Eleven barangays in Masbate and Samar are the 11 new areas (Table 2) included in the 78 small islands of SPUG. The three barangays in Camarines Sur are Dangla in the municipality of Gatchitorea and Campo Gata and Haponan in the municipality of Caramoan.

SPUG maintains and operates the completed projects including the distribution lines until such time that a QTP has been selected and contracted.

#### **2. Transferred Areas**

As a backgrounder, the NPC through Board Resolution No. 2002-35 approved on 12 March 2002 the policy on "Lending of Small Generator Sets to Isolated Barangays". Its objective was to electrify isolated barangays through the lending of generator sets and allowing the LGUs by themselves to operate and maintain the sets. A total of 24 54.4-kW generating sets were lent to different isolated barangays since the implementation of the policy.

After a few years of operation, however, the recipients were unable to sustain the efficient operation of the generating sets due to high operation and

maintenance costs, among other causes. A number of the recipients have requested NPC to take over the operation of the units. Table 13 shows the list of areas which will be considered for the management of SPUG.

**Table 13: Areas by LGU-based Service Providers for Conversion to QTP Approach**

Area	Power System Received	
	Generator	Transformer
<b>Romblon</b>		
Brgy. Alad, Romblon	54.4 kW	None
<b>Albay</b>		
San Miguel Island, Tabacco	54.4 kW	Yes
<b>Isabela</b>		
Dinapigue	54.4 kW	Yes
<b>Camaringes Sur</b>		
Tinambac Island	54.4 kW	Yes
Kinalasag, Garchitorea	54.4 kW	Yes
Balaton, N. Coastal	54.4 kW	Yes
Butauana Is., Siruma	54.4 kW	Yes
<b>Antique</b>		
Sibay Island, Caluya	2 x 54.4 kW	Yes
<b>Palawan</b>		
Barangay Manamok, Cuyo	2 x100Kw; 1X106 kW	None
<b>Iloilo</b>		
Pan de Azucar Island	54.4 kW	Yes
Calagnaan Island	54.4 kW	Yes
Sicogon Island, Carles	54.4 kW	Yes
Igbon Island, Conception	54.4 kW	Yes
Tagubanhon, Ajuy	54.4 kW	Yes
Malangabang, Concepcion	54.4 kW	None
Bayas Island, Estancia	54.4 kW	Yes
<b>Samar</b>		
Libucan Island, Tarangnan	54.4 kW	Yes
<b>Capiz</b>		
Olotayan Island, Roxas	54.4 kW	None
<b>Biliran</b>		
Higatangan, Island	54.4 kW	None
<b>Negros Occidental</b>		
Sipaway Island, San Carlos City	2 x 54.4 kW	Yes
<b>Davao Oriental</b>		
Brgy. Luban, Mati	54.4 kW	Yes
Brgy. Cabuaya, Mati	54.4 kW	Yes
<b>Lanao del Sur</b>		
Lumbatan	54.4 kW	Yes
Madamba	54.4 kW	Yes

Source: Missionary Electrification Plan for 2009 – 2018

To date, only three LGU-owned municipal systems have remained under the operational control of a local government of a municipality that had originally organized them.

Consistent with the thrust of the EPIRA, the LGU-managed power generating and delivery systems that ceased to operate efficiently will be opened to private sector or QTP scheme. In several instances, the concerned LGUs have already communicated with the DOE and NPC their intent to give up operation of the facility and their willingness to turn over the facility for private sector operation. In the meantime, the NPC through SPUG assumes the operation of the above facilities. The DOE will issue the policy for the take-over of these LGU-operated systems and previously-served areas with consideration on its consistency with the policy for subsidy rationalization and privatization program for SPUG areas.

## **B. Partial Funding from the Universal Charge – Missionary Electrification**

### **1. NPC-SPUG's Barangay Electrification Projects**

NPC-SPUG has been installing battery charging stations (BCS) in remote barangays under its general mandate for missionary electrification. This involves 100% capital subsidy. Upon completion of works, the facilities are handed over to the local barangay associations for operation.

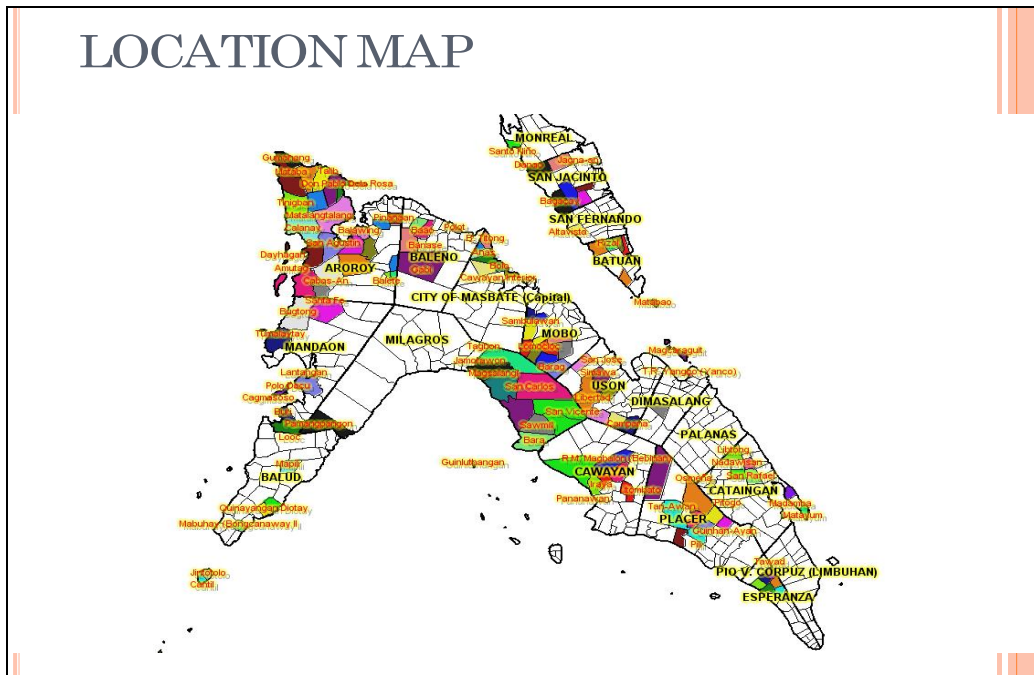
To be consistent with the proposed implementation mechanism for off-grid electrification, the SPUG will adopt the SSMP approach and pilot micro-grid approach. For year 2007 and 2008, SPUG is implementing 42 electrification projects, cost-shared with fund of DOE's RAES Program and UC-ME.

### **2. Philippine Rural Electrification Service (PRES) Project**

This project aims to improve the living conditions of a total of 18,000 households located in 128 barangays in Masbate through the provision of adequate and reliable energy services. The project will also provide electricity for community facilities including barangay halls, and school buildings and rural health clinics. Electricity will be provided through a mixture of diesel-powered micro-grids and household photovoltaic systems. The installation of the facilities will be undertaken over a three-year period.

The project is being implemented by NPC-SPUG and funded through the French-Filipino Loan Protocol financing amounting to €17.5 Million. Loan repayments and operation and maintenance cost shortfall will be funded from the UC-ME.

In recent developments, three out of the 128 barangays were taken out from the list due to security reasons and one of which was already electrified by Masbate Electric Cooperative (MASELCO). To date, a total of 5,126 solar home systems were installed in 107 barangays. The construction of the 140 mini-grids however, started in 10 November 2008. Out of this number, 26 mini-grids will be completed before end of 2008.



The operation and maintenance of the mini-grid and solar home systems shall be opened to QTPs following the DOE and ERC Rules for the participation of QTPs in the rural and missionary electrification. In the absence of the QTP, however, NPC-SPUG was appointed as the interim operator. However, DOE shall push for the selection of a QTP by 2009 to ensure the efficient operations and maintenance of the systems and most importantly, the project's sustainability.

### **3. PowerSource Philippines "Rio Tuba Community Energizer Platform Mini-Grid Electricity System**

The DOE recognizes PowerSource Philippines Inc. as a pilot QTP which existed in the last three years prior to the issuance of the QTP participation and regulatory guidelines.

In April 2005, PowerSource commissioned its first community energizer platform (CEP) in Barangay Rio Tuba, Bataraza, Palawan. The firm funded a stand-alone mini-grid powered by 2x250-kVA medium-speed diesel generators.

KEPCO Philippines donated the 15-kilometer distribution lines. To date, a total of 1000 households are being served with 24 hours and seven days-a-week electricity. In February 2007 the tariff increase to P20.00/kWh due to the steady increase of fuel prices.

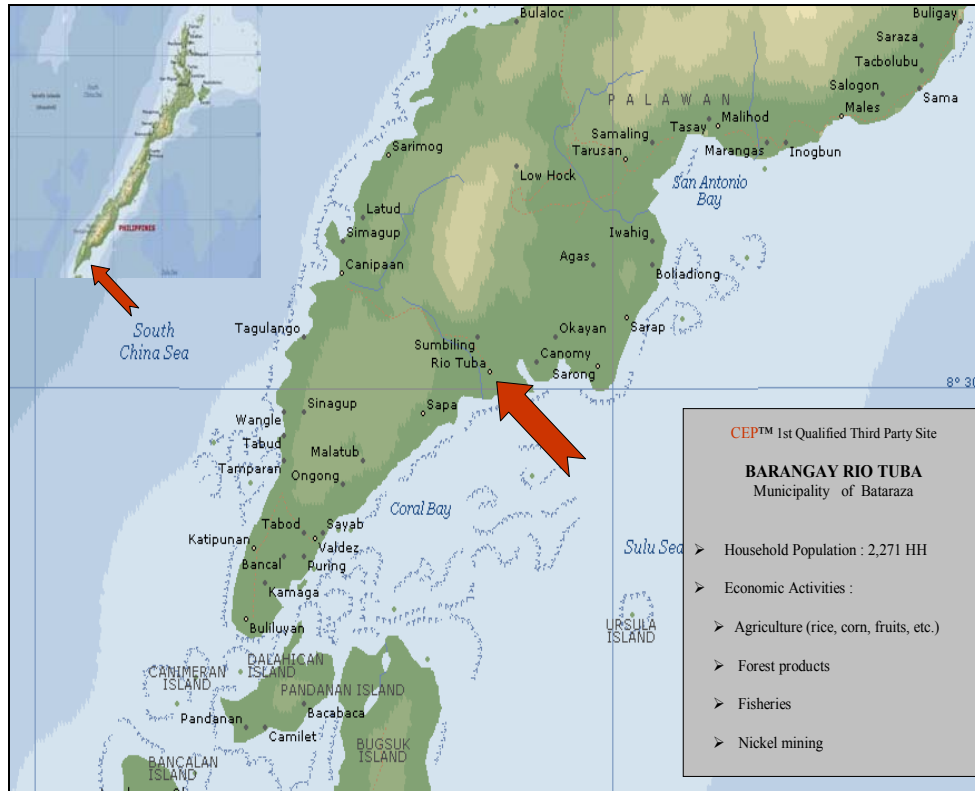
A barangay power association (BAPA) was established to operate and maintain the system including billing, collection and metering.

In support to the electrification of the barangay, PowerSource put up livelihood platform using modularized compartments for communication,



entertainment, and cold storage. A concessionaire was selected to manage the platform.

In 4 July 2008, Palawan Electric Cooperative (PALECO) signed a waiver agreement with PowerSource which allowed the latter to provide electric service in the area for the next ten years. Subsequently, PowerSource and NPC signed a "QTP Service Contract for the Supply of Electricity Service and Availment of Subsidy." The service contract defines the rights and obligations of both parties with respect to the provision of electric service and payment of subsidy from the UC-ME for the duration of ten-year operation period.



In August 2008, the DOE endorsed PowerSource as an entity prequalified by the former to serve the area. On this basis, the Energy Regulatory Commission (ERC) will review its application for its Full Cost Recover Rate (FCRR), the Subsidized Approved Retail Rate (SARR), the tariff that it will charge the consumers and its compliance to the standards set by the Philippine Distribution and Generation Code. PowerSource submitted its prayer petition to ERC on 12 November 2008.

This particular QTP activity will require a total of **P84.09 million of UC-ME subsidy in 2009-2013.**

## PowerSource Community Energizer Platform™



### 4. PowerSource's Malapascua Island Electrification Project

PowerSource is embarking on another electrification project in the island of Malapascua in Bantayan, Cebu. It will install 3 x 50-kw medium-speed bunker C-fired generating sets which will be completed in 2008. Another 200-kW biomass gasification capacity will be installed in 2009. The firm will also investigate the viability of 80-150kW of wind capacity in 2009-2010 for additional fuel supply in the island. The project will serve a total of 650 households with 24-hour electricity service and will require an estimated total of **P177.5 million UC-ME subsidy in 2009-2013.**

### 5. Household Electrification Support Program

In support of objective of 90% level of electrification for all households nationwide in 2017, one million households will receive electrification in 2012 through grid connections or renewable energy systems. Of this number, 200,000 households in off-grid areas will be provided with solar home systems (SHS) under the DOE's SWITCH Program which calls for the shift from kerosene to renewable energy for basic lighting and electricity of rural households. This target will cover both the unelectrified households in electrified and unelectrified barangays. Priority attention will be accorded to the unelectrified households in regions which have the lowest level of barangay

electrification, particularly in Bicol, Leyte and Samar and Autonomous Region in Muslim Mindanao.

Subsidies will be provided to such households as price discount to reduce the cost of the PV systems. At present, the DOE through its regular budget appropriation allocates P8,000.00 per SHS and P1,500.00 per solar lanterns to unelectrified households. It is proposed that the same amount of subsidy that will be made available to the households will be sourced from the UC-ME.

One of the strategies to be adopted under Household Electrification Support Program is to mainstream renewables in the DUs business operations. Towards this end, the DOE shall provide technical assistance and capacity building to the DUs. Other strategies and delivery mechanisms that support business development and commercialization strategies for solar PV products and services in accordance to the capacity to pay of the target household beneficiaries will be explored.

**P1.67 billion of UC-ME subsidy** will be required to finance the program in 2009-2012.

#### Subsidy Requirements for Remote Area Electrification Projects

Table 14 summarizes the indicative requirements from the missionary electrification subsidy of the universal charge for the various remote area electrification projects. The subsidy requirements will be adjusted following the formal approval of the QTP status of the various projects enumerated herein. The adjustments will be reflected in the annual updating of the MEDP by the DOE.

**Table 14: UC-ME Subsidy Requirements 2009-2013 (in million pesos)**

Programs	No. of Brgys	2009	2010	2011	2012	2013
<b>NPC-SPUG Mini-grids</b>	<b>205</b>	<b>48.615</b>	<b>79.163</b>	<b>79.309</b>	<b>116.423</b>	<b>117.648</b>
PRES	125	24.220	49.980	49.420	81.735	82.174
Mini-/micro-grid Projects	42	5.790	9.990	10.080	13.650	13.750
Completed New Areas	14	6.615	6.663	6.719	7.358	7.424
Transferred Areas	24	11.990	12.530	13.090	13.680	14.300
<b>QTP-Initiated</b>	<b>2</b>	<b>49.700</b>	<b>50.848</b>	<b>52.088</b>	<b>52.477</b>	<b>54.477</b>
Powersource's Rio Tuba	1	14.200	15.348	16.588	17.977	19.977
Powersource's Malapascua	1	35.500	35.500	35.500	35.500	35.500
<b>Household Electrification</b>	<b>200,000</b>	<b>401.940</b>	<b>334.933</b>	<b>502.339</b>	<b>435.391</b>	
<b>TOTAL</b>		<b>500.255</b>	<b>464.994</b>	<b>633.739</b>	<b>604.291</b>	<b>172.125</b>
<b>Projected Energy Sales (GWh)</b>		<b>58,195.499</b>	<b>60,818.520</b>	<b>63,379.667</b>	<b>66,240.881</b>	<b>69,145.088</b>
<b>P/kWh</b>		<b>0.009</b>	<b>0.008</b>	<b>0.010</b>	<b>0.009</b>	<b>0.002</b>

**FUTURE DIRECTION OF MISSIONARY ELECTRIFICATION DEVELOPMENT PLAN:  
Local Power Development Planning for Small Islands and Isolated Grids**

The MEDP needs to evolve into a holistic and integrated power development plan (PDP) for all off-grid areas. Therefore, the next MEDP shall be a consolidation of the individual PDP of each small island and isolated area which will consist of the Distribution Development Plan of concerned electric cooperatives and local government-operated utilities and the joint Missionary Electrification (generation) Plan of the SPUG, IPPs and NPPs.

Towards this end, the DOE, NEA and SPUG will institutionalize a participatory planning development process in the formulation of local PDPs on missionary electrification which considers the following points:

1. collegiality, particularly in terms of active involvement and shared ownership of private, local government and community stakeholders
2. definition of priorities, especially when funds are insufficient and policies and programs are valued politically due to use of public funds
3. recognition and integration of local PDPs to the sustainable integrated area development of island municipalities and island provinces
4. implementation of total electrification including support to the projects' sustainability and expansion of the electrification program together with various stakeholders;
5. integration of renewables as option for missionary and rural electrification
6. capability of DUs to determine the required power supply and negotiate and contract a fair power supply agreement with SPUG, IPPs or NPPs
7. identification of potential area-based energy resources for power generation
8. rationalization of UC-ME subsidy through its efficient and transparent utilization and allocation
9. reduction in dependence and graduation from UC-ME subsidy through efficient electricity rates

The conduct of consultation and planning workshops with each of the SPUG plants, concerned DUs, IPPs and NPPs in the formulation of the 2009 MEP and 2009 MEDP is the first step towards the realization of such evolution of the MEDP.