Republic of the Philippines
DEPARTMENT OF ENERGY

DEPARTMENT CIRCULAR NO. DC2014-07-0012

ACCELERATING HOUSEHOLD ELECTRIFICATION IN OFF-GRID AND ISOLATED AREAS THROUGH ELECTRICITY SUPPLY BY REGULATED SOLAR HOME SYSTEMS

WHEREAS, Section 2 of Republic Act No. 9136, otherwise known as the "Electric Power Industry Reform Act of 2001" or "EPIRA," declares the policy of the State to ensure and accelerate the total electrification of the country as well as to ensure the quality, reliability, security and affordability of the supply of electric power;

WHEREAS, Section 23 of the EPIRA states that the Distribution Utilities (DUs) shall provide universal service within their franchise area, over a reasonable time from the requirement thereof, including unviable areas, as part of their social obligation, in a manner that shall sustain the economic viability of the utility, subject of the approval of the Energy Regulatory Commission (ERC), in the case of private or government-owned utilities;

WHEREAS, Section 4(f) of Rule 7 of the Implementing Rules and Regulations of EPIRA (EPIRA-IRR) provides that in order to meet its universal service obligation, a Distribution Utility is allowed to collect different rates, subject to the approval of the ERC, in order to sustains its economic viability;

WHEREAS, Republic Act No. 10531, also known as the "National Electrification Administration (NEA) Reform Act of 2013," declares the policy of the State to promote the sustainable development of the rural areas through rural electrification, and further mandates NEA to pursue total electrification of the country through the Electric Cooperatives (ECs) by way of enhancing distribution development and to ensure their economic and financial viability and operation, among others;

WHEREAS, in pursuance of the above declared policies of the State, the Government, through the Department of Energy (DOE), has formulated the Household Electrification Development Plan (HEDP), which aims to identify the strategies, programs and projects that will help accelerate the attainment of ninety percent (90%) household electrification by 2017;

WHEREAS, to achieve the goals of the HEDP, the DOE in partnership with NEA and other government agencies and industry stakeholders, has committed to implement the household electrification program of the Government in a holistic and sustainable manner, which includes among others, intensification program in energized areas, sitio electrification program, opening up areas that the Distribution Utilities cannot serve to alternative electric service providers such as qualified third parties, among others;

WHEREAS, Republic Act No. 9513, otherwise known as the "Renewable Energy Act of 2008," or "RE Act," declares the policy of the State to increase the utilization of renewable energy (RE) resources, such as, but not limited to, solar, wind, hydropower, geothermal, and ocean energy sources, and including hybrid system by institutionalizing the development of national and local capabilities in the use of RE systems, and promoting its efficient and cost-effective commercial application by providing fiscal incentives;

WHEREAS, the DOE considers Solar Photovoltaic (PV) to be cost-effective and environment-friendly technology in providing electricity services and other community services to sparsely populated, remote, unserved and dispersed areas;

WHEREAS, there are various projects that have been and currently being implemented using solar PV systems to provide electricity services to sparsely populated, remote, unserved, and dispersed markets that do not give due consideration to economic efficiency, financial prudence, and institutional capacity;

WHEREAS, the DOE has established an alternative program that provides suitable framework and incentives to DUs to implement innovative service delivery mechanism for rural electrification using solar PV systems in dispersed households and communities, the brief description of which is herein attached as Annex A;

WHEREAS, to ensure the effective implementation of the solar PV projects in an integrated and sustainable manner, there is an imperative need to rationalize the determination of end-user fees and the grant of subsidies to electrification projects using solar PV systems;

NOW, THEREFORE, in consideration of the foregoing premises, the DOE hereby issues the following policies:

Section 1: Scope of Coverage.

This Circular shall apply to DOE, NEA, the Small Power Utilities Group of National Power Corporation (NPC-SPUG) and other governmental entities and DUs as part of the household intensification program.

Section 2: Definition of Terms.

As used in this Circular, the following terms shall have the following meanings:

(a) "***Benchmark Tariff***" refers to a tariff set on the basis of the expected costs of an efficient utility rather than the actual costs of any individual DU.

(b) *"**Eligible Solar Home Systems**" or "**SHS**"* refers to at least 30 Wp capacity of a Solar Home System deemed to represent electrification of a household in accordance with this Circular.

(c) "***Fee-For-Service***" refers to a fee the DU charges to the households for the use of SHS for their electric service.

(d) "***Output-Based Aid***" refers to a subsidy paid based on performance against defined, measured and audited outputs.

(e) "***Regulated SHS Tariff***" refers to a benchmark tariff approved by ERC for the supply of electricity by a DU through an eligible SHS.

(f) "***SHS Customers***" refers to households supplied through an eligible SHS.

Section 3. Guiding Principles.

The following shall guide in the implementation of SHS electrification as part of the HEDP:

(a) Supply to a household from an Eligible SHS shall be considered as electrification for purposes of determining achievement of the household electrification target under the HEDP.

(b) DUs shall adopt the use of SHS in areas where SHS is determined as the most economic means of electrification as provided for in their respective Distribution Development Plans (DDPs), and in full consideration of household electrification program of the country.

(c) For the First Year of implementing this Circular, the Eligible SHS shall be defined as a system of at least 30 Wp capacity. Thereafter, the capacity of Eligible SHS will be determined by the DOE annually.

(d) Areas to be electrified through Eligible SHS shall have been identified in Distribution Utility Development Plans (DDPs) of each DU.

(e) Households supplied through Eligible SHS shall be considered to have the same rights and responsibilities as grid-connected customers of DUs as provided for under the Magna Carta for Residential Electricity Consumers promulgated by the Energy Regulatory Commission (ERC), including, the right to become full member-consumers of that EC

(f) Ownership of the Eligible SHS shall remain with the DU, which shall have the right to remove the SHS without compensation in the event of non-payment by the household or where a replacement supply of equivalent or better quality is provided.

Section 4. Fees for Electricity Supply by SHS.

(a) All DUs providing electricity services through Eligible SHS shall collect based on a "Fee-for-Service," to be determined by the ERC where the SHS customers shall be billed a monthly tariff in accordance with the electricity service provided.

(b) In principle, the "Fee-for-Service" tariff, duly approved by the ERC, shall allow the recovery of prudent and efficient costs of the DU in providing electricity service using Eligible SHS.

(c) The fees charged by a DU shall take the form of a regulated SHS tariff, duly approved by the ERC, in recognition of the following:

i. The SHS customers of DUs are paying a fee for electricity supply and should be treated equally with the grid-connected customers supplied on the same basis;

ii. The effective monopoly of the franchised DUs to provide electricity services and supply the SHS customers through eligible SHS; and

iii. The need to provide for legal certainty over the basis on which DUs may charge a fee for electricity service by SHS.

(d) The regulated SHS tariff will be set on a benchmark basis, based on the costs of a typical DU in providing electricity supply through SHS taking into account the different costs entailed by different topography and distances.

(e) The SHS tariff will be established by an application of one or more DUs and, once approved by ERC, shall apply to all DUs conducting electricity supply through this Circular.

(f) DUs will be responsible for the procurement, installation and maintenance of the SHS including replacement of components, while SHS customers will be responsible for the replacement of appliances, such as electric lamps, that are connected to or supplied through the SHS.

Section 5. Subsidies for Electrification by SHS.

(a) Consistent with the policy set forth in the EPIRA, there shall be no cross-subsidy between SHS customers and other customers served by the DU. However, SHS customers may be considered marginalized or lifeline customers and the distribution tariff of the DU shall be determined considering SHS customers as customer block under lifeline tariff.

(b) A capital subsidy covering full or part of the initial procurement and installation costs for eligible SHS will be provided to DUs through an Output-Based Aid Facility to be established for this purpose by DOE.

(c) For the purpose of this Circular, an output-based subsidy refers to a mechanism where payment of subsidy to the DUs will be based on the actual number and the capacities of SHS installations to households in their franchise areas upon verification by a legitimate auditor to be appointed by the DOE or its representative entity.

(d) The level of the subsidy shall be determined by DOE on an annual basis and will take account of the availability of funds and affordability of electricity service provided through SHS.

Section 6. Universal Charges.

SHS customers shall be exempted from Universal Charges imposed to grid-connected customers of the franchised DUs.

Section 7. Provision of Electricity through Alternative Service Providers.

Consistent with Section 59 of the EPIRA-IRR, when a DU considers that it is unable to provide electricity service through SHS on a viable basis at the applicable regulated tariff, that area shall be opened to alternative service providers also known as Qualified Third Parties (QTP);

(a) With existing policy of the State to ensure and accelerate total electrification of the country, the selected QTP may be eligible for subsidies, subject to existing rules and regulations governing the provision of electricity services in missionary areas;

(b) The regulated SHS tariff applicable to the area may be applied as the socially acceptable regulated rate (SARR) for the purposes of establishing the necessary UC-ME subsidy.

Section 8. Other SHS Installations.

(a) DUs may provide electricity service using a SHS of greater capacity as defined under Section 3(c) of this Circular where a household prefers to be supplied by such a system.

(b) In such cases, the DU shall be entitled to charge a premium on the regulated SHS tariff reflecting the additional costs of procuring, installing, maintaining and replacing components of such larger systems. This premium shall not be regulated and subjected to approval by ERC.

(c) Households supplied through such larger systems shall be considered to be SHS customers and to be electrified by an eligible system for the purposes of this Circular.

(d) Nothing in this Circular shall be considered to constrain the rights of PV suppliers other than DUs to install, sell or otherwise supply electricity through SHS excepting that such supplies will:

i. not be subject to the regulated SHS tariff;

ii. not be eligible for capital subsidies administered by DOE as part of the household electrification program; and

iii. not be counted for the purposes of assessing achievement of the household electrification target.

Section 9. Responsibilities of ECs.

Participating ECs under the DOE's Pilot PV Mainstreaming Program accredited under the Rural Power Project, shall file whether directly or through PHILRECA or another representative organization, a petition with ERC for rule-making to establish a regulated SHS tariff within 45 days from the effectivity of this Circular.

Section 10. Repealing Clause.

All pertinent issuances, circulars and memoranda inconsistent with this Circular are hereby amended or repealed accordingly.

Section 11. Separability Clause.

If for any reason, any section or provisions of this Circular is declared unconstitutional or invalid, such parts or provisions hereof which are not affected thereby shall continue to be in full force and effect.

Section 12. Effectivity.

This Circular shall take into effect immediately following its publication in at least two (2) newspapers of general circulation and shall remain in effect until otherwise revoked.

Issued this 3rd day of July 2014 in Fort Bonifacio, Taguig City, Metro Manila.

CARLOS JERICHO L. PETILLA
Secretary

Republic of the Philippines
DEPARTMENT OF ENERGY
IN REPLYING PLS CITE:
SOE-JLP-14004328

ANNEX A

MAINSTREAMING SOLAR PV IN DISTRIBUTION UTILITIES USING THE FEE-FOR-SERVICE BUSINESS MODEL

1. INTRODUCTION

As of 30 June 2009, the country's electrification level at the barangay level[1] reached 98.03% having provided access to electricity services to some 41,155 barangays out of 41,980 potential/listed barangays in the country. In line with the Government's thrust to achieve 100% barangay electrification, the electrification of the remaining 825 unelectrified barangays will have to be completed this year.

With the likely completion of electrification at the barangay level, the Government will soon be embarking upon the achievement of its secondary target, i.e., attainment of 90% household (HH) electrification by 2017. As of 31 May 2009, within the franchise areas of 119 Electric Cooperatives (ECs), 71% of total potential HH have been provided with electricity services. This means that approximately 3.4 million HH have yet to enjoy the benefits of electricity.

Based on the study DOE commissioned in 2000, about 80% of HH in unelectrified barangays have income levels below the poverty threshold. Energy expenditures (lighting or power) account for about 6% of total household expenditures. Kerosene is the predominant lighting fuel of HH in unelectrified barangays.

To achieve 90% HH electrification level, the Government must first address the major issues and concerns in providing electricity in rural and missionary areas. One of these is the development of viable business models for the off-grid electrification of remote rural households that are too not financially viable to be connected by grid extensions.

This Concept Paper maps out a strategy to increase access to electricity services and provide adequate, efficient and reliable power supply to HHs where grid connection is not a possible or viable option.

2. THE PROPOSED SCHEME

To meet the HH expansion target, there is a need to support and build capacity of the franchised DUs to engage in off-grid electrification. For many rural households in remote locations, grid extensions are prohibitively expensive, and for many of these HH individual solar PV systems are the least-cost electrification solution. Thus, a Pilot Project for **Mainstreaming Solar PV in Distribution Utilities using the Fee-for-Service Business Model** is now being introduced and promoted by DOE through its Rural Power Project (RPP) - a collaboration between and among the DOE, World Bank (WB) and the Global Environment Facility (GEF). Distribution utilities (DUs) may be private investor-owned or electric cooperatives (ECs) or even others.

3. RATIONALE

The major aim of the Pilot Project is to support the attainment of Government's target of 90% HH electrification by 2017 by developing and verifying a viable and sustainable business model for off-grid electrification for remote HHs using individual PV systems.

[1] "Barangay Electrification" refers to: (i) for gridable areas, a barangay is considered energized/completed if the distribution line has reached the barangay proper, or at least one public facility or 50% of potential HHs are connected; (ii) for off-grid areas, a barangay is considered energized if at least 20 HHs have availed the services.

To provide conventional electricity services to the remaining unelectrified areas will require extending the 240 V AC distribution lines to reach HHs. This solution increases the DU's distribution system losses and entails huge operating costs while only serving a handful of dispersed HHs that have low levels of consumption. In such situations, the distribution utility can offer alternate supply through individual solar home systems (SHS) to the communities.

Table 1 below shows the different levels of energy output for different capacities of SHS after allowing for system losses.

Table 1. Typical Daily Energy Output for Different SHS Capacities

SHS Capacity, Wp	Daily Service Output, Wh	Monthly Service Output, kWh
25	77	2.31
50	154	4.62
75	231	6.93

The loads that can be accommodated will depend on the daily service output of the PV system. The most basic 25Wp SHS typically supports only lights and possibly a radio. Larger systems support more lights and appliances such as B&W TV, mobile phone charger and radio cassette karaoke. Table 2 shows typical loads that can be supported during a day based on SHS capacity.

Table 2. Typical Appliances and Lights Supported by SHS

SHS Capacity, Wp	Appliances and Lights									Total Wh per day
	Lights, 9W			Radio, 5W		Charger, 5W		B&W TV, 18W		
	Qty	Hrs	Wh	Hrs	Wh	Hrs	Wh	Hrs	Wh	
25	2	3	54	3	15	1	5			74
50	3	3	81	3	15	1	5	3	54	155
75	5	3	135	3	15	1	5	4	72	227

4. BUSINESS MODEL: FEE-FOR-SERVICE

In the Fee-for-Service business model, the DU invests in capital infrastructure, i.e., SHS, which are then installed in unelectrified HH within its franchised areas that are unviable for grid extension. The DU sells electricity (and not the hardware) to the HH at a fixed monthly fee.

The DU maintains the ownership of the hardware and is responsible for installation, maintenance, repair, and replacement of identified PV system components (PV module, battery, controller). The household will be responsible for the household wiring, lights (luminaires) and other 12V DC loads.

The HH pays a Participation Fee, which is a one-time payment to the DU followed by a fixed Monthly Service Fee. The HH pays as long as the service is provided and sustained. The HH never becomes the owner of the SHS. The Participation Fee paid to the DU is utilized by the DU to procure and install house wiring, lights and switches.

The fees would vary with the level of service provided, (i.e., energy output from the system). The HH has the option to decide on the level of service that suits its consumption requirements while having the capacity to pay the corresponding monthly fee, based on an agreement with the distribution utility.

As with grid extensions, the full true cost of off-grid electrification with PV technology is not affordable to most of the unelectrified HHs. A pilot project is being developed with investment and operating subsidies that will ensure that: (i) the DUs receive true full costs recovery for their off-grid PV based services, and (ii) that the PV customers pay affordable retail tariffs.