The Philippine Renewable Energy Act of 2008: Law, Policy, and Promise of Renewables in the Philippines

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> *Once enacted, this landmark legislation is expected not only to end our dependence on climate changing fossil fuels, but also help propel the Philippines towards a low carbon path of economic prosperity and genuine sustainable development.*
>
> — *Greenpeace*[1]

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1. Greenpeace, Philippines' Renewable Energy Bill Passed, *available at* http://www.pr-inside.com/philippines-renewable-energy-bill-r850601.htm (last accessed Sep. 2, 2009).

I. INTRODUCTION

After years in limbo, the Philippine Congress finally enacted Republic Act No. 9513. The passage of the Renewable Energy Act of 2008 (REA)[2] caused elation and optimism since the wait has been long and arduous. As a matter of fact, millions of dollars in investments were conditioned on the passage of the REA.[3]

From a global perspective, the REA represents the commitment of the Philippines to reduce emissions and address the issue of climate change. According to a new report from the Renewable Energy Policy Network for the 21st Century (REN21), renewable energy plays a major role in the global energy supply to meet the increasingly serious environmental and economic threats of climate change.[4] By passing the REA, the Philippines is clearly exerting efforts in climate change adaptation and mitigation. In addition, the Philippines can be seen as a hotbed for Clean Development Mechanism (CDM) Projects[5] as countries seek to comply with their commitments as the end of the first phase of the Kyoto Protocol approaches.

From a local perspective, an influx of any kind of investment means employment and development. Green investments, like those in Renewable Energy (RE), result in green jobs aside from the regular employment. Skills have to be developed for solar panel installation and windmill engineering in the same way that Filipinos have developed their own technical expertise and know-how in geothermal energy. RE will also mean development in far-flung areas wherever there may be resources. There is potential for idle lands to be utilized, and for rural areas to be totally electrified. In addition, there is also the promise of energy security and independence from oil price fluctuations.

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2. An Act Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes [Renewable Energy Act of 2008], Republic Act No. 9513, § 2 (a) (2008).

3. Renewable Energy Projects on hold, Waiting for Philippine RE Bill Passage, *available at* http://www.alternative.com/biofuel/2008/07/29/renewable-energy-projects-on-hold-waiting-for-philippine-re-bill-passage/ (last accessed Sep. 2, 2009).

4. United Nations Environment Programme, New Report Links Renewable Energy to Climate Change Solutions, *available at* http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=392&ArticleID=5140&l=en (last accessed Sep. 2, 2009).

5. Clean Development Mechanism Projects are one of the ways Annex I countries in the Kyoto Protocol can comply with their emission reduction commitments by investing in emission reducing technology and infrastructure in non-Annex I or developing countries. This will be discussed in detail in Section III (C) (2) of this Article.

Indeed, the REA is the key to actualizing the potential of Philippine natural resources. In the past, the Philippines took advantage of its geographic location in the Pacific Rim of Fire[6] by developing its use of geothermal energy. As of 2000, the Philippines narrowly trailed the United States (U.S.) in terms of installed geothermal power capacity.[7] With 90 million people, about 40% of whom live on less than two U.S. dollars a day, the Philippines has become the world's largest consumer of electricity from geothermal sources.[8] This has been attributed to consistent geothermal energy policies and incentives since the time of President Marcos.[9]

Roland Horne, the geothermal power expert from Stanford University, bluntly stated that: "The Philippines would be in hugely worse shape without geothermal as an indigenous energy source."[10] With the REA, the

6. Windows to the Universe, Pacific Rim of Fire, *available at* http://www.windows.ucar.edu/tour/link=/earth/interior/RIM_of_FIRE.html (last accessed Sep. 2, 2009).

7. MASASHI SHIBAKI, RENEWABLE ENERGY POLICY PROJECT, GEOTHERMAL ENERGY FOR ELECTRIC POWER 8 (2003). (In 2000, the Philippine geothermal energy capacity was 1,909 megawatts compared to the U.S.' 2,228 megawatts.).

8. PR Inside, Washington Post cites RP as world's largest geothermal energy user, *available at* http://www.pr-inside.com/philippines-geothermal-use-getting-global-r859311.htm (last accessed Sep. 2, 2009). (Installed capacity is distinct from actual generation and use of geothermal energy. Even if the Philippines is second to the U.S. in installed capacity, it is the largest consumer of geothermal energy.).

9. The Philippines, the world's second largest user of geothermal energy for power generation, provides an example of several incentives to attract geothermal development. They are as follows:

   (a) Recovery of operating expenses not exceeding 90% of the gross value in any year with carry forward of unrecovered cost;

   (b) Service fee of up to 40% of net proceeds;

   (c) Exemption from all taxes except income tax;

   (d) Income tax obligation paid out of government's share;

   (e) Exemption from payment of tariff duties and compensating tax on the importation of machinery, equipment, share parts, and all materials for geothermal operation;

   (f) Depreciation of capital equipment over a 10-year period;

   (g) Easy repatriation of capital equipment investment and remittance of earnings; and,

   (h) Entry of alien technical and specialized personnel (including members of immediate families.

   See SHIBAKI, *supra* note 7, at 19.

10. PR Inside, *supra* note 8.

Philippines can hopefully replicate its development of geothermal energy in other renewable energy to get into better shape. This is particularly significant since the country has huge potential for solar, wind, and other renewable energy.

Being an equatorial country, the Philippines receives sunlight and solar radiation for most of the year. Resource assessment for solar potential shows that the country has an average potential of 5.1 kilowatt-hour per square meter per day.[11] In 2005, the Philippine National Oil Company (PNOC)[12] conducted one of the largest solar power projects worldwide, continuously providing electricity to more than 2,000 households in Luzon, the largest island in the Philippines.[13]

For wind, the Philippines, being situated in the fringes of the Asia-Pacific monsoon belt, exhibits a full wind potential of 76,000 megawatts with 47 provinces having at least 50 megawatts wind potential, and 25 provinces with about 1,000 megawatts each.[14] Another study by the World Wildlife Fund (WWF) showed that the country has 1,038 wind sites that could generate about 7,404 megawatts of electricity.[15] In 2005, the Philippines commenced utilization of wind energy through the Northwind Bangui Bay Windmill Farm with the help of the Danish International Development Agency. This windmill farm is the first of its kind in Southeast Asia. [16]

For ocean and tidal wave energy, the Philippines has 1,000 square kilometers of ocean resource due to its archipelagic geography. Based on a study conducted by Mindanao State University (MSU), the potential theoretical capacity for this resource is estimated to be about 170,000

11. Philippine Delegation on the Seminar on RE Policy and Development, Building a Sustainable Energy Future for the Philippines, Hangzhou, China, Apr. 19-23 2005, *available at* http://www.inshp.org/pdf/synergy%20workshop/RPcountrypaper-final.pdf (last accessed Sep. 2, 2009).

12. The PNOC is a national government owned and controlled corporation.

13. *See* Philippine Delegation, *supra* note 11.

14. Based on a study by the U.S. Department of Energy — National Renewable Energy Laboratory. *See* Philippine Delegation, *supra* note 11.

15. Philippine Headline News Online, Giant Windmills Energize Ilocos Norte, *available at* http://www.newsflash.org/2004/02/ht/ht005546.htm (last accessed Sep. 2, 2009).

16. The NorthWind Bangui Bay Project is located in the foreshore of Bangui Bay in Ilocos Norte Province at the northern tip of Luzon, a remote part of the Luzon grid, which is plagued by expensive but unreliable power supply, mainly due to the long-distance transmission of power from various generation sources. The project consists of 15 state-of-the-art wind turbines, totaling 24.75 megawatts. Its total cost of about $35 million was almost entirely funded by the Danish International Development Agency.

megawatts. Admittedly however, there is much to learn about potential ocean tidal energy.[17]

From the foregoing, the exploration, development, and utilization of renewable energy indeed bring promise of both over-all development and energy security for the Philippines. Although the realization of this promise depends on its implementation and enforcement, the best measure other than the wait-and-see approach is to analyze the particular provisions of the REA and attempt to predict its effects.

II. PRELIMINARY OBSERVATIONS

At first glance, the REA has incorporated most, if not all, possible incentives for renewable energy as used and implemented in other countries including tax exemptions, feed-in tariffs, Renewable Portfolio Standards (RPS), and tax incentives for carbon credits. On its face, these are promising and exciting. The REA will definitely lead to the influx of green investments and development of RE.

In reality, however, the REA may be perceived as too good to be true. As in any law and policy, the REA will benefit various interests more than others. Worse, this may come at the expense of others. It is imperative that the REA's implications on the dynamics of these interests be considered to understand its actual potential.

In addition, the fact that the REA transplants mechanisms and policy instruments from other countries must be recognized. On one hand, these countries whose policies the REA seeks to emulate are industrialized and developed countries, like Germany and the U.S. The Philippines, on the other hand, is a developing country.

Developed countries may have already implemented combinations of these RE incentives but not generally to the extent and magnitude that the Philippine REA hopes to do.[18] The U.S. has historically supported renewable capacity investment through the federal tax code and through state level Renewable Portfolio Standard (RPS) programs. Europe, in contrast, has relied heavily on feed-in tariffs.[19] Clearly, it is imperative to examine these policies in the context of a developing country, like the

17. *See* Philippine Delegation, *supra* note 11.

18. *See* WILSON RICKERSON, FLORIAN BENNHOLD & JAMES BRADBURY, FEED-IN TARIFFS AND RENEWABLE ENERGY IN THE USA — A POLICY UPDATE (2008). (In the U.S., there is debate about adopting a federal Renewable Portfolio System, and there is no consensus on the use of feed-in tariffs.)

19. Gilbert E. Metcalf, Policy for Financing Alternative Energy Equipment 7 (2008) (Working Paper, Tufts Univ. Econ. Dep't.).

Philippines. There has to be a balance of learning from foreign experience while giving due consideration to peculiar local conditions.

The Philippine REA seems incongruent with the Kuznet's curve, a theory in economics which has been extended to environmental quality — beyond some basic level of development, economies shift toward services and less pollution-intensive activities.[20] Increasing income is also often associated with greater environmental awareness and demands for pollution control.[21] Yet, the Philippines, a developing country, is instituting the REA, which is reflective of great environmental awareness and demands for pollution control. Is the Philippines an anti-thesis to this theory, or is the Philippines adopting a policy for which it is not ready?

In light of these preliminary observations, this Article will first delve into the Philippine policy for renewable energy and then examine the government agency and instrumentalities tasked to implement its provisions. Direct incentives will be analyzed from the viewpoint of its intended beneficiaries — from RE developers to farmers engaged in the plantation of biomass resources. Thereafter, the dynamics of the REA in a supposedly reformed or deregulated electric power industry will be scrutinized. The study will then attempt to contextualize the REA in a developing economy like the Philippines.

In sum, this Article hopes to sketch a clearer picture of the provisions of the REA, its effects on Philippine society, and thereafter assess how the REA's law and policy would be able to fulfill its promise.

III. PHILIPPINE POLICY FOR RENEWABLE ENERGY

With volatile fuel prices in the world market, energy independence has been a primary concern of nations worldwide. Countries are seeking ways and means to tap their own energy resources to avoid dependence on oil imported from members of the Organization of Petroleum Exporting Countries (OPEC)[22] or other oil producing countries. The OPEC has been orchestrating oil production of their member countries to command higher prices for their commodity. Clearly, there is a need to minimize the country's exposure to price fluctuations in the international markets, the effects of which spiral down to almost all sectors of the economy.[23]

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20. Also known as the "composition effect."

21. Alan Miller, *International Trade and Development, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 280 (Michael B. Gerrard ed., 2008).

22. Doaa Abdel Motaal, *The Biofuels Landscape: Is There a Role for the WTO?* 42(1) J. WORLD TRADE 61, 63 (2008). (OPEC controls 70% of the world's proven oil reserves and 43% of production.).

23. Renewable Energy Act of 2008, § 2 (a).

The Philippine government's agenda on energy independence is anchored on two major policy directions: (1) the need to increase indigenous oil and gas reserves; and (2) the aggressive development of the country's renewable energy potential.[24]

On 10 October 2008, President Gloria Macapagal-Arroyo announced that the Philippines is expected to draw 17,000 to 20,000 barrels of oil per day or six percent of the country's daily local demand.[25] This was in addition to the natural gas already produced by the Malampaya Power Project.[26] Considering the energy needs of the Philippines, production of these traditional fossil fuels is clearly insufficient. For energy independence, the Philippines has to explore, develop, and utilize its other natural resources, particularly through RE.

As an aggressive move to promote RE development and use, the Department of Energy (DOE) has identified long-term goals, namely, to (i) increase RE-based capacity by 100% by 2013; and (ii) increase non-power contribution of RE to the energy mix by 10 million barrels of fuel oil equivalent in the next 10 years.[27] Accordingly, the REA makes the renewable energy sector a priority investment sector that will regularly form part of the country's Investment Priority Plan.[28]

Although the Philippines has capitalized and developed geothermal energy, its renewable energy potential has been largely unexplored, undeveloped and underutilized. Thus, the REA seeks to actualize this potential by attracting investments with the following policies and framework for sustainable development:

> (a) Institutionalization of the development of national and local capabilities in the use of renewable energy systems by establishing the necessary infrastructure and mechanisms;
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> (b) Promotion of its efficient and cost-effective commercial application by providing fiscal and non-fiscal incentives; and

24. Philippine Delegation, *supra* note 11.

25. Arroyo Sees Increase in RP's Energy Independence, *available at* http://www.sunstar.com.ph/static/man/2008/10/11/news/arroyo.sees.increase.in.rp.s.energy.independence.html (last accessed Sep. 2, 2009).

26. *See* Department of Energy (DOE), Natural Gas, *available at* http://www.doe.gov.ph/ER/Natgas.htm (last accessed Sep. 2, 2009).

27. Department of Energy, Renewable Energy, *available at* http://www.doe.gov.ph/ER/Renenergy.htm (last accessed Sep. 2, 2009).

28. Renewable Energy Act of 2008, § 21, ¶ 3.

(c) Effective prevention or reduction of harmful emissions to balance the goals of economic growth and development with the protection of health and the environment.[29]

These policies will be the compass and general guidelines for government entities in the interpretation and execution of the REA, as well as the adjudication thereof.

IV. PHILIPPINE RENEWABLE ENERGY REGULATION

In institutionalizing the development of renewable energy systems, an indispensable requirement is the designation of a government entity responsible for implementing, overseeing, and enforcing the law. This is particularly important because "all forces of potential energy" are owned by the State.[30]

The phrase "all forces of potential energy" necessarily includes renewable energy resources like solar and wind. Thus, their exploration, development, and utilization must be under the full supervision and control of the State through the Philippine government. Government can explore, utilize, and develop renewable sources of energy either directly, or it may enter into agreements with Filipino citizens, corporations or associations, which are at least 60% Filipino-owned. Foreign investors can participate up to 40% in equity, or via financial and technical assistance agreements or

29. Renewable Energy Act of 2008, § 2 (b)-(d).

30. PHIL. CONST. art. XII, § 2. The provision reads:

> All lands of the public domain, waters, minerals, coal, petroleum, and other mineral oils, *all forces of potential energy*, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources are *owned by the State*. With the exception of agricultural lands, all other natural resources shall not be alienated. The exploration, development, and utilization of natural resources shall be under the full control and supervision of the State. The State may directly undertake such activities, or it may enter into co-production, joint venture, or production-sharing agreements with *Filipino citizens*, or *corporations or associations at least sixty percentum of whose capital is owned by such citizens*. Such agreements may be for a period not exceeding twenty-five years, renewable for not more than twenty-five years, and under such terms and conditions as may be provided by law. In cases of water rights for irrigation, water supply fisheries, or industrial uses other than the development of water power, beneficial use may be the measure and limit of the grant (emphasis supplied).

service contracts.[31] The REA is the legislative instrument by which this constitutional provision is being implemented.

The REA designates the DOE as its lead agency.[32] Thus, the DOE is tasked to promulgate the Implementing Rules and Regulations (IRR) for

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31. *See* La Bugal B'laan Tribal Ass'n v. Ramos, 421 SCRA 148, 445 SCRA 1 (2004). *See also* Didipio Earth-Savers' Multi Purpose Ass'n, Inc. v. Gozun, 485 SCRA 586 (2006).

In both cases, petitioners sought to nullify the Philippine Mining Act of 1995, and one of the grounds was that Article XII, § 2 of the 1987 Constitution "bars aliens and foreign-owned corporations from entering into any direct arrangement with the government including those which involve co-production, joint venture or production sharing agreements." Moreover, the constitution allows "financial or technical assistance agreements" only and prohibits foreign management and operation of a mining enterprise.

In rejecting the petitioners' contention, the Philippine Supreme Court categorically stated that foreign corporations are not precluded from foreign management and operation of a mining enterprise. In explaining that the 1987 Constitution does not prohibit service contracts with foreign entities, the Philippine Supreme Court stated:

> All mineral resources are owned by the State. Their exploration, development and utilization (EDU) must always be subject to the full control and supervision of the State. More specifically, given the inadequacy of Filipino capital and technology in large-scale EDU activities, the State may secure the help of foreign companies in all relevant matters — especially financial and technical assistance — provided that, at all times, the State maintains its right of full control. The foreign assistor or contractor assumes all financial, technical and entrepreneurial risks in the EDU activities; hence, it may be given reasonable management, operational, marketing, audit, and other prerogatives to protect its investments and to enable the business to succeed.
>
> Full control is not anathematic to day-to-day management by the contractor, provided that the State retains the power to direct overall strategy; and to set aside, reverse, or modify plans and actions of the contractor. The idea of full control is similar to that which is exercised by the board of directors of a private corporation: the performance of managerial, operational, financial, marketing, and other functions may be delegated to subordinate officers or given to contractual entities, but the board retains full residual control of the business.

Id. La Bugal B'laan Tribal Ass'n, 445 SCRA at 3.

This doctrine in mining can be extended to sources of renewable energy because these are also natural resources, and "all forces of potential energy" are part of the enumeration, along with mineral resources, in Article XII § 2 of the 1987 Constitution.

32. Renewable Energy Act of 2008, § 5.

the REA in consultation with the Senate and House Committees on Energy, relevant government agencies and RE stakeholders.[33]

Considering the various interests and sectors in renewable energy, an interagency and multi-sectoral entity is constituted: the National Renewable Energy Board (NREB).[34] Members of the NREB include a Chairman, presumably the DOE Secretary, and a representative from each of the following: Department of Energy (DOE),[35] Department of Trade and Industry (DTI),[36] Department of Finance (DOF),[37] Department of Environment and Natural Resources (DENR),[38] National Power Corporation (NPC)[39] National Transmission Company or its successors-in-interest,[40] PNOC,[41] Philippine Electric Market Corporation (PEMC),[42] RE developers, Government Financial Institutions (GFIs), private distribution utilities, electric cooperatives, electricity suppliers, and non-governmental organizations.

The respective Department Secretaries designate the representatives from their respective government agencies and institutions such as above mentioned on a permanent basis. Representatives from other sectors must be duly endorsed by their respective industry associations before being

33. *Id.* § 33.

34. *Id.* § 27.

35. Department of Energy (DOE) refers to the government agency created pursuant to Republic Act No. 7638 whose functions are expanded in the Electric Power Industry Reform Act of 2001 (EPIRA) and the REA.

36. Department of Trade and Industry (DTI) refers to the government agency created pursuant to Executive Order No. 133.

37. Department of Finance (DOF) refers to the government agency created pursuant to Executive Order No. 127, as amended.

38. Department of Environment and Natural Resources (DENR) refers to the government entity created pursuant to Executive Order No. 192.

39. National Power Corporation or NAPOCOR (NPC) refers to the government owned and controlled corporation created pursuant to Commonwealth Act No. 12, as amended.

40. National Transmission Company (TRANSCO), or its successors-in-interest refers to the entity that took over the transmission function of the NPC under the EPIRA.

41. Philippine National Oil Company (PNOC) refers to the government-owned and controlled corporation created pursuant to Presidential Decree No. 334 in November 9, 1973.

42. Philippine Electric Market Corporation (PEMC) refers to the entity created by the DOE pursuant to Section 30 of the EPIRA.

appointed by the President of the Republic of the Philippines.[43] The NREB has the following powers and functions:

> (a) Evaluate and recommend to the DOE the mandated RPS and minimum RE generation capacities in off-grid areas, as it deems appropriate;
>
> (b) Recommend specific actions to facilitate the implementation of the National Renewable Energy Program (NREP) to be executed by the DOE and other appropriate agencies of government and to ensure that there shall be no overlapping and redundant functions within the national government departments and agencies concerned;
>
> (c) Monitor and review the implementation of the NREP, including compliance with the RPS and minimum RE generation capacities in off-grid areas;
>
> (d) Oversee and monitor the utilization of the Renewable Energy Trust Fund created by the REA and administered by the DOE; and,
>
> (e) Perform such other functions, as may be necessary, to attain the objectives of the REA.[44]

Since the NREB is merely coordinative, it needs a secretariat which will maintain and manage its day-to-day operations. Renewable Energy Management Bureau (REMB) is the "work horse" agency for RE, which replaces the existing Renewable Energy Management Division of the Energy Utilization Management Bureau of the DOE. Under the REA, more importance and focus is directed to RE since an entire bureau handles RE rather than a mere division of a bureau.[45]

According to the REA, the DOE Secretary primarily determines the REMB organization and staffing.[46] When duly constituted, it directly reports to the Office of the Secretary or the Undersecretary of the DOE on matters pertaining to the activities of the NREB.[47] The REMB has the following powers and functions:

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43. Renewable Energy Act of 2008, § 27.

44. *Id.* Some actions by the DOE under the REA, like the registration of local RE dealers, must be in consultation with the DoF, Department of Science and Technology (DOST) and the DTI. *See* Renewable Energy Act of 2008, § 21. Note, however, that the DOST is not part of the NREB.

45. Department of Energy, Establishment and Operationalization of the Renewable Energy Management Bureau (REMB), Department Order No. 2009-07-10 (July 14, 2009).

46. Renewable Energy Act of 2008, § 32.

47. *Id.* § 27.

(a) Implement policies, plans and programs related to the accelerated development, transformation, utilization and commercialization of renewable energy resources and technologies;

(b) Develop and maintain a centralized, comprehensive and unified data and information base on renewable energy resources to ensure the efficient evaluation, analysis, and dissemination of data and information on renewable energy resources, development, utilization, demand, and technology application;

(c) Promote the commercialization/application of renewable energy resources including new and emerging technologies for efficient and economical transformation, conversion, processing, marketing, and distribution to end users;

(d) Conduct technical research, socio-economic and environmental impact studies of renewable energy projects for the development of sustainable renewable energy systems;

(e) Supervise and monitor activities of government and private companies and entities on renewable energy resources development and utilization to ensure compliance with existing rules, regulations, guidelines, and standards;

(f) Provide information, consultation and technical training, and advisory services to developers, practitioners and entities involved in renewable energy technology and develop renewable energy technology development strategies; and,

(g) Perform other functions that may be necessary for the effective implementation of the REA and the accelerated development and utilization of the renewable energy resources in the country.[48]

Although RE is environment-friendly, it also has environmental impacts and effects, which include wildlife protection. Thus, all renewable energy exploration, development, utilization, and RE system operations are subject to existing environmental regulations prescribed by the DENR and/or any other concerned government agency.[49] RE developers must secure an Environmental Compliance Certificate (ECC) from the DENR regional office where their project is located.

As can be seen, the monitoring and regulation of the RE sector are primarily entrusted to the DOE as the lead agency, while various sectors and other government agencies affected by RE participate through their representative in the NREB, which is then logistically supported by the REMB.

48. *Id.* § 27.

49. *Id.* § 14.

Note that requirements of other government agencies still apply. Thus, the ECC from the DENR is still mandatory.[50] Moreover, since RE is a priority investment sector, participants and industry players also have to be registered with the Board of Investments (BOI) to avail of the benefits under the Omnibus Investments Code of 1987.[51] In this light, the DOE is tasked to make an administrative arrangement with the BOI to simplify and facilitate registration of these qualified RE facilities. The simplified procedure for registration must be integrated in the REA's IRR.[52]

All these agencies are then subject to the oversight powers of Congress through the Joint Congressional Power Commission (JCPC).[53] Accordingly, the JCPC will review the REA's incentives and enact appropriate legislation to ensure full development of the country's RE resources based on the yearly report by the NREB. This annual report should indicate the progress of RE development in the country including the benefits and impact within the context of energy security and climate change imperatives.[54]

A. Government Share

Since the sources of renewable energy are "forces of potential energy" and belong to the State, those who explore, develop, and utilize them must pay royalties in the form of government share, computed as follows:

> (a) For Geothermal energy — one-and-a-half percent of gross income.
>
> (b) For all other renewable energy — one percent of gross income.[55]

Gross income includes all income realized by RE developers through the sale of renewable energy produced and such other income incidental to and arising from the renewable energy generation, transmission, and sale of electric power. Note, however, that there is no government share in "micro-scale projects for communal purposes and non-commercial operations, which are not greater than 100 kilowatts."[56]

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50. *Id.* § 26.

51. Office of the President, The Omnibus Investments Act of 1987, Executive Order No. 226 (July 16, 1987).

52. *See* Renewable Energy Act of 2008, § 21.

53. *See* An Act Ordaining Reforms in the Electric Power Industry, Amending for the Purpose Certain Laws and for Other Purposes [EPIRA], Republic Act No. 9136, § 62 (2001).

54. Renewable Energy Act of 2008, § 24.

55. *Id.* §13.

56. *Id.* § 13, ¶ 2.

Any government share collected is then divided between the national government and the local government unit.[57] A portion likewise accrues to the Renewable Energy Trust Fund (RETF).

B. Renewable Energy Trust Fund

The REA also established the RETF to enhance the exploration, development, and utilization of renewable energy. Its funds are expected from:

> (a) Proceeds from the emission fees collected from all generating facilities consistent with the Philippine Clean Air Act of 1999 (Republic Act No. 8749);
>
> (b) One-and-a-half percent of the net annual income of the Philippine Charity Sweepstakes Office (PCSO);
>
> (c) One-and-a-half percent of the net annual income of the Philippine Amusement and Gaming Corporation (PAGCOR);
>
> (d) One-and-a-half percent of the net annual dividends remitted to the National Treasury of the Philippine National Oil Company and its subsidiaries;
>
> (e) Contributions, grants, and donations. All contributions, grants, and donations made to the RETF are tax deductible subject to the provisions of the National Internal Revenue Code (NIRC);
>
> (f) One-and-a-half percent of the proceeds of the Government share collected from the development and use of indigenous non-renewable energy resources;
>
> (g) Any revenue generated from the utilization of the RETF; and,
>
> (h) Proceeds from the fines and penalties imposed under the REA. [58]

When established, the RETF will be administered by the DOE as a special account in any of the Government Financial Institutions (GFIs), such as the Land Bank of the Philippines or the Development Bank of the Philippines. It has the following purposes:

> (a) Finance the research, development, demonstration, and promotion of the widespread and productive use of RE systems for power and non-power applications, as well as to provide funding for research and development institutions engaged in renewable energy studies undertaken jointly through public-private sector partnership, including provision for scholarship and fellowship for energy studies;

57. *See* Renewable Energy Act of 2008, §§ 4 (t) and 4 (aa).

58. *Id.* § 28, ¶ 2.

(b) Support the development and operation of new RE resources to improve their competitiveness in the market. In any event, this would be done in a competitive and transparent manner;

(c) Conduct nationwide resource and market assessment studies for the power and non-power applications of renewable energy systems;

(d) Propagate RE knowledge by accrediting, tapping, training, and providing benefits to institutions, entities and organizations which can extend the promotion and dissemination of RE benefits to the national and local levels; and,

(e) Fund such other activities necessary or incidental to the attainment of the objectives of the REA.[59]

The RETF can be used through grants, loans, equity investments, loan guarantees, insurance, counterpart fund, or such other financial arrangements as may be necessary to attain the REA's objectives. As far as practicable, these would be done in a competitive and transparent manner.[60]

C. Possible Overregulation and Circuitry

The survey of administrative structures for RE reveals the possibility of overregulation and redundancy in government agency functions. RE investments will have to deal with at least 10 different government agencies. Although most of these agencies participate through the NREB, an investor may be discouraged by voluminous requirements for registration with the REMB, procurement of the ECC from the DENR, and registration with the BOI. All these requirements must be streamlined for efficiency and convenience without sacrificing the necessary safeguards.

Aside from possible overregulation, there is also the possibility of circuitry. To illustrate, the DENR administers the ECC requirement and serves as the Designated National Authority (DNA)[61] for the Clean Development Mechanism (CDM) under the Kyoto Protocol. The DNA approves the CDM project and certifies that it is consistent with a country's program of sustainable development. This is a requirement for a project to be recognized under the CDM and earn carbon credits. If different offices or bureaus of the DENR handle these concerns, an RE investor may have to transact with the DENR twice when these requirements could have been integrated in one process.

59. Renewable Energy Act of 2008, § 28, ¶ 1.

60. *Id.* § 28, ¶ 3.

61. Renewable Energy and Energy Efficiency Partnership (REEEP) and Clean Energy Council, Regional Export Opportunities for Australia's Clean Energy Industry, *available at* http://www.cleanenergycouncil.org.au/info/reports/ExportReport-080604.pdf (last accessed July 31, 2009).

Another possible issue is whether or not the Securities Regulation Code[62] covers the Renewable Energy Certificates (RECs) under the RPS and carbon credits under the Kyoto Protocol since these can be publicly traded. Although it is highly unlikely and unwise for them to be considered as securities, it is imperative to clarify this issue to remove any uncertainty. Otherwise, the Securities and Exchange Commission (SEC), another government entity, may also have to intervene in RE development to ensure the integrity of RECs and carbon credits as tradable securities.

While it is good policy to protect RE sources as part of national patrimony, the Philippines must not be overzealous or inefficient so as to discourage investors. A balance is necessary to regulate efficiently without sacrificing the necessary safeguards. At the very least, the government's left hand must know what its right hand is doing. After all, RE exploration, development, and utilization redound to the benefit of the Filipino people.

V. HOW THE REA ENCOURAGES RE DEVELOPMENT

Investors rely on business plans which indicate risks and benefits. To attract investments, risks must be minimized and prospects for profits maximized. Accordingly, the REA provides fiscal and non-fiscal incentives to encourage investment. Fiscal incentives include tax holidays, credits, and preferences. On the other hand, non-fiscal incentives include preferential treatment in transmission.

In sum, the REA has two ways of attracting RE investments: 1) giving direct incentives to RE developers and industry players; and 2) increasing the viability of RE vis-à-vis traditional energy. Aside from direct and business incentives, the REA also instituted the RPS and gave special treatment to carbon credits. The RPS and carbon credits are market instruments or mechanisms, which promote RE through relatively self-regulating market forces.

A. Direct Incentives

The exploration, development, and utilization RE is capital intensive. Although their operation may be minimal due to the absence of fuel costs, large initial capital is necessary for technology, and equipment.

Given this reality in RE business, the REA mandates GFIs like the Development Bank of the Philippines, Land Bank of the Philippines, and the Phil-Exim Bank to provide preferential financial packages for RE projects.[63] Aside from preferential financial packages, tax rebates for an appropriate period will be formulated by the DOF for all or part of the tax paid for the

62. The Securities Regulation Code, Republic Act No. 8799 (2000).

63. Renewable Energy Act of 2008, § 29.

purchase of RE equipment for residential, industrial, or community use.[64] In addition to these general incentives, the REA tailor-made benefits for particular industry players or participants go to RE developers, local manufacturers, fabricators and suppliers of locally-produced RE equipment, farmers engaged in the plantation of biomass resources, LGUs, and consumers.[65]

RE developers and local RE equipment dealers must register with the DOE through the REMB to qualify for these incentives.[66] The details on the incentives given to each industry player are discussed *in seriatim.*

1. RE developers

RE developers are individuals or a group of individuals formed in accordance with existing Philippine laws engaged in the exploration, development, and utilization of RE resources, including actual operation of RE systems or facilities. Those who develop, utilize, and operate hybrid systems can also be considered as RE developers but only to the extent of the RE component for both power and non-power applications.[67]

As certified by the DOE, in consultation with the Board of Investments, RE developers are entitled to the following incentives:

(a) Income Tax Holiday (ITH) for seven years[68] compared to only four or six years of ITH previously available under the Omnibus Investment Code of 1987;[69]

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64. *Id.* § 23.

65. Renewable Energy Act of 2008, § 21.

66. *Id.* § 25. The REMB is enjoined to issue the corresponding certification 15 days upon request.

67. *See* Renewable Energy Act of 2008, § 4 (hh) and (nn). The section reads:

"Power applications" refer to renewable energy systems or facilities that produce electricity

"Non-power applications" refer to renewable energy systems or facilities that produce mechanical energy, combustible products such as methane gas, or forms of useful thermal energy such as heat or steam, that are not used for electricity generation, but for applications such as, but not limited to, industrial/commercial cooling, and fuel for cooking and transport.

68. *See* Renewable Energy Act of 2008, § 15 (a). The section provides:

Income Tax Holiday (ITH) — For the first seven (7) years of its commercial operations, the duly registered RE developer shall be exempt from income taxes levied by the national government.

Additional investments in the project shall be entitled to additional income tax exemption on the income attributable to the investment: *Provided,* That the discovery and development of new RE resource shall be treated as a new

(b) Corporate income tax of 10% after the lapse of the seven year ITH.[70] This is much lower compared to the regular 35% corporate income tax under the NIRC;

(c) Duty-free importation of RE machinery, equipment, and materials that are directly and actually needed and used exclusively for RE for 10 years;[71]

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investment and shall therefore be entitled to a fresh package of incentives: *Provided, further,* That the entitlement period for additional investments shall not be more than three (3) times the period of the initial availment of the ITH.

69. Omnibus Investments Act of 1987, art. 39 (a).

70. Renewable Energy Act of 2008, § 15 (e). The section provides:

> *Corporate Tax Rate* — After seven years of income tax holiday, all RE developers shall pay a corporate tax of 10% on its net taxable income as defined in the National Internal Revenue Act of 1997, as amended by Republic Act No. 9337. *Provided,* That the RE Developer shall pass on the savings to the end-users in the form of lower power rates.

71. *See* Renewable Energy Act of 2008, § 15, (b). The section provides:

> *Duty-free Importation of RE Machinery, Equipment and Materials* — Within the first ten (10) years upon the issuance of a certification of an RE developer, the importation of machinery and equipment, and materials and parts thereof, including control and communication equipment, shall not be subject to tariff duties: *Provided, however,* That the said machinery, equipment, materials and parts are directly and actually needed and used exclusively in the RE facilities for transformation into energy and delivery of energy to the point of use and covered by shipping documents in the name of the duly registered operator to whom the shipment will be directly delivered by customs authorities: *Provided, further,* That endorsement of the DOE is obtained before the importation of such machinery, equipment, materials and parts is made.
>
> Endorsement of the DOE must be secured before any sale, transfer or disposition of the imported capital equipment, machinery or spare parts is made: *Provided,* That if such sale, transfer or disposition is made within the ten (10) -year period from the date of importation, any of the following conditions must be present:
>
> (i) If made to another RE developer enjoying tax and duty exemption on imported capital equipment;
>
> (ii) If made to a non-RE developer, upon payment of any taxes and duties due on the net book value of the capital equipment to be sold;
>
> (iii) Exportation of the used capital equipment, machinery, spare parts or source documents or those required for RE development; and,
>
> (iv) For reasons of proven technical obsolescence.
>
> When the aforementioned sale, transfer or disposition is made under any of the conditions provided for in the foregoing paragraphs after ten

(d) Special Realty Tax Rate of one-and-a-half percent on Equipment and Machinery;[72]

(e) Net Operating Loss Carry-Over (NOLCO) for the first three years of operation can be carried over seven years.[73] For regular enterprises NOLCO can be carried over for only three years;[74]

(f) When the RE Developer does not avail of the ITH, it can avail of accelerated depreciation as much as twice the regular rate;[75]

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(10) years from the date of importation, the sale, transfer or disposition shall no longer be subject to the payment of taxes and duties.

72. Renewable Energy Act of 2008, § 15, (c). The section provides:

> *Special Realty Tax Rates on Equipment and Machinery.* — Any law to the contrary notwithstanding, realty and other taxes on civil works, equipment, machinery, and other improvements of a Registered RE Developer actually and exclusively used for RE facilities shall not exceed one-and-a-half percent (1.5%) of their original cost less accumulated normal depreciation or net book value: *Provided*, That in case of an integrated resource development and generation facility as provided under Republic Act No. 9136, the real property tax shall only be imposed on the power plant;

73. Renewable Energy Act of 2008, § 15 (d). The section provides:

> *Net Operating Loss Carry-Over (NOLCO).* — The NOLCO of the RE Developer during the first three (3) years from the start of commercial operation which had not been previously offset as deduction from gross income shall be carried over as a deduction from gross income for the next seven (7) consecutive taxable years immediately following the year of such loss: *Provided, however,* That operating loss resulting from the availment of incentives provided for in this Act shall not be entitled to NOLCO;

74. An Act Amending The National Internal Revenue Code, as Amended, and for Other Purposes [NATIONAL INTERNAL REVENUE CODE], Republic Act No. 8424, § 34 (D) (3) (1997).

75. Renewable Energy Act of 2008, § 15 (f). The section provides:

> *Accelerated Depreciation.* — If, and only if, an RE project fails to receive an ITH before full operation, it may apply for Accelerated Depreciation in its tax books and be taxed based on such: *Provided*, That if it applies for Accelerated Depreciation, the project or its expansions shall no longer be eligible for an ITH. Accelerated depreciation of plant, machinery, and equipment that are reasonably needed and actually used for the exploration, development and utilization of RE resources may be depreciated using a rate not exceeding twice the rate which would have been used had the annual allowance been computed in accordance with the rules and regulations prescribed by the Secretary of the Department of Finance and the provisions of the National Internal Revenue Code (NIRC) of 1997, as

(g) Zero percent Value-Added Tax Rate for the sale of fuel or power generated from renewable sources of energy;[76]

(h) Cash Incentive of Renewable Energy Developers for Missionary Electrification;[77] and,

(i) 100% Tax Credit on Domestic Capital Equipment and Services.[78]

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amended. Any of the following methods of accelerated depreciation may be adopted:

(a) Declining balance method; and,

(b) Sum-of-the-years digit method.

76. Renewable Energy Act of 2008, § 15 (g). The section provides:

Zero Percent Value-Added Tax Rate. — The sale of fuel or power generated from renewable sources of energy such as, but not limited to, biomass, solar, wind, hydropower, geothermal, ocean energy, and other emerging energy sources using technologies such as fuel cells and hydrogen fuels, shall be subject to zero percent value-added tax (VAT), pursuant to the National Internal Revenue Code (NIRC) of 1997, as amended by Republic Act No. 9337.

All RE developers shall be entitled to zero-rated value added tax on its purchases of local supply of goods, properties and services needed for the development, construction and installation of its plant facilities.

This provision shall also apply to the whole process of exploring and developing renewable energy sources up to its conversion into power, including but not limited to the services performed by subcontractors and/or contractors.

77. *Id.* § 15 (h). The section provides:

Cash Incentive of Renewable Energy Developers for Missionary Electrification. — A renewable energy developer, established after the effectivity of this Act, shall be entitled to a cash generation-based incentive per kilowatt hour rate generated, equivalent to fifty percent (50%) of the universal charge for power needed to service missionary areas where it operates the same, to be chargeable against the universal charge for missionary electrification;

78. *Id.* § 15 (j). The section provides:

Tax Credit on Domestic Capital Equipment and Services. — A tax credit equivalent to one hundred percent (100%) of the value of the value-added tax and custom duties that would have been paid on the RE machinery, equipment, materials and parts had these items been imported shall be given to an RE operating contract holder who purchases machinery, equipment, materials, and parts from a domestic manufacturer for purposes set forth in this Act: *Provided,* That prior approval by the DOE was obtained by the local manufacturer: *Provided, further,* That the acquisition of such machinery, equipment, materials, and parts shall be made within the validity of the RE operating contract.

2. Local RE Equipment Dealers

Since the REA seeks to enhance national and local capacities for RE, it also fosters an industry for producing RE equipment. This contemplates factories and dealers for windmill components, photovoltaic cells, and other similar equipments. Apparently, the incentives and benefits for local RE dealers are not restricted to whether their products are sold locally or abroad, opening huge potential for export of RE equipments.

To illustrate the significance of the REA on locally produced RE equipment, consider the Sunpower Solar Wafer Fabrication Plant, established at the Laguna Technopark, Sta. Rosa, Laguna in 2004. It was a $300-million investment to manufacture high-efficiency photovoltaic panels with the potential of supplying six percent of the world's total market for photovoltaic panels.[79] The facility, however, was in a special export processing zone such that local sale would be subject to importation customs and duties.

Prior to the REA, there was an ironic situation of "importing" photovoltaic panels produced within the country. Payment of customs and duties added to the cost of generating solar energy, reducing its feasibility as an alternative to traditional fossil fuels. The REA's tax exemption on the importation of RE equipment, like solar panels has apparently remedied this skew in policy. In sum, these are all the incentives for Local RE Equipment Dealers:

(a) Tax and duty-free importation of components, parts, and materials, subject to several conditions.[80]

(b) Tax credit on domestic capital components, parts, and materials equivalent to 100% of the amount of displaced value added tax and custom duties.[81]

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79. Phillippine Delegation, *supra* note 11.

80. Renewable Energy Act of 2008, § 21 (a). The section provides:

> *Tax and Duty-free Importation of Components, Parts and Materials*. — All shipments necessary for the manufacture and/or fabrication of RE equipment and components shall be exempted from importation tariff and duties and value added tax: *Provided, however,* That the said components, parts and materials are: (i) not manufactured domestically in reasonable quantity and quality at competitive prices; (ii) directly and actually needed and shall be used exclusively in the manufacture/fabrication of RE equipment; and (iii) covered by shipping documents in the name of the duly registered manufacturer/fabricator to whom the shipment will be directly delivered by customs authorities: *Provided, further,* That prior approval of the DOE was obtained before the importation of such components, parts and materials.

(c) Income tax holiday and exemption for seven years.[82]

(d) Zero-rated value added tax transactions with local suppliers of goods, properties, and services.[83]

Note how, in terms of importation, there is preference to locally or domestically produced equipment for manufacturing, fabricating, and supplying RE equipment. On the other hand, there is no such preference to the RE machinery, equipment, and materials themselves.[84] This is recognition of how RE equipment (such as windmills) can be highly technical and specialized compared to equipment for manufacturing or fabricating them (machine press for fabricating windmill blades), which can easily be used for non-RE purposes. Moreover, RE developers are given better incentives because they have a more immediate and direct participation in the exploration, development, and utilization of RE than the local RE equipment dealers.

3. Biomass Farmers

81. Renewable Energy Act of 2008, § 21 (b). The section provides:

> *Tax Credit on Domestic Capital Components, Parts and Materials*. — A tax credit equivalent to one hundred percent (100%) of the amount of the value-added tax and custom duties that would have been paid on the components, parts and materials had these items been imported shall be given to an RE equipment manufacturer, fabricator, and supplier duly recognized and accredited by the DOE who purchases RE components, parts and materials from a domestic manufacturer: *Provided,* That such components, and parts are directly needed and shall be used exclusively by the RE manufacturer, fabricator and supplier for the manufacture, fabrication and sale of the RE equipment: *Provided, further,* That prior approval by the DOE was obtained by the local manufacturer.

82. *Id.* § 21 (c). The section provides:

> *Income Tax Holiday and Exemption*. — For seven (7) years starting from the date of recognition/accreditation, an RE manufacturer, fabricator and supplier of RE equipment shall be fully exempt from income taxes levied by the National Government on net income derived only from the sale of RE equipment, machinery, parts and services;

83. *Id.* § 21 (d). The section provides:

> *Zero-rated value added tax transactions*. — All manufacturers, fabricators and suppliers of locally produced renewable energy equipment shall be subject to zero-rated value added tax on its transactions with local suppliers of goods, properties and services.

84. *Compare* , Renewable Energy Act of 2008, § 15 (b), *with* Renewable Energy Act of 2008, § 21 (a).

Biofuels are said to be a good opportunity for investment and income generation for tropical developing countries.[85] The Philippines is capitalizing on this by enacting the Biofuels Act of 2006,[86] which is in turn supplemented by the REA.

Under the REA, farmers engaged in the plantation of biomass resources are entitled to duty-free importation and exemption from the value added tax (VAT) or sales tax on all agricultural inputs, equipment, and machinery.[87] A sugarcane farmer can now import tractors to till his land without paying tariffs and customs duties. He can also buy fertilizers VAT-free.

Note that there is no requirement in Section 22 of the REA that the produce of the farmers be actually sold and used as biomass resources. The only requirement is that the individual or entity be "engaged in the plantation of crops and trees used as biomass resources such as but not limited to jatropha, coconut, and sugarcane, as certified by the Department of Energy."[88]

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85. Motaal, *supra* note 22.

86. An Act To Direct The Use Of Biofuels, Establishing For This Purpose The Biofuel Program, Appropriating Funds Therefor, And For Other Purposes [Biofuels Act of 2006], Republic Act No. 9367, § 6 (2006). The section provides:

> *Incentive Scheme.* — To encourage investments in the production, distribution and use of locally-produced biofuels at and above the minimum mandated blends, and without prejudice to enjoying applicable incentives and benefits under existing laws, rules and regulations, the following additional incentives are hereby provided under this Act.
>
> a) Specific tax
>
> The specific tax on local or imported biofuels component, per liter of volume shall be zero. The gasoline and diesel fuel component shall remain subject to the prevailing specific tax rates.
>
> b) Value Added Tax
>
> The sale of raw material used in the production of biofuels such as, but not limited to, coconut, jatropha, sugarcane, cassava, corn, and sweet sorghum shall be exempt from the value added tax.

87. *See* Renewable Energy Act of 2008, § 22. (Agricultural inputs, equipment, and machinery include, but not limited to, fertilizer, insecticide, pesticide, tractor, trailers, trucks, farm implements and machinery, harvesters, threshers, hybrid seeds, genetic materials, sprayers, packaging machinery and materials, bulkhandling facilities, such as conveyors and mini-loaders, weighing scales, harvesting equipment, and spare parts of all agricultural equipment.).

88. *Id.* The section provides:

> *Incentives for Farmers Engaged in the Plantation of Biomass Resources.* — For a period of ten (10) years after the effectivity of this Act, all

From the plain text of Section 22[89] and Section 4 (b)[90] of the REA, this incentive does not apply to producers of corn, soya beans, and rice because these are excluded from the definition of biomass resources. The REA may just be responding to most life cycle study findings that replacing gasoline ethanol modestly reduces greenhouse gases if made from corn and substantially if made from cellulose or sugarcane.[91]

Perhaps the exclusion is also intended to address the controversy of "food v. fuel" — in which adequate food supplies could be threatened by biofuel production to the extent that land, water, and other productive resources get diverted from food production.[92] In effect, the REA is discouraging the use of corn, soya beans, and rice as biomass energy resources. This is particularly important because rice and corn are staples in the Filipino diet.

> individuals and entities engaged in the plantation of crops and trees used as biomass resources such as but not limited to jatropha, coconut, and sugarcane, as certified by the Department of Energy, shall be entitled to duty-free importation and be exempted from Value-Added Tax (VAT) on all types of agricultural inputs, equipment and machinery such as, but not limited to, fertilizer, insecticide, pesticide, tractor, trailers, trucks, farm implements and machinery, harvesters, threshers, hybrid seeds, genetic materials, sprayers, packaging machinery and materials, bulkhandling facilities, such as conveyors and mini-loaders, weighing scales, harvesting equipment, and spare parts of all agricultural equipment.

89. *Id.*

90. *Id.* § 4 (b). The section provides:

> "Biomass resources" refer to non-fossilized, biodegradable organic material originating from naturally occurring or cultured plants, animals and micro-organisms, including agricultural products, by-products and residues such as, but not limited to, *biofuels except corn, soya beans and rice* but including sugarcane and coconut, rice hulls, rice straws, coconut husks and shells, corn cobs, corn stovers, bagasse, biodegradable organic fractions of industrial and municipal wastes that can be used in bioconversion process and other processes, as well as gases and liquids recovered from the decomposition and/or extraction of non-fossilized and biodegradable organic materials. (emphasis supplied)

91. Timothy Searchinger & Ralph Heimlich, Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change, *available at* http://www.whrc.org/resources/published_literature/pdf/SearchingeretalScience08.pdf (last accessed Sep. 2, 2009).

92. United Nations Commission on Sustainable Development, Sustainable Energy: A Framework for Decision-Makers, *available at* http://www.un.org/News/briefings/docs/2007/070508_Energy.doc.htm (last accessed Sep. 2, 2009).

In low-income countries such as the Philippines, rising prices for staple foods can lead to cutbacks in consumption and endanger food security.[93] For example, Mexico experienced riots following a nearly 30% price increase for tortillas, the country's dietary staple. Similarly, the Chinese government recently called for a pause in its planned ethanol plant expansion due to impacts on food security.[94]

However, excluding rice, soybeans, and corn from production subsidies and incentives has unintended adverse effects. Without tax exemptions, producing rice, soybeans, and corn will not be as cost-effective as producing biomass energy crops. In a profit-driven market, farmers may switch crops to qualify for the incentives. Thus, the REA is actually sacrificing food sources for the sake of energy by making crops for biofuel energy more cost-effective and attractive.

A promising source of biofuels, however, is *malunggay,* or *moringa oleifera,* whose leaves are used for traditional Filipino dishes. Recently, they discovered that its seeds are a potential source of biofuel. Its promise lies in the fact that it can produce biofuels without necessarily displacing food. A Philippine biotech company is currently exploring and developing *Malunggay* as an energy source, which may require at least 500,000 hectares of agricultural land.[95]

A major cause for concern is the issue of whether or not biomass resources, more particularly biofuels are actually environmentally friendly. Although biofuels may sequester carbon growth through the growth of feedstock or crops like sugarcane, studies have shown that this carbon benefit is offset by carbon emission from conversion of land use. Deforestation and conversion of grasslands and other lands for cropping biofuels entails carbon emission by decay and burning. For biofuels to be truly environmentally friendly, there must be a system where biofuels use feedstock on carbon poor lands that will not trigger large carbon emissions from land use change.[96]

It is most respectfully submitted that Philippine policy on promoting biomass resources should not be overbroad as it is written in the Biofuels Act[97] and the REA. Due consideration must be made on its implications on

93. *See* Motaal, *supra* note 22.

94. Antoaneta Bezlova, Biofuels Eat Into China's Food Stocks, *available at* http://www.atimes.com/atimes/China_Business/HL21Cb03.html (last accessed Sep. 2, 2009).

95. Biolife News Service, Malunggay Eyed as Potential Biofuel Source, *available at* http://www.pinoypress.net/2008/01/23/Malunggay-eyed-as-potential-biofuel-source/ (last accessed Sep. 2, 2009).

96. *See* Searchinger & Heimlich, *supra* note 91.

97. Biofuels Act of 2006, § 6.

food security. There should also be specific characterization of lands permissible for biomass resource cropping so as to mitigate carbon emissions caused by land use conversions.

4. Local Government Units (LGUs) and RE Host Communities

The REA also provides incentives to RE host communities and their Local Government Units (LGUs) in order to obviate any objection to the siting or location of renewable energy projects.[98] LGUs are entitled to a portion of government share, and RE host communities are entitled to an energy subsidy.

As previously mentioned, government share is either one-and-a-half percent of gross income for geothermal energy resources, or one percent of gross income for all other RE.[99] LGUs are entitled to 40%[100] of the government share collected from RE projects within their locality.

If a government agency or government-owned or controlled corporation (GOCC) directly utilizes and develops these resources, LGUs are given the higher of the following: a) one percent of gross sales or receipts; or b) 40% of the taxes, fees, or charges which the government agency or GOCC would have paid if it were not exempt.

98. In the U.S., there is resistance to siting of renewable energy projects because they are considered eyesores and consequently lower real estate value. This is the Not-In-My-Backyard attitude referring to people who are in favor of green projects, only if these are not done in their backyard. *See* Brit T. Brown & Benjamin A. Escobar, *Windpower: Generating Electricity and Lawsuits*, 28 Energy L.J. 489 (2007); *But see* Bitagun, Winds of Change, *available at* http://www.philippinebusiness.com.ph/archives/magazine/vol12-2005/126/policy.htm (last accessed Aug. 1, 2009). (Where the Bangui Bay Windmill Farm Project has become a tourist attraction in the Philippines.).

99. Renewable Energy Act of 2008, § 13.

100. An Act Providing for a Local Government Code of 1991 [LOCAL GOVERNMENT CODE], Republic Act No. 7160, § 290 (1991). This section provides:

> Amount of Share of Local Government Units. — Local government units shall, in addition to the internal revenue allotment, have a share of forty percent (40%) of the gross collection derived by the national government from the preceding fiscal year from mining taxes, royalties, forestry and fishery charges, and such other taxes, fees, or charges, including related surcharges, interests, or fines, and from its share in any co-production, joint venture or production sharing agreement in the utilization and development of the national wealth within their territorial jurisdiction.

Under the Local Government Code of 1991,[101] if the RE resource is located in a province, the proceeds of the LGUs' share is then divided between the province, component city or municipality, and the *barangay*. If RE resources are located in highly urbanized or independent component city, the proceeds are shared by the city and the *barangay* where the RE resources are found. [102]

Of the entire proceeds the LGUs receive, 80%[103] must be used to subsidize electricity consumption of end-users in the host community or community where the RE project is located. These communities, however, cannot consume more than one hundred (100) kWh. This subsidy may be made through rebates or refunds determined by the DOE, DOF, and ERC, in coordination with the NREB.[104]

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101. *See* LOCAL GOVERNMENT CODE, § 292.

102. LOCAL GOVERNMENT CODE, § 292. This section provides:

> Allocation of Shares. — The share in the preceding Section shall be distributed in the following manner:
>
> (a) Where the natural resources are located in the province
>
> (1) Province — 20;
>
> (2) Component city/municipality — 45%; and,
>
> (3) *Barangay* — 35% Provided, however, That where the natural resources are located in two or more provinces, or in two or more component cities or municipalities or in two or more *barangay*s, their respective shares shall be computed on the basis of:
>
> (1) Population — 70%; and
>
> (2) Land area — 30%.
>
> *Barangay*s are village-like local communities within a city or municipality. They have their own, executive (*Barangay* Captain) and legislative bodies (*Barangay* Council).
>
> (b) Where the natural resources are located in a highly urbanized or independent component city:
>
> (1) City — 65%; and
>
> (2) *Barangay* — 35% Provided, however, That where the natural resources are located in such two or more cities, the allocation of shares shall be based on the formula on population and land area as specified in paragraph (a) of this Section.

103. Renewable Energy Act of 2008, § 4 (aa). This section provides:

> "Local government share" refers to the amount due the LGUs from the exploitation, development and utilization of naturally-occurring renewable energy resources;

104. *Id.* § 31. This section provides:

> *Incentives for RE Host Communities/LGUs.* — 80% of the share from royalty and/or government share of RE host communities/LGUs from

The REA merely implements Section 7 of Article X of the 1987 Philippine Constitution[105] by giving LGUs an equitable share in the proceeds and utilization of RE resources, which are part of the national wealth within their respective areas. Direct benefits are likewise given to members of the communities through energy subsidies.

A potential problem in this area is the mechanism for implementation and distribution of the government share between the national government and LGUs. This was an issue in mining as LGUs waited to receive their full share under the Philippine Mining Act of 1995.[106]

5. Consumers or End-users

Prior to the REA, consumers participate on a take-it-or-leave-it basis, and their energy options were based only on their location. They did not really have any choice. Under the REA, end-consumers now have the Green Energy Option. Likewise, they can viably generate their own electricity and become distributed generators.

a. Green Energy Option

The REA allows consumers or end-users to avail of a Green Energy Option as they may be willing to pay more just to ensure they use RE.[107] This attitude can be attributed to senses other than plain economics and cost consciousness.

> RE projects and activities shall be used directly to subsidize the electricity consumption of end users in the RE host communities/LGUs whose monthly consumption do not exceed 100 kwh. The subsidy may be in the form of rebates, refunds and/or any other forms as may be determined by DOE, DOF and ERC, in coordination with NREB.
>
> The DOE, DOF and ERC, in coordination with the NREB and in consultation with the distribution utilities shall promulgate the mechanisms to implement this provision within six months from the effectivity of this Act (emphasis supplied).

105. PHIL. CONST. art. X, § 7. This section provides:

> Local governments shall be entitled to an equitable share in the proceeds of the utilization and development of the national wealth within their respective areas, in the manner provided by law, including sharing the same with the inhabitants by way of direct benefits.

106. *See* An Act Instituting a New System of Mineral Resources Exploration, Development, Utilization, and Conservation [Philippine Mining Act of 1995], Republic Act No. 7942 (1995).

107. *See, e.g.* Energy Challenge: Five Green Energy Option, *available at* http://frugal-life.spaces.live.com/blog/cns!74E2ED49D47DDB89!2565.entry (last accessed Sep. 2, 2009).

By experience, RE has been more expensive than energy generated by fossil fuels.[108] Even if renewable energy production has minimal fuel cost and low operating costs, its huge initial investment keeps it expensive.[109] Although RE may optimistically be cheaper in the future through technological innovation and RE incentives and subsidies, recent fluctuations in oil prices make it unpredictable to determine whether RE will be cheaper in the next 10 years. Nevertheless, some consumers may still insist on electricity from RE sources regardless of costs.

Green is in. For some, it maybe a marketing strategy,[110] while for others being green gives them the altruistic feeling of preserving the environment for the betterment of mankind. On the other hand, consumers who take the Green Energy Option may also realize that energy from fossil fuels are more expensive than RE when externalities like global warming, pollution, and negative health impacts are internalized in cost computations.

To satisfy green desires, REA tasks the DOE to implement the Green Energy Option program. For technical viability, TRANSCO, distribution utilities,[111] Philippine Electric Market Corporation (PEMC), and all relevant parties are mandated to provide necessary mechanisms for physical connection and commercial arrangements to ensure the success of the Green Energy Option program. With due consideration to technical viability, end users may then directly contract their energy requirements from RE facilities.[112]

An issue will be the availability of this program to small end-users. Considering costs and expenses for infrastructure and arranging connections between RE facilities and end-users, this may be feasible only for large consumers since energy is paid for by the kilowatt-hour.

A solution would be to combine the energy requirements of small end-users to approximate that of a large consumer. Small end-users, usually an

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108. *See* Roberta Mann, Subsidies, *Tax Policy, and Technological Innovation, in* CLIMATE CHANGE AND US LAW 582 (Michael B. Gerrard ed., 2008).

109. *See* Alan Miller, *International Trade and Development, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 288 (Michael B. Gerrard ed., 2008). (Renewable energy systems are almost entirely capital cost, as once put into operation they have no fuel cost (except biomass systems) and minimal maintenance costs.).

110. Purple Romero, Beware of Green Marketing, Warns Green Peace Exec, *available at* http://www.abs-cbnnews.com/special-report/09/16/08/beware-green-marketing-warns-greenpeace-exec (last accessed Sep. 2, 2009).

111. Distribution Utility refers to any electric cooperative, private corporation, government-owned utility, or existing local government unit, which has an exclusive franchise to operate a distribution system in accordance with its franchise and EPIRA.

112. *See* Renewable Energy Act of 2008, § 9.

entire neighborhood, aggregate their energy requirements through an aggregator, which then contracts with an RE facility.[113] This way, the Green Energy Option program is economically feasible for both small end-users and RE facilities.

b. Distributed Generation and Net Metering

Aside from giving green options to consumers and end-users, REA makes it economically practicable for end-users to generate their own electricity and even contribute electricity to the grid. They can become distributed generators.

Distributed generation refers to a system of small generation entities, not exceeding 100 kilowatts capacity, supplying directly to the distribution grid.[114] Commercial, industrial, and residential consumers can become distributed generators by setting up small-scale RE systems to satisfy their own electricity requirements, and even feed excess electricity they produce to the grid.

The interaction between the distributed generators and the grid is practicable and economically feasible by net metering.[115] Net Metering refers to a system, appropriate for distributed generation, in which a distribution grid user has a two-way connection to the grid. A distributed generator is charged only for his net electricity consumption, while he is credited for any overall contribution to the electricity grid.[116] There is an offsetting of electricity consumed with the electricity produced by the installed RE system. Without net metering, a distributed generator has no incentive to maximize energy generation as the excess electricity he produces will only be dissipated.

The electricity generated by distributed generators is entitled to Renewable Energy Certificates (RECs) since it is RE. The ownership of these RECs belong to the distribution utility[117] to encourage them to enter into net-metering agreements with qualified end-users. The distribution utility involved can then use this REC to comply with its requirements in the RPS. The RECs under the RPS will be discussed in more detail as the study goes into the market-based mechanisms under the REA.

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113. CLIMATE PROTECTION CAMPAIGN, LOCAL ACTIONS TO ADDRESS CLIMATE CHANGE 19 (2005).

114. *Id.* § 4 (j).

115. *Id.* § 10.

116. *Id.* § 4 (gg).

117. *Id.* § 10, ¶ 3. (It is submitted that this is an exception to the general rule that RECs are owned by owner of the RE system because it is an incident or accessory of RE output, and an accessory merely follows the principal.).

As in the Green Energy Option, TRANSCO, distribution utilities, Philippine Electric Market Corporation (PEMC), and all relevant parties are mandated to provide the mechanisms for the physical connection and commercial arrangements consistent with the Grid and Distribution Codes to ensure technical viability and success of net-metering.[118] Likewise, the ERC is tasked to establish net metering interconnection standards, pricing methodology, and other necessary commercial arrangements.[119] Certainly, coordinating supply and demand, as well as determining base and peak loads, will be a trickier balancing act once distributed generation and net metering is fully implemented.

i. Disincentives in Distributed Generation

In terms of energy efficiency, the traditional ratemaking processes result in a number of disincentives for utility investment, among them, (1) loss of net revenues from sales, (2) the foregoing of other profit-making activities, and (3) regulatory restrictions on how utilities can recover program expense dollars.[120] These discourage utilities, such as MERALCO, from investing and supporting in distributed generation.

These disincentives also extend to distributed generation. With regard to item (1), end-users or ratepayers may opt to become distributed generators and thereby deprive utilities of their revenue and income. This is particularly true where good ratepayers decide to become distributed generators.

As regards items (2) and (3), distributed generation would mean that since some customers may already be self-sufficient and produce their own electricity, utilities will have fewer customers to pass the burden of costs of operations and infrastructures. By entering into net metering agreements with many distributed generators, they incur larger transaction costs compared to executing supply contracts with fewer but larger power producers. The time, effort, and resources for net metering agreements could have been used for other profit-making activities.

In addition, regulatory restrictions limit recovery of program expense dollars to the rate base determined by costs and reasonable rate of return of investment, regardless of the number of those benefited. Effectively, this will raise the amount each customer (who is not a distributed generator) will pay. Lesser ratepayers, who have to pay more, may lessen chances of recovery of

118. *Id.* § 10, ¶ 4.

119. *Id.* § 10, ¶ 2.

120. U.S. Department of Energy, The Potential Benefits Of Distributed Generation And Rate-Related Issues That May Impede Their Expansion — A Study Pursuant To § 1817 Of The Energy Policy Act Of 2005, 8-9 (2007), *available at* http://www.ferc.gov/legal/fed-sta/exp-study.pdf (last accessed Sep. 2, 2009).

costs and return of investments for utilities, thus causing such disincentive on their part.

ii. Uneconomic Bypass

Uneconomic Bypass occurs when an end-consumer or ratepayer decides to become a distributed generator, and thereby cause other ratepayers to pay more.[121]

Cost of electricity is borne by ratepayers in proportion to their energy requirement. Thus, if one ratepayer decides to produce his own electricity, his share of the burden will have to be distributed to other ratepayers who remained pure consumers. This bypass is uneconomic for both the utility, which will have less customers, and the remaining end-consumers or ratepayers (non-distributed generators) who may have to pay more.

To illustrate, suppose that electricity for 50 households costs ₱100,000 per month. This means that each household will bear an average burden of ₱2,000. Suppose that 100 of these households decide to become distributed generators and generate their own electricity, only 400 ratepayers remain to share the ₱100,000 cost of monthly electricity, which remains substantially the same because of fixed costs. With 100 deciding to become distributed generators, the average cost of electricity rises from ₱2,000 to ₱2,500.

This shift in prices may be a reward for going green and utilizing RE. However, in a country where the minimum wage in most urban areas is around ₱362 or less than eight U.S. dollars per day,[122] it is likely that the remaining ratepayers have no actual choice considering the huge capital costs of an RE system. In the end, the marginalized sector of society may be left to bear more costs. Theoretically, however, the overall costs of energy should go down in the long run with the absence of fuel costs, low operating costs, and recovery of the initial capital costs.

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121. *See* Congressional Budget Office, Prospects for Distributed Electric Generation, *available at* http://www.cbo.gov/doc.cfm?index=4552&type=0 (last accessed Sep. 2, 2009).

122. Department of Labor and Employment (DOLE), Manpower Resources, *available at* http://www.gov.ph/index.P?option=com_content&task=view&id=2000304&Itemid=41 (last accessed Sep. 2, 2009).

> Poverty incidence in the Philippines ranks among the highest in Southeast Asia. In data collected from 1990 to 2002 and presented in the United Nations Human Development Report, the Philippines, which then had 36.8% of its population living under its national poverty line, had a poverty incidence rate higher than Indonesia's, which was at 27.1%; India's, which was at 28.6%; and Cambodia's, which was at 36.1%. *See* http://hdr.undp.org/en/statistics/ (last accessed Aug. 1, 2009).

Another consequence of uneconomic bypass is the erosion of economies of scale. Considering the enormous capital requirements for energy generation, power generation benefits from investing and operating in economies of scale because this lowers costs.[123] Certainly, pooling a community's resources to establish a power plant with a larger capacity for their common use is definitely more cost-effective as a whole than when each member of the community sets up his or her own power system. Distributed generation is anathema to economies of scale since it encourages self-generation with their own private investments rather than contribution to general expenses. Distributed generators may benefit from lower electric bills, but the entire community, including the distributed generators, incurs more costs and expenses as a whole.

B. Improving Renewable Energy Viability

Attracting investments in RE is not limited to convincing investors to put money in the RE industry. It is also necessary to show investors that their money is in a viable going concern. Thus, the REA gives preferential treatment to RE vis-à-vis energy from traditional sources making it worthwhile for investors, not only to enter the RE industry but also to continue doing business therein.

1. Feed-in Tariffs

Feed-in tariffs represent the reward given to RE developers through premium rates per kilowatt-hour over a definite period of time. Interestingly, the REA does not explicitly define feed-in tariffs. Given the technical nature of this incentive, this is probably intended to give leeway to the ERC and the NREB in formulating its mechanics, which may vary from system to system in various countries.

Feed-in tariffs have become a term of art referring to the style of incentives adopted most notably by Germany to increase the adoption of renewable energy resources. Under the German feed-in tariff legislation, RE technologies are guaranteed interconnection with the electricity grid, and are paid a premium rate that is designed to generate reasonable profit for investors over a 20-year term. The rates are differentiated by technology such that each renewable resource type (e.g. solar, wind, biomass, etc.) can profitably be developed.[124] The German feed-in tariff has caused explosive

123. *See* RUSTY HAYNES, SYSTEMATIC SUPPORT FOR RENEWABLE ENERGY IN THE UNITED STATES AND BEYOND: A SELECTION OF POLICY OPTIONS AND RECOMMENDATIONS 2 (2004). Haynes states: "economies of scale largely have not yet been achieved to lower cost of renewable energy systems and equipment significantly." This clearly shows the relationship of economies of scale and cost in the energy industry.

124. RICKERSON, ET AL., *supra* note 18 at 3.

renewable energy market growth during the past decade. Germany more than doubled its national supply of renewable electricity between 2000 and 2007, and met its 2010 target of 12.5% renewable electricity three years ahead of schedule.[125] Now, Germany is a world leader in photovoltaic systems and wind energy.

To illustrate, feed-in tariff premiums are similar to the price premium given to organic fruits and vegetables, which are more expensive compared to regular produce. Similar to RE, organic farm products are perceived to be green resulting from environment friendly farming practices. Likewise, they are relatively more expensive and difficult to produce compared to regular fruits and vegetables. Despite this difficulty and expense, some farmers decide to grow organic because of their higher prices in the market. Feed-in tariffs hope to have the same effect for RE by ensuring that RE developers get paid more per kilowatt compared to energy generated by fossil fuels. This rate premium, however, usually decreases over time as more RE is generated to give incentive for early RE users.

In the Philippines, RE developers are guaranteed interconnection with the grid, as they are in Germany. However, the terms and conditions of the feed-in tariff mechanism will still have to be established by the ERC.[126] Although the ERC has leeway in formulating feed-in tariff rules, the following are indispensable:

> (a) Priority connections to the grid for electricity generated from emerging renewable energy resources such as wind, solar, ocean, run-of-river hydropower and biomass power plants within the territory of the Philippines;
>
> (b) The priority purchase and transmission of, and payment for, RE electricity by the grid system operators;
>
> (c) Determine the fixed tariff to be paid to electricity produced from each type of emerging renewable energy and the mandated number of years for the application of these rates, which shall not be less than 12 years; and,
>
> (d) The feed-in tariff to be set shall be applied to the emerging renewable energy to be used in compliance with the renewable portfolio standard as provided for in this Act and in accordance with the RPS rules that will be established by the DOE.[127]

These increase the viability of RE because renewable system owners and operators will not only be compensated for the electricity they produce; they

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125. *Id.*

126. Within one year from the effectivity of the REA in consultation with the NREB.

127. Renewable Energy Act of 2008, § 7.

will also be rewarded for the fact that their electricity is RE through a premium rate higher than those for conventional energy.

As mentioned, feed-in tariffs have been the policy of Germany, which propelled them to become the top renewable energy producer. But Germany is a wealthy country, whose ratepayers have capacity for that kind of subsidy. On the other hand, the Philippines is cash-strapped and poverty-ridden. How will REA's feed-in tariffs be supported and funded?

The REA is not explicit as to how the feed-in tariffs will be paid for. By practice, however, feed-in tariffs are built in the rate base. As of late 2006, feed-in tariffs in various EU countries offer either: a) a set price for electricity generated by the facility over a given number of years; or b) a premium over the market price. Rates are typically set so that the total payment under the premium system (the market price plus premium) exceeds the fixed tariff payment.[128] The price resulting from the premium system, which is definitely more expensive, will ultimately be passed to end-consumers as part of the rate base.

As can be seen, feed-in tariffs are another burden ratepayers will have to endure to support the RE industry. Although this may be a necessary evil for the time being, there should be measures to eliminate ratepayer subsidies and make RE self-sustaining.

2. Procurement of Environmental Compliance Certificate (ECC)

The REA allows RE developers to secure ECCs from the regional office of the DENR regardless of the provision in the Local Government Code of 1991. An ECC is a certification by the DENR–Environmental Management Bureau (DENR-EMB) that the project proponent has complied with all the requirements of the Environmental Impact Statement System[129] and has committed to implement its approved Environmental Management Plan.

By virtue of the ECC, RE developers undertake full responsibility over implementation of specified measures, which are necessary to comply with existing environmental regulations and operate within best environmental practices within the entire duration of the project, including any possibility of abandonment. It also guides other government agencies and LGUs in

128. Metcalf, *supra* note 19.

129. Establishing An Environmental Impact Statement System Including Other Environmental Management Related Measures And For Other Purposes, Presidential Decree No. 1586 (1978). *See also* World Bank Philippines, The Philippine Environmental Impact Statement System: Framework, Implementation, Performance and Challenges, *available at* http://www-wds.worldbank.org/servlet/main?menuPK=64187510&pagePK=64193027&piPK=64187937&theSitePK=523679&entityID=000020953_20080204103908 (last accessed Sep. 2, 2009).

policy determination through the Environmental Impact Assessment (EIA).[130]

Under the Local Government Code,[131] provincial local government units have the duty and function of enforcing environmental laws as part of devolution of executive powers. This means that as a general rule provincial LGUs have participation in the issuance of an ECC.

The REA, as a special and later law, exempts RE developers from dealing with the LGU by allowing them to secure ECCs from corresponding regional offices of the DENR.[132] This streamlines the governmental requirements and permits for RE developers, and minimizes their exposure to possible corruption. Besides, RE Systems are presumably environmental friendly, and should have minimal environmental impacts so permitting requirements may not be as stringent as regular projects.

3. Exemption from the Universal Charge

A universal charge is a non-bypassable charge, which shall be passed on and collected from all end-users on a monthly basis by the distribution utilities over and above the actual cost of generation, transmission and distribution.[133] The collections are placed in a special trust fund administered by the Power Sector Assets and Liabilities Management Corporation for the following purposes:

> (a) Payment for the stranded debts[134] in excess of the amount assumed by the National Government and stranded contract costs[135] of NPC as well as qualified stranded contract costs of

130. *See* Department of Environment and Natural Resources, Environmental Compliance Certificate (ECC), *available at* http://202.57.47.172/index.P?option=com_content&task=view&id=56&Itemid=55&limit=1&limitstart=0 (last accessed Sep. 2, 2009).

131. LOCAL GOVERNMENT CODE, § 17 (b) (3) (iii).

132. Renewable Energy Act of 2008, § 16.

133. EPIRA, § 34.

134. "Stranded Debts of NPC" refer to any unpaid financial obligations of NPC, which have not been liquidated by the proceeds from the sales and privatization of NPC assets. *See* Electric Power Industry Reform Act, § 4 (vv). The NPC incurred debts to finance its generation and transmission infrastructure and function. Unfortunately, it was unable to pay its obligations. To allow for more borrowings, the Philippine government has assumed a portion of this stranded debt.

135. "Stranded Contract Costs of the NPC or distribution utility" refer to the excess of the contracted cost of electricity under eligible contracts over the actual selling price of the contracted energy output of such contracts in the market. Such contracts shall have been approved by the ERB as of December 31, 2000. *See* EPIRA, § 4 (uu).

distribution utilities resulting from the restructuring of the industry;

(b) Missionary electrification;[136]

(c) The equalization of the taxes and royalties applied to indigenous or renewable sources of energy vis-à-vis imported energy fuels;

(d) An environmental charge equivalent to one-fourth of one centavo per kilowatt-hour (₱0.0025/kWh), which shall accrue to an environmental fund to be used solely for watershed rehabilitation and management. Said fund shall be managed by NPC under existing arrangements; and,

(e) A charge to account for all forms of cross-subsidies for a period not exceeding three years.[137]

In *Gerochi v. Department of Energy*,[138] the Philippine Supreme Court upheld the constitutionality of the Universal Charge under Section 34 of the EPIRA, which is levied upon end-consumers or ratepayers. Petitioners therein assailed the Universal Charge on two grounds: a) the Universal Charge is actually a tax, which is legislative in nature, and not a mere regulatory measure within the authority of the ERC; and b) Section 34 of the EPIRA is an undue delegation of power to the ERC.

The Philippine Supreme Court held that the Universal Charge is not a tax but an exaction in the exercise of police power "to ensure the viability of the electric power industry," since it was for specific purposes rather than general public purposes. In any case, taxing power may be used as an implement of police power, making reference to the validity of the similar measures in establishing the Oil Price Stabilization Fund, and the Sugar Stabilization Fund.

On the second issue, the Philippine Supreme Court held that there was no undue delegation because Section 34 of the EPIRA was complete and had sufficient standards. The ERC did not have any discretion, and would only enforce the law, because the Universal Charge will be calculated based on stranded debts and stranded contract costs of the National Power Corporation (NAPOCOR). The EPIRA's standards for delegating the exaction of the Universal Charge to the ERC were "to ensure the total

136. Missionary Electrification refers to electrification of unviable areas, which are isolated from the grid. *See* In the Matter of the Petition for Availments from the Universal Charge the Share for Missionary Electrification, ERC Case No. 2003-424, Mar. 9, 2006.

137. Energy Regulation Commission, Primer on Universal Charge, *available at* http://www.erc.gov.ph/pdf/848_universal%20charge.pdf (last accessed Sep. 2, 2009).

138. Gerochi v. Department of Energy, 527 SCRA 696 (2008).

electrification of the country and the quality, reliability, security and affordability of the supply of electric power" and "watershed rehabilitation and management."[139]

The REA exempts electricity from renewable energy systems from the Universal Charge.[140] This means that the Universal Charge will not be added to the electric bill of certain consumers who are using renewable energy systems. Note, however, that the exemption from the Universal Charge is limited to the following renewable energy:

(a) RE used for the generator's own consumption; and/or

(b) RE for free distribution in off-grid areas.

Thus, if Mr. Gerochi and his co-petitioners were generators of renewable energy, they could not be levied a Universal Charge on electricity they generate for their own use and/or for free distribution to off-grid areas. Likewise, they would not have had standing to assail the Universal Charge as they have done.

One would think, however, whether the exemption from the Universal Charge is an incentive or a mere incident of the nature of RE systems pertained to considering its limited and narrow coverage. RE for the generator's own consumption, and RE for free-distribution in off-grid areas have nothing to do with the grid, and thus, arguably do not use any infrastructure established through the stranded debt and contract costs of the NAPOCOR. The same reasoning applies to cross subsidies. Why should they share the burden of these costs, which do not benefit them anyway?

These types of RE systems should also not be levied Universal Charge for Missionary Electrification purposes because these systems, more particularly those producing RE for free distribution in off-grid areas, are already engaged in Missionary Electrification. As for rehabilitation and management of watersheds, RE systems are presumably environmental friendly so they may be exempted from paying Universal Charge for this purpose.

There may be confusion that the exemption from Universal Charges was made to offset feed-in tariffs in the rate base. This is not the case because the exemption is limited to RE systems, which do not contribute electricity to the grid. RE used for the generator's own consumption and RE for free

139. *See* EPIRA, § 2 (a) and (b).

140. Renewable Energy Act of 2008, § 17. This section provides:

> *Exemption from the Universal Charge.* — Power and electricity generated through the RES for the generator's own consumption and/or for free distribution in the off-grid areas shall be exempted from the payment of the universal charge provided for under Section 34 of Republic Act No. 9136.

distribution in off-grid areas are not entitled to feed-in tariffs because they are not fed in the grid, and are not paid for by ratepayers.

In terms of practicability, there would certainly be logistical difficulties in monitoring and exacting Universal Charges on RE, which do not actually come into the grid. If these were not exempted, the amount of Universal Charge collected may not justify the costs of monitoring and determining how much Universal Charges are due.

4. Treatment of an Intermittent RE Resource

Renewable energy sources are already given priority connections to the grid, and priority in the purchase, transmission, and payment for the electricity they produce.[141] However, the sources of RE have differences by their nature and characteristics, particularly in the aspect of intermittency.

Intermittency has been one of the major criticisms for sources of renewable energy, particularly solar and wind energy. Intermittent RE sources such as wind and solar present special economic challenges for transmission investment because they do not efficiently use transmission investment at all times.[142]

By definition, an RE generating unit with intermittent RE resources refers to a RE generating unit or group of units connected to a common connection point whose RE energy resource is location-specific. Likewise, it is naturally difficult to precisely predict the availability of such RE energy resource thereby making the energy generated variable, unpredictable, and irregular.[143]

This is caused by the fact that availability of the RE resource is inherently uncontrollable.[144] Solar energy is generated only if there is daylight,[145] while windmills generate power only when wind is blowing.

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141. *Id.* § 7 (a) and (b).

142. Statement by Mr. Herbaert Hayden, Solar Technology Coordinator for the Arizona Public Service (APS) as quoted in Report on H.R. 2774 — The Solar Energy Research and Advancement Act of 2007, *available at* http://frwebgate.access.gpo.gov/cgibin/getdoc.cgi?dbname=110_cong_reports&docid=f:hr303.110.pdf (last accessed Aug. 2, 2009).

143. *Id.* § 20, ¶ 2.

144. *Id.*

145. This type of solar energy must be distinguished from concentrated solar power which use moving lenses or mirrors to track the sun and focus its light on high efficiency silicon or multi junction solar cells. This produces heat, which is then used to boil water, and the produced steam then pushes turbines which generate electricity. These systems are more stable and cost-effective on a massive scale than the distributed solar energy. *See* Worldwatch Institute, American Energy: The Renewable Path to Energy Security, *available at* http://

The typical run-of-river hydro, and ocean and tidal energy[146] also depend on weather and current patterns. On the other hand, Geothermal and Biomass Resources Energy Plants, as well as hydroelectric dams, are not intermittent because their sources of energy are relatively stable. Geothermal areas generate heat and steam regardless of the weather, while power plants running on biomass resources operate similar to traditional fossil fuels, except that instead of fossil fuels, biomass resources are used. For hydroelectric dams, energy production continues as long as water levels are stable.

In addressing the issues of intermittency, the REA gives RE access to existing transmission facilities, and provides them preferential treatment in terms of paying transmission charges, and use of the transmission grid.

a. Payment of Transmission Charges

Transmission charges refer to the regulated cost or charges for the use of a transmission system, which may include the availment of ancillary services.[147] The correct formulation of transmission charges for RE Systems is necessary and indispensable to its viability and successful operation. An example is the experience of the Northwind Bangui Bay Windmill farm.

After three months of successful operation during which the windmill farm sold electricity to consumers of the Ilocos province at a rate seven percent lower than prevailing power rates, its viability was severely threatened by an ERC ruling to re-bundle transmission charges. This effectively increased Northwind's transmission cost from an average of U.S. $7,700 a month to U.S. $110,000 a month, which would have doomed the project in less than six months. Fortunately, the ERC ruling for re-bundling was reversed with help from the World Wildlife Fund, Philippines, and the University of the Philippines — National Engineering Center (UP-NEC).[148]

As can be seen, transmission charges is one of the major issues in a deregulated electric power industry,[149] referring to the way the charge of

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www.nrel.gov/csp/pdfs/american_energy_pg30_desertsolar.pdf (last accessed Sep. 2, 2009). (Unfortunately, these systems are only viable in desert areas, and therefore have no application to the Philippines, a tropical country.).

146. *See* OCS AEAUPEIS, Alternative Energy and Alternate Use Guide, *available at* http://www.ocsenergy.anl.gov/guide/index.cfm (last accessed Sep. 2, 2009).

147. EPIRA, § 4 (vv).

148. World Wildlife Fund Philippines, Wendy the Windmill saved by WWF Philippines, *available at* http://www.panda.org/about_wwf/where_we_work/asia_pacific/where/philippines/news/index.cfm?uNewsID=58600 (last accessed Sep. 2, 2009).

149. Lawrence Jenkins, et al., Transmission Charges of Power Contracts Based on Relative Electrical Distances in Open Access, *available at* http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V30-4BHV

transmission services is satisfactorily allocated among all involved partners, taking into account as accurately as possible, the real impact of every transaction on the transmission system.[150] It is reasonably foreseen that many of these partners will be RE developers and distributed generators because of the REA.

In general, Transmission Charge rates must be filed and approved by the ERC.[151] The REA specifically gives a RE Developer producing power and electricity from an intermittent RE resource the option of paying transmission and wheeling charges of TRANSCO or its successors-in-interest on a per kilowatt-hour basis at a cost equivalent to the average per kilowatt-hour rate of all other electricity transmitted through the grid. Thus, RE developers of intermittent RE sources can choose between the Transmission Charges as approved by the ERC or as provided by Section 18 of the REA,[152] whichever maybe more cost-effective. This flexibility, along with the growing experience of the ERC in dealing with intermittent RE sources, should improve the economic viability of RE systems in terms of transmission charge formulation.

b. Use of Transmission Grid — "Must dispatch"

The value of energy or electricity produced is in its use. An RE developer's megawatt is useless if it does not reach ratepayers who will pay them for generation costs plus reasonable rate of return on investment. Thus, to encourage investments in RE, it is essential that RE developers be assured that the energy they produce is delivered and consumed by ratepayers. This becomes more complicated when the energy subject for transmission is intermittent because proper timing is essential. The REA addresses this concern by giving RE developers of intermittent RE a "must dispatch" treatment and benefit of priority dispatch.

HHP3&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=3ed6d272ff7b4a41ec30611c95220026 (last accessed Aug. 1, 2009).

150. *Id.*

151. EPIRA, § 19. The ERC approved Transmission charges in its orders dated September 6 and 20, 2002, in ERC Case No. 2001-901 entitled In the Matter of the Application for the Approval of the Revised Unbundled Power Rates, National Power Corporation (NPC) — Applicant.

152. Renewable Energy Act of 2008, § 18. The section provides:

> *Payment of Transmission Charges.* — A registered renewable energy developer producing power and electricity from an intermittent RE resource may opt to pay the transmission and wheeling charges of TRANSCO or its successors-in-interest on a per kilowatt-hour basis at a cost equivalent to the average per kilowatt-hour rate of all other electricity transmitted through the grid (emphasis supplied).

This preferential treatment is particularly important considering that energy or electricity will only be dissipated if not used. It minimizes the possibility that RE will be useless depriving RE developers any return of investment. To provide a better picture, this may be analogized to being a Mabuhay Miles Elite member of Philippine Airlines' frequent flyer program. Regular passengers have to wait in line to check-in their luggages and to board their respective flights; while Mabuhay Miles Elite members have their own check-in counter and have priority when boarding. The REA gives this special status to RE compared to non-renewable energy, which must wait in line. To complete the analogy, imagine that those being transported are perishables. In this situation, RE has better chance of reaching the end-users before being dissipated.

The RE from intermittent sources simply cannot wait because it is intermittent, and may not be existent for long. This minimizes the possibility that the goods transported would perish and fail to reach its destination, analogous to electricity being dissipated before reaching ratepayers.

Benefit of priority means that if energy from intermittent RE and energy from non-RE sources are to be transmitted at the same time, regardless of how long the non-RE has been pending for transmission, intermittent RE still has priority in dispatch.

Both the "must dispatch" treatment and benefit of priority dispatch ensure that intermittent RE will reach ratepayers and be paid for. However, there are many technical and economic considerations, including base and peak loads, as well as balancing of supply and demand at different times of day. Thus, TRANSCO is mandated to determine the maximum penetration limit of the intermittent RE-based power plants to the grid, through technical and economic analysis in consultation with all stakeholders, which include non-renewable energy producers. Likewise, the PEMC and TRANSCO or its successors-in-interest are also tasked to implement technical mitigation and improvements in the system in order to ensure the safety and reliability of electricity transmission.[153]

5. Hybrid or Cogeneration Systems

REA incentives are not limited to pure RE developers. Owners and operators of non-renewable energy systems are also encouraged to invest in RE by allowing them to avail of REA's incentives through the adoption of Hybrid and/or Cogeneration Systems. However, only the RE portion of the system is entitled to REA's incentives. Section 4 (o) of the REA defines Hybrid Systems as:

> any power or energy generation facility which makes use of two or more types of technologies utilizing both conventional and/or renewable fuel

153. *Id.* § 20, ¶ 1.

> sources, such as, but not limited to, integrated solar/wind systems, biomass/fossil fuel systems, hydro/fossil fuel systems, integrated solar/biomass systems, integrated wind/fossil fuel systems, with a minimum of 10 megawatts or 10% of the annual energy output provided by the RE component.[154]

Note the use of the phrase "utilizing both conventional and/or renewable fuel sources." What if two or more types of technologies use both conventional fuel sources? From the plain text of the provision,[155] it appears that power or energy generation facilities with two or more types of technologies utilizing both conventional systems can be considered a hybrid system if one only considers the "or" conjunction. However, there is also the word "both" which should mean conventional *and* renewable fuel sources. If "or" were to take precedence, the term "either" should have been used and not "both." Since the text of the provision may be ambiguous, the spirit of the law can be invoked to argue that hybrid systems must include renewable energy because it is, after all, the Renewable Energy Act of 2008.

In any case, this issue may be more academic than realistic because only registered RE developers of hybrid and cogeneration systems utilizing both RE sources and conventional energy are entitled to tax incentives.[156] Furthermore, REA extends tax exemptions and incentives only to equipment, machinery, and/or devices of a Hybrid System which utilize RE resources.[157] Thus, even if a generation facility, which makes use of two technologies that both utilize conventional fuels were called Hybrid Systems, they would still not be entitled to any tax exemption or incentive because they do not have equipment, machinery, and/or incentives which utilize RE resources.

On the other hand, cogeneration systems refer to facilities, which produce electrical and/or mechanical energy and forms of useful thermal energy such as heat or steam, which are used for industrial, commercial heating or cooling purposes through the sequential use of energy.[158] In the U.S., the Public Utility Regulatory Policies Act of 1978 (PURPA) gave

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154. *Id.* § 4 (o).

155. The plain meaning rule or *verba legis* in statutory construction is thus applicable in this case. Where the words of a statute are clear, plain and free from ambiguity, it must be given its literal meaning and applied without attempted interpretation. *See* Osea v. Malaya, 375 SCRA 285 (2002).

156. Renewable Energy Act of 2008, § 19.

157. *Id.*

158. *Id.* § 4 (d).

incentives to cogeneration facilities to promote energy efficiency[159] because they utilize a given type of energy for multiple purposes.

An example would be "heat recovery steam generators" that produced steam from the gas engine's exhaust and then directed the vapor through conventional turbine generators to make additional electricity. These were known as "combined-cycle" units, which were qualified for incentives under the PURPA.[160] Clearly, co-generation systems focus more on energy efficiency rather than renewable energy since there is no requirement that the energy generated and used should be renewable.

It is submitted that facilities using "combined cycle units" in the Philippines may not be entitled to REA's incentives because they do not utilize any RE. The REA encourages cogeneration facilities to utilize RE by extending tax exemptions and incentives only to equipment, machinery and/or devices utilizing RE resources.[161] The steam in the example was still generated by a gas engine running on fossil fuel. Although energy efficiency is definitely desirable, it may be outside the purview of the REA.

C. Market-Based Instruments

Market-based approaches in environmental policy address an efficiency problem arising from the use of uniform standards,[162] or command and control regulation. Instead of monitoring detailed compliance with uniform standard, industry players are given flexibility to attain its aggregate goals by dealing with each other. Through trading environmental commodities, like Renewable Energy Certificates (RECs) and carbon credits, market forces are utilized for cost-effectiveness of pollution control and environmental benefit. The REA specifically provides for RECs under the RPS and gives special treatment to carbon credits under the Kyoto Protocol.

1. Renewable Portfolio Standards (RPS)

Broadly, the RPS is a specific requirement for industry players, particularly the retail electricity suppliers or load serving entities, to deal with RE. An RPS establishes numeric targets for RE supply, applies those targets to retail electricity suppliers or load serving entities, and seeks to encourage

159. *See* RICHARD HIRSH, POWER LOSS (2001).

160. *Id.* at 106.

161. Renewable Energy Act of 2008, § 19.

162. David Driesen, Alternatives to Regulation?: Market Mechanisms and the Envrionment in Oxford Handbook on Regulation (Martin Cave, Rob Baldwin, and Martin Lodge eds., Oxford University Press 2009 (forthcoming)), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1268435 (last accessed Sep. 2, 2009).

competition among renewable developers to meet targets in least-cost fashion.[163]

In the Philippines, retail electricity suppliers or load-serving entities are similar to distributing utilities like MERALCO. However, the NREB will still have to design the appropriate RPS and determine which sector the RPS will apply to.[164] RPS requirements for rural and missionary electrification will likewise be different from on-grid electric system.[165] Indeed, RPS designs can vary across different countries.

Since RPS is a requirement, compliance mechanisms are essential. Thus, violation of the RPS rules, like failure to maintain the required RE percentage in their energy portfolio, is a prohibited act,[166] by which violators can be levied a penalty of either imprisonment or fine, or both.[167]

To become market-based, the RPS is usually tied to Renewable Energy Credits embodied in Renewable Energy Certificates (RECs). RECs are a type of environmental commodity that is created when one megawatt hour of electricity is generated from an eligible RE source.[168] The basic concept underlying RECs is that renewable generators produce two outputs simultaneously, electricity and environmental benefit. RECs are certificates that represent the environmental attributes or 'greenness' of renewable production. Thus, for every unit of electricity produced by a renewable generator, a corresponding unit of REC is also produced.[169]

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163. Ryan Wiser & Galen Barbose, Renewable Portfolio Standards in the United States — A Status Report with Data Through 2007 (2008), *available at* http://eetd.lbl.gov/ea/ems/reports/lbnl-154e-revised.pdf (last accessed Sep. 2, 2009).

164. Renewable Energy Act of 2008, § 6.

165. *See id.* § 12.

166. *Id.* § 35 (a).

167. *Id.* § 36. The section provides:

> [t]he penalty of imprisonment from one (1) year to five (5) years, or a fine ranging from a minimum of One Hundred Thousand Pesos (P 100,000.00) to One Hundred Million Pesos (P 100,000,000.00), or twice the amount of damages caused or costs avoided for non-compliance, whichever is higher, or both upon the discretion of the court.

168. Michael Gillenwater, Redefining RECs (Part 2): Untangling Certificates and Emission Markets (Aug. 2007), *available at* http://www.princeton.edu/~mgillenw/REC-OffsetPaper-PartII_v2.pdf (last accessed Sep. 2, 2009).

169. Energy Policy Initiative Center, Renewable Energy Credits in California After SB 107, *available at* http://www.sandiego.edu/epic/publications/documents/070625_RECs_SB107_FINAL_000.pdf (last accessed Sep. 2, 2009).

Under a typically flexible RPS, electricity sold by generators can be undundled and the energy sold separately from its renewable attribute. In other words, RECs are commodities that can be traded separately from the actual electricity produced.[170] The demand for RECs stems from those who seek green bragging rights, and those who seek to comply with RPS.[171]

As can be seen, the REA compounds benefits to RE developers. Aside from the premium RE rates caused by feed-in tariffs, RE developers also benefit from tradable RECs by realizing a source of revenue from sale of the environmental attributes resulting from their renewable generation — effectively monetizing what had previously been an external benefit.[172] This combination of benefits on a given unit of RE is clearly indicated in Section 7 (d) of the REA.[173]

The REA clearly integrates the RPS with RECs since DOE is mandated to establish a Renewable Energy Market (REM), and to direct the Philippine Electric Market Corpration (PEMC) to implement changes to the Wholesale Electricity Spot Market (WESM) Rules to incorporate rules specific to the operation of the REM in the WESM. Accordingly, the PEMC is supposed to establish an RE registrar, which will issue, keep and verify RECs corresponding to energy generated from eligible RE facilities. These certificates shall be used for compliance with the RPS.[174]

Ownership of RECs is also one of the incentives for net-metering agreements with qualified users, since the distribution utility is entitled to the REC, which may result from that net-metering arrangement.[175] Thus, a distribution utility may comply with the RPS by entering into net-metering agreements with many qualified end-users or distributed generators, provided these produce enough electricity to meet the mandated percentage.

Under Section 12 of the REA, rural and missionary electrifications by RE are also entitled to RECs. Although these are subject to RPS different from the on-grid RPS, the RECs they generate should also be sufficient to comply with on-grid RPS requirements. This way, larger and more established industry players can look into rural and missionary electrification

170. Wheelabrator Lisbon, Inc. v. Connecticut DPUC, Slip Copy, 2006 WL 1791688 (D.Conn.).

171. *Id.*

172. *Id.*

173. Renewable Energy Act of 2008, § 7 (d). This section provides that "[t]he feed-in tariff to be set shall be applied to the emerging renewable energy to be used in compliance with the renewable portfolio standard as provided for in this Act and in accordance with the RPS rules that will be established by the DOE."

174. *Id.* § 8.

175. *Id.* § 10.

for RPS compliance, thus supporting comprehensive electrification of the entire country.

The other details and design of the RPS, not expressly provided by the REA, will still have to be determined by the NREB. It will set the minimum percentage of generation from eligible renewable energy resources and determine to which sector RPS shall be imposed on a per grid basis within one year from the effectivity of the REA.[176]

a. RPS and RE

The RPS system will promote exploration, development, and utilization of RE sources because RE requirement will be pegged in an amount over and above the current aggregate level of RE generation. Thus, market players, at the pain of penalty and/or in pursuit of profit, will strive to attain the targeted level of RE.

The RPS is also flexible because one who does not deal with renewable energy for whatever reason can simply buy the necessary RECs to comply with the RPS. Thus, there is really no need for existing power producers to invest anew and discard their existing equipment. On the other hand, there will be more incentive for investments in RE because they can market or sell two products — the electricity itself and the RECs. The mechanism is clearly workable as it promotes RE without necessarily sacrificing existing non-RE generators.

b. REC Ownership

One of the most controversial issues in RPS is the ownership of RECs. The rules of ownership of RECs depend on State law defining the RPS, and they maybe subject of contracts between the parties.[177] In the Philippines, the rules governing RECs are still to be determined by the NREB but subject to existing laws. Any rules of ownership promulgated must conform to and is limited by the spirit and express provisions of the REA, and the applicable provisions of the Civil Code on movable properties, because implementing rules of administrative bodies, like the NREB, cannot amend statutes.[178]

It is submitted that RECs belong to the RE Developer as a general rule, with the net-metering arrangements as the exception. RECs by their nature are incentives that monetize external benefits of being green and environmentally friendly. Being incentives, they belong to those incentivized to become RE developers. Moreover, RECs are incident or accessory only

176. *Id.* § 6.

177. *See, e.g.* Wheelabrator Lisbon, Inc., 2006 WL 1791688 (D.Conn.).

178. *See* Ople v. Torres, 293 SCRA 150 (1998).

to the generation of RE, thus following the rule that the accessory follows the principal,[179] RECs also belong to RE developers.

The exception is RECs that result from net-metering agreements under Section 10 of the REA. It is a special statutory provision that modifies the general rules of ownership of a movable like the REC. *Lex specialis derogat lex generali*. This contemplates only an agreement between distribution utilities and distributed generators (or end-users who installed small-scale RE systems with capacity of less than 100kW), because larger RE developers do not need net-metering arrangements to supply energy into the grid.

Under Section 10 of the REA, distribution utilities are given incentives to enter into net-metering agreements because most of the costs arising from this arrangement will be borne by the distribution utility involved. Lower electric bills or electric bill credits are supposedly enough incentives for ratepayers to invest in RE systems and become distributed generators. This provision of the REA also seeks to offset disincentives of utility investment in distributed generation by making it a source of its RPS compliance requirements.

As seen, it is essential that the design and mechanism devised by the NREB pinpoint the ownership of RECs clearly and distinctively to be consistent, and thereby minimize possible conflicts. In any case, generators, suppliers, and distribution utilities should clearly provide for ownership of the RECs in their contracts and off-take agreements to obviate any ambiguity.

2. Carbon Credits

The REA exempts all proceeds of sale of carbon emission credits from any and all taxes.[180] This means that carbon credit transactions will be more cost-effective, making the Philippines a more attractive location for Clean Development Mechanism (CDM) Projects compared to other non-Annex I parties. To understand the implications of this incentive, a brief background on carbon credits is necessary.

a. In General

Carbon Credits are another type of market-based tradable environmental commodity, which represent a definite amount of carbon that may be emitted to the atmosphere. In simpler terms, it is a permit to pollute devised as a flexible mechanism under the Kyoto Protocol, signed by the Philippines

179. Accessorium non ducit sed sequitur suum principale. *See, e.g.* An Act to Ordain and Institute the Civil Code of the Philippines [CIVIL CODE], Republic Act No. 386, art. 466 (1949).

180. Renewable Energy Act of 2008, § 15 (i).

on 15 April 1998 and ratified on 20 November 2003.[181] It is also the mechanism used by the Prototype Carbon Fund (PCF) managed by the World Bank.[182]

The Kyoto Protocol[183] is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC), which mandates the stabilization of greenhouse gases.[184] Note, however, that the carbon market already began even before the implementation of the Kyoto Protocol.[185]

The Kyoto Protocol sets binding targets for 37 industrialized countries and the European community (referred to as Annex I Countries) for reducing greenhouse gas emissions. These amount to an average of five percent against 1990 levels over the five-year period 2008-2012. Recognizing that developed countries are principally responsible for the current high levels of greenhouse gas emissions in the atmosphere as a result of more than 150 years of industrial activity, the Kyoto Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."[186] Thus, Annex I countries are given Assigned

181. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997 [hereinafter Kyoto Protocol].

182. *See* World Bank Carbon Financing Unit, *available at* www.carbonfinance.org (last accessed July 19, 2009). The Prototype Carbon Fund (PCF) is a public/private partnership, made up of six governments and 17 private companies, which authorizes the World Bank, as Trustee, to purchase Carbon Credits from various projects on behalf of the participants in the fund. Over 10 years of project life, the PCF will purchase a total amount of Carbon Credits targeted at 356,000 tons of carbon dioxide equivalent (CO_2e).

183. The Kyoto Protocol was adopted in Kyoto, Japan, on Dec. 11, 1997 and entered into force on Feb. 16, 2005. 183 Parties of the Convention have ratified its Protocol to date. The detailed rules for the implementation of the Protocol were adopted at COP 7 in Marrakesh in 2001, and are called the "Marrakesh Accords."

184. United Nations Framework on Climate Change [UNFCCC], Kyoto Protocol, *available at* http://unfccc.int/kyoto_protocol/items/2830.P (last accessed Sep. 2, 2009).

185. World Bank's Prototype Carbon Fund (PCF) had $180 million in support from six governments to buy carbon credits with the intent of integrating carbon projects with mainstream investments. The program has grown rapidly with the implementation of the Kyoto Protocol; funds under management increased from about $400 million on July 1, 2004, to over $900 million on July 1, 2005, to an expected $1.75 billion on July 1, 2006. About $140 million has been committed to 30 Projects. (*See* World Bank, *Clean Energy and Development: Towards an Investment Framework released by the Development Committee*, Apr. 5, 2006, *in* US LAW AND CLIMATE CHANGE 294 (Michael Gerrard ed., 2008).

186. UNFCCC *supra* note 183.

Amounts representing the amount of their permissible emissions, while developing countries have no Assigned Amounts and are not give any mandatory obligation to limit emissions.

Under the Kyoto Protocol, countries must meet their targets primarily through national measures. However, the Kyoto Protocol also offers them an additional means of meeting their targets by way of three market-based mechanisms. The Kyoto mechanisms include:

(a) Emissions trading — known as "the carbon market";

(b) Clean development mechanism (CDM); and,

(c) Joint implementation (JI).[187]

These are flexible mechanisms by which Annex I countries can meet their carbon commitments through investment in emission reduction or sequestration opportunities in other countries. The accounting mechanisms of the Kyoto Protocol allow Annex I parties to add credits acquired through the flexible mechanisms to their Assigned Amounts, and thereby use them to offset their emissions.[188] An explanation of the rationale of carbon credits is as follows:

> The rationale for flexible mechanisms is straightforward. All emissions have an identical impact on the atmosphere regardless of their sources; in other words, a ton of carbon dioxide emitted from the clearing of a forest in Ghana has the same impact as a ton of carbon dioxide emitted from a power plant in Germany. On the other hand, the cost of achieving emission reductions varies substantially from country to country. The three flexible mechanisms exploit these characteristics of the climate change issue by providing what has been referred to as "where" flexibility. In theory, an environmental program with "where" flexibility can ensure that reductions will be implemented wherever they can be achieved at the lowest cost.[189]

Carbon is reduced because countries achieve the aggregate or global cap and reduction targets through these flexible mechanisms, even though their local carbon emissions may not be drastically reduced. Under these flexible mechanisms, Annex I countries can meet a substantial portion of their emission targets simply by buying the necessary carbon credits. In theory, the carbon it emitted is offset by the carbon reduction and sequestration in other countries as represented by the carbon credits, thus maintaining the overall carbon cap and reduction targets.

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187. *Id.*

188. Kyle W. Danish, *The International Regime*, *in* US LAW AND CLIMATE CHANGE 42 (Michael B. Gerrard ed., 2008).

189. *Id.*

b. Carbon Credits and Developing Countries

Of the three mentioned flexible mechanisms, only the Clean Development Mechanism (CDM) is directly relevant to the Philippines[190] as a developing country and a non-Annex I party to the Kyoto Protocol. Since International Emissions Trading[191] and the Joint Implementation[192] are applicable only to Annex I parties or developed countries, CDM has been the primary

190. Philippine Statement in "Climate Change as a Global Challenge," *available at* http://www.un.org/ga/president/61/followup/climatechange/statements/statementPhilippines.pdf (last accessed Aug. 1, 2009). (Carbon credit system has already benefitted the Philippines through various CDM Projects. As of July 4, 2007, the Department of Environment and Natural Resources (DENR) has received a total of 39 applications for registration in the CDM, with a total estimated reduction of 1.74 million tons of carbon dioxide per year. Of these, 17 were already issued with country approval by the DENR, eight of which are now registered with the CDM executive board in Bonn, Germany. In the Philippines, there has been an estimated reduction of 346,170 tons of carbon dioxide per year.).

Most notable is the North Wind Bangui Bay Project, the first windmill farm with commercial capacity in Southeast Asia. 15 state-of-the-art wind turbines in the beaches of Bangui Bay, Ilocos Norte are currently supplying clean energy to the Luzon Grid, with an annual estimated production of 74.48 Gigawatts. Prior to the windmill farm, the northernmost tip of Luzon had been plagued by expensive but unreliable power supply, mainly due to the long-distance transmission of power from various generation sources. *See* Giant Windmills Energize Northern Philippines, *available at* http://newsgroups.derkeiler.com/Archive/Soc/soc.culture.filipino/2005-10/msg00691.html (last accessed Aug. 1, 2009).

Another notable CDM Project is the Quezon City Biogas Emission Reduction Project in the Payatas landfill area. In July 2000, tragedy struck when a "garvalanche" or landslide of mounds of garbage occurred and killed hundreds of residents.[190] The area is now the location for the Quezon City Biogas Emission Reduction Project run by Pangea Green Energy, an Italian RE firm. Crime rates have reportedly decreased since its vicinity and surrounding neighborhood are now well lit by methane gas extracted from the area and utilized for power generation. Overall health and physical safety has also been enhanced by the reduction of nauseous gasses, and better landfill management.

See Waste Management Worlds, Landfill Stability, *available at* http://www.wastemanagementworld.com/display_article/273039/123/ONART/Display/none/1/Landfill-stability/ (last accessed Aug. 1, 2009). *See also* Urban Poor Asia, Payatas Landslide, *available at* http://www.achr.net/payatas_2.htm (last accessed Sep. 2, 2009).

191. Kyoto Protocol, art. 17.

192. *Id.* art. 6.

mechanism for involvement of developing countries in the Kyoto Protocol.[193]

The CDM, defined in Article 12 of the Kyoto Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol to implement an emission-reduction project in developing countries. Such projects can earn saleable Certified Emission Reduction (CER) credits (a type of carbon credit, each equivalent to one ton of CO2) which can be counted towards meeting Kyoto targets. Thus, aside from being a flexible mechanism, the CDM also stimulates sustainable development.[194] A CDM Project activity might involve, for example, a rural electrification project using solar panels or the installation of more energy-efficient boilers.[195]

c. Implications of Carbon Credit Tax Exemptions

Carbon credits by their nature are taxable in the Philippines because they are generated by projects within the Philippines. As tradable commodities, taxes must also accrue when parties deal with them in the Philippines. By exempting carbon credits "from any and all taxes," the Philippines is foregoing a potential source of public funds.

This foregone source of public funds is a good trade off for attracting CDM Projects since exempting carbon credit transactions from taxes lowers the cost of a CDM project in the Philippines compared to other countries. An influx of CDM Projects would lead to infrastructure and employment, offsetting the foregone taxes. This is particularly important where several countries are hoping to benefit from a huge carbon market.

Since mitigation costs are in many instances lower in developing countries, many experts believe that Annex I parties are likely to rely on CDM projects as a significant strategy for compliance with their

193. *See* Danish, *supra* note 187, at 46.

194. UNFCCC, Clean Development Mechanism (CDM), *available at* http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.P (last accessed Sep. 2, 2009).

195. *Id. See also* Danish, *supra* note 187, at 46.

CDM projects are required to achieve reductions in emissions that are "additional to any that would occur in the absence of the certified project activity." (Kyoto Protocol, art. 12, § 5 (c)) As elaborated by the Marrakesh Accords, Article 12 of the Protocol outlines the fundamental elements and requirements for the CDM including the requirement for a third-party verification process administered by the CDM Executive Board, a body of officials serving in their personal capacity but who typically also hold environmental positions in government.

commitments under Article 3 of the Kyoto Protocol.[196] Huge amounts of capital and investment are currently available for procuring carbon credits under Kyoto's CDM.[197]

Clearly, developing countries are given assistance in sustainable development short of a dole out. Annex I countries are investing in CDM projects, which directly benefit the developing countries for a consideration, carbon credits. Theoretically, carbon credits have minimal value to the country except for attracting CDM Projects because they do not have emission reduction commitments. Unfortunately for the Philippines, it is only one of more than a hundred Non-Annex I countries which vie to be locations of CDM Projects. The REA's tax exemption of carbon credits "from any and all taxes" hopes to provide competitive advantage for the Philippines over other developing countries by making carbon credit transactions cheaper.

d. RECs and Carbon Credits

Before proceeding to the effects of the REA on the Philippine electric power industry under the EPIRA, it is essential to discuss the relationship between RECs and Carbon Credits. RECs and Carbon Credits are both tradable environmental commodities representing market-based mechanisms in environmental law and policy. Even if they are interrelated, they must be compared and contrasted to avoid confusion.

Although RECs reduce emissions by displacing energy generated by fossil fuels, their primary purpose is to encourage investments in RE. They do not actually limit carbon emissions but only lessen it by propagating RE. On the other hand, carbon credits' primary purpose is to actually limit emissions. It does relate to RE because using RE reduces emissions. However, RE is not the only means for reducing emissions as efficiency and

196. *See* Danish, *supra* note 187, at 46.

197. *See* Miller, *supra* note 21, at 279. (Aside from Annex I countries Seeking means to comply with their commitments, sources of investments include the Global Environmental Finance (GEF) and the carbon finance program with support from several donor governments. These programs have given the World Bank limited resources to address the incremental costs of projects that reduce greenhouse gas emissions. The GEF is a source of multilateral financing for projects with global benefits, including climate change and biodiversity. Funding is primarily channeled through several "implementing agencies:" the World Bank, UN Development Program (UNDP), and UN Environment Programme (UNEP). Both the WB and the International Finance Corporation (IFC) also have programs supporting the growth of the carbon market: the former now manages more than $1 billion in donor funds for the acquisition of carbon credits, while the latter has introduced financial products to address the project risks associated with carbon reduction investments.).

cogeneration also merit carbon credits. Clearly, investments in RE are not the only primary purpose of carbon credits, unlike RECs.

Aside from primary purposes, they also differ conceptually. Carbon Credits are fixed since they are emission caps, while RECs increase as more RE is encouraged. To illustrate, carbon credits are similar to a fixed box, while the renewable energy credits under the RPS are similar to a box, which elongates over time.[198]

Carbon credits are like fixed boxes because they actually limit carbon. One unit of carbon credit corresponds to a definite amount of carbon emission. Thus, carbon credits can conceptually fit in a finite box. On the other hand, RECs, under the RPS, represent investment in renewable energy. This necessarily entails growth in RECs because it is supposed to encourage more RE investments. Thus, unlike Carbon Credits, RECs cannot be fixed in a finite box. It can be conceptually embodied only in a box that elongates over time as more RE is generated.

Even if RECs and carbon credits differ in terms of primary purpose and concept, they are inherently intertwined. One of the primary reasons RE is encouraged is to reduce emissions. As RECs grow, carbon credits must also lower.[199]

Assuming RPS is successful and there is a deluge of RE investments, there will be a proliferation of RE producers. Since they use clean technology, emissions are reduced. Theoretically, the amount of carbon in the atmosphere may eventually be below the limit originally designated by the carbon credit system, since there is an increasing rate in reducing carbon emission in proportion to the increase in use of RE.

Because actual carbon has already decreased, the original carbon credits actually represent fewer carbon emissions in the atmosphere than what has been previously assigned to them. There is already "hot air."

With "hot air," carbon credits are assigned carbon values beyond their actual carbon value or actual amount of carbon emissions. Carbon credits are actually allowing holders to pollute or emit more carbon than necessary to further reduce carbon emissions. Since the carbon credits are overvalued in carbon terms, utilities could easily comply with their emission limits. Certainly, the value and use of carbon credits will lessen if power producers could easily comply with the limits imposed upon them, without having to buy carbon credits from others.

198. Prof. Steven Weissman, Lecture on Class 3: State Programs (1) for the Course on Law 270.7 Renewable Energy: Law Policy and Promise, Fall Semester 2008 (Sep. 3, 2008).

199. *Id.*

Easy compliance means that the incentive and/or deterrence to reduce emissions, the basis of carbon credits, would be weakened. To maintain its value, and to continue its purposes of innovation and emissions reduction, carbon credits must lower its cap to reflect new goals and avoid "hot air." This is the way the RPS can cause the carbon credits system to shrink.

For the Philippines, the foregoing may be more of an academic exercise than a practical one. While the Philippines has a local RPS system, it is not instituting any local carbon credit system. Its policy on emission caps remains with Kyoto Protocol's CDM. There is no one-to-one relationship between RECs and carbon credits, since the former is local, while the latter is global. No amount of emission reduction due to RE development in the Philippines will lower global targets for carbon reduction.

The most important relationship between RECs and carbon credits in the Philippine context is that they monetize two green aspects of RE. RECs monetize the fact that the electricity sold is RE, while carbon credits monetize its corresponding emission reduction. An RE Developer in the Philippines, therefore, can earn from three commodities in one activity of RE generation as follows:

(a) Sale of actual electricity generated;

(b) Sale of REC representing the generated RE; and,

(c) Sale of carbon credits if his project is registered under Kyoto's CDM.

VI. REA AND THE EPIRA ELECTRIC POWER INDUSTRY

The Electric Power Industry Reform Act of 2001 (EPIRA) provided the framework for the restructuring of the Philippine electric power industry, including the privatization of the assets of National Power Corporation (NAPOCOR or NPC) and transition to the desired competitive structure.[200] The EPIRA aims to reform the power industry and boost power delivery services to customers by privatizing the electric industry allowing market forces to maintain a feasible supply subject to state regulation.[201] The Philippine Supreme Court has summarized the experience of the Philippine electric power industry in *Freedom from Debt Coalition v. Energy Regulatory Commission*,[202] as follows:

200. EPIRA, § 3.

201. Juan Arturo Iluminado C. de Castro, *The Purchased Power Adjustment (PPA) Scheme and Its Derivatives: Deciphering Cost Recovery Mechanisms in the Distribution of Electric Power and Understanding Government Policy on Energy Distribution*, 33 IBP L. J. 115 (2008).

202. Freedom From Debt Coalition v. Energy Regulatory Commission, 432 SCRA 171 (2004).

> One of the landmark pieces of legislation enacted by Congress in recent years is the EPIRA. It established a new policy, legal structure and regulatory framework for the electric power industry.
>
> The new thrust is to tap private capital for the expansion and improvement of the industry as the large government debt and the highly capital-intensive character of the industry itself have long been acknowledged as the critical constraints to the program. To attract private investment, largely foreign, the jaded structure of the industry had to be addressed. While the generation and transmission sectors were centralized and monopolistic, the distribution side was fragmented with over 130 utilities, mostly small and uneconomic. The pervasive flaws have caused a low utilization of existing generation capacity; extremely high and uncompetitive power rates; poor quality of service to consumers; dismal to forgettable performance of the government power sector; high system losses; and an inability to develop a clear strategy for overcoming these shortcomings.[203]

The deregulation and restructuring of the electric power industry in the Philippines resulted in four sectors: Generation, Transmission, Distribution, and Supply. It is within this framework that the REA will be implemented.

A. Philippine Deregulation and RE

By experience, deregulation appears to have had the effect of discouraging conservation and encouraging the use of low-cost, high carbon-emitting fuel sources since in a fully competitive market, both higher cost renewable technologies, and energy efficiency become less attractive. In the U.S., utility investments in Demand Side Management (DSM) programs and associated energy savings fell significantly during the restructuring. Between 1993 and 1999, annual utility expenditures on DSM programs fell by roughly 55%, and the incremental annual energy savings fell by about 65%.[204] This fact may be analogously applied to RE since DSM, energy efficiency, and RE have similar relationships with fossil fuels in terms of economics.

Clearly, restructuring and deregulation of the electric industry have placed greater emphasis on least-cost pricing and market choice, potentially at the expense of environmental concern.[205] RE has not been a market choice considering the huge initial investments required although it may have cheaper operating costs due to minimal fuel cost.

Note, however, that the experience above-mentioned is premised on the fact that energy from traditional and non-renewable energy sources are cheaper, and more cost-effective. Moreover, deregulation occurred at a time when all the incentives for RE have not been established. Several

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203. *Id.* at 175.

204. Mann, *supra* note 108 at 581.

205. *Id.*

circumstances are different from the U.S. experience, which may change the dynamics of deregulation and RE in the Philippines.

Firstly, traditional and non-renewable energy sources may not always be a cheaper alternative to RE. Oil prices have been very volatile, rising to as much as $147.27 per barrel in July 2008, and falling to $65 per barrel in the end of October 2008. Considering that fuel is the main cost of operation in traditional power generation, this volatility in fuel costs and the inability of the rate-making process to keep up with this volatility in prices will definitely affect steady cash flow of the distribution utilities, which would then affect their purchasing power of electricity from the generation facilities. Certainly, a renewable generation facility, which has minimal operating cost, may be a more stable and attractive source of energy.

Secondly, there has been significant improvement in renewable technologies making them more efficient and cost-effective. RE production costs have declined by at least 20% within the last 20 years, thus making some RE more competitive with traditional energy.[206]

Thirdly, there is the green bug, whose infection necessarily includes RE. Going green or being environmentally friendly has been a popular bandwagon. Thus, non-economic factors may cause consumers to prefer green to traditional energy. It can be part of a marketing strategy, where a business would prefer to use RE to attract more customers.[207] There is green pricing, where consumers may be willing to pay more for green energy.[208] Also, RECs have been bought for green bragging rights, rather than for RPS compliance purposes.[209]

Fourthly, there is a change of worldwide attitude towards RE since it is at the forefront of climate change mitigation and adaptation. This means world resources are geared towards its improvement and viability as an alternative energy resource. Unlike in the past, vast new markets and investment opportunities are opening up worldwide for clean technologies. "Those who recognize this opportunity will be the first to the future and the

206. *See* Joseph Romm, Solar Billionaire's Club, *available at* http://gristmill.grist.org/story/2008/8/6/10135/02402 (last accessed Sep. 2, 2009). *See also* "Study looks at future cost of renewable energy," Renewable Energy Today. FindArticles.com, *available at* http://findarticles.com/p/articles/mi_m0OXD/is_2006_Nov_13/ai_n16867143 (last accessed Sep. 2, 2009).

207. Romero, *supra* note 110.

208. U.S. Department of Energy, Green Pricing, *available at* http://apps3.eere.energy.gov/greenpower/markets/pricing.shtml (last accessed Sep. 2, 2009).

209. *See* Energy Policy Initiative Center, *supra* note 168.

billionaires of tomorrow" said Hunter Lovins, an author and promoter of sustainable development. [210]

Penultimately, RE is the Philippines best bet for energy self-sufficiency. Unlike the U.S. and other countries, the Philippines is not an oil producing country. Although it may have recently extracted oil,[211] the amount and scale of such production is insufficient for the country's energy needs, and pales in comparison to other oil producing countries.

Last but not least is timing. The REA is being implemented in an electric industry undergoing restructuring and deregulation, not the other way around. Moreover, the Philippines already has 27% of its energy requirements coming from geothermal energy, considered an RE.[212] Rather than deregulation affecting the use of RE, the incentives of the REA will be coming into play in a deregulated industry, which already utilize RE. The incentives will boost RE generation by giving it beneficial treatment and advantages over energy from traditional sources.

B. REA and the Four Sectors of the Electric Power Industry

The most obvious consequence of the REA is an increase in power generation. On account of REA's generous incentives, more investors are expected to explore, develop, and utilize RE resources, as well as operate RE systems or facilities. Simply put, more RE will be fed into the Grid.

Of all the provisions in the REA, distributed generation is perhaps the most far-reaching because it affects several sectors of the electric power industry: generation, transmission, and distribution. Generation of electricity will come from several small-scale RE systems, whether residential, industrial, or commercial. The number of distributed generators connected to the grid complicates transmission of electricity and management of peak loads. Distribution is likewise affected because distribution utilities, which deliver electricity to rate payers, are required to enter into net-metering arrangements with end-consumers or ratepayers who install RE systems.

Distributed generation is also most immediate and tangible to existing ratepayers. With tax exemptions on RE equipment and incentives for local manufacturers, ratepayers can establish their own RE systems on a more affordable basis, and have the option of being power generators themselves. Through distributed generation, ratepayers do not have to buy electricity on a take-it-or-leave-it basis.

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210. *See* Romm, *supra* note 205.

211. *See* Arroyo Sees, *supra* note 25.

212. Utrecht Faculty of Education, The Philippines, *available at* http://www.philippines.hvu.nl/leyte2.htm (last accessed Sep. 2, 2009).

For industry players, on the other hand, those involved in generation, distribution, and supply have to take note of the RPS. Distribution utilities and suppliers most probably will be required to deal with RE. In conjunction with the other incentives, RECs or the monetization of RE's environmental qualities will certainly encourage generation of RE.

In terms of transmission, it is necessary to integrate RE systems into the infrastructure of the electric power industry to sustain RE investments. TRANSCO and all distribution utilities are mandated to include the required connection facilities for RE-based power facilities in the Transmission and Distribution Development Plans.[213] The connection facilities of RE power plants, including the extension of transmission and distribution lines, will be subject only to ancillary services covering such connections.[214]

Aside from directly affecting the four sectors of the electric power industry, the REA can be expected to improve the standard of living for millions of Filipinos through rural and missionary electrification. Currently, there are still 1,438 *barangays* or local communities without electricity nationwide.[215] The use of RE, particularly solar energy, has been a viable alternative to fossil fuels for the electrification of far-flung communities, specifically in the installation of off-grid power systems.[216] This obviates transmission costs since these communities can be self-sustaining without connecting to the grid.

REA's promise for rural and missionary electrification can be seen in the RECs it generates. Even if off-grid and missionary areas will also have its own standards under an RPS separate from those connected to the grid,[217] it

213. Renewable Energy Act of 2008, § 11.

214. *Id. See also* Brendan Kirby & Eric Hirst, Ancillary Service Details, Voltage Control, *available at* http://www.ornl.gov/sci/btc/apps/Restructuring/con453.pdf (last accessed Sep. 2, 2009).

215. *See* NEA Media Release, March 19, 2008, *available at* http://www.nea.gov.ph/resource/pdf/PAO_MediaRelease03192008.pdf (last accessed Sep. 2, 2009). (1,348 of these *barangays* are within the ECs franchise areas while 62 and 28 *barangays* are within the franchises of the Private Investor-owned Utilities (PIOUs) and the Local Government Units (LGUs), respectively.).

216. Building a Sustainable Energy Future for the Philippines, RP Paper presented on the occasion of the Seminar on RE Policy and Development, Hangzhou, China, April 19-23 2005, *available at* http://www.inshp.org/pdf/synergy%20workshop/RPcountrypaper-final.pdf (last accessed Sep. 2, 2009). *See also* DOE, Renewable Energy, *available at* http://www.doe.gov.ph/ER/Renenergy.htm (last accessed Sep. 2, 2009).

217. *See* Renewable Energy Act of 2008, § 12. Note that having different standards do not preclude an RPS system where RECs generated in off-grid systems can

is highly likely that electrification in these areas will be through RE considering infrastructure costs and resources. If both the on-grid and off-grid systems have uniform and fungible RECs, it is foreseeable that rural and missionary areas will be a rich source of RECs for compliance under the RPS. This means more attention and investments for total electrification of the country.

VII. CONCLUSION

As can be seen, the REA embodies the law, policy and promise of RE in the Philippines. There is so much to be excited about. In July 2008, former Philippine DOE secretary and current chairman of World Wide Fund for Nature-Philippines, Vincent Perez, Jr., stated that about $850 million worth of RE projects is awaiting the passage of the Philippine RE bill.[218] Considering the worldwide green fever and the need for Annex I countries to comply with their Kyoto Protocol commitments, more investments can be expected.

Through the REA, the Philippines can hope to increase private sector investments as well as the adoption of modern and innovative technologies in exploration, development, and utility of RE resources. For starters, the REA already corrected the skewed policy of having to import locally produced photovoltaic panels. Certainly, the law is expected to help achieve targets for energy investments and installations.[219]

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be traded and used in on-grid systems. The difference is only the applicable standard, or percentage of required RE.

218. Renewable Energy Projects on hold, Waiting for Philippine RE Bill Passage, *available at* http://www.alternative.com/biofuel/2008/07/29/renewable-energy-projects-on-hold-waiting-for-philippine-re-bill-passage/ (last accessed Sep. 2, 2009).

These include the following projects:

1. Geothermal — 20 megawatt project in Nasulo, Dumaguete; 50 megawatt in South Cotabato; 50megawatt in the Bicol area; 20 megawatt in Mabini, Batangas; 40 megawatt in Compostela Valley; and 40 megawatt-project in Biliran.

2. Wind — 80 megawatt and 40 megawatt projects in Ilocos Norte.

3. Solar — 10 megawatt solar energy project in Mindanao, worth $50 million.

219. *See* DOE, Renewable Energy, *supra* note 27.

> DOE's target installations include: a.) For geothermal energy, an additional 1,200 megawatt of geothermal capacity within the next ten years, a 60% increase from the 2002 level of 1,931 megawatt; b.) For hydro, 5,468 megawatt is expected by 2013, compared to the 2002 level of 2,518 megawatt; c.) For wind, solar, ocean and biomass, an aggregate installed capacity of 548 megawatt.

Possible overregulation and circuitry in REA's regulatory structure may impede these goals, however. There will be friction to the influx of private investment if requirements of investing in RE become too tedious. Under the REA, RE developers will have to deal with at least 10 government agencies. While most of which are duly represented in the NREB, there is still a need to streamline government regulation to avoid possible redundancy and circuitry. For example, the DENR can institute a one-stop shop for both the ECC and the approval of the project for CDM purposes. Likewise, the possible issue of whether or not RECs and carbon credits are covered by the Securities Regulation Code must be resolved to avoid possible conflict and confusion. Clearly, coordination and cooperation are indispensable between the DOE, the DENR, LGUs, and other government agencies or institutions for REA to work effectively.

When the REA works effectively, more RE investments will come. These will improve standards of living in terms of rural and missionary electrification, more reliable power, cleaner air, and healthier environment. Likewise, growth in the RE market will lead to the development of the electric power industry as a whole. All these translate to creation of business opportunities and employment. In addition to regular work requirement, there will be demand for manpower in green jobs. On an international level, the REA-improved Philippines could stand as a model place for CDM projects under the Kyoto Protocol. The promotion of RE would likewise be one of the Philippines' major contributions in climate change adaptation and mitigation.

These promises of the REA, however, have to be tempered with the realities that come with it. Ratepayers cannot expect cheaper electricity in the immediate future.

Firstly, the REA's incentives will cost money, whether as foregone taxes or as subsidy. Although foregone taxes and additional administrative expenses are easily justified and offset with an influx of investments, other forms of incentives (particularly the feed-in tariffs) will have to be subsidized by ratepayers. For RPS, its design should hopefully minimize any forms of subsidy, and allow market forces to come into play by giving value to RECs.[220]

220. *See* New Mexico Industrial Energy Consumers v. New Mexico Public Regulation Commission, 142 N.M. 533, 168 P.3d 105). (Where the Supreme Court of New Mexico held that according RPS design of New Mexico under its REA, REC costs are not eligible for automatic adjustment clause recovery. There was no pronouncement however as to whether REC costs can be part of the rate base. Apparently, under the New Mexico REA, REC costs maybe passed on to consumers as long as the utility justify these as reasonable compliance costs in general rate cases (with requirements of notice, hearing, and

In Germany, the success of feed-in tariffs was made partly through government subsidy. Unfortunately, the Philippines' coffers are not as deep as its German counterpart. Certainly, its budget is better allocated to more basic services. This means that the brunt of the feed-in tariffs will be incorporated into the rate base through costs incurred by the electric power industry players. Ultimately, ratepayers will pay more. Measures must be made to make ratepayer subsidy temporary.

Secondly, the cost benefits of RE are long term, since they require substantial initial capital investment. RE becomes cheaper only after recovery of initial capital investments. This means that the rate base of RE will initially be higher as it decreases through time on account of the initial and operating cost relationships in RE generation.

In addition to higher electricity rates, there may also be social complications brought about by distributed generation aside from its technical and infrastructural issues. Distributed Generation will cause uneconomic bypass, which may lead to a situation where the remaining ratepayers will be from classes B, C, and D. In a country where the highest minimum daily wage is less than eight U.S. dollars, RE systems will not be a budget priority for each household. Thus, only class A will probably enjoy the benefits of lower energy costs while shifting its part of the burden on the rest of the ratepayers who are not so well off.

These social and economic complications of who bears the burden of funding the incentives are in addition to the issue of fuel-versus-food, which is intertwined in the REA since biomass is considered an RE resource. Expectedly, it is also the poorer sectors of society, who will be most affected when fuel is prioritized over food.

In light of the foregoing considerations of promises and realities, one must revisit the Philippine experience in terms of the Kuznet's curve mentioned earlier: beyond some basic level of development, economies shift towards services and less pollution-intensive activities. Is the Philippines an antithesis to this theory, or is the Philippines adopting policy for which it is not ready?

Unfortunately, the answer cannot be ascertained prior to meaningful implementation of the REA. The question of whether or not the REA will fulfill its promise cannot be shot down prematurely. Certainly, it reflects the Philippines willingness to learn and try policies, which seemingly worked abroad. More importantly, there is commitment to be clean and green in a world dominated by fossil fuels. On the other hand, the Philippines may also just be taking advantage of its existing resources since it is not an oil-producing country. Perhaps, reality has influenced law, rather than vice-

approval), rather than automatic adjustment mechanisms. Clearly, RPS design is important to determine the manner and extent of ratepayer subsidy.).

versa. In any case, RE appears to be the best bet of the Philippines regardless of its level of development.

Indeed, all the benefits of the REA come with sacrifices. Clean energy, like progress and development, cannot be served on a silver platter. Will the sacrifices of the general public be worth it? Again, one can only wait and see. The law and policy seems to be promising but this question depends largely on the implementation of the REA. The members of the NREB and other government agencies involved must not only be competent, they must also be honest. Corruption has been the scourge of Philippine society, which brought it to the quagmire it is in.

So, will the REA fulfill the promise of its law and policy? Unfortunately, the success of the REA will also be another test of competence and integrity for the Philippine government.