Reducing Energy Consumption as a Social Responsibility: Towards a Sustainable Energy Supply

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Abstract

The awareness of social responsibility has, in the past, focused primarily on business. However, the idea has grown that social responsibility is relevant to all organizations, not just those in the business world; even local government organizations have a corporate governance strategy that recognizes their responsibilities toward contributing to sustainable development. This paper is focused on the social responsibility principle of accountability where local government organizations and industries should be accountable for their impacts on society, in particular, how they could reduce energy consumption that has an effect on both the economy and the environment.

This paper also proposes the idea of social responsibility in which everybody from the organization is participating, enabling both internal and external stakeholders to benefit. Reducing energy consumption, as part of their social responsibility to care for the environment, will need collaborative efforts from within an organization. This paper explores the social responsibility of local government and industry in reducing their energy consumption. Improving energy efficiency and spending less on utility bills can help to release resources. This will enable local government organizations to more effectively provide the public services that their constituents expect while still operating efficiently themselves. For industry this could contribute to the sustainability of their operations and the sustainability of energy supplies for the next generation. It is important that local government should realize that they are in a unique position and, as part of their social responsibility, they can educate their constituents about the benefits of energy efficiency. Local governments can lead by example and also leverage their relationships with private sector organizations so as to motivate these groups to make energy efficiency improvements.

This paper also explored the possibility of technology collaboration as a social responsibility of foreign investors in a developing country, such as the Philippines. Through technology collaboration, local industries and government could afford to invest in appropriate technology that can reduce their energy consumption.

Keywords: Social responsibility, reduced energy consumption, sustainable energy supply, technology collaboration, appropriate technology

1. Introduction

One of the agendas of the millennium goal is about ensuring environment sustainability through integrating the principles of sustainable development into national policies and programs; the reverse loss of environmental resources by 2015. Part of environment sustainability is about sustaining the energy supply. Tester et al. (2005) emphasized that sustainable energy is the living harmony between the equitable availability of energy services to all people, and the preservation of the earth for future generations. The "twin pillars" of sustainable energy are Energy Efficiency (EE) and

Renewable Energy (RE), which exhibit synergy by bringing complementary benefits to electricity systems (Prindle et al., 2007).

In response to the millennium goal regarding sustaining the environment, the Aquino administration has crafted the Energy Reform Agenda (ERA). This focuses on "Energy Access for More", wherein one of the six-year agendas is concerned with the process of making energy efficiency a way of life for the Filipinos (Ayson, 2012). It also recognizes the relationship between sustainable energy and sustainable economic development as it embarks on attaining long-term sustainability in alternative energy supplies, such as the implementation of R.A. 9367 or the Biofuels Act of 2006.[1]

Electricity consumption throughout the Philippines has posted a remarkable increase over the past ten years, albeit over and above government efforts to reduce the consumption of electricity and petroleum products. A study conducted in 2010 by International Energy Consultants, an independent think-tank, revealed that the Philippines has the most expensive electricity in Asia, with an average retail rate of electricity costing 18.1 US cents per KWh, easing out Japan at the top. In spite of this, the Philippines still ranks 42nd out of 132 countries in terms of electricity consumption (using 2009 estimates). The survey conducted by the Central Intelligence Agency (CIA) World Factbook, revealed that the Philippines consistently occupied the 42nd to 45th positions from 2003-2010.

The main consumers of electricity can be clustered into three groups: residential, commercial and industrial users. Among these three economic sectors, the residential sector consumed the biggest amount of electricity. According to the Energy Statistics Database of the United Nations Statistics Division, the electric consumption of residential Filipino households ranks 38th among 196 countries, with a total electric consumption of 16.031 billion KWh, based on 2005 estimates. However, data from the Department of Energy Philippines revealed that there was a continuous increase in the electric consumption of the industry sector. Additionally, in 2010, the registered electric consumption of the industry sector was 18576 GWh, while the residential sector was 18833 GWh.

McGrory et al. (2002) concluded that government facilities and services are often the largest energy users and the major purchasers of energy-using equipment within a country. Government expenditures typically account for at least one-fifth of the GDP of industrialized countries, and are close to that level in developing countries. McGrory et al. (2002) also states the important opportunities to improve energy efficiency in government facilities, operations, and public infrastructure and services. The benefits include lower government energy bills, reduced greenhouse gas emissions, less demand on electric utility systems, and reduced dependence on imported oil. Another equally important fact is that the government sector buying power, and active, visible leadership, offers a powerful non-regulatory means to stimulate demand for energy-efficient products and services. Furthermore, the government's own energy efficiency advocate can influence the actions of both buyers and suppliers throughout the economy, likewise helping public agencies themselves to save money and energy, and avoid pollution.

A review of various case studies and best practices, provided evidence on the effective provision of energy efficient technology that consumes a minimal quantity of energy. Previous studies have underscored the importance of energy efficient technologies in reducing energy consumption, which in effect can contribute to the internal social responsibility of the stakeholder. The Big Ben clock, which is the great bell of the clock at the north end of the Palace of Westminster in London, was able to make an overall saving of an estimated 60 per cent (Boomer, 2008). Old

[1] http://www.senate.gov.ph/republic_acts/ra%209367.pdf

lighting technology was replaced by Philips QL's induction lighting system. His system is now illuminated by the means of 112 55-watt bulbs (28 per clock face) enabling a reduction in maintenance and energy costs. The Hyatt Regency hotel in Perth, which is a five-star hotel with 367 units, had savings of more than 175 000 kWh of energy a year. This was done by implementing two key initiatives to reduce gas usage: water heaters replaced standard shower roses in guest rooms with more efficient models; and the water temperature was reduced from 75˚C to 60˚C (Australian Hotel Association, 2001).

The foregoing researches have shown the best practices toward responsible energy utilization in hotels and public places. There is a wide array of stakeholders who play a vital role in reducing energy consumption, thereby increasing sustainability. Their mutual relationships and commitments are valuable in ensuring a sustainable energy supply for the next generation. In this study, the concerned stakeholders are the Philippine local government organizations, industries and foreign investors. The Philippine government is divided into four units: regions, provinces, municipalities and cities, and barangays. All divisions below the regional level are called local government units (LGUs). The 2009 Philippine Standard Industrial Classification (PSIC)[2] is a detailed classification of industries in the Philippines according to the kind of productive activities undertaken by those establishments. The list, which is based on the UN International Standard Industrial Classification (ISIC), includes 21 industry sections. Foreign investors in the Philippines are covered by the Republic Act No. 7042 (As amended by RA 8179), otherwise known as the Foreign Investments Act of 1991 (NEDA). This study focused on the three stakeholders as they are involved in the foreign direct investment (FDI) of new and appropriate technology that can contribute to the sustainable energy supply for the country.

With the increasing demand for energy consumption from the local government and industries, and the fact that renewing a source of energy would take a long period of time to replenish, sustainability of the energy supply for the next generation is a crucial issue. These critical issues have challenged local government units and industries in the Philippines to be proactive in reducing their energy consumption through their social responsibility. This paper is focused on the social responsibility of local government organizations and industries and how they could reduce energy consumption that has an effect on the economy and the environment. Furthermore, this paper also explored the possibility of technology collaboration through foreign direct investment as the social responsibility of foreign investors toward a developing country, such as the Philippines.

2. The Analysis of Stakeholders' Social Responsibility towards Sustainable Energy Supplies

In the technological age where electronic devices have become indispensable, an increase in the demand for energy is inevitable. From a wider perspective, worldwide energy efficiency policy measures that can generate energy savings have progressed in the last few decades. Grass root efforts from various economic sectors will contribute to a substantial decrease in energy consumption by adhering to their social responsibility toward efficient and responsible energy use for a sustainable energy supply. Responsible energy utilization encompasses aspiration, desire and concrete action to reduce energy use from the economic sectors down to individuals in each sectors. The use of appropriate technology at the policy level can be considered as an alternative approach to governance of bottom-up community action for sustainable development. A test-bed and showcase of appropriate tech-

[2] http://www.nscb.gov.ph/csd/psic1.asp

nologies was presented as "grassroots innovations," which demonstrates community-led initiatives for sustainable development (Seyfang, 2010).

In support of achieving a sustainable energy supply, the 3rd Philippine Energy Efficiency Forum (PEEF) was conducted last July 2012. Its aims were to address the challenges of energy security and climate change via energy savings and the de-carbonization of electricity supplies. Nevertheless, the Philippine government should also consider other strategies, such as reduction of energy consumption and investment in appropriate technology that will significantly minimize the utilization of energy. According to Willoughby (1990), appropriate technology attempts to discriminate between different technologies based on their relative suitability for specific purposes or situations. The infusion of new developed technology from industrialized countries to developing countries can extend the benefits of advanced technology. With the paradigm shift from technology transfer to technology collaboration, appropriate technology should not only address socioeconomic problems but also promote environmental sustainability. In the context of this paper, the appropriateness of technology does not only means utilizing renewable energy resources, and efficiency in the use of scarce natural resources, but also the promotion of significant decreases in energy consumption.

From the two pillars of a sustainable energy supply, which are energy efficiency and renewable energy, this paper has focused on the aspect of energy efficiency which is vital to the process of slowing down the growth of energy demands. Decreasing the demand for energy supplies will provide time for renewable sources of energy to be replenished. Practicing responsible energy consumption promotes energy efficiency and eventually leads to reduced energy consumption. It also helps reduce the fast depletion of natural resources and minimizes environmental impacts.

Central to this study is the proposed "two-way social responsibility" model (Figure 1). The solid lines in Figure 1 pertain to the social responsibility of the Philippine local government units and industries toward a sustainable energy supply through reduced energy consumption. Meanwhile, the broken lines refer to the social responsibility of foreign investors from developed countries toward developing countries through technology collaboration. This is considered a two-way social responsibility because it can start internally where everybody from the local government units and industries participate to reduce the energy consumption of the organization. This would have the effect of lowering their operational costs that contributes to the sustainability of the operation of both the local government units and industries. This is the internal benefit of the social responsibility of reducing energy consumption, and of the macro effect, which is the external benefit of contributing to the sustainability of the energy supplies for the country. Having both internal and external benefits to the stakeholder is what two-way social responsibility means. However, as the local government units and industries strive for energy efficiency by determining the appropriate technology that would rapidly reduce their energy consumption, they should also look to technology collaboration with foreign investors. Likewise, the two-way social responsibility proposed in this paper would have both internal and external benefits for the foreign investors too. The internal benefit for the foreign investor is that it will create business opportunities, while the external benefits are technology collaboration and a contribution to the sustainability of energy supplies.

In achieving sustainable energy sup-plies, foreign investors have an indirect involvement because their participation comes from supplying the appropriate technology that local government units and industries can use to reduce their energy consumption. Through technology collab-

oration, local industries and government units could then afford to invest in appropriate technology. This process helps to promote cost effective investments, which encompasses the following significant points: installing energy-efficient lighting systems and controls that improve light quality and reduce heat gain; they can upgrade and maintain heating and cooling equipment; they can use a performance contract to guarantee energy savings from the upgrades made; they can work with an energy services provider to help manage and improve energy performance; and lastly, they can install window film and add insulation or reflective roof coatings to reduce energy consumption (Energy Star).

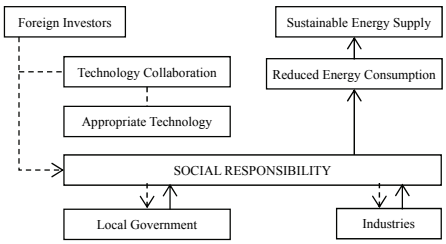

Figure 1. Model of the Two-Way Social Responsibility

Among the seven general principles of social responsibility identified by ISO 26000, this paper mainly focused on the principle of accountability where an organization should be accountable for its impact on society, the economy and the environment. Reducing energy consumption will need a collaborative effort from within the organization. Industries and local government units should start implementing internal policies to reduce their energy consumption, not only because it could lower their utilities expenses but, looking at the macro effect, it could contribute to the sustainability of energy supplies for the next generation, and this could be their initial effort. Since technology collaboration would take long negotiations, the urgent concern for a sustainable energy supply is inevitable.

Local government units and industries can find energy savings through multiple efforts. They could consider low cost measures or cost effective investments. The low cost measures include measuring and tracking their energy performance, turning off lights when not in use or when natural daylight can be used, setting back the thermostat in the evenings and other times when a building is unoccupied, performing monthly maintenance of heating and cooling equipment to guarantee efficient operation throughout the year, and educating staff about how their behavior can affect energy use.

Industries can reduce their energy consumption by following the four steps suggested by Selko (2012). First, they should establish a document about their energy usage for facility, production and, eventually, product levels. Without seeing and assessing facility energy-usage data, these firms are unlikely to reduce costs via improved energy consumption, and even less likely to take the more analytical and beneficial steps of examining the energy usage of their equipment, lines, and work areas. Second, they should monitor and assess facility-level energy consumption to know their facility's energy demands and environmental impact over a period of time, and how that demand (and costs associated with it) varies by what's occurring on the plant. Third, they can make incremental and proactive behavioral, control, and equipment improvements (e.g., devices to transmit energy data in real time). Lastly, few facilities operate "lights out" (i.e., running without any human intervention), but thousands of plants rely heavily on automated equipment and processes. Automation assumes a new critical role in improving operations, influencing not only safety but energy consumption as well.

3. Literature Review

3.1 Social Responsibility

As early as the 1970's, the term "social responsibility" was already common to organizations and governments and they were involved in several of its aspects. However, interest in social responsibility

has, in the past, focused primarily on business. An early concept of social responsibility was centered on philanthropic activities, such as giving to charity. Other aspects, such as labor and fair operating practices, human rights, the environment, consumer protection and countering fraud and corruption, were added over time, as social responsibility received greater attention. The International Organization for Standardization (ISO 26000) defines social responsibility where businesses and organizations do not operate in a vacuum. It is the relationship of a business to the society and environment in which they operate and is a critical factor in their ability to continue to operate effectively. ISO 26000 also provides guidance on how businesses and organizations can operate in a socially responsible way. This means acting in an ethical and transparent way that contributes to the health and welfare of society. ISO 26000, (Social Responsibility).

Social responsibility is the commitment of an organization to integrate social and environmental concerns into its decisions, and the obligation to assume its impact. The obligation is primarily applied to the organization's critical area, their specialty of influence. So, social responsibility has an individual meaning for organizations operating in different countries and industries where society, the level of economic development and the natural environment have unique characteristics of their own.

Nowadays, there is a high level of awareness of the need for and benefits of socially responsible behavior and this awareness is now becoming increasingly common among organizations globally and their stakeholders. The goal of social responsibility is to contribute to sustainable development (UNESCO, 2009).

3.1.1 Social Responsibility in the Setting of the Philippines.

In the Philippines, the level of awareness toward social responsibility is still in its early stages. Most of the research is connected with corporate governance, such as the studies carried out by the ADB (Asian Development Bank), and there are few researches about social responsibility in the Philippines. However, some of the corporations are practicing social responsibility or carrying out practical projects, either within the workplace or among the community. However, most of the social responsibility in the Philippines focuses on philanthropic giving (Sheil, 2003), and from the review of literature on social responsibility in the Philippines, these are separate from the operations of the corporation. However, looking at the definition of social responsibility, how should businesses integrate these into their business operations, and the social and environmental concerns into their decisions, and obligation to assume its impact? The challenge is how the corporation integrates social responsibility into their business operations that would have an impact on society and the environment. There is nothing wrong with their current social responsibility practices but they are called to a deeper involvement. Where their social responsibilities are integrated into their business operations, everybody from the corporation can participate and benefit. Concern for the environment and education are common social responsibility practices of corporations.

3.1.2 Social Responsibility of Local Government Units in Sustaining Energy Sup-plies.

Local government agencies spend more and more of their budgets every year on energy to provide public services and meet their constituents' needs. Local governments grab the opportunity in lessening their budgets, but nearly one-third of the energy used to run typical government buildings goes to waste. Every local government unit is now looking at how they can reduce their energy consumption within their jurisdiction (Energy Star).

The practice of corporate governance in local government includes leading by example and, at the present time, they are being challenged to improve their energy

efficiency. What the local governments can do to improve their community is ensure superior energy performance to protect the sustainability of energy supplies. Local government should realize that they have a unique position to educate their constituents about the benefits of energy efficiency. Local governments can also leverage their relationships with private sector organizations to motivate these groups to make energy efficiency improvements (Energy Star).

3.1.3 Social Responsibility of Local Industries in Sustaining Energy Supplies.

Worldwide industrial energy consumption is expected to increase by approximately 50% from 191 quadrillion Btu in 2008 to 288 quadrillion Btu in 2035, and manufacturers need to develop an energy-management culture (Selko, 2012). Local industries must monitor their energy usage and assess their readiness to take action to reduce their energy consumption.

Energy awareness, facility monitoring, energy efficiency and controlling production can lead to energy optimization for industry (Selko, 2012). Energy awareness lays the cornerstone for ISO-50001 compliance, the framework for industrial plants, commercial facilities, and entire organizations to manage energy. The standard was published in June 2011, and ISO estimates it will have a positive impact on as much as 60% of the world's energy use.

Selko (2012), emphasizes that energy management truly becomes proactive when companies model, simulate, and analyze energy as an economic variable in coordination with energy-compliance criteria and production requirements. There are growing energy demands, diverse energy sources, and diverse user needs that pose challenges for industrial companies, including increased regulatory and legislative activity intended to minimize environmental impact from energy-use, and energy-pricing increases in reaction to supply volatility.

Steps to reduce energy consumption should be considered by local industries as part of their social responsibility. This could be an integration of their social responsibility internally by reducing the cost of their utility expenses and, externally, by contributing to the sustainability of energy supplies. Although social responsibility is a proactive initiative of industry, it is a challenge for them to comply with ISO-50001 that aims to reduce the energy consumption of industries to ensure sustainability of energy supplies.

3.1.4 Social Responsibility of Foreign Investor.

When companies do business in less developed or poor countries, and when they work there "with imagination, passion, courage, humanity, and also hope for some luck" (Prahalad, 2004), they can contribute to change, both through their own activities and through the combined effects which their activities provoke in civil societies. Reviewing the literature that addresses the question of which foreign investor strategies may lead to social benefits in the emerging host countries, the answers point to social responsibility and business ethics (Pratt, 1991; Hart and London, 2005; Pies et al., 2009). One reason may be that the issues are not solely business problems but also social concerns. While it cannot be fruitful to oppose responsible behavior and ethics against the market economy, the terms "social responsibility" and "business ethics" are often seen as oxymoron's (Bardy et al., 2012).

3.2 Foreign Direct Investment.

Through foreign direct investment, foreign investors can not only penetrates a host country's market, but may also gain access to resources, economies of scale and scope in production, logistics, and marketing processes. Whether a foreign investor chooses FDI, rather than serving foreign markets through exporting, licensing, alliances/collaboration or other means, is determined by three factors (Dunning and Lundan, 2008). These include: a transferable competitive advantage in the home-market; specific characteristics of the

foreign market which allow the foreign investor to exploit its competitive position in that market, and the foreign investor's ability to increase its competitive position by taking advantage of what the host country has to offer for controlling the entire value-chain (Bardy et al., 2012). All three conditions must be present or FDI may not take place (Dunning and Lundan, 2008). The firm-specific advantages which constitute the spillover effects of FDI (proliferation of technology, secondary employment, and enhancement of skills) are often what less-developed countries need for their growth and development (Bardy et al., 2012).

A large body of literature emphasizes the positive impacts of FDI (e.g. Kowalewski and Weresa, 2008) and this usually includes FDI increasing growth by introducing new technologies, such as new production processes and techniques, managerial skills, ideas, and new varieties of capital goods. For this, the host country must meet certain conditions in order to maximize the technology spillovers from FDI ("absorption capacity") (Bardy et al., 2012). This paper looks at the technology spillovers from FDI through technology collaboration that can help reduce the energy consumption of local government and industry.

3.3 Technology Collaboration and Appropriate Technology.

IPCC (as cited in Philibert, 2004) defined "technology transfer" as "a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change". Although; it does not reflect a clear-cut distinction between technology collaboration and technology transfer, this paper has delineated the differences between the two terms. In the context of the current discussion, technology collaboration refers to the mutual cooperation between organizations from developing and developed countries for the purpose of further enhancement of the technology to be economically viable and compatible within the recipient local cultural and social environments. Like all forms of collaboration, the two organizations are working together to realize shared goals. Instead of government policy, technology collaboration is protected by an agreement wherein the guidelines and provisions are established by both parties. However, the legality of technology collaboration should determine whether or not it is covered by a technology transfer policy. In the Philippines, the Republic Act 10055,[3] otherwise known as the Philippine Technology Transfer Act of 2009, aims to facilitate the transfer, dissemination, effective use, management, and commercialization of intellectual property, technology and knowledge resulting from R&D funded by the government for the benefit of the national economy and taxpayers.

Technology collaboration will serve as a means to develop the appropriate technology to reduce energy consumption. Appropriate technology does not only refer to identifiable technical devices, but is also an approach to community development consisting of a body of knowledge, techniques, and an underlying philosophy (Akubue, 2000). It is a complete systems approach to development that is both self-adaptive and dynamic (Dunn, 1978). The question of whether the technology is "appropriate" for the recipient country is one of the problems of technology transfer. Ideally, appropriate technology should provide sustainable solutions which are considered beneficial and have a positive effect on the local community. The appropriateness of technology is about being affordable, easy to maintain, compatible with the existing infrastructure, efficient in the use of scarce natural resources, environmentally benign, and partial to small-scale (Akubue, 2000). Over and above these characteristics is the ability of the appropriate technology to be a contributory factor in reducing environmental pollution by reducing the demand for energy.

[3] http://www.lawphil.net/statutes/repacts/ra2010/ra_10055_2010.html

4. Implication

Local government units and industries have an important role in ensuring the sustainability of the energy supply by reducing their energy consumption. It is a challenge for them to integrate the social responsibility of reducing energy consumption in their day to day operations and activities. If the local government units can take the lead in reducing their energy consumption, then they could share their initiative and experiences with their constituents (local residence) as part of their social responsibility and advocate the promotion of energy efficiency and conservation. Local government units have a unique position in educating their constituents (local residents) to increase their awareness on how they can help promote the sustainability of the energy supply. If the residential sector is educated and informed by the local government units as to how they can reduce their energy consumption, then they will participate. Industries can also motivate their employees to be part of this social responsibility by reducing their energy consumption. Once the residential sectors see the effect of energy efficiency in the local government units and industries then they will have the initiative to also reduce their energy consumption. This will also mean less electricity costs for the residential sector and, at the same time, help with the sustainability of the energy supply.

This paper has introduced a model of social responsibility for local government units and industries which is a "two-way social responsibility." It helps them to reduce their operational costs (utility expenses) and at the same time to be accountable for their impacts on society, particularly to the environment. Furthermore, the new framework can encourage foreign investors, local government units, and industries to collaborate in determining the appropriate technology that will reduce energy consumption and lead to a sustainable energy supply.

5. Conclusion

Reducing energy consumption is one way to achieve a sustainable energy supply but this will need a collaborative effort from local government units, industry and foreign investors. The local government units act as leaders in advocating the promotion of energy efficiency and conservation by utilizing social responsibility as their means. This proposed two-way-social responsibility has both internal and external benefits. The internal benefit of this social responsibility is that it lowers operational costs, particularly utility expenses for the local government units and industries, and helps them to invest in the appropriate technology to reduce their energy consumption. The money they save in lowering their operational costs can be used for this investment. Meanwhile, the external benefit of social responsibility is that they helps in sustaining the energy supply for the next generation. It is called two-way social responsibility because it has internal and external benefits.

Adopting the proposed two-way social responsibility is a great help with the sustainability of the local government units and the industries' day-to-day operations whilst, at the same time, contributing toward the sustainability of the energy supply. Both the local government units and industries can start reducing their energy consumption using low cost measures and, eventually, with cost effective investments through collaboration with foreign investors.

Furthermore, foreign investors play an important role in helping the local government units and industries in determining the appropriate technology to use when reducing energy consumption and making it more affordable.

6. Recommendation

In response to local government units and industries achieving the millennium goal for ensuring environmental sustainability, it is recommended that they integrate and implement social responsibility by

reducing their energy consumption. The initiative for reducing energy consumption as social responsibility should start internally where everyone is called upon to participate/contribute. Furthermore, they could also engage in external initiatives by collaborating with foreign investors over the appropriate technology to help them reduce their energy consumption and contribute to the sustainability of the energy supply.

References

Akubue, A. (2000). Appropriate technology for socioeconomic development in third world countries. *The Journal of Technology Studies, XXVI*(1), available at: http://scholar.lib.vt.edu/ejournals/JOTS/Winter-Spring-2000/akabue. Accessed June 28, 2013.

Australian Hotel Association (2001). Hyatt Regency Perth. Available at: http://www.ret.gov.au/energy/documents/best-practice-guides/energy_case_studies_hyattperth.pdf. Accessed June 28, 2013.

Ayson, L. G. (2012). Driving "sustainable energy for all" along the electric power value chain. Available at: http://www.eefphilippines.com/cms_cebu/medrep/_uploads/f_20120814-103555_Keynote_Address_by_Hon._Loreta_G._Ayson.pdf. Accessed June 28, 2013.

Bardy, R., Drew, S., & Kennedy, T. F. (2012) Foreign investment and ethics: How to contribute to social responsibility by doing business in less-developed countries. *Journal of Business Ethics*, *106*(3), 267-282.

Boomer, D. (2008). *Energy Efficiency: Joining the Use-less Energy Generation*. London, UK: Institute of Directors. Available at: http://www.iod.com/Mainwebsite/Resources/Document/policy_publication_Energy_Efficiency_paper.pdf. Accessed June 28, 2013.

Hart, S. S., & London, T. (2005). Developing native capability: What multinational corporations can learn from the base of the pyramid? *Stanford Social Innovation Review*, *3*(2), 28-33.

McGrory, L. V. W., Harris, J., Lapeyre, M. B., Campbell, S., Constantine, S., Cava, M. d., Martínez, J. G., Meyer, S., & Romo, A. M. (2002). Market leadership by example: Government sector energy efficiency in developing countries. Available at: http://www.pepsonline.org/publications/Market%20Leadership%20by%20Example.pdf. Accessed June 28, 2013.

NEDA (National Economic and Development Authority). *The Foreign Investments Act of 1991*, available at: http://www.neda.gov.ph/references/files2007/7thRFINL_EO584_pager.pdf. Accessed June 28, 2013.

Philibert, C. (2004). *International Energy Technology Collaboration and Climate Change Mitigation*. Paris, France: OECD/IEA.

Pies, I., Beckmann, M., & Hielscher, S. (2009). Value creation, management competencies and global corporate citizenship: An ordonomic approach to business ethics in the age of globalization. *Journal of Business Ethics*, *94*(2), 265-278.

Prahalad, C. K. (2004). *The Fortune at the Bottom of the Pyramid: Eradicating Poverty through Profits*. Philadelphia, PA: Wharton School Publishing.

Pratt, C. B. (1991). Multinational corporate social policy process for ethical responsibility in sub-Saharan Africa. *Journal of Business Ethics*, *10*(7), 527-541.

Prindle, B., Eldridge, M. Eckhardt, M., & Frederick, A. (2007). The twin pillars of sustainable energy: Synergies between energy efficiency and renewable energy technology and policy. *ACEEE Report Number E074*, available at: http://www.paenergyfuture.psu.edu/pubs/aceee_reports/aceee2007sustainable.pdf. Accessed June 28, 2013.

Selko, A. (2012). Steps industry can take to reduce energy consumption. An action guide to reduce consumption of water, air, gas, electric, and steam. Available at: http://www.industryweek.com/companies-amp-executives/steps-industry-can-take-reduce-energy-consumption. Accessed June 28, 2013.

Seyfang, G. (2010). Community action for sustainable housing: Building a low-carbon future. *Energy Policy*, *38*(12), 7624-7633.

Sheil, D. St. M. (2003). *SRI in Asian Emerging Markets - ASrIA Reports*, available at: http://www.scribd.com/doc/25594878/SRI-in-Asian-Emerging-Markets-ASrIA-Reports-October-2003. Accessed June 28, 2013.

UNESCO (United Nations Educational, Scientific and Cultural Organization). (2009). Societal commitment and social responsibility. Available from: http://www.unesco.org/en/the-2009-world-conference-on-higher-education/societal-commitment-and-social-responsibility. Accessed June 28, 2013.

Willoughby, K. W. (1990). *Technology Choice: A Critique of the Appropriate Technology Movement*. Boulder, CO: Westview Press.

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