Title: Benefits and Drawbacks of Potential Investments for Facility to Reduce Energy Consumption

Subject: Environmental Sciences

Type of Paper: Assignment

Words: 1009

Energy efficiency is a measure of energy consumed for providing a given service. Enhancing energy efficiency implies getting more from the energy that people consume.

Investing in energy efficiency measures frequently requires local labour, and the investment has the strength to increase the growth of employment and economy. The business people consider this a vital in the current global economic environment. (Funk & Vitousek, 2007) Moreover, long-term growth benefits also are there. As instance, lower bills of energy can cause high level of disposable incomes that can be spent elsewhere in the economy, whereas businesses can observe a decline in costs of running facilities and thus an increase in production. Simple alterations in energy consumption behaviour can present some of these main advantages.

In energy efficiency technology in Hyundai, longer term investment can also cause a worthy circle as innovation leads to reductions in cost which can make it inexpensive and easier to make investment in energy efficiency programs later. Establishing the innovative capability in technology, materials or models of business for energy efficiency establishes the potential for more and more significant opportunities of export as the effort at global level to fight with climate change increases.

It is showed by most of the economic studies that invest in energy efficiency can boost productivity, increasing growth and minimising inflation as well. According to the study of Gillingham, Newell & Palmer (2006), these policies enhanced the rate of economic growth at annual basis by about 0.1% points within that period. Nouri (2013) projected that such policies resulted in about 250,000 more employments in 2011 due to the growing impact of high level growth.

Effective measures of energy efficiency in the facility have taken to make sure that programs of energy efficiency do not lead to a negative impact on their bottom line. The most significant aspect is to make opportune rate adjustments to make sure the recovery of cost and identify possible revenue deficits. To achieve this, follow the following recommendations:

- Educate and convince the governing boards of the firm on continuing financial advantages of investing in energy efficiency to the utility and the consumer. Main selling points comprising the truth that costs of energy efficiency in the long run less than investments in supply-side, and minimises the risk factors as well that related with future regulations about climate. Moreover, it is necessary to stress the benefits of local economic development related with the programs of energy efficiency. (Worrell, Martin & Price, 2000)
- Emphasise the bid difference between rates and bills, and indicate that programs of energy efficiency in the plant reflect a small part of rates in relation to the costs of supply-side. (Harvey, 2013)
- Track the energy efficiency programs' impact. Specifically, it is also vital to differentiate between the impacts of energy efficiency on revenue as well as the impacts of other aspects affecting the sales, including the conditions of weather and economic situations.
- Make sure that load predicts and projections of revenue take the impact of energy efficiency into account. (Worrell, Martin & Price, 2000)
- Provide information and updates on regular basis to the firm's governing board on the position of activities relate to energy efficiency program, and related other impacts on the requirements of revenue. (Worrell, Martin & Price, 2000)

Methods to Use for Evaluation Investment Options

Reflecting a convincing and powerful business case for investments in energy efficiency programs is precious from the perspective of customer relations, and also valuable in requesting budgetary authorisation from officials of the city and utility governing boards. Besides giving convincing arguments for development of the economy, environmental responsibility and energy sovereignty, the underlying principle for making investment in energy efficiency program frequently falls into numbers-in effect, revealing that over the long-standing, investments in energy efficiency cost less than the alternatives of supply-side. (Li, Lu & Wu, 2013)

Both organisations, for-profit and not-for-profit, evaluate the potential investments on the basis of the financial bottom line. Organisations, to effectively evaluate this, employ financial analysis tool to address whether a predetermined profitability obstacle rate is passed by an investment whereas preserving suitable first cost and liquidity necessities.

Evaluating the long-term investment in energy efficiency project requires tools that take into consideration the cash flow over the project's life and justify the time value of money. Though, simple payback, often employed in the industry of energy management, cannot be employed as a sign of profitability as it does not take returns into consideration beyond the period of payback and overlooks the time value of money. IRR and NPV ate the most best and powerful tools to evaluate the potential investment (Abadie, Chamorro & González-Eguino, 2013). IRR is helpful for making the comparison of a project's return in relation to a hurdle rate to ascertain whether the energy efficiency program is gainful. NPV, on the other hand, is also best approach for evaluating and prioritising amongst competing programs. Both approaches to evaluate the energy efficiency program provide a detailed evaluation of a program's contribution to the bottom line. (Abadie, Chamorro & González-Eguino, 2013)

Participants in ENERGY STAR Buildings willingly concur to complete, where lucrative, a blend of energy efficient operational ac activities and upgrades of tools and equipments that increase energy savings whereas preserving or enhancing facility comfort and internal quality of air. TA profitable project is defined by the ENERGY STAR Buildings Memorandum of Understanding (MOU) as one that facilitates with, after tax, a yearly IRR counterpart of minimum *20% points* during ten years of period. (ww.energystar.gov) However, in the following paragraphs, a comprehensive framework gives a logical and more systematic option to make an evaluation of potential investment in energy efficiency program consistent with the guidelines of MOU, and should be used in to projects (ww.energystar.gov).

- Conduct a comprehensive cash flow analysis for each option of upgrading.
- For every option, calculate IRR. Ascertain the profitability of each option against the 20% rate of hurdle.
- Make comparison about competing and prioritize options through NPV tool.
- Increase energy efficiency in the plant through packaging options.

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