

**A PROPOSAL TO USE SOLAR ENERGY
AS AN ALTERNATIVE SOURCE OF ELECTRICITY IN
DE LA SALLE UNIVERSITY - DASMARINÁS**

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I. INTRODUCTION

A. Background

De La Salle University – Dasmariñas is a Catholic university. The constitution suggests that the Catholic church or any religious institutions are exempted from paying taxes. According to Article VI Section 28 of the 1987 Constitution of Republic of the Philippines: *“Charitable institutions, churches and personages or convents appurtenant thereto, mosques, non-profit cemeteries, and all lands, buildings, and improvements, actually, directly, and exclusively used for religious, charitable, or educational purposes shall be exempt from taxation.”* The Lasallian community has a wide range of accumulating income: from the students' fees, sponsors, and donations. However, the tuition fee still increases year by year. *“As of the year 2009, the university pays millions a month for its electricity bill,”* said University Controller Deodoro Abiog II. He stated that the main cause of tuition fee increase is because of its increasing electricity consumption. As we all know, the electricity costs are included in the students' miscellaneous fees. With the newly constructed buildings, it is predictable that electricity costs will continue its increase by the next semester. On the other hand, the proponent observed many possible ways to cut the electricity costs of the university in a more convenient and simpler way. The proposal suggests the usage of natural resources - mainly the solar energy, as an alternative source of electricity to minimize the costs of the university. The use of solar energy as an alternative to electricity can help reduce global warming, therefore helping to prevent climate change.

B. Statement of the Problem

High electric bills are the main cause of tuition fee increase. It is proved by the sign posted around the JFH grounds that suggests: *“If you don't want tuition fee increase, turn off any electric facilities when not in use.”* That emphasized that the university spends much of what it needs to spend on the electric bill. This was secondly proved by the February – May 2009 issue of *Heraldo Filipino* which stated that the university spends millions a month to pay the electricity provider, which is too impractical. Almost all of the classrooms and offices in our university are air-conditioned. With the current bloom of portable technologies like laptops, netbooks, smartphones; and new buildings COS, CIH, and the currently under construction *Ayuntamiento de Gonzales* building, electricity bills will undoubtedly increase by the next months.

The proponent has also identified one of the greatest problems our world is facing today – climate change. With the current industry, power generation depends on the world's natural resources. According to ecologist Joe Bidden, if we continue using these resources for the next decades, it will greatly affect the ecosystem, which might trigger a great transition on our climate, hence, the climate change. Not only does the problem fall into the resources, but also the by-products. The emissions of most machines our world uses today have negative effects on the environment. Greenhouse gases are the main cause of global warming and these machines emit large amounts of heat and are not environmental-friendly. Not to mention the large power generating industry itself, which produces not only extensive amount of heat, but also noise and waste.

C. Scope

The proposal covers an introduction to solar energy, how it can be an alternative source of electricity, and how it will benefit our university, its students, faculty, and staffs. It encompasses the installation process of solar panels, where should they be located, how much electricity they can produce, how much will be the needed budget for the project, how long would they last, and how the project should be managed by the staffs of DLSU-D.

II. DISCUSSION

A. Details of the Proposed Solution

Solar energy is a type of energy which is acquired from the sun. The most commonly used medium to acquire this energy is by the use of solar panels. Solar panels have two different types: thermal and photovoltaic. Thermal panels are mainly used for heating purposes; e.g. heating water on cold weather. On the other hand, photovoltaic panels are used to convert the sun's light rays to electricity. In the Philippines, a square meter of the earth surface can harness 3.5 to 5.2 kWh.¹ The proponent suggests that due to its high electricity bill, which causes the tuition fee increase, the university should have an alternative to its current electricity provider and instead use a renewable energy resource – one is the use of solar energy. The university is 28 hectares and due to its large area, photovoltaic technology, or the use of PV panels, is effective, targeting mainly the roofs of the university buildings: CEAT, CBA, Aklatang Emilio Aguinaldo, University Chapel, ULS, the sidewalk roofs, for up to a hundred panels per site.

1 <http://www.pvresources.com/en/module.php>

This technology should not completely replace the traditional electricity supply; it should just be an alternative. Because Philippines is tropical country, not everyday is a sunny day. The peak season of harnessing solar energy is during months of February to July and its lowest is from November to January. After the implementation of this technology, there should always be a back up in case it should fail to provide or store the required university consumption of electricity. However, by implementing this technology, the university would reduce its electricity costs due to the high probability of the solar technology efficiency.

B. Methodology

- **Planning Stage**

The university should authorize a committee for planning the project. On the planning stage, the committee members must do a blueprint of where the photovoltaic (PV) panels should be located. The proponent suggests that they should study the factors that would affect the efficiency of the technology – focusing mainly on the observation of the amount of solar irradiance (or sunlight) per infrastructure specified on the blueprint and the angle where it can gain more energy. Also included on the planning stage is whether what company should they sign a contract regarding with the supply or production of the PV panels.

- **Testing Stage**

On the testing stage, the committee should test a solar panel prototype on the chosen infrastructure and observe its efficiency. If it is successful, the project should proceed to the installation process.

- **Installation Process**

The committee should decide whether they should hire electricians on the installation of the PV panels or just look for volunteers. The specifications of the installers should be that they know basic carpentry so there is no need to hire electricians. This depends if the contract with the company includes the installation service.

- **Work Assignment**

After a successful installation, the committee should assign university personnel who will manage the project. It should include electrical experts that have basic knowledge with the photovoltaic technology.

- **Training Stage**

After the work assignment, the chosen personnel should be trained on how to manage the technology and what to do when they encountered problems. They should be trained on how to troubleshoot and fix minor problems that the technology might encounter.

- **Maintenance**

The maintenance should include but is not limited to a daily routine check of the installed panels per building.

C. Benefits

Once the proposal has been implemented, there will be a great impact not only to the university but also to the students, faculty, employees, and the environment.

- **Students**

It should benefit the students not only by preventing tuition fee increase, but also giving them the awareness of the existence of such technology and will provide them an inspiration that we are not limited to doing only what we see everyday, but we can also do what we can imagine.

- **Faculty**

There is a high probability that because of the costs the university can save by implementing this technology, salary will increase.

- **Staffs**

This technology might open opportunities to those who needs additional sources of income by having the chance to grab a position on the planning or the maintenance committees.

- **University**

This project is not yet implemented on any universities or colleges on our country and by being the first to use this technology, the university may stand as a role model to other universities. This project also proves that the university is GREEN (environment-friendly).

- **Environment**

By using a renewable energy resource, we can already help our environment. By reducing emissions to zero emissions, we might help prevent unwanted payback to our nature. It might not stop climate change but it will help prevent it. It will also be a great help to stop typhoons which are mostly caused by the heat trapped on our atmosphere.

D. Costs and Source of Budget

A solar module (or solar panel) costs \$1.50 to \$2.00 per WP (Peak Watt). That is 6,500php per 100WP solar module for a total of 65,000php per site. If it is to be installed on ten sites, it will just cost 650,000php, without even reaching the amount the university pay on one month of the electricity bill. The source of the budget will be from the university budget. The proponent suggests that the university may do a fundraising campaign for the project and acquire sponsors.

E. Timetable

Planning	The planning stage should take atleast 6 months to 1 year.
Testing	The observation of the prototypes should only take 1 month.
Installation	Depending on the buildings chosen, the number of solar panels may vary. But it would probably take atleast 3 months to 1 year on the installation of the panels on the whole university.
Work Assignment	It should only take 1 month.
Training	After the work assignment, the training of the personnel should only take 1 to 3 months.
Maintenance	Maintenance is continuous.

III. CONCLUSION

A. Summary of Key Points

Photovoltaic technology is a type of renewable energy that is always available and free. Its usage can be of great value, it just needs implementation for us to see its importance and its help not only to us but also to the environment and to our world in general.

B. Request of Action

Electricity expenses are billed monthly. The proponent suggests that this proposal should be looked into immediately but thoroughly so that the future enrollees of the next semesters will not be burdened by the impractical expenses our university has today.

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