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The Oil Transition Time, and the use of Biofuels and Solar Energy as Optimal Clean Energy on Right Time

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Abstract- In the time when the energy from oil is in transition, and exist the shale gas as energy option for the next years, but the shale gas is not consider clean energy, and the need to reduce environmental pollution, we lead to use the biofuels and solar energy as the options to combat the environmental problem by reducing pollution and search the sustainability systems for that solution, because the both systems are from nature process , and on the other side we want clean energy , savings and better quality of life, but is important consider factors for the successfully implementation, in reality is not easy implement all ideal measures, without consider the optimal conditions for follow the sun, such as solar Tracking system or the optimal mix of hybrid systems on the use of biofuels and solar energy as clean energy solution.

But is important consider that in not all countries, the biofuels is the best solution, such as the case of developing countries, where the governments are finding solutions for solve the problem of environmental pollution and on the other side need places to grow food, for this reason is very important consider how is the best option for energy production, for that cases solar energy can be the best solution, and for another countries where the soil is rich and the conditions are differents is possible use biofuels like best solutions, those cases benefit for example in rural areas where is very expensive make electricity nets, and is necessary use nature energy resources for reach better life quality and combat the poverty.

Keywords: solar energy, oil trnasition, biofuels, sustainable development.

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I. INTRODUCTION

WHY BIOFUELS AND SOLAR ENERGY ARE IMPORTANT ALTERNATIVE FONT FOR CLEAN ENERGY FOR THE PRESENT AND FUTURE?

The earth make natural process and give for us raw material for biofuels and are consider renewable clean fuel, and solar energy is available all days in almost all parts of earth planet.

The use of actually energy systems that use biofuels and solar energy have a high impact and social benefit, for example, can reduce the atmospheric emissions and pollution.

We can have benefits of large scale, but exist some social and economic problems, such as:

- The actually use of fossil fuels for transportation, and that represent cost for replacement with solar energy and biofuels systems, that is one important economic factor.
- The biofuels and solar energy that can be produce clean energy and respectfully with the environment but, how can make poverty reduction and helping poor people for survive?, that is an economic and social factor.
- In some countries the soil is consider for corps for food, but the sun is free for all people, and biofuels are second place, in that cases is important consider the sun energy as first option that is due the social and economic factor.

Those examples are only some aspects, that will be aboard in this article.

Many strategic business opportunities that can arise from technological opportunities through the use of renewable energies, can be exploited with the blue ocean strategy (W.Chan Quin,-Renee Maubogrne et al. 2005).

Although long ignored seems that the potential of power, new markets and new manufacturing capabilities are helping to make biofuels and solar energy in a global industry. Beyond political and financial interests, provides a sustainable use of technological interest.

This research will consider a solution for harnessing use of biofuels to be used in cars in the

world, and propose new business alternatives based on Blue Ocean Strategy

All of this to determine and propose the use of these systems based on technical and economic feasibility.

II. STATE OF THE ART

a) *Actually situations with the use of oil, and how can the biofuels and solar energy reduce the environmental problem and contribute for Sustainable Development*

One of the big social problem is that people must pay much money for the heat, and the governments must make investments of millions of dollar for that cause, but this problem is ironically one problem due for greenhouse gases.

b) *Greenhouse Gases*

Are gases which are present in the Earth's atmosphere and give rise to the phenomenon called greenhouse effect. Its atmospheric concentration is low, but are crucial in increasing the air temperature near the ground.

The major greenhouse gases are water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), chlorofluorocarbons (CFCs) and ozone (O₃) (Dargay, J., D. Gately, 2007)

Another big social problem is that many poor people from rural areas in winter die due use burning wood into their houses.

But not forget that the transport in rural areas is another social problem, because is difficult carry the oil to the remote rural areas, but that problem can be solve if the people of those areas will produce biofuels in their corps, and use solar energy.

Undoubtedly, oil is the main protagonist of this era of combustion, not only for their essential energy function but also its influence on the global economy, and despite the efforts of the leaders in research and development on the exploration and exploitation of new deposits, there is recognized Hubbert's peak theory (Laine J. et al. 2009) predicts that we are currently in the decade of the top of the world's proven reserves of conventional oil (see figure). If current global consumption of 30 Gbbl/year remains, have a term of 50 years for the depletion of those reserves which now number about 1,500 Gbbl. (Gbbl Gigabillion barrels)

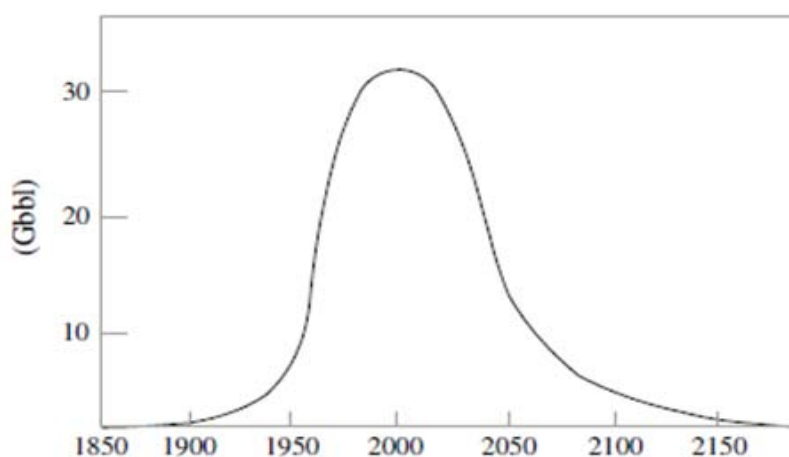


Figure 1 : Hubbert's Peak (yearly oil production in Gigabillion barrels)

Shale Gas: The source of energy of the following 100 years

Shale Gas is natural gas that is trapped within shale formation. Shales are fine-grained sedimentary rocks that can be rich sources of petroleum and natural gas

According to a report published by Bloomberg Businessweek (June 9, 2013), the USA exported daily 4.4 billion cube feet of natural gas to Mexico and Canada. The capacity to export gas to other countries in North America is changing trade relations in the NAFTA. The article sourced above assumes the following, if US energy consumption is constant during the next 100 years, the USA will have enough reserves of shale gas to feed domestic and industrial energy consumption.

In addition, the European Union (EU) looks interested in how USA is modifying techniques to provide gas to neighbor countries. Some of the advantages in using shale gas have to do with low costs of transportation and the infrastructure to transport it. As an example.

Shale gas is extracted from deep areas. New technologies flow water and land with high pressure drainage on the underground. This process allows to recover organic material from deep areas and to delay gas and petroleum.

Even though this technology is 10 years old, the USA is optimizing techniques to make shale gas a competitive industry. The expansion of shale gas, no

doubt, will decrease oil prices and revolutionize gas distributions; with both, domestic or industrial goals.

Shale Gas is a option for solve partial oil problem, but shale gas is not clean energy.

Those problems can be solve with the use of biofuels and solar energy for use in electricity ,transport and so will make better conditions of life of rural sectors. Otherimportant socialproblem that can be solve with the use of biofuels and solar energy ispoverty reduction.

c) *Biofuels and solar energy for sustainable developmentandpoverty reduction*

i. *SustainableDevelopment*

It is called sustainable development is development that can meet current needs without compromising the resources and possibilities of future generations.

Also sustainable development is a balancebetween society, economy andenvironment (Mohanty A. et al. 2013)

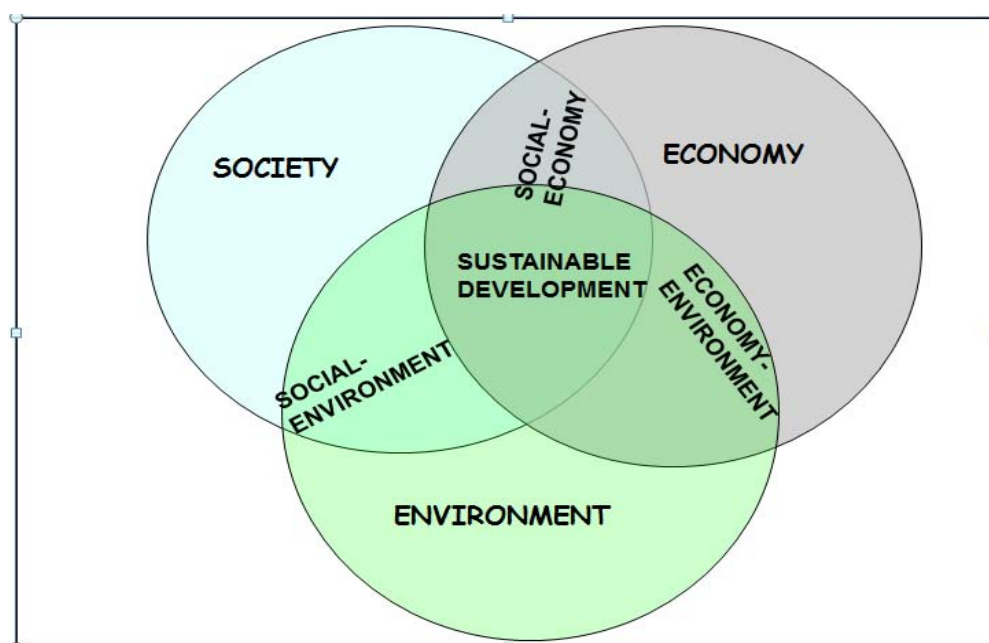


Figure 2 : Sustainable development (Mohanty A. et al.2013)

Accordingto the definitions ofpoverty, which are based on various factors including income and consumption (Poverty is defined by the relationship between income and a minimum acceptable level of consumption, ie poverty is defined as a limiton household goods and services necessary to satisfy basic needs.This limitis identified with the basic needs.

III. INDUSTRIES COMPETITIVENESS

Some years ago, people thought that the competitiveness of companies was based on how factories were equipped by technological items. Recently, this belief has changed and employers are convinced that human capital is the main component of organizations.

Michael Porter has been a prominent researcher in the area of competitiveness. And he explains that competitiveness refers to the strategies and ways to produce from a unique way. The unique way to produce is saved in knowledge of members of organizations. Later, a figure shows what elements surrounding industries complete the forces to make the competitive.

However geographical position plays an important role in organizations, in terms of transportation costs, or how the organization is engaged in a cluster. According to Porter, clusters have the advantage of training people in a way that collaborates in the supply chain. Other authors, as Jones (2011) say that large companies tend to attract components from small or middle factories. And those large companies make providers more sophisticated as they demand sophisticated products.

IV. SOME CONSIDERATIONS ABOUT ENERGY IN LATIN AMERICA

Latin America countries have great opportunities to develop technological strategies and human capital to find new ways to profit shale gas and petroleum. Brazil has made interesting efforts to produce ethanol. However this energy has not shown yet that the fuel can add to a value chain. From a sustainable point of view, ethanol is facing real challenge to face the entrance of rivalry like solar o wind power.

There are some other factors to take into considerations such as the way governments vision to train human capital and to adopt technology to assure energy supply for the next decades. One way could be the reforms that governments are promoting with the support of political forces. Or, another, by opening opportunities to create flexible companies to be part of international knowledge networks.

Universities, at the respect described above, play an important role in training human capital. Although, some publications show that, in comparison with some Asian countries as China or India, universities of Latin America do not send enough students to US universities and to compete with Asian human capital. (Openheimer, 2010). It is important to add that shale gas, if prospections of USA production come true, will make oil cheaper. The scenario motivated by shale gas and petroleum does not present a good future to the economies of Latin America whose incomes are based on fossil supplies.

a) *Technology and Global Chains*

Biofuels face real rivalry from different sides. Companies from different parts of the world are searching how to become more competitive by using low and sustainable cost energies, biofuels have not been able to join to the value chain or even made sophisticated markets. Even though biofuels seem to be friendly with the environment, the cost of productions is high and sometimes uses fossil sources to complete the process of producing them.

V. SUSTAINABILITY AND THE STUDY OF HUMANS' FRAME OF REFERENCE

a) *Sustainability*

The concept of sustainability is represented by an economic approach which handles that any kind of productive activity must be supported by an idea of row materials are not endless. Sustainability envisions a long-term development. Scientists of this approach argue that next generations must have the same conditions to generate goods as the present generations.

So, sustainability must be involved in any industrial process and fossil energies do not guarantee the same level of energy for next generations. Some specialists forecast the end of current oil or gas in the next 50 years. Shale gas, as seen earlier, changes the perspective and that is why the reserves in the USA and Mexico, used in an efficient manner, will completely modify productive interactions.

In contrast, shale gas, as current combustion processes, makes CO₂ emissions and probably collaborates to the global warning. This reality shows good perspectives to nations with high reserves of shale gas. Just a few have calculated the price that next generations will have to pay to repair possible damage in the environment that emissions may cause.

In the case of solar energy

The sun is the source of renewable energy that covers a large part of the planet, so it is a source of great potential today.

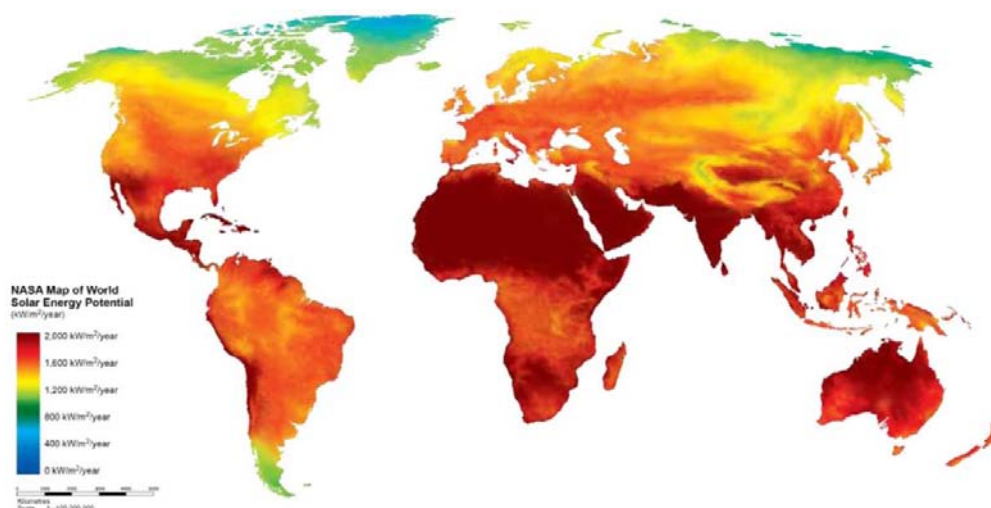


Figure 3 : Average solar radiation calculated on the basis of 24 hours per day, and considering the clouds
(NASA Data 2012)

VI. CONCLUSIONS

Is very important remark that exist several energy solutions in the world for combat the energy lack in the future, such as the oil down production, but not all solutions are clean and friendly with the environment, such as the case of energy from radiation, that energy is dangerous and in the history have had made several injuries, such as the case of Chernobyl disaster.

Also consider that the energy form Shale Gas is a solution, but the Shale gas is not consider clean energy, the wind energy is consider one very important source of energy, but the high costs of maintenance and mechanical systems are not easy method, for that reason, the solar energy, and biofuels represent actually good options for clean energy.

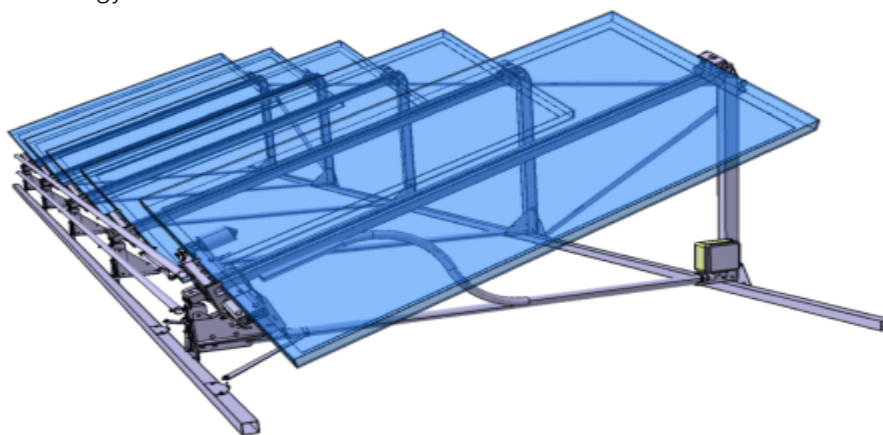


Figure 4 : Solar Tracker System

b) Proposal for use biofuels with another energy systems (Hybrid systems)

The biofuels alone are not the global solution for future energy, also in combination with another fonts of energy for example combine with solar energy, wind energy and nature gas, is a good solution, because every day are new trends in energy sector, and combine clean energies are the succesfully way for use biofuels.

c) Proposal to combat poverty through the use of biofuels and solar energy. (Barrera, Lima, Tlecuilt, 2013)

i. Based on a strategy to combat poverty is sustainable development

The proposal is scalable opportunity to address social aspects, is very important to note that biofuel technology and solar energy as a tool that contributes directly supports the strategy to combat poverty, poverty is based imbalance and lack of resources, so with the use of biofuels and solar energy can be combated some aspects that are listed below. For the social and environmental aspects:

Democracy- The soil is for all, and the earth provide natural resources for all, and biofuels can obtained from the soil, and the sun is for all people. Decrease of climate changes.- With the use of biofuels

VII. PROPOSSALS AND RECOMMENDATIONS FOR SUCCESSFULLY IMPLEMENTATION

a) Proposal for use solar energy with tracking systems (sun follower system)

Solar trackers are used to increase the power output of solar panels and solar. The solar tracker is a "Device" responsible for monitoring the movement of the sun while it performs its daily routine across the sky from east to west. These devices are used to follow the sun, and make the best efficient system.

and solar energy systems avoids burning fossil fuels, and thereby reduce climate change factors. Also contributing to the decline of climate change disasters.

Economic and Environmental aspects –No land use unbalance and most use the ground both as food and for biofuels.

Social and economic aspects - Cost per shortages and facilities in rural areas where there is no easy have electricity from net lines, and it is very expensive to extend power grids, can grow biofuels and solar energy as hybrid systems,, and provide energy for electricity and transportation.

VIII. RECOMMENDATIONS

For the use of solar energy and biofuels actually be an advantage in the economic, social and environmental care, should take care of the following :

Policy: The success of biofuels depends on their use mandatory, tax facilities, subsidies provided by the State, pricing to consumers, the recognition of the rights of workers and the thousand and one ways develop from the rural communities and effective use of their land.

Grants: The production of energy from solar energy and biofuels in the world is profitable because of

subsidies and incentives for renewable energy, but must ensure that these subsidies are allocated to the most vulnerable.

Research & Development: Both developed and developing nations must pay attention to the benefits associated with research and development, adopt new technologies, resulting in improved environmental heritage and obtaining economic benefits in the development of clean energy.

Environmental Benefits vs Profits: The ambition for the profits do not should exceed the benefits of environmental preservation. In relation to environmental preservation any effective path leading to a reduced consumption of nonrenewable energy collides with the same difficulty: the decrease of the gain or extraordinary profits.

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