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A Novel Approach that Contributes to Solving the Worldwide Energy Needs

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Abstract

Several methods have been suggested for generating electricity. Some of which are widely used today and others are still undergoing research and development activities, up to this date power stations were either based on conventional techniques and technologies such as coal, nuclear, gas, and petroleum, or based on renewable sources of energy such as water, solar, wind, biomass, geothermal power and tidal harnesses. In this paper we present a new perspective, techniques, and technologies called bio-fuel power plants and refineries for generating electricity and providing fuel. This perspective is based on cloning of oil-producing fruits, animal parts, and the use of wastes that are produced from many food industries. We believe that this new approach could be considered as a real solution for future worldwide energy crisis. The new approach would create new frontiers in research activities, new jobs, and the introduction of new safety and regulations measures. Depending on the application area and electrical energy needs, different types of refineries and power stations can be envisaged, designed and implemented. These plants could range from micro scale to future macro scale refineries and power stations.

Keywords: *Bio-fuel, Cloned animal parts, Cloning, Conventional resources of energy, Oil-producing fruits, Power Plants, Renewable resources of energy*

1. Introduction

Electricity generation is the process of generating electric energy from other forms of energy. Today, in generating electricity, we rely mainly on coal, natural gas, petroleum, hydroelectric, solar energy, nuclear, wind generators, geothermal, biomass, and tidal harnesses. There are basically seven fundamental methods of directly transforming other forms of energy into electrical energy (Demirel 2012): static electricity, electromagnetic induction, electrochemistry, photoelectric effect, thermoelectric effect, piezoelectric effect (Lee et al 2012), and nuclear transformation.

All these methods have their advantages and disadvantages and these could be found in many references. However, considering the growing demands for electrical energy and the environmental and global warming issues, we believe that none of these methods would be considered as long time sustainable solution for worldwide energy crisis. Therefore, a new approach is required that offers a sustainable solution and provides scalability and many advantages over other methods.

The suggested approach to be used in this work is based on electro-magnetic induction approach using both steam turbines and generators in which the fuel to be used in firing the thermal engines is based on vast amount of the reproductive cloning of parts of plants and animals.

2. Envisaged electrical power station

Figure 1 shows a block diagram of the envisaged bio-fuel power station. However, it should be looked at this diagram as a generic diagram that covers power plants from micro to macro scale power stations. The station is similar to coal-based and oil-based power stations except that the fuels for this station are mainly the oils that are produced as a consequence of processing oil-producing fruits and animal parts that are both produced via cloning processes and also the processed remains of the cloned oil-producing fruits and cloned animal parts.

The cloned oil-producing fruits can be the fruits and the seeds of those plants that are the source of vegetable oils, mainly soybeans, palms, sunflowers, rapeseeds, olives, corns, and sesames.
The cloned animal parts are mainly those parts of those animals that could contain a lot of fat in them, such as the humps of camels, and the blubbers from whales and seals.

The cloning processes once initiated they are self-contained and can be centralized or distributed. However, the distributed approach is preferred over the centralized one because it offers many advantages, such as: controllability, observability, maintainability, and productivity.

In addition to the above, the proposed approach for generating electrical power using bio-fuel can be used either as a standalone solution, or it can be combined with other technologies such as natural-oil, natural-gas, coal and biomass.

In the following paragraph we give a brief description of the various processes that are parts of the proposed bio-fuel generation section.

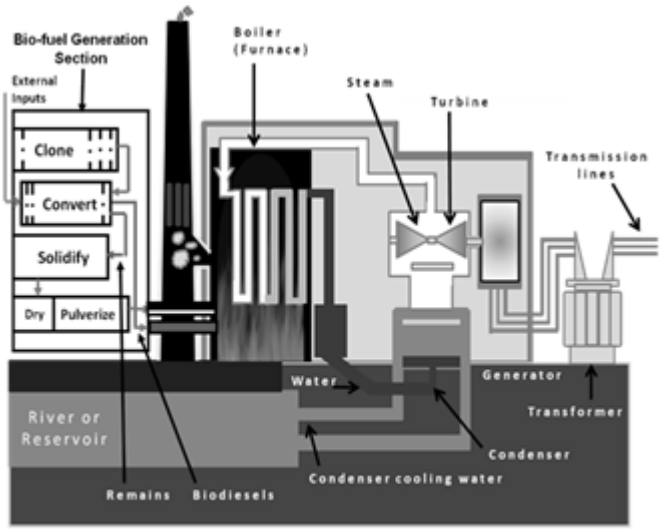

Fig. 1. Block diagram of the proposed generic bio-fuel power station.

2.1 Processes Description

We only concentrate on the description of the Bio-fuel generation processes. Other processes in the power station that range from the pulveriser to boiler to turbine to condenser to generator and to the transformer are all well-known and have been addressed thoroughly in the literatures. The bio-fuel generation process consists of the following processes:

2.1.1 Cloning Process

The purpose of the cloning process is to generate a sustainable continuous bio-fuel output. The cloning process can be divided into three sub processes. These are:

1) Cloning of oil-producing fruits sub process: this sub process is to generate a sustainable continuous cloned vegetable oil-producing fruits such as soybeans, palms, sunflowers, rapeseeds, olives, corns, sesame seeds, and canola seeds.

2) Cloning of fatty-parts of animals sub process: this sub process is to generate sustainable continuous cloned fatty-parts of animals, such as humps of camels, and blubbers from whales and seals, and also sheep tails.

3) Cloning of complete animals and plants sub process: this sub process is a reproductive cloning to generate sustainable sources or platforms for other cloning sub processes.

The cloning process should generate vast amount of clones in exponential manners so that the outcome of this process could be considered as sustainable renewable bio-fuel. The cloning process once initiated should become self-contained.

2.1.2 Convert Process

This process receives the outputs of the cloning process, i.e., the vegetables oil-fruits and the fatty-parts of animals and acts upon them and transforms them into oils. In doing so the following sub processes are involved:

1) Convert of vegetable oil-fruits into vegetable oils sub process: this sub process extracts the various vegetable oil-fruits into vegetable oils through the use of various well known already established commercial methods.

2) Convert of fatty-animal parts into oils sub process: this sub process converts the cloned fatty-parts of animals into animal oils.

3) Recycle sub process: the purpose of this sub process is to act on external inputs as explained later in the External Inputs section of this article.

4) Generate biodiesels from vegetables oils and from animal oils (transesterification) sub process: this sub process converts various oils into biodiesels by the use of chemically reacting lipids. The biodiesel trans-esterification reaction is very simple (Campbell.2008):

There are two kinds of outputs of the convert process. These are:

1) The biodiesels outputs: these outputs are directed to be the inputs that provide the fuels to the biodiesels boilers in the bio-fuel power plant.

2) The remains outputs: these outputs constitute the remains of the vegetable oil-fruits, the fatty parts of animals, and the processed external inputs after carrying out the convert process on them. These outputs are directed to become the inputs to the next process which is the solidify process to be discussed next.

2.1.3 Solidify Process

The purpose of this process is compress together or separately the remains of both the oil-producing fruits and the remains of the fatty-parts of animals in order to solidify them into blocks that could when burnt generate considerable heat energy. We propose that the solidification processes to be done using a kind of bacterial based fermentation technique.

The reason of proposing that the solidification process is to be implemented using bacterial or viral techniques is to stick with the bio-techniques in the proposed bio-fuel generation approach. We believe that the bio-solidifying techniques would perform far better than its counterpart the mechanical techniques. In this, the bio-solidifying approach will reduce the mechanical requirements and their problems and would also reduce the needs for consumption of energy.

The incubators for the bacteria that will perform the solidifying process are not shown separately in the figure but point out to the reader that they are to be considered implicitly as part

of the solidify process. The output of the solidification process is a conveyor lines of solid blocks that are feed as an inputs to the next process; the dry process.

2.1.4 Dry Process

The purpose of the dry process is to dry the produced solid blocks that are conveyed from the solidify process. The solid blocks that are the output of the dry process are conveyor lines feed to the pulverize process and from there the processes continue as in a coal power generation station.

2.2 External Inputs

The block diagram indicates that there are several outputs that are produced by the Bio-fuel Generation section. These outputs are the biodiesels and the solidified remains which are feeding the furnace (i.e., the boiler process). Now we address other possible sources of external inputs to the bio-fuel generation section. These external inputs could be some of the animal remains that come from of the various slaughtering houses around the country. Moreover, other external inputs can also be the recycled oils that are collected from various food shops and restaurants around the country. In addition to that, another source of external input can be the remains that can be collected from the various vegetable oils extraction plants and from the canned food factories. These inputs are applied to the convert process where they are subjected to recycling process and purifications and transformed into oils and then into biodiesels. The remains of these materials are sent to the solidify process where they are transformed into blocks.

3. Pros and cons of the new power station

The main advantages of the new approach are: sustainable seamless continuous renewable source of energy by means of cloning and no need for hectares cultivation and agricultural spaces, creation of new research directions, needs for creation of new advanced biotechnology techniques and technologies, abandoning natural resources and the conservation of these resources, avoiding the construction of unnecessary costly environment unfriendly bridges and dams for electricity generation, and the ability to create the optimization procedures that allows for establishing the right clones and bacterial incubators and also to establish the right pure vegetable oils and blocks that could generate electricity and be more environmental friendly. It has been reported (Campbell 2008) that the biodiesel products are more environmental friendly compared to the petro-diesel.

The disadvantages could be considered minor ones and these may be related to new regulations and safety measures. We believe that the effects of these cons can be reduced to a minimum and can be outpaced with the various advantages and diversity of the products. Furthermore, environmental concerns about emitted gases can be catered for by applying certain processes on both the vegetable oils such as carrying out doping or purifying processes on them and also on the condensed blocks before they are subjected to be burnt in the boilers. Moreover, most of the filtering techniques and other processes that are used in plants and industrial factors to reduce emissions effects on the environments but with some modifications to cater for the new emissions of the bio-fuels can still be used and applied on combustion i.e. on the gases that result of burning the bio-fuels (the biodiesels and the solidified remains). In conclusion and in looking

at the overall issues of pros and cons, the advantages of using bio-fuels as source of energy exceeds both their disadvantages and the disadvantages of the other methods.

4. Performance indicators

We expect on one hand that thermal performance of the power plants using this proposed biotechnology approach may match or exceed the thermal performance of pulverized coal (PC) plants and may even compete with the thermal performance of petro-based liquid fuels. This expectation is based on what has been reported in (Campbell 2008) and (Nagi, et al.2008) whereby the energy density of biodiesel is comparable to petroleum diesel. The high heating value of petroleum diesel is 42.7 MJ/kg. Values for biodiesel vary depending on the source of biomass. Typically, biodiesel derived from seed oils, such as rapeseed or soybean produces, 37 MJ/kg. Moreover, this expectation is also based on the notion that it is possible to condense and solidify the remains of both the vegetable oil-fruits and the fatty-parts of animals in a manner that allow the products to have similar properties for coal. In this, we expect the energy value of the bio-fuel content of these sold blocks to equal at least the energy value of coal, which is the amount of potential energy in coal that can be converted into actual heating ability (Demirel 2012) and (Speight 2005). In other words we expect that the energy in a tone of the solidified and dried materials of the produced bio-fuel blocks to be equal at least to the energy in a tone of bituminous coal. However, up-to-date no models or actual data do exist in the market or in the literatures that provide values or allow the estimation of the performance of the proposed power plants. Moreover, this technology has yet no commercial experience or practical use in any country around the world. Therefore, models and performance estimates will be proposed in the forthcoming years as this technology matures.

In addition to the above, we expect that the emission control processes/equipment that were used in IGCC, PC, petroleum and chemical industries can still be used in the proposed bio-fuel power plants (BFPP).

Furthermore, additional factors could play a role in optimizing the performance outcomes of such plants such as the introduction of the use of other materials beside the cloned parts. The nature and properties of these materials have yet to be studied and decided.

Finally, to increase the performance, efficiency and effectiveness of the various processes: clone process, convert process, solidify process, and dry process, we propose that the various sub processes of these to be implemented in a form of distributed processes and distributed racks or chains.

5. Ethical aspects of proposed solution

Some personnel and organizations might raise the ethical, moral, and religious issues regarding the use of cloned bodies or cloned parts and bacterial cells in the processes of generating the bio-fuels for the power stations. We believe that these issues are unfounded. Most of the fossil fuels that are currently used in power stations contain various kinds of viral and bacterial lives and they themselves were established from the remains of the living chain of plants and animals that existed on this plant. Moreover sustainability of human lives out phase the living cells of viral and bacterial and cloned parts or animals. In this, creating power stations that can run for long time with low costs will play a big role in reducing the financial crisis that are facing most of the nations, and reduce the reliance on foreign crude oil, whereby these finances can be

diverted for other purposes. In the end the gains are far more than the losses. That is the use of the new bio-fuel technologies will provide a way for the creation of new technologies and new jobs and the bio-fuel will find its applications not only in electricity generation but also in other sectors like transportation, consumer market, and factories and thus enabling better environmental conservation and protection means (Sheehan et al 1998).

However, to assure those that are in doubt, or those that might raise the issue of abnormalities, it is imperative to take all necessary measures to prevent decisively any of these cloned animal parts and oil-fruits from entering the human food chain.

6. Some issues to be addressed

In this section we address only three main issues that might be raised by the readers of this article. The first issue that might be raised is the one that would describe such proposed project as being speculative. This issue would be raised by those readers who do not have the well to go beyond the current research topics and be afraid to counter and investigate new frontiers. Such readers would be pessimistic about the new ideas, the new technologies, and the proposed new source of renewable energy which is based on cloning. To these we remind them that a lot of scientific fields started as being speculative. Of these, we point out only a few, such as, the nuclear industry which has encountered many disasters such as the Three Miles Island accident, Chernobyl disaster, and the latest one the Fukushima Daiichi nuclear disaster, the space industry which has its own pitfalls such as the Shuttle Columbia and Shuttle Challenger disasters, and many speculative projects in other fields. The second issue that might be raised is that the proposed idea in this article might be applicable only for micro power plants that are capable of providing power to few buildings since cities require thousands of Megawatts. We say yes that might be true, however using many micro stations will relief the growing demands on the main power plants. Also, as the technology and its associated theories mature many enhancements and optimizations are possible and these micro plants become larger and more powerful. The third issue is the one that is related to the question of how fossil fuels and coal were established in nature over millions of years. This issue might be directed toward the solidifying process in the Bio-fuel Generation section. We say yes that issue is true, as it was claimed, but that does not prevent scientists of investigating a new fermentation technique(s) that might make such a process as fast as possible. Look around you and there are many evidences where scientists have been able to improve performance and scaling down sizes and one vivid example is the processors and the computer industry. The remains could have been used as they are however the solidification process was aimed at transforming them into solid blocks in order to improve the thermal energy value of the bio-fuel content of these remains. Finally, if there were other issues that can be raised and some were curious about them, they may direct them to the authors and we will be happy to address them.

7. Implications for investors

The proposed method for generating bio-fuel is a new technology and it is an alternative way of having a renewable sustainable source of energy. There are still some research activities to be carried out in order for this method to be a viable alternative.

However, once a prototype of a micro power station or a micro refinery that is based on this method has been implemented and real data has been collected a clearer picture would be available to researchers and investors. Our believe is that such a method would provide a viable solution at least at the start on the micro plants level, where these plants could provide electricity and fuel for a set of buildings participating in reducing the consumers demands on the distribution main grids.

Furthermore, such a project would enable a sustainable better environment for various nations, the saving of these nations of their own financial resources, the investments and employments opportunities in their own countries, and the reduction of the reliance on supplies of fuels from other countries. At the end, the gains for investors far offset the losses. The first countries to invest in such technologies and later on being able to create them will provide them with a competitive advantage over other nations. This would enable them to go beyond their geographic boundaries and either invest in other countries or carry out outsourcing and acquiring opportunities.

8. Conclusion

We have proposed a new approach for generating electrical power. This approach is based on bio-fuel that stems from cloning and cell generation that produce biodiesels and from condensing and solidifying, and drying the remains of these cloned objects. The resulting power plants could be considered as bio-fuel power plants. These bio-fuel power plants based cloning will find seamless generation of bio-fuels and feedstock. Therefore, they can be considered the promising future way of being the new approach of the renewable energy sources and could be considered as the means for solving worldwide energy crisis. The bio-fuel generation section could be as a part of a power station as explained above, or as a standalone bio-fuel refinery. Moreover, external inputs that come from various sources around the countries can augment the capability of such power plants and in doing so these refinery plants become as both sources of Bio-fuels and also as dumping end points for many wastes and thus compared to other methods such as coal, natural-oil, and nuclear would play a big role in environmental conservation issues However a lot of research efforts and activities have to be carried out before such technologies are being put to a safe commercial usage. Moreover, this research will be met at the beginning with potential technical and economic risks. However, taking into consideration the advances in the various scientific fields, and the desire for generating more Megawatts then achieving potential results could be considered to be within the reach of scientists.

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