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Numerical Analysis of Electrical Energy Production In Rubbish

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Abstract: Since 1970 (at the time with formulation of OPEC, intensive expensively of oil and when Industrial countries understood their reliance and dependence on energy) regarding to increasing usage, Technology development began to change. This change from late 1980 accelerated by growth of attention in global environmental effects, of fossil fuels and Increase of agricultural market. Equilibrium in payment of oil importing countries, strongly affected by above oil price shocks until some of them imposed to expand bio ethanol resources. Ethanol or basically bio ethanol considered as compounds that have high potential for replacing used gasoline an automobiles and countries regarding to extent of gained ethanol in the country, have some program for implementing this replacement. Cause of this issue is increasing cost of oil and oil composition that encouraged these countries for this work generally, Bio ethanol could be produced by sugar starch and cellulose materials and extend of applying and one of these material, typically express the country progress in this field on one hand, Bio energy Industry created new grounds of job creation and could attract many job seekers to work e.g. in 2007, about 961000 people began to work in Bio energy industry and money flow accounted 1000 Billon Euro. One of the most important questions in competition of using them related to the ground regarding to food and fuel for consistent development which are necessary for producing which one could be used? that is, people can get out of their place because of mass planting for energy production and in this way, many suitable resources could be gained and create jobs.

Key word: Energy · Ethanol · Fermentation · Renewable · Bio energy · Technology

INTRODUCTION

Biomass Resources: Biomass consisted of products that gained by photosynthesis and principally, is solar energy chemical storage. Meanwhile, is renewal stock indicator of carbon in environment? This energy all over the world distributed and is available in any country of the earth. Though its capacity per hectare changed considerably and Biomass is a heating or thermal energy resource that, frequently collected by people out of energy markets. And for examples, more than 90% of total usable energy of Nepal and Malaysia supplied in this way. Biomass, Also, could be changed to different carbon fuels of autonomous products from oil(New biomass) In 1990, Biomass share in total global energy was 12% with most use and consumption in countries such us china, Brazil [1-2].

Biomass potential was considerably more than global consumption of energy. Maximum gain of transforming solar energy photosynthesis was between 5 to 6 percent. But, practically, by calculating world dry lands total average gain of photosynthesis conversion was about. 0.3% percent. Improving agricultural methods, average yield would be about 1 to %5. Biomass resources which are suitable for energy production consisted of a broad spectrum of materials. This matters, collected fuel woods from field and natural farms, agricultural and forest products, especially those for energy production and also consisted of forest and agricultural wastes, food industry and wastes of wood processing and said urban wastes and wastewater and aquatic water Biomass, in contrast with common fossil fuels found as central stratifications that are more diluted. Biosocial consumption, energy for material dissipation, lower energy density and often due

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to moistures (not wetness) will be remarkable. Finally, very common economical applications of Biomass energy, is using material for other purposes of collection. Such as residue of wood beam processing and food and civil wastes products.

Economical and Formulation Policy: Renewable energy systems inherently include higher investment costs from fossil fuel systems, because bought from the beginning of system function equal consumption fuel all over woeful life. Therefore it is necessary for renewable successes for renewable successes to care incurred costs in system use full life and decrease of Risk agent in investment. Renewable energy resources in four parts of places encouraged. (e.g. California and Brazil) but we must know that using energy systems has wide effects beyond its physical border and realization of this effect usually during comparison of energy systems would not be considered In addition, remarkable investment occurred during last decades which encouraged wide and continuous use of usually fuels. In deep, one of the biggest barriers.

Against introducing renewable and modern energy, wide level of existing investment observed in fossil fuels. Therefore, it is not actual that if we expected that investors, corporate, producers or customers neglect these investments and leave existing infrastructures and use other kind of energy, except these modern energies could comport with ordinary fuels. Most of the renewable energy companies are small ones which have limited property with more limited ability for long term repayment that is characteristic of using renewable energies. Tax discount on production or investment are successful mechanism examples that stimulate usage of renewable resources. Therefore, governments in developed counties divided these credits to two optional (Discretionary) and obligatory (mandatory) segments (255 million dollars main budget for any four years and 110 million dollars optional budget).

Biomass Energy Conversion Technology: Biomass Conversion technologies could be divided into three segments: direct combustion processes, thermo chemical processes and Biochemical processes.

Direct Combustion Processes: Direct combustion is a fundamental process that usually used for Biomass conversion for useful energy. Furnaces with low denting flames in which fuel poured by a person in it used in modern thermal plants with pneumatically or mechanical fuels. Part of a fuel in a suspension manner will be burned and residues poured in a series of window shaped ovens with complete combustion over there. This kind of furnace used by small furnaces with steam capacity to tone in but would be increased at most 200 t/h.

Thermo Chemical Processes: Paralyze is fundamental process of thermo chemical order to convert Biomass into valuable and suitable products (as consumable fuel and for other consumption) prepared products include: Gas mixture, oil-shaped liquid and something like net carbon coal. Distribution of these products depended on extend and storage volume, temperature, pressure of reaction, term of gas presence in Combustion and thermal rate Paralyze in high temperature (1000°C) maximize work production ratio(conversion to gas) and cow temperature Paralyze used for wood coal production. Another method for producing liquid and chemical production and chemical Biomass such as cationic liquid maker is direct.

Gasification: Gasification is decomposition process technology with the aid of heat for maximizing gas production ratio in high temperature? Energy crisis 1970 stimulated interests in Biomass gas systems. This technology for small industries and also power production in developing country with have intensive shocks for bearing high price of oil as a possibility and local cheap tool these countries consisted of suitable Biomass resources.

Most common gas producing tools were static bed type which attributed with a vertical shaft. Three basic kinds existed opposite flow, accepted flow intersection flow. True selection of a gasified whether for process heat supply or power supply of internal combustion engine. This is a function of a kind of fuel which must be converted to gas. Gasification industry gave prom missing hopes as a commercial resource of energy for supplying power and process Heat in developing country then broad exhibiting programs held in addition to commercial growth programs by government UN development program and global barks power-supply gasifies and thermal ones by using Biomass fuels such as wood coal, wood, cacao and rice wastes will be available.

Carbonizing: Biomass Carbonizing, more dense energy gained in mass unit and transportation became more economical. Today, many re-processes of big scale applied for wood coal production (Lambent company in

Bulgier with the capacity of 20000 tone wood goal 9440 tone drops (for fuel) and 900 tones methanol in a year) from a vertical distillation system which work consistently. These units designed for great- scales production and so expensive.

Fast Paralyze: Paralyze process in reaction district is so short with high thermal rate.

Making Fluid Catalytic: Liquefaction includes a low temperature and high pressure thermo chemical conversion with high Hydrogen partial and also catalyst for improving reaction rate or process improvement. This method compared with Paralyze, is a liquid-shape product with high physical and chemical consistency for hydro carbonic products and needed little improvement.

Biochemical Processes: These processes in raw material biochemistry and metabolic activities of microbial organisms applied for gas and liquid fuels production.

Anaerobic Fermentation: This technology is so diverse and used as an effective tool for gas production from different organic wastes of animals, agricultural wastes galled Biogas very commend application of that include home waste water digestion. In anaerobic fermentation process, organic material, generally, converted to Gas products such as Me than and carbon which maintained 90 percent of energy of organic material in Me than. Obviously, depending on thermal limitation in which fermentation occurred, different groups of metallurgic Batteries existed including thermo physic microbial samples for fermentation process in 45 to 60°C heat which found with many types of mezzo physic in thermal limit 45°C and curio parable.

Most recognized anaerobic digestives in china and India apply as a fool for fixation and monitoring rural wastewaters to reduce diseases epidemic resulted from pathogenic microbes and parasites to optimize Biogas production. Common reactors of sludge digestion basically consisted of a single mixed process without the same recirculation and a cloth which works consistently. And to special growth rate and low digestion metal logic Bactria effected in wastes of a common reactor that could only obtained in long term confinement.

Increasing hardness of pollution control with improving energy production costs in anaerobic process systems in pre-1970 year stimulated a waste process technology and save energy regarding to anaerobic digestion hygienic field plantation is a method for solid waste consumption control fundamental application consisted of widening, compacting and covering solid wasted. Potential available energy estimation in a farm is not impossible because structural, physical and chemical features are diverse resulting gasses of decomposition, consisted of carbon Dioxide and methane but made considerable problems. methane and carbon Dioxide amounts changed in this farms gradually. basic components of Biogas resulted from static fermentation as follows:

- Methane encompassed about 50 to 65% of Biogas resulting from anaerobic fermentation. It is a colorless, odorless and flame able gas which 37.3 Mega Jules energy per each M3.Required clearness of Biogas depended on its probable application. Lowest amount of required clearness related to direct combustion in this mode, least necessity is that existing moisture in gas omitted to prevent distillation in gas pipe and erosion. Concentration in Biogas during oxidation in combustion usually is not so high and could be dangerous for health or environment. Existing methods for refining Biogas estimated accurate standard necessities and constraints that indicated washing white water is the most economical process which used commercially. It seemed means applying or phosphate and separating or membrane. Which compared with previous methods.

Ethanol Fermentation: Ethanol fermentation from carbon Hydrate, or producing Alcohol from sugar, wheat and other starches as a credible potential and alternative resource of liquid fuels much attention in transportation. In producing Ethanol from fermentation, raw materials could be divided in to their groups based on type of carbon Hydrate. Materials saccharin, starches, cellulose materials. Regarding to related costs for stocks and storage, typically formulated 55 to 80 percent of final marketing cost of alcohol which selecting a raw material would be sensitive.

Saccharine material as existing sugar in fermentable material needed lower preparation introduction. Due to expensive obtaining and preparing. Starching material were cheaper but needed solving and converting starch to sugar material which would be fermented. Cellulose materials are raw materials which are available easily. Cellulose is an organic composition which needed expensive preparation function While the microorganism fermentation operation, the sugar can be fermented into ethanol to the heart of the process is ethanol.

In the beginning of ferment station function, production rate of Ethanol is very low but increased fermented cell number increase total rate of production and/or production or fast exit of carbon dioxide appeared boiling manner for soda. After 20 hours, Ethanol production led to maximum rate and found effect of sugar concentration reduction point and Ethanol production problems. fermentation with less intensively continued 36 hours to consume 94 percent of sugar and final solution of Ethanol reached 69 with volume mean production Ethanol in total producing wine alcohol, more care needed to make less appearance of inadequate or undesired products but in producing Alcohol of fuel, its constraints are not so serious or accurate. Production process could continues semi constantly along with recovery and reuse of yeast. This problem let use yeast with high concentration which prepared fermentation time reduction. Constant fermentation time reduction. Constant fermentation process from liquor fermentation of sulphid wastewaters reduced dies infection quality of pollution possibility and allowed continuation of these functions constantly in order to refine and filtrate and filter ate epistyle process was a modified shape of constant fermentation by re-using yeast which ensured chose relation of fermentation, distillation and also recycling process with high distillation intensively. Recycling of liquid was a kind of Internal diluting action that high concentrated material and distilled ones will be reduced and less fall out currents will be appeared in zero limit. An extraordinary dimension of Bio style fermentation system omitted problems related to Bacterial pollution due to Bacteria for separation during centrifuge unction which are so light and pass this stage and removed in high temperature of distillation column. Bio style installment applied with sugar and sugar cane. Distillation of water and Ethanol mixture due to fusion point of water/ Ethanol/indicated in Atmospheric pressure about 95% (volumes) if higher cncentration needed for waterless Ethanol. Complex distillation system needed for input remarkable energy which often 40 to 60% of needed energy formulated installment process separation process consisted of single primary distillation process in soda distillation column that separated Ethanol from fermented Barat. And concentrated it to 95% (volumes) then product water in single Esoteric process removed to 99% that needed two column. Total consumed energy for composition is 7.63 about 45% related to secondary Esoteric distillation stage.

Ethanol fermentation produced remarkable amount of carbon Dioxide that could be compacted and recovered easily as an additive in drink and food making industry. On the other hand, could be made as a dry ice for freezing mostly in topical countries. Fermenting yeast and other solvable components of fermented out removed as residue when starch used as a food resource. By a lot of protein after fermentation and drying which was mark able as animal food.

In developed countries countries, economical explanation of Industrial Ethanol fermentation in a broad area based on commercial value of beans and dry solid material gained from distillation system residue of fermentation had less sugar also its wastes made a lot of problems due to high amount of water entered in system to remove 10 to 15 wastewater per liter Ethanol. Pollution volume depended on application and process, changed a lot a distillation system with daily 60000 liter production of Ethanol sugar could have pollution equal a one million population city.

Alcohol just gave 1/3 of total sugar cane energy in its wastes and other 1/3 in stems and leaves usually burned. Additional amount of residue in paper paste sieve after suitable application used as bean or fuel food for facilitating production[1-8].

Conversion Technology: Allover the world there are different conversion technologies which are summarized(Table 1). it seemed that Ethanol is one of the technologies which has good overlook with more diversity. Ethanol is a very different technology other technology (poster, biogas with a gas turbine integrated Massey in which steam is injected).

Biomass Energy Outlook to 2020: Two contradictory trends in measuring future consumption rate of Biomass considered. First, by lowering recourse of somas and urbanization of developing countries population, an improving transition from traditional consumption of Biomass probably increased due to three basic following reasons:

- developing countries growth of population that most of them depend on Biomass dues to energy needs.
- environmental pressures in Industrial countries.
- Biomass energy new technologies that Increase application and decrees costs.

A method for predicting Bio energy consumption rat co in each region based on population growth and expected growth in Bio energy per capita consumption ratio(Table 2).

Table 1: Step into the main development methods

Process	Phase	Next step
Combustion	Fully commercial	Commercialization for power production
Converted to gas	Non-economic but developed	Commercialization for power production
carbonization	Fully commercial	Unknown
Lubricate follower	Developed to provide the level	Commercialization
Anaerobic fermentation	Dissemination of technology	Technically advanced
Ethanol fermentation	Technically advanced	Determine the sources of cheaper

Table 2: Estimates of growth in every region of the world

	Year			
Population (in terms of millions)	1990	2000	2010	2020
North America	276	292	309	326
Western Europe	454	465	477	489
Eastern Europe (NIS)	389	411	433	455
Japan and Australia	144	147	151	155
Industrialized world	1263	1315	1370	1425
Latin America	448	537	626	716
Middle East, North Africa	271	362	453	544
Sub-Saharan Africa	501	732	963	1195
Pacific, Southeast Eastern	1663	1856	2069	2273
South Asian	1146	1410	1674	1938
Developing countries	4029	4907	5785	6666
Total world	5292	6222	7155	8091

Looking Years after 2020: Based on short term and middle term views, residue and wastes will be dominant and in long term energy products will be dominant and a renewable equivalent for fossil fuels.It seems one of superior technologies for modern Biomass, is Ethanol that high diversity and another one for converting it gas or gasification that have high potential but must be waiting to be commercial if this technology expanded completely in 80 countries with sugar cane, produced electricity equals so percent of total electricity that is produced by power plants. Biomass consisted potential that in so to 100 years later could be substituted with remarkable fossil fuels consumed in many transportation parts and power supply.

Exploitation: Cost of producing each Kilowatt hour Electricity bused on modern technology of recognizing Ethanol is about 5 to 6 cents, However, in developing countries, electricity energy supply cost to 1.6 Cents per kilowatt hour for Europe is about 8 to cents 10 cents per each Cents per kilowatt hour. Investment determined were summarized:Industrial countries need energy for electricity, heat and transportation. Developing countries, at first, need energy for electricity and transportation. Investment rate for different consumption differed and electricity production is more expensive than the others.

In the most desirable environment for developing economical area Bio energy, costs must be cheaper than other costs of competitors. In recent economy, population and per capita production could have fast growth But simultaneously reduce fossil resources. ground resources volume would be remarkable and farmer workers must be easily available for primary property alternatives[5-11].

CONCLUSION

Bio energy is fourth biggest resource of global energy Biomass prepare about 14% of global primary energy. In developing countries, with about %75 population of the world, this amount reached. 35% of energy consumption it is necessary for more otters in production and effective use of biomass as fuel, because this is a resource of local available. Biomass could be converted through gas turbines with liquid fuel to electricity. Biomass could be applied as a resource for direct burning in modern tools due to less amount of solphur and suitable burning that could be used easier than coal.Biomass steam boilers, ovens and small furnace

to big steam boilers and multi mega voltage plants. it seemed that among Biomass technologies Ethanol production consisted better future. Therefore, regarding to Iran oil resources termination up to maximum 40 next, being third global country (in the most optimistic manner of developing countries) the necessity of researchers and authorities care for application of Ethanol, understood for energy production.

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