Australian Journal of Basic and Applied Sciences, 5(12): 752-756, 2011
ISSN 1991-8178

Reduction of Greenhouse Gases Emission and Effect on Environment

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Abstract: What is called today as Global warming, in fact is increase average of earth temperature around surface, the scientists research present during 100 years ago, the average of temperature near earth surface had increase between 0/18 to 0/74. International group has announced in report about climate changes (IPCC) that is valid reference in field of climate changes and global warming effects "further of temperature increase that observed in the middle of 20 century, is due to greenhouse gases that human has produced". Models of climate changes that designed by IPCC, present between 1990 to 2100 A.D. The average of earth surface temperature has increase between 1.1 to 6.4 C˚. Scientist believes even if the amount of greenhouse gases of the Earth's atmosphere remain stable, effects of it will be endure until end of third millennium. This study analysis destructive effect of greenhouse gases on environment.

Key words: Global warming, IPCC, Greenhouse gases.

INTRODUCTION

What Is Global Warming:

The earth has experience to become hot and cold repeatedly. The nearest changes was 800 thousand years ago, that earth has experience eight icebound period. Quick originate of greenhouse gases during the early of Jurassic period caused the average of earth temperature is increased between 5 to 9 C˚. Global warming put many unpleasant effects on human lives and animals.

With earth warming, the pole ices become water, water level of seas comes up and seasons get more intensity, means winter will become colder than ever and summer is warm and dry. During these years, air temperature has increase on water and dry surface, but temperature increase on land surface has been more than water surface.

From 1979 A.D. until now, the average of air temperature of land increased two times that water surface temperature. (Land surface become warmer 25˚C in each decade while this figure is 0/13˚C for water surface). The reason, why increase of water surface temperature is less than land, is due two reasons. One is that, seas have more heat capacity than land and the other is sea could reduce temperature by methods such as evaporation. (1) In this way land northern hemisphere that has more land than southern hemisphere, is warmer.

Rapid growth pf greenhouse gases emissions is near to forecast by United Nations (UN) about emissions of this gases. According to various forecast in the end of 21 century, the average of global warm will be increase 6˚more than C. (3) the most amount of greenhouse emission in two recent decades was in 2008 A.D.

According to NHK Japan television reports, increase of productions in developing economies of global cause to increase 2 percent greenhouse gases in 2008 A.D. While this increase had produced less amount pf carbon dioxide in 2007. The amount of greenhouse gases production has reached to the most figures. Meaning eight billion and seven hundred ton.

Researches international group about greenhouse gases emission told:

The emission quantity of greenhouse gases in comparison with 1990 year, present 41 percent increase.

International group of climate changes that is valid reference in field of climate changes and global warming effects, announced in report. The most temperature increase that observed on earth in the middle of 20 century, is related to greenhouse gases that produced by human.

The climate changes models that design by IPCC, present between 1990 to 2100 A.D. the average of earth surface temperature has increase between 1.1 to 6.4˚C. (3).

2. Economic Losses of Earth Warming:

Some economic expert during these years that global warming discussion become hot in the world, attempt to estimate the amount of economic losses in the world.

Until now has done more than 100 research in the field, but not yet, has not archived similar and clear result. This researches (studies) has estimated the amount of global warming economic losses from figure 3$ for each Ton of carbon dioxide to 95$ for each Ton. The result of studies these scientists, but emphasizes on this point.

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"Although developed countries have the most amount of greenhouse gases production, but developing countries will encounter the most economic damage from earth warming."

2.1. Greenhouse Gases:

A collection of gases that keep amount of solar energy in atmosphere and cause the atmosphere become warm, called greenhouse gases.

Steam (H_2O), nitrogen dioxide (NO_2), carbon dioxide (CO_2) and methane (CH_4), are main greenhouse gases. If these gases are not in the atmosphere, solar heat energy again will return to the atmosphere and thus the earth weather become colder than now. Greenhouse effect states as increase of earth temperature due to greenhouse gases exist on atmosphere (4).

2.2. Carbon Dioxide:

About one-quarter ¼ of greenhouse effect is due to absorption half of reflected heat IR in wavelength range 14 to 16 micrometer by carbon dioxide molecules. Increase of Co_2 density in atmosphere, has prevent to exit much amount of remaining IR and caused the weather become more warm.

2.3. Steam:

Steam, is the most greenhouse gases in the atmosphere and the cause of originate is two – third of this effect and usually absorb heat IR in wavelength range 5.5 – 5.7 μm.

2.4. Methane:

During the 200 years, the amount of methane gas density in atmosphere, become more than two times, mainly due to human activity.

The methane gas absorbs heat in the atmosphere 23 times better than carbon dioxide gas, so reduction amount of harmful methane gas, is short solution for confronting with earth warming. The methane gas is constituent 16 percent of greenhouse gases and about 60 percent of spread methane gas produced by human activity.

The rest of available methane gas has produced by natural resource such as stagnant water, gas hydrates, frozen layers in earth deep and termite feeding. About 25 percent of methane spread and 43 percent of harmful gases produced by human from four resource, agriculture, coal mines, garbage burying and oil x gas natural systems that is targeted plan of sending methane gas to their markets. "The role of natural greenhouse effect on earth heat balance".

The fact that earth plan has not covered by thick layer of ice, due to natural role of greenhouse effect. The earth surface becomes warm with mechanism of greenhouse effect as same as receivable energy from sun. The role of atmosphere for earth is like blanket the rooms that cover, keep the amount of released heat from thing and cause to increase temperature.

If there isn't atmosphere, average temperature of earth surface is about -15. While due to greenhouse effect, average of temperature is +15. Phenomenal that is concern environment scientists, is not natural greenhouse effect, but is phenomena that called (named) as added greenhouse effect that caused by density increase of little gases in air that absorb heat IR.

Further amount of spread heat IR energy, again conduct toward to earth and by this way average of earth surface temperature is +15, as like that put many blanket on each other. Reduction of greenhouse gases and supply sustainable energy:

The global energetic system at present analysis serious threats, widespread and prolonged usage from fossil fuels and nuclear energy.

The dependence of human to fossil fuels and other energy resources that produce greenhouse gases (GES), has follow sorrow results such as climate changes.

Now, unfortunately absorption of carbon dioxide (Co_2) biosphere (One of atmosphere layers) has reached clearly to the lowest level of current emissions of greenhouse gases that is result of Co_2 saturation in atmosphere. Become carbon dioxide is the main gas that constitute greenhouse gases, continuance to using fossil fuels by this process, will be put earth exposed to more serious dangers of climate and environmental. Criterion of stable energetic system

1. is reliable
2. The cost is reasonable
3. The normal operation of it is not accompanied serious pollution hazards.
4. Should be ability to limit a cost in direction of network security and will keep the ability and potentiality of energetic system for other generation usage, in other words should be have ability to absorb costs.
5. Supply operation principles, energy transmission and distribution of this system should not shaken by economic shocks.

6. Should be having ability to maintain system in ideal situation for recompense 8 to 10 billion person. (With forecast world population in next century).

Using fossil fuel with current scale due to serious dangers that has follow until now for environment and using from them is the main cause of negative climate change at present, and couldn't be suitable source for energy production.

On stable and comprehensive strategy pursue the following objective (goals):

1. Improvement and modification of electricity (Power) networks in future decades.
2. Combined new energy resources and reversible instead of using fossil. Resource for adjustment and reduction of hazards from earth warming its not necessary to remove all fossil fuels from global energy circulation become its nature has a little capacity to absorb Co_2 that produced by human (natural circulation of carbon dioxide among atmosphere, water, soil and plants).

It's necessary to mention that carbonic (carbon dioxide) gas absorption by oceans, plants and soil has done by special mechanism that is not properly known.

So, until to find solutions for carbon dioxide emission prevention in atmosphere (such as strong mechanism of this gas) there is possibility that using from fossil fuels to amount of the maximum Co_2 absorption power atmosphere. Should long – term goal of energy politics, maintains amount of carbon dioxide emission under nature power absorption level, meaning about 3 billion Ton. Should for control Co_2 quantity exist in atmosphere that among them could be point to strong this gas in underground tanks or in oceans depths.

But costs of performance these projects are very high and yet environment effects have many ambiguities. But in next decade, equal to growth and development pf energy knowledge and investment increase in new energy unit with high efficiency, greenhouse gases emission should be have significant reduction. Next energies will follow tow main goal, means reduction of greenhouse gases production and being efficient, in addition to current energies, will be more economic and will have ability strong capabilities.

Strategies that discussed here, is not depend on carbon dioxide strong methane as solution for reduction of this gas in atmosphere. There are many sustainable (stable) and sure methane for greenhouse gases reduction and various technologies for significant reduction of greenhouse gases emission (GES) that supply global economic goals:

Wind energy, cogeneration, and photovoltaic cell (solar), solar – heat centers that consumption fuel of them is natural gas and replacement of inefficiency carbon center with energy production centers with natural gases or reversible energies with high efficiency is from specialty options that beside reduction of greenhouse gases could be maintains capacity increase and power (electricity) energy production power.

Investment in combination of new technologies that will help worthy to reduction of greenhouse gases emission and is more useful from investment prevention of production these type of gases. (Such as building new atomic center) But description this subject presents that combined cycle centers that worked with natural gas that with using from it in center has produced power (electricity) during two stages. In first stage, on turbine and generator will start up by natural gas.

Then hot gas from turbine movement used for steam production and finally move turbine by steam. The output of this system, in current commercial scale is about 50 percent is mentionable that one of main customers of new nuclear center is china country, this country due to lack of liquid natural gas used from pipeline and it is likely due to using from pipeline gas this country has not investment enough for build combined cycle centers (due to existence many underground mines in central Asia that first layer of all is gas).

Cost saving favor to combined cycle power plants, could be investment for development, expansion and improvement of solar and wind technologies and increase energy efficiency.

In this state, Co_2 emission statue will be change according to center conditions and applied technologies for power production (electricity production).

But if combined cycle power plan become replacement half of carbon global power plant, we will have reduction in Co_2 emission about 15 percent annually.

During the seventy decade years, there was concern that natural gas is not reliable energy resource from quantity aspect, but now confirmed, this notion is wrong. Natural gas is much extractive in land from various resources, and doesn't have emission hazards. Use natural gas as fuel that is in replacement and transit stage, has confirmed as economic and ecological strategy. Favor to attitude befitting of government and consumers in near future, renewable energies sources will be supplier much of needed energy for today world. Global natural gas deposits in spite of 75 years consumption until 1995, not only reduced but also increased by increase of their quantity consumption.

Carbonic center and power plant has seen in most part of the earth especial in eastern and western Europe, united states, china and India, even though from economic, is not possible replacement of carbonic centers with combined cycle power plan, but it will possible by correct timing and planning.

One disadvantage of increase natural gas consumption is methane gas leakage from pipes (nearly 0/8 percent), because the methane gas is more efficient than carbon dioxide. It is necessary to prevent from leakage of this gas in order to balancing quantity of greenhouse gases in atmosphere.

This balance could be achievable by relative simple operation, for example, could be mention from build of factories that their fuel is supply by methane gas that collected from unburied (unbound) garbage or cow residues (that both of them cause to sever pollution in some regions).

In some places has used from Garbage gas in limited scale for power (electricity) production or as fuel for heat production. For example, gas from slaughterhouse wastage or mass of municipality garbage of New York City as fuel is heat supply resource of 14000 families. Energetic effectiveness and renewable energy resource, how toward one energy system that is reliable and sustainable (stable) for environment and responder of global need, although imagine future that in it, new energies are responder of basic need to energy in global, with fair (suitable) price, is not out of reach.

But when new energy such as wind and solar after some decade effort still has not special share to announce global energetic, when development in production and discovery of energetic efficient material has done slowly and disassociation and still are under real capacity of itself, How we can reach to such future. The first significant issue is that by attempt done for research, development and investment in fossil fuel and nuclear energy, has invest for energetic efficiency and development of new technologies in relation with renewable energies.

Not determine basic problems and issue in relation with efficiency and increase output in energy field, by determiner institution, the second point (tip) is thinkable and maybe the cause of work slowdown in projects execution and research programs and lack of sufficient investment in this field, due to this reason.

Result is that government's basic researches in energy field are a few and private unit attempts on result full technologies have concentrated on short – term. (For example heat exchanger development with high efficiency, for heat resources with low temperature could be suitable solution for development of energy efficiency). The third investigable problem is lack of accurate and enough statistics in energy field, for example from extensive sources of energy especially take biomass energy from beasts of burden that their wastage is also feeder of plants energy in many regions on the earth, and has not taken correct inventory.

Lack of attention to some energy sources is also one of global energy problems, for example rich resources of natural gas are still one of waste product that is account from oil external and while discharge will be burn.

For example shell Oil Company, is burn the most part of achieved natural gas from oil projects and operation in Niger.

Change energetic system of earth planet, will be great, heavy and difficult problems. Many problems is due to incorrect operation of big energy companies that doing big investment on fossil and nuclear energy fuels and the main goal of them is control of extensive part from energy production and distribution. Government can build from environmental protocol Kyoto, strong framework for Improvement of energy statue in world and reduction of greenhouse gas emission in atmosphere.

Other operation that is done in energy field is Montreal agreement for protection from ozone layer.

For development and energy models modification any action in region level or nations and global level is vital and important.

3. Results:

The pollution issue has considered as important and critical problem due to human civilization became it takes from some thousand meter depths to exterior atmosphere earth, has threaded cycle and life system.

Analysis changes process has present air pollutant quantity and quality those pollutants from human activities could exacerbate this issue that is impossible living continues for human and other creatures. Environment protection agency with present report has pay to introduce the most dangerous greenhouse gases in the world, and emphasize on sever effects on environment, humans health and national security.

According to this agency, finding ratified that pollution of greenhouse gases is serious risk and problem for present time and future generation, but this pollution has solution that could produce thousand clean job and stop dependence to fossil fuels.

According to environment protection agency, carbon dioxide, methane, nitrous oxide, hydro flour carbon, pre flour carbon and hexes fluoride soulful are 6 examples of the most dangerous greenhouse gases in global level. Scientists clearly present that amount of concentration (density) of these gases are in unprecedented level and finally cause to increase global warming and other atmosphere changes (2).

From other effects of gases increase will the incidence of disorder in human health by different methods.

Increase dryness, increases rainfall and flood, increase temperature and fire (burning) in forests, increase sea waters level, incidence of powerful storm and damage to water resources, agriculture and ecosystem are consider as signification effects of pollution. Greenhouse gases, in addition to human health threat could be harm national security in various countries (1).

According to new sanities report, at present many global countries by United States leadership make their attempt (try) to stop greenhouse gas production by stoppage (cutting) the dependence of industries to fossil fuels and lack of using from pollutant material. Increase carbon dioxide problem in air is one of the basic problems in

global level nano technology is one of technologies that is helpful to this problem and provide this possibility that we become near toward produce cheaper and cleaner energy from fossil fuels.

Researchers in Oke Rige national university become successful to build (make) nano – crystalline that helps us to have cleaner air.

Nano crystalline act like a catalyst, when carbon dioxide air site on this nano – crystalline that contain include cadmium, selenium and idiom, give one electron to carbon dioxide that against other smoke components, enter to reaction and become harmless.

If a filter that consists from this nano – crystalline could be making with suitable price and install them in chimneys, can prevent in large range from emission and erit of carbons dioxide in air.

Other harmful suspended particle that scientists hopeful by using Nano – crystalline could it neutral or exterminate is mercury steam.

Equipments that work by coal are the most important factors in mercury steam production and emission of it in the air. One prevention method from mercury emission is using from Nano – crystalline of titanium oxide, that could change mercury steam to solid mercury.

Until now, if you were beside smoke or exhaust pipe of bus or track, surely you breathe nitrogen oxide diesel engines are one of the most important source for pollutant air with nitrogen oxides.

Bifrendly Company with helping of environmental protection agency and received financial help from Texas State, become successful to made Nono – crystalline that with adding it to gazelle (diesel oil) can prevent to nitrogen oxide production and cause that fuel burn completely.

You can't image that clean production industries such as computer chips production / manufacture industry has not consider as environmental pollutants.

But converse (vice versa) this industry due to using from organic chemical material in production process are production origin of organic steams that they are harmful.

Researcher of national laboratory of west northern of pacific ocean, now analysis Nano material that by using from that in filters could prevent from organic steams of this cluster from manufacture or supplier.

Its hoping that by using new resources discovery, will reach day that we will become needless from fossil fuels and we will breathing in air without any carbon dioxide and other pollutions.

The prevention method from greenhouse mechanism:

- Replace fuels such as oil, coal in power plant with natural gases for CO_2 reduction.
- Exit chemical output of CO_2 from power plant by grout from calcium silicate.
- Omit methane by reaction with hydroxyl free radicals.
- Hygiene burial of rubbish (garbage) for reduction of methane diffusion from garbage and aerobic decay.
- Gases such as chloral flour carbon, nitrogen dioxide and other pollutants in make added greenhouse effect, have effect

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