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# Utilization of Greenhouse Gases for Sustainable Development

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**ABSTRACT:** The Generation of Electrical world totally shifting towards the Sustainable Development. To make the Environment free from pollution. To design or implement and managing electrical system and technologies that meet present energy and power needs without compromising the ability of future generation to meet their own needs. Most of the greenhouse gases emission occurs due to the smoke coming from the vehicles. Carbon Capture and Utilization (CCU): By capturing carbon dioxide (CO<sub>2</sub>) and other greenhouse gases before they are released into the atmosphere, we can mitigate the effects of climate change. These gases can then be utilized in various applications to make the hydrogen cell to make the ground potential zero after that make some chemical reaction and produce the CNG gas To reduce the smoke coming from vehicles we can use the smoke guns on the divider. The smoke coming from the vehicles will collect in the smoke guns. after that through the pipeline the smoke will pass to purify the healthy product. Some amount of smoke will give to the petrol pump to produce CNG gases. This will make the pollution free environment. Reusing GHGs in industrial processes prevents them from being emitted into the atmosphere, directly reducing the greenhouse effect and helping to stabilize global temperatures like we need the ground potential zero or low so there are some components in the smoke that components after some reaction if put into the ground so the potential will be low The conversion of GHGs into useful products can be integrated with renewable energy systems, enhancing the overall efficiency of energy use and contributing to energy security. In the smoke there are particles which involve the hydrogen from that hydrogen we can make the hydrogen cell which is beneficial for the electric vehicle There are various uses of these greenhouse gases. The amount of oxygen extracted from the smoke will also be useful for the oxygen plant. We can extract the oxygen and provide it to the oxygen plant which will very helpful for sustainable development

**KEYWORD:** Generation, Utilization, Sustainable, Chemical reaction, Greenhouse Gases, Smoke gun.

## I. INTRODUCTION

In the face of escalating climate change and its associated impacts, the need for innovative solutions to manage greenhouse gases (GHGs) has never been more critical. Greenhouse gases, including carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>), are major contributors to global warming, driving temperature increases, extreme weather events, and environmental degradation. Traditional methods of addressing GHG emissions have primarily focused on reducing emissions at their source, but there is growing recognition of the potential benefits of not only mitigating but also utilizing these gases in a way that supports sustainable development.

### The Concept of Greenhouse Gas Utilization

Greenhouse gas utilization involves capturing GHGs from industrial processes, waste, or other sources and repurposing them for beneficial uses. This approach not only reduces the amount of GHGs released into the atmosphere but also transforms these gases into valuable products or energy sources. Technologies such as carbon capture and storage (CCS), carbon utilization, and methane recovery offer promising pathways for addressing climate change while promoting economic growth and sustainability.

To protect the atmosphere or environment from the pollution which can be mostly done by the smoke which can be induced by the vehicles and Industries. It helps to increase the presence of Greenhouse gases in whole atmosphere, will help to Air pollution. This greenhouse gas affected on all types of Living and non-living elements in the Nature. Most of the sensitive Animals and Birds are no longer exist in the Nature. In this greenhouse gas a lot of

harmful factors are present which can also be affected on the human beings. This results are most of children and old man's are suffering from various diseases such as Paralysis, Asthma, Handicap etc. That is why it is necessary to dispose of them properly as soon as possible.

## II. SURVEY AND SPECIFICATION

1. A new framework for replacing fossil vehicles with electronic vehicles. According to that as stated by the officials and in the statistics, some countries in Asia are the largest producers of greenhouse gases among the Annex 2 parties of Kyoto Protocol which are mostly developing countries. Navid Taba Ali Harindari, Nooshin Haddadian, Shahab Rezaeian have developed a sustainable urban development through reducing greenhouse emission. [1]
2. A green / active house is a concept developed by a large collaboration of actors from the automation and power industry and research institutes in Sweden. Pai, Stoll which is member of IEEE can be developed on idea for scheduling residential electric loads for greenhouse gas reduction. [2]
3. These seem to be "merry-go-round" scenario in the world today. Where efforts to reduce CO<sub>2</sub> (greenhouse gases) emission in one country or region, are being countered by an increase in CO<sub>2</sub> emission elsewhere. Katunda Iasiku and Etienne Nugwirumgara are developing a concept on policies lost in translation: combating the greenhouse gas emission merry-go-round for increased utilization of renewable energy technologies in 2018. [3]
4. A greenhouse gas emission reduction through use of a sustainable alternative dielectric gases is challenging due to the complex combination of performance and safety properties required in electrical power applications. Mr. John G. Owens can be established the greenhouse gas emission. [4]
5. The means of this paper renewable are playing a pivotal role in promoting sustainable development. India through its intended nationally determined contributions to United Nations Framework Convention on Climate Change has shown its commitment on mitigating greenhouse gases. Hirwe Rahu/Rajaram can be study on greenhouse gas mitigation from solar park in India. [5]
6. According to paper the population increases too which ultimately degrades quality of atmosphere, that is needed for the survival of human beings. As the result the carbon footprint increases continuously. This literature explains a novel method for reducing carbon footprint using IOT green technology. In 2021, Mr. Parth Asopa, Mrs. Poorba Purohit, Mr. Rahul Reddy Nadkattu and Dr. Pawan Whing can be study on the reducing carbon footprint for sustainable development of smart cities using IOT. [6]
7. In this paper the construction sector accounts for 36% of global energy consumption and 39% of global carbon dioxide emissions. Sustainable development which entails reducing and qualifying carbon emissions is essential to address climate change and the depletion of non-renewable sources. Mrs. Neha Singh and Mr. Kundan Yadav can be published a paper in 2023. On topic of sustainable development by carbon emissions reduction and its qualification: An overview of current method and its best practices. [7]
8. IPCC Reports: The Intergovernmental Panel on Climate Change (IPCC) has extensively reviewed CCS technologies, emphasizing their potential to reduce global CO<sub>2</sub> emissions by 10-14% by 2050 (IPCC, 2014). [8]
9. Global CCS Institute: Provides detailed insights into current CCS projects, their performance, and barriers to widespread adoption (Global CCS Institute, 2020). [9]

## III. DISCUSSION AND METHODOLOGY

- As pollution increases the need for resources increase too which ultimately degrades the quality of atmosphere that is needed for the survival of human beings. Firstly we research on greenhouse gas emission, sustainable development, and green technologies. After that conduct the survey and focus groups with experts and industry representatives. Gather data on greenhouse gas emission, energy consumption, and economic indicator.
- The greenhouse gases which are mostly induced from the industries and vehicles. We identify and evaluate green technologies for greenhouse gas utilization (e.g. carbon capture, utilization and storage bioenergy with carbon capture storage). These gases are very harmful for environment and human life. Therefore the utilization of these greenhouse gases is necessary. We utilize these gases for various purposes in electrical field. After that we assess cost, benefits, and feasibility of selected technologies. For this project we need various components, machines and other medium.
- In this project smoke gun plays a very important role to collect the smoke which is produced by the vehicles like car, bikes etc. means all the greenhouse from environment. Near to the smoke gun we attach the gas sensor which will sense the gas present in that smoke. Then increase the pressure of all these gases by reducing its volume with the help of compressor. After that store the greenhouse gases in a storage tank before storing we filterise this

gases through air filter. When the storage tank is completely filled with the gases then it is transfer to chemical labs by using the gas pipes for the chemical process to identify the contents present in the gases.

- After the completion of chemical process/ reaction on this gases we identify the various contents present in this greenhouses. Then we utilize these contents in various electrical applications.

The applications are as follows: -

1. **Utilized greenhouse gases for extraction and generation of  $O_2$  plant and CNG :** To develop a sustainable system that captures and convert greenhouse gases into valuable products, reducing the emission . Collect gases from the smoke gun which are produced by the vehicles. **after the chemical process on this gases we separate the  $O_2$  and filterized it by using the  $O_2$  filter , and transmit to  $O_2$  plant and store it into  $O_2$  storage tank.** Use the membrane separation, pressure swing absorption to separate the gases .Utilized greenhouse gases for extraction and generation of  $O_2$  plant and CNG. after the chemical process on this gases we separate the  $O_2$  and filterized it by using the  $O_2$  filter, and transmit to  $O_2$  plant and store it into  $O_2$  storage tank. When the tank is completely filled with its capacity then we separate this  $O_2$  for two purpose. one for the CNG plant which is useful for green vehicles and remaining  $O_2$  can be transmitted to the oxygen plant in hospitals where it becomes need.
2. Reduce the resistance of ground: Inject the greenhouse gases into the soil to increase electrical conductivity, reduce the ground resistance. After the chemical process we separate the carbon gases from the greenhouse gases and store it into the carbon tank. then this carbon gases convert into carbon particles in solid form. greenhouse gases can ionize soil particles increasing electrical conductivity. Greenhouse gases can help retain soil moisture reducing resistance. design a system to inject greenhouse gases into the soil. Then we insert this carbon particles near by the area of transmission and distribution substation to maintain the resistance of ground. monitor soil composition moisture and greenhouse gases concentration. Due to this carbon particles the resistance of ground become reduced. record ground resistance before and after green house gases injection .regulate greenhouse gases injection rates and monitor system performance. whenever the ground resistance reduce then the fault current will easily passes in the ground.
3. Utilization of heat: The heat which is release from the chemical plants after the chemical process on the greenhouse gases then this heat is stored into the gas chamber after the gas chamber is completely filled then the stored heat is transmitted to the industry for food and other packing process.
4. Extraction and generation of  $O_3$  : the  $O_3$  gas can be separated from greenhouse gases after the chemical process . this  $O_3$  gas can be stored into the tank and filter this  $O_3$  before the released into the atmosphere.

#### IV. CONCLUSION

Utilization of greenhouse gases for the sustainable development which can reduce the carbon dioxide and methane from the atmosphere and help to produce renewable energy.

This utilization process ect to keep the earth at a suitable temperature for human life. This Greenhouse gases are mostly contribute to climate change whenever the burning fossil fuels for energy has increased the concentration of greenhouse gases in the atmosphere.It effects and led to global warming so the utilization of greenhouse gases is most important as soon as possible to maintain the atmosphere or ozone. It utilize to maintain the ground resistance from carbon, manufacturing of the hydro cell for the green vehicles from this green house gases production of CNG should be increase and it helps to reduce the greenhouse gases. Due to this utilization it helps to maintain atmosphere as well as contribution to save all living or non living elements

Sustainable development refers to the human development model in which the resources that are presently used preserve the environment so that these needs can be met not only in the present but also for future generation. Sustainable development of greenhouse gases involves many global actions from development involves many capacity operational activity and monitoring of financing for implementation of action plans.

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