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DOMESTICATING CARBON CAPTURE FOR EFFECTIVE ENERGY TRANSITION

ENGR. ABUBAKAR ALIYU ALIYU
National Metallurgical Development Center, (NMDC), Zaria Road, Jos. (Federal Ministry of Mines and Steel Development).

ABSTRACT
Carbon capture has emerged as an important solution to mitigate greenhouse gas emissions while ensuring continued use of fossil fuels in the transition to a low-carbon economy. However, the technology is not yet widely adopted due to high costs and technical challenges. In order to make carbon capture more effective, it is important to focus on

Introduction
Carbon capture and storage (CCS) has become an increasingly important technology in the global effort to reduce greenhouse gas emissions and mitigate climate change. The process involves capturing carbon dioxide (CO_2) emissions from industrial processes, power generation, and other sources, and transporting the CO_2 to a storage site where it is permanently stored underground or used for enhanced oil recovery. However, the widespread adoption of CCS has been slow due to high costs, technical challenges, and public perception issues. To effectively transition to a low-carbon economy, there is a need to domesticate carbon capture and make it more viable for widespread use.

One approach to domesticating carbon capture is to focus on reducing costs. This can be achieved through the development of more efficient capture technologies, scaling up CCS projects, and promoting private sector investment.

domesticating the technology. This involves developing and implementing carbon capture projects domestically, rather than relying on overseas projects. Domesticating carbon capture will create local jobs and expertise, reduce the cost of the technology, and increase public acceptance. It will also enable countries to meet their emissions reduction targets and contribute to global efforts to limit climate change. In this article, the sequence and stages to domesticate Carbon Capture for effective energy transition is highlighted. Governments should provide policy support and incentives to encourage the deployment of carbon capture technology, while industry should continue to innovate and collaborate to drive down costs and improve efficiency. By domesticating carbon capture, we can accelerate the transition to a low-carbon economy and ensure a sustainable future for generations to come.

Governments can also incentivize the adoption of CCS through carbon pricing or tax credits.

Another approach is to improve public perception and education about CCS. This can be achieved through public outreach and engagement, highlighting the benefits of CCS in reducing emissions and providing a reliable source of energy, and dispelling myths and misconceptions about the technology.

Furthermore, integrating CCS into existing infrastructure and industrial processes can also help to domesticize the technology. For example, CCS can be integrated into power plants, cement factories, and other industrial facilities to capture emissions at the source. This can reduce the cost and complexity of transporting and storing CO_2, as well as contribute to the overall efficiency of the facility.

Domesticating Carbon capture technology is essential in the global effort to combat climate change. With the world's growing energy demands and the need to reduce greenhouse gas emissions, carbon capture offers

a viable solution for both reducing emissions and producing energy. However, the challenge lies in making this technology cost-effective and scalable for widespread adoption. This requires a concerted effort from constituted governments institutions, private businesses, and the scientific community to drive innovation and investment in carbon capture technology.

METHODOLOGY

1. Identify potential carbon capture technologies: The first step is to identify the most promising carbon capture technologies that can be used for effective energy transition. This involves researching and evaluating existing technologies, as well as developing new ones that are more efficient and cost-effective.
2. Conduct feasibility studies: Once potential technologies have been identified, feasibility studies should be conducted to determine their viability in specific locations. This involves evaluating factors such as the availability of infrastructure, energy demand, and energy sources.
3. Develop a comprehensive carbon capture plan: A comprehensive plan should be developed that outlines the carbon capture strategy, including the technology to be used, the location of the facilities, and the timeline for implementation. The plan should also include a detailed analysis of the costs and benefits of the project.
4. Partner with stakeholders: Carbon capture projects require collaboration with various stakeholders, including governments, energy companies, and local communities. It is important to engage these stakeholders early on and involve them in the planning process to ensure their support and buy-in.
5. Secure funding: Carbon capture projects can be expensive, and securing funding is a critical step in the process. This may involve seeking government grants or subsidies, partnering with private investors, or exploring other financing options.

6. Implement and monitor the project: Once funding is secured, the project can be implemented. It is important to monitor the project closely to ensure that it is meeting its objectives and making progress towards effective energy transition. Regular reviews should be conducted to identify areas for improvement and make necessary adjustments.

7. Evaluate the project's impact: After the project has been implemented, it is important to evaluate its impact on carbon emissions and energy transition. This involves analyzing data and assessing the project's success in achieving its goals. Lessons learned from the project should be used to inform future carbon capture initiatives.

CONCLUSION

In conclusion, domesticating carbon capture is essential for the effective transition to a low-carbon economy. This requires a multi-faceted approach that focuses on reducing costs, improving public perception, and integrating CCS into existing infrastructure and industrial processes. With the right policies, incentives, and investments, CCS can become a viable and effective tool in the fight against climate change.

RECOMMENDATIONS

1. Increase investment in research and development: Governments and private companies must increase funding for research and development of carbon capture technologies. This will help in developing new techniques and methods for capturing and storing carbon dioxide effectively.

2. Encourage collaboration: Governments, private companies, and research institutions must work together to develop carbon capture technologies. Collaborative efforts can lead to breakthroughs in technology and cost-effective solutions.

3. Develop policies and incentives: Governments must develop policies and incentives to promote the development and deployment of carbon capture technologies. This can include tax credits, subsidies, and regulatory frameworks that encourage the adoption of carbon capture technologies.

4. Focus on industrial applications: The industrial sector is responsible for a significant portion of carbon emissions. Therefore, it is important to focus on developing carbon capture technologies for industrial applications such as power plants, cement factories, and steel mills.

5. Develop carbon utilization technologies: In addition to capturing carbon dioxide, it is important to develop technologies that can use captured carbon for other purposes. This can include producing fuel, chemicals, and other products.

6. Increase public awareness: Public awareness and education are crucial in promoting the adoption of carbon capture technologies. Governments, private companies, and research institutions must engage with the public and increase awareness about the importance of carbon capture for effective energy transition.

7. Implement international cooperation: Carbon capture is a global challenge, and international cooperation is crucial in developing effective solutions. Governments must work together to develop global policies and frameworks for carbon capture and storage.

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