The Role of Saudi Arabia in the Development, Demonstration and Deployment of Carbon Capture and Storage

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This paper provides a thorough analysis of the current state and potential future of Carbon Capture, and Storage (CCS) technologies, with a particular focus on the role of Saudi Arabia. It meticulously examines the global landscape of CCS, highlighting the critical importance of these technologies in combating climate change and achieving net-zero emissions targets. The paper delves into the economic, technical, and public barriers to CCS deployment and outlines a detailed strategy and roadmap for Saudi Arabia to advance in this field.

Key points include:

Introduction: The paper begins by outlining the urgent need to address climate change through the adoption of CCUS technologies. It positions Saudi Arabia as a key player, given its significant role in the global oil industry and potential for leading in CCS deployment.

Global Status of CCS: This section reviews the recent growth in CCS capacity and investment, illustrating the increasing global focus on these technologies. It also highlights the role of various regions, including the Middle East, in the CCS landscape.

CCS Readiness Index: The paper discusses the Global CCS Institute's CCS Readiness Index, which assesses countries based on factors like inherent interest in CCS, policy, regulatory and legal frameworks, and storage readiness. It emphasizes Saudi Arabia's moderate to high scores in these areas, suggesting a strong potential for CCS development.

Imperative for Saudi Arabia to Lead CCS Deployment: The paper argues that Saudi Arabia, with its vast hydrocarbon reserves and industrial sectors, is uniquely positioned to lead in CCS. It discusses the economic, environmental, and strategic benefits of CCS for Saudi Arabia, including diversification of the economy and enhancement of environmental credentials.
Overcoming Barriers to CCS Deployment: This section identifies and discusses solutions to key barriers in CCS deployment, such as economic and financing challenges, technical and logistical issues, and public and regulatory concerns.


Conclusions: The conclusion underscores the importance of a national CCS strategy for Saudi Arabia and highlights the country's opportunity to lead in the CCS domain, thereby contributing significantly to global climate change mitigation efforts.

The paper is an invaluable resource for understanding the intricacies of CCS technologies and the critical role of Saudi Arabia in this sector. It offers a narrative for a roadmap for the country to leverage its resources and expertise in leading the way towards a more sustainable, low-carbon future.