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## Is India Ready for a Green Hydrogen Economy? A Developing Country Perspective

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Globally, green hydrogen is seen as an alternative to fossil fuels because it is clean, versatile, has wide-ranging applications and is sustainable. India, like many other countries, is aggressively pursuing a green hydrogen economy since the launch of its 'National Green Hydrogen Mission' in 2021. But how ready is India for a green hydrogen economy, considering that it is expensive and that the most commonly used method of extracting it would require a lot of freshwater? This study reviews existing literature in the field, India's green hydrogen policy and its road map and it assesses its water availability. It suggests that perhaps India's green hydrogen policy should have a more holistic approach, evaluating not only its cost and technological aspects but also its water availability. For a developing economy, like India, transitioning to a green hydrogen economy would also reflect its inclusiveness.

### KEYWORDS

Green hydrogen, Water availability, Sustainable development

### 1. INTRODUCTION

Global warming due to increased levels of carbon dioxide emissions has led to disastrous environmental consequences all over the globe. Although several attempts have been made in the form of legislation and policies to curb carbon emissions, these attempts have largely been unsuccessful. This is because most economies continue to rely on fossil fuels, like oil, natural gas and coal for their energy needs. India is no exception. The country's energy demand is growing rapidly, and it is heavily dependent on fossil fuels. The United Nations identified affordable and clean energy as the key to sustainable development in its sustainable development goal (SDG-7), recognizing the need for this kind of paradigm shift related to energy production. India, too, realized that it needed to make a transition to a green hydrogen economy for two main reasons. Firstly, India relies heavily on fossil fuels, like coal, oil and biomass for its energy production, which are the main emitters of carbon dioxide. India ranks as the world's third-largest emitter of carbon dioxide, with an electrolyzer powered by a renewable energy source [2,3].

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