



REGULATING GREEN HYDROGEN TRANSPORTATION: A CONSTITUTIONAL CONUNDRUM

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I. Introduction

Green Hydrogen (**GH₂**), emerging as a pivotal sector in India's clean energy transition, offers immense potential for the nation, investors, and consumers. It has the potential to reduce carbon emissions, boost the green economy, and diminish import dependence on petroleum products, thereby advancing the vision of *Atmanirbhar Bharat*¹. With its applications spanning across industries, it could transform India's energy landscape while contributing significantly to climate change mitigation and enabling the country to honour its COP 26 commitments².

However, the sector is still in the nascent stages and establishing a well-defined policy and regulatory landscape will provide investors with the confidence and clarity required to make informed decisions. While a robust regulatory framework is on the horizon, expediting this process is key to ensuring that the industry has the structure and direction necessary to thrive across the value chain, i.e., production, storage, transportation, and end-use applications.

II. GH₂ Transportation

In the Indian federal governance structure, the GH₂ sector has seen participation from both Union as well as the State Governments. Along with the incentives available under the National Green Hydrogen Mission, various State Governments have also implemented policies with incentives for setting up GH₂ production plants. In order to promote the ease of doing business, the Governments have also streamlined the application process for obtaining various approvals, both at the Union and State level. Albeit, even with the implementation of such processes, there are regulatory gaps which hinder the growth of the sector. One of such regulatory gaps pertains to the transportation of GH₂.

GH₂ can be transported using various methods depending on the distance and scale. The primary options include: (a) pipelines, which can be dedicated or repurposed from natural gas networks for large-scale transmission; and (b) transportation of compressed or liquefied hydrogen via specialized containers or vessels.

For transportation of GH₂ through specialized containers, the regulatory landscape is quite well-defined and extends to obtaining necessary approvals under Static and Mobile Pressure Vessels (Unfired) Rules, 2016, Gas Cylinder Rules, 2016, and Explosives Rules, 2008, depending on various factors such as the temperature, flash point, type of vessel, etc. However, it is yet to be seen how transportation through pipelines is to be regulated. The current legal landscape regulates the transportation of petroleum, petroleum products, and natural gas through pipelines through the Petroleum and Natural Gas Regulatory Board (**PNGRB**) Act, 2006 (**PNGRB Act**). Question then arises whether the Union Government can regulate the transportation of GH₂ through pipelines in a manner similar to that of '*natural gas*'. To answer this question, the difference between GH₂ and '*natural gas*' needs to be analyzed.

III. Differentiating GH₂ from Natural Gas

The Oil Industry (Development) Act, 1974 (**OID Act**) defines '*natural gas*' as –

“gas consisting primarily of hydrocarbons obtained from oil wells or gas wells.”

¹ Invest India, "*Atmanirbhar Bharat Abhiyan*". Accessible at: <https://www.investindia.gov.in/atmanirbhar-bharat-abhiyaan>.

² Press Information Bureau, "*India's Stand at COP-26*". Accessible at: <https://pib.gov.in/PressReleasePage.aspx?PRID=1795071>.

Further, the PNGRB Act defines ‘natural gas’ and ‘petroleum’ as –

“‘natural gas’ means gas obtained from bore-holes and consisting primarily of hydrocarbons and includes: (i) gas in liquid state, namely, liquefied natural gas and regasified liquefied natural gas, (ii) compressed natural gas, (iii) gas imported through transnational pipelines, including CNG or liquefied natural gas, (iv) gas recovered from gas hydrates as natural gas, (v) methane obtained from coal seams, namely, coal bed methane, but does not include helium occurring in association with such hydrocarbons”³

“‘petroleum’ means any liquid hydrocarbon or mixture of hydrocarbons, and any inflammable mixture (liquid, viscous or solid) containing any liquid hydrocarbon, including crude oil and liquefied petroleum gas, and the expression ‘petroleum product’ shall mean any product manufactured from petroleum.”⁴

Additionally, GH₂ cannot be appropriately classified as a petroleum product or natural gas⁵, since their distinct compositions and chemical properties render it technically unfeasible to group them together.⁶

From the aforementioned definitions it is abundantly clear that ‘natural gas’ refers to gases obtained from boreholes or oil wells. Pure GH₂, being a gas manufactured through electrolysis, may not qualify as a ‘natural gas’ and hence may not fall within the ambit of PNGRB. Consequently, a case arises to suggest that while PNGRB would have the authority to regulate any GH₂ blended product qualifying as a petroleum product, it may not be competent to regulate transportation of pure GH₂.

IV. Union Government Initiatives to legislate on GH₂

There have been attempts by the Union Government to include hydrogen in union legislations to ensure that it is regulated in a manner similar to petroleum and natural gas. The Union Government had proposed certain amendments to the Oilfields (Regulation & Development) Act, 1948, through Oilfields (Regulation & Development) (Amendment) Bill, 2021 (**2021 Amendment**). The 2021 Amendment sought to widen the ambit of the term ‘*mineral oil resources*’, to also include hydrogen, among other things, in order to facilitate the development of alternative/derivative clean energy sources.⁷ However, the 2021 Amendment was never notified by the Union Government. Subsequently, an updated amendment, that is, the Oilfields (Regulation & Development) (Amendment) Bill, 2024 (**2024 Amendment**)⁸ was recently tabled in the Parliament. The 2024 Amendment is yet to be passed by the Parliament. It is pertinent to note that in the 2024 Amendment, the phrase “*or which can be produced from mineral oils such as hydrogen*”, which was present in the 2021 Amendment, has been removed from the proposed definition of ‘*mineral oil resources*’.

³ Section 2(za) of the Petroleum and Natural Gas Regulatory Board Act, 2006.

⁴ Section 2(ze) of the Petroleum and Natural Gas Regulatory Board Act, 2006.

⁵ Schobert, H. (2013). *Chemistry of fossil fuels and biofuels* (pp. 174-191). Cambridge University Press. <https://doi.org/10.1017/CBO9780511844188.012>.

⁶ Nikolaidis, P., & Poullikkas, A. (2017). A comparative overview of hydrogen production processes. *Renewable and Sustainable Energy Reviews*, 67, 597-611. <https://doi.org/10.1016/j.rser.2016.09.044>.

⁷ Ministry of Petroleum and Natural Gas - Oilfields (Regulation & Development) (Amendment) Bill, 2021. Accessible at: https://mopng.gov.in/files/Whatsnew/website_0001.pdf.

⁸ Ministry of Petroleum and Natural Gas - Oilfields (Regulation & Development) (Amendment) Bill, 2024. Accessible at: <https://sansad.in/rs/legislation/bills>.

Furthermore, in a recent stakeholder interaction conducted by PNGRB in March 2024, the pathways for the transportation of hydrogen in natural gas pipelines and city gas distribution networks was analysed which indicates the anticipated advent of a regulatory framework by PNGRB for the transportation of hydrogen.⁹

V. Constitutional Analysis

The legislative competence of the Union Government to enact the legislations like OID Act and PNGRB Act, to regulate petroleum and natural gas, is derived from Entry 53 in List 1 of Schedule VII of the Constitution of India, 1950 (**Constitution**).

However, a potential constitutional conundrum that can be encountered in this regard is whether the PNGRB or any other authority, representing the Union, is actually competent to legislate on GH₂ with reference to Article 246 and Schedule VII of the Constitution.

Article 246 of the Constitution divides legislative powers between the Parliament and State Legislatures through three lists provided in Schedule VII: the Union List, State List, and Concurrent List. The Union List (**List 1**) contains subjects on which only the Parliament can legislate, such as defense and foreign affairs. The State List (**List 2**) covers subjects like police and public health, where only State Legislatures can make laws. The Concurrent List (**List 3**) includes subjects like education and marriage, where both the Parliament and State Legislatures can legislate, but in case of conflict, Union law prevails.

While GH₂ blended with natural gas may be reasonably covered under the scope of PNGRB, the treatment of transportation of GH₂ in its raw form can be rather contentious. It arises from a potential conflict between Entry 53 of List 1 and Entry 25 of List 2 of the Constitution. Entry 25 of List 2 provides that the State Governments have the absolute right to regulate any matters pertaining to '*gas and gas works*'.

A similar challenge was raised vis-à-vis the categorisation of natural gas in *Association of Natural Gas v. Oil and Natural Gas Commission*¹⁰ (**Special Reference**). The Special Reference raised the question whether natural gas falls under Entry 53 of List 1, which covers petroleum products, or Entry 25 of List 2, which covers '*gas and gasworks*', to determine whether the Parliament or the State Legislature would have exclusive jurisdiction to legislate on the matter. An analysis of numerous factors by the Hon'ble Supreme Court of India led to the inescapable conclusion that '*natural gas*', in its raw and liquified form, is a petroleum product and part of the mineral oil resources.

While evaluating the factors in the Special Reference, the Supreme Court also read the term '*gas and gasworks*' under Entry 25 of List 2 in collocation and gas was assigned the meaning '*manufactured gas*' which is often used for industrial, medical or other similar purposes. GH₂ is not naturally occurring and is produced through the process of electrolysis. Consequently, it may qualify as a manufactured gas and fall squarely under Entry 25 of List 2.

⁹ PNGRB, "Study on pathways for Transmission of Hydrogen in Natural Gas Pipelines and City Gas Distribution Network". Accessible at: https://pngrb.gov.in/pdf/press-note/ICF_15032024.pdf.

¹⁰ (2004) 4 Supreme Court Cases 489, which is also referred in *Adani Gas Limited vs. Union of India*, (2022) 5 Supreme Court Cases 210).

In order to understand the dynamics better, reference can also be invited to State Hydrogen Policies of Rajasthan¹¹ and Uttar Pradesh¹², where the nodal agencies appointed for approval of setting up of plants and generation of GH₂, among other things, are State authorities. This furnishes the understanding that the Union Government will not be exercising its sole legislative prerogative like it does in the case of petroleum products.

However, the Government could still exercise the power to legislate with reference to “*other liquids and substances declared by Parliament by law to be dangerously inflammable*”, as per Entry 53 of List 1, or it could declare the same as an industry the control of which is declared by the Parliament to be expedient in public interest as per Entry 52 of List 1, subject to potential challenges. As of yet, the Government has not released any notification pertaining to the same under either the Industries (Development and Regulation) Act, 1951 or the Inflammable Substances Act, 1952.

VI. Conclusion

A strong case for the exercise of power by the Union on GH₂ could be made by inviting reference to *Cauvery Water Disputes Tribunal, Re*¹³, where the right to flowing water was described as *public juris* in light of the merit of the subject matter. A similar argument could be made for GH₂ as it is a resource of national importance. However, the absence of any notification by the Union Government in the aforementioned legislations or an amendment to the Constitution leads to a plausible inference that, as of date, GH₂, and its production and transportation, cannot be regulated exclusively by the Union Government.

To conclude, it remains to be seen how these two interpretations will be harmoniously reconciled, and whether the transportation of GH₂ through pipelines will be administered jointly by the Union and the State Governments. The Government will need to carefully navigate potential pitfalls to ensure a balanced approach to effectively avoid regulatory overlap, and establish a clear regulatory framework.

¹¹ Rajasthan Green Hydrogen Policy, 2023. Accessible at: https://jankalyanfile.rajasthan.gov.in/Content/UploadFolder/DepartmentMaster/197/2023/Oct/30409/19754_c1396c-1eb8-49f0-b1aa-11f734668671.pdf.

¹² Uttar Pradesh Green Hydrogen Policy, 2024. Accessible at: https://invest.up.gov.in/wp-content/uploads/2024/06/UPNEDA-GH2-Policy-English_120624.pdf.

¹³ 1993 Supp (1) SCC 96 (II).

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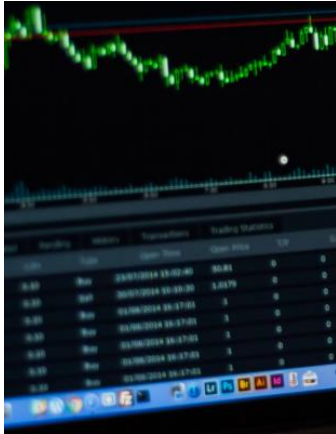
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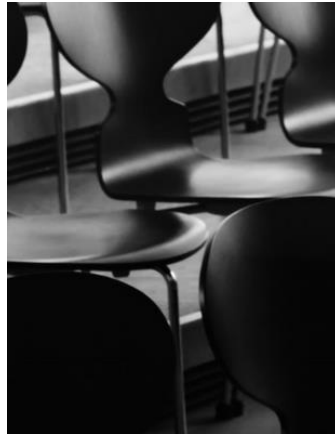
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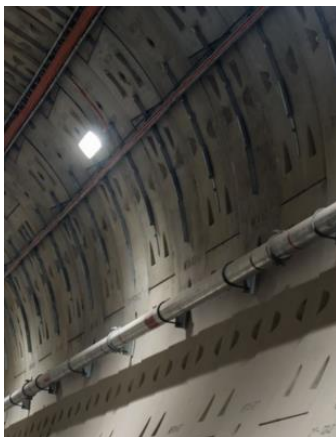
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