

Remuneration formats in support schemes for hydrogen from electrolysis: What to incentivise and why?

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Abstract-

Support mechanisms for low-carbon hydrogen are becoming increasingly widespread, with large amounts of public funding being invested to underpin the initial development of this new energy sector. A clear distinction has emerged in support schemes for hydrogen production through electrolysis, depending on whether remuneration is expressed per MW of electrolysis capacity or per kg of hydrogen produced. This dichotomy has led many experts to draw parallels with support schemes for renewable electricity generation and their distinction between capacity- and production-based mechanisms. This article contributes to this discussion by: i) providing a theoretical assessment of the similarities and differences between low-carbon hydrogen support schemes and other support mechanisms introduced in the electricity sector; and ii) developing a quantitative assessment based on simulations to explore the impact of selecting a remuneration format for hydrogen support, and to evaluate the economic signals sent to project developers by both remuneration formats.

Index Terms- Hydrogen economy; Hydrogen subsidies; Support mechanism; Risk-hedging; Direct grant; Fixed premium; Variable premium

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Citation:

Mastropietro, P.; Bruninx, K.; Cossent, R.; Bello, A.; Rodilla, P. "Remuneration formats in support schemes for hydrogen from electrolysis: What to incentivise and why?", International Journal of Hydrogen Energy, vol.213, pp.153775-1-153775-11, February, 2026.