**Hydrogen Case Study Questions**

1. **What are the enablers and barriers to implementing hydrogen as a renewable fuel?**

Hydrogen could carry enough energy in a 1kg tang to move a car over 100km (Isaacs and Coromina). As a renewable fuel, this puts hydrogen in a promising category for heavy duty vehicles that wouldn’t be feasible to turn electric (e.g., shipping, trucking).

A major barrier includes the mismatch between Net Zero Commitments which include green hydrogen in its planning (e.g, Shell, Toyota, Chevron), and the lack of hydrogen plants planned to make those commitments possible. For example, there are only currently two states in the US that have hydrogen fueling stations available.

Another barrier includes competition from EVs. At least in the consumer market, it seems like the demand for hydrogen-powered vehicles is not growing as much as companies hoped for, since consumers are apparently preferring electric vehicles instead.

1. **What are the business, social and economic issues associated with corporate climate commitments that incorporate hydrogen as a renewable fuel?**

On the business front, the transition to hydrogen fuel requires substantial investments in new technologies, infrastructure, and supply chains. This shift poses financial risks due to the high costs of green hydrogen production, storage, and transportation, compared to conventional fuels and other renewable energy sources. Companies must navigate these costs against the backdrop of uncertain future hydrogen markets and evolving regulatory landscapes, which could impact profitability and competitiveness. The case discusses how the IRA has helped to incentivize green hydrogen production, which is trying to make this business landscape more palatable and feasible.

Socially and economically, the move towards hydrogen fuel can drive job creation in new sectors, fostering economic growth and innovation. Though it is not mentioned in the case, one could consider a risk or concern the displacement of workers in traditional energy sectors, necessitating strategies for workforce transition and retraining. Moreover, the environmental impact of hydrogen production methods (green, blue, and grey hydrogen) poses varying degrees of social and environmental challenges, including water usage, emissions, and energy efficiency. Hubs will need to be created to ensure that hydrogen can produced in a green way.

From a social aspect, it is also important to ensure equitable access to the benefits of hydrogen technology, particularly in underserved and low-income communities, in addition to fulfilling corporate climate commitments.

Top of Form

Bottom of Form