The environmental considerations of hydrogen hubs are critical in addressing climate change and promoting sustainability. Hydrogen, particularly when produced through low-emission methods such as water electrolysis, presents a viable pathway for reducing greenhouse gas emissions (Ref-f706907). Furthermore, integrating hydrogen into existing energy systems can significantly lower the carbon footprint of industries reliant on hydrocarbons, thereby aiding in the transition to cleaner energy sources. However, the environmental benefits of hydrogen are contingent upon the production methods employed; for instance, the reliance on fossil fuels for hydrogen production can negate its sustainability advantages (Ref-f706907). Therefore, the strategic deployment of hydrogen hubs must prioritize sustainable production and storage techniques to fully realize their potential in mitigating climate change impacts.