

Pioneering green hydrogen: Oman’s journey from vision to reality



Dr Kerry-Ann Adamson
Global Strategic Advisor
for Hydrogen at Worley

The From Ambition to Reality (FATR) 3 paper by Worley and Princeton University’s An-dlinger Center for Energy and the Environment serves as a comprehensive guide for stakeholders in the energy sector, outlining the need for radical, but responsible shifts that are going to be necessary to accelerate the transition to a net zero future. The paper specifically examines the renewable hydrogen value chain, providing actionable insights and a robust framework to expedite the pace and scale of infrastructure delivery.

Barriers to achieving net zero ambitions

Oman stands as a frontrunner in the rapid development of a green hydrogen industry, showcasing a progressive approach to fostering a sustainable energy future. However, to fully realize the potential of hydrogen in Oman and beyond,

it is imperative to address and overcome existing barriers. The FATR 3 paper categorizes these barriers into three domains: Certainty, Acceptance, and Productivity.

Certainty: Addressing the risk of investment is crucial. Stakeholders need assurance and clarity to make informed decisions and commit to long-term investments in green hydrogen.

Acceptance: Building an acceptable social, commercial, and political contract is vital. This ensures that all parties involved, from local communities to global investors, are on board and supportive of the hydrogen transition.

Productivity: Enhancing the pace of deployment to meet the urgent demands of climate action and energy transition is non-negotiable. The industry must operate efficiently and effectively to achieve the ambitious goals set forth.

Figure 1: High-level summary of stakeholder perceptions of risk and uncertainties that might constrain the achieve-

Certainty OVERCOMING THE RISK OF INVESTMENT	Acceptance BUILDING AN ACCEPTABLE SOCIAL, COMMERCIAL AND POLITICAL CONTRACT	Productivity GETTING THE PACE OF DEPLOYMENT TO WHAT IS NEEDED
<ul style="list-style-type: none"> • Future demand visibility • Future hydrogen price trajectory • Future hydrogen costs of technology • Customers’ willingness to pay • Renewable (and transmission) capacity availability • Ability to satisfy regulators/customers of renewable origin • Ability to obtain reliable technology supply • Access to land and water resources 	<ul style="list-style-type: none"> • Impact on energy bills • Public skepticism of sector’s green credentials • Public skepticism of hydrogen safety • Communities unconvinced of positive to negative trade-offs in project development • Lack of trust in oil and gas sector’s climate goals • Lack of transparency in criteria for allocating public funding 	<ul style="list-style-type: none"> • Capacity in equipment supply chains • Workforce readiness • Depth of capacity in EPC organizations • Complexity and time of permitting and approval process • Capacity in regulatory and permitting agencies • Bespoke project designs slow down learning • Developer insistence on firewalls between project teams

WORLEY.COM

Building on our past

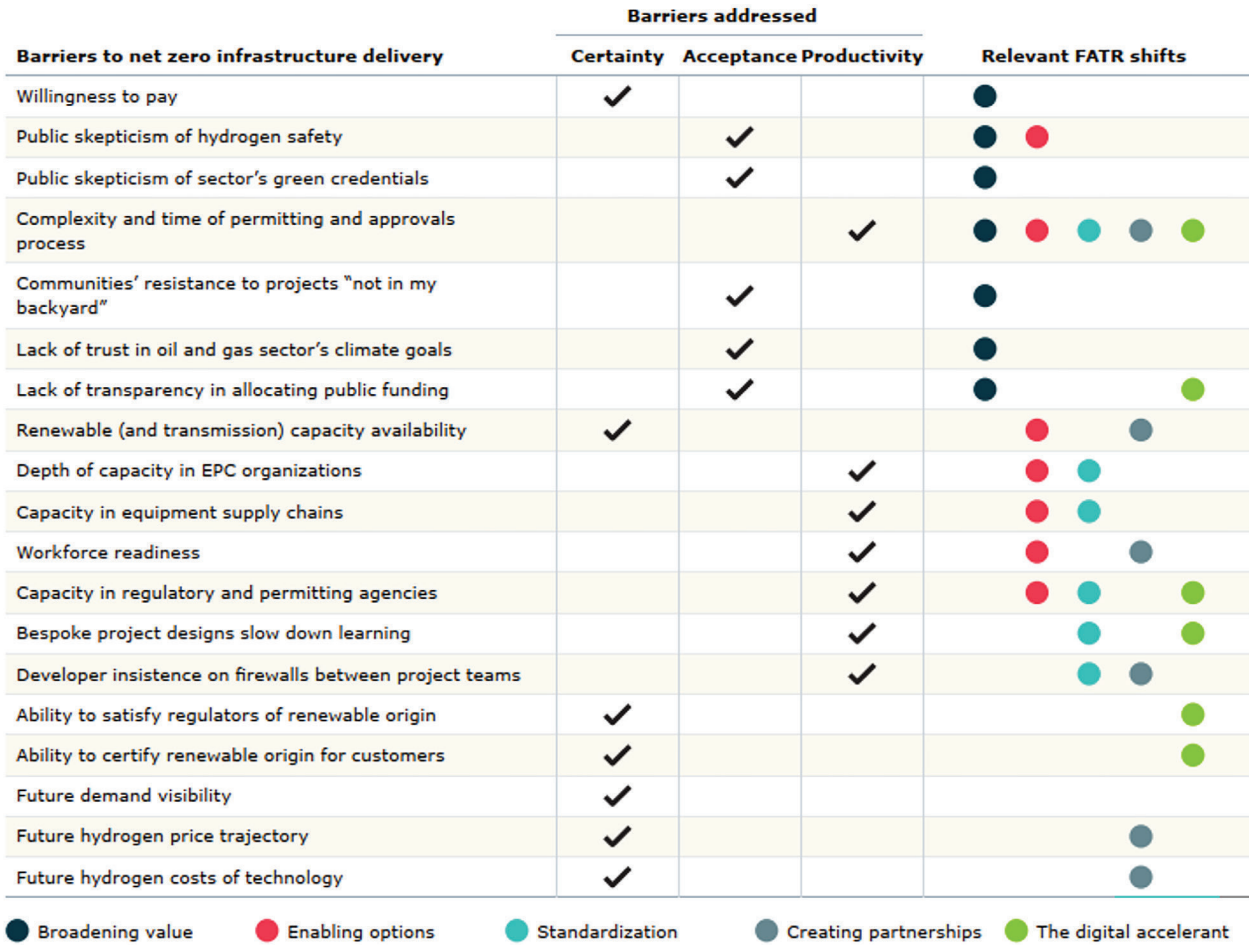
Ready for the future.

**We're working towards making
sustainable transformation a reality.**

The future of energy is going to look very different to the past, and green hydrogen has a critical role to play in this. Now it's time to come together, working in partnership to turn the ambitions for green hydrogen into a tangible reality. Worley is home to 50,000 experts across 45 countries, all driven to help our customers accelerate to more sustainable energy sources, while still providing the energy, chemicals and resources society needs now.

To learn more about how Worley is delivering sustainable change, visit [worley.com](https://www.worley.com)





“Oman stands as a frontrunner in the rapid development of a green hydrogen industry, showcasing a progressive approach to fostering a sustainable energy future.”

ment of 2030 clean hydrogen ambitions.

Applying the FATR shifts

In the paper, Worley explored the role of the FATR shifts, namely broadening value, enabling options, standardization, creating partnerships, and the digital accelerant, in overcoming the risks and threats described in Figure 1 by mapping

each to a FATR shift (or shifts) that could help overcome them.

Figure 2: Mapping of the outcomes sought in Figure 1 across Certainty, Acceptance and Productivity, to the five key shifts.

Oman's role and the path forward

Oman's advanced stance in the green hydrogen sector sets a strong foundation for future developments. However, there is a collective responsibility to push the boundaries and continuously innovate to overcome infrastructure development barriers.

As co-author of the FATR3 paper, Dr Kerry-Ann Adamson, Global Strategic Advisor for Hydrogen at Worley, aptly puts it, "Oman has laid the groundwork for a thriving green hydrogen industry. Now, it

is time to join forces, collaborate, share knowledge, and drive forward to turn our visions and ambitions into a tangible reality, not just for Oman but for the region and for the next generation which need to engineer the energy transition.”

From ambitions to actions

As we transition to a new era in energy, the journey from ambition to reality requires not just vision, but actionable steps and unwavering commitment. The FATR3 paper lays out a comprehensive roadmap, highlighting the critical shifts needed to accelerate the deployment of green hydrogen and achieve our net-zero ambitions.

In Oman, we have a unique opportunity to lead this transition, leveraging our advanced approach and commitment to sustainable energy. The FATR shifts provide a strategic framework to overcome the barriers of Certainty, Acceptance, and Productivity.

By embracing these shifts, we can compress project schedules by up to 40%, driving efficiency and expediting our progress. This is not just a call to action; it is a call to partnership. Our success hinges on collaboration, and together, we can turn our collective ambitions into tangible results. ■

Scan the QR code below to download the full paper and join us in delivering sustainable change.



TURNING AMBITIONS INTO ACTIONS

We believe that renewable hydrogen is the missing link in the energy transition, that is why we have pledged that by 2030, we will deliver 4 GW of renewable hydrogen production capacity.

