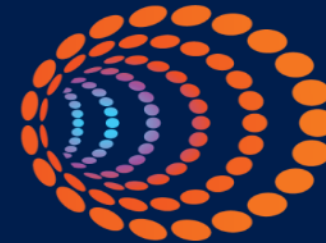


H100 Fife

A critical step on the pathway to decarbonisation

Stephen Tomlinson

8 December 2020



SGN

Your gas. Our network.

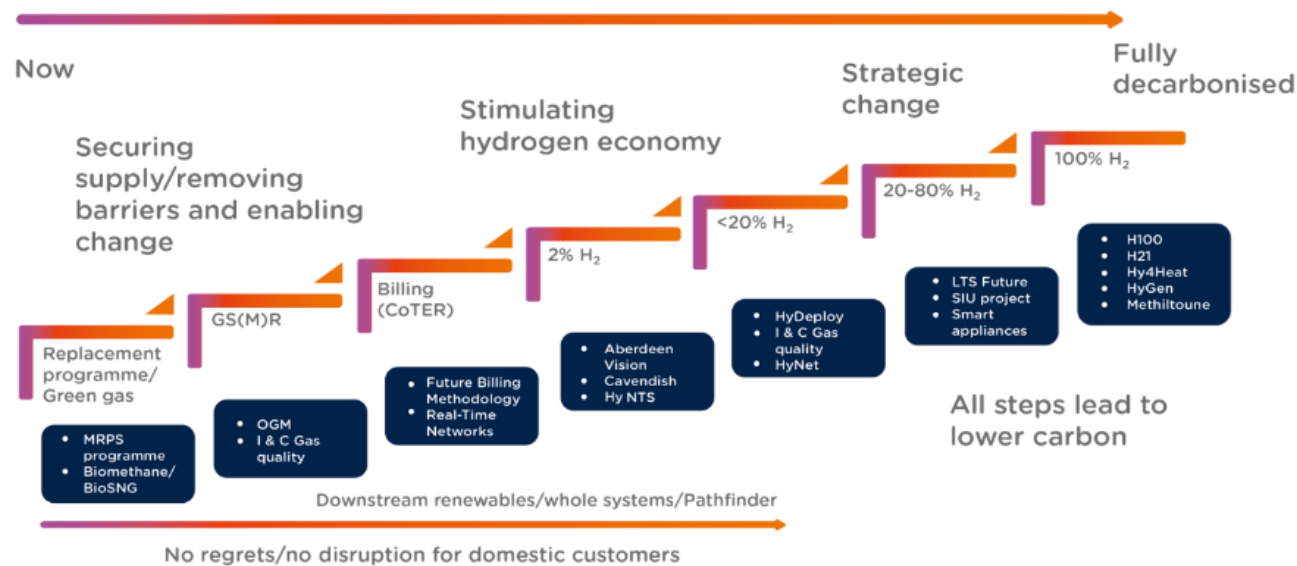


Hydrogen Context

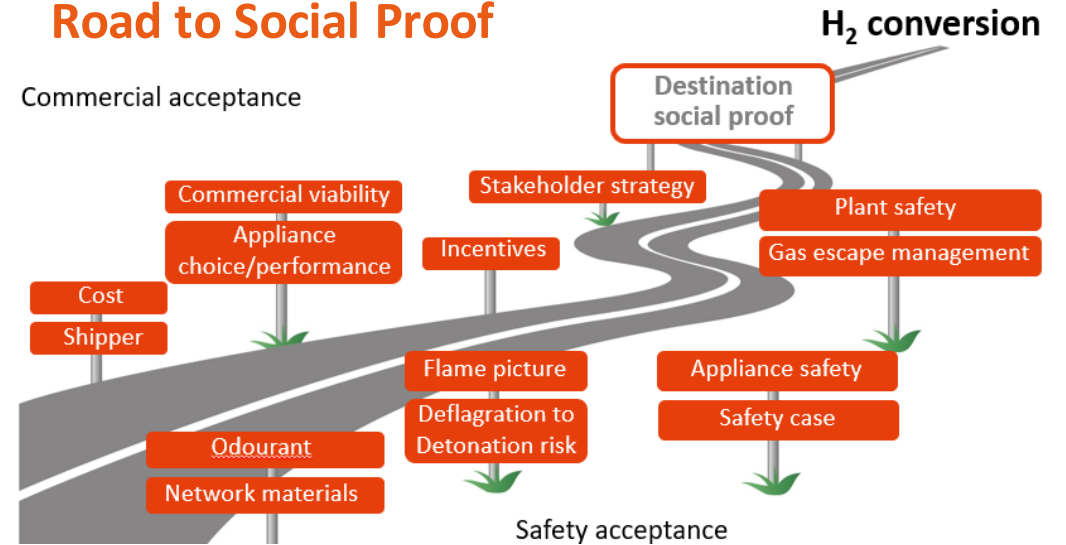
H100 Fife is recognised by the networks, industry and government as a key demonstration project with critical national significance in evidencing the role of hydrogen to decarbonise the gas networks.



The gas quality decarbonisation pathway

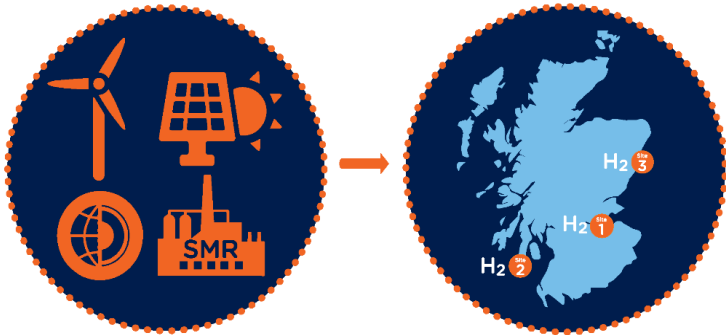


Road to Social Proof

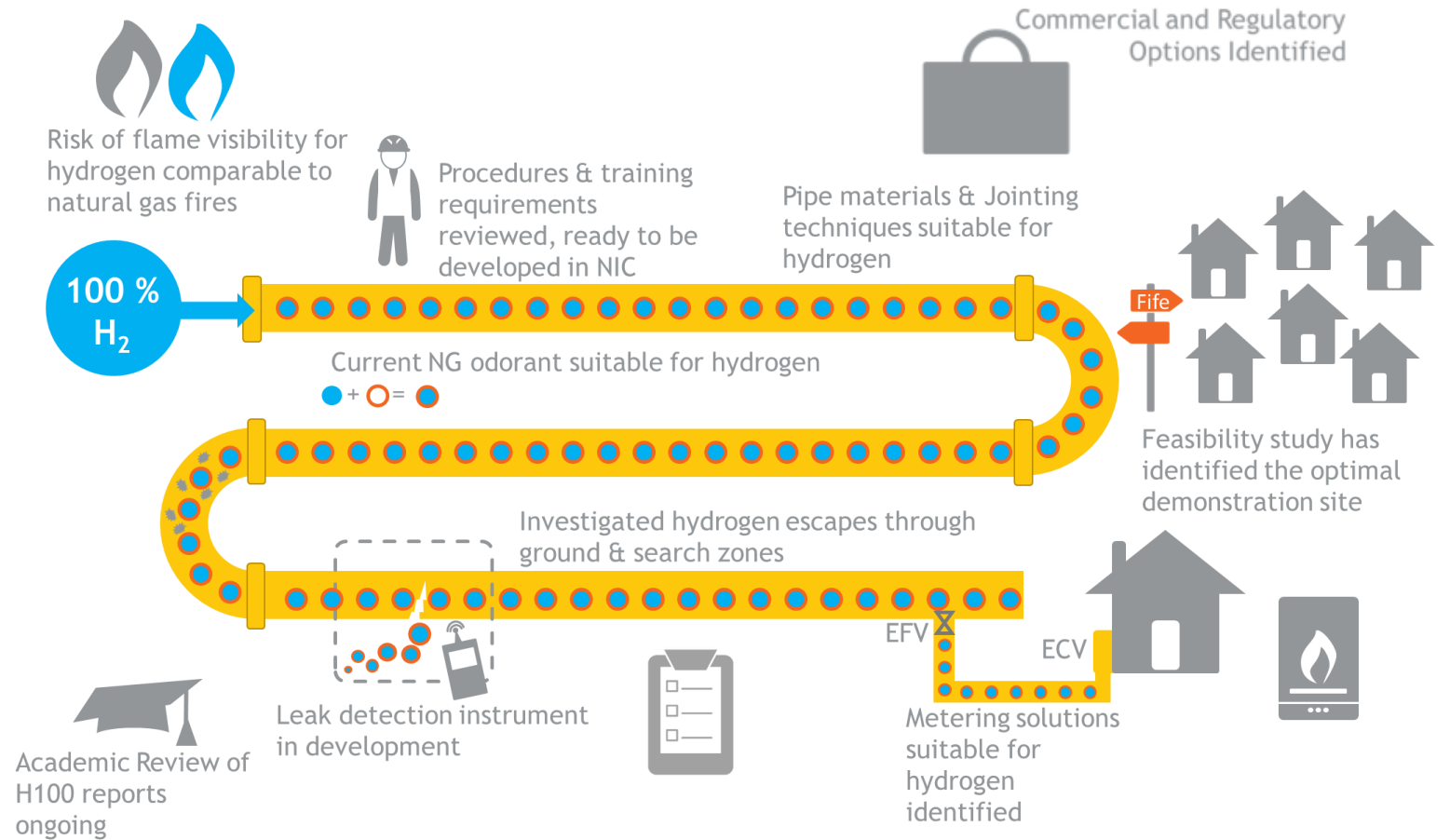


Preparatory Work

Site Selection



H100 NIA



SGN



Hy4Heat



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H100 Fife Animation



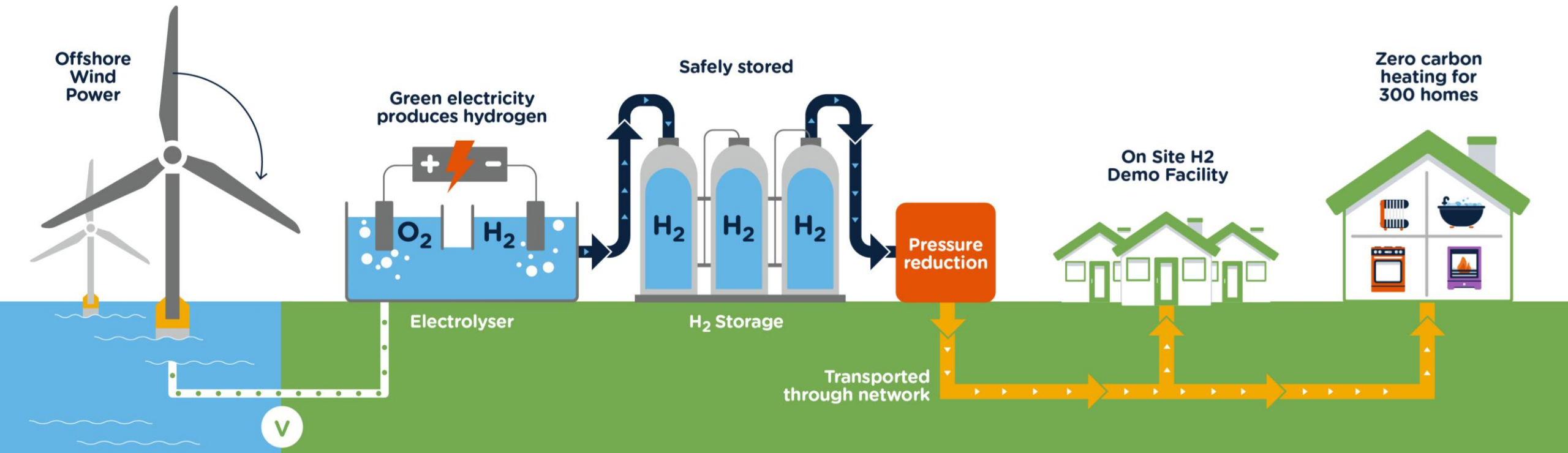
<https://sgn.co.uk/H100Fife>

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H100 Fife – End to End Demonstration



H100 Fife – Levenmouth Site



ORE Catapult 7MW Turbine



Energy Park Fife



Customer

Hydrogen Demonstration Facility



Customer Engagement

Dear John,
Would you like to participate in the H100 Fife hydrogen project?
Please select.
Yes No

Properties able to connect to the network will be identified and invited to participate in the project.

Customers will be invited into SGN's hydrogen demonstration facility on site at Levenmouth.

At the hydrogen demonstration facility, customers will be able to interact with hydrogen appliances, allowing them to experience central heating, hot water, cooking and fireplaces, all supplied by hydrogen gas.

There will be opportunities for customers to learn about hydrogen and the project, ask questions and meet key personnel.

SGN will visit all customers signing up to the project, to complete internal property checks and verify participation.

SGN will arrange customer home works to replace natural gas appliances with comparable hydrogen gas versions and connect to the new hydrogen gas supply.

Customer support and 24 hour call out will be available through various channels and platforms for the duration of the project.



Customer

Key Principles:

- Building customer confidence
- Providing interactive customer experience with hydrogen
- Maintaining customer choice model throughout project
- Customers can opt-in for a hydrogen supply or remain with existing natural gas supply
- Cost neutral to participate

Customer Protection Mechanisms



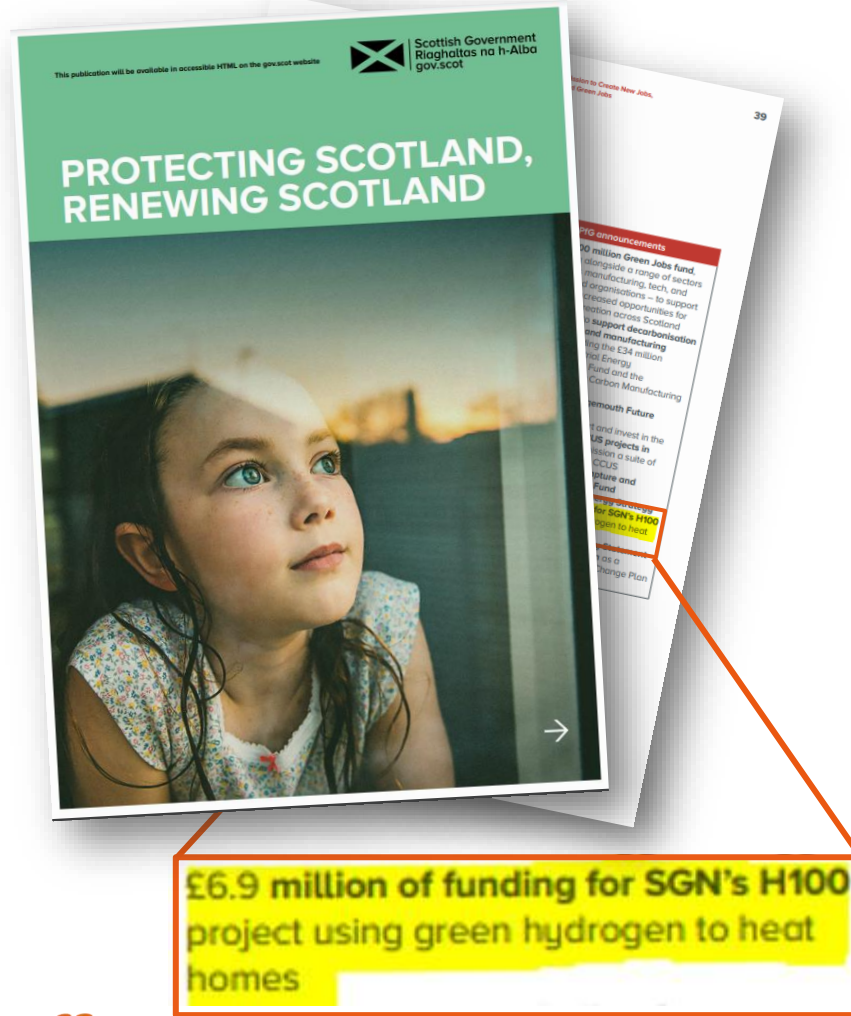
- Commodity balancing and customer billing
 - Project sells hydrogen to shipper at natural gas price index
 - Cost differential between hydrogen production and natural gas index borne by the project
 - Increased cost of hydrogen production remains upstream protecting supply chain including customers
 - Customers pay no more for energy than natural gas price, this is reflected in customer bill



- Security of supply storage solution
- Provision of appliances and meters at no cost to customer, including maintenance
- Option to return to natural gas

Funding

Programme for Government 2020-2021



£6.9 million of funding for SGN's H100 project using green hydrogen to heat homes



Scottish Government
Riaghaltas na h-Alba
gov.scot



Making a positive difference
for energy consumers

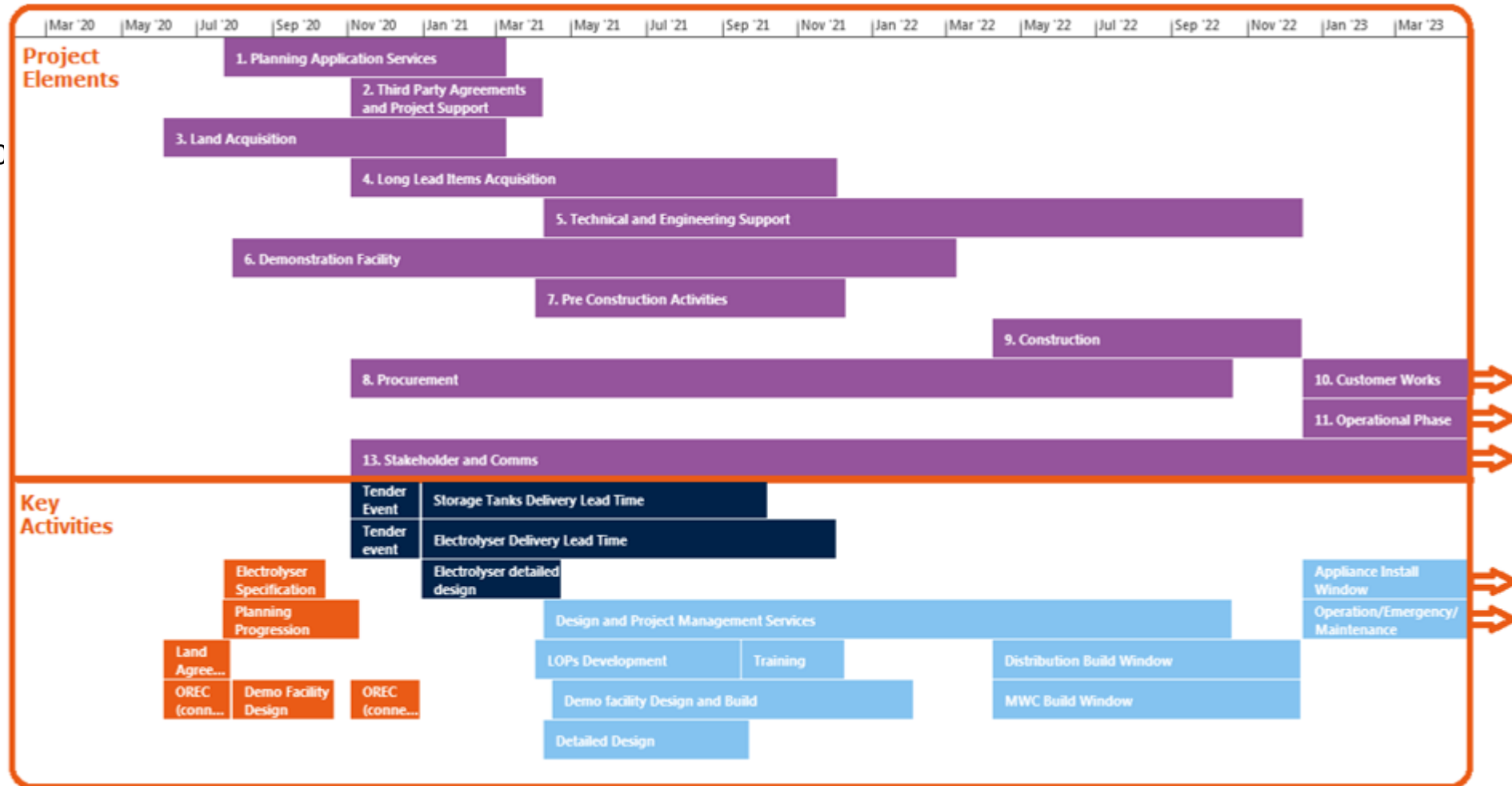
- April 2020: Passed the initial screening process
- May-July: Ofgem NIC submission preparation
- July: NIC bid submitted
- August-October: Ofgem review process with supplementary questions & bilaterals
- October: NIC final submission
- November/December: Expected NIC decision
- December: Scottish Government funding available
- April 2021: NIC funding commences



Timeline - High Level Programme

Milestones

- NIC Funding outcome Nov 2020
- Scottish Government Grant Dec 2020
- Planning submitted end of 2020
- Planning award end of financial year
- Land lease payment subject to planning
- Long lead items ordered Q1 2021
- NIC funding available Apr 2021
- Hydrogen Demonstration Facility open Q1 2022
- Customer sign up process commences Q1 2022
- SMF complete Q1 2022
- Construction commences Q2 2022
- Network operational Q4 2022
- Customers connected Q2 2023
- Operational until Q1 2027



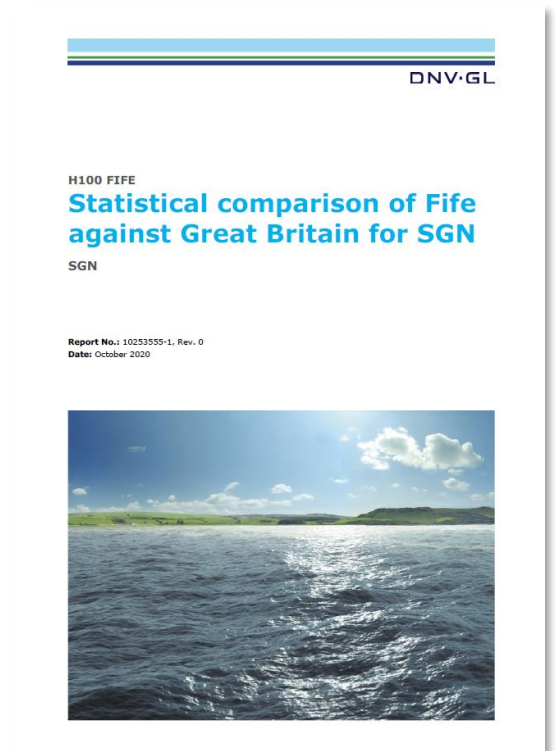
Futures Expansion Opportunities

- Phase 1: 300 homes new network
- Phase 2: Increased homes & conversion
- Phase 3: Industrial & Commercial
- Phase 4: Transport
- Phase 5: Whole Systems & Hydrogen Coast



Key H100 Fife Outcomes

- **Informs heat policy decisions and future regulation**
- **Validation of 77% of 277,000km network materials, components, construction and operation on a live network**
- **Quantifying and qualifying customer and social acceptance of hydrogen for heat in real-world trial**
- Prioritised learning to inform hydrogen system transformation
- End to end system interfaces management and learning across the whole system
- Statistically significant and scalable
- Future demand forecasting through heat profile data
- Shared learning and knowledge transfer to facilitate hydrogen projects and roll out
- Market creation



Thank you

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SGN
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