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Hydrogen projects — construction insurers' reactions

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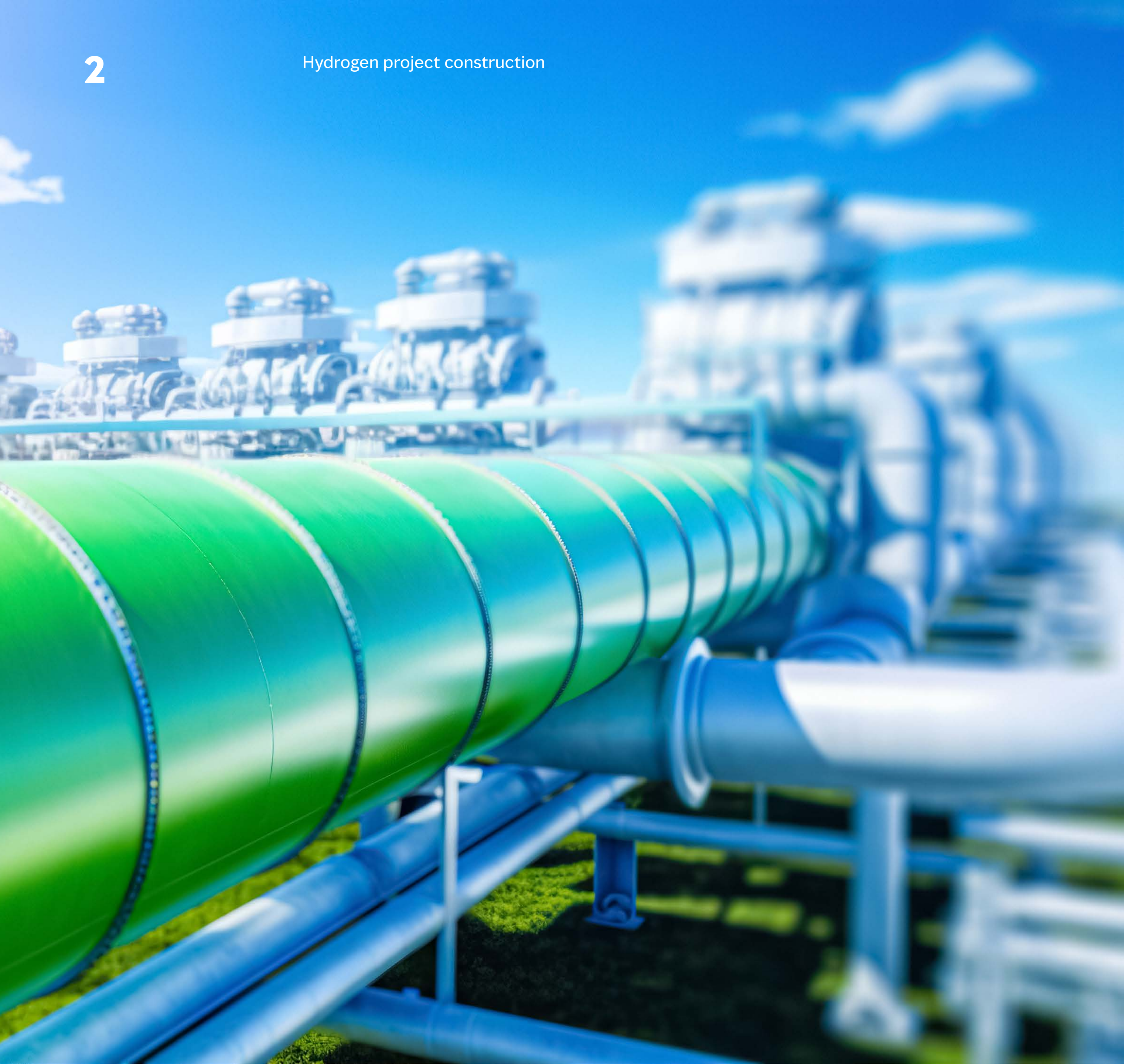

Supporting the energy transition

Hydrogen's importance in decarbonisation is accelerating. Planned capital investments are high and rising, and insurers are now seeing enough opportunities to start to assess the technological differences between projects and start to gather meaningful loss data as projects progress.

Despite the attention and potential, insurers' experience is still in its relative infancy. Of course, hydrogen production is not new, but the scale of the opportunity means that from an engineering and underwriting perspective, excitement is being balanced by caution.

Here are some of the lessons learned since the UK Government launched a plan for a world-leading hydrogen economy two years ago.

No two hydrogen projects are the same

The technical differences are significant among the UK's proposed hydrogen projects. There is one constant however — the output of each production methodology is the exact same molecule.

Hydrogen production is as diverse as power production. Underwriters don't treat gas turbines, solar, hydroelectric, and nuclear reactors in the same way and likewise, hydrogen projects have many different attributes, and the risks of each project need to be assessed individually. Hydrogen technology and the way projects are built and operated — and ultimately the risk of loss — vary project to project. Therefore, the specific exposures of individual projects need to be understood fully by insurance markets.

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Underwriters fear unknown risks

The varying ways of producing hydrogen are understood and the technical challenges and difficulties acknowledged and priced.

The current unknown is less about what could go wrong and more about how often should underwriters expect it to occur, and what will be its severity. From the point of view of underwriters, there is unknowable risk in hydrogen projects.

In softer market cycles, underwriters fill gaps in understanding with premium, and in more challenging markets — nearer to where we are today — the willingness to deploy capital dissipates without the right answers.

The questions project teams are increasingly being asked to respond to the following:

Project design criteria and material selection methodology. This is required to mitigate the potential for hydrogen embrittlement of high-strength steels.

Operating experience of the technology selected. Project leaders may be asked to explain how risks associated with scale-up have been mitigated. This relates to projects that have integrated various technologies. Underwriters are keen to understand the risk profile of specific equipment and the process a developer undertook to select the equipment.

The impact of power outages on key equipment. If a project has been financed, project leaders may be asked to explain the implications of outage of key equipment. They may be asked to confirm they have considered both the cost of any replacement equipment (not usually the same unit price for one replacement, as when buying in bulk for the whole project) and the original equipment manufacturer's ability and timeliness in providing an extra unit. They may be required to clarify exactly what spares or processes they have in place to mitigate the risk of outages.

The installation of electrolysers. Project managers may be asked about the measures that have been taken to ensure purity and consistency of the water supply used in the electrolysis process. They may also have to provide information on what measures are in place to detect hydrogen leaks, disperse the hydrogen from leaks, and prevent damage caused by power supply fluctuations to anodes, cathodes, membranes, and sometimes catalysts downstream of the electrolyser.

Hydrogen projects have been insured comprehensively for several decades, and it must be noted that issues that could arise might not necessarily happen. That uncertainty needs to be managed while the limited loss data held today edges towards being a more representative sample that insurers can use to estimate future maximum exposure.

Projects that demonstrate an understanding of underwriters' concerns and can show how these are being mitigated, stand a greater chance of achieving effective insurance coverage.

How can Marsh assist you?

Every hydrogen construction project presents unique challenges that will be carefully considered by lenders and insurance markets.

Marsh’s engineers have direct and relevant knowledge of key risks based on their extensive experience in the hydrogen sector. They can provide advice during the design phase and outline the expectations insurers are likely to have during the construction phase, right through the operational lifecycle of the plant and various assets.

MARSH INSURANCE SERVICE DELIVERY — THE 3D APPROACH

	1	2	3	4	5	6	7	8	9
	DEFINE RISK		**DESIGN** SOLUTIONS	**DELIVER** RESULTS					
WHEN	PRE FINANCIAL CLOSE						POST FINANCIAL CLOSE		
WHAT	**UNDERSTAND** Meet the team	**RISK** Review and allocation	**PROGRAMME DESIGN**	**MOBILISATION**	**MARKETING** Construction phase	**PROGRAMME PLACEMENT** Construction phase	**SERVICE** Construction phase	**PRE-OPERATIONAL HANDOVER**	**SERVICE** Operational phase
HOW	**SCOPE**	**RISK ALLOCATION** Project company Contractors Subcontractors Designers	**PROGRAMME DESIGN** Reflect agreed allocation Drive best cover Drive best cost	**UNDERWRITING SUBMISSION** Finalise information packs Sign off from the client	**MARKETING STRATEGY** Leverage existing corporate relationships Bespoke market approach	**BIND COVERAGE** 100% placement Contract certainty	**DOCUMENTATION** Policy wordings Certificates Invoices Brokers' letters	**REPEAT STEPS 3, 4, 5, and 6** in respect of the operational phase insurance placement	**DOCUMENTATION** Policy wordings Certificates Invoices Brokers' letters
	PROCESS	**CONTRACTOR REVIEW** Review/mark up key project documents Insurance and indemnity Force majeure/relieve events	**PROGRAMME DETAIL** Sums insured Liability limits Assess loss exposures Deductibles	**FINALISE PROJECT CONTRACTS** Offtake agreement Loan agreement EPC contract O&M contract Other similar project contracts	**MARKETING ACTIVITY** Road shows Formal approaches Site visits — roadshow quality	**CONFIRMATION** Cover is placed, as per instructions	**PROCEDURES** Project insurance manual Onsite presentations Claims procedures	**REPEAT STEPS 3, 4, 5, and 6** in respect of the operational phase insurance placement	**PROCEDURES** Project insurance manual Marsh Connect Claims procedures
	DELIVERY	**RISK TRANSFER** Advice regarding uninsured exposures and deductibles	**FINANCIAL MODEL** Construction phase Interim operations Full operations Contingencies		**RESULTS** Cover Pricing Insurer service Prepare report		**PROJECT PROGRESS** Site visits Mid-term amendments Consistent support **CLAIMS** Routine management Advocacy	**RESULTS** Cover Pricing Counterparty risk Insurer service Prepare report	**PROJECT PROGRESS** Insurer surveys Mid-term amendments Consistent support **CLAIMS** Routine management Advocacy Major loss practice
WHY	PLAN TO SUCCEED	ENSURE PROPOSALS ARE VIABLE	ENSURE PROPOSALS ARE BEST IN CLASS — CONSTRUCTION AND OPERATIONAL PHASES	STRUCTURED PREPARATION	INTELLIGENT MARKETING RESULTS IN COMPETITIVE PRICING AND COMPREHENSIVE COVERAGE	FINANCIAL CLOSE ACHIEVED	EXCELLENT SERVICE	SEAMLESS TRANSITION TO FULL OPERATION	EXCELLENT SERVICE CONTINUING FULL COMPLIANCE
WHO	PROJECT CLIENT TEAM								
	CONSTRUCTION PHASE CLIENT TEAM							OPERATIONAL PHASE CLIENT TEAM	
	PROJECT CONSULTANTS								

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