



THERMAL MANAGEMENT

Roadmap



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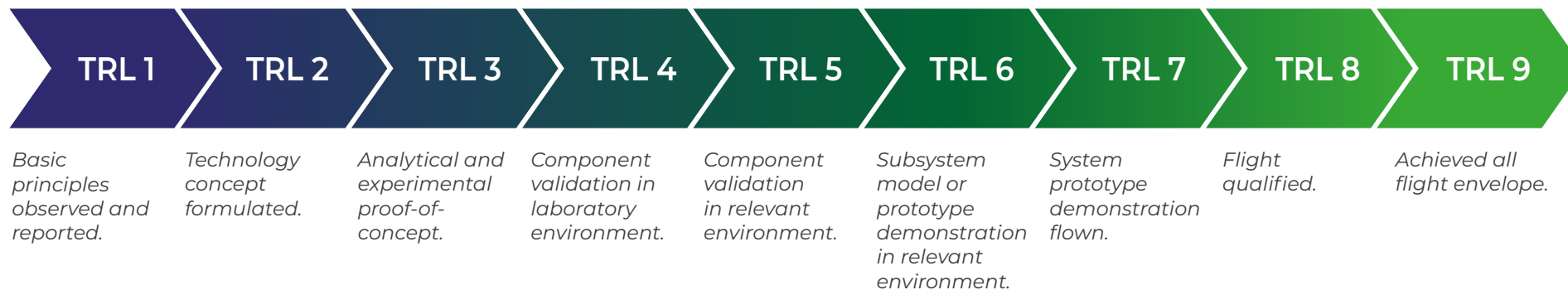
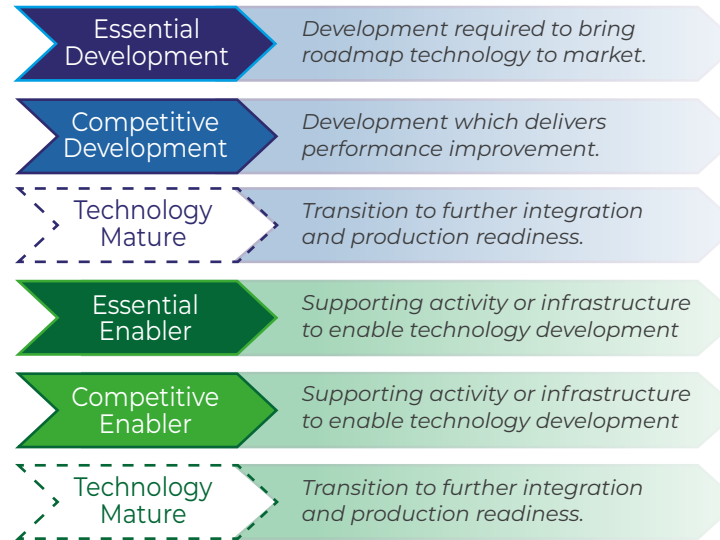
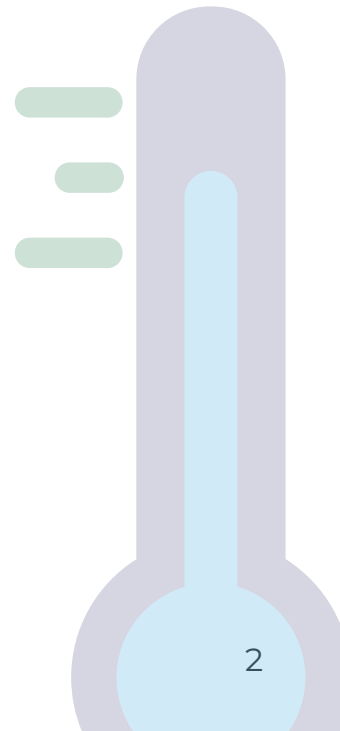
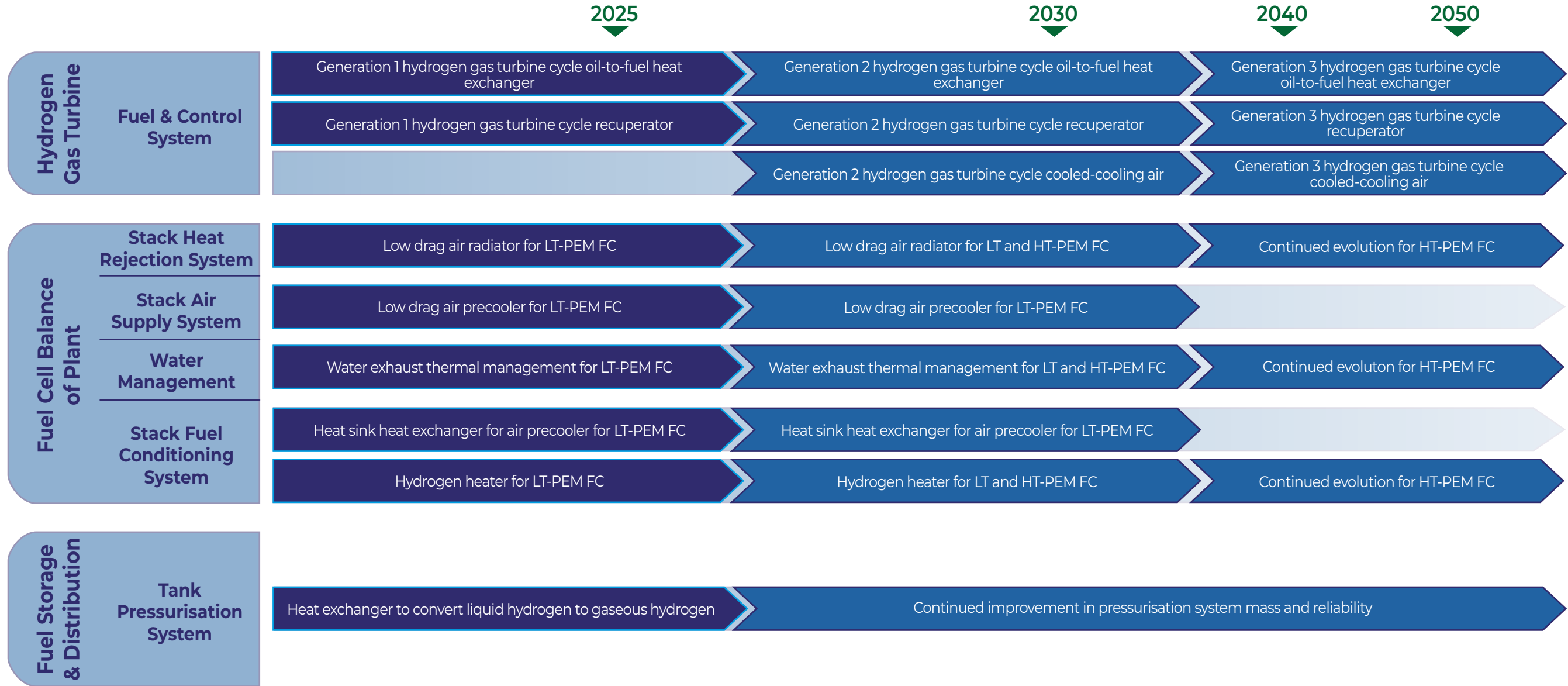


Figure 1 – Technology has been assessed against the NASA Technology Readiness Level (TRL) scale.



HEAT EXCHANGER TECHNOLOGIES ROADMAP



Note: The Thermal Management Roadmap Report summarises the essential and competitive heat exchanger technologies necessary to achieve the technology indicators outlined in ATI FlyZero ‘Hydrogen Gas Turbines and Thrust Generation Roadmap Report’, ATI FlyZero ‘Fuel Cells Roadmap Report’ and ATI FlyZero ‘Cryogenic Hydrogen Fuel System and Storage Roadmap Report’ respectively.

HEAT EXCHANGER ENABLERS ROADMAP



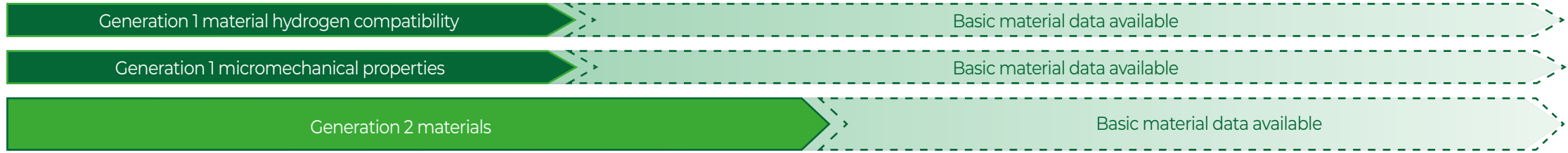
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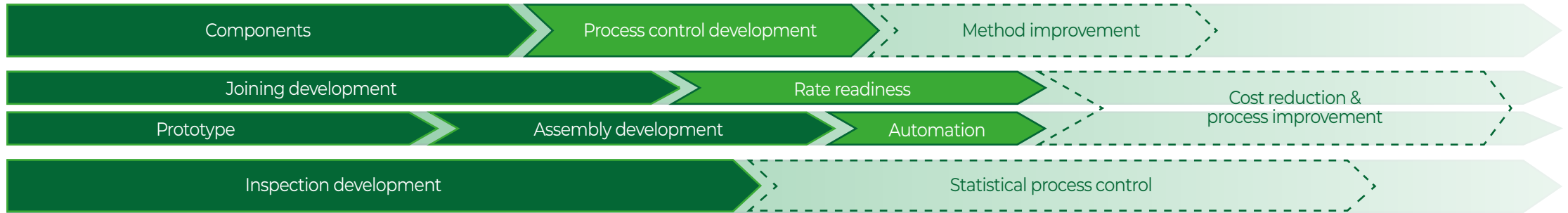
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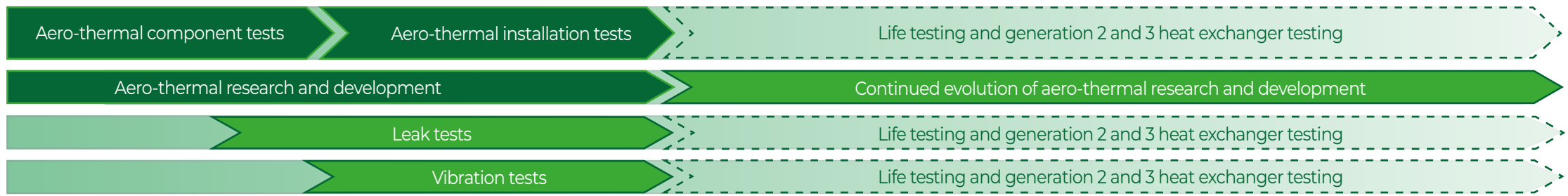
Manufacturing Capability



Modelling Capability



Test Facilities



ABOUT FLYZERO

Led by the Aerospace Technology Institute and backed by the UK government, FlyZero began in early 2021 as an intensive research project investigating zero-carbon emission commercial flight. This independent study has brought together experts from across the UK to assess the design challenges, manufacturing demands, operational requirements and market opportunity of potential zero-carbon emission aircraft concepts.

FlyZero has concluded that green liquid hydrogen is the most viable zero-carbon emission fuel with the potential to scale to larger aircraft utilising fuel cell, gas turbine and hybrid systems. This has guided the focus, conclusions and recommendations of the project.

This report forms part of a suite of FlyZero outputs which will help shape the future of global aviation with the intention of gearing up the UK to stand at the forefront of sustainable flight in design, manufacture, technology and skills for years to come. To discover more and download the FlyZero reports, visit ati.org.uk

ACKNOWLEDGEMENTS

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These roadmaps have been developed with a view to accelerate zero-carbon technology development and maximise the potential future value for the UK. They are unconstrained by the availability of funding.



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Front cover image © Reaction Engines

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