

Technology Readiness Levels

TRL 1: Basic Research

Initial scientific research has been conducted. Principles are qualitatively postulated and observed. Focus is on new discovery rather than applications

TRL 2: Applied Research

Initial practical applications are identified. Potential of material or process to solve a problem, satisfy a need or find application is confirmed

TRL 3: Critical Function or Proof of Concept Established

Applied research advances and early stage development begins. Studies and laboratory measurements validate analytical predictions of separate elements of the technology

TRL 4: Lab Testing of Prototype Component/ Process

Design, development and lab testing of components/ processes. Results provide evidence that performance targets may be attainable based on projected or modelled systems

TRL 5: Lab Testing of Integrated System

System component and/or process validation is achieved in a relevant environment

TRL 6: Prototype System Verified

System/process prototype demonstration in an operational environment (beta prototype system level)

TRL 7: Integrated Pilot System demonstrated

System/process prototype demonstration in an operational environment (integrated pilot system level)

TRL 8: System complete and Qualified

Actual system/process completed and qualified through test and demonstration

TRL 9: System Proven in Operational Environment

Actual system proven through successful operations in operating environment and ready for full commercial deployment