Guidance on Logical Technology Progression

TEAMER Facilities Summits

July 2025

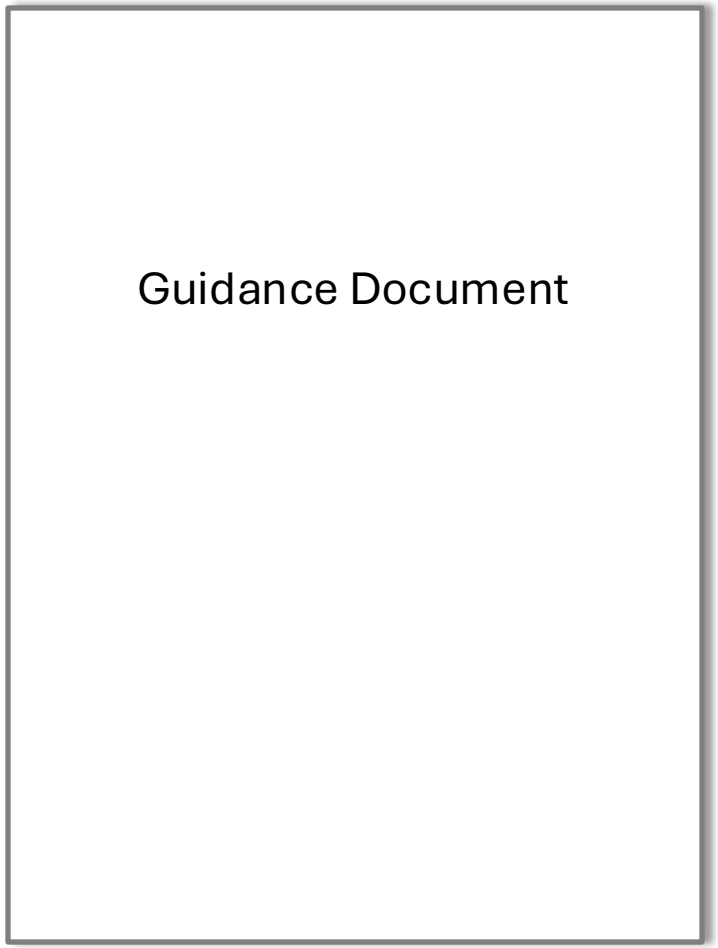
Why?

TEAMER has rejected multiple applications for activities that do not clearly align with a “high value” “next steps” in the technology/project maturation.

Objectives

- Outline general principles of marine energy technology progression
- Including examples that help applicants and reviewers identify high value and low value next steps
- Support more focused and clearly articulated applications and more efficient reviews.

Solution

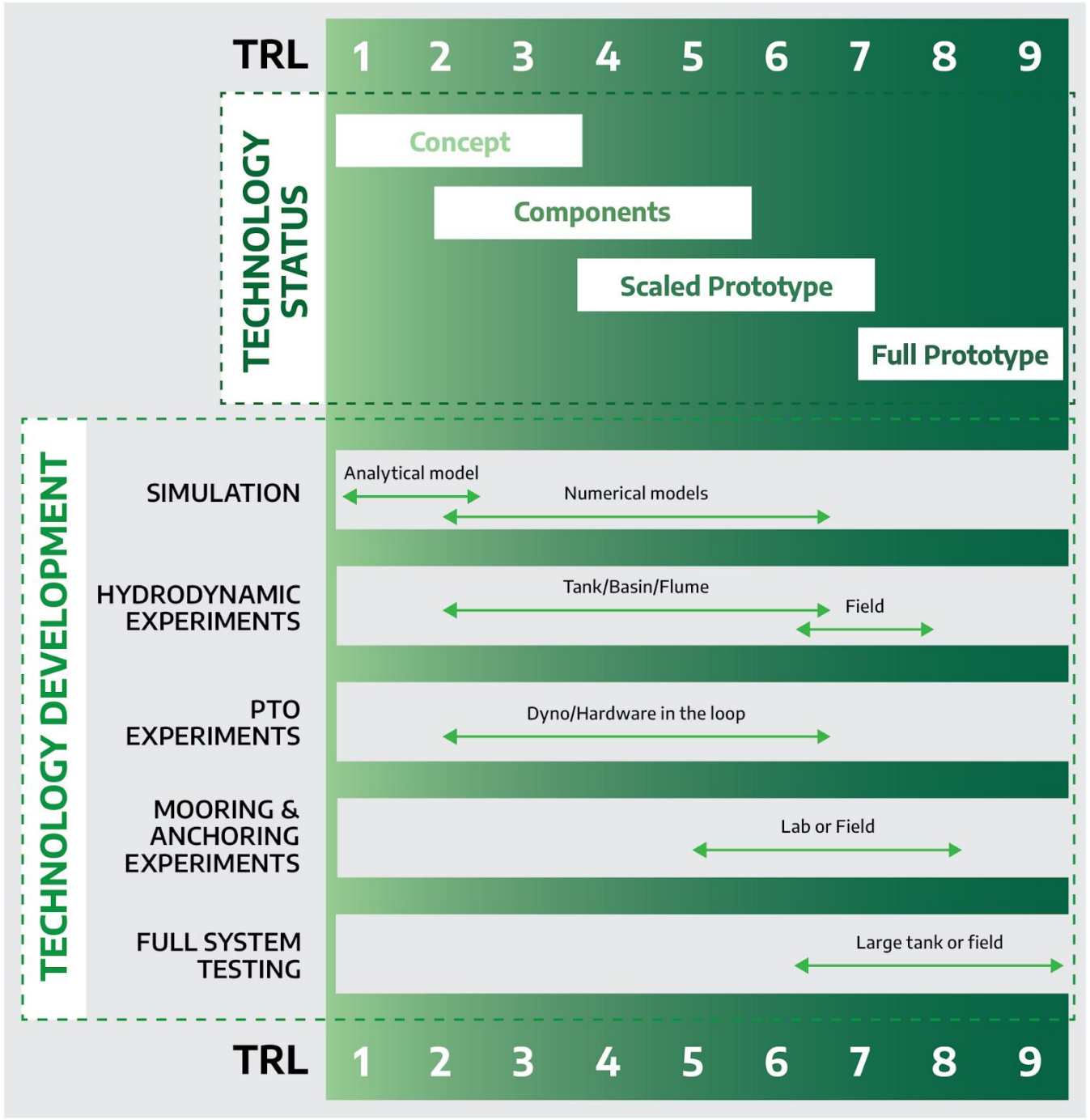


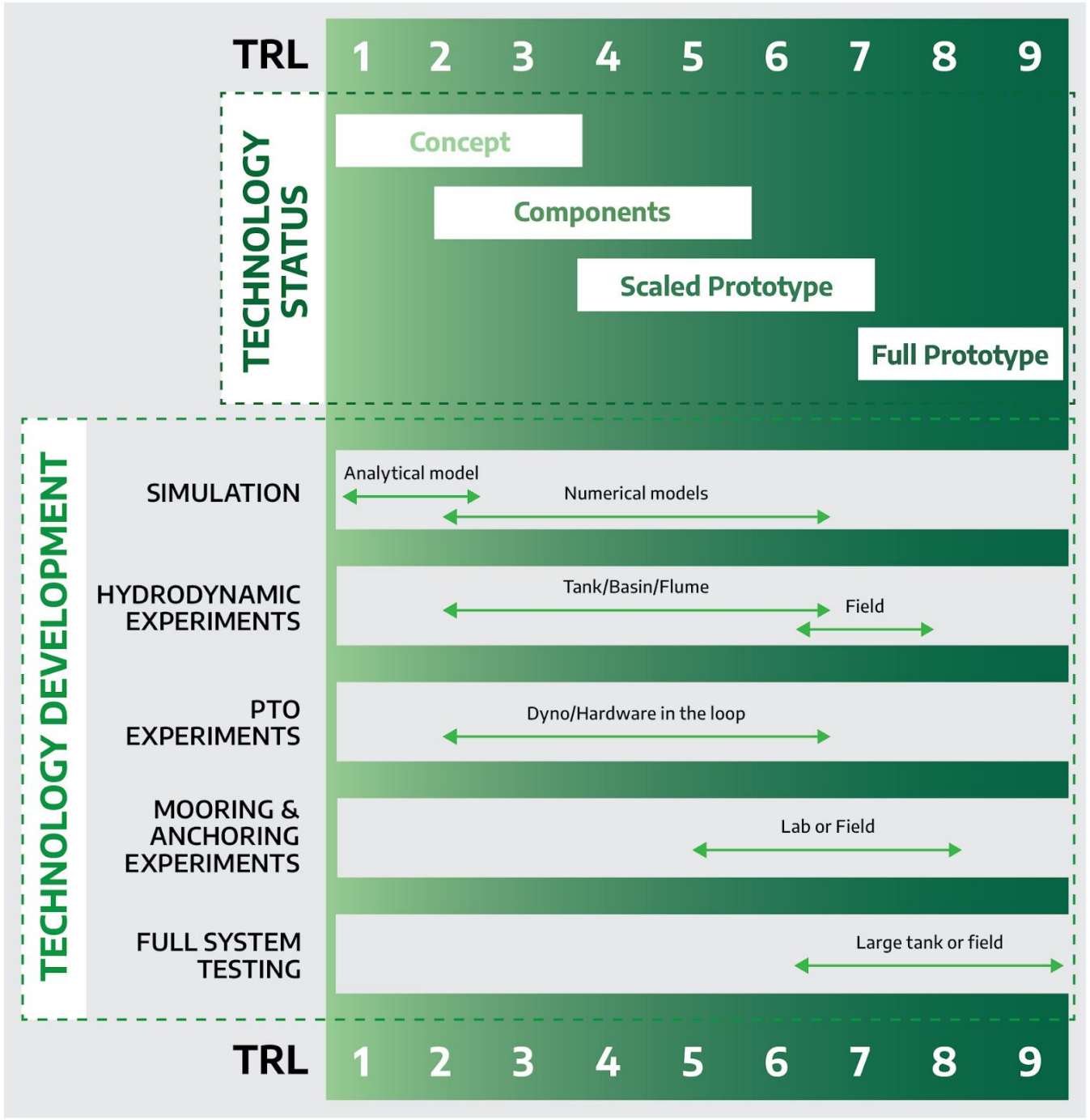
Audience:

- Applicants
- Facilities
- Reviewers

Don’t worry, it’s a quick read!

Framework - TRL





Framework - TRL

Document includes example activities (physical and numerical) that may be appropriate at each step.

TRL	Description	Example Activities
1	Basic principles underlying a technology are established. Revisiting the foundational principles helps ensure that ideas for technology development are theoretically sound.	Numerical: The governing physics are established through reviewing prior research and via first principles analysis. Physical: N/A

Given the number of viable pathways, examples are limited.

Recommendations for applications

- Clearly demonstrate feasibility
  - Early TRL development and testing must be justified by the underlying physics of marine energy.
  - This should be clearly demonstrated in the application.

Is large-scale power generation from this sea state practical or economically viable?

Recommendations for applications

- Appropriate TRL progression through experiments
  - Projects proposing small TRL advancements are easy to justify
  - Applications seeking to advance multiple TRLs need additional justification.
    - Many “unknown unknowns” at early TRLs. ***Facilities should play an active role in applications by lending experience to applicants*.**
    - Scaling challenges. If subsystems are at different TRLs, justification is required to show how these will be reconciled (if required for proposed testing).

Recommendations for applications

- Appropriate TRL progression through simulations
  - Simulations should also follow a logical progression in complexity
  - E.g., High-resolution CFD of a concept is not appropriate without a basic analytical demonstration of feasibility.
  - Proof of concept ⇨ low-fidelity models ⇨ CFD
    (optimization) (scaling or validation)

Applications

- Facilities should work to understand appropriate next steps and provide guidance to applicants when needed.

- With a thoughtful approach, this can save time/energy at all steps of the process.

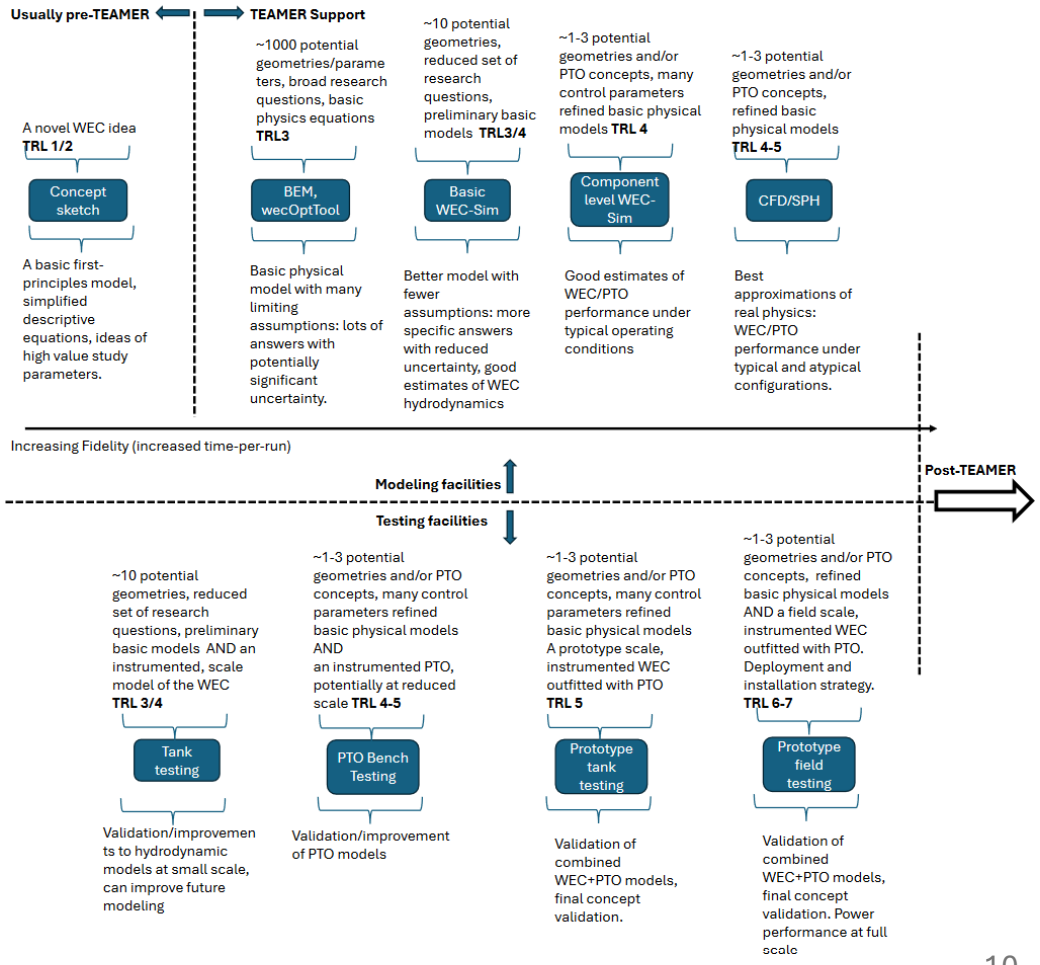
The Guidance Document

will be available on the TEAMER website.

- A living document

Bonus material:

- Detailed TRL examples
- Hypothetical WEC examples



Questions and discussion