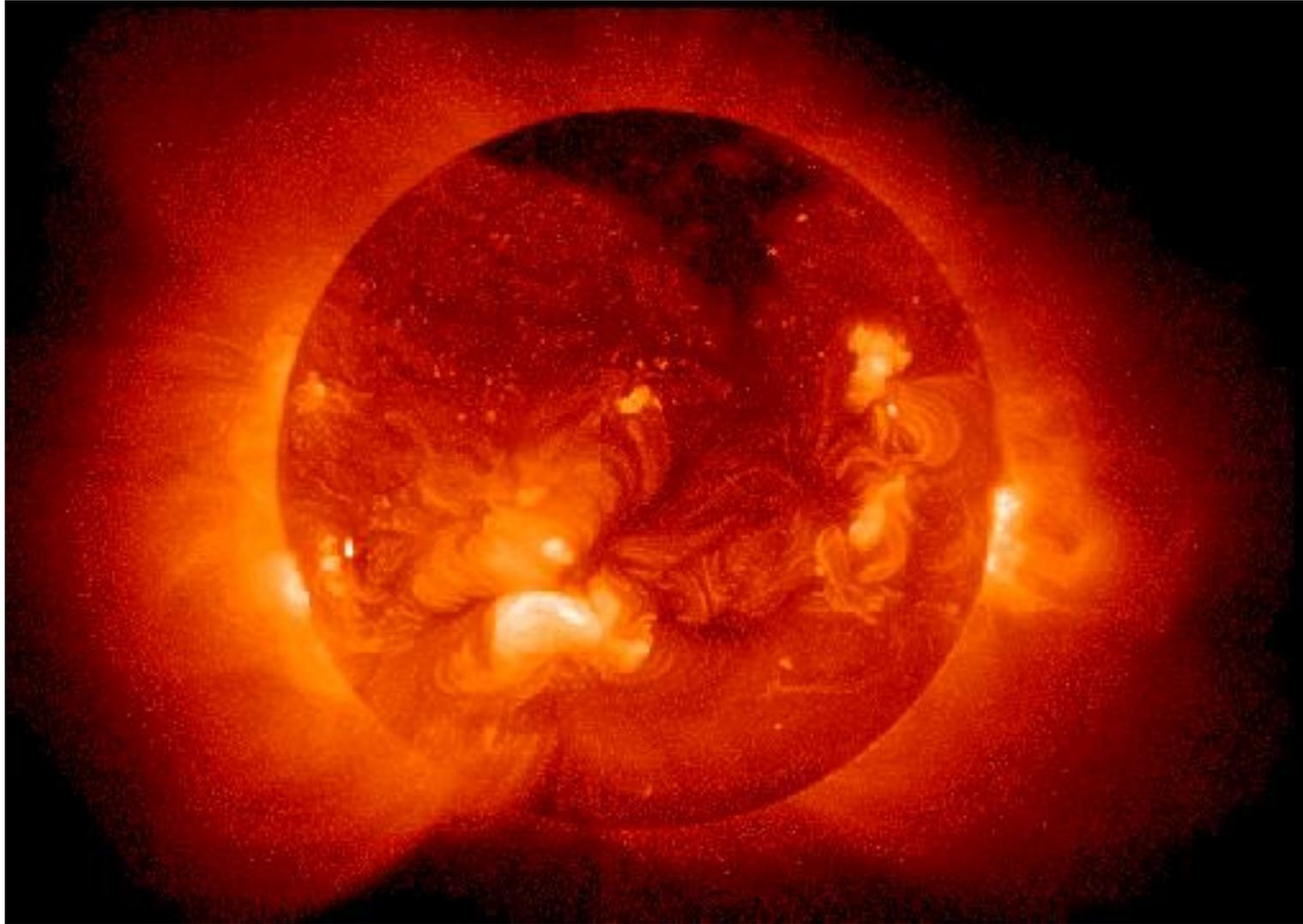




# Enabling Fusion's Kitty Hawk Moment

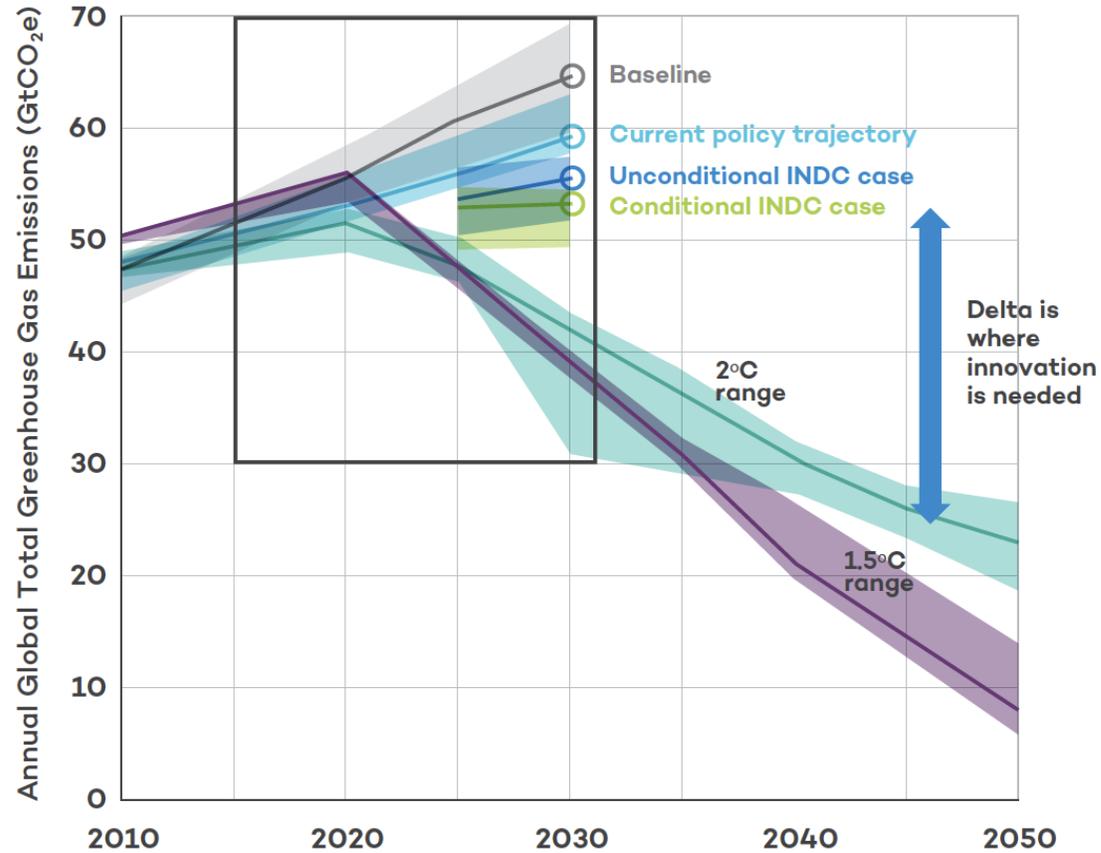
Scott Hsu, Program Director, ARPA-E  
[scott.hsu@hq.doe.gov](mailto:scott.hsu@hq.doe.gov)

# Fusion is the process that powers the sun and stars



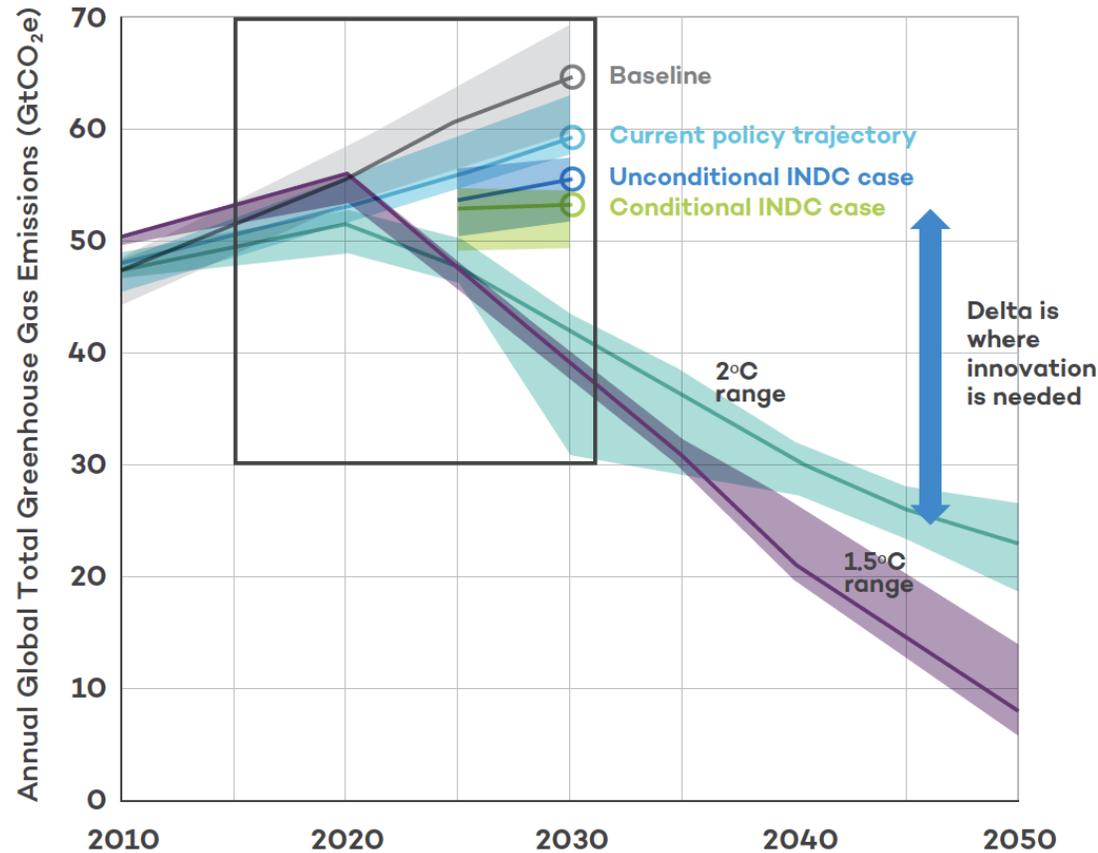
# Why fusion energy?

This century: Achieving zero-to-negative emissions across all energy sectors, cost effectively



# Why fusion energy?

This century: Achieving zero-to-negative emissions across all energy sectors, cost effectively



Beyond: Secure clean-energy future for humanity, essentially forever



Back to the Future (1985)

# The state of fusion energy development

Fusion on the cusp of net energy gain  
→ “Kitty Hawk moment”

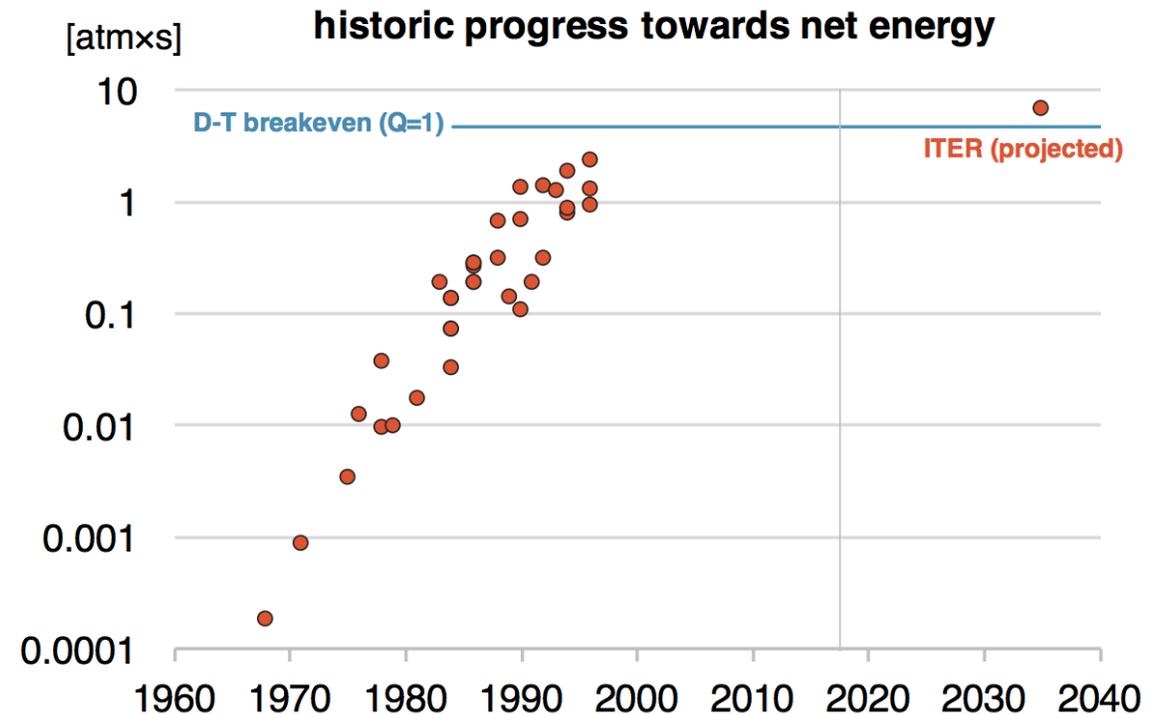


# The state of fusion energy development

Fusion on the cusp of net energy gain  
→ “Kitty Hawk moment”



We have waiting 20+ years due to the lowest-scientific-risk approach being a “big science,” multi-national project

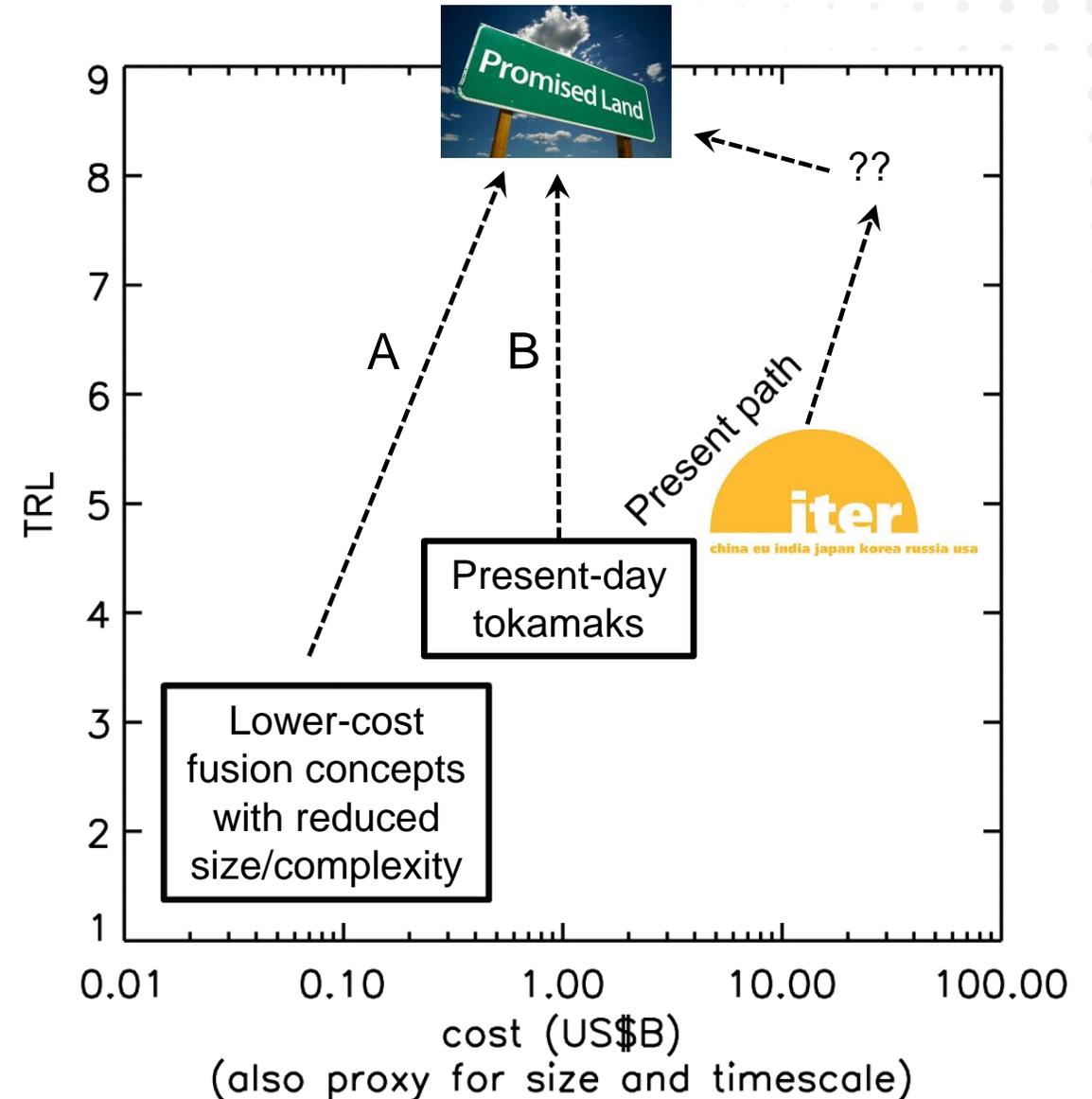


# What must we do to help fusion's Wright Brothers to-be?

## FUSION'S RESTLESS PIONEERS

Startups with novel technologies are taking on fusion's Goliaths

*By Daniel Clery*



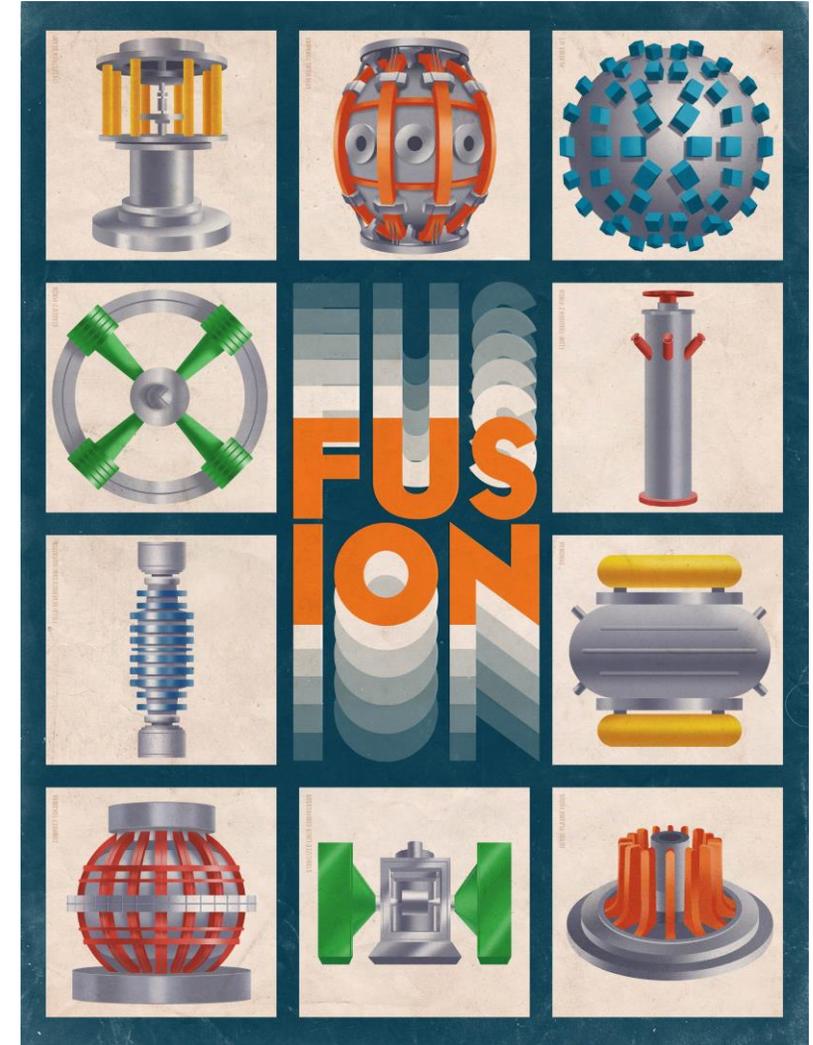
# Accelerate development of lower-TRL fusion concepts with reduced cost, size, and/or complexity (Path A)

Well-defined, impactful technical milestones

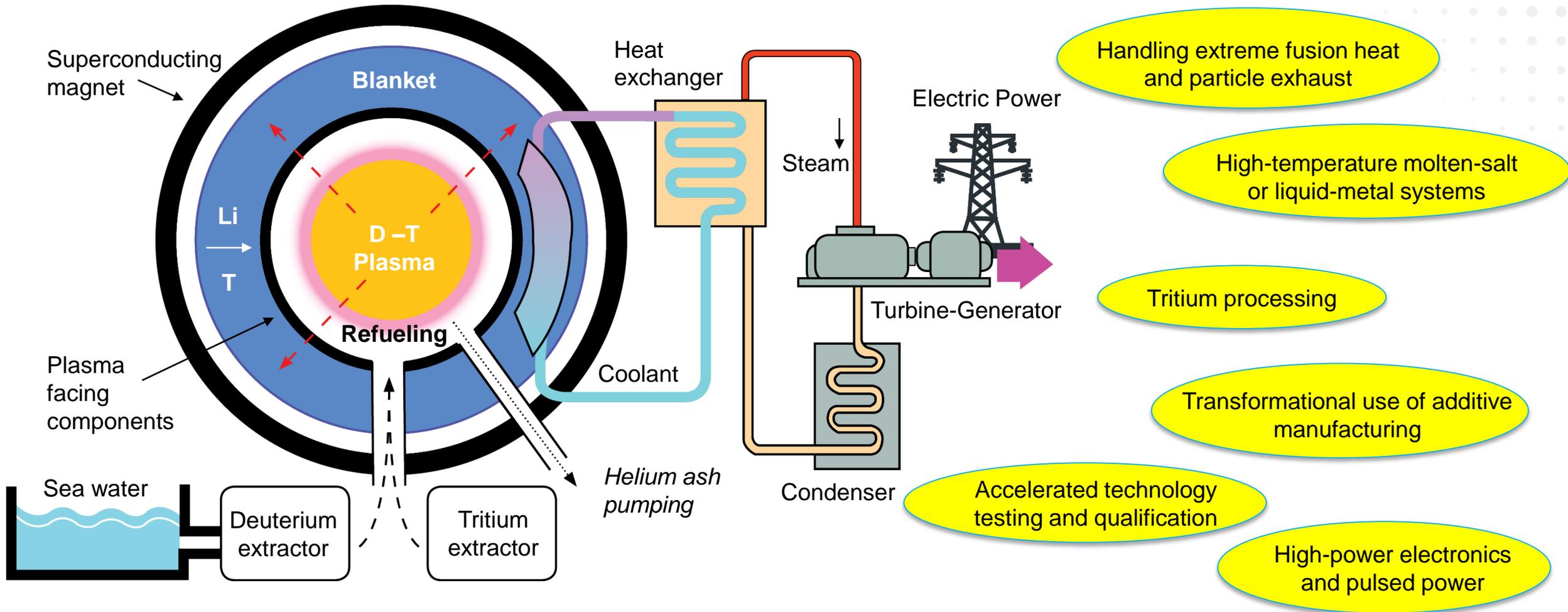
Leveraging scientific expertise of Labs and universities

Applying state-of-art tools (diagnostics and computational models)

Transformational applications of machine learning



# Catalyze development of key enabling technologies needed for a grid-ready fusion demo (Paths A and B)



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**Please contact me to provide input and to engage!**

**scott.hsu@hq.doe.gov**