

Paths to Commercialization

Dr. David Tew, Program Director

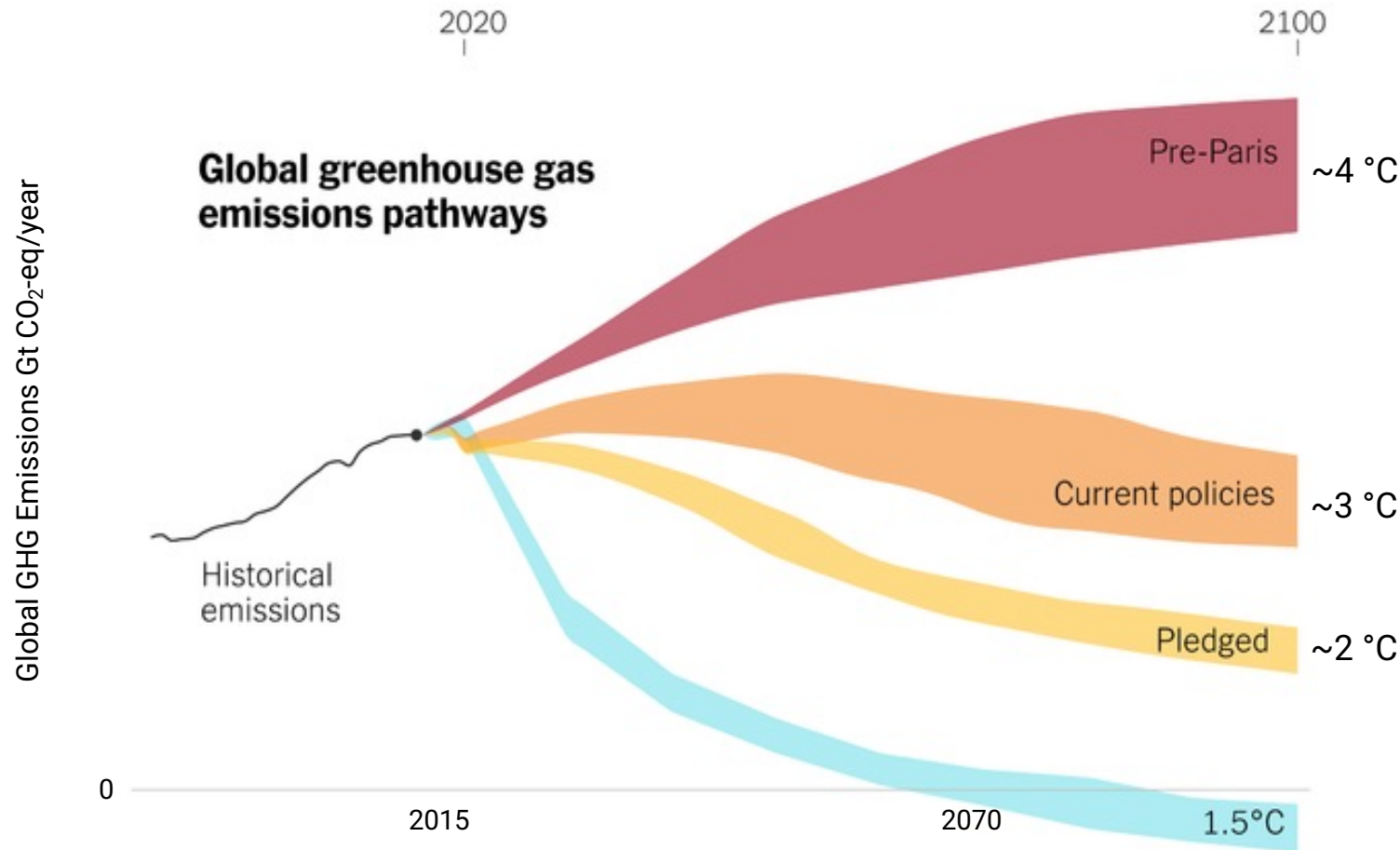
U.S. Department of Energy | Advanced Research Projects Agency – Energy (ARPA-E)

November 3, 2021

Agenda

Time (EDT)	Speaker, Organization	Title
10:00 – 10:05am	David Tew, ARPA-E	Introduction
10:05 – 10:20am	Scott Swartz, Nexceris	Nexceris' Commercialization Journey
10:20 – 10:35am	Rob Braun, Colorado School of Mines	Hybrid SOFC Engine Generator Development for Stationary Applications
10:35 – 10:50am	Michael Pastula, Fuel Cell Energy	High Temperature Fuel Cell Technology for the Energy Future
10:50 – 11:00am	Stefano Barberis, RINA Consulting SpA	EVERYWH2ERE: Making hydrogen affordable to operate in EU cites fuel temporary power gensets
11:00 – 11:30am	Open Discussion	


Value Proposition for Hybrid Systems in a Net-Zero World



Challenges

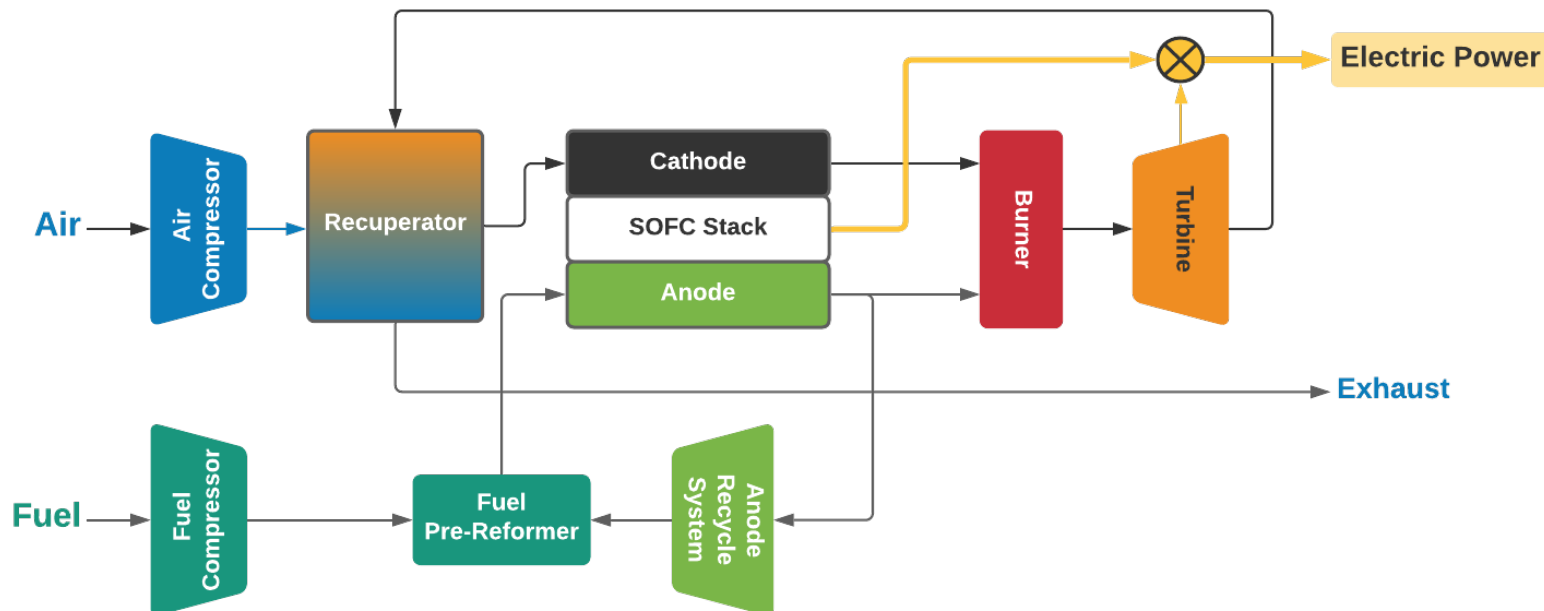
- Fuels difficult to fully eliminate
- Future fuels
 - Must be **carbon-neutral**
 - Likely higher **cost**
 - **Many** options (H₂, SAF, NH₃, ...)
 - Potentially '**heavy**'

Opportunities

- Ultra-high fuel **efficiency** (>70%) and fuel **flexibility** will be critical
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- **Carbon-neutral fuel production**
 - Workshop in late January

INTEGRATE: Better Performance Through Synergies

- ▶ High-efficiency ($>70\%$) and low cost ($<\$1/\text{W}$) through
 - Stack waste exergy recovery
 - Higher stack areal power density
 - Generation with lower cost source (engine)
 - Reduced BOP cost and parasitic load



REEACH: High Efficiency at an Acceptable Weight

