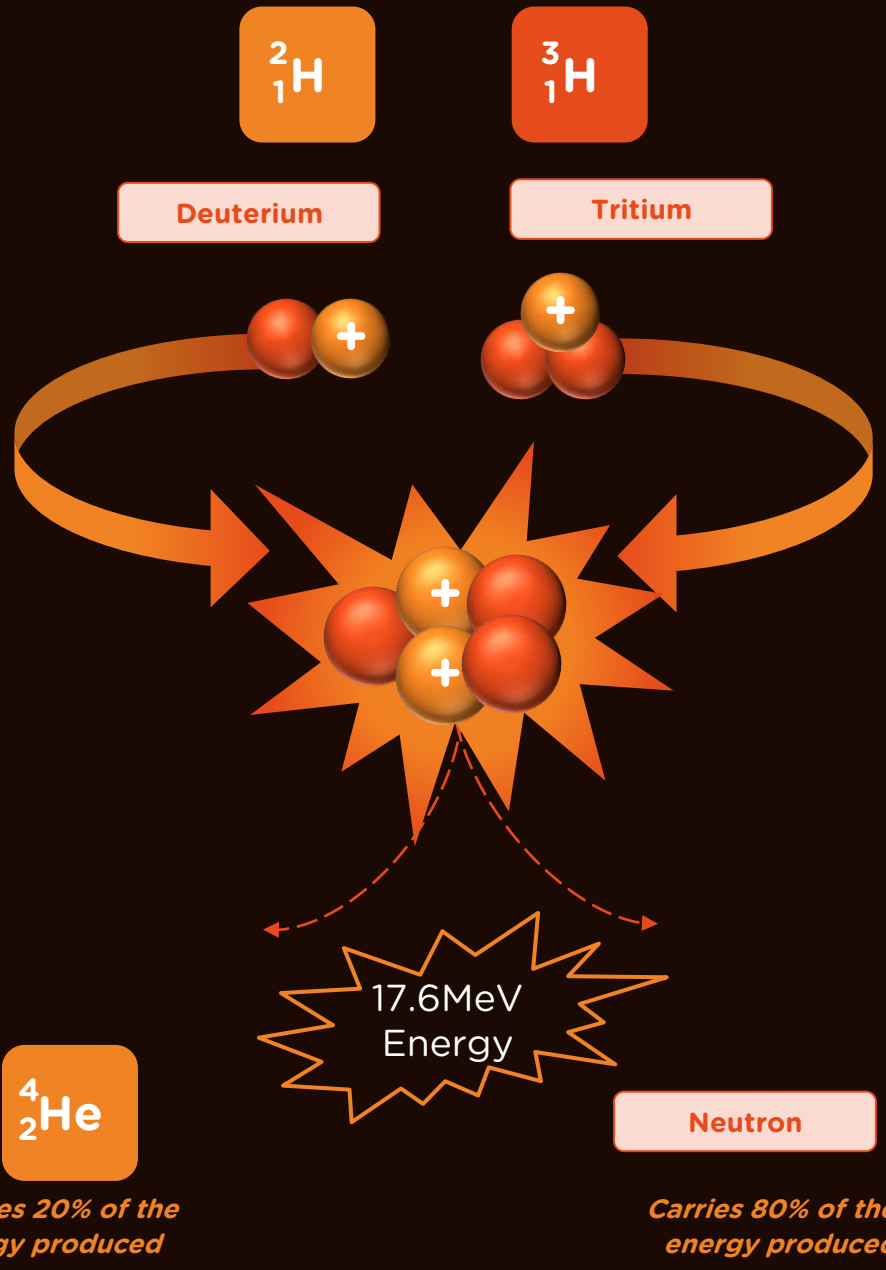
Tokamak Energy

Wall Street Green Summit

Dr. Michael Ginsberg, President
March 13, 2024

Fusion the original source of all energy.



Fusion Energy – One fact

One

kg fusion fuel

Ten Million

kg of coal

Fusion Energy – One fact

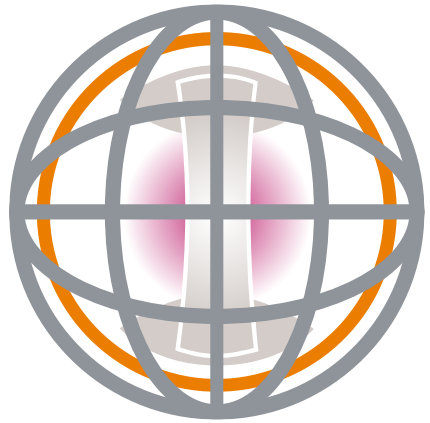
Practically limitless source fuel

The global energy challenge – the next 12 years

Utility companies face this dilemma:

- ↑ + 1.5 billion new consumers
- ↑ + 40% increase in energy demand
- ↑ + 100% increase in electricity demand
- ↑ Increased focus on energy security
- ↓ - 50% fossil fuels

Our Technology Advantage



Spherical Tokamak

High efficiency

50% less magnet materials*

Stable plasma control

HTS Magnets*

Advanced simulation

Quench proof

Robust design

Efficient Fusion

* Versus conventional tokamak

* High Temperature Superconducting

About Tokamak Energy

250 people

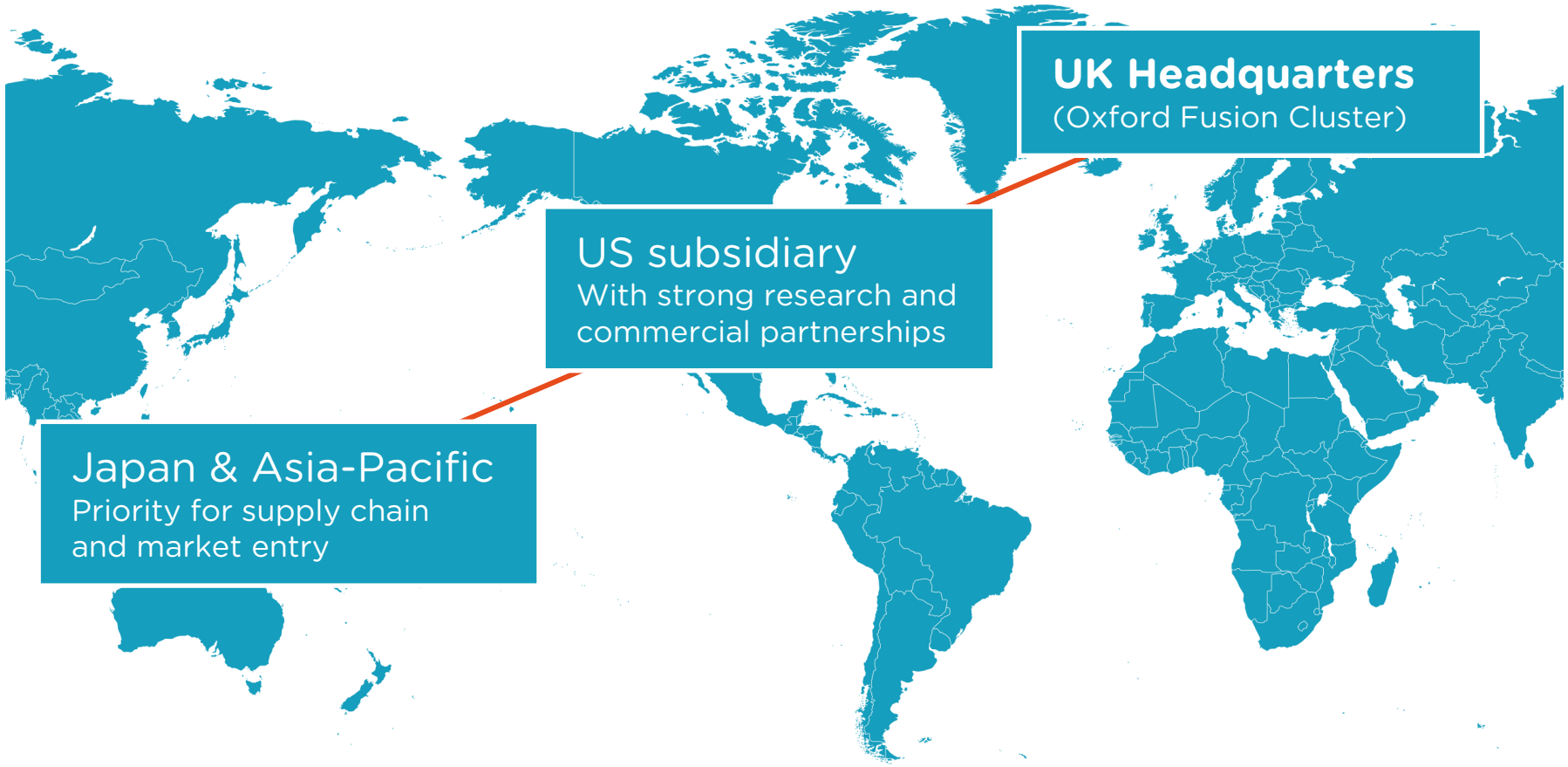
- World-class scientists, engineers and commercial specialists
- 60 PhD, 75 MSc

$250M raised to date

- Financial backing from private capital and government grants

Collaboration

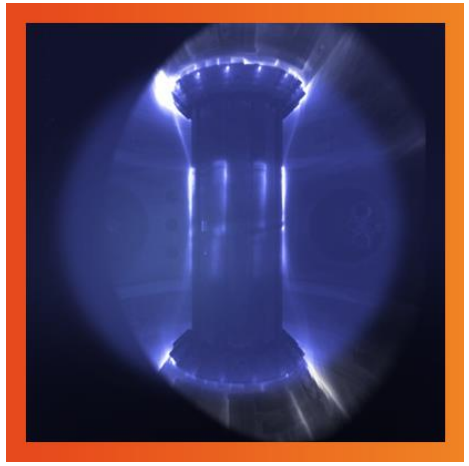
- Governments
- National laboratories
- Strategic partners

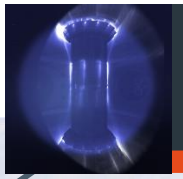


Strategic partnerships worldwide

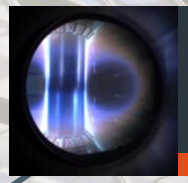
Los Alamos NATIONAL LABORATORY · PPPL PRINCETON PLASMA PHYSICS LABORATORY · OAK RIDGE National Laboratory · SRNL SAVANNAH RIVER NATIONAL LABORATORY · GENERAL ATOMICS · ATI · UK Atomic Energy Authority · Sumitomo Corporation · 東京大学 THE UNIVERSITY OF TOKYO · FURUKAWA ELECTRIC GROUP · KYOTO FUSIONEERING

The Leading Global Fusion Company





2022
Highest plasma ‘triple product’ of any private fusion company



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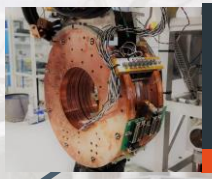
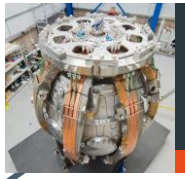
First private fusion company to achieve 100M°C plasma ion temperature in a tokamak



2021
Robust, scaleable, quench-protected HTS magnet precisely validating our simulations

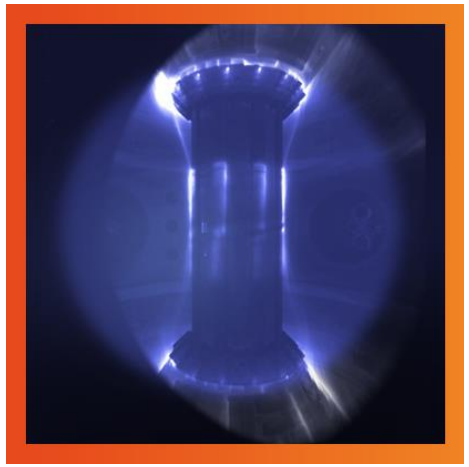
2020
World-record 24 Tesla field at 20 K with patented HTS magnet technology

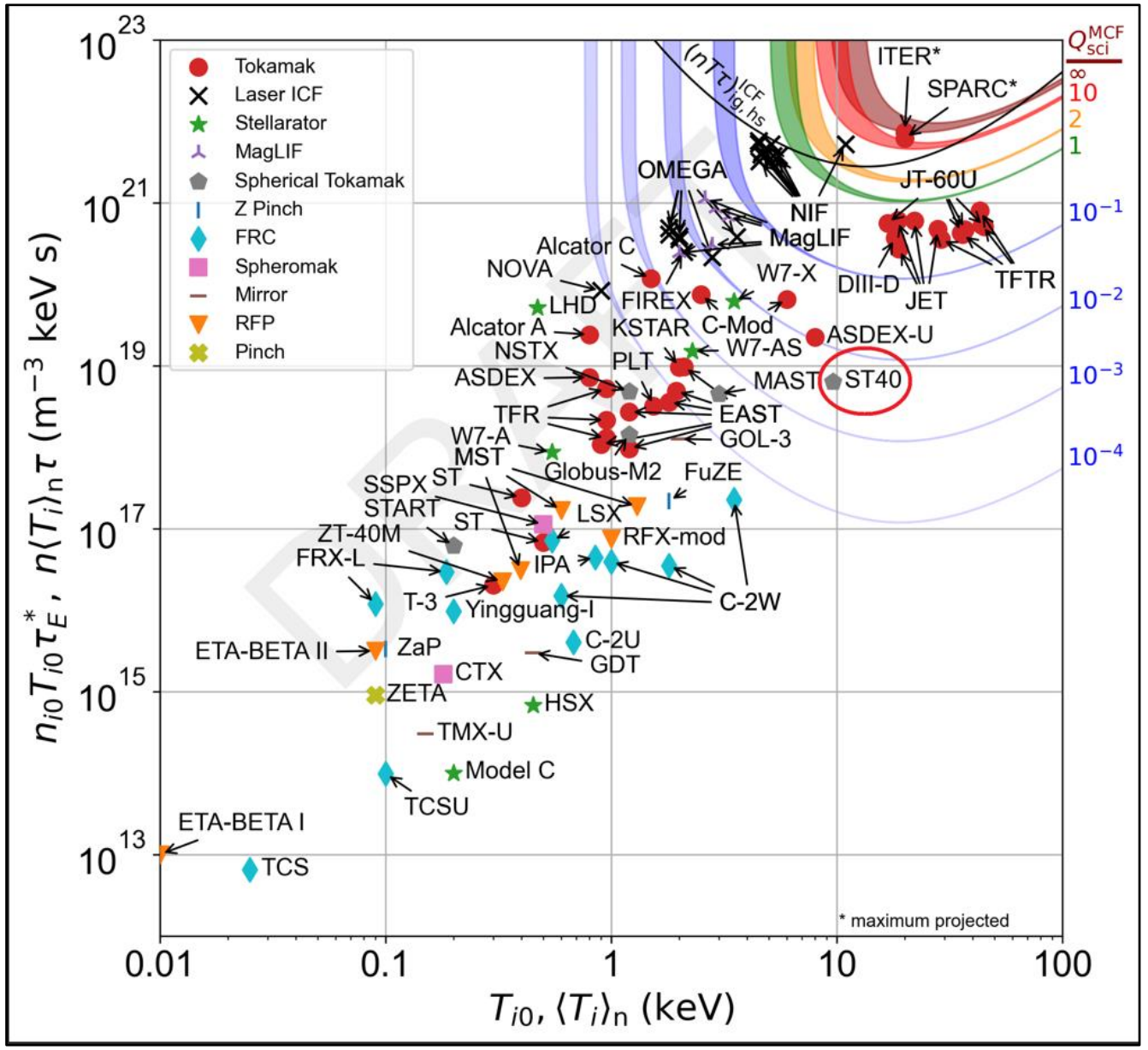


2017
Designed, built and operate the world’s highest-magnetic field spherical tokamak (ST40)

2015
First HTS tokamak sustained pulse for >24 hours (ST25 HTS)

Record Setting Performance





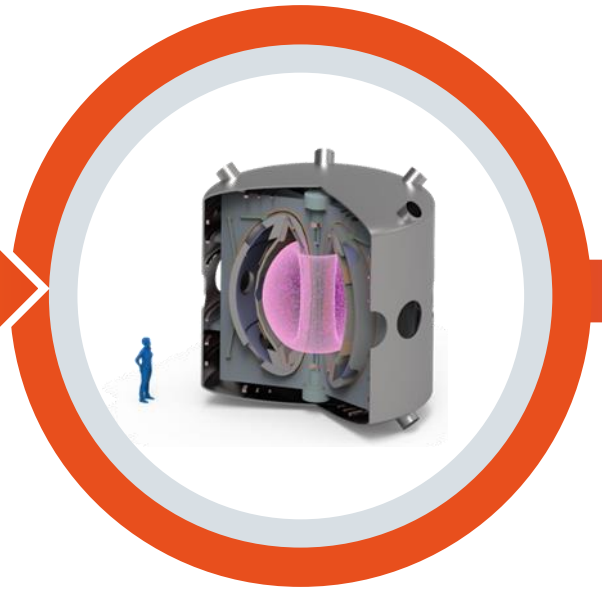
Path to Commercialization

ST40

- Compact Cu device, 0.4m major radius
- ~ 2 Tesla magnetic field

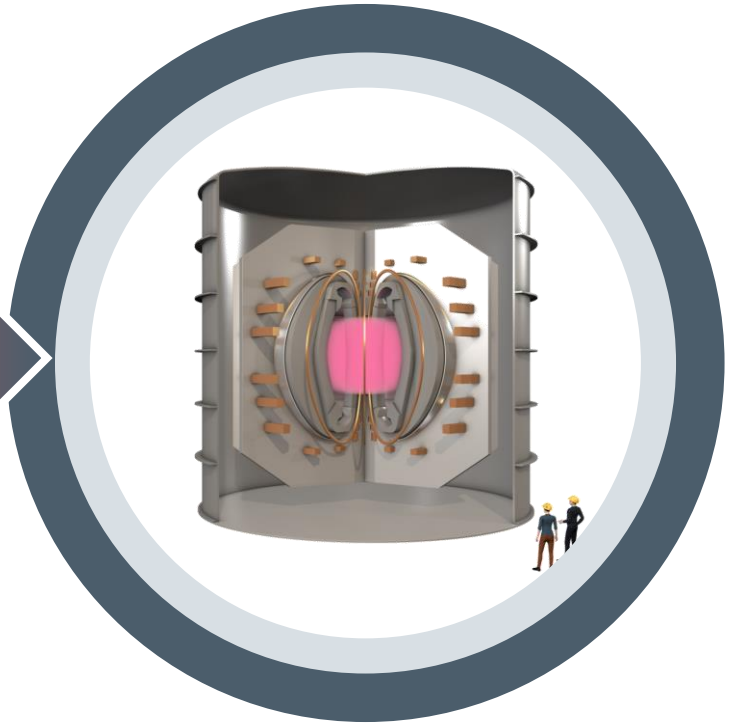
STX

- Superconducting advanced prototype
- ~ 2x major radius of ST40
- ~ 2x magnetic field strength of ST40



Pilot Plant

- Concept selected by **DOE Milestone Program**
- ~ 3m major radius device
- ~ 3x magnetic field strength of ST40
- DT fuel cycle



Achieved (2022)

- Highest nTtau of any private fusion device
- 100M ˚C plasma ion temperature
- Q = 0.005 equivalent with DD plasma

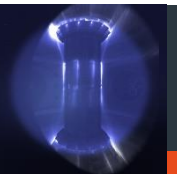
Mission (late 2020s)

- Long-duration plasma control (1000 s)
- High duty cycle (~90%)
- Target Q = >1 equivalent with DD plasma
- Qualify technology for pilot plant

Mission (mid 2030s)

- First demonstration of surplus energy generation
- Generate 50 MWe (or th equivalent)
- Start operations within 10 years

IP Generation and Protection



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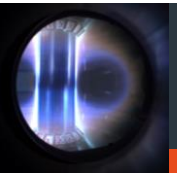

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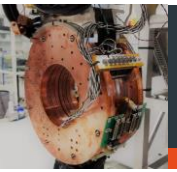

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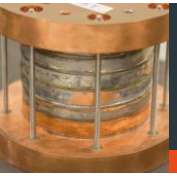

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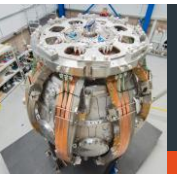

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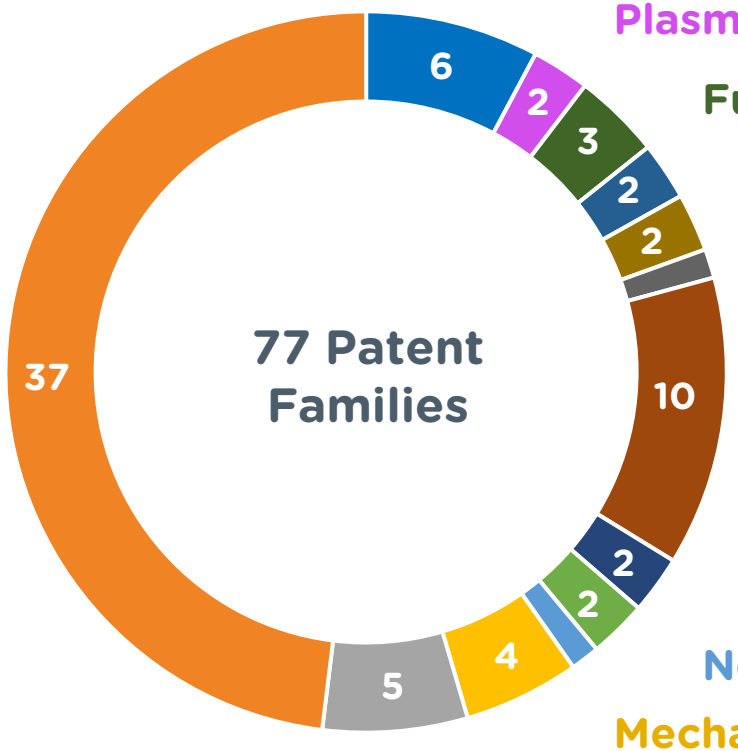


Magnet Technology

Spherical Tokamak Design

Plasma Control

Fuel Cycles

Breeder Blankets

Reactor Maintenance

Reactor Control

Plasma Facing Components

Power Supply and Cryogenics

Plasma Initiation and Ramp

Neutron Tolerant Materials

Mechanical

Radiation Shielding

Two Technologies – **Two Businesses**

£ Revenue
From 2023

Spherical Tokamak | **HTS Magnets** | **Efficient Fusion**

Commercial Fusion

£££ Revenue
From 2037

AND chosen to be part of U.S. Government's decadal fusion vision

U.S. DOE Milestone-Based Fusion Development Program

DOE Milestone Program

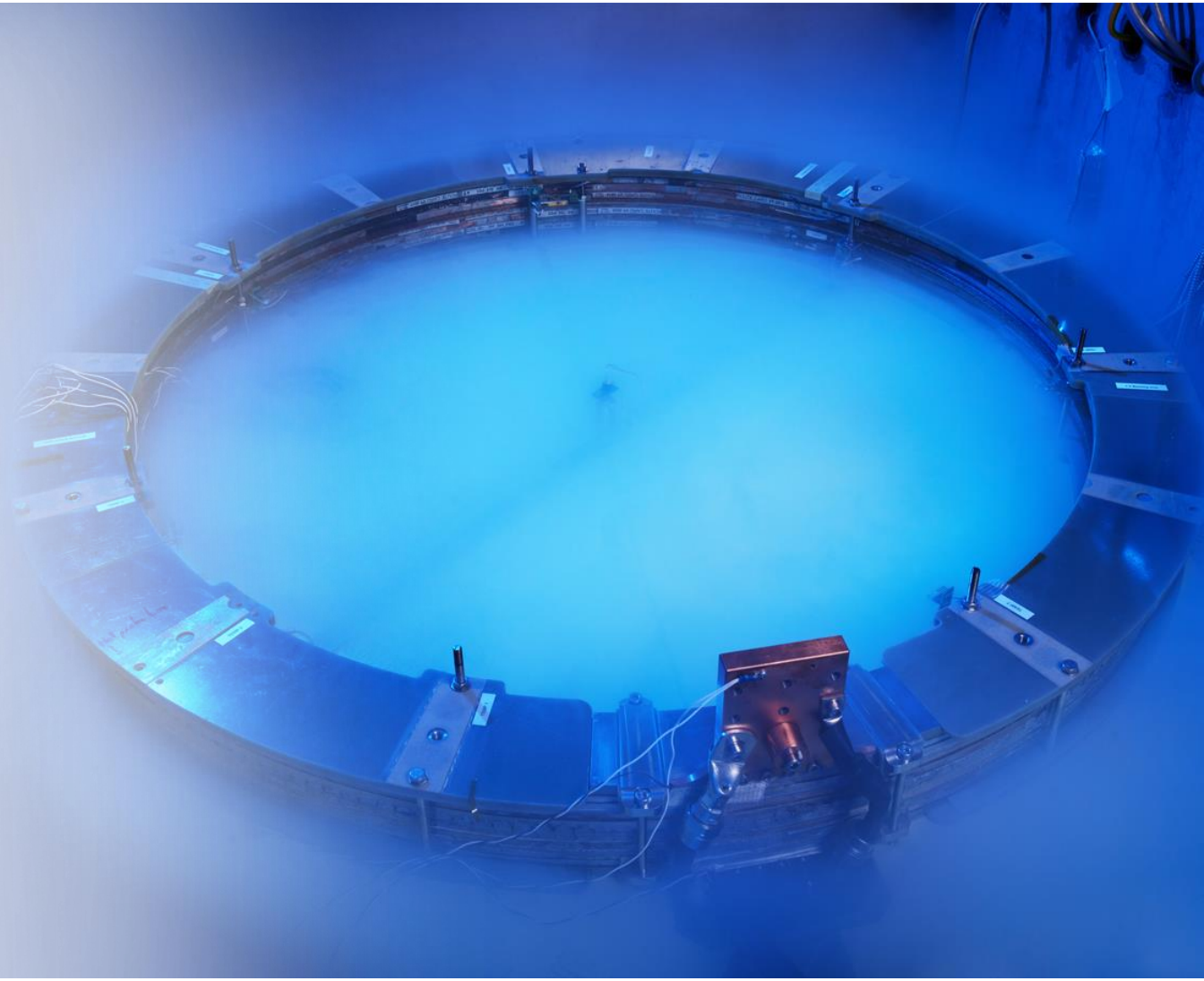
- Public/private collaboration
- $46M initial U.S. Govt. funding

Tokamak Energy INC.

- Work began on FPP phase 1 in Q3 2023
- Key partnerships with U.S. National Labs

Oak Ridge National Laboratory · PPPL Princeton Plasma Physics Laboratory · SRNL Savannah River National Laboratory · INL Idaho National Laboratory

Magnets Business Unit

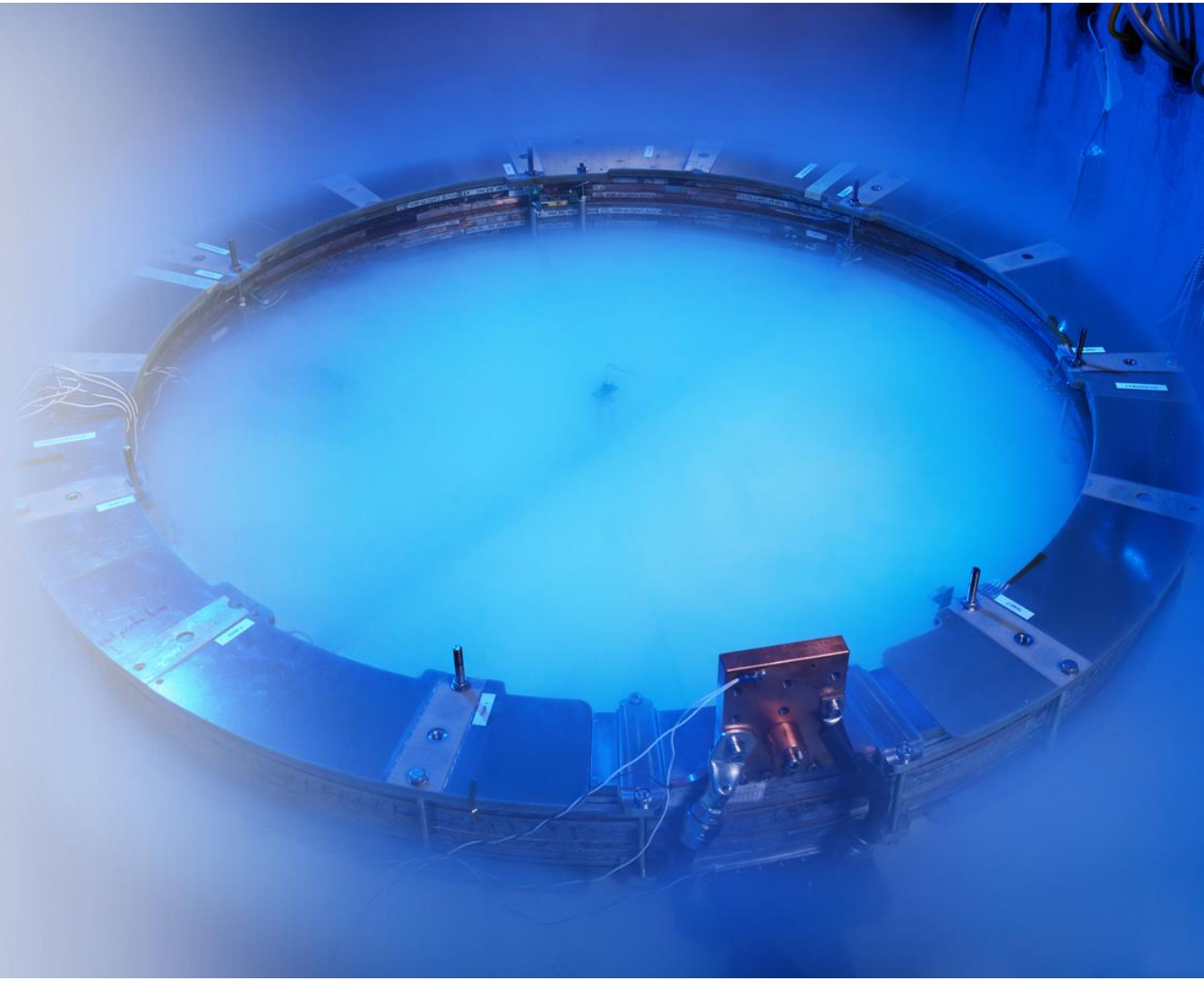


MBU is a new, dedicated division within Tokamak Energy

Focused on commercialising our HTS magnet technologies across a range of markets beyond our commercial fusion programme

MBU builds on our unique competitive strengths

- Comprehensive IP portfolio (35 Patent Families, 164 Granted Patents for HTS and Magnet technology)
- Built and tested the worlds' highest-field HTS magnet at 20K, achieving record 24T field in 2019
- Operate a new 2,000 m^2 magnet fabrication facility alongside worldclass laboratory testing facilities

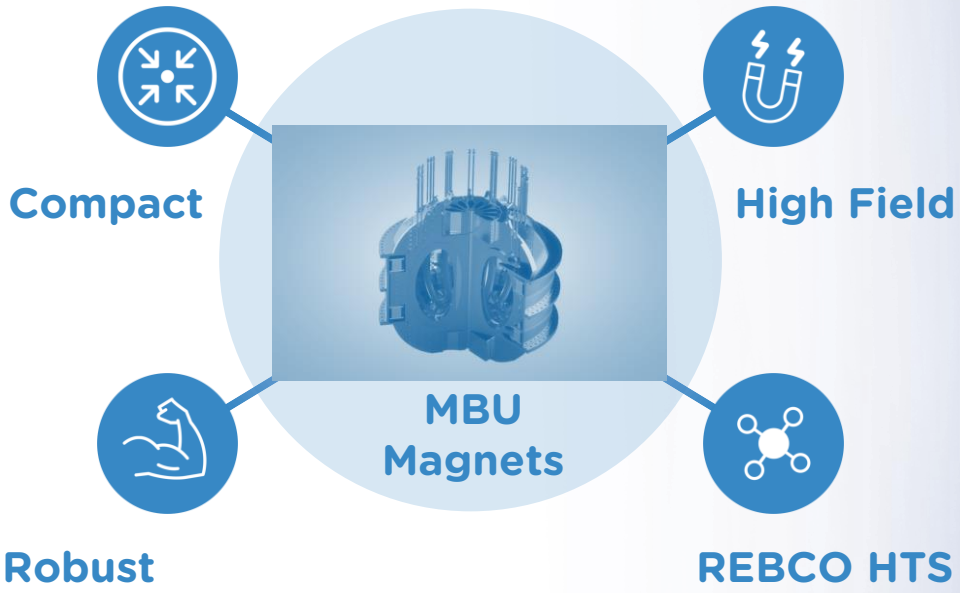


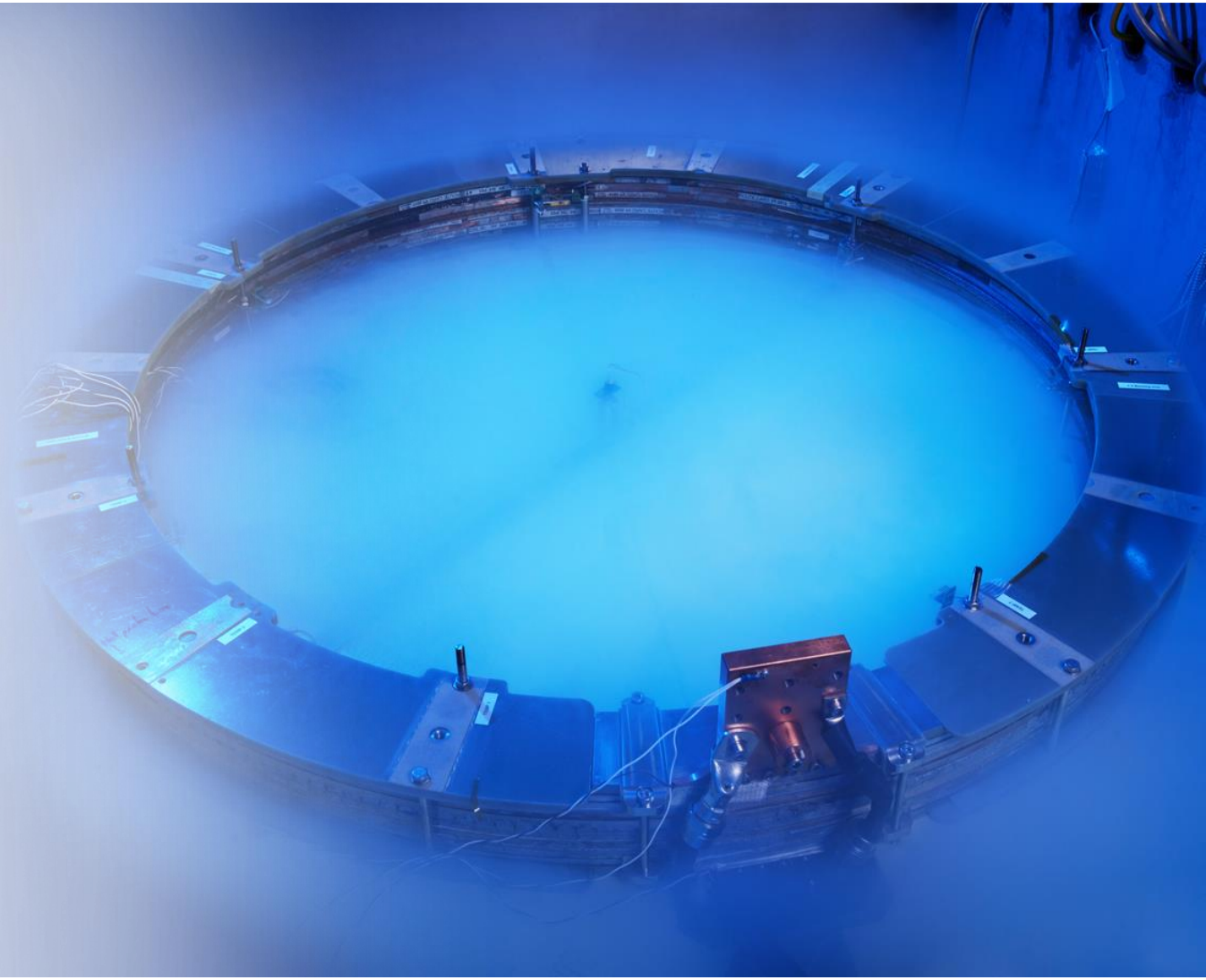
The MBU opportunity

We believe that HTS offers an opportunity to disrupt existing, and create new, markets for magnet technologies over the next decade:

HIGHER energy density	**HIGHER magnetic fields**	**HIGHER temperature operation**	**HIGHER electrical efficiency**
Higher fields and more compact magnets than other magnet technologies	Access new markets and improve the performance of machines in existing markets	Reduced cooling costs = better economics & no need for liquid cryogens	Superconducting magnets have no resistance, so DC operation requires almost no electrical power

Focus on applications that align to our unique HTS IP and technology





The best market opportunities

Live commercial opportunities

Analytical

Fusion

Defence

Active business development leads

Offshore Wind

Aerospace

Medical

Fusion is the 21st century's most valuable technology.

Tokamak Energy's business plan:

- Commercialises current and future IP families → Develop critical fusion technology
- Generates early profitable revenues → Grow the commercial magnet business
- Remains IP rich and capital light → Continue to build IP for the future plan
- Maximises the benefit of public and private partnerships
- Creates the credible pathway to commercial fusion

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Thank you

CONTACT US:

DR. MICHAEL GINSBERG

Michael.ginsberg@tokamakenergy.com

www.tokamakenergy.com

Tokamak Energy Ltd
173 Brook Drive
Milton Park
Oxfordshire OX14 4SD
United Kingdom