

Focus on Fusion

The Tokamak Energy approach

Tokamak Energy is pursuing the global deployment of commercial fusion through the combined development of spherical tokamaks with high temperature superconducting (HTS) magnets.

Magnetic confinement in tokamaks is the most mature concept to deliver commercial fusion, providing the most easily achievable plasma temperature, density and confinement required.

Our spherical tokamak design is more efficient than the traditional shape, with lower capital investment, operating costs and a smaller footprint. This delivers the lowest levelized cost of energy.



Spherical Tokamak

High efficiency

50% less magnet materials*

Stable plasma control

* Versus conventional tokamak



HTS Magnets*

Advanced simulation

Quench proof

Robust design

* High Temperature Superconducting



Efficient Fusion

The optimal technical approach:

- Spherical Tokamaks maximise fusion power with higher efficiency.
- Reduce capital and operating costs compared to conventional tokamaks.
- The Tokamak is the most widely studied magnetic confinement fusion device.

HTS magnets are a game-changing technology, allowing very strong electric currents and magnetic fields at higher temperatures:

- Stronger magnetic fields confine plasma better and reduce energy losses.

- Operating at higher temperatures, lowers cooling and reduces energy input requirements.
- Defect tolerant magnet technology provides higher system reliability.
- Advanced magnet design technology mitigates potential supply chain constraints.

The combination of spherical tokamak and HTS magnets enables the operation of smaller devices with smaller magnetic fields.

Which fuel will you use?

Deuterium-Tritium (isotopes of hydrogen) is the most proven and most advantageous fuel combination for fusion. It has the highest probability of reaction and the highest energy release at a lower temperature compared to other fuel combinations.

Roadmap to commercial fusion energy

Prototype device de-risks and accelerates

