



FUSION INDUSTRY ASSOCIATION

The Voice
of a new
Industry

The Fusion Industry Association is an international coalition of companies working to electrify the world with fusion - the unparalleled power of the stars. Energy from fusion will provide clean power for everyone that's safe, affordable, and limitless.

Summary of Private Fusion Enterprise

*2nd IAEA Conference on Private
Enterprise – July 11-12, 2022*

Andrew Holland
Chief Executive Officer
Fusion Industry Association

FIA Membership

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The Private Fusion Industry Today

33 verified private fusion companies

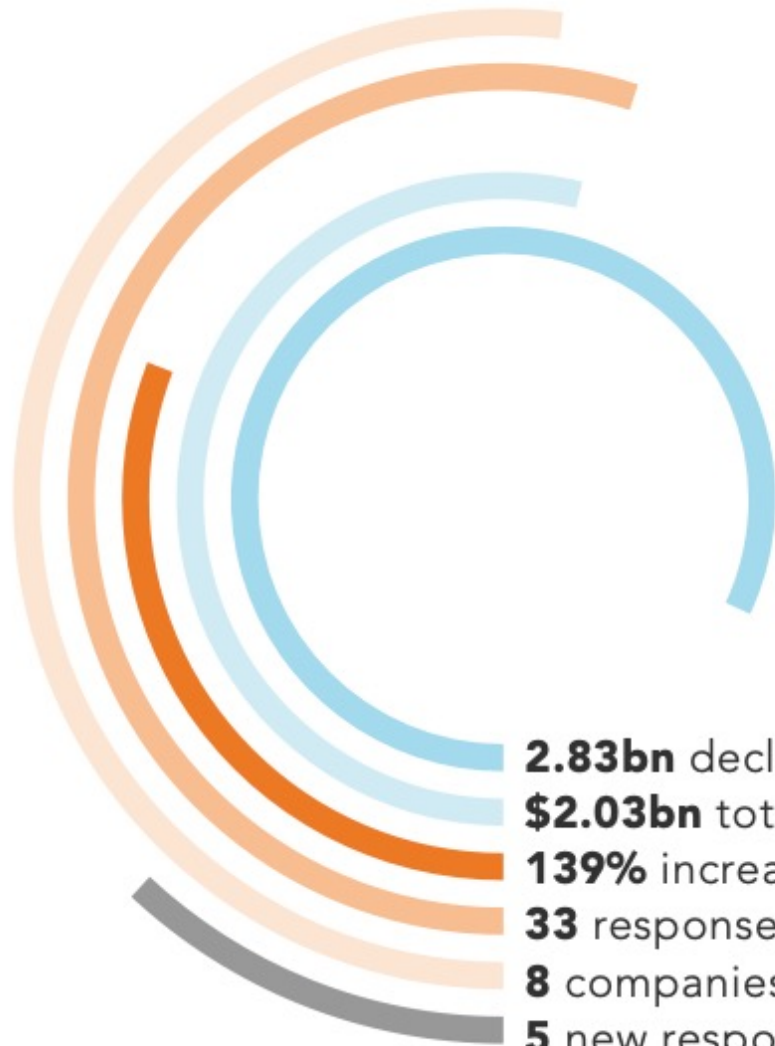
- 29 are members of the FIA
- 21 are American companies
- **\$4.7 billion in private investment** (*139% increase in the last 12 months*)
- Focused on electricity generation, while going beyond to enable deep-decarbonization
- 93% expect fusion on the grid by the 2030s, and 84% see it as commercially viable by then.

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The global fusion industry in 2022

Fusion Companies Survey by the Fusion Industry Association and The European Commission

Changes Since 2021



2.83bn declared in new funding since last survey

\$2.03bn total secured at time of 2021 survey²

139% increase in funding since last year's report

33 responses vs 23 in 2021

8 companies founded or emerged from stealth mode

5 new respondents completed the survey
(and two dropped out)

Technical Approaches



4 Field Reversed Configuration

4 Stellarator

3 Tokamak/Spherical Tokamak

2 Z-pinch

1 Dense Plasma Focus

1 Epicyclotron: a hybrid beam background approach

1 Hypervelocity Gradient Field Fusion

1 Laser-driven inertial confinement

1 Magnetic mirror

1 Magnetized target fusion

1 Modified Stellarator

1 Muon-catalyzed fusion with high density fuel

1 Non-thermal laser fusion

1 Orbitron (Electrostatic ion orbiting a cathode with magnetron (ExB) electron confinement)

1 Oscillating fusion-fizzle cycles with direct EMF extraction

1 Plasma Jet driven Magneto Inertial Fusion

1 Plectonemic reconnection

1 Poloidal magnetic confinement, e.g. Levitron, LDX, Intrap

1 Shock-driven inertial confinement

1 Spheromak

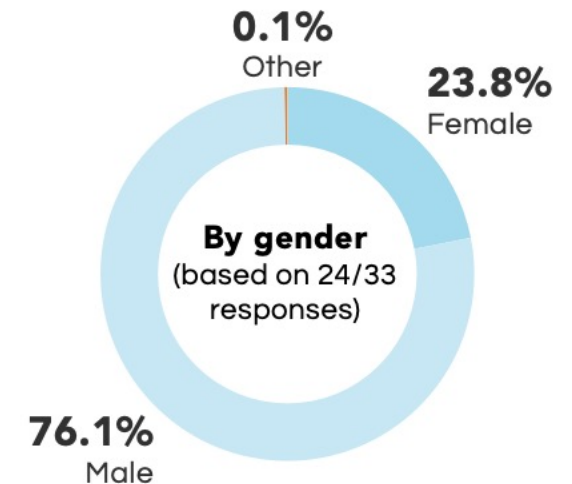
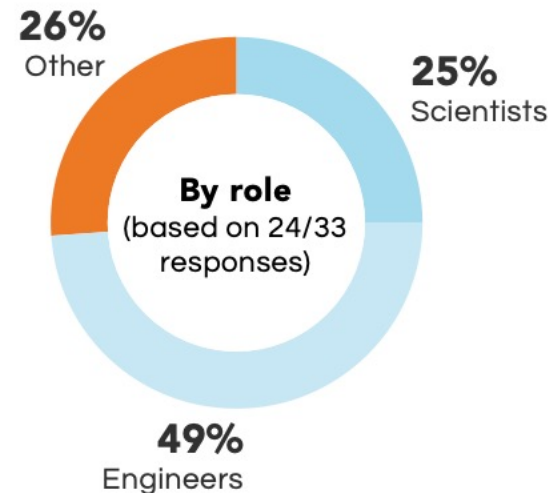
1 Spindle cusp, superconducting shielded-grid

Workforce Challenges

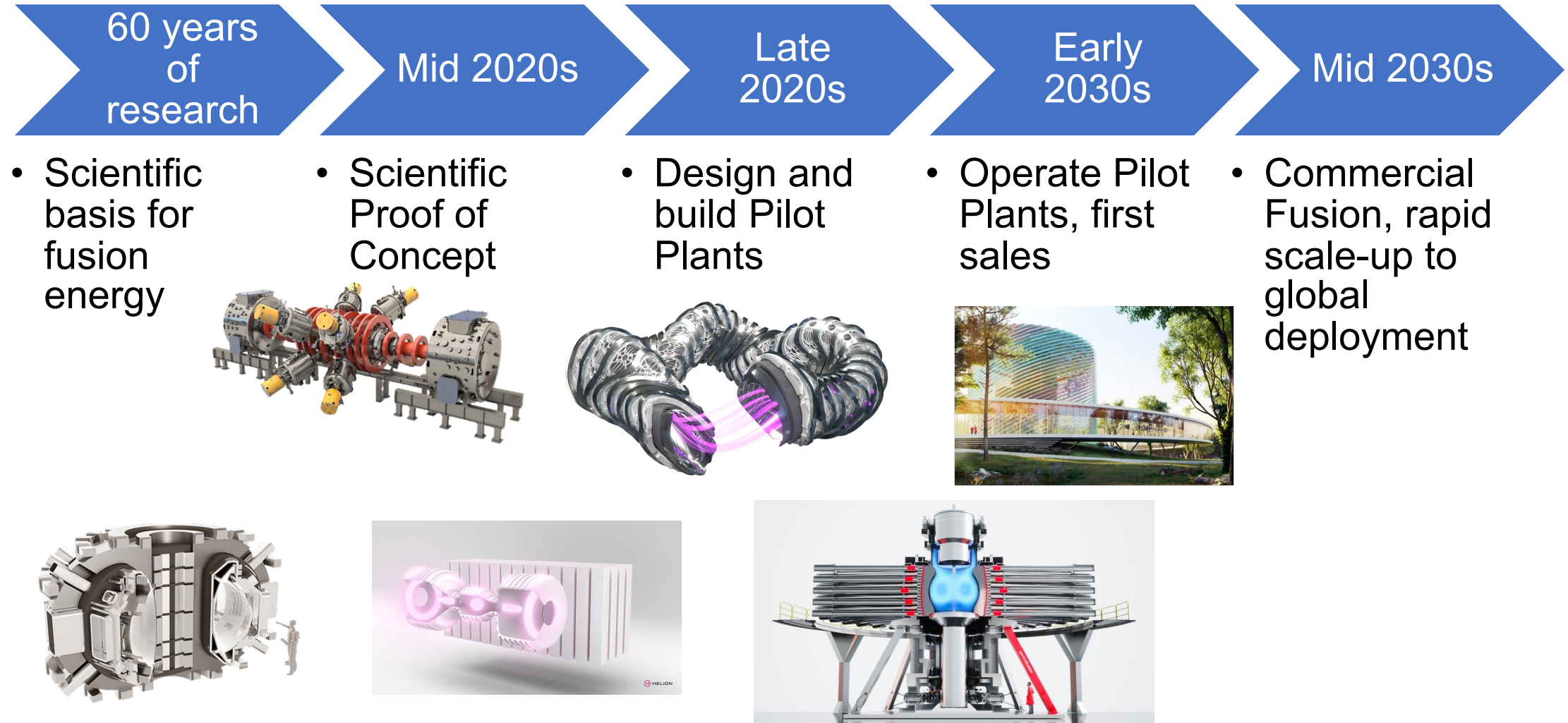
- We know that it will be difficult to build a sustainable workforce for 2050 – but IT'S HARD NOW
- Increase in the percentage of female employees from 21.8% to 23.8%
- Draw in full spectrum of workforce – upgrade the “pipeline”
 - Working with Universities
 - Possible model: “Women in Fusion” initiative

7. EMPLOYEES

Numbers are approximate and based on companies estimated figures, rounded to nearest 10%. Companies that did not provide demographic and role data are not reflected in these figures.



Industry's Vision: Timeline



2042: Industry's Vision for Commercial Fusion

- The commercial fusion industry will be a new **manufacturing industry**.
- Energy built on a production line, not pulled from the ground.
 - Scale – building multiple power plants per day, supporting thousands of jobs and new regional “hubs”
 - Analogue is NOT energy industries... its aerospace, automotive, personal computers

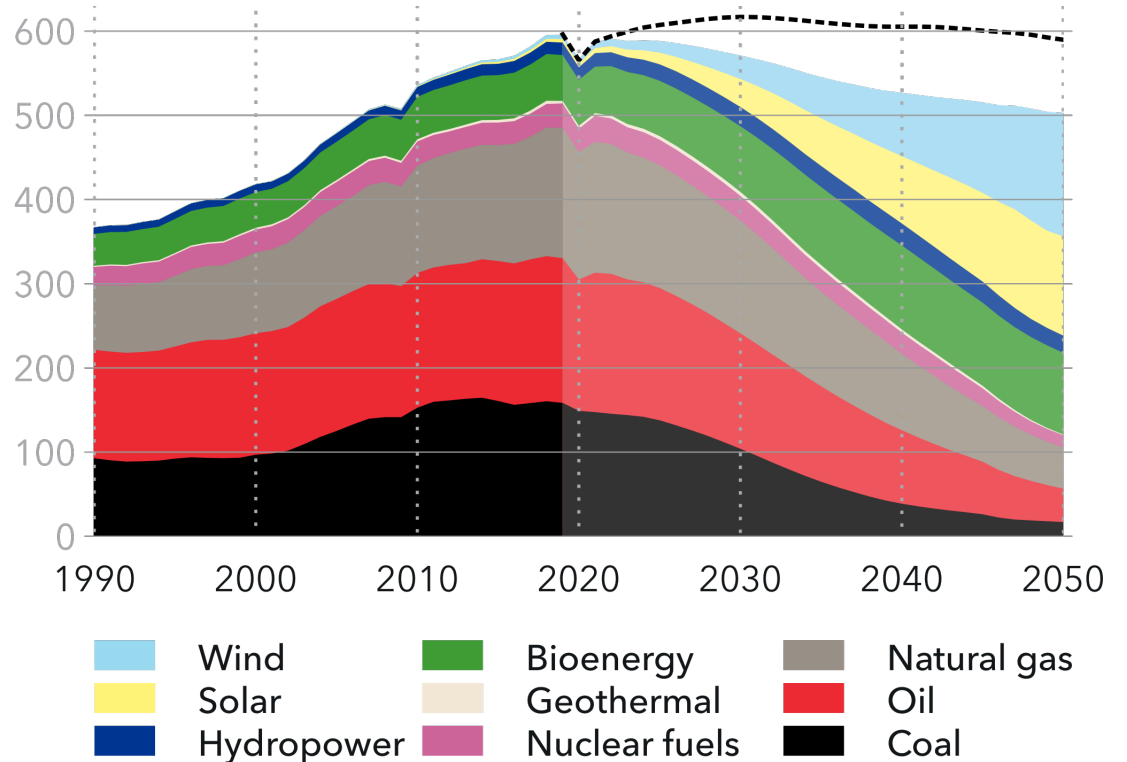


Private Fusion will Change the Energy Outlook for 2050 Net Zero

- Largest use case: a source of nearly unlimited **clean firm power**
- Other markets
 - Hydrogen
 - Industrial heat
 - Desalinization
 - Marine Propulsion
 - Clean fuels

Primary energy supply by source

Units: EJ/yr

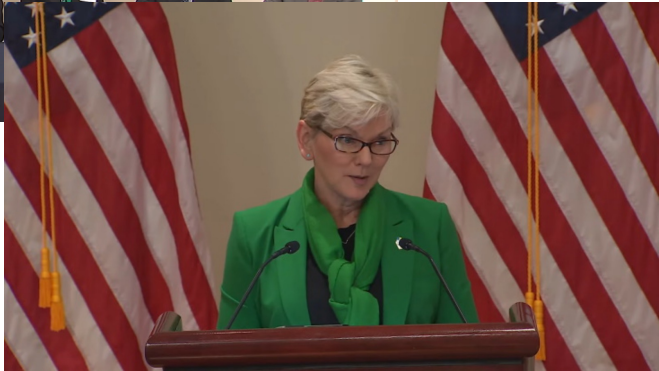


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Dotted line: ETO forecast. Historical data source: IEA WEB (2020)

This is a Global Competition


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Department for
Business, Energy
& Industrial Strategy

Towards Fusion Energy

The UK Government's Fusion Strategy



Questions?

<https://www.fusionindustryassociation.org/about-fusion-industry>