FUSION
INDUSTRY ASSOCIATION

The Fusion Industry Supply Chain 2025

Key findings of this report

22 private fusion companies responded to the survey, of a total of 45 we are aware of globally:

- They reported a total combined spend of over $434 million on their supply chain.
- Spend over 2024 was nearly double 2023's spend and is anticipated to grow by another 25% next year.
- 31% were concerned about the availability of precision engineering and manufacturing suppliers to meet current commercial needs, rising to 63% for future needs.
- A wide range of key components were identified as presenting supply challenges for different companies and approaches, from HTS wire to fuels to specialized metals.

57 suppliers (FIA affiliate members) completed the survey:

- 86% saw increased business with the fusion industry over the last year, and have spent over $230 million in building new capacity (including people and machinery) to support this growth.
- 31% are prepared to take the risk of growing capacity to support fusion, and 46% will do so if there is some risk-sharing with fusion companies.
- Nonetheless, 83% see risks associated with selling to the fusion industry.
- 81% said that lack of certainty made scaling up difficult.

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INTRODUCTION

The past year has seen huge progress in the business of fusion as it starts to make its move from the ‘lab’ to industry. Fusion companies including Commonwealth Fusion Systems, Focused Energy, Helion, and Type One Energy have announced sites for pilot plants that will deliver energy to the grid - all of which depend on collaborations with supply chain and/or utility partners.

Meanwhile, government-backed support for suppliers is seeing a surge. An $80 million grant from the U.S. Department of Energy (DOE) for MetOx International will establish an advanced HTS wire manufacturing facility, while various collaborative programs, such as the United States’ Fusion Innovation Research Engine (FIRE) Collaboratives and the United Kingdom’s Fusion Futures program, aim to bring fusion companies and suppliers together to work on shared challenges in areas like fusion materials and fuel cycles.

Fusion spending on the supply chain reflects this progress, growing 73% over the past year from around $250 million in 2023 to $430 million in 2024. Companies project a smaller but still significant growth in spending of 25% in 2025.

As companies move through technical milestones, they need larger quantities of specialized parts. As they head towards demonstrators and viable power plants, that demand will grow rapidly.

However, fusion is still in its early days and there are different approaches with different needs. That makes it difficult for suppliers to place their bets. Our list of components with supply concerns from fusion companies ranges from laser diodes to cryogenic systems to specialized metals. But there is no vast demand for a single component across all approaches – as there is for renewables.

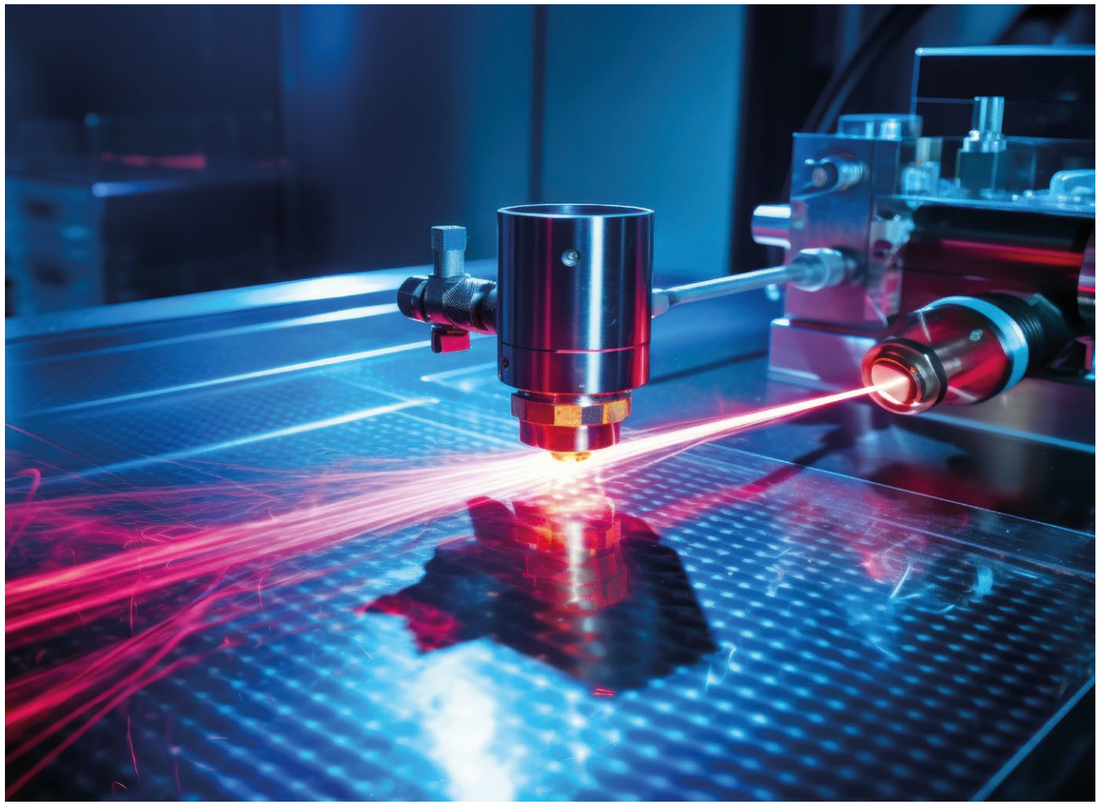
The bigger concern is not so much off-the-shelf components as it is high-end precision manufacturing skills to meet bespoke needs. Those that can meet these highly specialized requirements and understand the specific needs of fusion are in limited supply and many have long backlogs. Many are small specialist companies rather than large manufacturers with experience of rapid scaling.

The “chicken or egg” issue remains; suppliers are reluctant to invest in new capabilities without firm, long-term commitments. Fusion companies, working to shorter milestone-based development cycles struggle to give those commitments.

Nonetheless, our survey showed cause for optimism. The suppliers we surveyed – albeit a sample already engaged with fusion – almost all increased their business with fusion companies over the last year, with a wide range of new capacity-building projects reported. Most were keen to invest further, though nearly half said this needed to include at least some risk sharing with their fusion customers. Many reported that, despite having risks, fusion was seen as a business line with high potential, and that working in fusion also helped them develop cutting-edge capabilities that benefit other industries – providing a degree of risk mitigation.

What’s more, because of the power density of fusion, the supply chain footprint is not on the same scale as solar panels. Even in the long term, industry is talking about hundreds of power plants globally, not millions of panels. Industry is looking for high-end specialist manufacturing capability, not lots of mines and high volume inputs.

That is a manageable challenge. But, if the supply chain is not supported, progress in developing and deploying fusion will be slowed. That is why it is important that the FIA captures and shares this annual analysis of the state of the supply chain and considers proactive measures we can take at various levels – as we discuss in Section 3 – to ensure the supply chain can scale to meet fusion’s demand, while also managing its own risks and rewards.



SECTION 1:

The view from the fusion industry

What are fusion companies spending on their supply chain?

Our survey, now in its third year, looked at fusion supply chain trends and challenges over 2024. We received 22 responses from fusion companies.

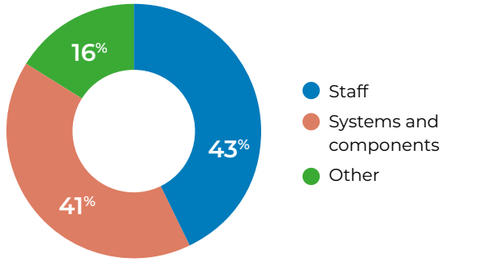
The total reported spend for 2024 was over $400 million, and showed a significant year-on-year increase in spending (Chart 1).

CHART 1:

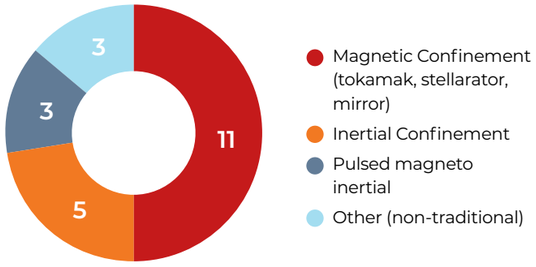
Fusion reported supply chain spend year-on-year

~$207,500,000	~$250,184,500	~$434,333,000	~$543,100,000
2022 reported spend (18 companies):	**2023** reported spend (16 companies):	**2024** reported spend (16 companies):	**2025** projected spend (16 companies):

Breakdown of total 2024 spending by fusion companies



A breakdown of respondents by approach



After three years of responses from a relatively stable number of respondents, we believe we are building a useful picture. Companies saw close to a doubling of spend on the supply chain vs 2023. This year we asked for specific projections for 2025 spend, with respondents predicting an increase of a further 25% in supply chain spend.

Those responding represent about a third of private fusion companies and provide a good cross section of size and geography.

While the sample size is incomplete and contains significant variation, we anticipate the total global supply chain spend from private fusion companies to be significantly higher than the reported figure.

We want to call out a discrepancy with last year's report. We have been alerted to the fact that in the past two years' surveys, one company reported total supply chain commitments rather than yearly spend, resulting in an inflated aggregated figure. This has been historically corrected for this year and the correct figures are presented above.

The 22 fusion companies responding to our 2025 survey

Blue Laser Fusion
Commonwealth Fusion Systems
EX-Fusion
First Light Fusion
Gauss Fusion GmbH
HB11 Energy
Helical Fusion
Kyoto Fusioneering Ltd.
LPPFusion, Inc.
Marvel Fusion
NearStar Fusion Inc.
Novatron Fusion Group AB
OpenStar Technologies
Pacific Fusion
Pranos Fusion
Realta Fusion
SHINE Technologies
TAE Technologies
Thea Energy
Tokamak Energy
Type One Energy Group, Inc.
Zap Energy

Ion Source and Extraction Power Supplies installed at RFX, in preparation for the ITER project

What the fusion supply chain looks like

Where does this money go? This year we asked fusion companies for a detailed breakdown of the components they consider critical, which are presented in Chart 2.

Fusion companies take different approaches, and therefore have different needs for some highly specific components, such as magnets or laser diodes - critical to some designs, irrelevant to others. Beyond this, there are a wide number of precision components needed by many fusion approaches, such as vacuum components, power systems, and heat exchangers – as well as high grade materials. Some, but not all, of these have vibrant markets in other industries too.

This chart shows the wide diversity of needs for bespoke parts, customized parts and off-the-shelf parts, all of which face different challenges adapting and scaling to meet fusion's needs, highlighting the importance of targeted strategies to nurture different parts of the supply chain.

CHART 2:

Critical components (22 respondents)

	Inertial Confinement	Magnetic Confinement	Pulsed magneto inertial	Other
Magnets				
HTS wire	0	7	0	1
Normal resistive magnets	0	4	0	2
High temp superconducting magnets	0	7	0	1
Low temp superconducting magnets	0	1	0	1
Cryogenic systems	2	10	0	0
Fuel Systems Management				
Fuel cycle systems	1	7	1	2
Fuel analysis	1	4	0	1
Deuterium, tritium, or other gaseous fusion fuels	1	8	2	2
Lithium (enriched)	0	4	2	1
Depreciation systems	0	2	0	0
Direct internal recycling	0	5	0	1
Separation technologies	1	6	1	2
Tritium compatible pumps	1	7	2	2
Tritium storage	2	7	2	2
Lasers				
Lasers (assembled)	5	1	0	0
Laser components e.g., diodes, laser glass	5	1	0	0
Thermal Management				
Thermostatic diverters	0	3	0	0
Heat exchangers	1	9	3	2
Integrated blanket solutions	1	8	1	1
Vacuum				
Vacuum vessels	3	10	3	3
Vacuum pumps	3	9	3	3
Vacuum seals	3	9	3	3
Power				
Power systems	2	9	3	3
Power components e.g., semiconductors, capacitors	1	5	3	3
Energy storage	0	5	2	2
Heating and Heat Management				
RF heating	0	9	0	0
Plasma heat management technologies	1	9	1	0
Gyrotrons	0	8	0	1
Klystrons	0	2	0	0
Beam generators	0	5	0	0
Waveguides and transmission guides	0	7	0	1
Measurement				
Fuel measurement	1	5	0	3
Microwave measurement	0	6	0	0
Plasma measurement	2	8	3	1
Spectrometers	1	7	1	1
Materials				
First wall materials	3	9	2	1
Rare earth metals	2	4	1	0
Common metals e.g., nickel, copper	1	7	3	2
Specialized metals e.g., high-grade steel	2	8	3	1
Software				
Control software	3	8	3	2
AI Modeling systems	2	5	1	0
Simulation	3	9	3	3
Other				
Safety systems	0	9	3	2
Actuators	1	5	2	2
Valves	1	7	3	3
Specialty fasteners	1	3	2	2
Specialty cable and connectors	1	3	2	3

Supply constraints

Our data showed that every company listed at least one key component or material where they had concerns about short or long term availability (See Chart 4). The concerns were varied, however. There was no one product that rang huge alarm bells for everyone, but everyone had some products they were worried about sourcing. That variation between companies is no doubt a function of the multiple approaches and geographical diversity that currently exists within fusion.

Amid the diversity of needs, fusion fuels stand out as a future challenge for everyone. Current supplies are more than adequate for the R&D phase of fusion, but fuel supply chains don't exist at the scale needed for a global commercial industry. While these are not insurmountable challenges, they will require effort to address.

The more widespread concern related to the availability of precision manufacturers who could make specialist parts suited to the conditions of fusion. Nearly a third felt this was an immediate problem, with concerns rising sharply about availability as needs scale (Chart 3).

CHART 3:

Concerned about availability of precision engineering and manufacturing suppliers who can produce specialist fusion-specific components

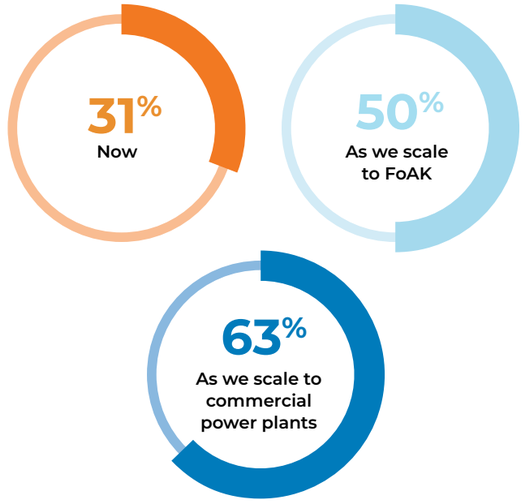


CHART 4:

In short supply

	Currently face supply constraints	Expect supply constraints in future
Magnets		
HTS wire	4	3
Normal resistive magnets	1	1
High temp superconducting magnets	1	4
Low temp superconducting magnets	0	2
Cryogenic systems	3	4
Fuel Systems Management		
Fuel cycle systems	3	8
Fuel analysis	1	2
Deuterium, tritium, or other gaseous fusion fuels	5	13
Lithium (enriched)	2	5
Depreciation systems	1	0
Direct internal recycling	2	1
Separation technologies	3	2
Tritium compatible pumps	5	7
Tritium storage	2	3
Lasers		
Lasers (assembled)	4	1
Laser components e.g., diodes, laser glass	5	1
Thermal Management		
Thermostatic diverters	2	3
Heat exchangers	2	2
Integrated Blanket Solutions	4	1
Vacuum		
Vacuum vessels	2	3
Vacuum pumps	2	2
Vacuum seals	2	1
Power		
Power systems	3	2
Power components e.g., semiconductors, capacitors	1	3
Energy storage	0	2
Heating and Heat Management		
RF heating	6	5
Plasma heat management technologies	1	4
Gyrotrons	6	7
Klystrons	1	0
Beam generators	3	3
Waveguides and transmission guides	3	2
Measurement		
Fuel measurement	1	1
Microwave measurement	1	0
Plasma measurement	0	1
Spectrometers	1	1
Materials		
First wall materials	4	8
Rare earth metals	2	5
Common metals e.g., nickel, copper	1	3
Specialized metals e.g., high-grade steel	2	8
Software		
Control software	1	2
AI Modeling systems	0	1
Simulation	1	0
Other		
Safety systems	0	2
Actuators	0	1
Valves	1	3
Specialty fasteners	1	1
Specialty cable and connectors	3	3

Supply chain challenges

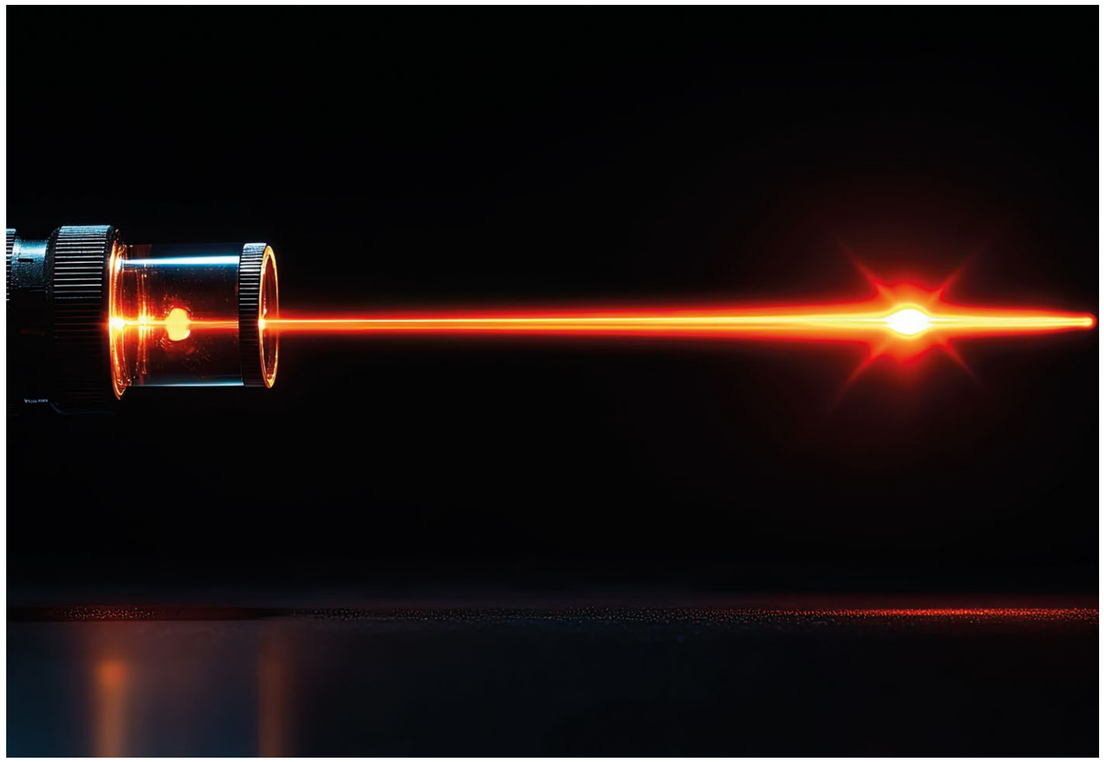
Generally, the biggest challenge remains the ”chicken or egg” problem highlighted last year, whereby suppliers need to know that there will be a market, but it is difficult for fusion companies to commit long-term in advance of hitting timeline milestones. Timelines for a supply chain company to produce a new product at scale can be a matter of years, but most will only start on that journey with firm commitments or investments.

This is compounded by the specialized nature of the components needed. Many components have a limited supply base of companies that can deliver the exact requirements needed by fusion. Those tend to have large backlogs, resulting in high costs and long lead times. One fusion company noted a particular component had a two year lead time, which was longer than their experimental cycles, meaning that a single component was slowing the whole company down.

Challenges come from both sides. Getting specialized fusion suppliers to scale can be hard, even when commitments are made. Many are specialists who have long served niche scientific industries and have limited scale-up experience. Some even prefer to stay small and specialist, rather than becoming large mass producing companies.

While these challenges seem concerning, it is worth noting that the degree of scale needed is not as high as one might imagine. Fusion has comparatively low supply chain needs for delivering power plants compared to technologies like solar or wind. So while scale is needed, it will not need the vast global supply chains that underpin these other industries.

> *“The products required are highly specialized, costly to produce and volume demanded currently is extremely low.”*
>
> **Anonymous fusion supplier**



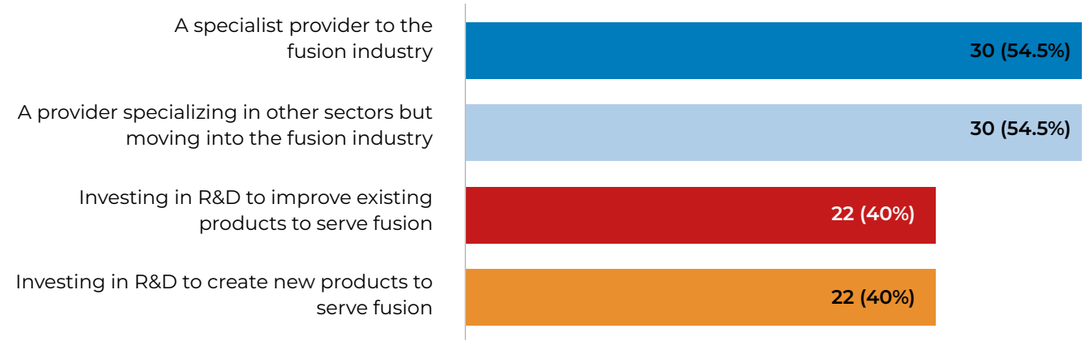
SECTION 2:
The view from fusion suppliers

To gather the supply chain view, we surveyed 57 of the FIA’s affiliate members, i.e. those in the supply chain. As FIA members, these suppliers are already involved in fusion, so do not represent the full spectrum of supply challenges.

Nonetheless, they offer valuable insights into what the most committed suppliers are doing to grasp the opportunity presented by fusion, and the challenges they face.

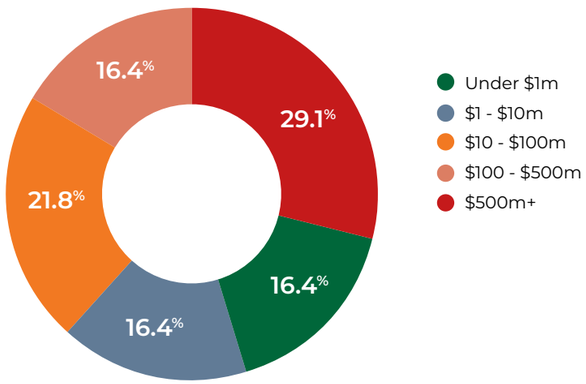
Which of the following describes your company?

55 responses



What is the size of your company by approx. annual revenue?

55 responses

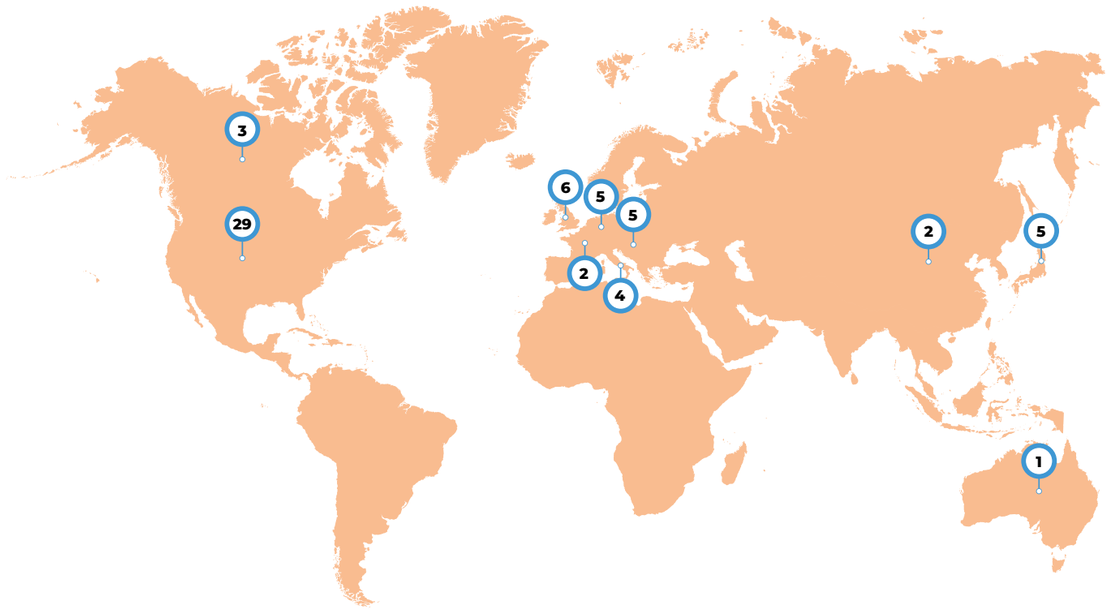


Profile of respondents

Which products or services do you provide to the fusion industry?

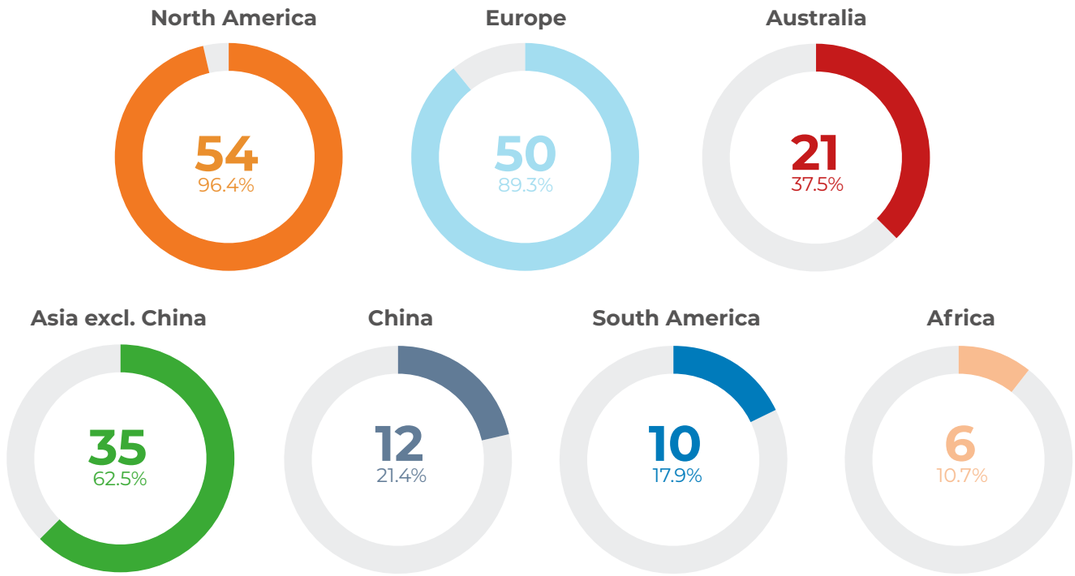
Precision engineering and manufacturing services	24
Vacuum Vessels	12
Simulation	10
Industry information	10
Heat Exchangers	9
AI Modeling Systems	9
High Temp Superconducting magnets	8
Fuel Cycle Systems	8
Control Software	8
Power Systems	8
Safety Systems	7
Normal resistive magnets	6
Vacuum Seals	6
Valves	6
Cryogenic systems	6
Investment	6
Lithium (enriched)	6
Low Temp Superconducting magnets	6
Vacuum Pumps	5
Plasma heat management technologies	5
Integrated Blanket Solutions	5
Gyrotrons	5
Separation Technologies	5
Waveguides and Transmission Guides	5
Fuel Analysis	5
HTS wire	5
Actuators	4
Energy storage	4
RF heating	4
Outsourced Materials and Component testing	4
Tritium Storage	3
Tritium Compatible Pumps	3
Waste Management	3
Klystrons	3
Fuel Measurement	3
Rare earth metals	2
Specialty Fasteners	2
First wall materials	2
Specialty Cable and Connectors	2
Beam Generators	2
Legal services	2
Laser components e.g., diodes	2
Plasma Measurement	1
Spectrometers	1
Thermostatic Diverters	1
Direct Internal Recycling	1

Where are you based (includes companies with multiple locations)?



Which geographic markets do you currently serve or plan to serve in the fusion industry?

56 responses



The view from the supply chain

Most suppliers in our survey increased their work with fusion companies in the past year (Chart 5). Most were driven at least in part by the opportunity to increase sales by adapting existing products or capabilities to a nascent, potentially huge industry. Some were excited by the opportunity to get in early, with the potential for big rewards down the line as they build expertise, connections, and credibility in the industry.

A number also saw wider opportunities. Fusion pushes companies to the limits of what's possible in technical fields, leading to improved products and knowledge that are finding valuable applications in other markets such as space, medical, and defense. For example, advances in magnetics and high temperature superconductors could find applications in areas like wind turbines or maglev trains.

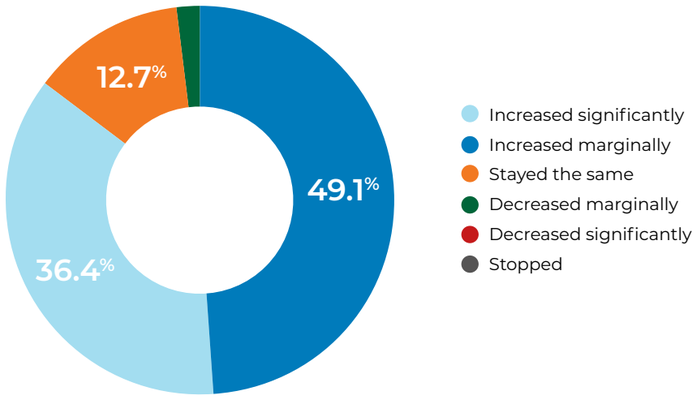
In an interesting parallel development, several fusion companies are becoming part of the supply chain for other fusion developers or other markets, as their own R&D in areas like magnets and lasers shows potential beyond fusion. For example, companies are selling magnets or other enabling technology for spinoff markets like cancer treatment and battery storage.

Finally, a motivator, if not already a commercial driver, was the opportunity to be part of developing a safe, efficient, carbon free, virtually unlimited source of energy.

CHART 5:

Over 2024, how has your business with fusion companies changed?

55 responses



Risks and challenges

Most suppliers are confident in the fusion industry as a customer, but perceived some risk from engineering, economics, and politics. While 30% felt they had a clear direction from their fusion customers, many did not have financial commitments, or a roadmap, to align their priorities with and shape their investment focus.

Suppliers found it difficult to make concrete plans in light of the variable nature of fusion development, high capital requirements, spiky funding, development and deployment timelines, and regulatory uncertainties. This was compounded by limited detailed requirements from the industry at large, and a lack of consistent vocabulary and standardization of product requirements (See Chart 7 on next page).

All challenges contributed to a lack of clarity about future business, which dampens appetite for long term investment, and makes forecasting demand and ramp up difficult.

However, several suppliers acknowledged that the high levels of private and government funding give them confidence, offsetting some of the other concerns.

Nearly a third of respondents worried about limited options to expand internationally, an issue where the total private fusion developer base is currently less than 50 geographically dispersed companies. This is particularly true for supply chain companies outside the United States, where approximately half of the fusion companies are concentrated. On the other hand, a similar number felt competition from lower cost countries might threaten their business.

30% of suppliers: *We have clear direction from the fusion industry about its long-term component needs*

CHART 6:

How risky do you see the fusion industry as a future customer?

51 responses

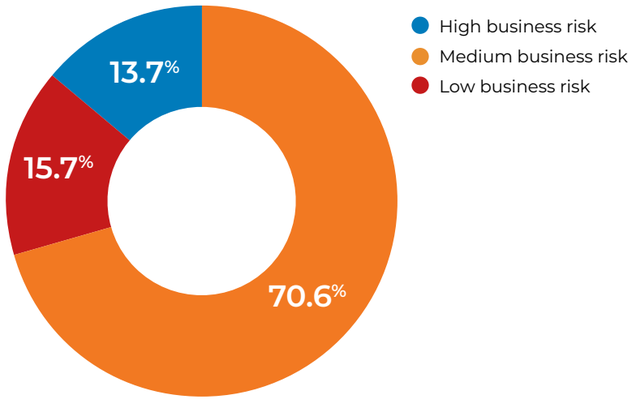
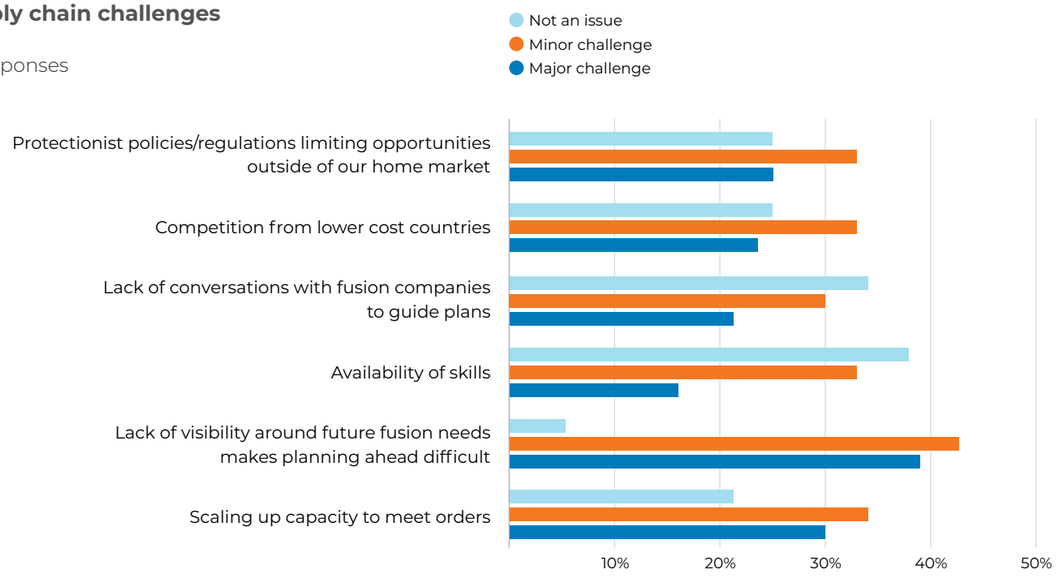


CHART 7:

Supply chain challenges

57 responses



Nonetheless, many suppliers were upbeat. Those that felt they had good partnerships and clear conversations with their fusion companies were more assured.

Others noted that they are selling products to fusion that they already made for other industries, or could easily adapt, and so saw little risk. Still others believe that research into fusion products such as lasers will lead to valuable innovations for other industries.

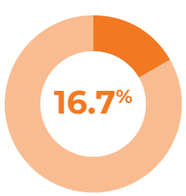
Given this mix of concerns and opportunities, it is unsurprising to see a mix of levels of commitment to scaling to meet needs (Chart 8). Nearly half of respondents were keen to build more capacity with some risk sharing from their fusion customers. A third were confidently charging ahead anyway, while a sixth would only commit to expansion with solid upfront commitments.

And past performance is also a promising sign. Despite the perceived risks, our respondents claimed to have invested over $230 million in adding capacity to support fusion customers, or in anticipation of future demand (See Investments in fusion capacity building box).

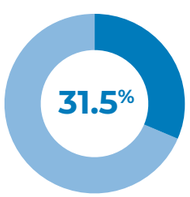
CHART 8:

54 responses

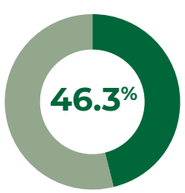
We are not in a position to scale rapidly.



We want to build capacity but would require full financial security (e.g., long-term contracts or outside investment)



We are already investing in capacity to meet future fusion demand/have plans to do so

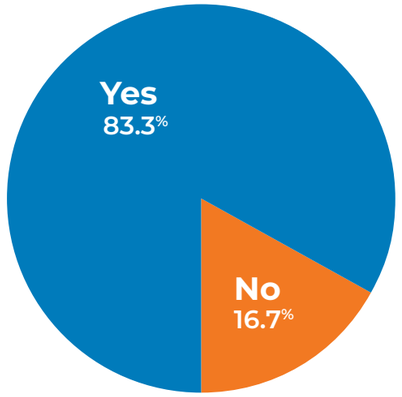


We are prepared to take on risk to build capacity, but expect this to be shared with customers (e.g., through minimum orders or joint ventures)

CHART 9:

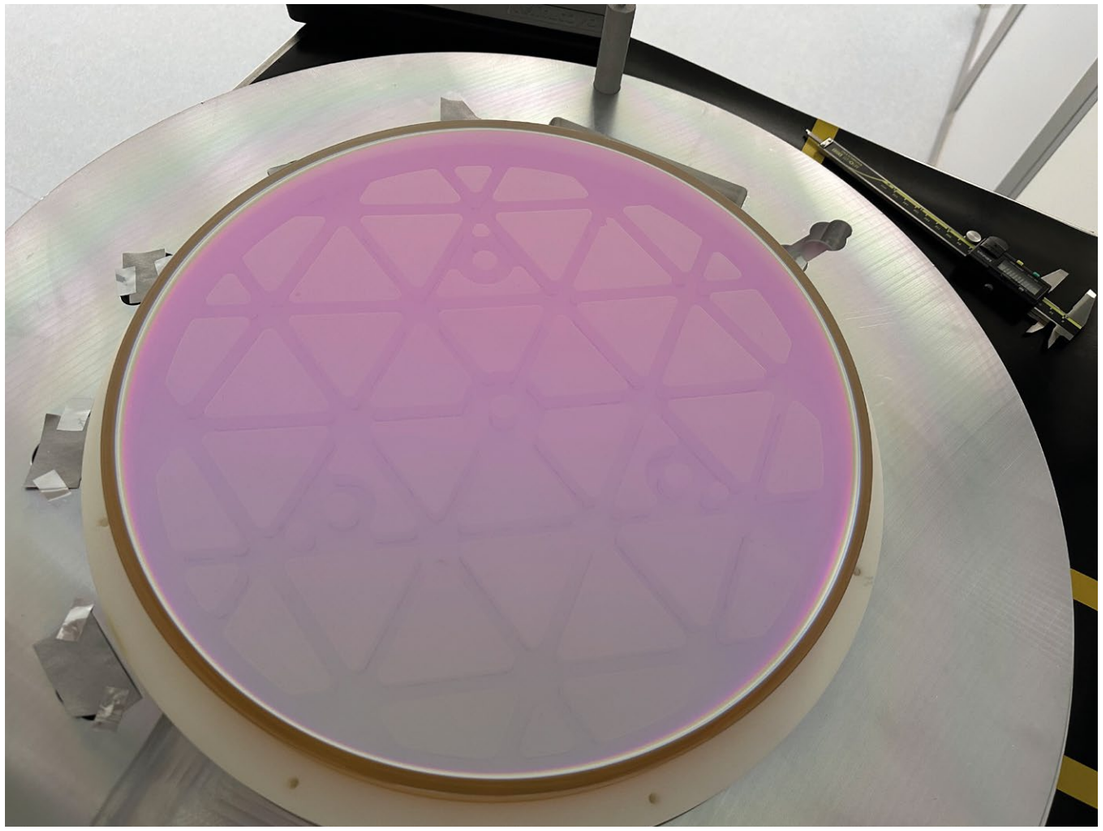
Over 2024, have you made any investments in adding capacity to support your fusion customers, or in anticipation of future demand for the fusion industry (e.g new facilities, machinery, training)?

54 responses



Investments in fusion capacity building

- Hiring and training staff, from plasma physics, to Machine Learning (ML) and AI, to business development teams
- New manufacturing facilities
- Adding advanced manufacturing and testing equipment to existing facilities
- Acquisitions
- Upgraded computation capabilities
- Software development
- Collaboration and partnerships with fusion companies and research institutions
- Scientific and engineering advancements of foundational technologies
- R&D into fusion-related capabilities



OPTOMAN has one of the largest IBS coating chambers in the world, capable of manufacturing large laser optics up to 420 mm

SECTION 3:

Proposed solutions

Broadly the challenges we are aiming to address fall into three categories: give suppliers confidence to invest in building capacity through financial security; give them the insight to make long term plans; and upskill suppliers to meet the needs of fusion.

Based on responses from fusion companies and suppliers, and our own conversations, we conclude with a series of recommendations.

De-risk capacity building

- **Structured Public-Private Partnerships (PPPs):** Expand PPPs that directly engage suppliers alongside developers in technology development, early procurement, and pilot plants. Prioritize shared-risk demonstration programs where suppliers can co-develop capabilities alongside fusion companies.
- **Fund demonstration hardware, pilot plants and research collaborations:** Demonstration plants serve as vital stepping stones to full commercial deployment and are instrumental in engaging the supply chain. Prioritize funding of shared facilities and pilot plants that support commercialization and increase the Technology Readiness Level (TRL) of fusion-related technologies (e.g., power, neutron imaging, isotope production) to allow the supply chain to incrementally scale and diversify.
- **Targeted incentives and financial tools:** Introduce or expand access to financial mechanisms for suppliers, such as targeted tax credits, subsidies, low-interest loans (such as the U.S. Department of Energy's Loan Programs Office), and cost-sharing grants.
- **Reduce trade and export barriers:** Streamline international trade procedures for fusion-related materials and components through harmonized export controls, tariff exemptions, and free trade provisions, particularly for critical inputs like HTS tape, laser components, and specialized alloys, or other components that cannot be easily or cost-effectively produced locally.
- **Support diversification of fuel supply chains:** Support fusion fuel capacity through strategic investments. Such efforts must carefully balance the needs of suppliers and fusion companies that will underpin a diverse global marketplace. Strong partnerships between research institutions, government agencies, and private companies will accelerate progress by pooling expertise and resources to overcome shared challenges.

Support long term planning

- **Provide long-term market visibility:** Fusion companies should do what they can to collaboratively define, standardize, and report their component needs and service requirements, including planned future requirements, to allow for easier planning and coordination across suppliers. Enabling supplier access to research data and experimental results from publicly funded fusion devices would also help suppliers plan and invest with greater confidence.
- **Standardization of components and performance criteria:** When long-term planning necessitates, work with industry consortia (e.g., FIA, American Society of Mechanical Engineers, International Organization for Standardization (ISO)) to standardize components, materials, and certification pathways, particularly for critical systems and additive manufacturing in high-risk applications.
- **Develop and harmonize fusion-specific regulatory frameworks:** National governments should establish dedicated regulatory regimes for fusion that reflect its unique risk profile compared to fission, including measures to make import and management of fuels easier. Collaboration between international regulators should be pursued to align standards and avoid duplication, looking at the joint statement on strategic fusion partnership between the UK and the US as an example, which includes efforts towards 'harmonisation of regulatory frameworks and codes and standards'. The G7, which announced a fusion regulation working group in 2023, provides a critical forum for advancing international regulatory alignment and avoiding duplication across jurisdictions.
- **Establish rules for use of 3D printed materials in high risk industries:** This is happening slowly, but could be better supported by organizations like the U.S. Department of Defense, American Society of Mechanical Engineers, or International Organization for Standardization (ISO).
- **Facilitate industry clusters and regional hubs:** Encourage the formation of regional innovation clusters that co-locate fusion companies, suppliers, universities, and labs, enabling shared infrastructure, workforce mobility, and collaborative R&D.
- **Convene regular global forums:** Convene annual global conferences to connect start-ups, suppliers, investors, and regulators – fostering technical exchange, market alignment, and capital flow. This is something the FIA may lead.

Build a skilled workforce

- **Expand and modernize fusion-focused education:** Governments, academia, and industry should invest in education and workforce development programs that integrate fusion-relevant disciplines (e.g., nuclear engineering, cryogenics, advanced manufacturing, high-power electronics). Incentivize vocational and technical training programs aligned with supply chain needs.
- **Leverage national laboratories as training hubs:** Streamline collaboration and IP processes to make national labs more accessible for small firms. When it makes sense, use them as central hubs for both R&D and skills training.
- **Create centers of excellence for key skills:** An initial target could be a center for training tritium scientists and practitioners for fusion developers pursuing approaches using deuterium-tritium fuel.
- **Promote cross-sector talent migration:** Establish re-skilling programs to attract professionals from adjacent sectors (e.g., aerospace, fission, semiconductors), and promote internships and exchanges between national labs, suppliers, and private fusion firms.

Conclusion

The fusion supply chain has made remarkable progress over the past year, with suppliers already seeing benefits from more engagement with the fusion sector, including through collaborative programs backed by governments. However, shared challenges remain, particularly the need to overcome the “chicken or egg” dilemma of supplier investment risk versus uncertain long-term demand.

Solving this requires greater risk-sharing across all actors; fusion companies, suppliers, governments, universities, and major industrial players all have a role to play. Some fusion suppliers are building cutting-edge capabilities that serve both fusion and other industries, providing a natural hedge and funded route to develop their technologies. But this is not true of everyone, and scaling suppliers across the board to meet future fusion demands will need coordinated support.

Governments in particular can play a catalytic role, as they have in other industries. The semiconductor sector offers a clear precedent: public-private initiatives such as the U.S. Department of Defense’s early investment in microchips helped scale up an entire ecosystem, ultimately enabling the modern technology economy. A similar, proactive approach to fusion supply chains could ensure that this emerging sector realizes its transformative potential without unnecessary delays.

The fusion community, including developers, suppliers, and governments must continue working collaboratively to de-risk investment, improve market visibility, and build the workforce needed. With the right support, we can build a robust, agile supply chain that will help deliver commercial fusion energy to the world.

Precision Jig & Fixture a supplier of custom fixturing and complex 5 axis components

Welding work at RI Research Instruments on the ITER torus cryopump

Fusion suppliers who completed the survey (FIA affiliate members)

	Company description	Website	Contact Information	Completed Survey?
ALTRUSION	**Altrusion (US)** Altrusion is building a diverse advanced manufacturing network to reshore production, strengthen supply chains, and enable the future of fusion energy.	**altrusion.com**	**aurilia.harvell@altrusion.com**	**YES**
ARNOLD MAGNETIC TECHNOLOGIES ENGINEERING SOLUTIONS TOGETHER	**Arnold Magnetic Technologies (US)** Supplies top-quality materials and components for fusion reactor and particle physics projects. Its product range includes rare earth magnets, magnet assemblies, electromagnets, flexible neodymium magnets, and ultra-thin precision thin metals.	**arnoldmagnetics.com**	**info@arnoldmagnetics.com**	**YES**
ASG SUPERCONDUCTORS	**ASG Superconductors S.p.A (Italy)** Research, nuclear fusion, particle physics, industrial applications for energy and med tech, MRI and proton therapy systems.	**asgsuperconductors.com**	**info@as-g.it**	**YES**
Atlas Copco Group	**Atlas Copco (US)** Atlas Copco manufactures industrial tools and equipment, including compressors, vacuum solutions, generators, power tools, and assembly systems. Its Scientific Vacuum Division focuses on providing vacuum and cryogenic product and systems solutions to life sciences & medical, R&D and scientific and high-tech manufacturing markets.	**atlascopco.com**	**alexander.richardson@alascopco.com**	**YES**
BOND	**BOND (US)** BOND is a fifth-generation family-run construction management and civil & utility general contractor since 1907.	**bond-building.com**	Tim Peer, Vice President Power & Energy: **tpeer@bond-building.com**	**YES**

	Company description	Website	Contact Information	Completed Survey?
BILFINGER	**Bilfinger (Germany)** Specialist in nuclear fission and fusion with experience in magnets, remote handling, cryogenics, piping and more. Bilfinger offers comprehensive services: from development, planning and system integration, to commissioning and service of supplied systems	**bilfinger.com/en**	**michael.gehring@bilfinger.com**	**YES**
BLACK MOON ENERGY	**Black Moon Energy Corporation (US)** Working on the fusion fuel supply chain, focused on Helium-3.	**blackmoon.energy**	**info@blackmoon.energy**	**YES**
Burges Salmon	**Burges Salmon LLP (UK)** Burges Salmon's expertise spans high-profile projects, including advising UKIFS on the STEP project. It works closely with fusion clients, offering guidance on regulatory, commercial, and environmental matters.	**burges-salmon.com**	**peter.ramsden@burges-salmon.com**	**YES**
canyon magnet energy	**Canyon Magnet Energy, Inc. (US)** Canyon Magnet Energy provides high-performance HTS and LTS magnet systems that enable compact, efficient, and scalable fusion devices, supporting the growing fusion energy ecosystem from prototype to commercial deployment.	**canyonmagnet.energy**	**info@canyonmagnet.energy**	**YES**
CHUBU Electric Power	**Chubu Electric Power Co., Inc. (Japan)** Its primary business activities are renewable energy, nuclear power, overseas business, and community support infrastructure related work.	**chuden.co.jp/english**	**+81-52-951-8211**	**YES**
Focus on Fusion	**CleanTech Alliance (US)** Industry trade association focused on clean technology and leader of the 'Focus on Fusion' economic cluster. Runs the annual Seattle Fusion Week.	**focusonfusion.cleantechalliance.org**	**lindsay@cleantechalliance.org**	**YES**
knowles cde	**Cornell Dubilier Marketing, Inc. (US)** Producer of capacitors.	**cde.com**	**rtesta@cde.com**	**YES**

	Company description	Website	Contact Information	Completed Survey?
COSYLAB	**Cosylab (Slovenia)** Provider of turnkey software solutions and electronics for the world's most complex, precise and advanced systems - like fusion reactors, particle accelerators and cancer therapy.	**cosylab.com**	**info@cosylab.com**	**YES**
digiLab	**digiLab Solutions (UK)** digiLab's AI solutions are built upon explainable lightweight models and uncertainty quantification. These models are trusted by partners across fission, aerospace, sustainability, and fusion..	**digilab.ai**	**amanda.niedfeldt@digilab.ai** +44 1392 796786	**YES**
EnF	**EnableFusion Inc. (Republic of Korea)** EnableFusion's cutting-edge Fusion Engineering Platform (FEP), leverages Korea's strengths in precision manufacturing, HTS production, and AI. Its value lies in streamlining the entire process—procurement, manufacturing, installation, assembly, testing, and operation—of fusion machines.	**enablefusion.com**	**info@enablefusion.com**	**YES**
eni	**Eni S.p.A (Italy)** Eni is an energy company. It supports an energy transition, with the objective of preserving our planet and promoting efficient and sustainable access to energy for all.	**eni.com/en-IT/home**	Francesca Ferrazza, Head of Magnetic Fusion Initiatives: **Francesca.Ferrazza@eni.com**	**YES**
equinor	**Equinor ASA (Norway)** Equinor's portfolio of projects encompasses oil and gas, renewables and low-carbon solutions, with an ambition of becoming a net-zero energy company by 2050.	**equinor.com**	**equinor.com/about-us/contact-us**	**YES**
FARADAY FACTORY JAPAN	**Faraday Factory Japan (Japan)** The largest manufacturer of HTS tape worldwide, it has supplied over 5,000 km to the fusion industry.	**faradaygroup.com/en**	**info@faradaygroup.com**	**YES**

	Company description	Website	Contact Information	Completed Survey?
FRAZER-NASH CONSULTANCY A KBR COMPANY	**Frazer Nash Consultancy Ltd (a KBR Company) (UK)** A leading systems, engineering and technology company. Part of KBR Group, it helps organizations deliver innovative engineering and technology solutions to make lives safe, secure, sustainable, and affordable.	**fnc.co.uk**	**s.lawler@fnc.co.uk**	**YES**
Fujikura	**Fujikura Ltd. (Japan)** Fujikura has been the global leader in rare-earth-based HTS tapes for over 20 years.	**fujikura.com**	**US:** HTS@fujikura.com **Japan:** ask-sc@jp.fujikura.com **Europe:** superconductor@fujikura.co.uk	**YES**
FUSION ENERGY BASE	**Fusion Energy Base (US)** Fusion Energy Base is a website that tracks fusion developers, the fusion supply chain, and jobs in the fusion industry. It provides comprehensive information about fusion investments, supply chain providers and their products and services, and how newcomers can plug into the fusion energy industry.	**fusionenergybase.com**	**contact@fusionenergybase.com**	**YES**
FUSION FUEL CYCLES	**Fusion Fuel Cycles Inc.** FFC is a joint venture between Kyoto Fusioneering (KF) and Canadian Nuclear Laboratories (CNL), developing a performance driven fuel cycle that boosts fuel efficiency, cuts tritium inventory, and maximizes heat transfer for power conversion, enabling safe, high-performance, cost effective, fusion energy systems.	**ffc.inc**	**ffc.inc/contact**	**YES**
FUSION ENERGY INSIGHTS	**Fusion Energy Insights (UK)** Provides actionable information to the fusion industry. Followers benefit from articles, videos and news. Subscribed members learn about developments in fusion and discover specific challenges to commercial fusion through expert Insights, Q&As and technical discovery sessions.	**fusionenergyinsights.com**	**hello@fusionenergyinsights.com**	**YES**

	Company description	Website	Contact Information	Completed Survey?
Helixos	**Helixos (US, Australia)** Helixos is a consultancy that works to commercialize fusion energy through business strategy, communications, and technical advisory, including commercialization strategies, supply chain assessments, technoeconomic analyses, and communications. It also helps governments set roadmaps for fusion energy development and deployment.	**helixos.co**	**contact@helixos.co**	**YES**
Hexium	**Hexium Inc (US)** Hexium is advancing domestic isotope enrichment to fuel the nuclear renaissance.	**hexium.us**	**contact@hexium.us**	**YES**
IDOM	**IDOM (Spain)** IDOM provide professional services in consulting, engineering and architecture and has been active in fusion for over 15 years, serving several public and private fusion initiatives, including ITER, JET, IFMIF-DONES, STEP and five fusion start-ups.	**idom.com**	David Zaragoz: **dzaragoza@idom.com**	**YES**
KTC Keller Technology Corporation EST. 1918 We manufacture the future.	**Keller Technology Corporation (US)** KTC is a custom equipment manufacturer, specializing in precision machining, fabrication, welding, assembly, integration and testing.	**kellertechnology.com**	**amreardon@kellertechnology.com**	**YES**
KINECTRICS	**Kinectrics (Canada, US)** Kinectrics delivers solutions to the clean energy market, including advanced fusion-enabling technologies covering a broad range of critical services: licensing and engineering, component R&D and testing, specialized materials, high-power electronics lifecycle testing, isotope separation equipment, hands-on tritium management expertise, and turnkey delivery of fusion fuel cycle subsystems.	**kinectrics.com**	**info@kinectrics.com**	**YES**

	Company description	Website	Contact Information	Completed Survey?
LEONARDO	**Leonardo Electronics US Inc. (US)** Offers laser diode solutions that excel in the most challenging environments and applications in defense and commercial markets.	**leonardo.us**	**lukas.gruber@leonardo.us**	**YES**
materials design	**Materials Design (US, France)** The leading atomistic simulation software and services company for materials. It helps customers design new materials, predict their properties, and generate value through innovation.	**materialsdesign.com**	**info@materialsdesign.com**	**YES**
METOX	**MetOx International, Inc. (US)** Houston-based manufacturer of high temperature superconducting wire.	**metoxtech.com**	**connect@metoxtech.com**	**YES**
MiRESSO	**MiRESSO (Japan)** Addressing the global challenge of beryllium shortages in fusion power. Masaru Nakamichi and his team developed a revolutionary low-temperature refining technology, significantly reducing costs and energy use, compared to traditional high-temperature processing.	**miresso.co.jp/en**	**+81-50-1722-8426**	**YES**
MOLTEN SALT SOLUTIONS	**Molten Salt Solutions (US)** Molten Salt Solutions is a technology spinout from Los Alamos National Laboratory. The company is developing solvent exchange systems for large-scale lithium isotope enrichment.	**moltensaltsolutions.com**	**elling@moltensaltsolutions.com**	**YES**
NEXT STEP FUSION	**Next Step Fusion (Luxembourg, UK, US)** A software development and AI/ML company in the fusion industry. It develops tokamak design and simulation software, AI/ML-based plasma control solutions, and digital twins for tokamaks and future fusion reactors.	**nextfusion.org**	**info@nextfusion.org**	**YES**

	Company description	Website	Contact Information	Completed Survey?
OCEM POWER ELECTRONICS	**OCEM Power Electronics (Italy)** Since 1946, OCEM Power Electronics has supplied power systems to research laboratories worldwide, enabling advances in plasma physics, particle physics and medical research.	**ocem.eu**	**miguel.pretelli@ocem.eu**	**YES**
OPTOMAN	**OPTOMAN (Lithuania)** A super-optics hero that designs, develops, and manufactures highly customized high-power and longevity laser optics designed to meet the demands of fusion energy.	**optoman.com/industry/optics-for-laser-fusion-energy**	**info@optoman.com**	**YES**
OPW CLEAN ENERGY SOLUTIONS a DOVER company	**OPW Clean Energy Solutions, a Dover Company (US)** A leading company for cryogenic systems and components, it supplies insulated pipes, valves, and all other cryogenic systems that support markets, such as industrial gases, hydrogen, helium, and LNG.	**opwces.com**	**support@opwces.com**	**YES**
Omniseal Solutions SAINT-GOBAIN	**Omniseal Solutions (US)** Produces precision sealing and wear control solutions that are custom engineered to protect critical applications in the most demanding environments: cryogenic, high temperature/pressure, ultra-high vacuum, tight tolerances, and leakage control.	**omniseal-solutions.com**	**nathan.handschke@Saint-Gobain.com**	**YES**
OXFORD SIGMA	**Oxford Sigma (UK, US)** Oxford Sigma tackles energy security and climate change by accelerating the commercialisation of fusion energy. It focuses on areas that it sees as enablers for this, such as leading international standardization of fusion components, producing key advanced materials for fusion core applications, and strategy leaders in materials for fusion.	**oxfordsigma.com**	**info@oxfordsigma.com**	**YES**

	Company description	Website	Contact Information	Completed Survey?
Paragon D&E	**Paragon D&E (US)** Paragon D&E is an advanced manufacturing company based in Grand Rapids, Michigan, specializing in design, prototyping, and contract manufacturing. With expertise in precision machining and complex assemblies, we serve a range of high-tech industries including Fusion Energy, Aerospace, Defense, and Nuclear.	**paragonde.com**	**cpike@paragonde.com**	**YES**
peak	**Peak Nano (US)** Harnessing revolutionary nanotechnology breakthroughs for defense, energy, and communications. Its Peak Nanoplex™ technology is a US-manufactured metamaterial, surpassing traditional material science-based substances.	**peaknano.com**	**swalsh@peaknano.com**	**YES**
PFEIFFER VACUUM	**Pfeiffer Vacuum (Germany)** One of the leading providers of vacuum technology globally.	**pfeiffer-vacuum.com/global/en**	**andreas.schopphoff@pfeiffer-vacuum.com**	**YES**
pillsbury	**Pillsbury (US)** Pillsbury is one of the world's foremost law firms, advising technology companies and their investors, as well as clients in the life sciences, energy & infrastructure, financial sector and other industries around the globe. Pillsbury is home to a dedicated fusion practice.	**pillsburylaw.com/en**	**sidney.fowler@pillsburylaw.com**	**YES**
PJF PRECISION JIG & FIXTURE	**Precision Jig and Fixture Inc (US)** Produces complex plasma-facing components for the fusion industry. Its skilled team and precision equipment allow it to produce high quality, tight tolerance parts. The company utilizes its extensive fixturing and metrology experience to provide unmatched service and quality.	**pjfinc.com**	Chris McColley **cmccolley@pjfinc.com**	**YES**

	Company description	Website	Contact Information	Completed Survey?
radiasoft	**RadiaSoft (US)** Offers design, optimization and support for particle beams, high-power lasers, X-rays, plasmas and related technologies. RadiaSoft provides every aspect of software support, from user interfaces to multi-physics modeling to real-time controls to parallel and cloud computing.	**radiasoft.net**	**sales@radiasoft.net**	**YES**
research instruments	**RI Research Instruments GmbH (Germany)** Develops, engineers and manufactures high-performance components and systems and provides solutions for scientific and industrial applications for customers around the globe. Products range from prototypes and custom-tailored components to series production and turn-key systems.	**research-instruments.de/en**	**sales@research-instruments.de**	**YES**
KIND	**Rolf Kind GmbH (Germany)** For over 25 years, Rolf Kind has forged high added value products for the fusion industry. It is a key supplier for all fusion projects in the public and private sector. It is also involved in various fusion R&D programs. It works as a Tier 1 or Tier 2 in this industry.	**r-kind.de/en**	**benoit.forien@r-kind.de**	**YES**
Röchling	**Röchling Industrial SE & Co. KG (Germany)** Offers tailored material solutions for branches where high mechanical properties combined with superior dielectric properties are required. One of its core businesses is the energy industry, in detail insulation and structural components for power transformers, generators and thyristors, like threaded rods and nuts, machined components, pultruded profiles and compressed sheets.	**roechling.com**	Alexander Lichtner **alichtner@roechling.com**	**YES**

	Company description	Website	Contact Information	Completed Survey?
SIGMAPHI	**SIGMAPHI (France)** For over 40 years, the Sigmaphi team has been dedicated to particle accelerator technologies and superconducting magnets. SIGMAPHI designs and manufactures magnetic systems (resistive and superconducting magnets and injection/extraction systems for particle accelerators) for research centers, cancer treatment centers and the fusion field.	**sigmaphi.fr/en/home**	**slongelin@sigmaphi.fr** +33652747092	**YES**
SIMIC A PASSION FOR CHALLENGES	**SIMIC (Italy)** With strong expertise in the nuclear and fusion sectors - including contributions to ITER, DTT and CFS projects - SIMIC delivers precision components and turnkey solutions across the entire project lifecycle. From engineering and prototyping to manufacturing of series production, it ensures full compliance with the stringent standards of the nuclear industry..	**simic.it**	**pierpaolo.bianchino@simic.it**	**YES**
STELLAR ENERGY FOUNDATION	**Stellar Energy Foundation**	**stellarenergyfoundation.org**	**stellarenergyfoundation.org/contact-us**	**YES**
Sumitomo Corporation of Americas	**Sumitomo Corporation of Americas (US)** Sumitomo is aiming to introduce nuclear fusion power generation, especially to Japan and other Asian countries.	**sumitomocorp.com/en/us/scoa**	**sumitomocorp.com/en/us/info**	**YES**

	Company description	Website	Contact Information	Completed Survey?
TELEDYNE TECHNOLOGIES Everywhereyoulook	**Teledyne Brown Engineering (US)** A leader in the design and manufacture of nuclear components and systems, operating under NQA-1 and AS9100D/ISO 9001:2015 quality requirements.	**teledyne.com/en-us**	**joel.manship@teledyne.com**	**YES**
THALES Building a future we can all trust	**Thales (France)** The people who keep us healthy, safe, and connected rely on systems empowered by Thales Microwave and Imaging Sub-systems. Thales designs and delivers best-in-class X-ray imaging and power amplification solutions to leading manufacturers of satellite, defense, scientific, and medical systems.	**thalesgroup.com/en**	**+33(0)157778000**	**YES**
Ulbrich	**Ulbrich Stainless Steels and Special Metals Inc. (US)** A raw material converter of stainless steel, titanium, and nickel alloys in sheet, strip and wire forms. It supplies power generation, aerospace, automotive, solar, oil & gas, industrial, and consumer markets worldwide.	**ulbrich.com**	**amays@ulbrich.com**	**YES**
Westinghouse	**Westinghouse Electric Company LLC** Westinghouse Electric offers engineering and R&D services for the design, development and construction of fusion powerplant facilities outside the boundaries of the fusion reaction chamber.	**westinghousenuclear.com**	**lahodaej@westinghouse.com**	**YES**

FIA Affiliate Members

FUSION
INDUSTRY ASSOCIATION

Fusion Industry Assocation
1445 Pennsylvania Ave, NW
Suite 320
Washington, DC 20004
www.fusionindustryassociation.org

X.com/Fusion_Industry
linkedin.com/company/fusion-industry-association
youtube.com/c/FusionIndustryAssociation
bsky.app/profile/fusionindustry.bsky.social
open.spotify.com/show/0pb8N7IL4YdgL3SIHKyGUs?si=0e2d94b2bc78456d