GAUSS FUSION

Establishing Commercial Fusion In Europe

Complementing solar and wind for a full sustainable energy mix

Dutch Fusion Day
Eindhoven | May 3rd, 2024

Vision: Combining the best from private and public sector to deliver fusion

FUSION WITH INTEGRITY

Founders

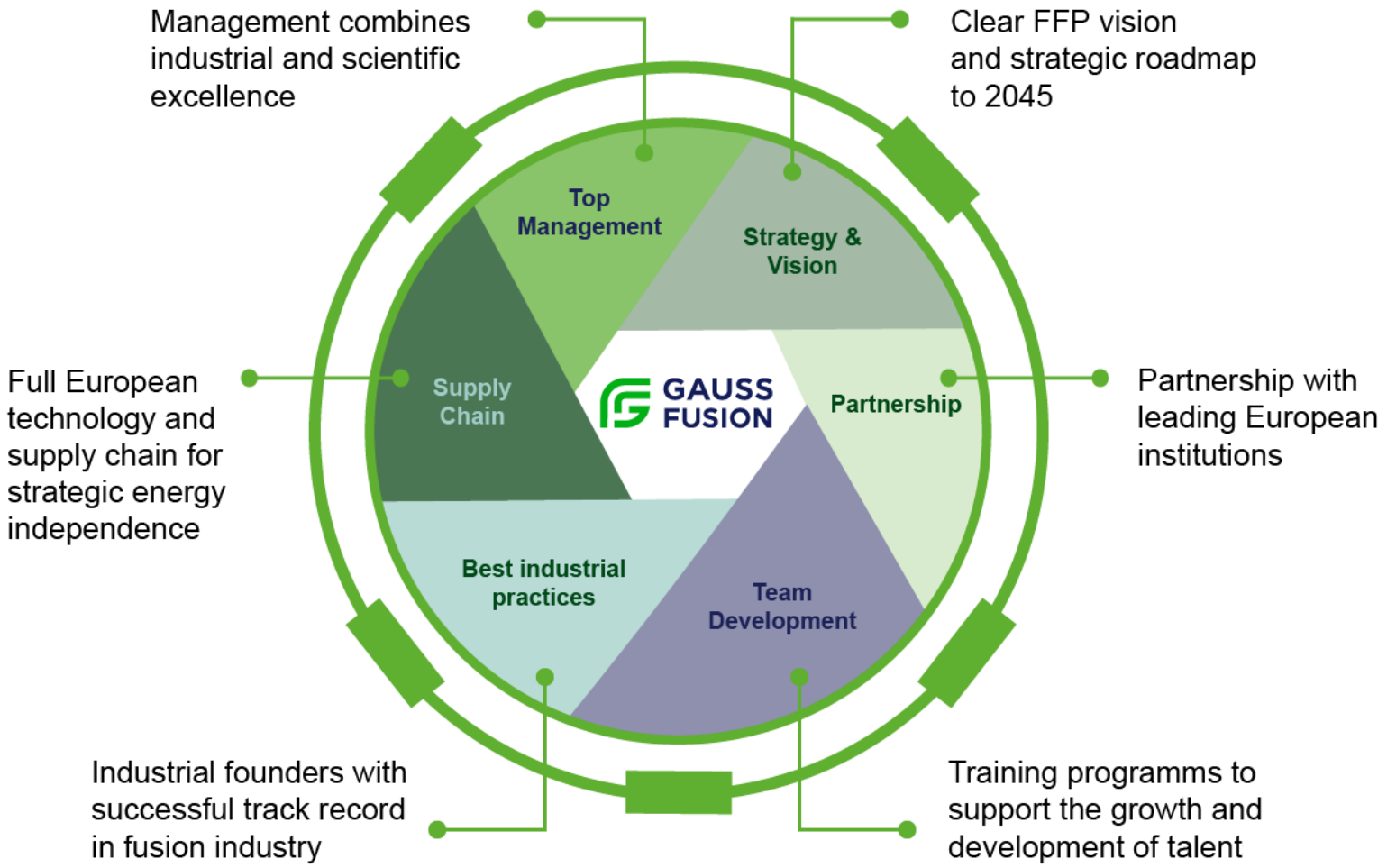
ASG SUPERCONDUCTORS

ALSYMEX ALCEN

BRUKER

IDOM

research instruments



Partnerships

CERN

Max-Planck-Institut für Plasmaphysik

KIT Karlsruher Institut für Technologie

ENEA

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

... further partnerships in discussion

GAUSS FUSION FOUNDERS

Already key industrial players in the fusion ecosystem today

ALCEN

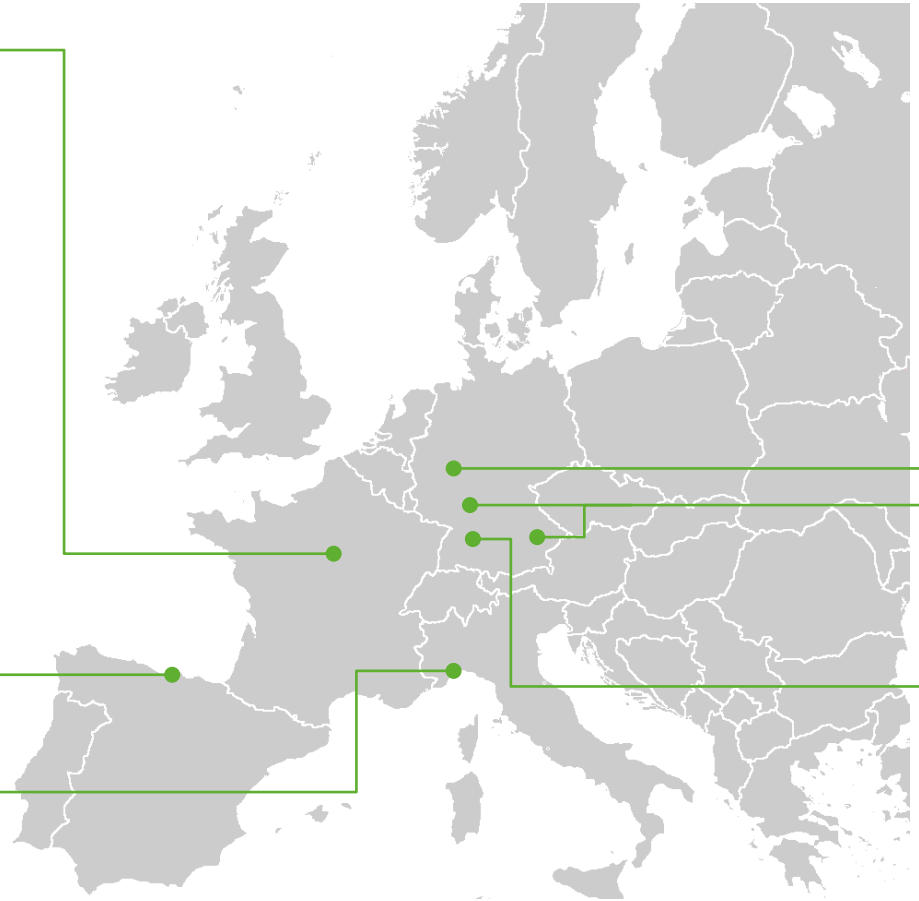
Paris, France
Instrumentation, heating systems

IDOM

Bilbao, Spain
Engineering, diagnostics

ASG SUPERCONDUCTORS

Genoa, Italy
Superconducting magnets



research instruments

Bergisch-Gladbach, Germany
Cryotechnology, Diagnostics

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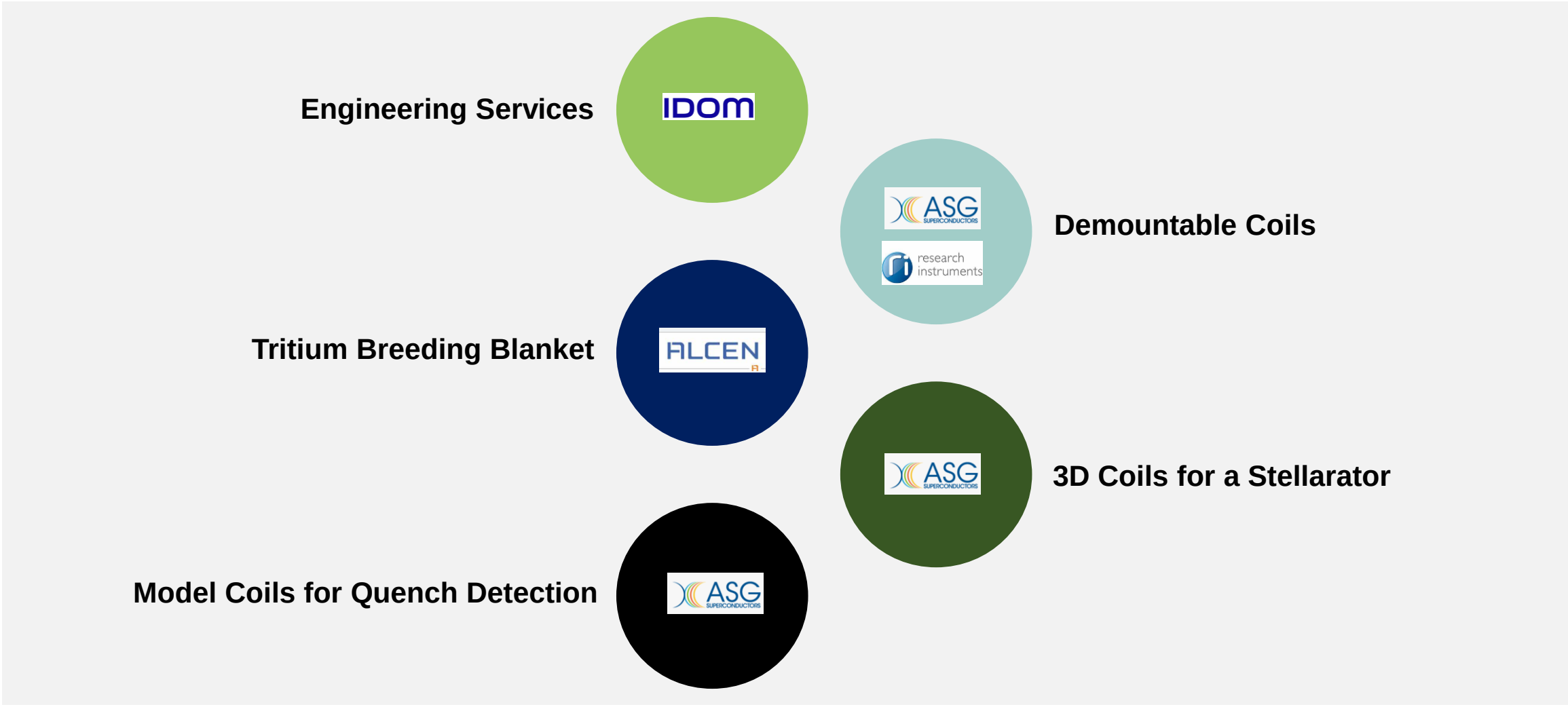
Hanau, Germany
Garching, Germany

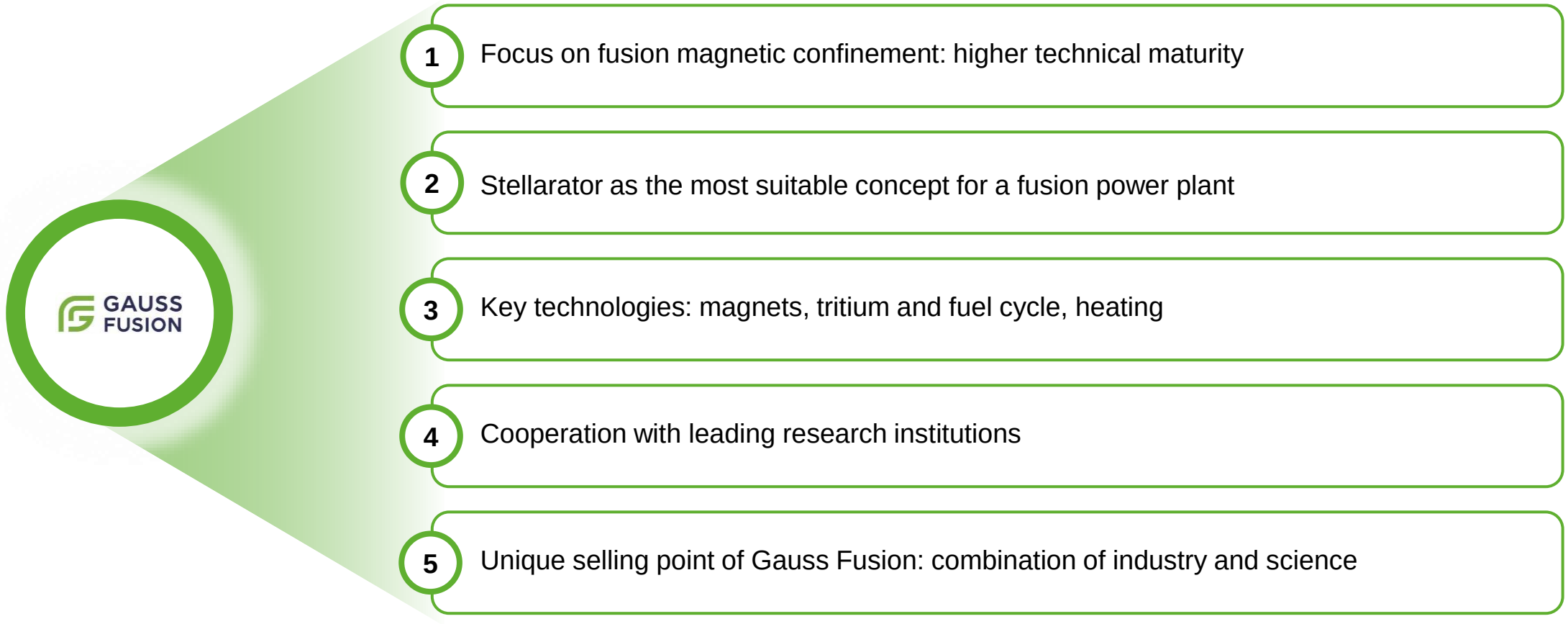
BRUKER

Hanau, Germany
Superconductors

Projects with current shareholders

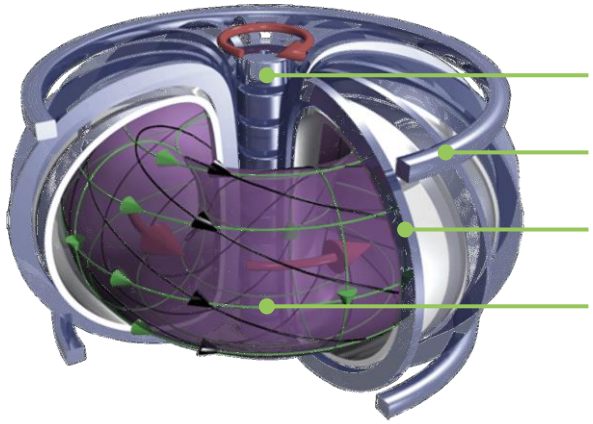


Five key strategic elements for Gauss Fusion

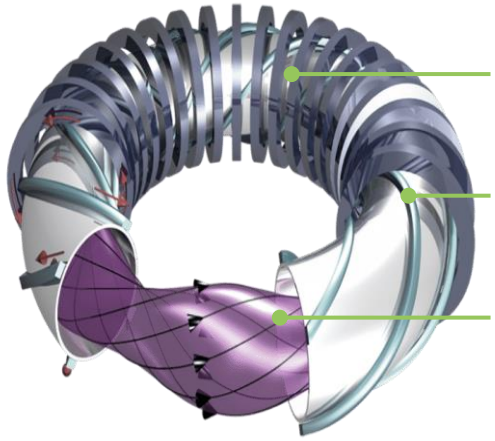


Gauss Fusion study: Stellarators are best-suited for power plants

Tokamak



Stellarator



Overview	• **External Coils** and current induced in plasma produce magnetic fields	• **Complex twisted coils produce fields**
TRL	⊕ High	≈ Medium
Type of coils	⊕ Simple coils	≈ Complex coils
Operation	⊖ Limited discharge time	⊕ **Continuous operation**
Plasma	⊖ Instabilities due to plasma current	⊕ **Stable plasma**

⊕ Favorable
≈ Mixed
⊖ Unfavorable

Source: ITER, CEA, Max Planck IPP

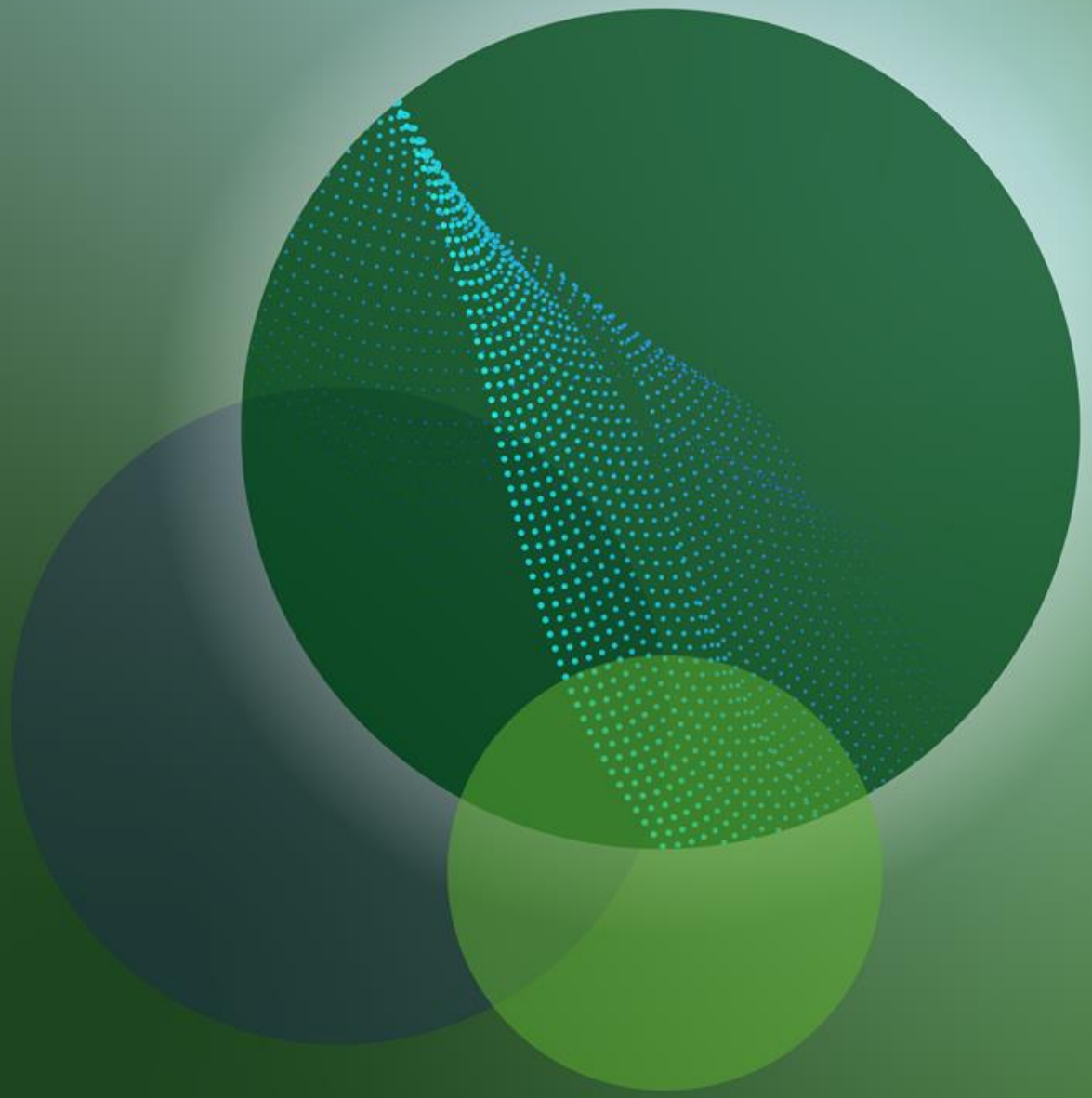
Misconceptions about fusion

Unproven concepts

Fusion is always 30 years away, and always will be

Unrealistic time scales

Competing for public funds



Fusion energy:
Answer to the big energy question

“I would like nuclear fusion to become a practical power source. It would provide an inexhaustible supply of energy, without pollution or global warming.“

Stephen Hawking - Theoretical physicist and astrophysicist

The EU is targeting climate neutrality

2005

Implementation of the carbon market (ETS) to trade greenhouse gas emission rights

2015

Adoption of the Paris Agreement to keep global warming well below 2°C

2021

European climate law with the objective of a climate neutral EU by 2050

The "Fit for 55 by 2030" is the EU's legislative package to achieve the 55% greenhouse gas reduction target by 2030

2022

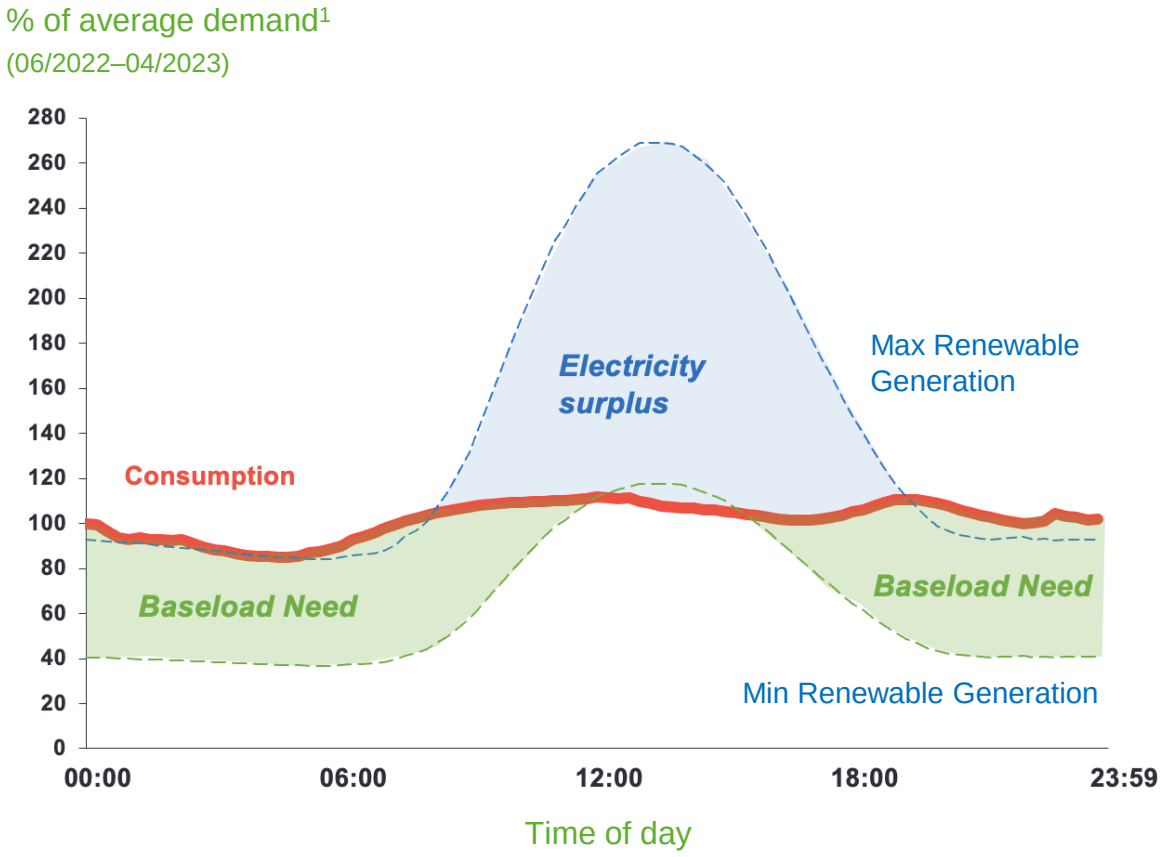
Ban on the sale of new internal combustion engine passenger cars and light trucks starting in 2035

Implementation of a border carbon adjustment mechanism to set a carbon price for imports of certain products into the European Union

Source: European Commission

Current renewables do not guarantee sufficient and stable energy generation

Consumption vs generation, full wind/solar scenario



Solar and wind are clean but imperfect solutions

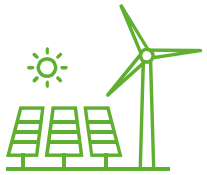
Intermittence	• Need to balance production fluctuations • Requires storage and/or baseload power
Price volatility	• Dependence on gas/coal costs • Volatility for electricity price
Sovereignty	• Requires interconnection • Increases dependency on other countries

Source:[1] RTE. Assuming mix of 60% wind and 40% solar, following RTE full RE 2050 scenario, considering wind and solar only.

Complementing solar and wind power to provide baseload electricity

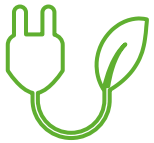
Electricity consumption in Europe will increase by +25% to +70% in 2050[1]

Electricity consumption is increasing due to the penetration of electric vehicles, electrification of industrial process and production of decarbonated hydrogen. Regulation is pushing for cleaner electricity.



Solar and wind are clean, but imperfect solutions

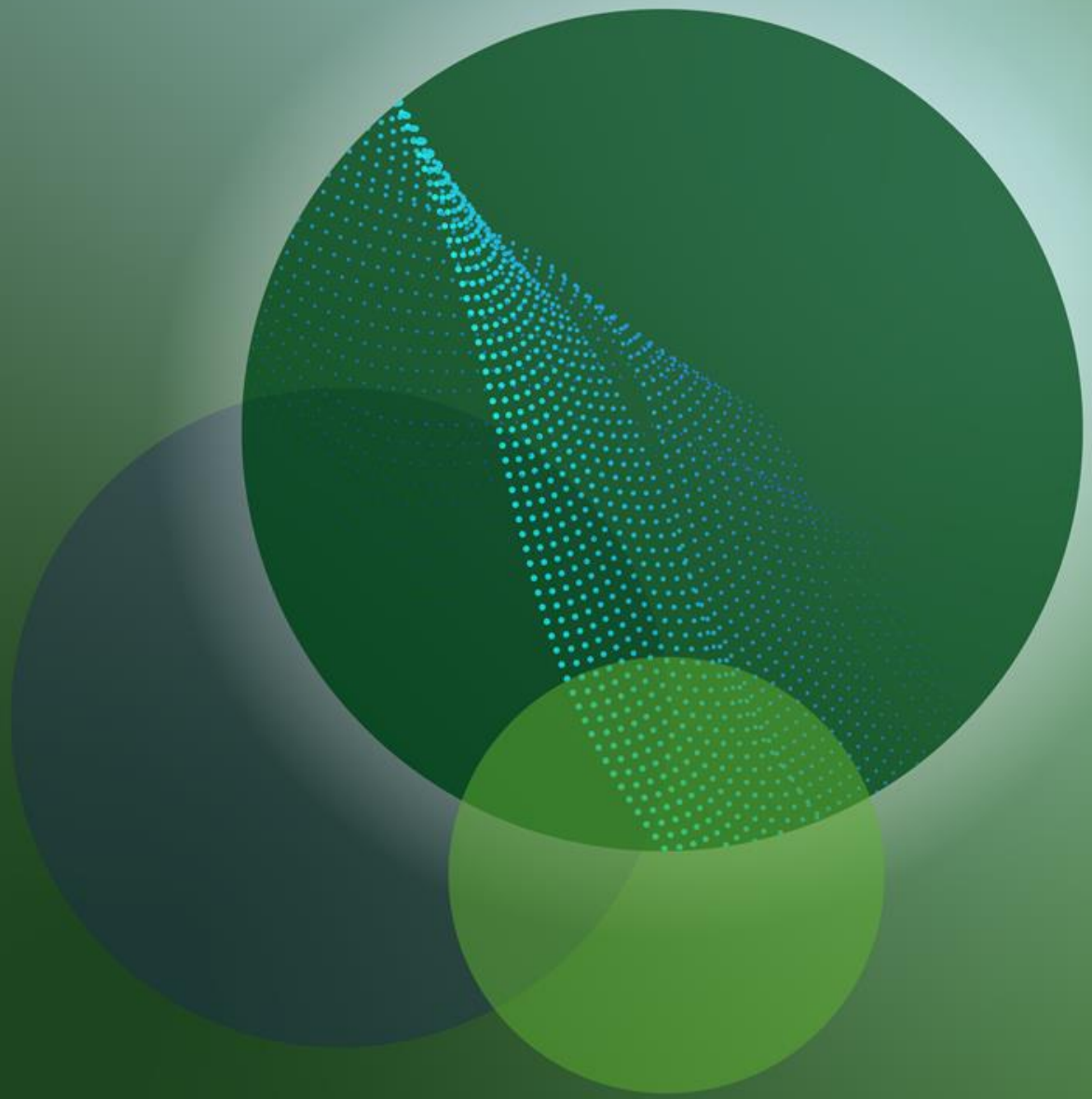
Solar and wind present several drawbacks: both are intermittent and uncontrollable and require massive investment in grid and storage flexibility solutions.



Fusion is the most promising clean solution for baseload electricity

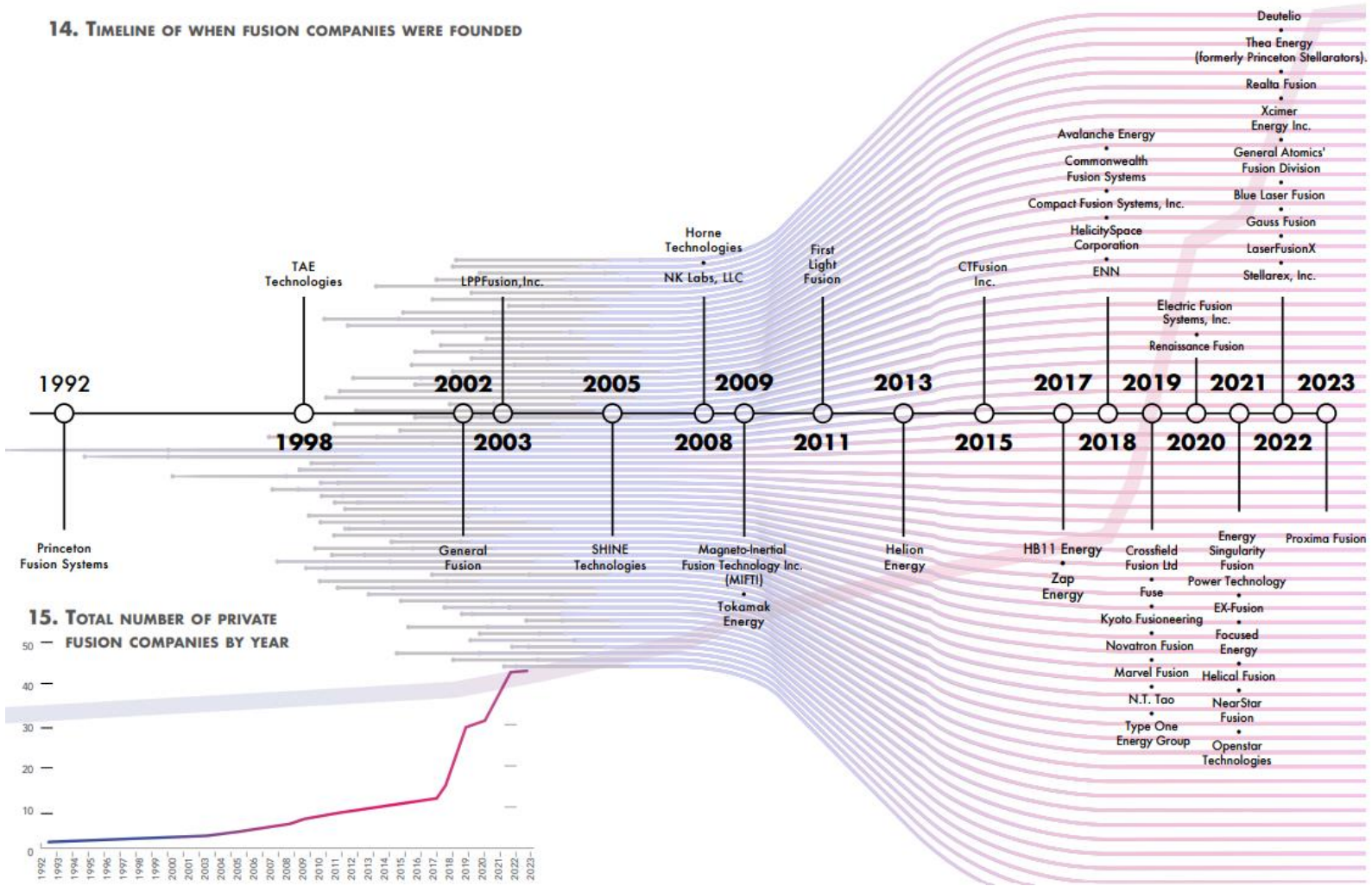
Fusion energy is a clean, safe and reliable source of energy that will complement renewables. It will provide the ultimate in clean baseload electricity, without releasing greenhouse gases or creating long-life waste.

Source:[1] IEA STEPS and APS Scenario for European Union, World Energy Outlook 2022; compared with 2021



Overview of the current fusion landscape

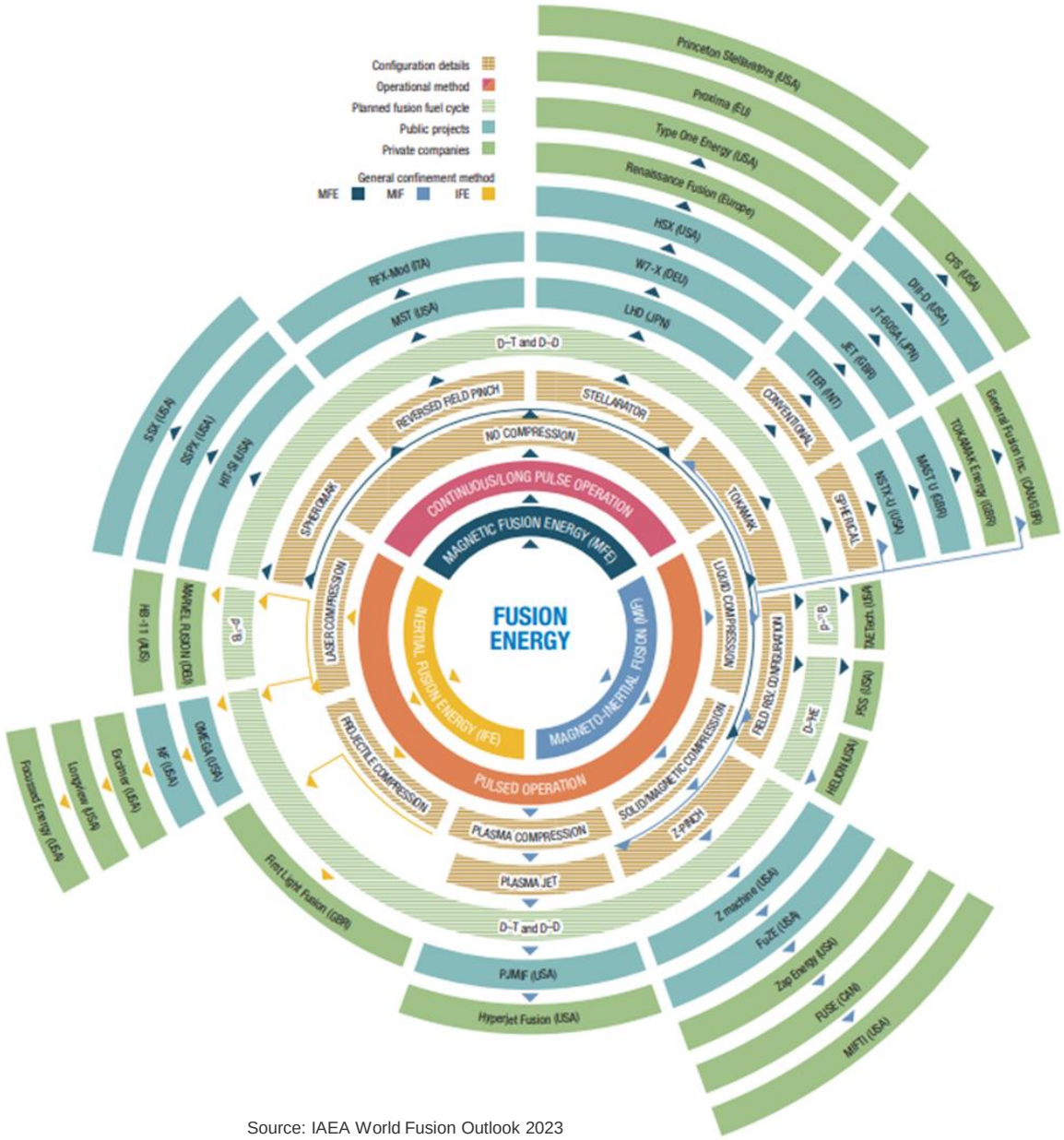
Fusion investments remain strong



- Fusion investments kept strong after significant capital raises in 2021 and 2022.
- 2023 funding went in smaller amounts to early-stage companies.
- 13 new companies were added, totaling 43 fusion players. Three of them are no longer in business.
- Two increases of over $100 million – TAE Technologies in California and ENN in China.
- Traditional Venture Capital investors have grown comfortable investing in fusion but limited to the “Seed” or “Series A”.
- To support continued growth and outlast competition, need to bridge a possible “valley of death” by bringing new investors with different pools of capital or following-on financing portfolio companies.

Source: 2023 GlobalCleanTech100 Energy & Power Report

140+ players



Source: IAEA World Fusion Outlook 2023

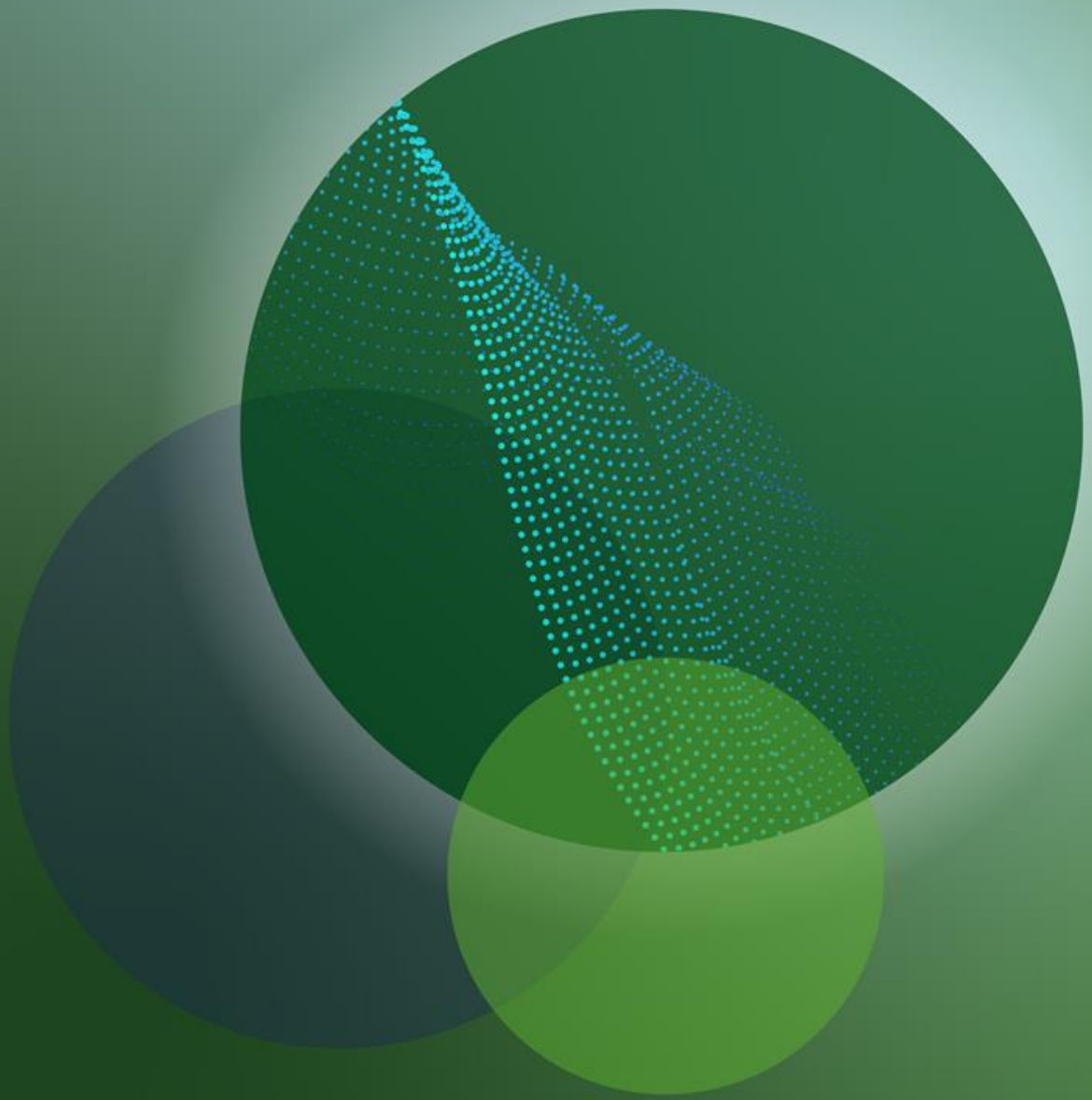
Clear trend towards government interest in fusion, still in early stages

Private Funding on Fusion Companies

Public Private Partnerships

- **In 2023 for the first time 18 companies reported involvement in a PPP with government.**
- **The United States, Japan, and Germany made announcements in early 2023 about new programs to support fusion commercialization, in addition to the already robust support in the United Kingdom.**
- **A regulatory framework for fusion is moving forward as well, with the United Kingdom being the first-mover, followed by a decision by the U.S. Nuclear Regulatory Commission in April 2023.**
- **This regulatory expected to de-risk fusion and unlock further private investment.**
- **As fusion grows, perhaps these public-private partnerships can help to bridge the "valley of death" if private markets cannot.**

Source: FIA The Global Fusion Industry in 2023



The fusion age has begun

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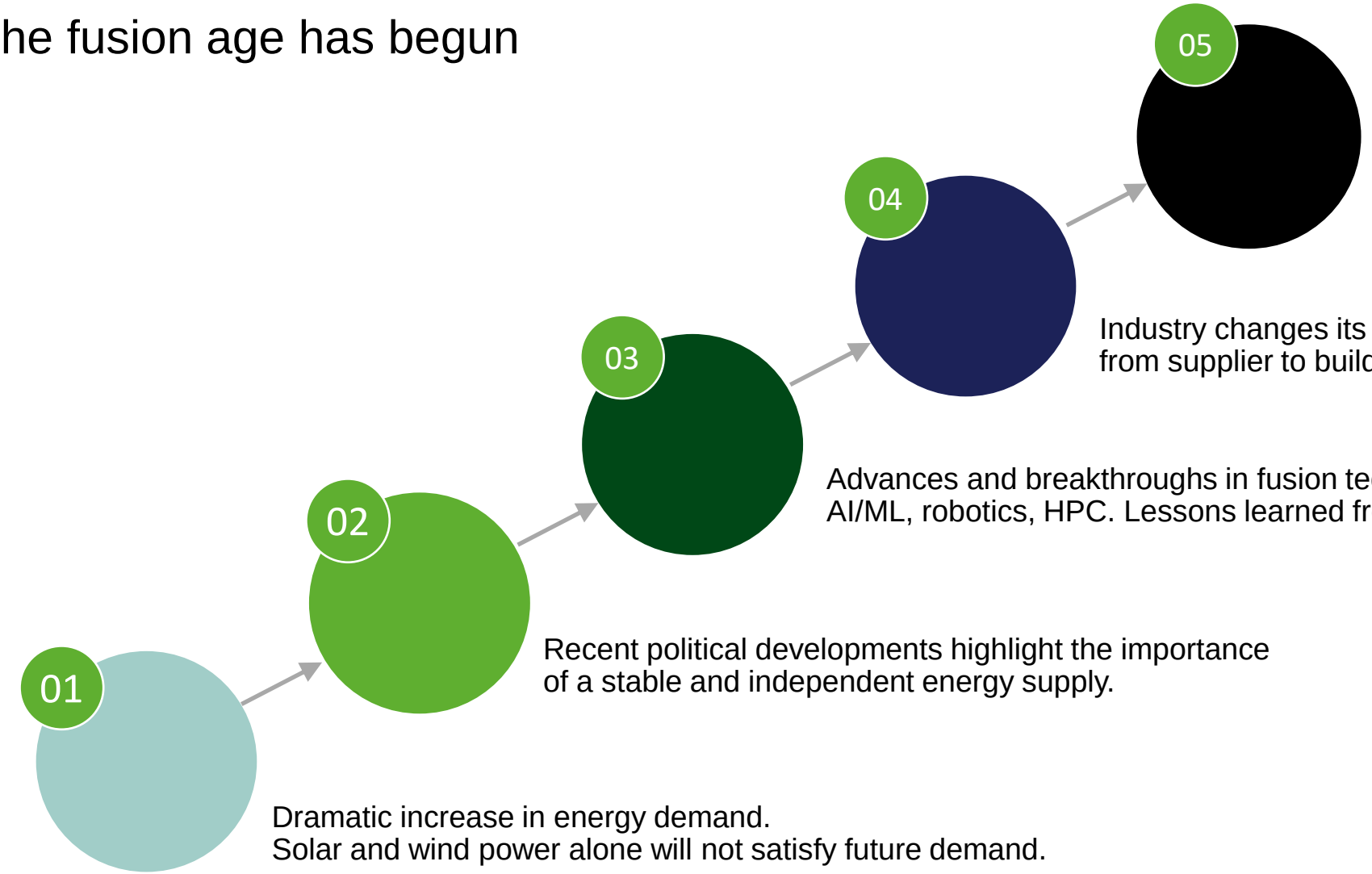


Dramatic increase in energy demand.
Solar and wind power alone will not satisfy future demand.

Recent political developments highlight the importance of a stable and independent energy supply.

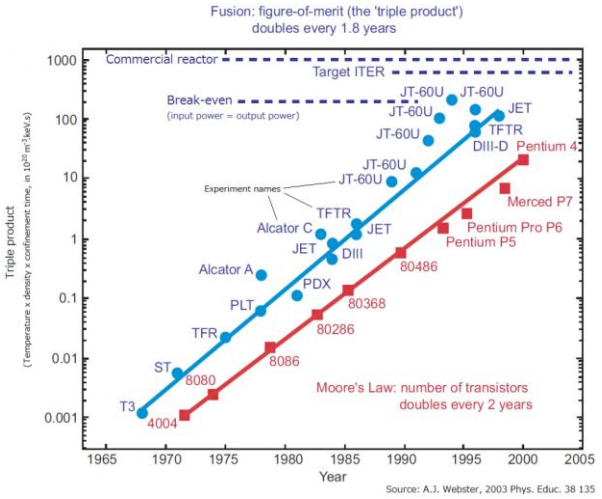
Advances and breakthroughs in fusion technology, AI/ML, robotics, HPC. Lessons learned from ITER.

Industry changes its role and takes the lead: from supplier to builder

Fusion becomes an economic factor that can lead Europe to an industrial renaissance

Don’t ask what fusion can do for you, ask what you can do for fusion

Boldness



”They said it couldn’t be done, but the fool didn’t know it, so the fool went ahead and did it.”

- Albert Einstein

Collaboration

"If you want to go fast, go alone. If you want to go far, go together."

- African Proverb

Education

"Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less."

- Marie Curie

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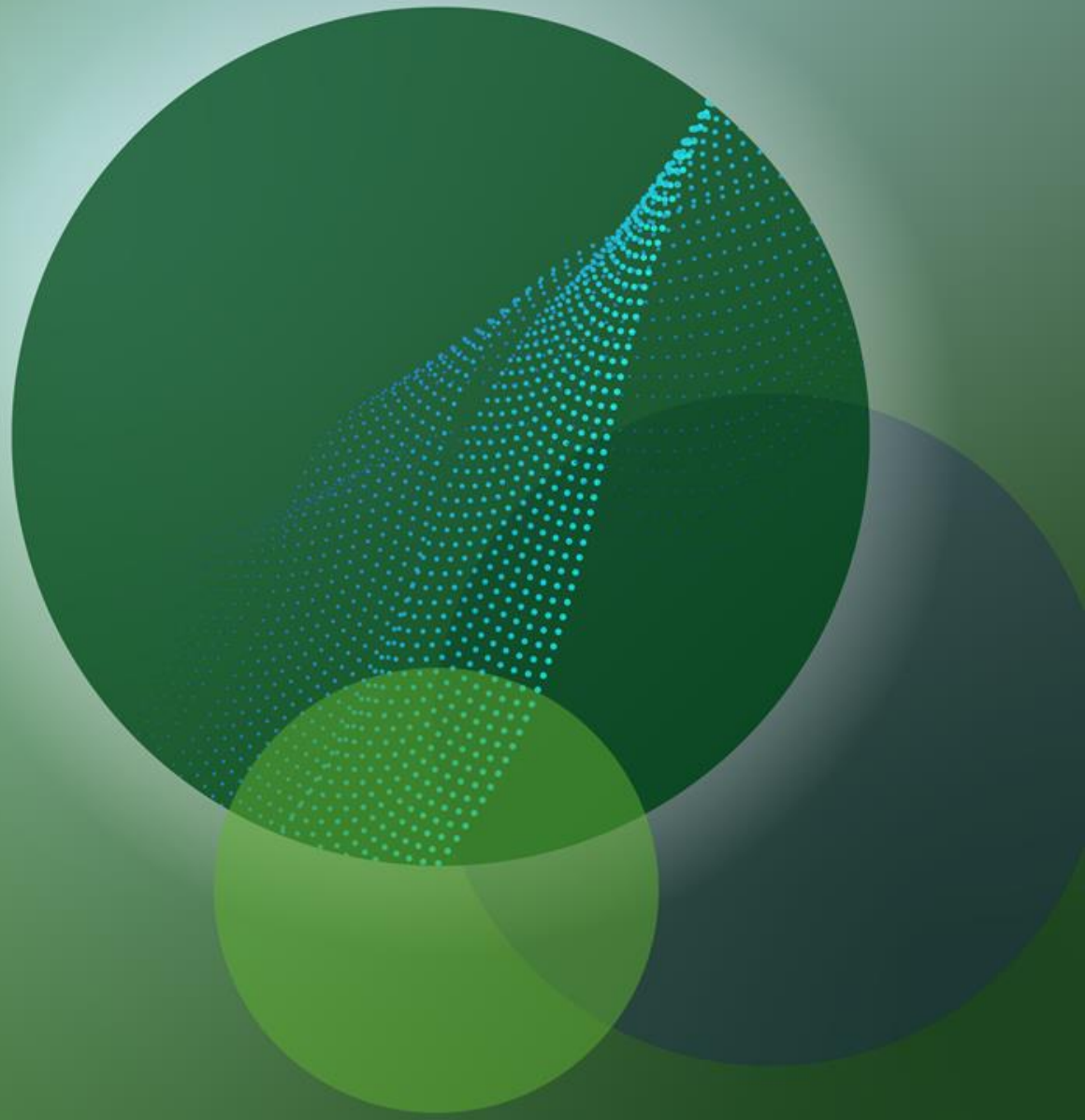

Thanks for your attention!