# Energy Innovation Forum 2026

Summary and key insights

International Energy Agency

# The State of Energy Innovation 2026

- Attention is on technologies that could address **security**, **competitiveness**, **affordability goals**, as well as **environmental concerns**
- Some regions have been **raising public energy innovation funding** towards 0.1% GDP (e.g. Europe), but **spending overall has stopped growing**, leaving funding gaps
- **Battery innovation is not slowing down**. Future waves of battery inventions may be just as transformative for the energy sector as past ones, creating multiple industrial opportunities.

- **Action areas for 2026:**
    1. Take strategic decisions. Target the intersections of key policy goals
    2. Close funding gaps. Don’t leave promising technologies to fail needlessly.
    3. Establish partnerships. Find the platforms for matchmaking and sharing effort.
- **Urgency drives innovation**, while **policy certainty** drives revenue. Uncertainty undermines both.
- Many **companies & investors’ risk appetites** are still **misaligned** with **energy technology policy**

# Breakout on grids & breakout on fusion

- Resilient-grid technologies:
  - **Challenge I:** The grid is no longer just wires; it is a living, software-defined system. Stability depends on deploying a range of technologies.
  - **Actions:** Create incentives for AI, digital twins, grid-forming inverters, storage, flexible demand (EVs, data centres), and high-quality data to monitor, plan and optimise.

  - **Challenge II:** The enabling ecosystem is not ready; bottlenecks include regulatory frameworks, procurement rules, financing models, risk allocation, workforce capacity and slow planning cycles.
  - **Actions**: Make resilience the organising principle, with grids as strategic assets, requiring strong data governance, skills and deeper international cooperation.

- Towards gigawatts of fusion:
  - **Challenge:** As fusion transitions from research to development, there is tension between private companies generating IP and protecting it, and public labs asking for full transparency.
  - **Action:** Monitor progress in a way that is accessible to policy makers; the IEA has a role to play.
  - **Action:** Develop regulations now to provide investors with stability for projects with long timescales.

# Breakout on sustainable fuels & plenary on first-of-a-kind projects

- Sustainable fuels
  - **Challenges:** The technology exists – how to de-risk investments to bridge the gap between pilots and commercial scale?
  - **Action:** Unlock investment with policy that implements existing legislation. Harmonise standards for global trade.
  - **Action:** First-mover disadvantage must become first-mover advantage; concrete mechanisms include shared risk vehicles, credit enhancement and bringing commercial banks into deal architecture.

- First-of-a-kind, large-scale projects
  - **Success requires:** Strong partnerships across the value chain, including customers. Choice of location according to local strengths (e.g. geology or input costs). Robust business models. Courage!
  - **Challenges:** These projects are marathons. Need funders and policy makers to stay the course at each new turn (including the unexpected ones), otherwise the project cannot deliver its full value.
  - **Action:** Adjust public support measures to target key risks and knowledge gaps for each technology.
  - **Action**: Co-operate on metrics & processes (e.g. insurance & permits) to move swiftly from FOAK to global replication. Extract transferrable lessons!

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