

# Energy and hydrogen: the green challenge for a sustainable future

October 3, 2025

**The Speck&Tech event at Wired Next Fest in Rovereto hosted Elena Crespi and Simone Angioni to explore the role of green hydrogen in the energy transition and to weigh the pros and cons of a sustainable future**

At [Wired Next Fest in Rovereto](#), [Speck&Tech](#) brought two different yet complementary voices to the stage: **Elena Crespi**, researcher at the [Center for Sustainable Energy](#) and Science Ambassador at Fondazione Bruno Kessler, and **Simone Angioni**, chemist, writer, and science communicator. Their perspectives guided the audience through the complex landscape of the energy transition, between the promises of green hydrogen and the broader challenges of building a sustainable future.

“Think of a plastic container, gasoline for your car, fertilizer for your garden, and a steel fork. My question is: what do they have in common?”

This question, which opened **Elena Crespi**’s talk, immediately captured the audience’s attention—because it concerns all of us. And the answer is not obvious: **hydrogen**.

From the Everyday to Global Challenges

Crespi explained how this molecule is already indirectly part of our daily lives, and how its production—largely reliant on fossil fuels—carries a significant environmental cost: over 900 million tons of CO<sub>2</sub> per year. These numbers clearly underline the urgency of shifting toward alternative energy systems.



Crespi led the audience into the world of electrolyzers, devices that generate hydrogen and oxygen from water using electricity—preferably from renewable sources. Among these, PEM (Proton Exchange Membrane) systems are among the most promising today, combining high-purity hydrogen production with fast response times. This makes them well-suited to operate with renewable electricity and to integrate into the power grid. At FBK’s laboratories, these systems are tested at both the **cell and stack** level: tools like polarization curves and impedance analysis help researchers assess their performance and identify ways to make renewable hydrogen production economically sustainable as well.

Crespi’s talk made it clear that hydrogen is not just a niche topic, but a key resource for the **energy transition**. On one hand, it offers a concrete **path to decarbonizing** “hard-to-abate” sectors such as steel and refining, where alternatives are still lacking. On the other hand, it can help stabilize the electricity grid by storing excess renewable energy and releasing it when needed—making the grid more resilient.

### Energy: The Pros and Cons of a Sustainable Future

**Simone Angioni**, chemist, writer, and science communicator, then took the stage for a journey through coal, sun, wind, and emerging technologies. In his talk, *“In Search of the Right Energy. Pros and Cons of a Sustainable Future,”* Angioni outlined our current **dependence on fossil fuels** and what lies ahead. He reviewed each energy source available today—rating them with stars. The conclusion? No single source will replace fossil fuels. *The transition must rely on a diverse mix of complementary sources, many of which are already more cost-effective than traditional fuels*

“We have the technology to free ourselves from fossil fuels, and it’s improving year after year. From a cost perspective, prices are falling rapidly,” Angioni explained. *However, he cautioned that the initial investment remains a key challenge—one that risks deepening social*

*inequality between those who can afford low-cost sustainable energy and those who are forced to remain tied to expensive and volatile fossil sources*

## An Invitation to Rethink Our Relationship with Energy

The **Speck&Tech 78 event, “Watt’s Next?”**, held on October 2 at Progetto Manifattura, was part of Wired Next Fest Trentino 2025, which this year focused on **energy**. The event offered a space where scientific research and science communication met, with the aim of encouraging an open and informed debate on sustainable future.

**Speck&Tech** is the Trentino tech community founded in 2016, made up of people united by a passion for technology, innovation, and science. In nearly 10 years, it has organized over 100 monthly events, each with a different theme, hosting speakers from diverse disciplines and fostering connections, collaborations, and an environment where ideas, networking, and innovation flow—often over a beer and a slice of speck.

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### PERMALINK

<https://magazine.fbk.eu/en/news/energy-and-hydrogen-the-green-challenge-for-a-sustainable-future/>

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- #celle
- #decarbonization
- #elettrolizzatori
- #energetic transition
- #energy
- #fbkscienceambassador
- #green hydrogen

- #hydrogen
- #PEM
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