

How to Pick and Start Green Breakthrough Technologies for the Energy Transition: the case of Spintronics

The Starting Points: Understanding the ICT Landscape

- Understand generative AI and its energy consumption issues.
- The state-of-the-art spintronics technology.
- Key players and ongoing research in spintronics and the readiness level of spintronics technology.

The Key Challenges

- Develop reliable and scalable high performance spintronic devices.
- Demonstrate overcoming current technological barriers and setting new trends.

The Strategic Plus

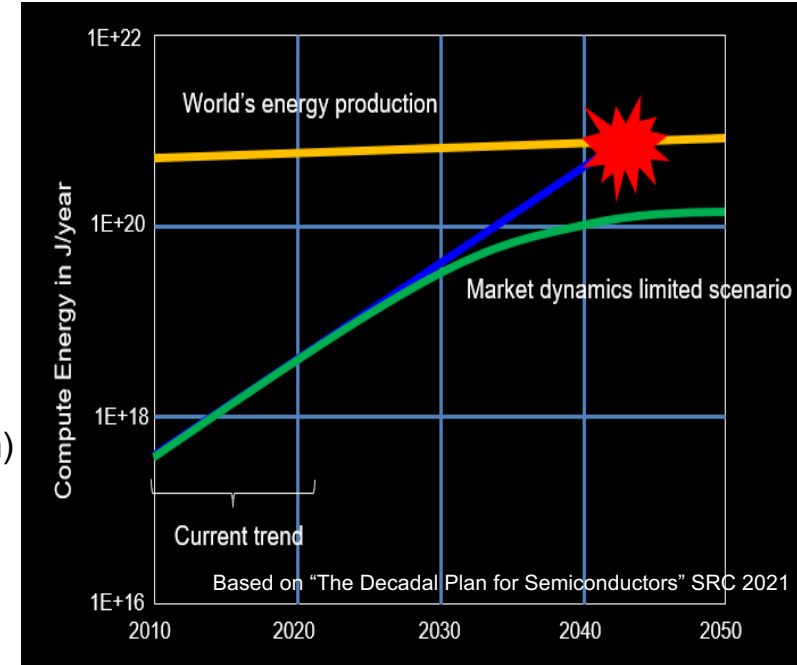
- Significant reduction in energy consumption for data storage and processing
(In Q2 23, 300 k units of Nvidia H100 were delivered to Meta & Microsoft this alone means 5 TWh consumption)
- Contributing to global energy transition and reducing carbon footprint.

The Must Do

- Invest in R&D to showcase the performance and energy consumption advantages.
- Demonstrate advantages at the integrated circuit level (expensive)
- Collaborate with academia and industry for knowledge and resource sharing

The Must Not Do

- Ignore advancements in existing technologies (performance, energy and cost).
- Neglect market demands and the competitive landscape.



DRAM

High Density

Volatile

Refresh

MRAM

Spintronics

High Density

Nonvolatile

No Refresh