Energy Security, total defence and the development of the energy system

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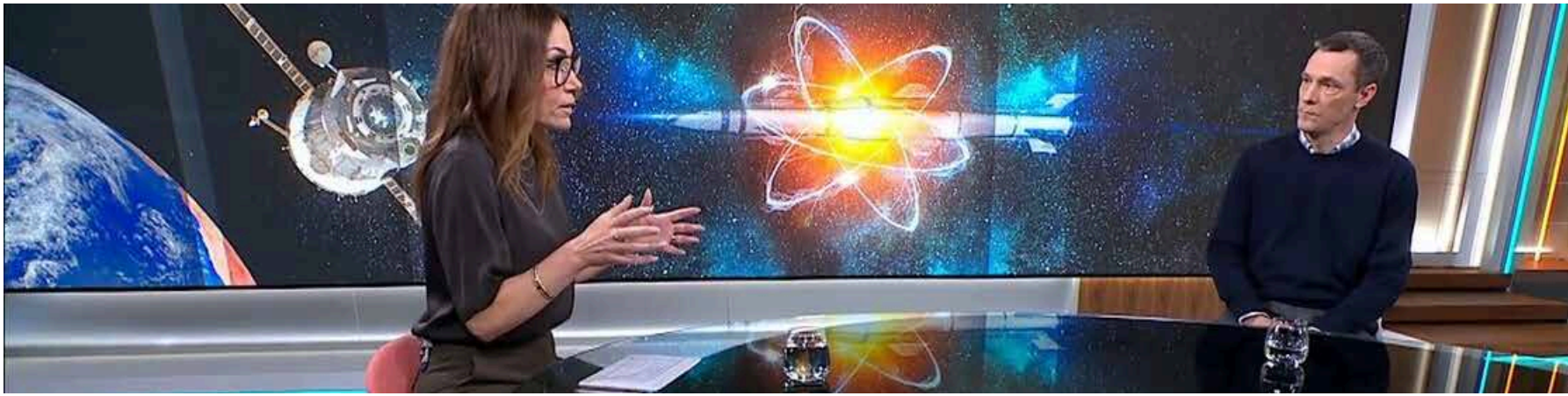

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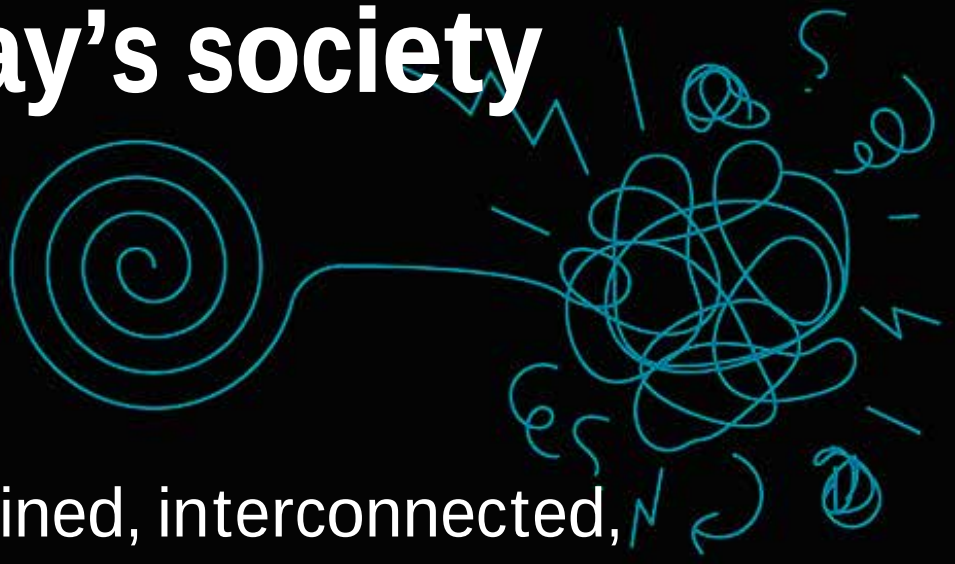
Developing today’s society



Future challenges are ill-defined, interconnected, and involve multiple perspectives and conflicting values.

The society is a wicked complex system with large uncertainties on how things affect each other (e.g. Putin, Trump, Covid-19, climate change, AI control…).

Example: Today’s effect on society from energy incidents increased because of uncertainties, e.g. Nord Stream and energy prices.

Nuclear power in Ukraine

Since 2022: Nuclear power among the highest levels of reduction despite the lowest level of (direct) attacks.

Total defence

War requires a whole-of-society approach, today in Northern Europe more than ever. The military defence cannot be separated from the civilian defence.

An adversary dynamically employs a mix of conventional weapons, irregular tactics, terrorism, and criminal behavior to achieve military goals.

- Basic (civilian) functions of society needs to be operational also under extreme stress.
- Civilian society needs to maintain a base functionality without military support.

A new reality for Sweden: possible total war without traditional war.

Energy Security

High Availability: Few external dependencies; Limited sensitivity to external disturbances and uncertainties.

High Applicability: Fits into the infrastructure; If damaged, consequences are limited to reduced power production.

High Acceptability: Fits with the expectations of society; Local positive effects (in everyday operation and in crisis and war)

High Affordability: Operation makes financial sense; Operation does not require external protection against disturbances.

Strategic challenges for nuclear power

The war we envision today is not the threat we face tomorrow—or maybe even close to the most difficult one.

In a conflict between Russia and NATO, the strategic implications would differ significantly from those of Russia's invasion of Ukraine. Consequently, Russia's decision-making regarding Ukrainian nuclear power facilities differ from its approach to nuclear facilities in Finland, Sweden, or France.

The uncertainties surrounding the future are considerable, yet the West has so far shown limited ability to develop systems that can effectively operate under conditions of high uncertainty.

Future energy systems

Distribute production and storage. Use decentralisation as passive, built-in protection against large-scale disruption and to reduce attacks.

Design for safe failure. Individual components, such as power plants, should be non-essential and able to fail without causing systemic consequences or effects other than production loss.

Make resilience locally valuable. During a crisis, local communities should have positive incentives to maintain and protect critical production and infrastructure.

Design for uncertainty. Operational and risk cultures should assume limited control and ensure that systems remain functional when events unfold in unexpected ways.

Should not assume military protection.

Thank you!

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