

What does science & technology studies (STS) say about the issues facing nuclear power?

Andy Stirling

a short talk for a panel session of a workshop on
Understanding the Societal Challenges Facing Nuclear Power

W: <https://profiles.sussex.ac.uk/p7513-andrew-stirling>

W: <https://steps-centre.org/>

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What does STS say of issues facing nuclear power?

'Sound science' tends to be far more political than is conventionally claimed

- **eg:** core melt frequency / reactor reliability / electricity costs / build rates ...
- clear empirical evidence that **uncertainties have been seriously downplayed**
- yet highly **precise optimistic claims** for advanced nuclear continue to be asserted

Directions for innovation are typically more open than protagonists acknowledge

- **1990s:** previously neglected CCGTs transformed OECD electricity in barely a decade
- **2010s:** overturned "impossibility" of sufficient, reliable, affordable 100% renewables
- yet emphatic assertions continue to be made that **advanced nuclear is “*necessary*”**

Like all technologies, advanced reactors embody power relations in hidden ways

- this was true until recently of fossil fuels: **curbing imaginations of alternatives**
- evident in current focus more on '*what can nuclear do?*', than '***what would be best?***'
- reason for privilege: **civil nuclear momentum stabilised by military nuclear interests**

Practical Upshot for Nuclear in Low-C Energy Mixes

Recognise and balance the effects of power in the framing of nuclear policy debates

- A rational focus is on *“challenges for energy”* not *“challenges facing nuclear”*
- Give balanced attention to pros and cons of **alternative zero C strategies**
- Be **rigorous in assumptions** about potential for *‘advance’* in different technologies
- Focus on **empirical realities**, eg: historical associations with **reduced C emissions**
- Attend to future processes of *‘path dependence’*, *‘lock-in’* and *‘crowding out’*
- Be open: **diverse energy portfolios** do not mean *“do everything”*, but rational choice
- Be candid about global **military drivers of attachments to nuclear infrastructures**
- Treat **possibilities of obsolescence** to be as relevant to nuclear as other technologies