

## Challenges of SMR Deployment in a Swedish Setting

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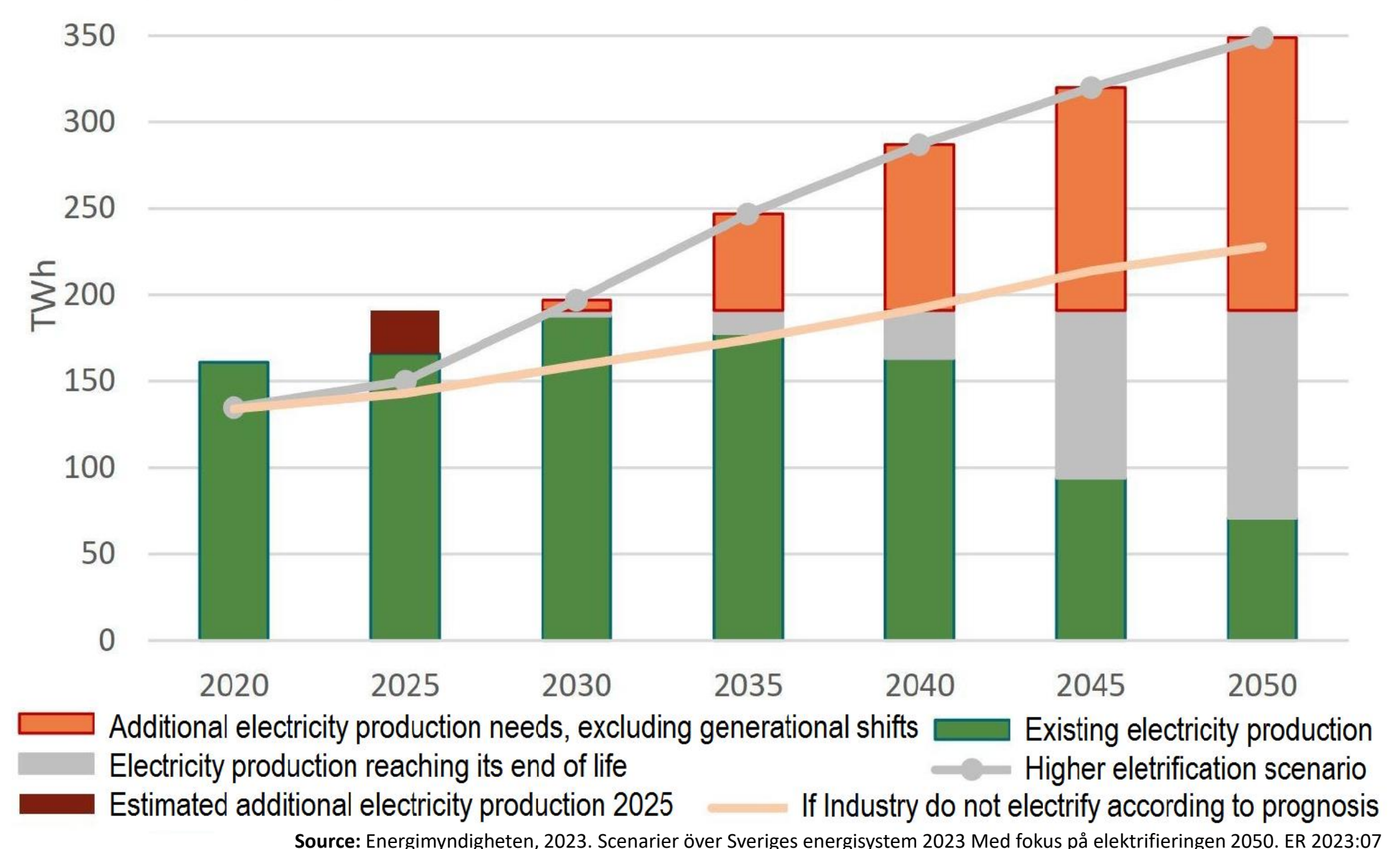
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### BACKGROUND

**Government targets in a pro-nuclear landscape -**  
Carbon-free electricity production by 2040;  
equivalent to at least two large scale reactors by  
2035; “massive” construction of nuclear, or at least  
the capacity of 10 large scale reactors by 2045  
**Growing electricity demand -** from 134 TWh  
(2020) to 349 TWh (2050)  
**SMRs as a new solution -** more cost-effective,  
faster to build, adaptable for various uses

Source: Regeringskansliet, 2023. Regeringen lanserar en färdplan för ny kärnkraft i Sverige

**No nuclear have been build in Sweden for  
40 years – what are the main challenges of  
deploying SMRs in Sweden?**



### MAIN CHALLENGES

**Long-term political will -** Policy stability needed  
beyond electoral cycles

**Localisation of SMRs -** Existing nuclear sites vs.  
new locations & SMRs' efficiency depends on  
proximity to industrial facilities

**Design variety -** Over 100 SMR designs globally,  
need to standardize for learning

**Operation set-up –** need to establish efficient  
operations while digital operations pose new  
challenges incl. cyber security

**Competence Shortage -** Shortage of skilled labour  
and engineering talent

**Nuclear Waste Management -** Adapting current  
systems for SMRs' waste

**Regulations –** Not yet adapted for SMRs, also non-  
conventional legislation is challenging

**Social acceptance –** Will take time on new sites  
and in ‘non-nuclear’ municipalities

**Investments & financial risk –** Need re-invest in  
the grid & uncertain projections of costs of FOAK &  
NOAK

### METHOD

- An interview study with actors involved in the new-build nuclear in Sweden
- # 50+ interviews with utilities, consultants, policy-makers, industry associations, vendors, startups, etc. (2023-2024)
- workshops with key utilities

### CONCLUSION:

The study confirms a lot we already know BUT:

***Non-technical challenges more significant than technical challenges according to the stakeholders engaged in new nuclear!***

Under-explored non-technical challenges for the new nuclear in Sweden are:

- access to key engineering competence
- knowledge on managing mega projects
- transparency & clarity of non-nuclear regulations
- how to set up operations and manage new sites
- social acceptance



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