

Swedish Nuclear Society

Building the story....

SKS

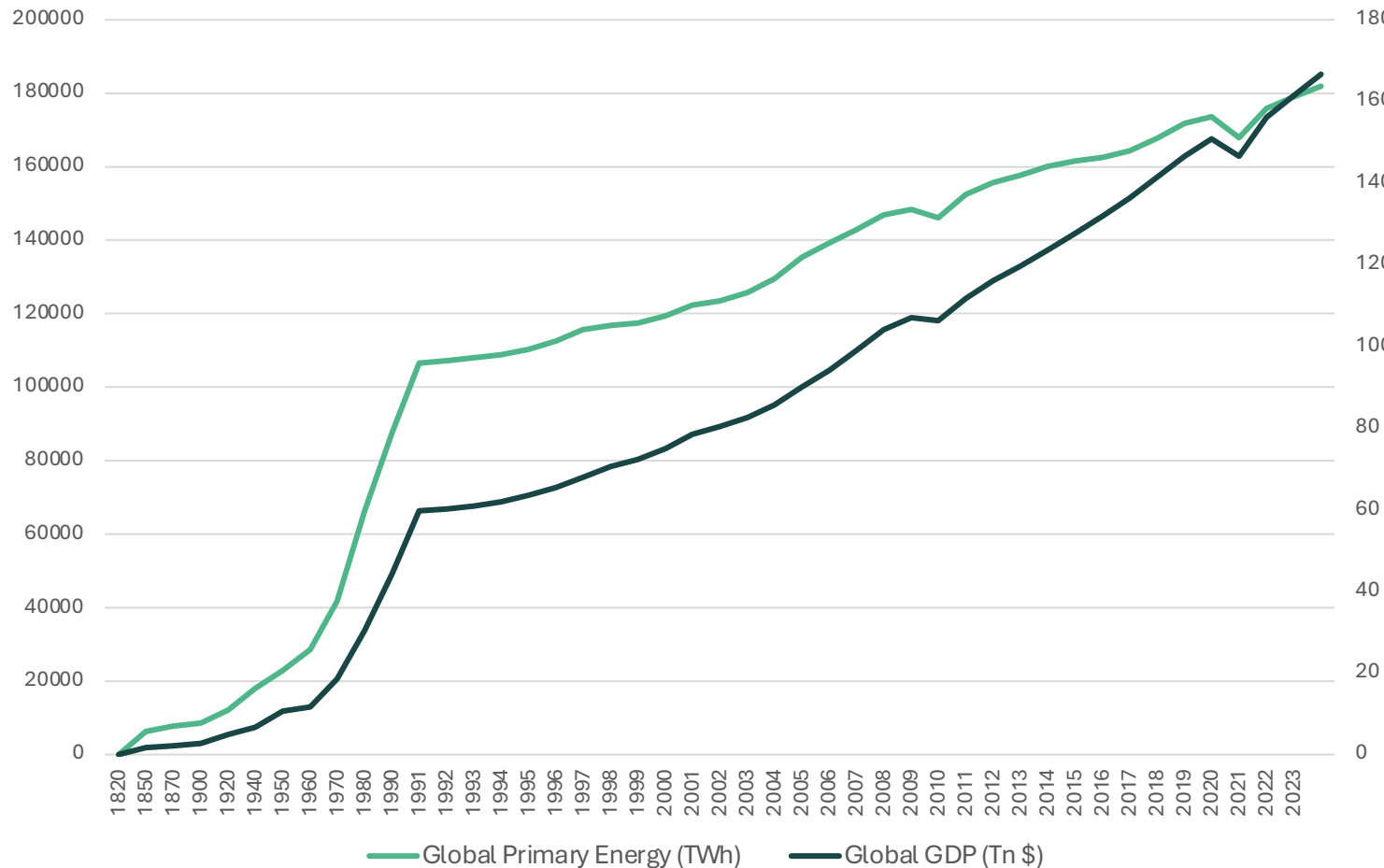
SVERIGES KÄRNTEKNISKA SÄLLSKAP

SWEDISH NUCLEAR SOCIETY



Prosperity & Energy – a Marriage

Global Energy use | Global GDP



Prosperity “=” Economy

Economy = Work

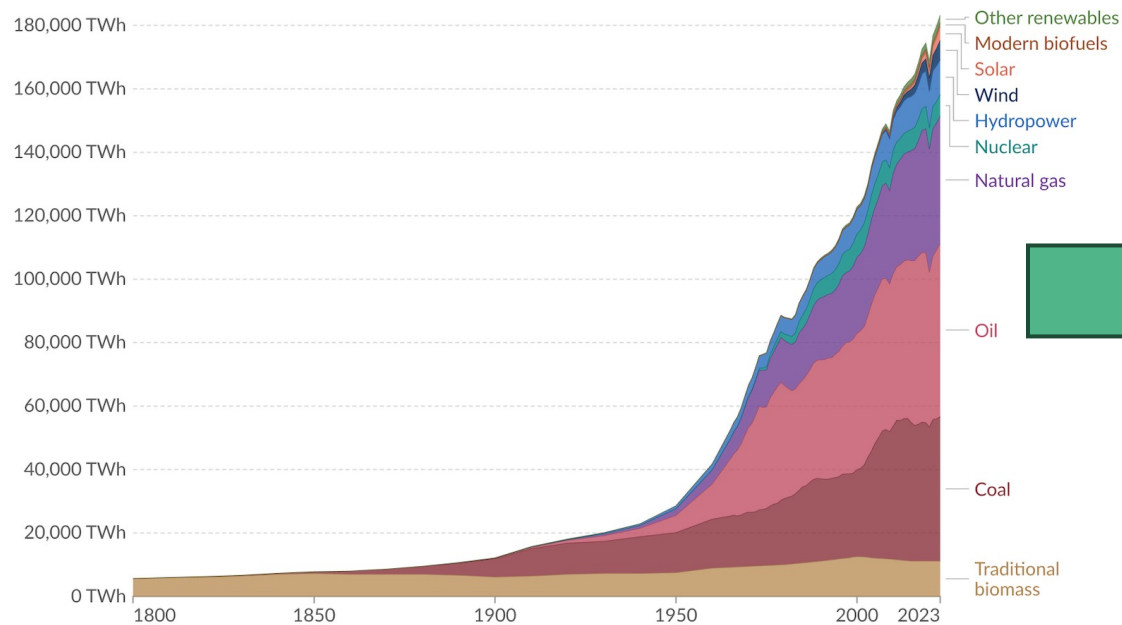
Work = Energy

Energy = Prosperity

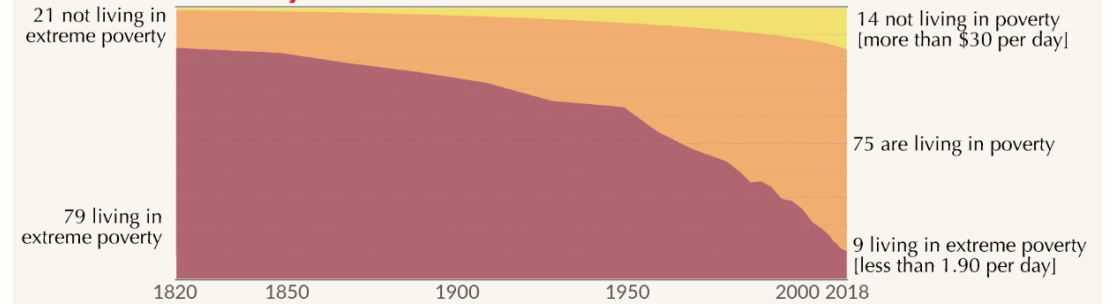
And if you do not like GDP as a measure of prosperity...

Global primary energy consumption by source

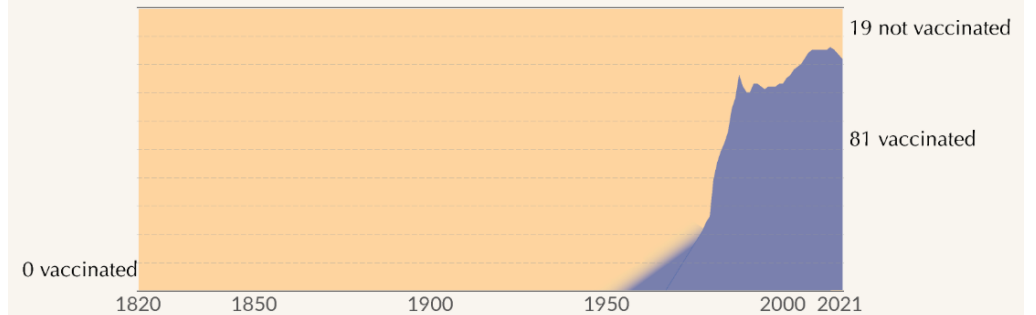
Primary energy¹ is based on the substitution method² and measured in terawatt-hours³.



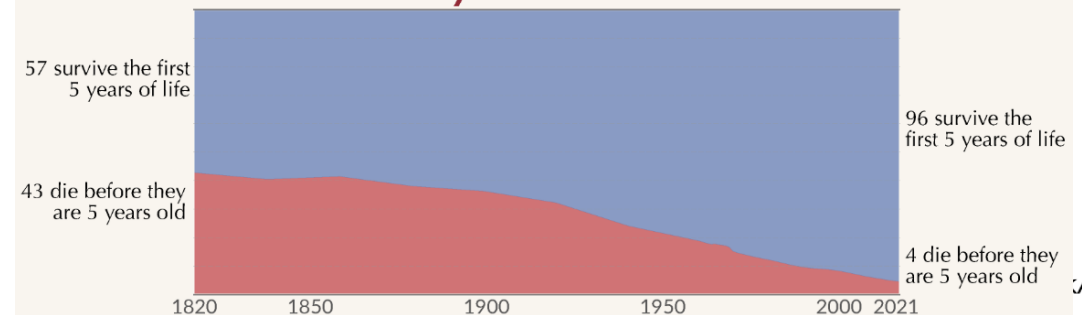
Poverty



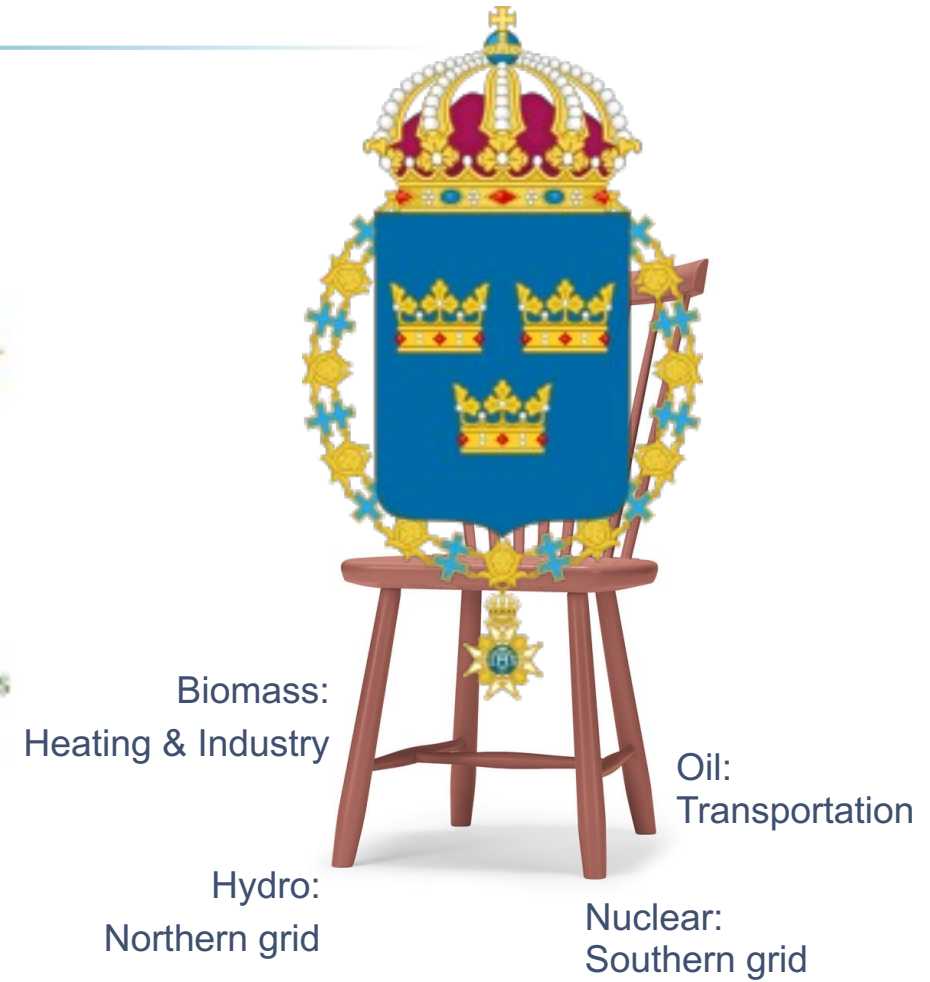
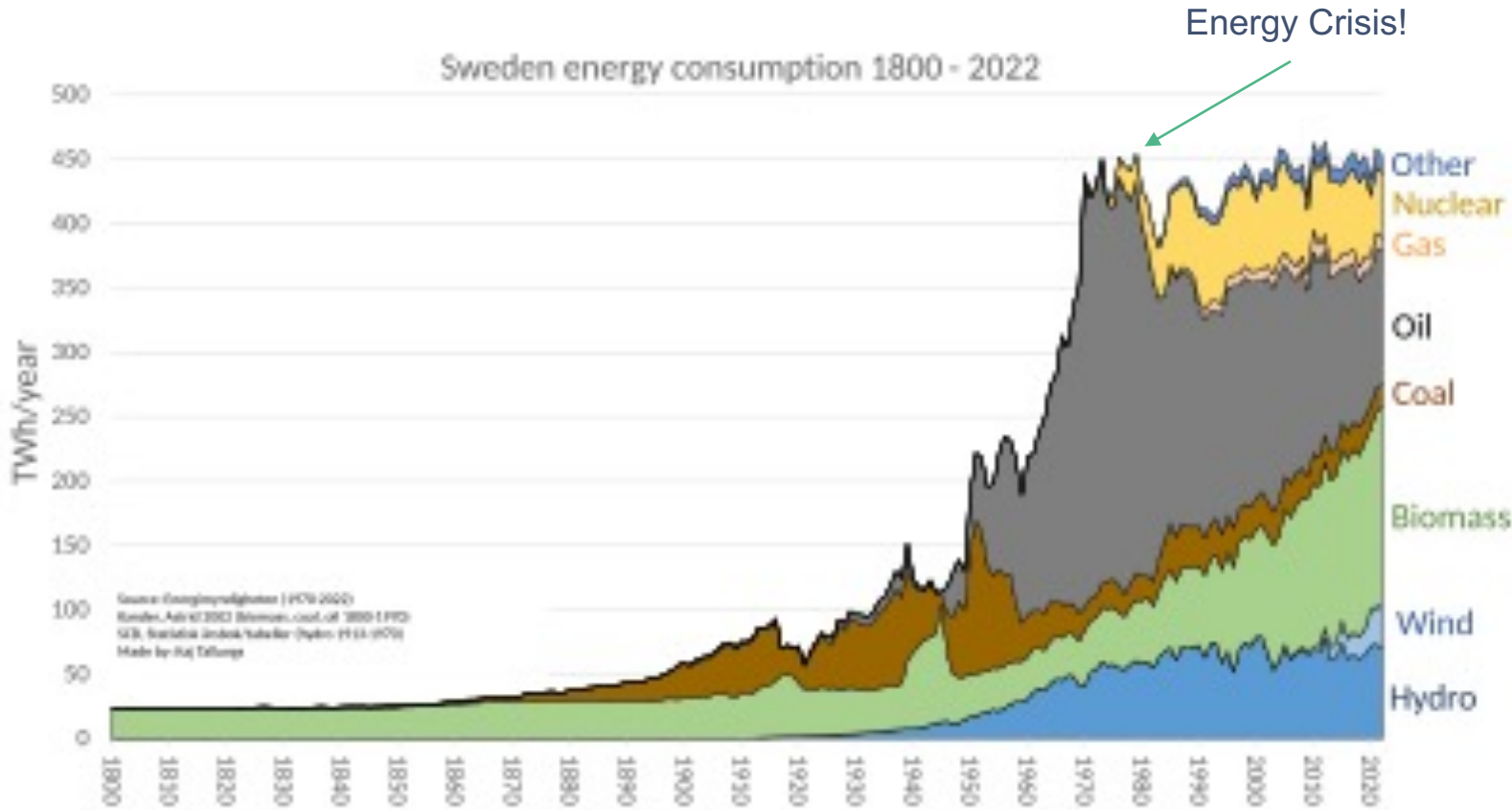
Vaccination against diphtheria, whooping cough, and tetanus



Child Mortality

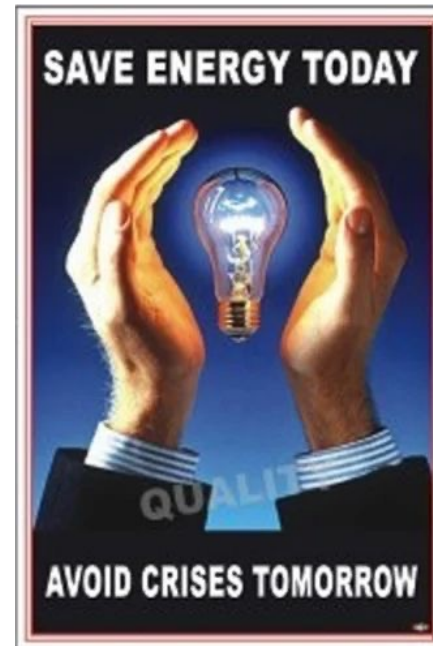
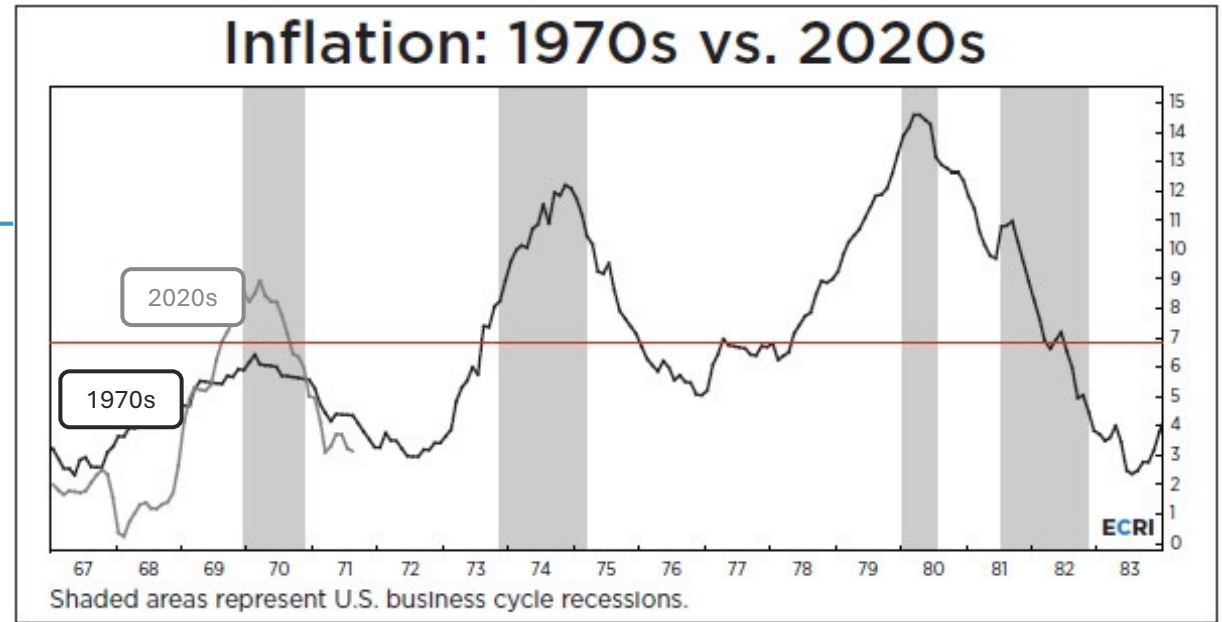


Four energy pillars of Swedish Society



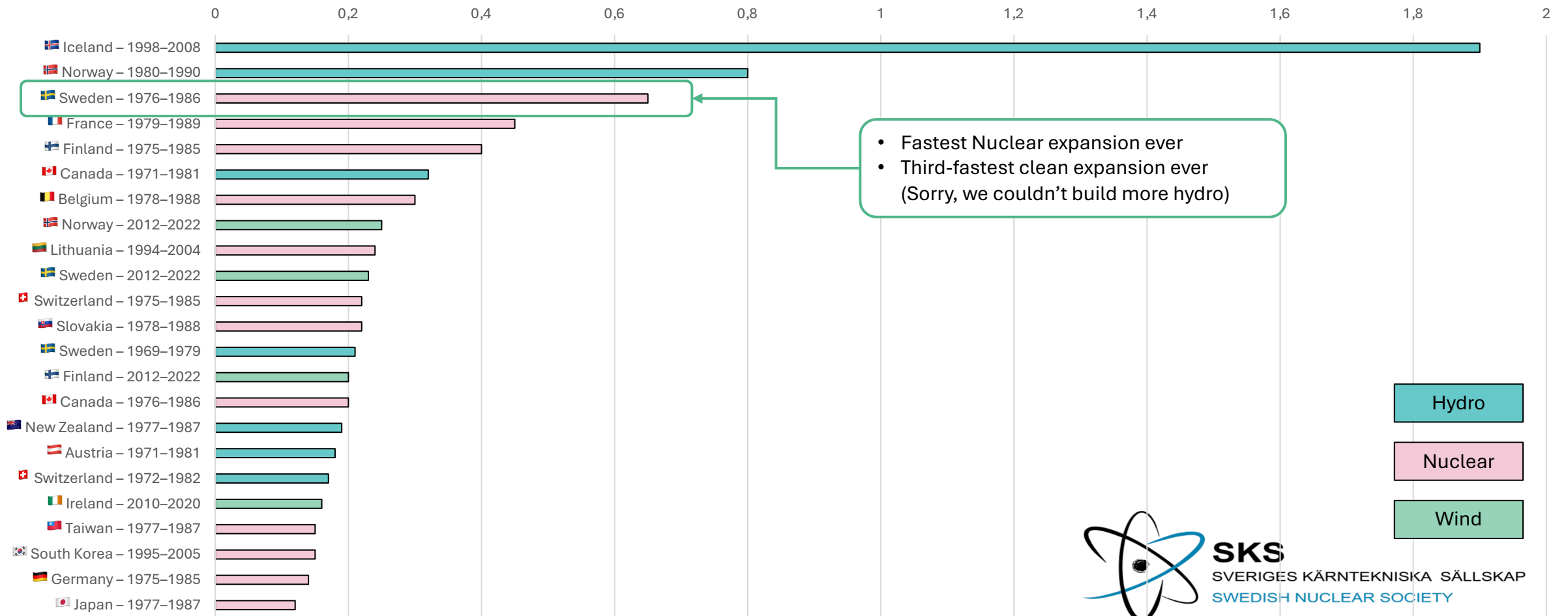
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Past or present?



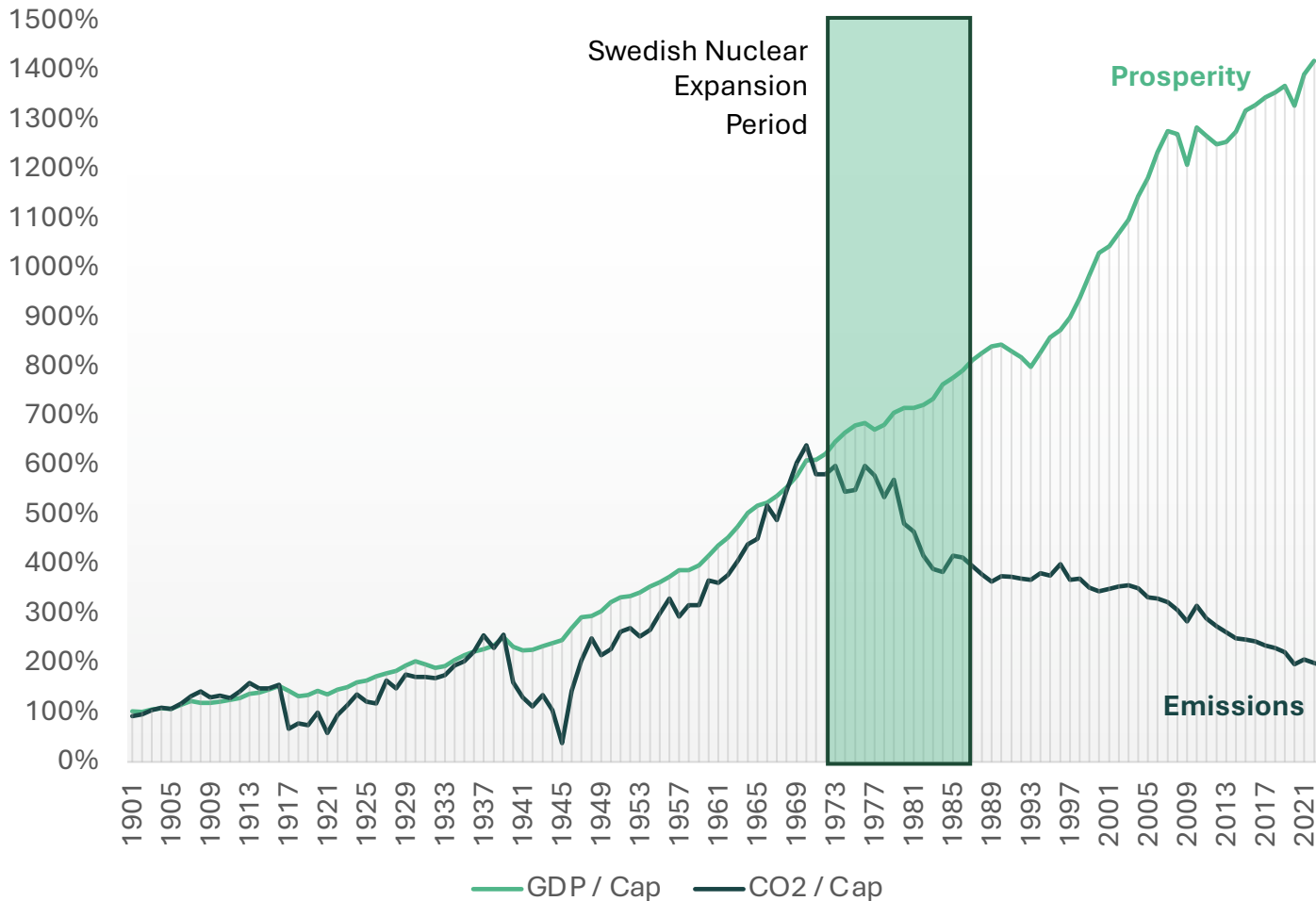
Back then we built fastest expansion of nuclear ever...

25 Fastest Clean Electricity Expansions During 10-year period (Avg MWh/Capita Increase Per Year)



... Which lead to sustainable economic growth still difficult to replicate today!

GDP & CO2 emissions index, per cap (Sweden)



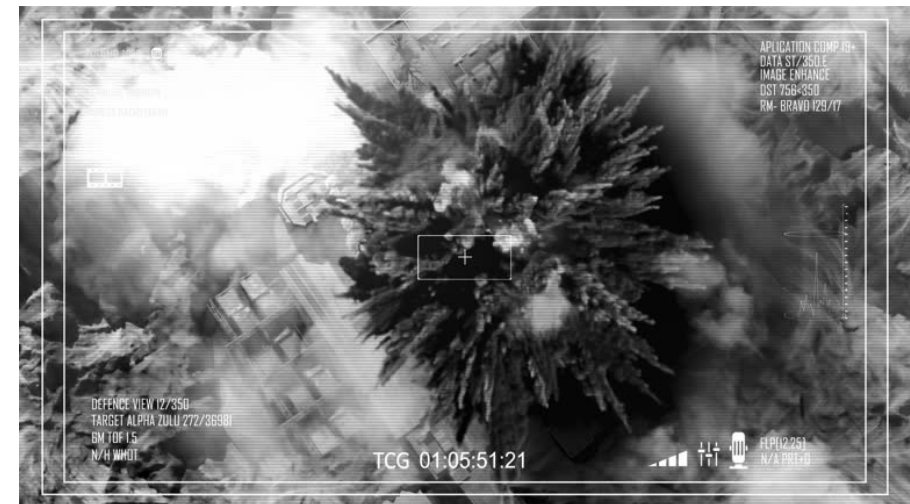
NOT IN MY BACKYARD?

KÄVLINGE	80% POSITIVE TO BARSEBÄCK NPP
VARBERG	85% POSITIVE TO RINGHALS NPP
ÖSTHAMMAR	88% POSITIVE TO FORSMARK NPP
OSKARSHAMN	77% POSITIVE TO OKG NPP
ÖSTHAMMAR	90% POSITIVE FINAL WASTE STORAGE
OSKARSHAMN	90% POSITIVE INTERMEDIATE STORAGE



**1 direct job at a nuclear plant =
4.5 extra jobs in the broader community**

So why is this our reputation?

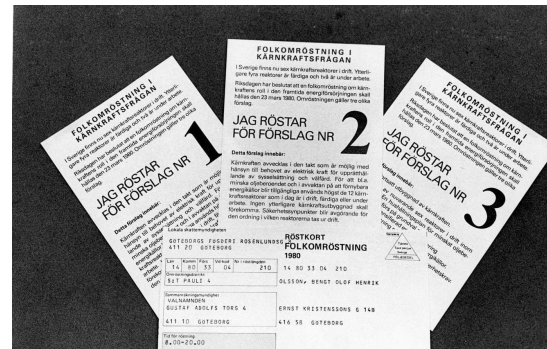


And what damage does it do?

Historical Political Decisions & Other Activities (Sweden)

- 1965 to 1980
 - + Fast expansion of nuclear reactors, 8 built, 4 in construction
 - + Ongoing discussion to build an additional 12
 - New regulation delay operation of 2 reactors by 4 years (1977)
- 1980s
 - Political ban on constructing new nuclear (1980)
 - Aim to phase-out nuclear by 2010 (1980)
 - Political ban on nuclear R&D – “Tankeförbudet” (1987)
- 1990s
 - Direct political decision to shutdown 2 reactors (1997)
 - Introduction of nuclear capacity tax (1999)
- 2000s
 - + Postpone nuclear phase-out to 2045 (2005) → due to closing of BKAB
 - + Ban on nuclear R&D is lifted (2006)
 - Nuclear tax increase by 85% (2006)
 - Nuclear tax increase by 24% (2008)
- 2010s
 - + Replacement of existing NPP allowed (2010)
 - + Application to replace older NPP is submitted (2012)
 - Aim of 100% RES by 2040 introduced (2014)
 - Plans and application for NPP replacements cancelled (2014)
 - Nuclear tax increase by 17% (2015)
 - Owners' decision to shutdown 4 reactors (2015)
 - + Nuclear tax is lifted (2018) → due to threat of total shut-down

Public referendum? all three alternatives are against nuclear... (1980)

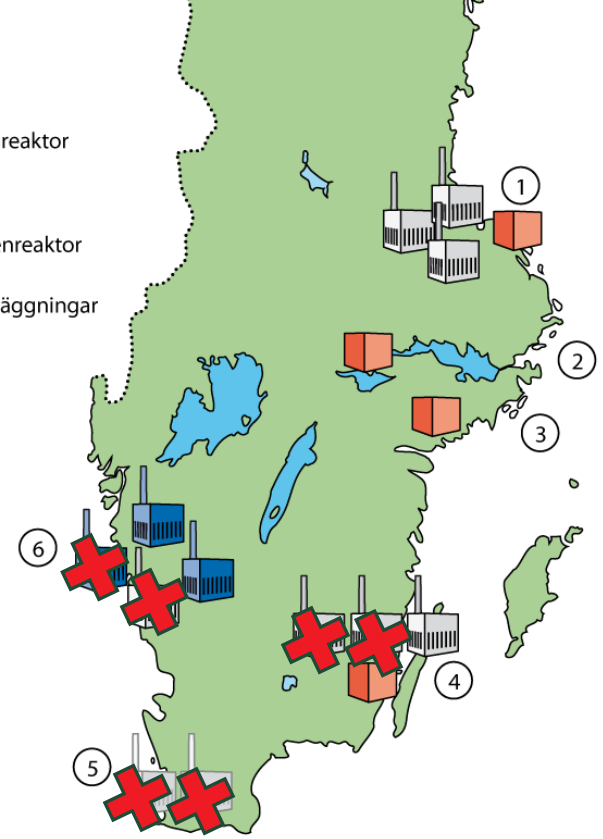


Compensation for the premature closure of unit 1 in 1999 cost the Swedish taxpayers SEK 5.7 billion (EUR 593 million)

The compensation for unit 2 was agreed at SEK 5.6 billion (EUR 583 million)

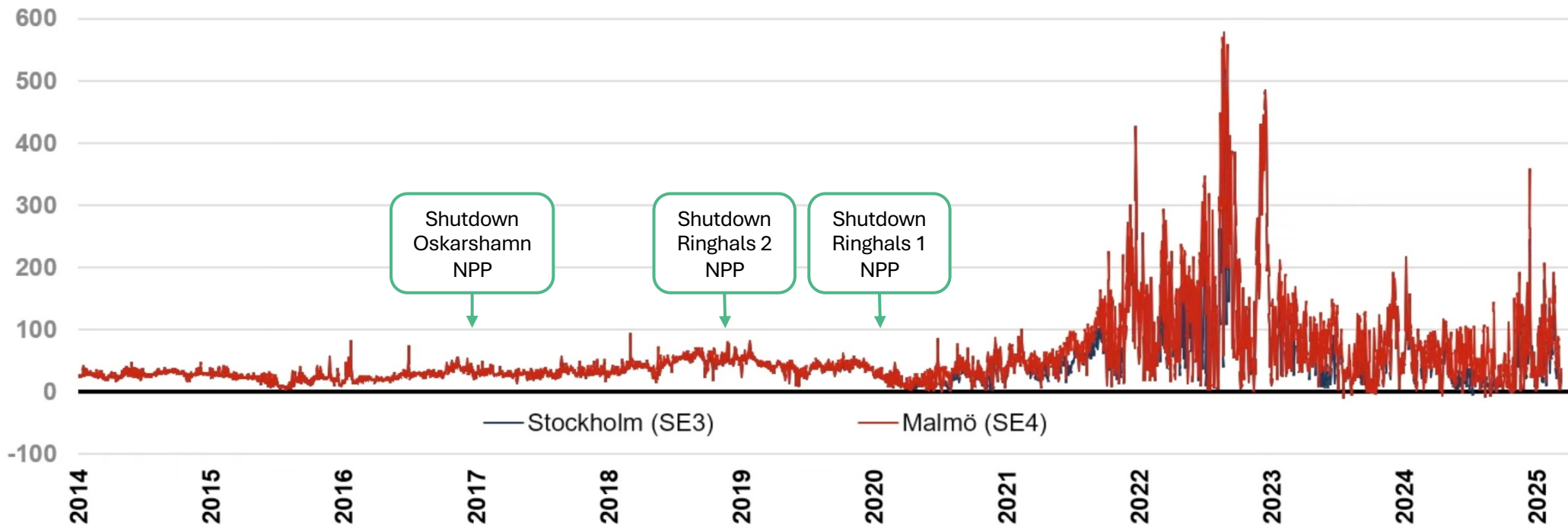
The tax was making the operation of the reactors unprofitable. Vattenfall said the tax was raising its cost to the point that it was losing money on every kilowatt of electricity it generated and that there was no way to recover from it. World Nuclear News reported June 10 that the costs were \$0.038/kWh compared to revenue of \$0.026/kWh.

- kokvattenreaktor
- tryckvattenreaktor
- övriga anläggningar



Not knowing (uncertainty) drives risk – risk drives cost

Spot price electricity southern Sweden (öre / kWh, daily avg)



Källor: Nord Pool och Macrobond.



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Communication is key!

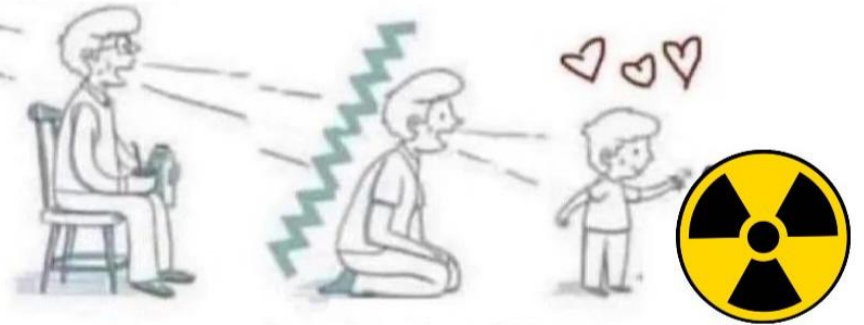


It's up to you to break generational trauma.

"Nuclear power is a disaster waiting to happen"



"Nuclear power is a disaster waiting to happen"



"Nuclear power is the safest and cleanest way to make electricity"

*“The
World’s
Most
Innovative
Nuclear Energy
Start-up 2023”*

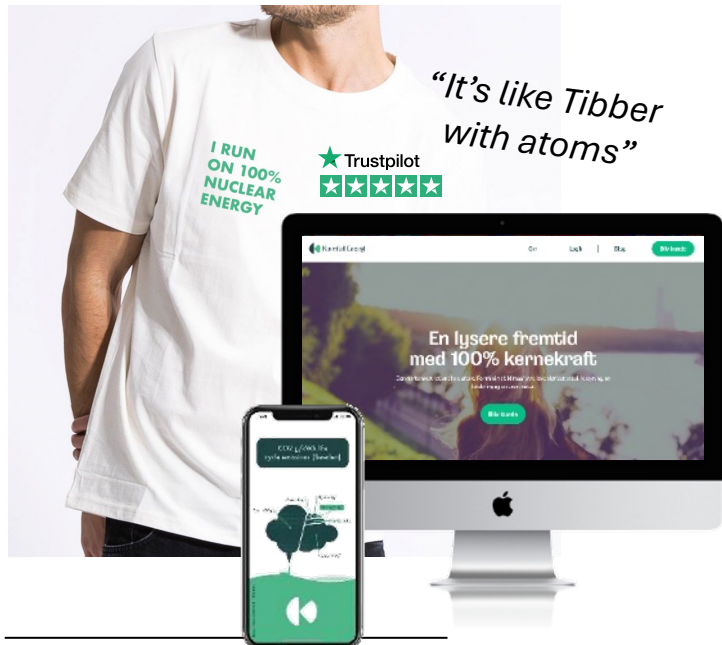


Kärnfull Next“

... Building the plant

ENES 2025 – 25.10.15

2019 – CHANGING THE SCRIPT...

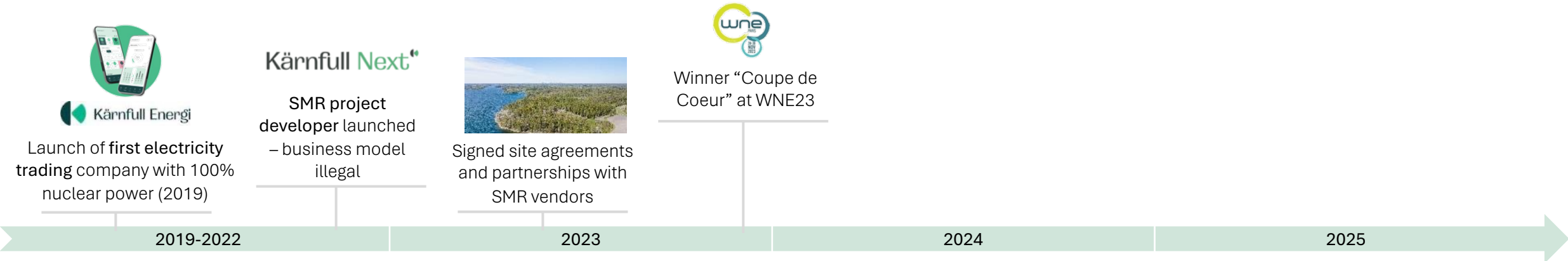


Start-Program for New Nuclear

- From phase-out → revival
- Political, regulatory & financial solutions
- In partnership with Confederation of Swedish Enterprise
- Boosting confidence in Sweden's nuclear future



2023 – REMOVING SHOWSTOPPERS...



ELECTRICITY

Sweden paves way for new nuclear capacity by dropping 100% renewables target

Sweden makes regulatory push to allow new nuclear reactors

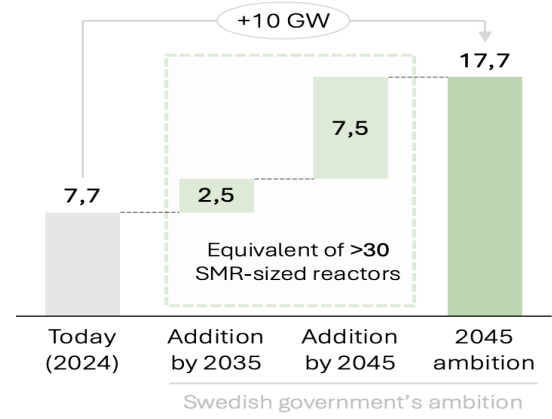
By Niklas Pollard and Anna Ringstrom

January 11, 2023 9:49 AM GMT+1 · Updated January 11, 2023

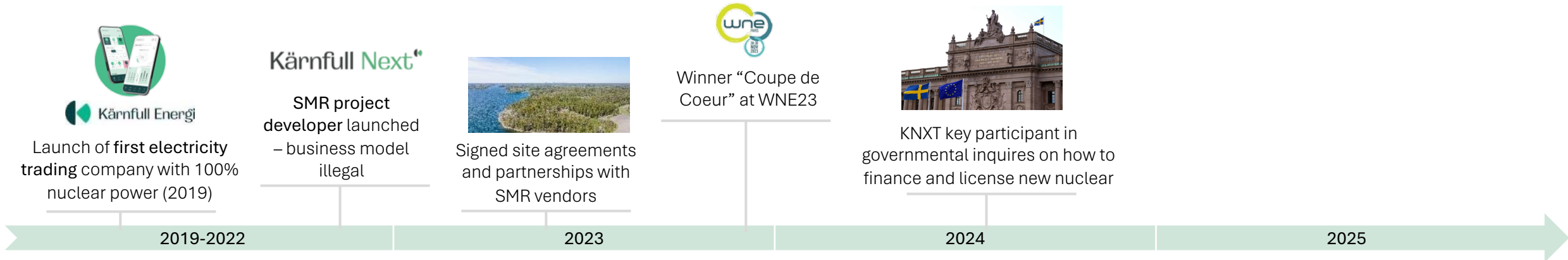
🔖 Aa 🔄



Nuclear production in Sweden
Gigawatts



2024 – BUILDING MOMENTUM...



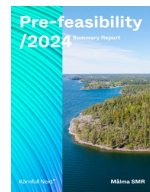
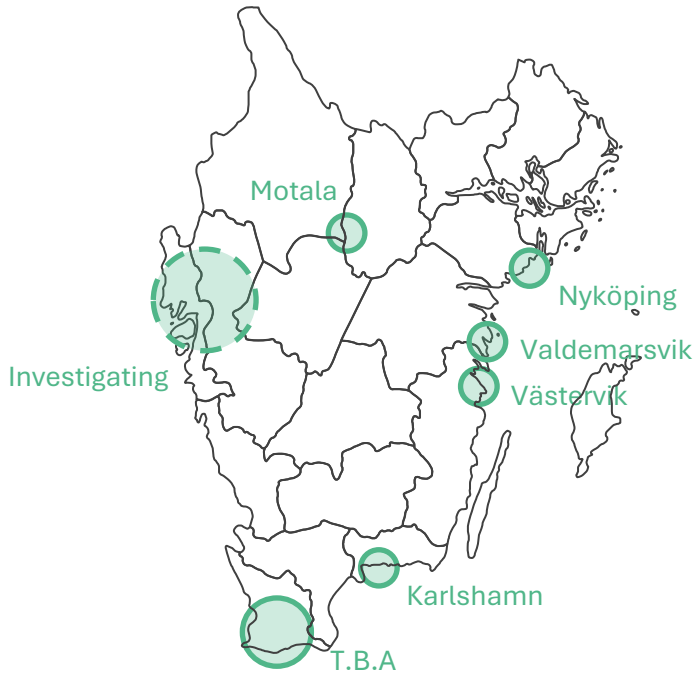
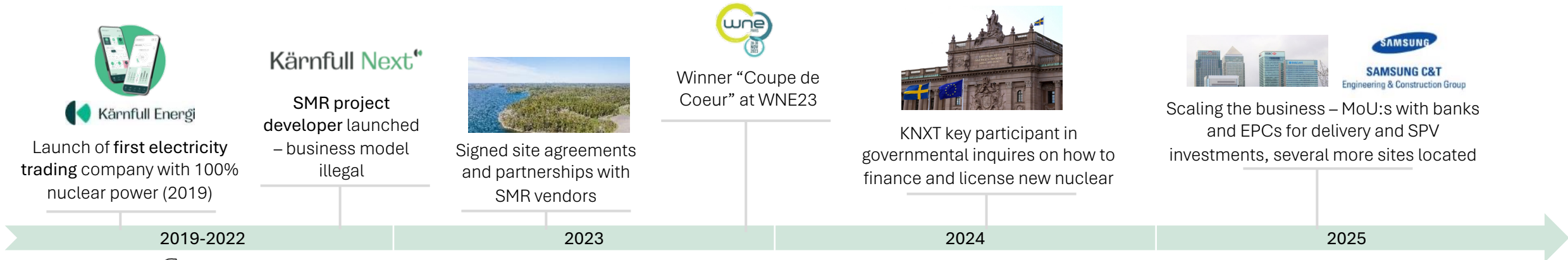
Financial Framework for New Nuclear

- From uncertainty → investment ready
- State-backed loans cover up to 75% of CAPEX
- 40-year long CfDs secure stable revenues
- Shared risk mechanism to adjust earnings in case over positive/negative outcome

Regulatory Framework for New Nuclear (still being designed)

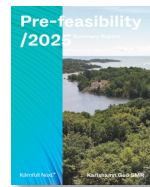
- From late-stage approval → early barrier removal
- Decision in Principle: de-risking site and project before heavy spend
- Adjusted fees scale with plant size, and decrease as more units are built, ensuring fair cost distribution
- Enables predictable pathway and efficient licensing at new sites

2025 – SCALING THE BUSINESS...



Valdemarsvik

- 1300ha investigated area, coast
- Min 1200 MW capacity
- Permanent land rights



Karlshamn

- Investigated multiple coast sites
- Min 600 MW capacity
- Exclusive exploration rights

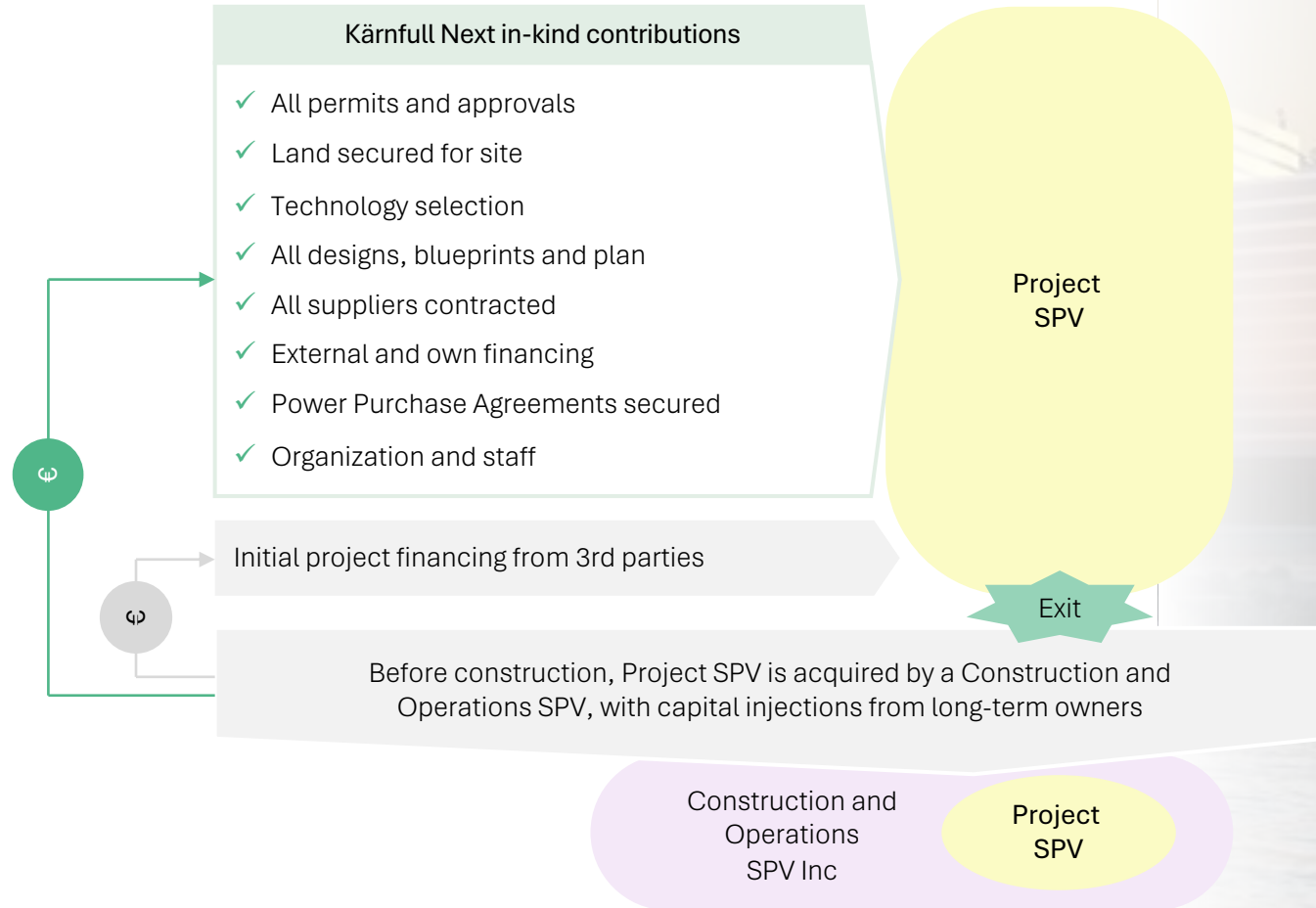


Motala

- Investigated multiple lake sites
- Min 600 MW capacity
- Exclusive exploration rights

First regulatory application planned 2026

KÄRNFULLS BUSINESS MODEL



*"The
World's
Most
Innovative
Nuclear Energy
Start-up 2023"*



Thank you

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Kärnfull Next™