Green transition and energy transition challenge the whole society - REPower Luke

HYGCEL seminar 1.10.24

Research Manager Johanna Routa, Luke

Euroopan unionin rahoittama
NextGenerationEU

Green transition & energy transition

- A green transition will support structural adjustment of the economy and help to build a carbon-neutral welfare society.
- Finland aims to achieve carbon neutrality by 2035 and to halt the decline in biodiversity by 2030.
- Finland aims to be a world leader in the hydrogen and circular economies, and in emission-free energy systems and other climate and environmental solutions.
- The aim is also to improve energy efficiency and accelerate the transition to fossil-free transport and heating.

© Luke

The green transition is already progressing rapidly globally, in the EU and in Finland!

- In addition to economy and technology, energy has always been connected to geopolitical (e.g. war in Ukraine) and national interests (e.g. security of supply).
- **Research needs are diverse.** They are not only economy/technology but e.g. nature/environmental effects, justice and social issues are essential issues to keep involved in research and decision-making.
- The need for technological carbon sinks is growing.
- Bioenergy acceptability and role in the future energy system?
- Finland has several competitive advantages for the hydrogen economy, e.g. water and biogenic carbon dioxide.

Luke

© Luke

The green transition causes discussion in Finland

© Luke

Elinkeinoelämän keskusliitto

Vihreissä investoinneissa yli 30 prosentin vuosikasvu – seuraavat 6–9 kuukautta ratkaisevat jatkon

3.4.2024 14:30:00 EEST | Elinkeinoelämän keskusliitto EK

Jaa

Suomen vihreän siirtymän investointiaikeiden euromääräinen summa kasvoi vuonna 2023 lähes kolmanneksella edellisvuoteen verrattuna. Hankkeita on kaikkiaan vireillä noin 260 miljardin euron edestä. Konkreettisia askelia on otettu lähes 19 miljardin euron arvosta. Hyvän vireen jatkuminen edellyttää, että sähköä käyttävien teollisuusinvestointien aalto siirtyisi suunnitelmista toteutukseen – seuraavat 6–9 kuukautta ovat ratkaisevia.

Labore

Vihreä siirtymä välttämätön myös talouden kasvun kannalta

9.4.2024 Mediatiedote

Tuoreen raportin mukaan vihreä siirtymä ei ole ainoastaan ympäristön kannalta järkevää, vaan se on välttämätöntä tulevaisuuden talouskasvulle. Raportin mukaan fossiilienergia ei maankuoresta lopu, mutta sen tuottaminen muuttuu innovaatioista huolimatta asteittain resurssi-intensiivisemmäksi.

Kolumni / Vihreä siirtymä on sittenkin totta, ja se ohjaa miljardit Ruotsiin

Tappio SSAB-hankkeessa on vain jäävuoren huippu, kirjoittaa Pekka Lähteenmäki Pelin henki -kolumnissaan. Ruotsi rakentaa kahta vihreää

Kolumnit | Kolumni

Vihreä siirtymä vie tuhon tielle – Voimaloilla ei ole mitään tekemistä elämän suojelun kanssa

Kun kehitetään uusi tapa tuottaa energiaa ihmisten loputtomiin tarpeisiin, pitää luoda sellainen mielikuva, joka näyttää hyväksyttävältä, kirjoittaa Tuomo Hurme.

yle Etusivu | Venäjän hyökkäys | Rallin MM-sarja | Abitreenit

Talous

Vihreä siirtymä ei auta Suomen taloutta lähivuosina – Risto Murto: "Ensimmäinen erä hävittiin"

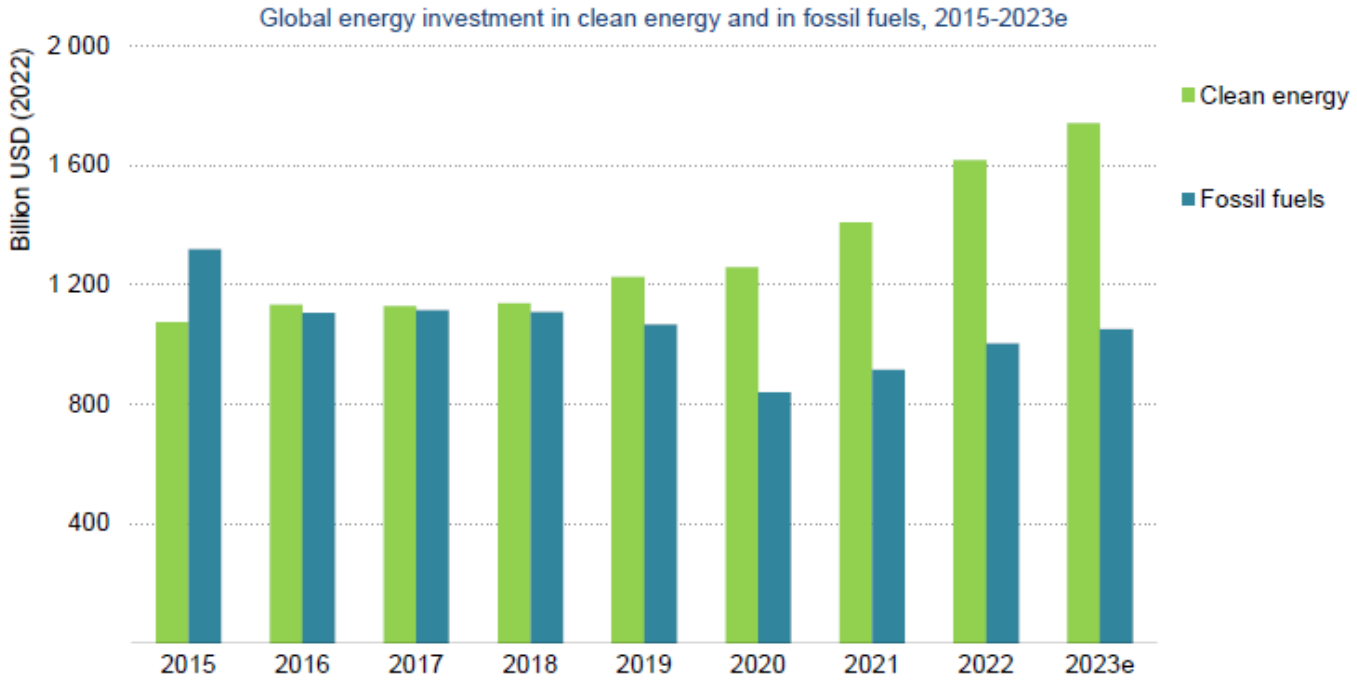
Varman toimitusjohtajan Risto Murron mukaan vie todennäköisesti vuosia ennen kuin Suomi voi päästä kiinni vahvempaan talouskasvuun.

Luke

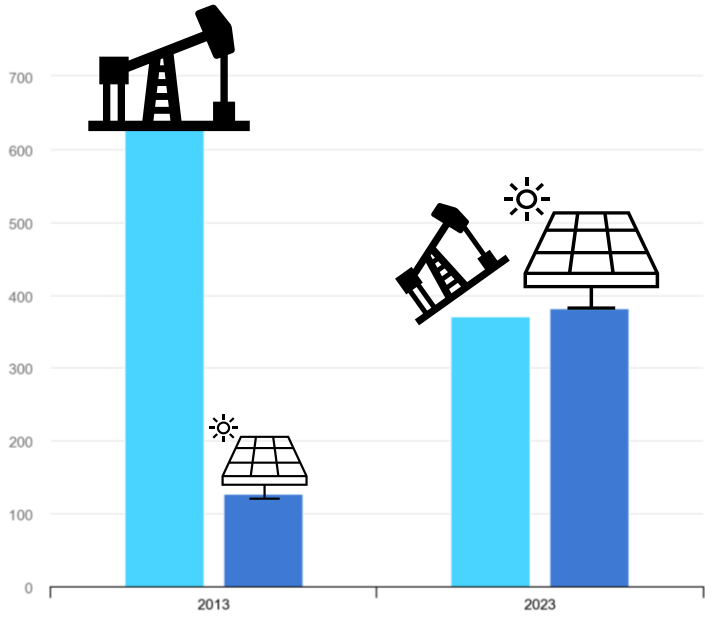
https://labore.fi/julkaisu/vihrea-siirtyma-valttamaton-myos-talouden-kasvun-kannalta/
https://www.sttinfo.fi/tiedote/70130969/vihreissa-investoinneissa-yli-30-prosentin-vuosikasvu-seuraavat-6-9-kuukautta-ratkaisevat-jatkon?publisherId=69819283&lang=fi
https://www.satakunnankansa.fi/kolumnit/art-2000010347220.html
https://www.talouselama.fi/uutiset/vihrea-siirtyma-on-sittenkin-totta-ja-se-ohjaa-miljardit-ruotsiin/a47cc7c3-2fc1-4bb6-a8ac-2a505ff74af0
https://yle.fi/a/74-20101298

© Luke

The breakthrough of the green transition is already underway globally



World Energy Investment 2023



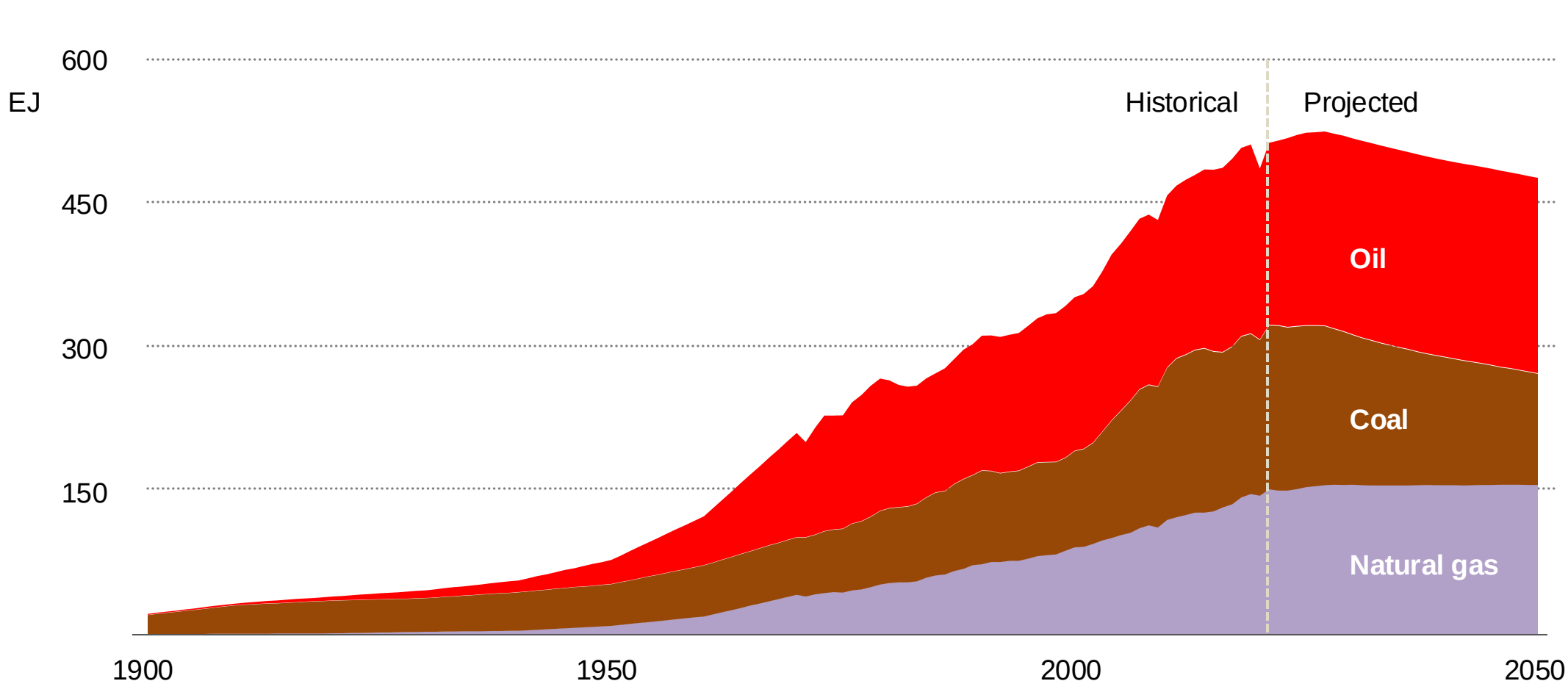
”For every USD 1 spent on fossil fuels, USD 1.7 is now spent on clean energy. Five years ago this ratio was 1:1.”

Luke

https://www.iea.org/reports/world-energy-investment-2023/overview-and-key-findings

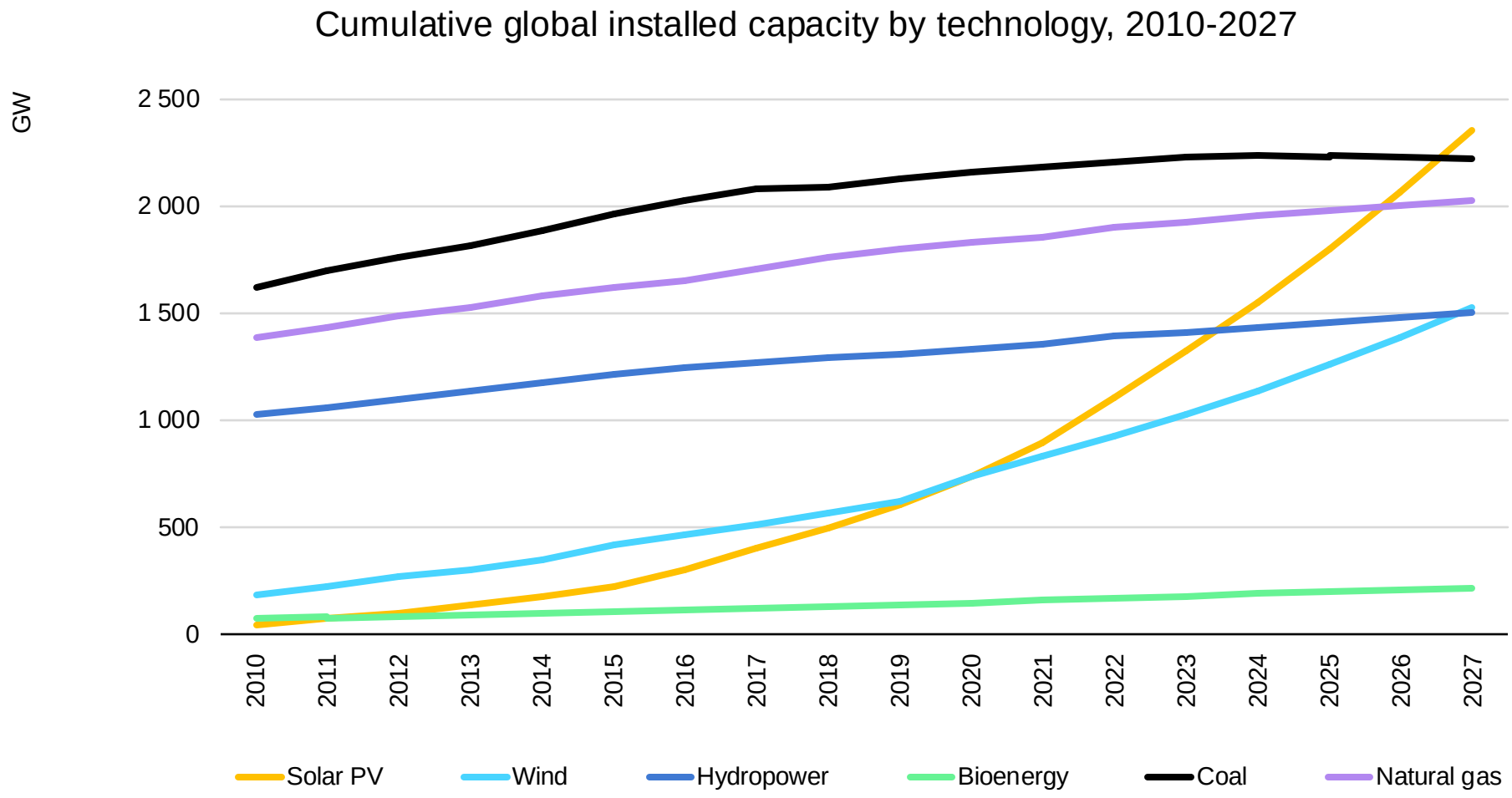
iea

Peak fossil fuel demand is coming this decade



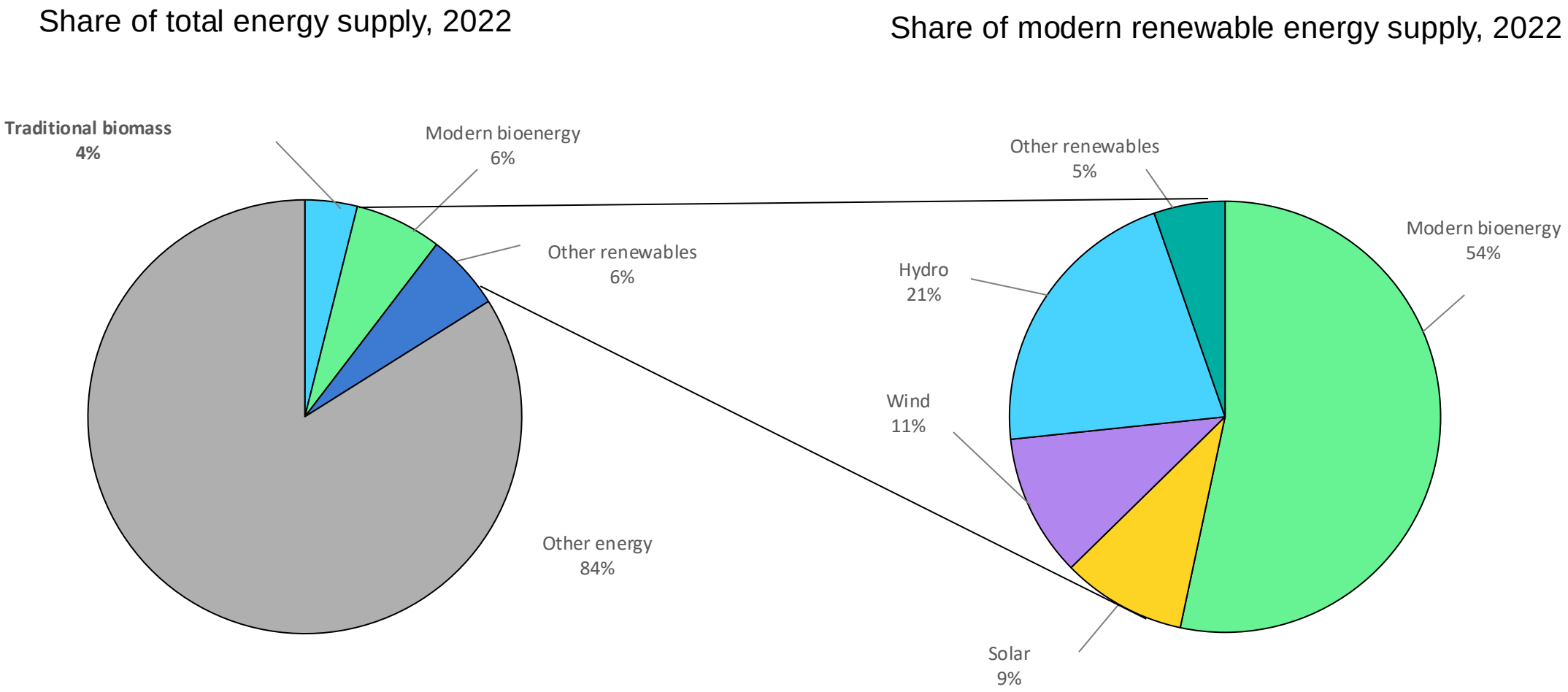
Today's policy settings are now sufficiently strong that they produce a distinct peak in fossil fuel use before 2030

Solar PV becomes the largest installed capacity surpassing coal…



Cumulative solar PV capacity almost triples1500 GW surpassing natural gas by 2026 and coal by 2027. Renewables account for 90% of global electricity capacity expansion over the forecast period.

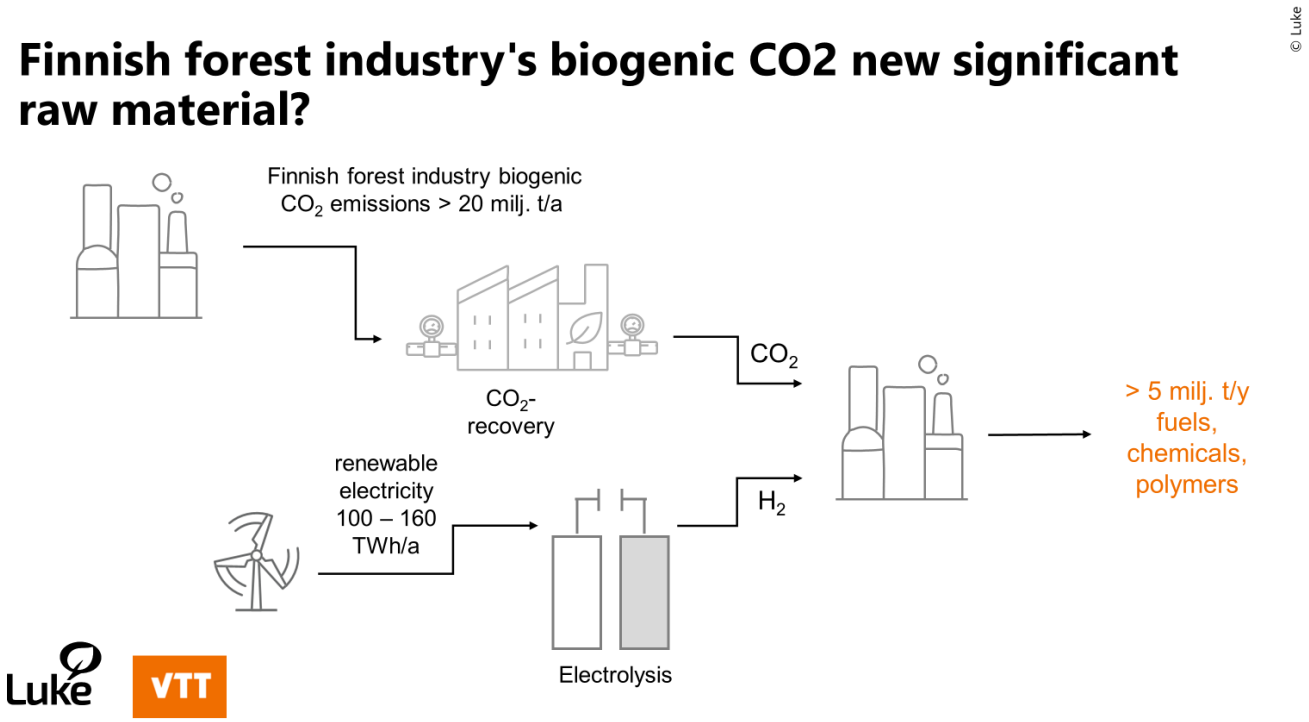
Modern bioenergy is the giant of renewable energy



Today, more than half of the renewable energy supply comes from bioenergy sources. This share is more than the double of wind and solar combined

IEA 2023. All rights reserved.

From releaser to producer - with carbon dioxide economy value added to the Finnish forest sector



© Luke

Arasto, A., Kohl, J., Kujanpää, L., Lehto, J., Lehtonen, J., Lintunen, J., & Mäkikouri, S. (2024). Päästäjästä tuottajaksi – Hiilidioksiditaloudella arvonlisää Suomen metsäsektorille. VTT Technical Research Centre of Finland. https://doi.org/10.32040/2024.978-951-38-8835-0

REPower funding

- The EU is seeking to cut its dependency of Russian fossil fuels and accelerate the transition to clean energy. To this end, the EU has launched the REPowerEU plan, which is part of the Recovery and Resilience Facility (RRF). The Recovery and Resilience plan is part of Finland's Sustainable Growth Programme, which accelerates reforms and investments.
- Luke´s RePower project 1.1.2024-30.06.2026
- Funding 2,99 milj.€, for 2½ year

© Luke

LukeREPower project:

- OBJECTIVE: To assess the impact of the transition to renewable energy sources and the detachment from Russian energy. The impacts of building wind and solar energy infrastructure as part of Finland's clean energy production system will be examined. Particular attention will be paid to land use change issues, the social and local acceptability of renewable energy sources, and sustainability aspects related to clean energy production.
- EFFECT: The transition to clean and fossil-free energy will be carried out in a sustainable and fair manner. Renewable energy, especially solar and wind energy, is successfully integrated into the energy system as a whole and into industrial-economic structures. This ensures Finland's energy self-sufficiency and improves the EU's energy security.

Luke

Roadmap for developing renewable energy systems as part of the Finnish energy system

© Luke

WP1
Anne Tolvanen

- comprehensive impact analysis to minimise the adverse impacts of wind and solar infrastructure construction
- an estimate through spatial optimization of where wind and solar power cause the lowest costs in terms of loss of nature values.
- responsible construction of renewable energy, social acceptability and the reconciliation of different regional characteristics of land use

WP2
Lauri Sikanen

- Analysis of the role of forest chips in Finland's future energy system. Analysis the role of wood fuels and the possibilities of alternative energy sources, as well as the possibilities of stabilizing the Finnish energy system as demand and supply fluctuate.
- The use and significance of wood fuels in Finland's energy production, the supply of biogenic coal and its future development

WP3
Jussi Lintunen

- Assess the economic competitiveness of renewable energy production and products, their synergistic integration with existing energy systems, and opportunities to improve resource efficiency.
- The green transition is assessed using a sector model, assessing the suitability of incentives and the economic and regional impacts, as well as value added. This is done with an emphasis on security of supply and strategic self-sufficiency

Developing a roadmap for developing renewable energy systems as part of the Finnish energy system

WP4
Mikko Weckroth

The foresight work package brings together alternative future perspectives and pathways from global, national and regional driving forces towards a viable, techno-economically viable and both ecologically and socially sustainable future. The interaction between global geopolitics and natural resource management as part of the green transition is also examined from a geopolitics perspective.

WP5
Johanna Routa

Administration, reporting and communication

© Luke

Kiitos,
Thank you!

luke.fi

© Luonnonvarakeskus
© Natural Resources Institute Finland
© Naturresursinstitutet