SOLELFORSKNINGS CENTRUM SVERIGE

Malin Unger (RISE), Chris Bales (Högskolan Dalarna)

Aktuellt inom solel, Bebo webbinarium, 2023-11-14

WELCOME

Solar Electricity Research Centre, Sweden

One of 11 new Competence Centres approved by the Swedish Energy Agency for 2022-2026

The purpose of the competence centers
To strengthen collaboration between business, the public sector and academia

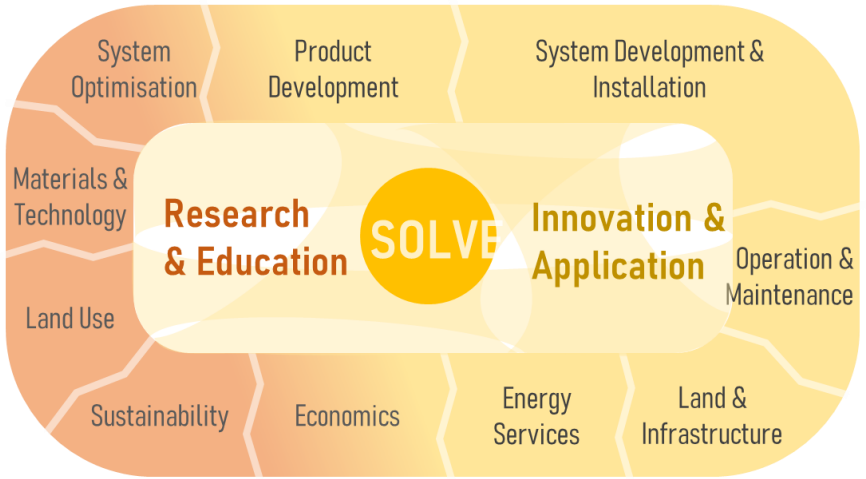
To build up and make available **knowledge** of the highest quality and **competence** for society's transition to a sustainable energy system.

Energimyndigheten

SOLVE PARTNERS

Who is involved?

6 Universities/Institutes
50 Companies/Organisations



UPPSALA UNIVERSITET · RI.SE · DALARNA UNIVERSITY · Mälardalens universitet · SLU · KARLSTADS UNIVERSITET

CGI · HEMSÖ · AIR BY SOLAR · SOLKOMPANIET · ELSÄKERHETSVERKET · CheckWatt · HERRLJUNGA ELEKTRISKA AB · Next 2 Sun · HEBY KOMMUN · Svenska kyrkan · CTEK · EL & STADSNÄT · Näckåns Energi AB · Soltech · ELLEVIO · Energiforsk · Energikontoren SVERIGE · STICKY SOLAR POWER · TeknikiVäst · Göteborgs Stad · Eskilstuna Energi & Miljö · Karlstads Energi · Tekniska verken · Uppsala kommun · STUNS energi · EUROPEAN ENERGY · Kraftpojkarna · SUSTAINABLE BUSINESS PARTNER · Linköpings kommun · REGION DALARNA · EVOLAR · Lindab · Region Uppsala · SVEA SOLAR · UBAB · FILIPSTAD ENERGINÄT · SHE DEN LOKALA KRAFTEN · Luleå Energi · Region Värmland · Region Västmanland · Vasakronan · midsummer · Jämtkraft · e·on · Svensk Solenergi · VATTENFALL · VÄSTRA GÖTALANDSREGIONEN · Glava Energy Center

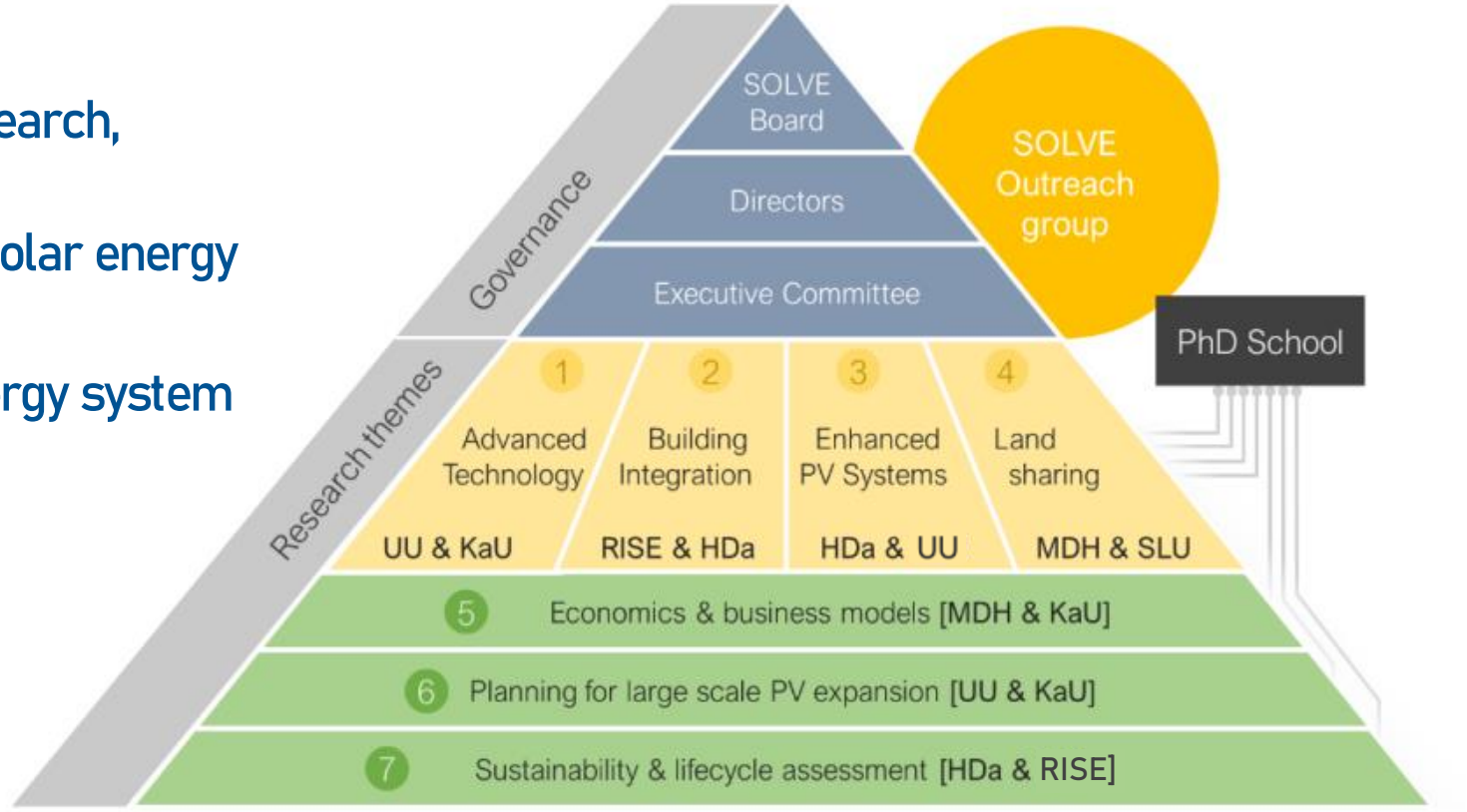
From 2023 also EQUA.

OBJECTIVES

Needs-driven, collaborative research,

enhancing the role and contribution of solar energy

as part of a sustainable energy system



RESEARCH THEMES

1. ADVANCED TECHNOLOGY

Technology development for improved performance and sustainability

Marika Edoff, Uppsala University

Markus Rinio, Karlstad University

2. BUILDING INTEGRATION

Improved function and uptake of BIPV, for energy-efficient, functional and attractive buildings

Malin Unger, RISE

Chris Bales, Dalarna University

3. ENHANCED PV SYSTEMS

Optimising PV in complex new energy systems over different scales

Xingxing Zhang, Dalarna University

Joakim Munkhammar, Uppsala University

4. LAND SHARING

Effective sharing of PV and other land uses in urban and agricultural environments

Marcos Lana, SLU

Pietro Campana, Mälardalen University

RESEARCH THEMES

5. ECONOMICS & BUSINESS MODELS

Improving economic performance of PV in new energy markets

Bengt Stridh, Mälardalen University
Markus Rinio, Karlstad University


6. PLANNING FOR LARGE SCALE EXPANSION


Enabling smart, sustainable and rapid expansion of PV in Sweden

Andreas Theocharis, Karlstad University
Joakim Widén, Uppsala University

7.SUSTAINABILITY AND LCA

Quantifying the contributions of PV to our sustainability goals

Michiel van Noord, RISE
André Augusto, Dalarna University


SOLVE PhD STUDENTS

Phil

Nicklas

Marieke

Majid

Santiago

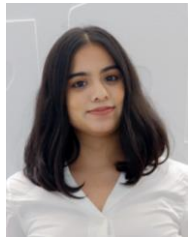
Elin

Started November 1!

Mohamad

Silvia

Bhavya



Sebastian

Klara

10 PhDs started/recruited
1 graduated
1 under recruitment: RISE/HDa
1-2 positions planned/under discussion

THEME 2 - BUILDING INTEGRATION

Theme 2 Leaders

Malin Unger
RISE

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https://www.ri.se/sv/vad-vi-gor/solenergi

Chris Bales
Dalarna University

cba@du.se

Phd Students

Marieke Ryneson
Dalarna University

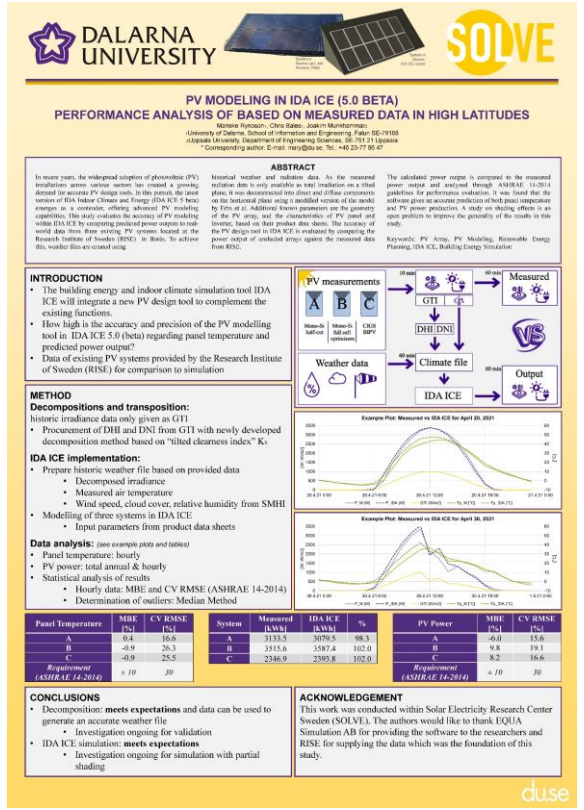
Elin Daun
RISE/ Halmstad University

Marieke Rynoson (HDa)

Ongoing research 2023-2024

- Validation of advanced PV modelling in IDA ICE (v5.0 beta)
  - EU PVSec paper for three types of modules with annual data (no shading)
    - (half-cut, Mono-Si; full cell Mono-Si with optimizers; CIGS)
  - Ongoing analysis of shading experiments for same modules
  - Supervision of relevant master thesis projects

- Qualitative Interview Study: BIPV & Churches/Heritage



Marieke Rynoson (HDa)

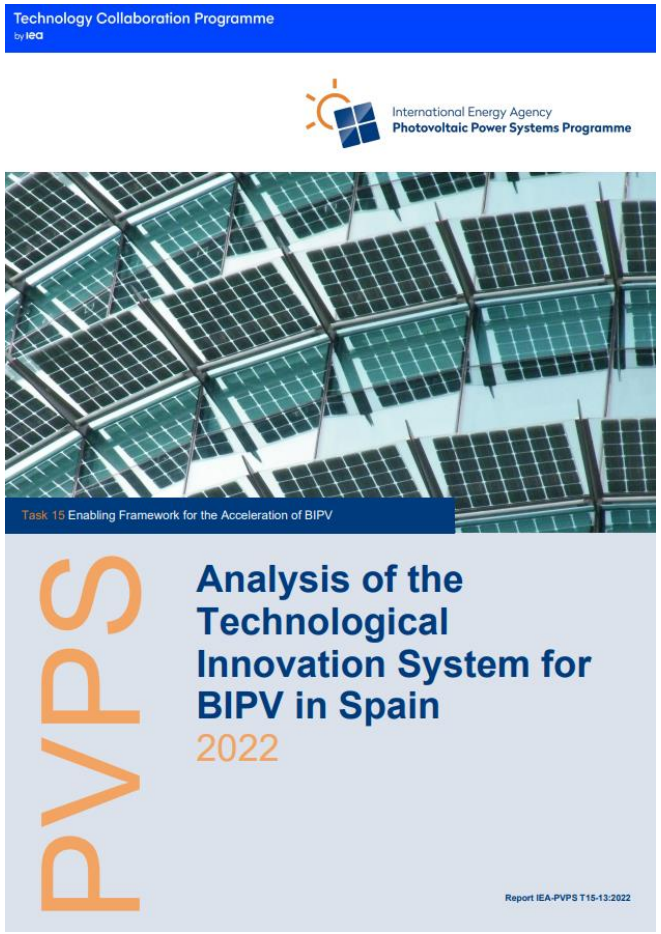
Potential future papers (2024…)

- Modeling of Non-Standard PV Panel Formats
- Modeling of Colored BIPV
- Aesthetics & Human Perception of BIPV in the Urban Landscape
- S-LCA Benchmarking with Living Wage

Elin Daun (RISE)

Newly recruited PhD

- Architect with practical (Kanozi) and academic (LTH lecturer) experience.
- Started at RISE on November 1, 2023
- PhD School - Solve and Halmstad University, Innovation Sciences
- Process with defining research focus and topics starting Nov/Dec 2023
- Reading published and final draft versions of BIPV TIS-analyzes from IEA PVPS Task 15



https://iea-pvps.org/research-tasks/enabling-framework-for-the-development-of-bipv/

OUTREACH

Solve Webinars

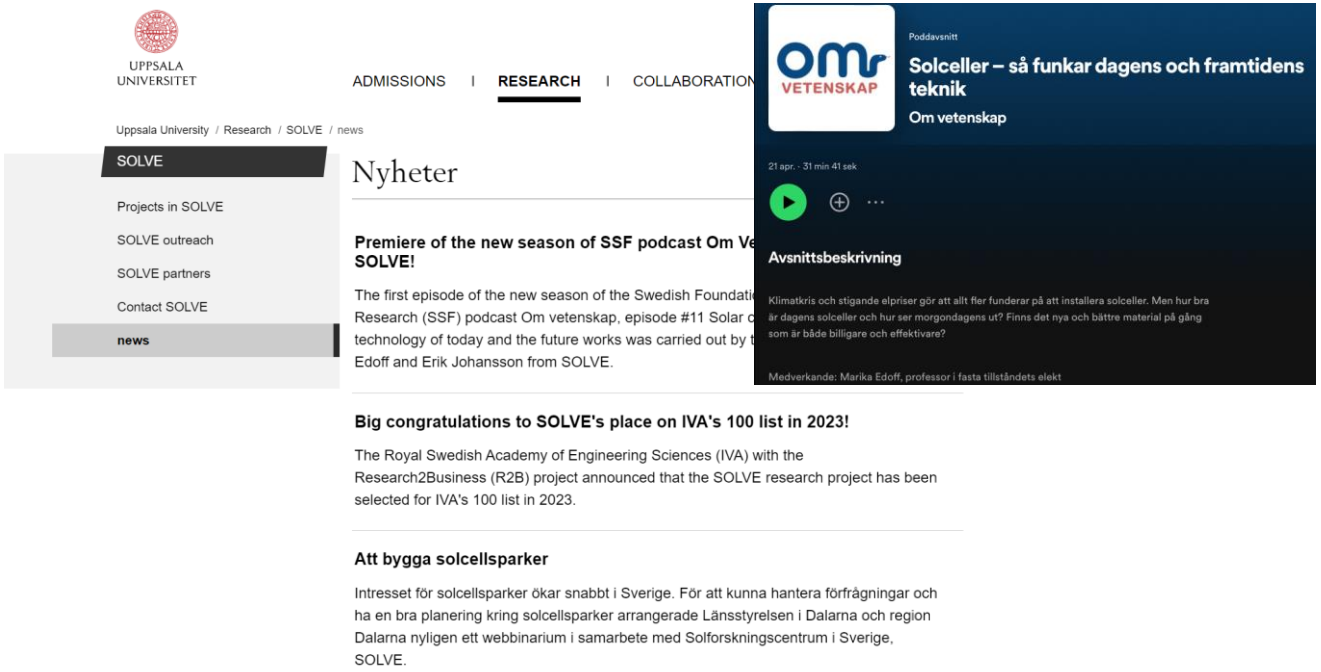
- October 3, 2023
  #1 ”Avancerad solcellsteknik”
- December 12, 2023
  #2 ”Agrivoltaics - en konfliktlösare”
- Q1 2024
  #3 Byggnadsintegrerad solel

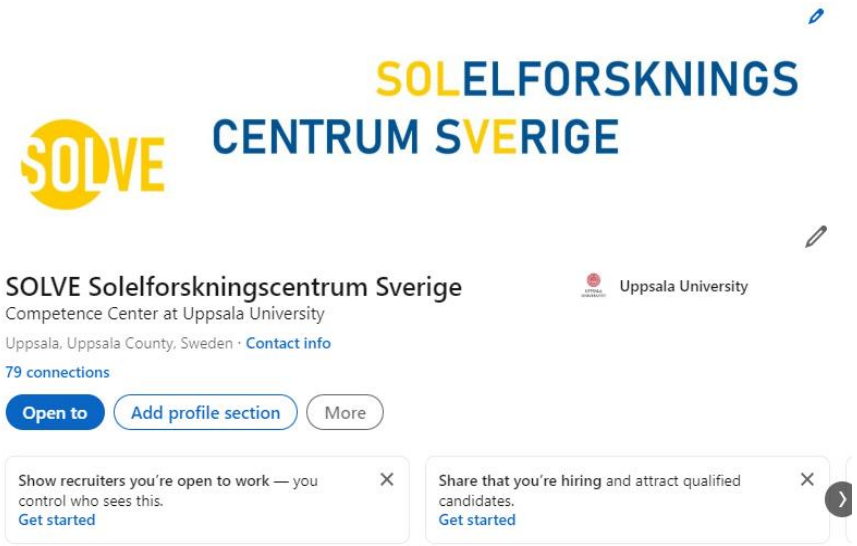
https://svensksolenergi.se/kalendarium/

https://energiforsk.se/konferenser/genomforda/avancerad-solcellsteknik/

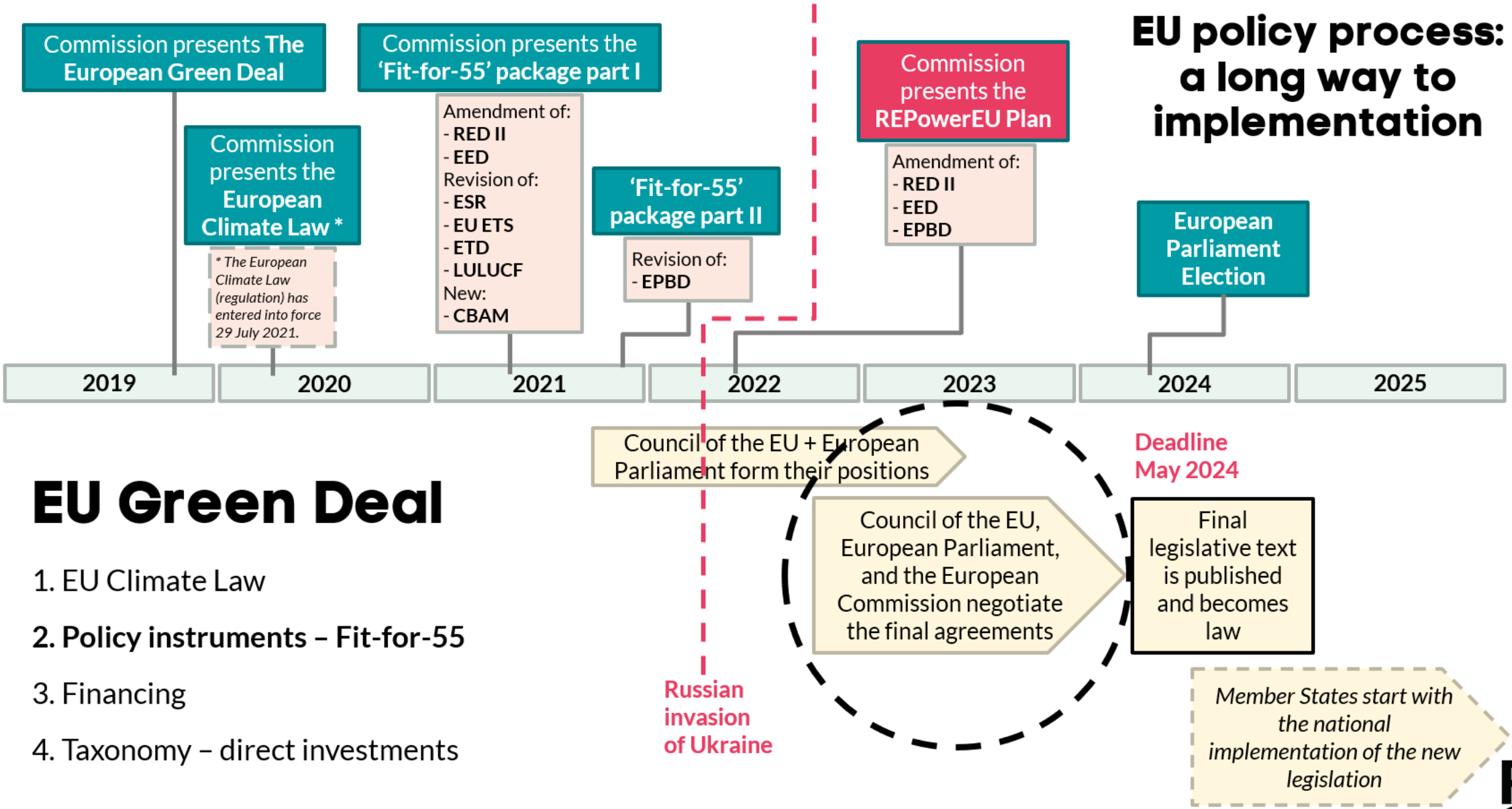
OUTREACH

- The SOLVE website: https://www.uu.se/forskning/solve/
- LinkedIn account
- Poddavsnitt i “Om vetenskap”





EU policy process: a long way to implementation



EU Green Deal

1. EU Climate Law
2. **Policy instruments – Fit-for-55**
3. Financing
4. Taxonomy – direct investments

EPBD - Article 9a

Solar Energy in Buildings

EU kommissionen 18/5 2022

*Make the installation of rooftop solar energy **compulsory** for:*

- *all **new public and commercial buildings** with useful floor area larger than 250 m² by 2026*
- *all **existing public and commercial buildings** with useful floor area larger than 250 m² by 2027*
- *all **new residential buildings** by 2029*

Från obilgatoriskt krav på solcellsinstallation..

EU Rådet 25/10 2022

*Member States shall ensure the deployment of **suitable** solar energy installations:*

- *(a) by 31 December 2026, on all **new public and non-residential buildings** with useful floor area over 250 m2*
- *(b) by 31 December 2027, on **all existing public and non-residential buildings** undergoing a major or a deep renovation with useful floor area over 400 m2; and*
- *(c) by 31 December 2029, on all **new residential buildings**.*

..till lämplig installation..

EU Parlamentet 14/3 2023

*Member States shall ensure the deployment of suitable solar energy installations, if **technically suitable and economically and functionally feasible, as follows:***

(a) *by ... [24 months after the date of entry into force of this Directive], on all **new public and new non-residential buildings;***

(b) *(b) by 31 December 2026, on all **existing public and non-residential buildings**;*

(c) *(c) by 31 December 2028, on all **new residential buildings and roofed carparks;***

(d) *(d) by 31 December 2032, on all **buildings undergoing major renovation***

..till lämplig installation där det är ekonomiskt och funktionellt möjligt.

RI. SE

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