



SolarPower
Europe

Development of Solar Power as energy resource

Jonathan Bonadio

Senior Policy Advisor

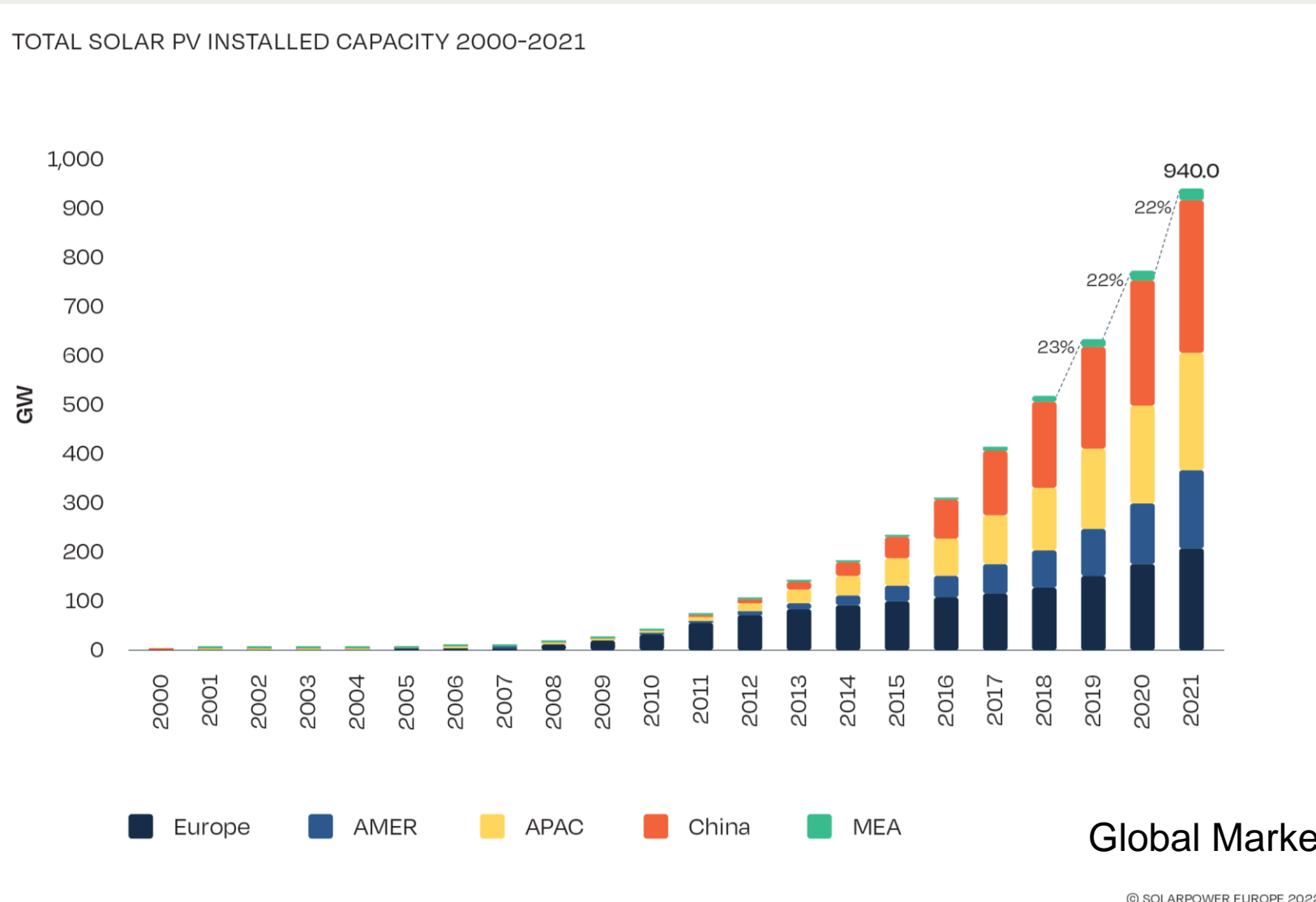
28th September 2022

Aluminium Conference 2022

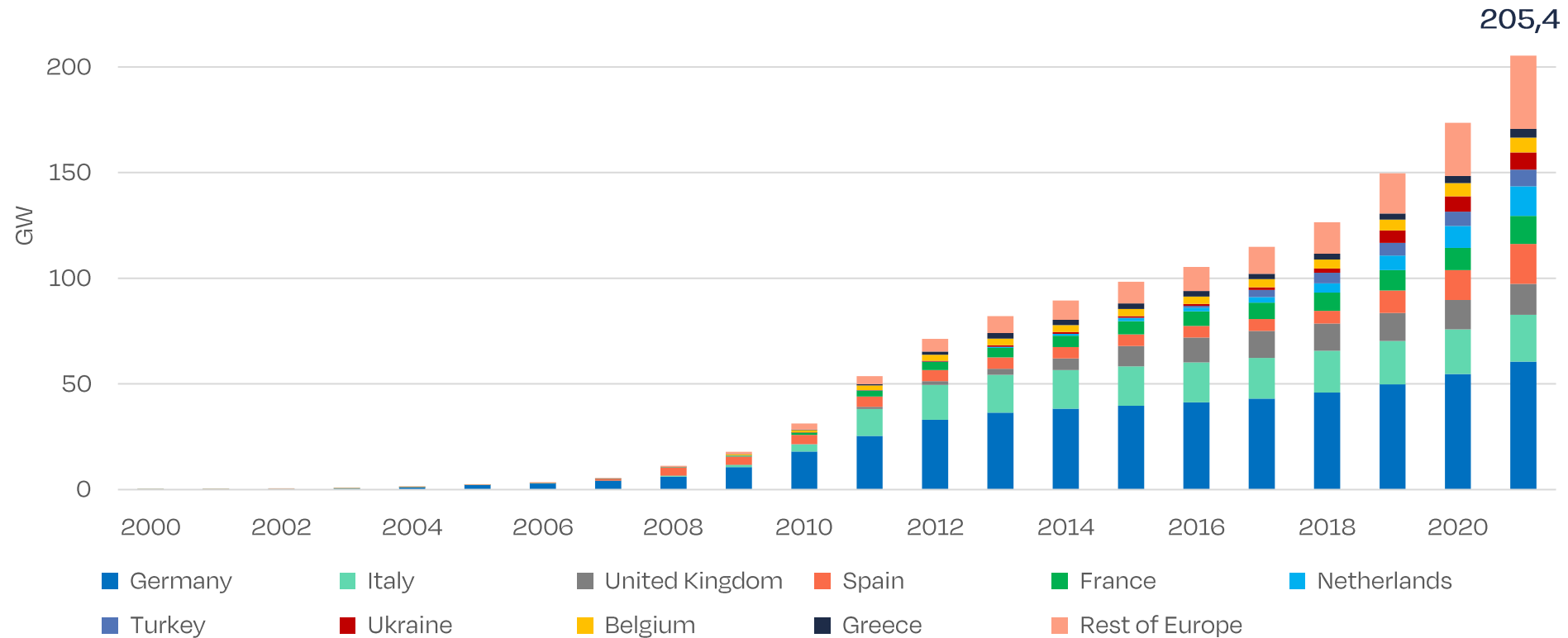
Solar power on the rise



Global solar PV installation



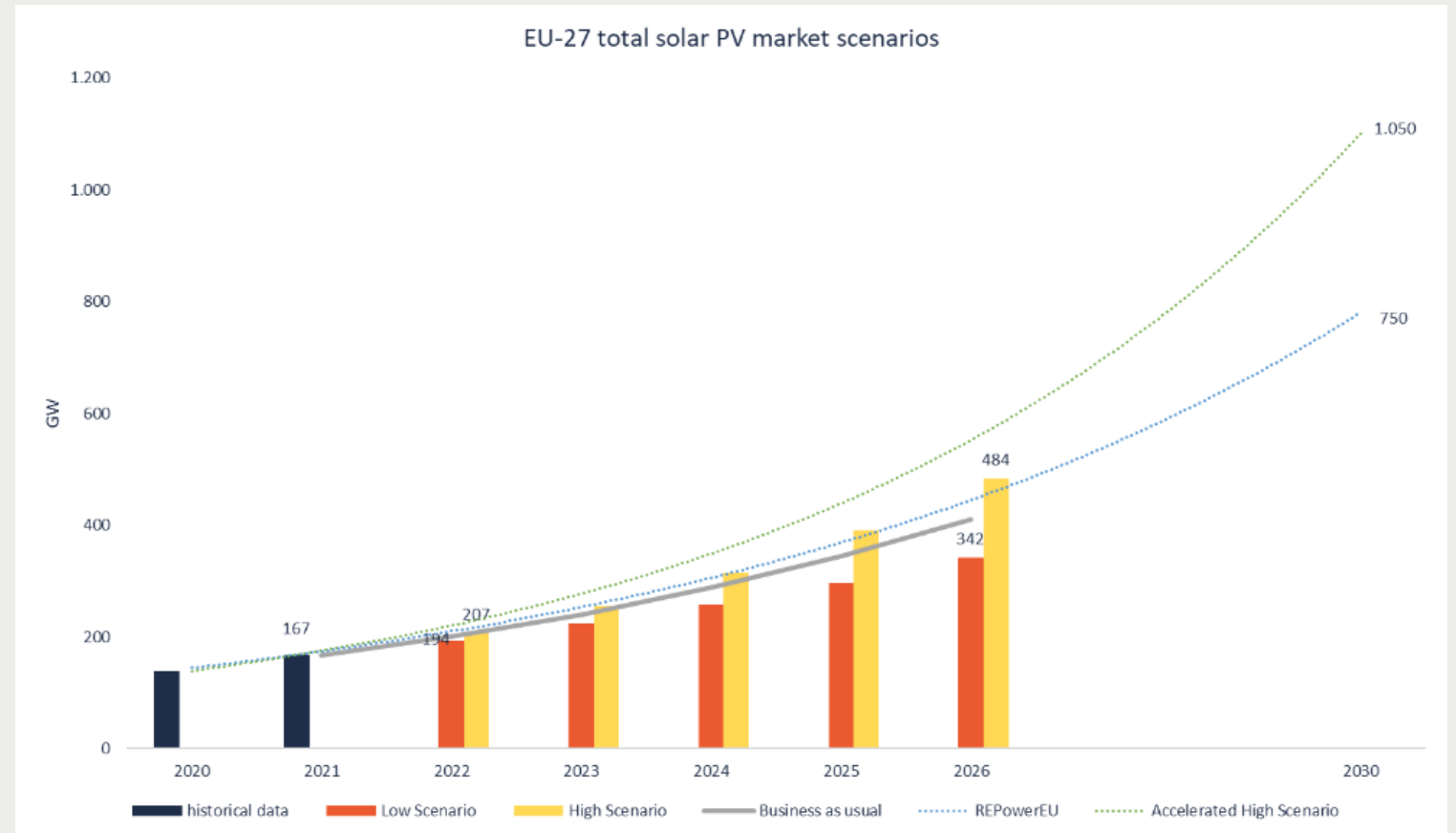
>200 GW installed in Europe



Solar Power is the energy with the highest growth rate

Solar Strategy - New targets – x2 in 3 years

- 320 GWac / 400 GWdc in 2025
- 600 GWac / 750 GWdc in 2030
- Annual installation rate 58.3 GWdc until 2025 and 68 GWdc until 2030 (+60% increase)
- 1 TWdc in 2030 in SolarPower Europe Accelerated High Scenario



REpowerEU supporting Solar PV in all segments



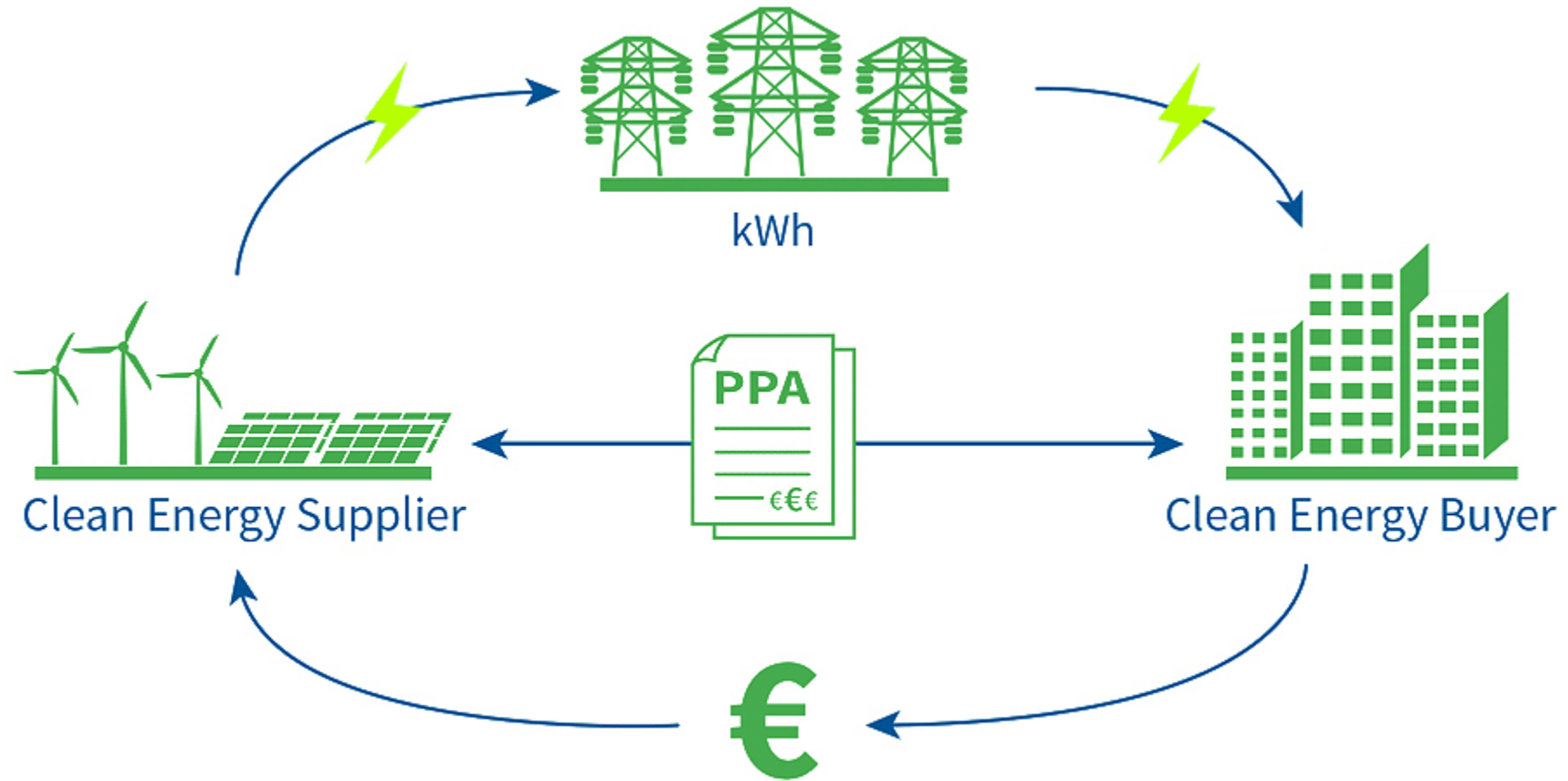
REPowerEU package : a broad-based approach

1. New **solar ambition** of 400 GWDC by 2025 and 750 GWDC by 2030, supported by financing instruments (Innovation fund, Resilient recovery facility, Cohesion funds)
2. New European **Solar Rooftops Initiative**, including a solar mandate on all new and renovated public and commercial buildings from 2027 and all new residential buildings from 2029
3. New **go-to areas for renewable energy projects** are, exempted from environmental impact assessment and with firm permit-granting timelines; including attention to innovative forms such as Agri PV, Floating PV, Building-Integrated PV
4. New EU **Solar PV Industry Alliance** aiming for 20 GW of EU manufacturing by 2025
5. New EU **export credit strategy** for solar energy exports in the external energy engagement strategy

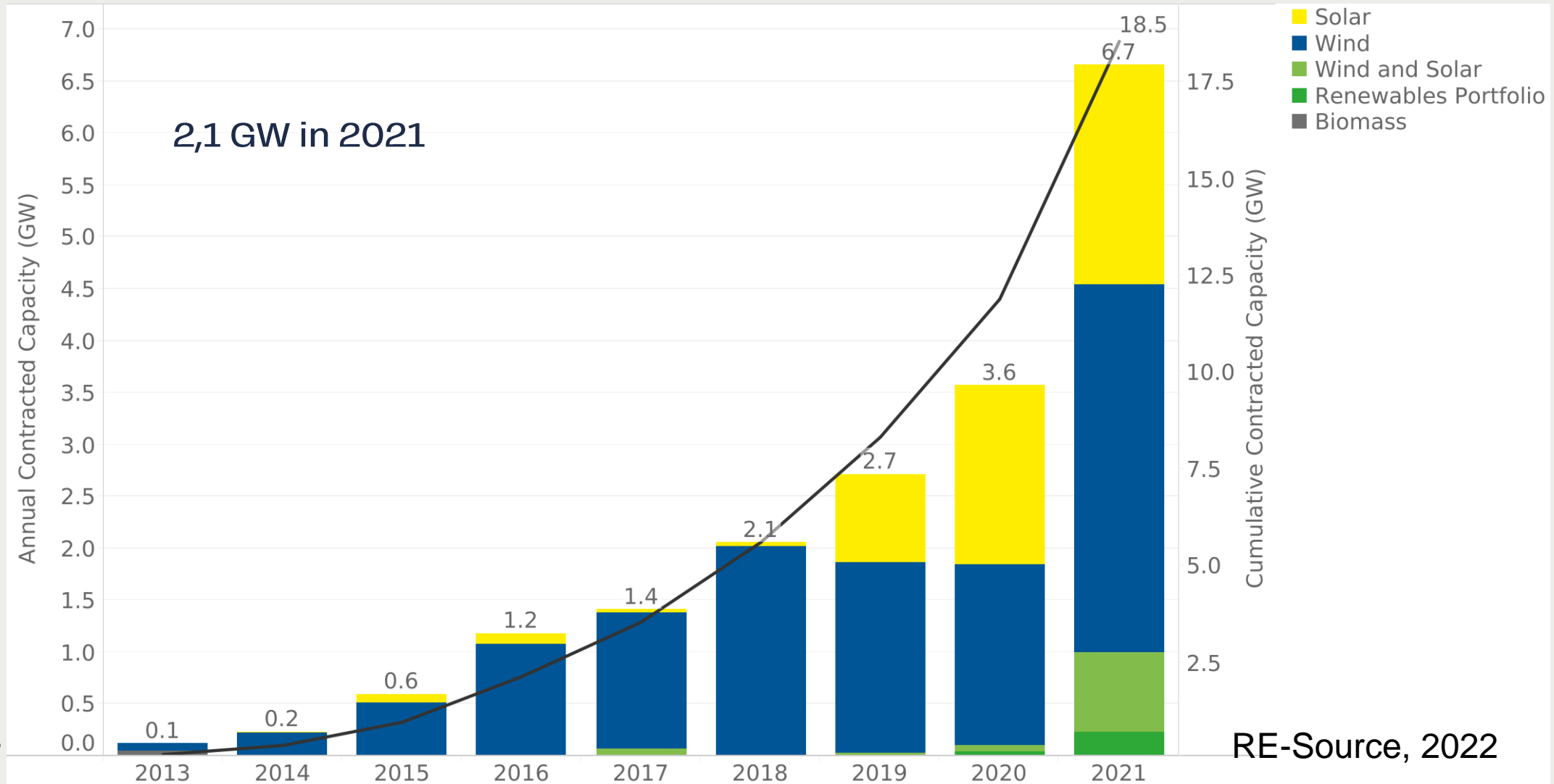
PPAs as key drivers for the energy transition



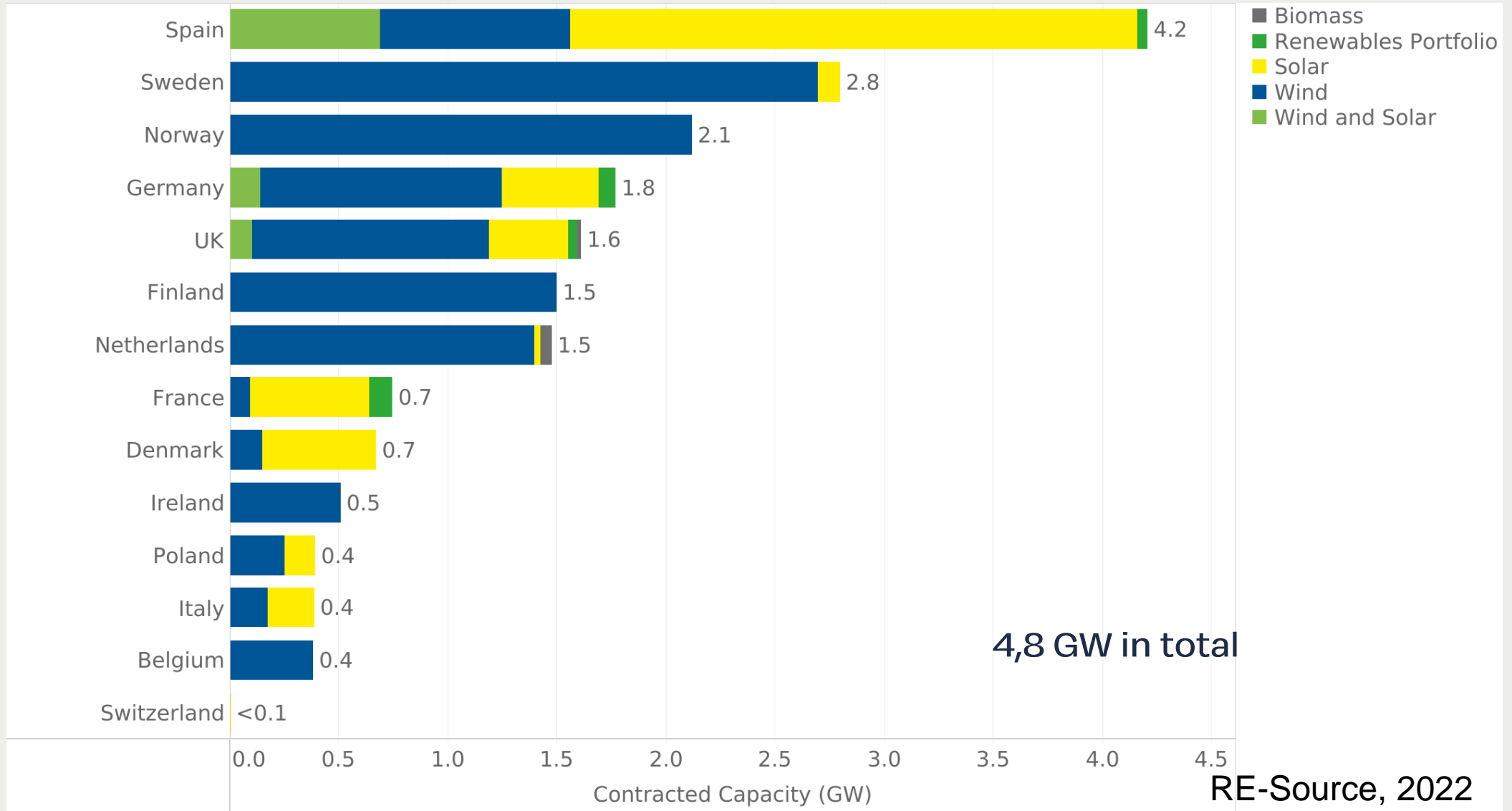
Renewable Power Purchase Agreements (PPAs)



Renewable PPAs – Solar on the rise



Renewable PPAs – Solar on the rise



Challenges and opportunities for solar PV suppliers



Difficult access for small-scale suppliers

- Lower credit rating
- Complexity of negotiations
- Limited portfolio of projects
- Lack of predictability on grid tariffs and taxes

In some MS

- Regulatory uncertainty
- High risk premium
- Lack of visibility on RES deployment

Supply chain challenges

- Supply chain
- Logistics bottlenecks
- Dependency on China



Under Energy Efficiency Directive : energy auditing companies to play as aggregators

Financing mechanisms to support PPAs for SMEs

Liquid wholesale power markets for "sleeving" contracts

Public tenders that are complementary to PPAs

Power Purchase Agreements in the REpowerEU package

In a nutshell

- Recommendations : non-binding document to facilitate PPAs for SMEs and through GOs
- Guidance : accompanies recommendations with examples and best practices

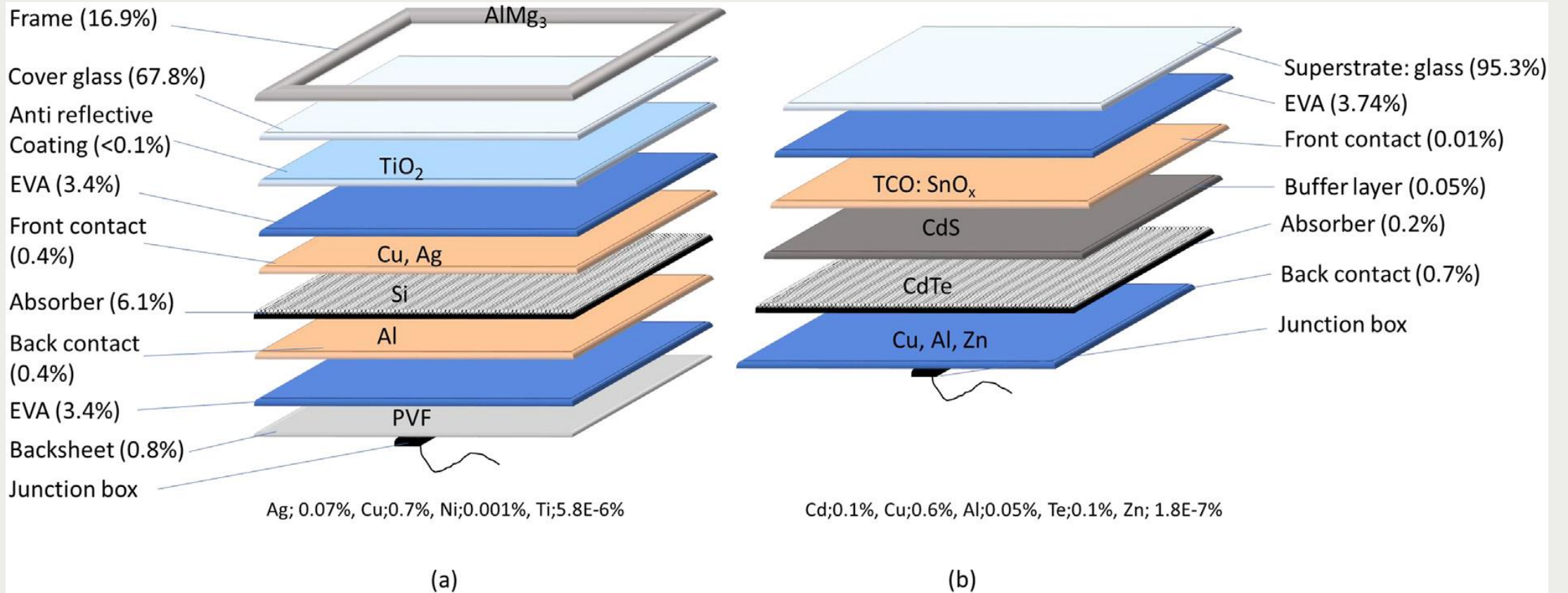
What about solar ?

- Use the EU Technical Support Instrument to have a detailed assessment to support PPAs
- Announce an indicative volume of RES deployment (such a step has been taken by Ireland)
- Tenders include the option for developers to take 'holidays' from support schemes and sell electricity through PPAs (this helped unlock the PPA market in Poland)
- Allow the issuing of GOs in public support schemes
- Promote flexible contracts for SMEs
- Enable on-site or near-site PPAs
- Enable collective purchasing of renewable electricity

Building an EU PV supply chain



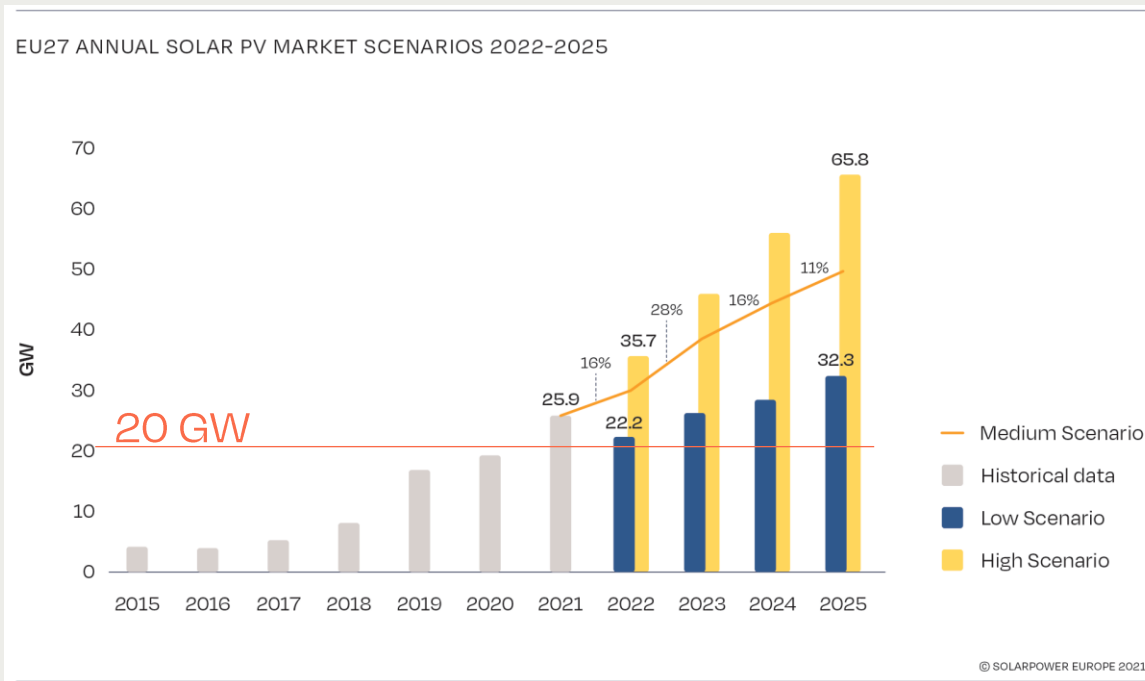
Building a solar PV panel



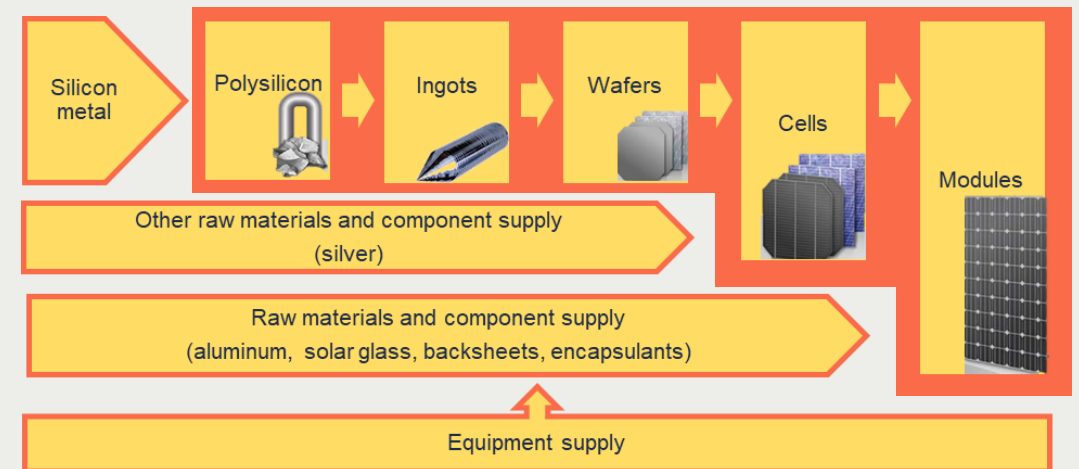
Source : Maani et al., *Environmental impacts of recycling crystalline silicon (c-Si) and cadmium telluride (CDTE) solar panels*, 2020

The European Solar Initiative sets a vision for the solar industry.

At least 20 GW manufacturing capacity by 2025



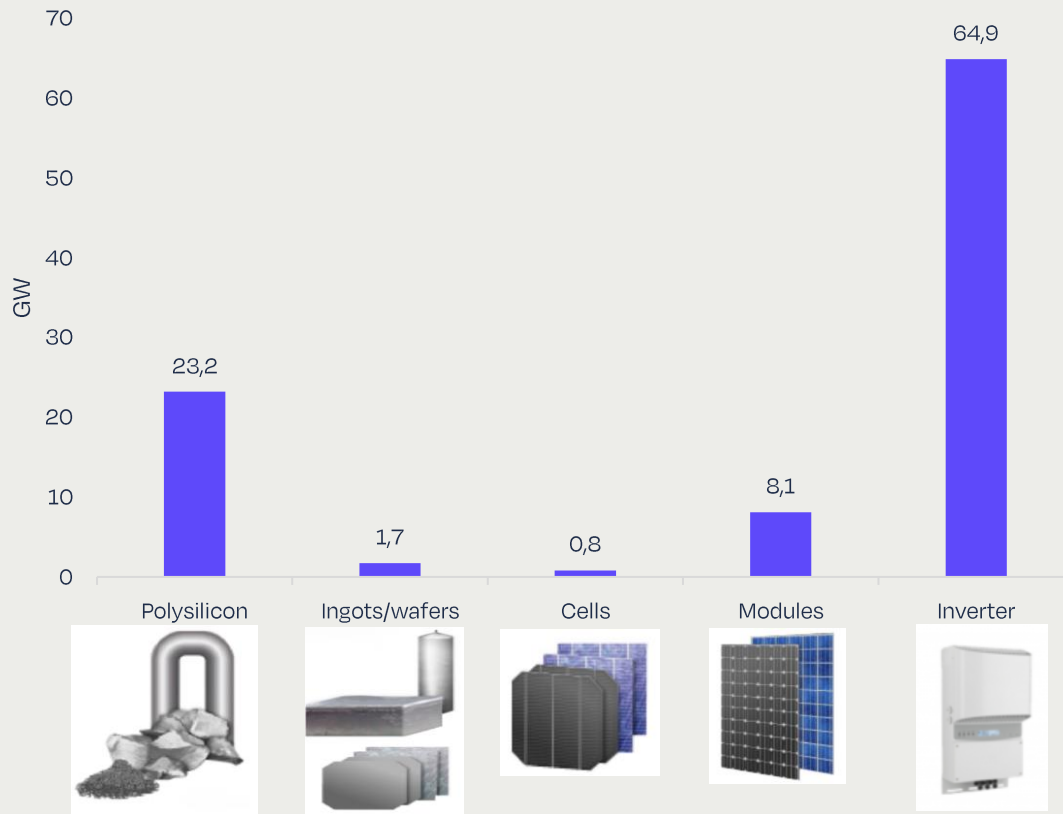
Capturing the core silicon value chain (polysilicon to modules), with a strategic outlook on secondary materials and components



Share of the demand captured by EU production (although some of the production will be exported)

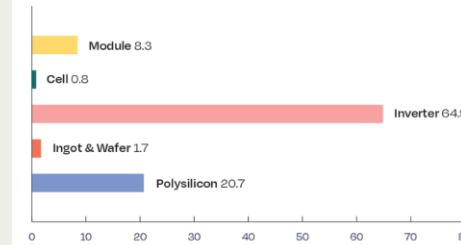
The EU has a strong solar industrial base

EU27 solar manufacturing capacity 2021

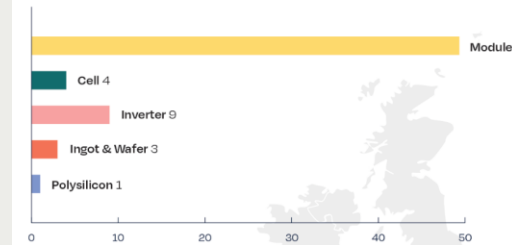


EU27 AND NORWAY SOLAR MANUFACTURING MAP

Production capacity (GW)

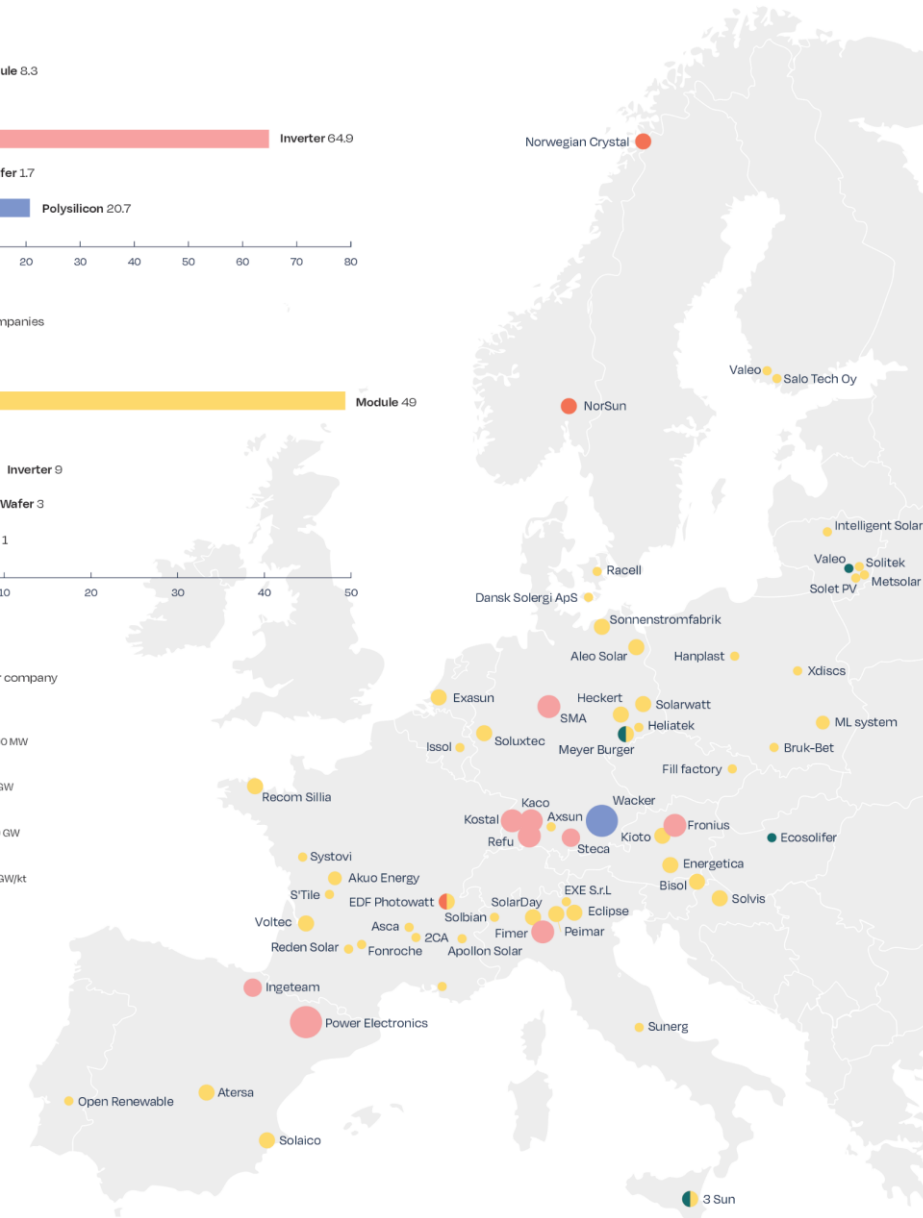


Number of companies

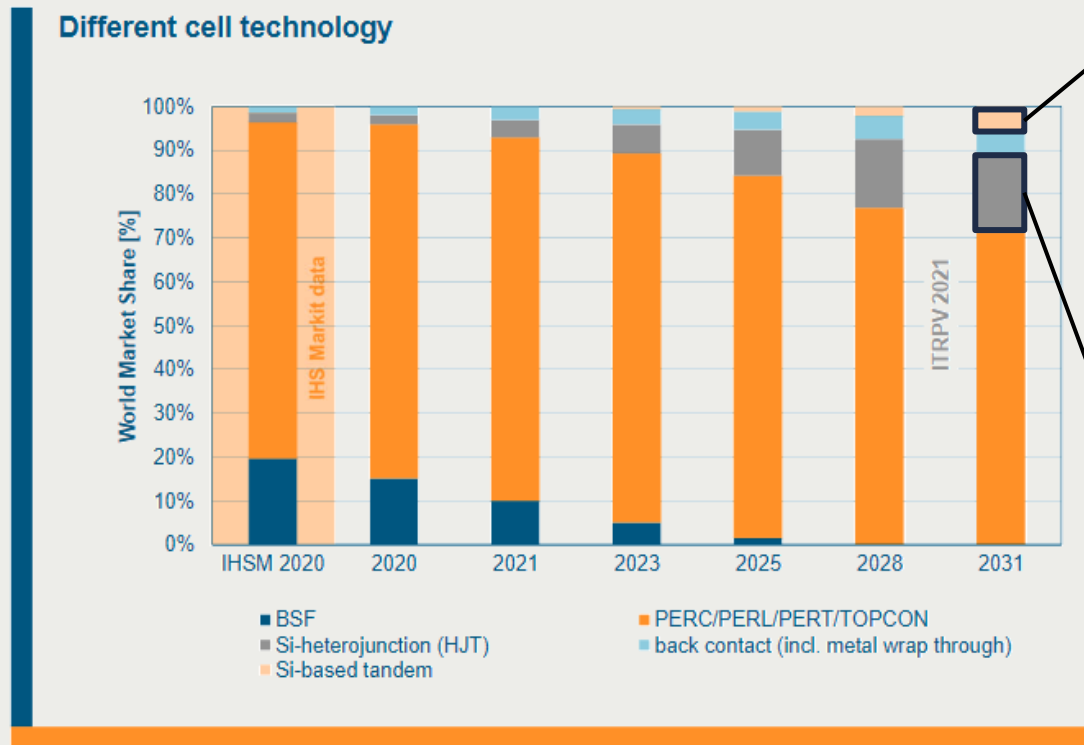


Production per company

- ≤ 100 MW
- ≤ 1 GW
- ≤ 10 GW
- > 10 GW/kt



Our strength: the cell technologies of the future are being developed in Europe, in the top 3 leaders in R&I (with Japan and S-Korea)



Perovskite technologies:

- (UK / DE) Oxford PV: a certified **29.52% conversion efficiency** with their perovskite-silicon solar cell
- (BE/NL/DE) Solliance consortium: **29.2% efficiency** with their lab perovskite / silicon solar cell.
- (FR) research institute IPVF: realised a mini module (25cm²) of **16% efficiency**, with a potential of 30%+ efficiency when combined with advanced silicon technologies.

Heterojunction technologies: several world-records established by French research institute CEA INES since 2012

Fig. 32: Market shares for different cell technologies. IHS Markit data for 2020 are indicated as reference [16].

An EU solar renaissance has started

Cells and module production projects are redeveloping

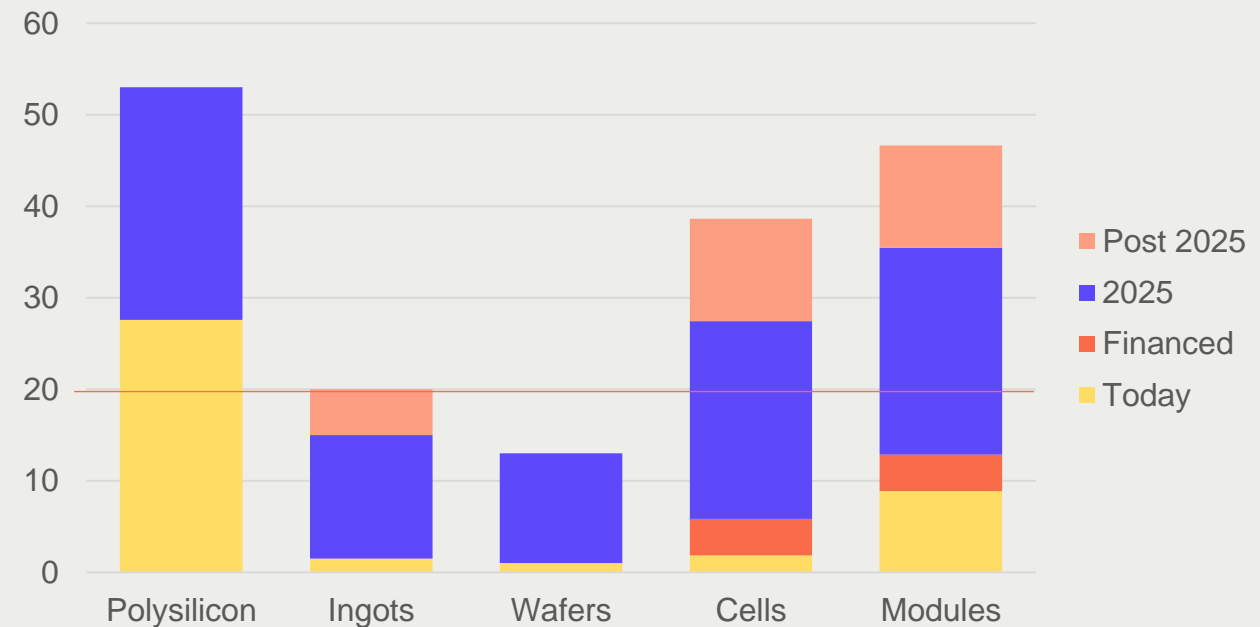
+3 GW cell and module production in Italy (3SUN Factory)

+1.2 GW cell and module production in Germany (Meyer Burger)

+2 GW cell and module production in France (REC Solar)

Reinvesting into ingots & wafer capacity will be critical

Current and forecasted EU production capacity

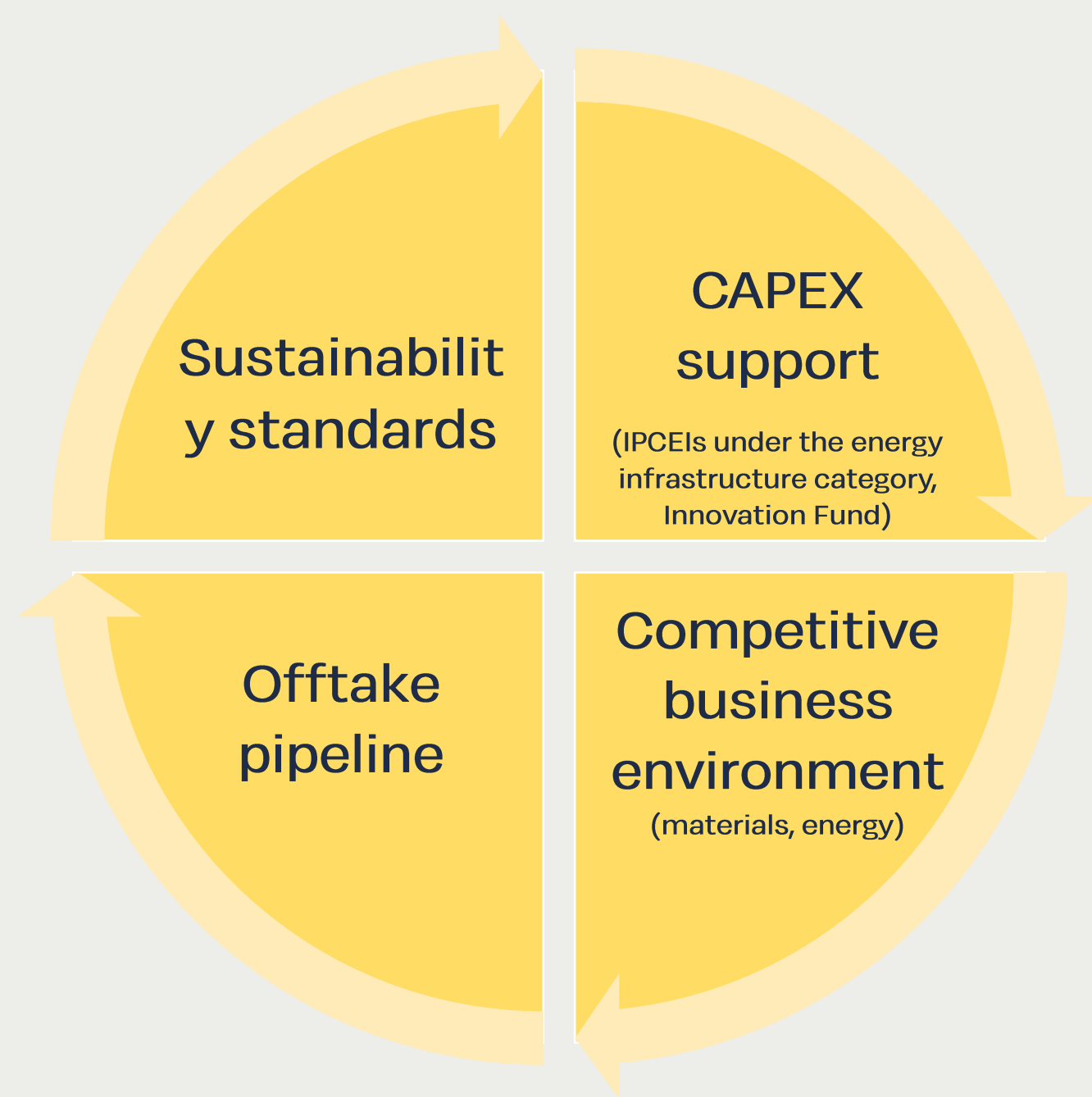


Source: SolarPower Europe's estimates based on company announcements.

A new EU Solar PV Industrial Alliance in 2022

Our KPIs

- **Be a forum for member states coordination**
- **Deliver a true solar PV regulatory industrial strategy (see on the right)**
- **Come up with a dedicated solar PV manufacturing financing scheme**



Thank you for your
attention.

