RCT solutions

get in
TOUCH

India's Giga-Scale PV Manufacturing Ecosystem

Welcome Speech

Prof. Dr. Peter Fath
Founder & CEO - RCT Group
February 2026

RCT Solutions GmbH

A member of RCT Group

One-Stop Renewable Solutions Partner

An Integrated
Renewable Ecosystem

14 Years RCT solutions

RCT Solutions

RCT solutions

2012
Founded
Engineering & consulting firm

26 Countries
Operating Worldwide

73 GW Engineered
Integrated PV incl. ingot/wafer, cell, module fabs

RCT Power

RCT power

5th Largest ESS provider
Bloomberg Tier 1 listed

>25 GWh (10 GWh USA)
Total shipment

Best Storage
Awarded 6 years in a row

RCT Pro

RCT Pro

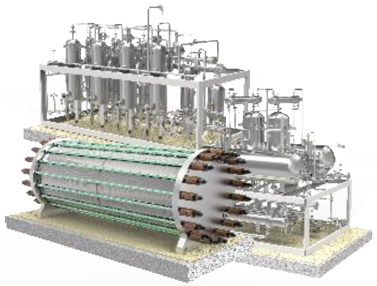
100% German Shareholding

C&I and BESS focus
Key know-how

European Leadership

RCT Hydrogen

RCT hydrogen



>70 MW
Globally deployed HGS

>1.000 MW
Manufacturing capacity

Modular Design
100 kW – 20 MW flexibility

RCT Financial Advisory

RCT finance advisory

2025
Founded

ECA-Backed Financing
Securing longer loans

Clean-Energy Mandate
Solar, storage, hydrogen

RCT Future

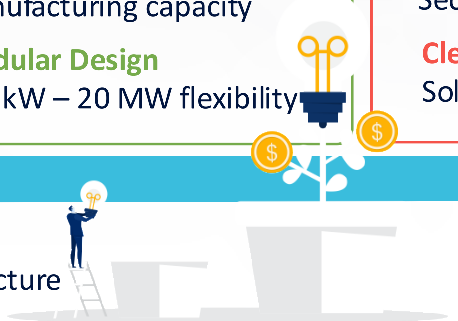
RCT future

Seed funding
Early stage

Investing Ideas
Stable growth

Centralized
Venture markets

Stable
Investment structure



Global top Brand of
Renewable Solutions

Headquarter
Germany

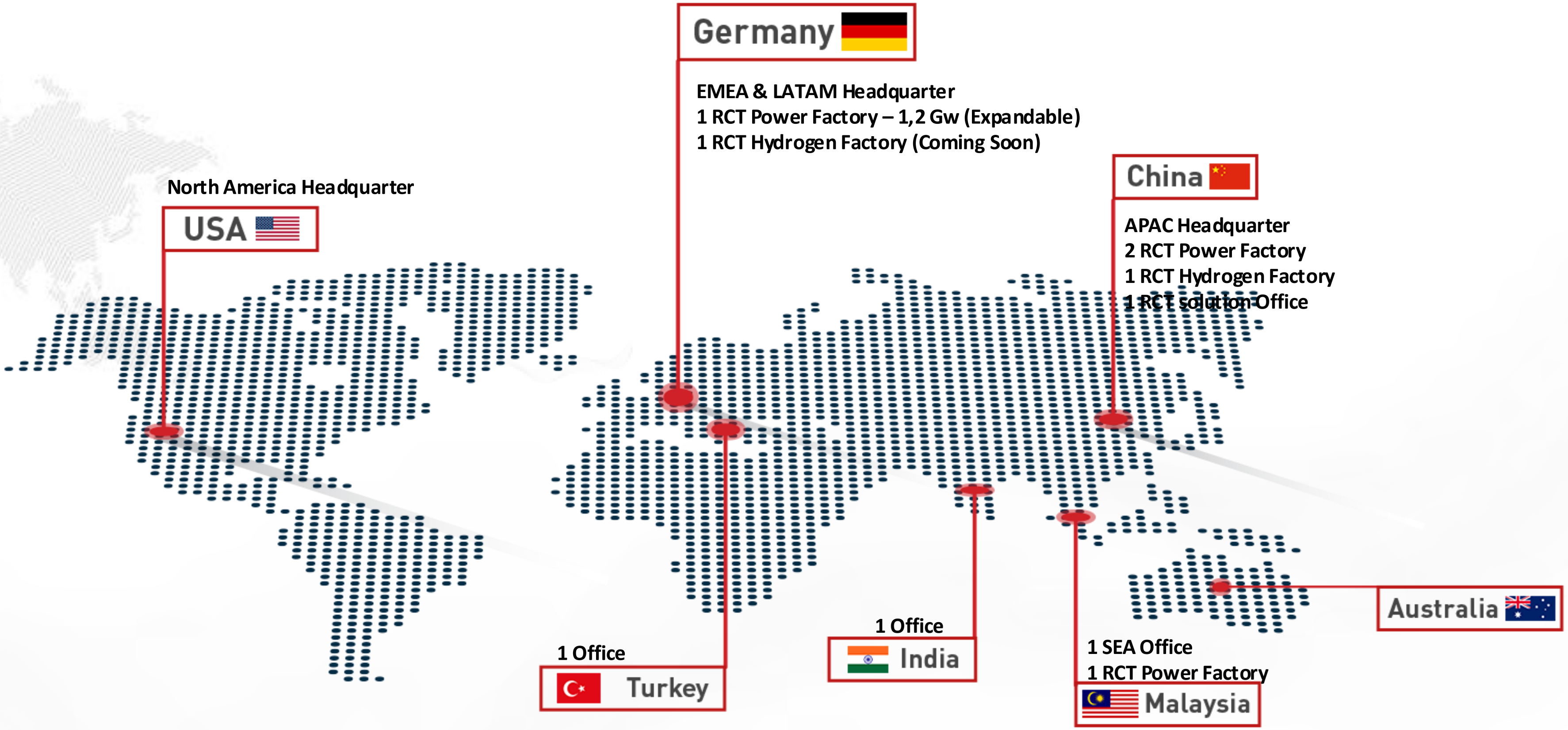
Employees
650+

Manufacturing
Germany, China, Malaysia

Cumulative Shipment
25 GWh

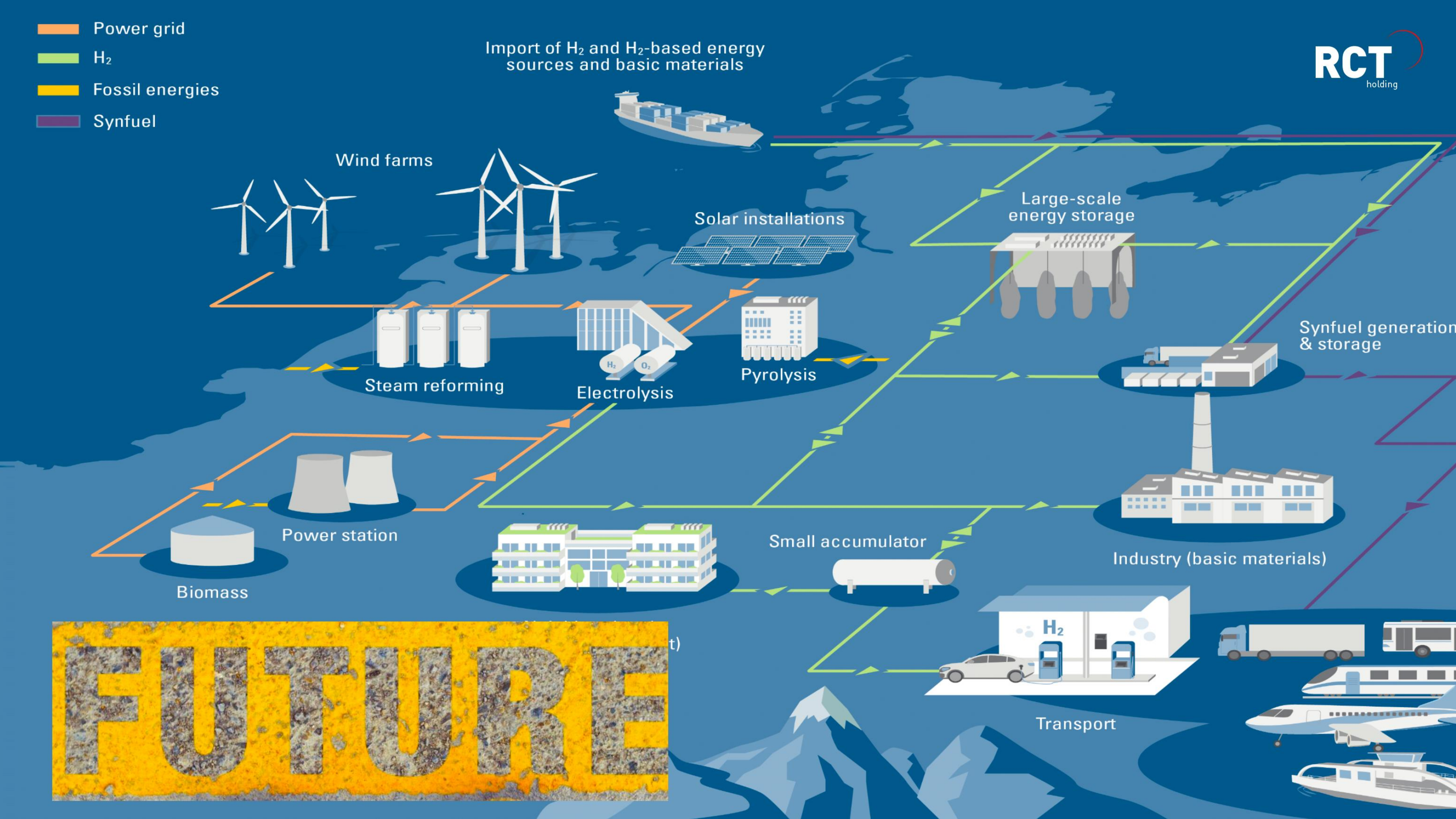
27 Countries
Active services

73 GW
Executed PV engineering



Hochvolttechnologie vom Bodensee

Technology and Design
Made in Germany


Power grid
H_2
Fossil energies
Synfuel
Import of H_2 and H_2-based energy sources and basic materials
RCT holding
Wind farms
Solar installations
Large-scale energy storage
Synfuel generation & storage
Steam reforming
Electrolysis
H_2
O_2
Pyrolysis
Power station
Biomass
Small accumulator
Industry (basic materials)
H_2
Transport
FUTURE

From Fast-Growing Market to
Global Solar Powerhouse. INDIA Case

Supply Chain

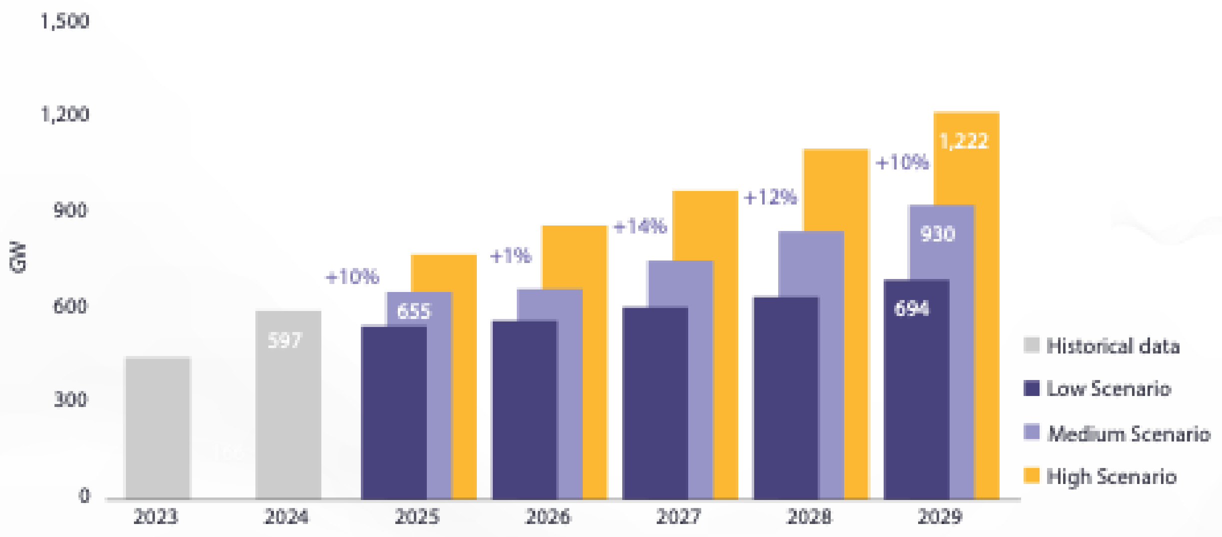
Scaling Up

Market Access

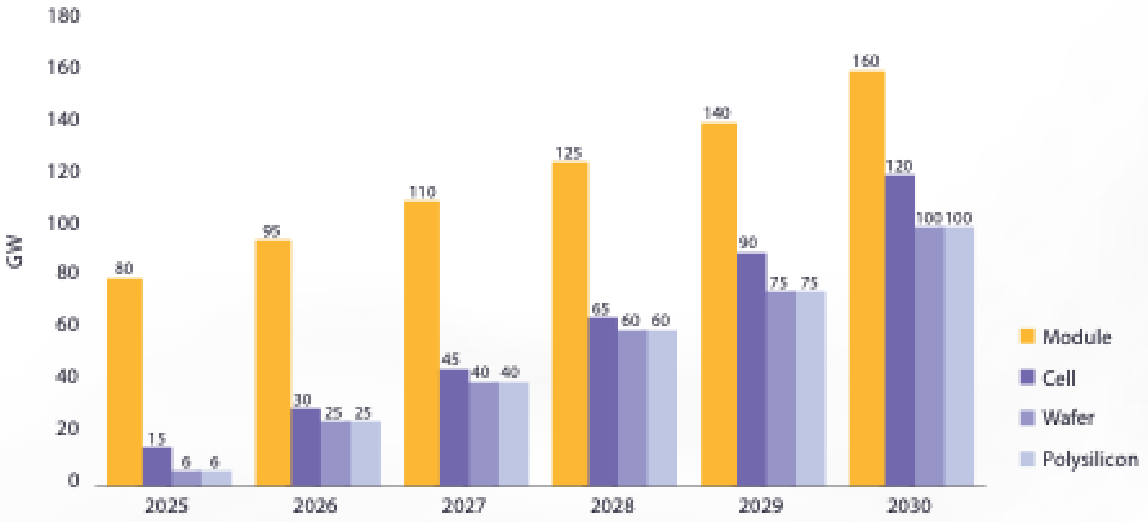
Largest Value-Chain
Expansion Opportunity for India's Solar Sector

Global Market Reach
Asia-Pasific to reach 70% capacity

World annual solar PV market scenarios 2025-2029



India annual solar manufacturing capacity projection 2025-2030



Source: NSEI & SPE

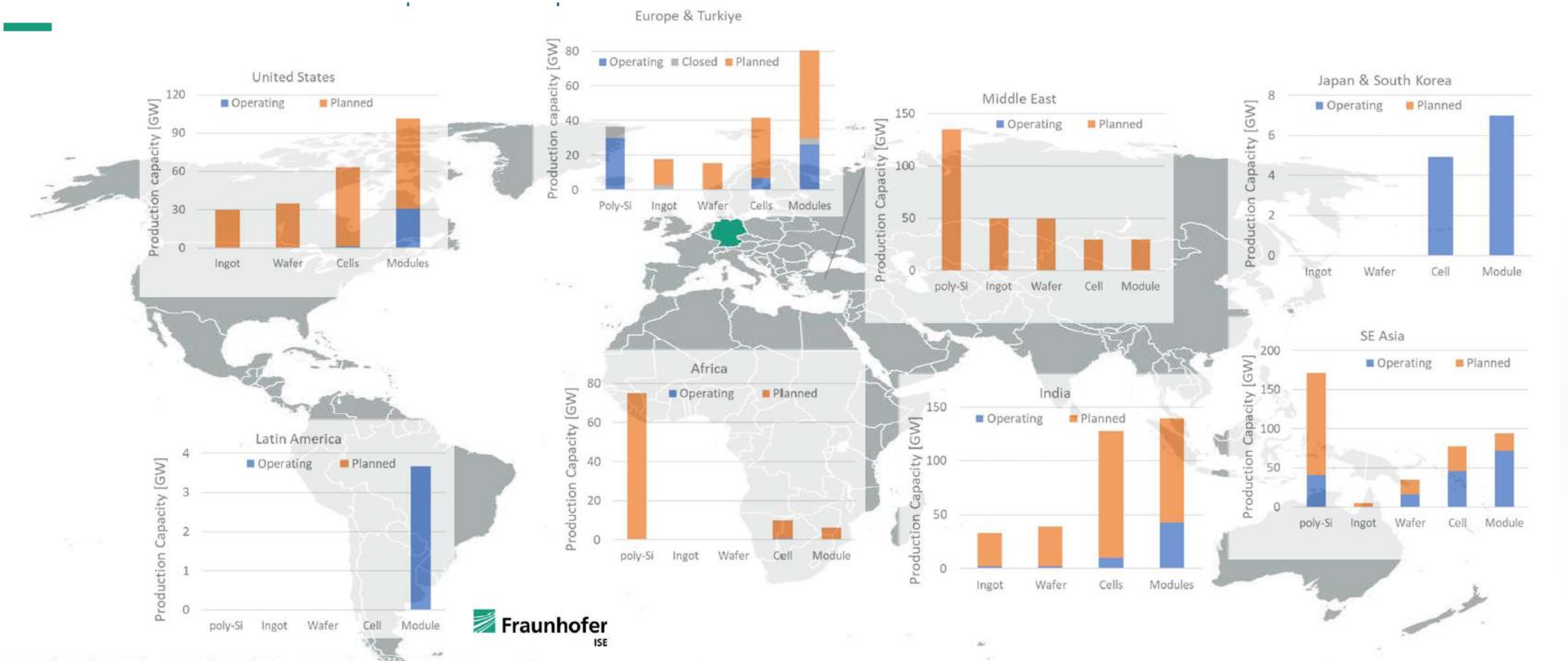
33%
Annual market growth

7.1 TW
Total capacity by 2030

India
Number 3 on Top 10 PV Market

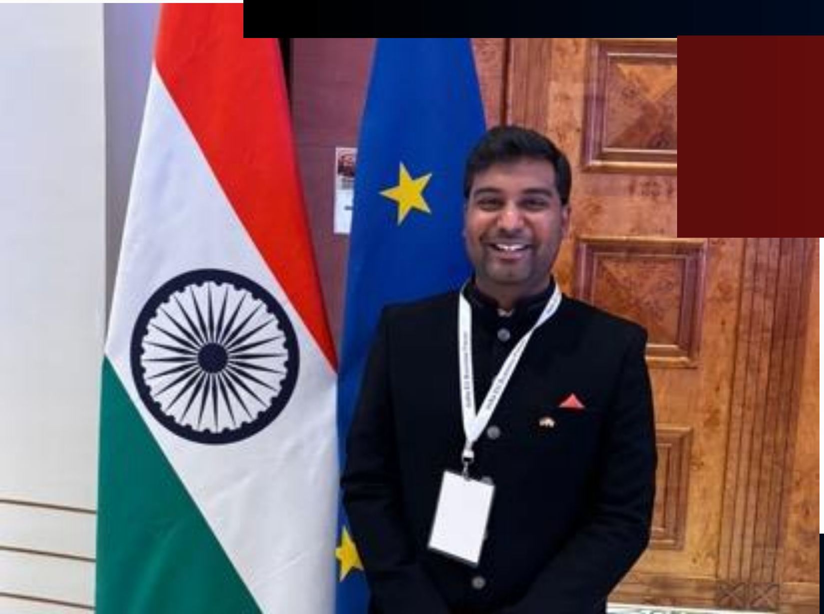
Global Production Capacities

Current & Announced Capacities (September 2025)



Data and Graph: Dr. Jochen Rentsch, Fraunhofer ISE 2025; last update: 09/2025

Mother of
All deals
Is here!



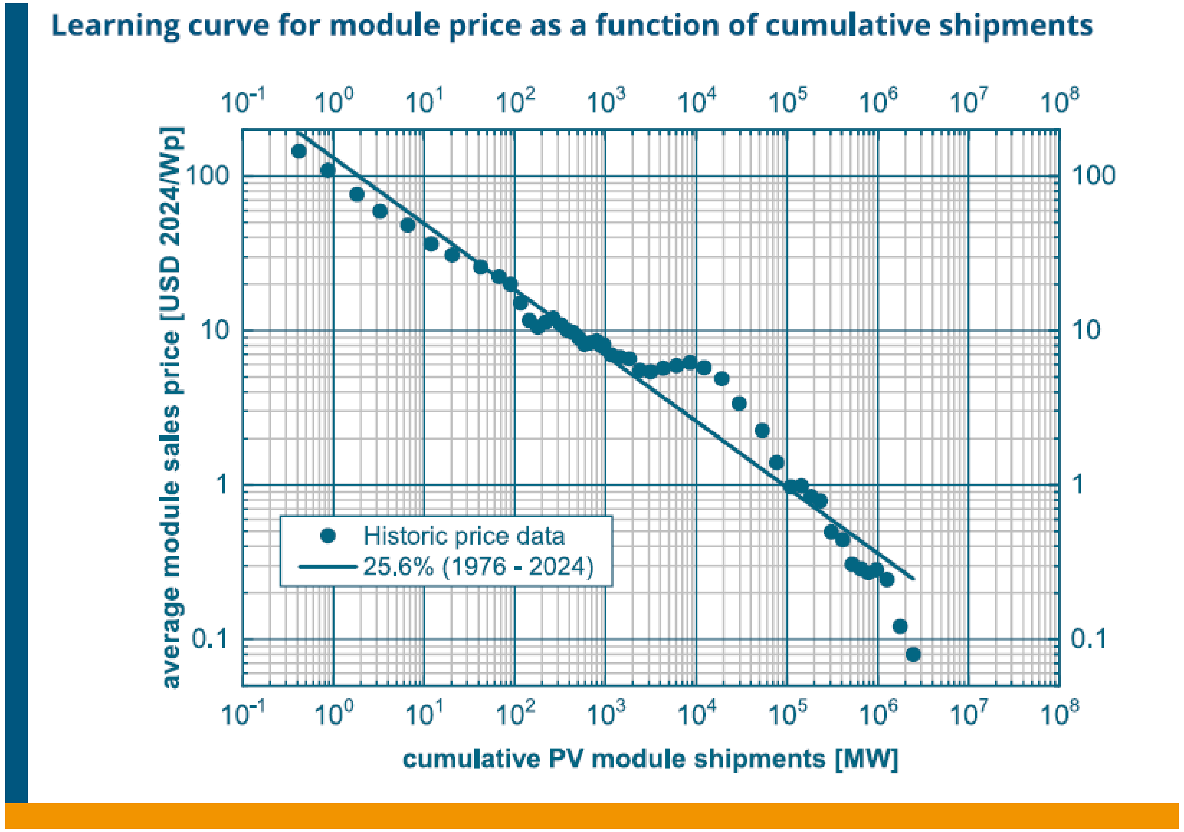
~25% of global GDP combined

EU market: ~450 million consumers

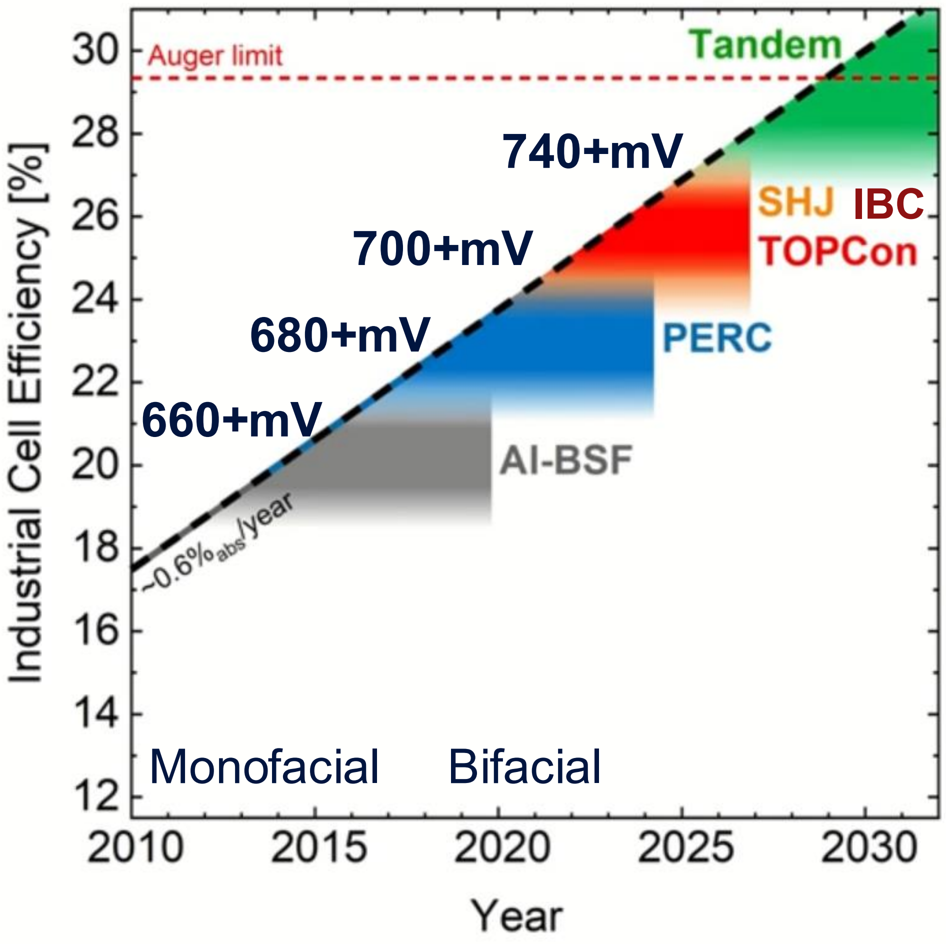
Clean tech identified as a strategic pillar

Two economic blocs aligning trade, technology & clean energy supply chains

PV learning curves - We accomplished a lot
Substantial cost reductions and efficiency improvments

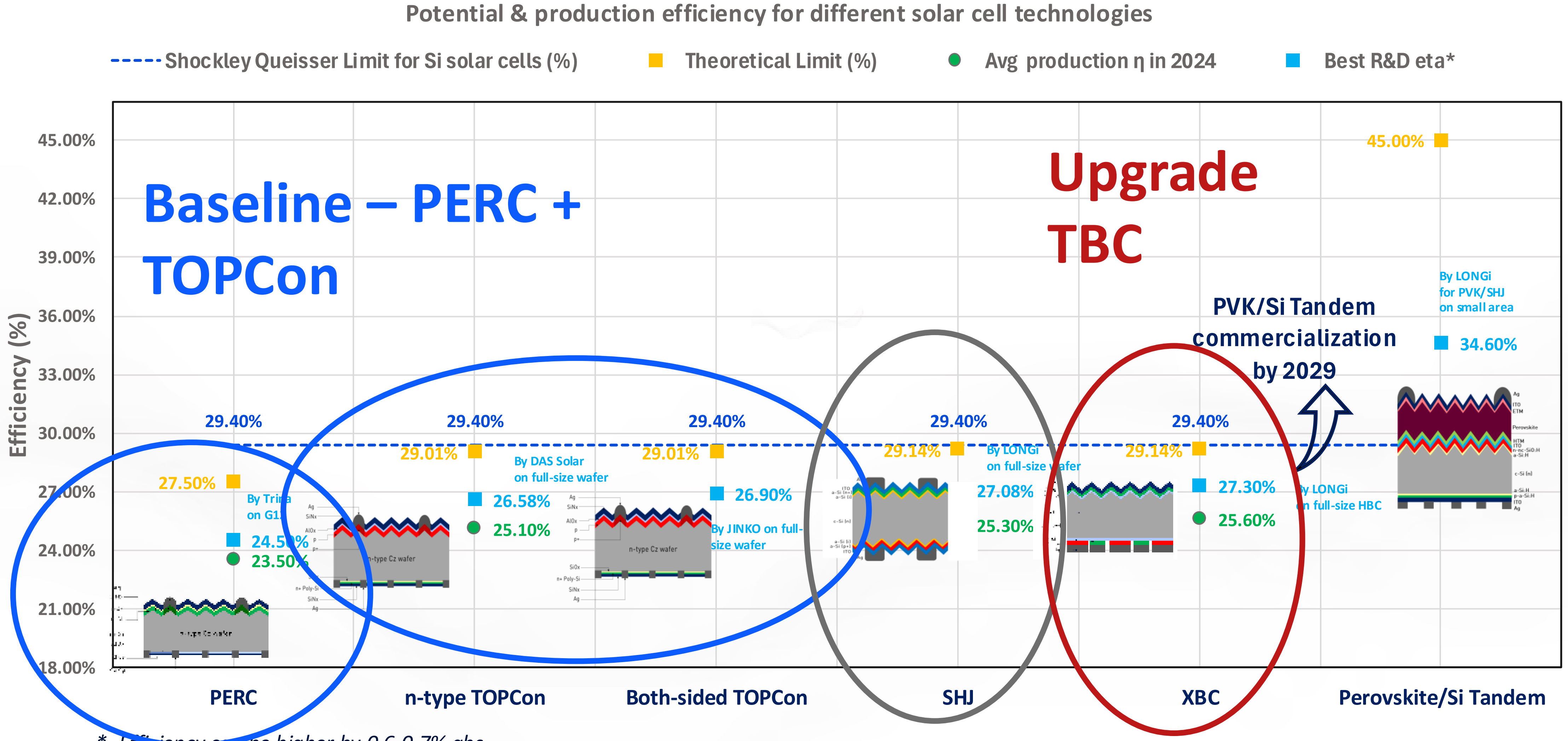


Source: ITRPV 2025



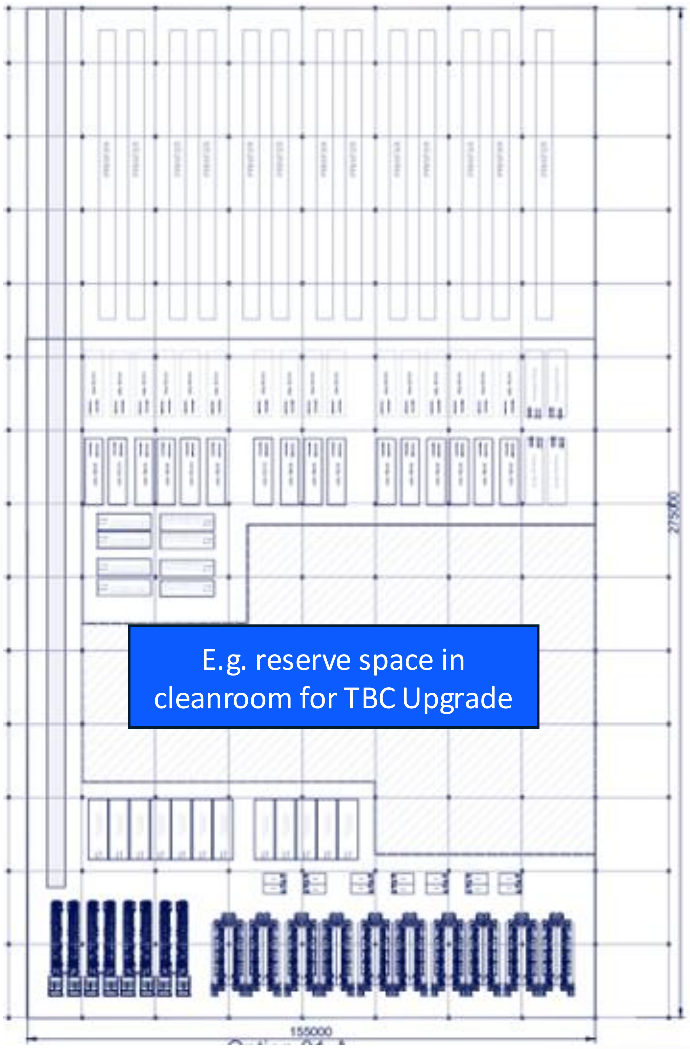
Source: ISC Konstanz, adapted from M. Hermle (ISE)

Technology Selection – What is next?
Solar cell efficiency limits & status



*- Efficiency can be higher by 0.6-0.7% abs

Conceptional Engineering– Prepare your factory for innovations
Layout – Reserve space within each equipment cluster

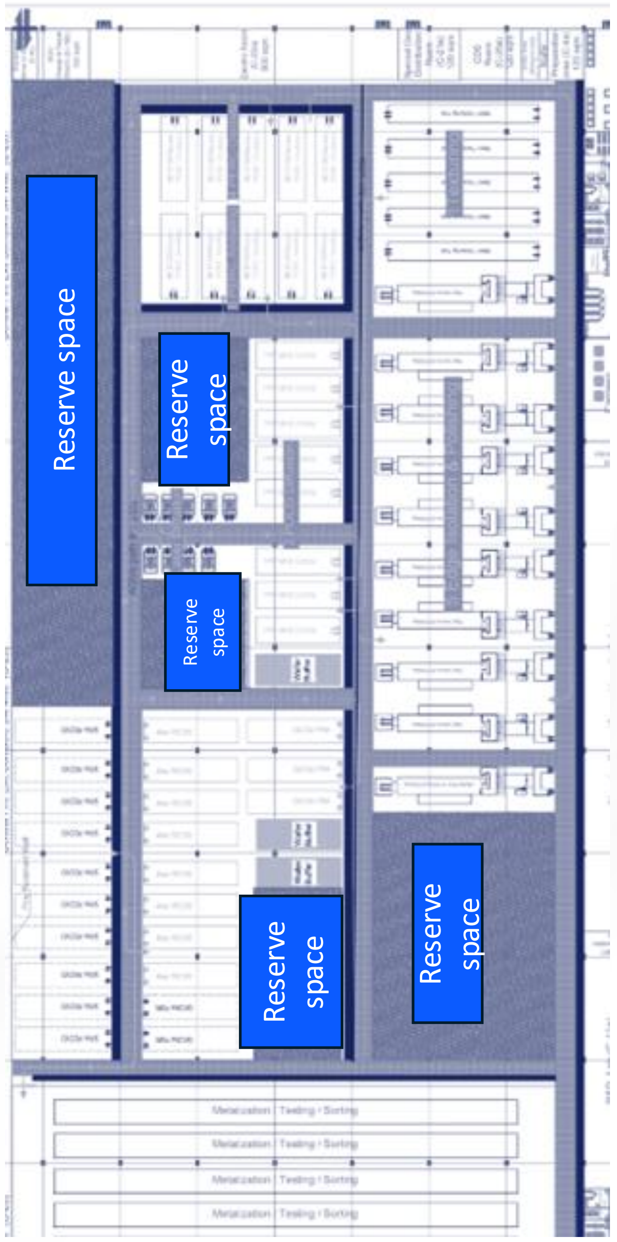


← Option1 : Separated Reserve Space for Upgrade

- Easier to temporary close or separate (OPEX reduction of cleanroom or renting out temporarily)

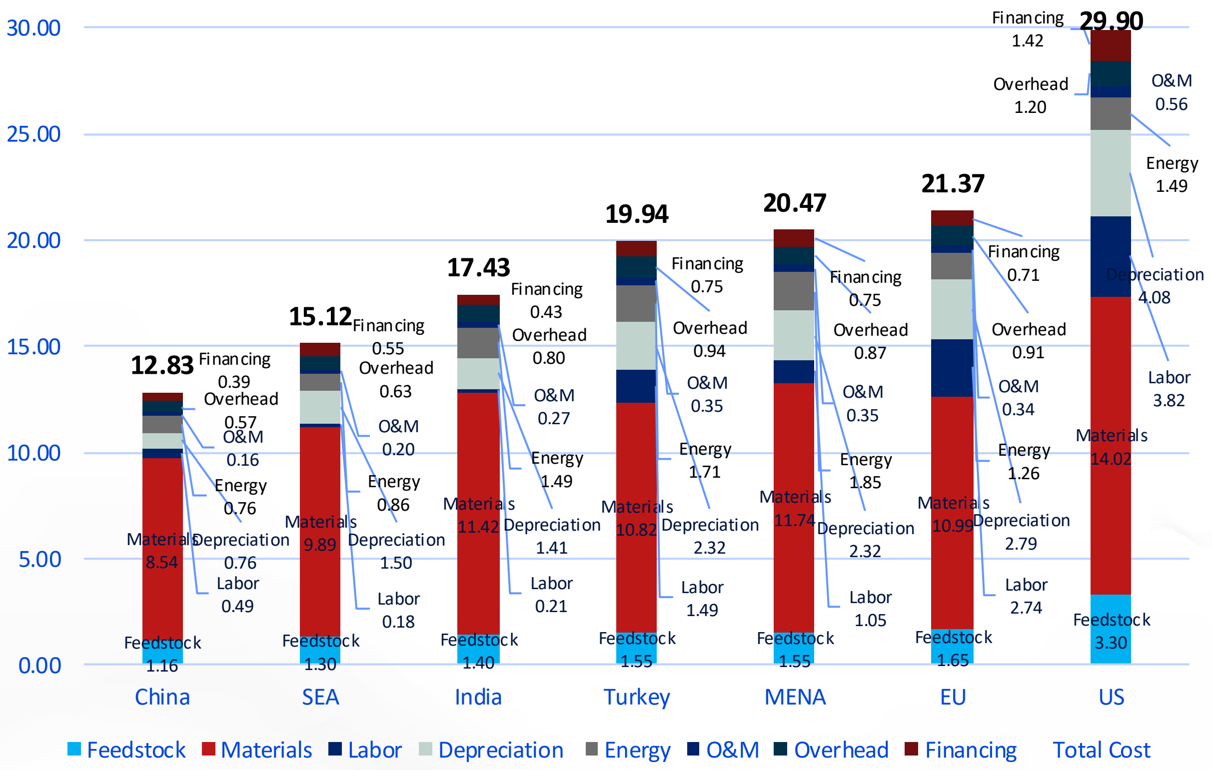
Option 2: Reserve Space Inside the Factory in each Cluster: →

- Piping can be reduced
- Improved material and personnel flow after process or technology upgrade



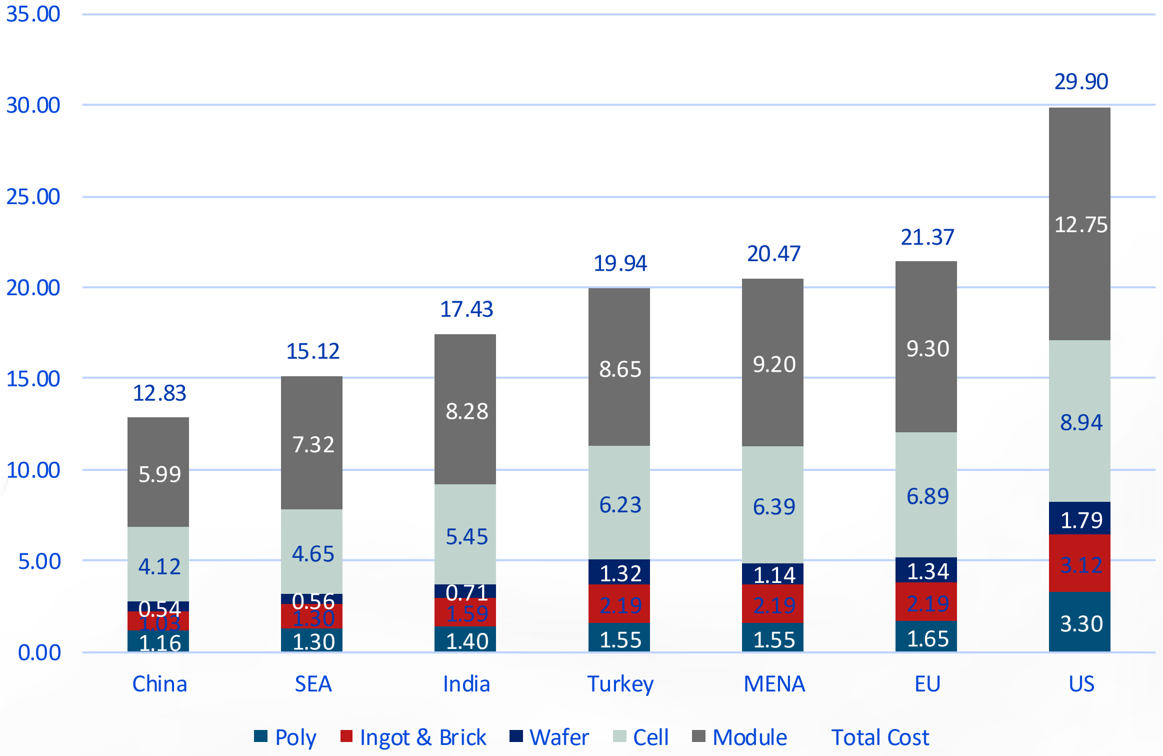
Reserve space ensures innovation Partnership with equipment vendor and technology partner

Region-wise integrated PV Manufacturing
CoO Comparison



Feedstock= Polysilicon

Source: *RCT Solutions*



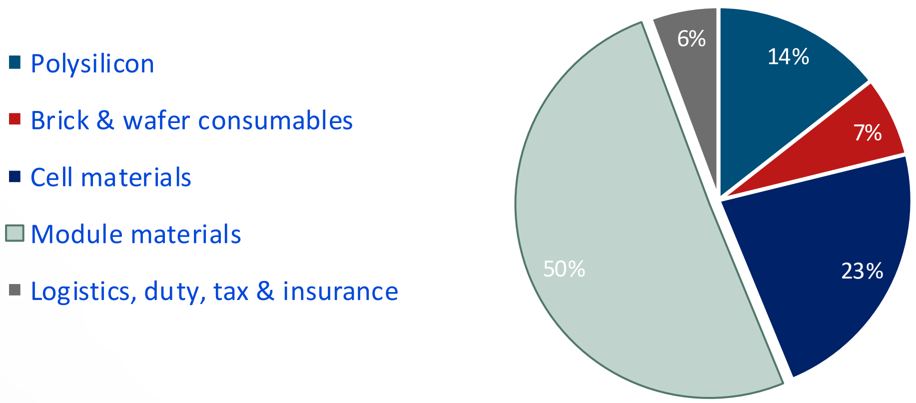
Source: *RCT Solutions*

Feedstock= Polysilicon

- China and SEA region PV manufacturing hubs
- Many IW & module & cell factories coming up in India
- Material, utilities, and financing main differences for India compared to China
- Labor and depreciation additional cost for EU and USA

- Heavy dependence on raw-materials for cell & module from Chinese & SEA suppliers
- <u>Not to forget very important aspect of production experience & maturity and process development at rapid pace in China!</u>

5 GW Integrated PV Manufacturing
Annual Materials Breakdown

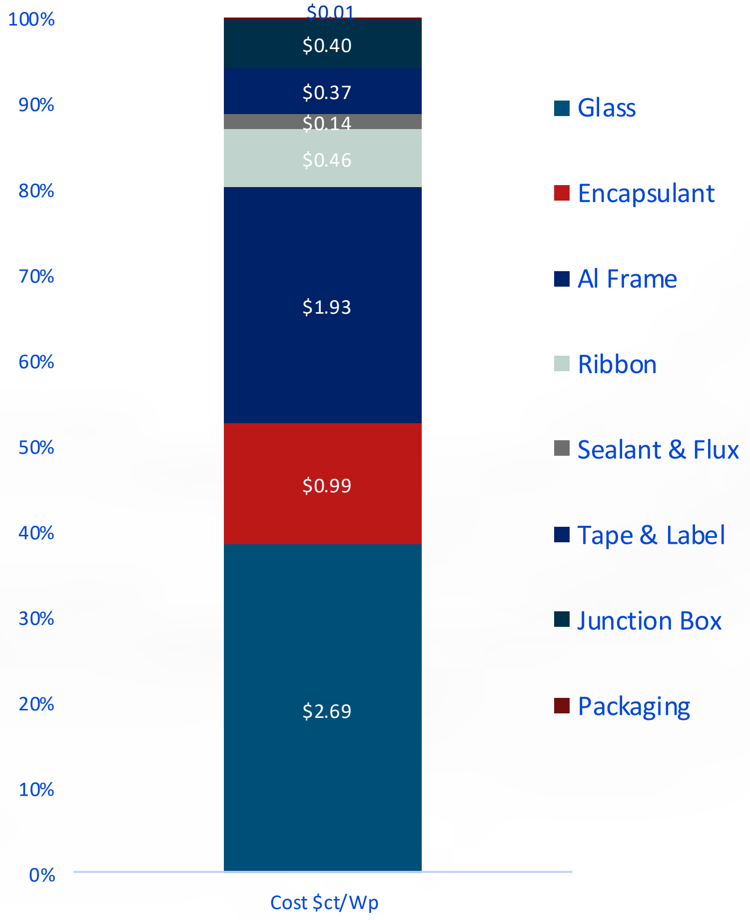


5GW Integrated PV Manufacturing – Annual Materials Spend Breakdown

Legend
★☆☆☆☆ = Mostly imported / strategic dependency
★★☆☆☆ = Partial local presence, import-reliant
★★★☆☆ = Mixed sourcing, improving ecosystem
★★★★☆ = Strong domestic supply base
★★★★★ = Fully localized

Material	India Local Availability	Rationale
Polysilicon	★☆☆☆☆	No commercial-scale domestic production; fully import-dependent
Consumables (wire, wheel, etc.)	★★★☆☆	Some domestic manufacturing but limited
Silver paste	★★☆☆☆	Limited local blending, highly imported
Screen (printing screens)	★★☆☆☆	Long-life screens for cell manufacturing still imported
Chemicals (wet chemicals, acids, solvents)	★★★☆☆	Strong Indian chemical base; PV-grade purity partially imported
Process gases	★★★☆☆	Industrial gases locally available; specialty electronics gases partly imported
Glass (solar)	★★★★☆	Strong domestic float & solar glass capacity; quality improving rapidly
Encapsulant (EVA/POE)	★★★☆☆	Domestic laminators present; POE resins often imported
Aluminum frame	★★★★☆	Mature extrusion ecosystem; highly localized
Ribbon / interconnect	★★★☆☆	Local assembly present; copper & coatings import-linked

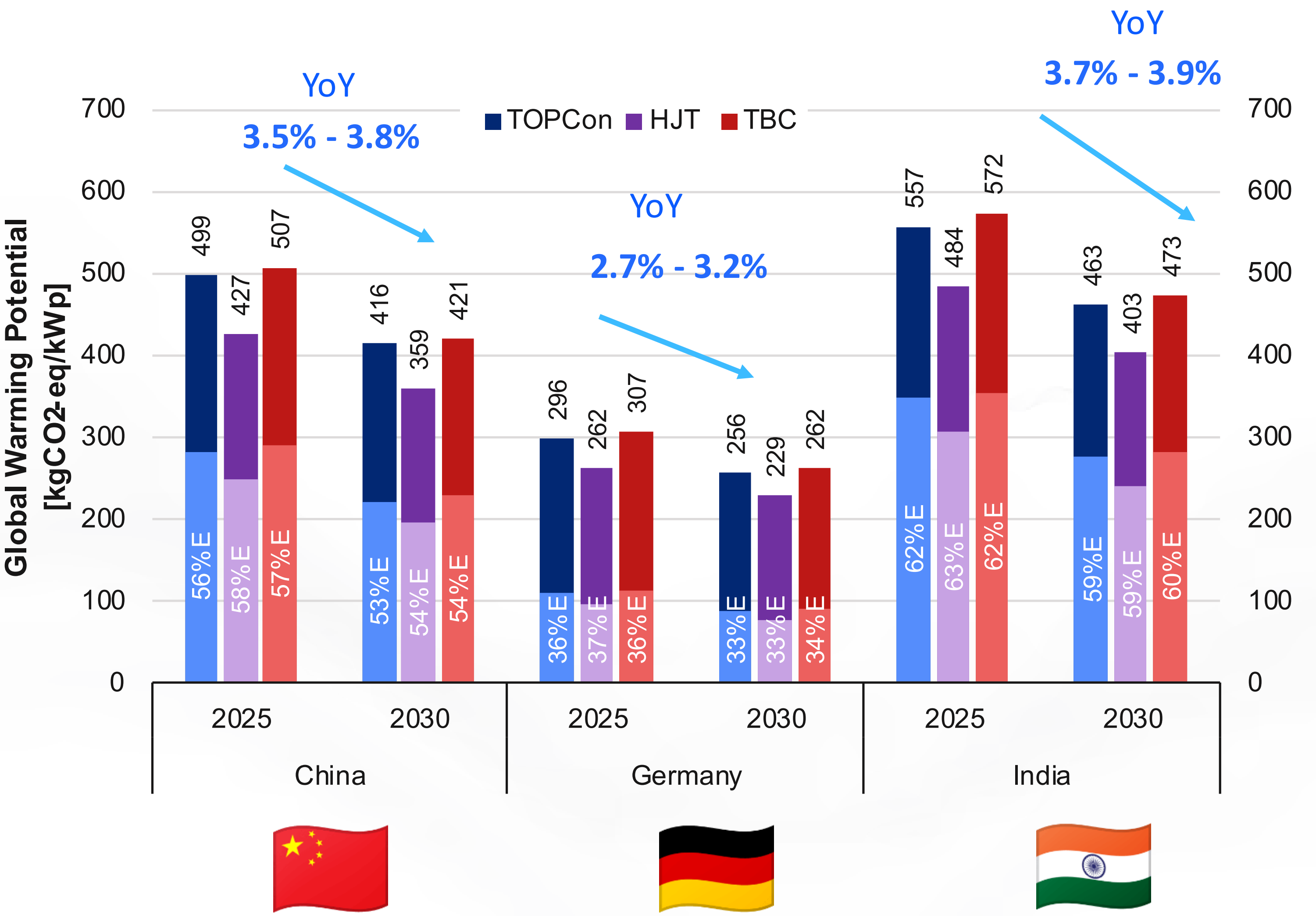
Module Raw Material Cost Breakdown



Module Type : 72 cells TOPCon Glass/Glass 630W Module

LCA analysis – Global warming potential

TOPCon, HJT and xBC @ different sites (excl. E-mix change)



- GWP highest in India → high share of coal in grid mix
- Germany lowest → high share of renewable electricity
- Innovations reduces the GWP and make PV even more green

Key Conclusions

- **The EU–India "Mother of All Deals" is a structural shift**, not a short-term trade agreement — it reshapes global clean-tech value chains.
- **India is transitioning from a high-growth market to a global solar manufacturing powerhouse**, with scale, policy support, and export ambition.
- **Solar manufacturing is a strategic beneficiary** of the EU–India partnership through market access, supply-chain diversification, and investment flows.
- **Rules of origin favor deep local value creation**, accelerating the move from assembly to fully integrated PV manufacturing.
- **Global players now see India as a trusted alternative** in a de-risked, diversified solar supply chain.
- **The window of opportunity is open now** — those who move early will shape the next decade of solar manufacturing leadership.

"The question is no longer whether India will lead — but who will be ready to lead with India."

1.3 GW (dc) Solar Power Plant in Karapinar Türkiye

World’s 6th, Europe’s largest Solar Power Plant present Day

RCT Solutions GmbH
Line-Eid-Strasse 1
D-78467 Konstanz, Germany

Regd. HRB 708952,
Executive Board: Dr. Peter Fath

a member of RCT Group

get in TOUCH

Thank you

Get in touch with us

Phone +49 7531 58470 12
info@rct-solutions.com

rct-solutions.com

Confidential