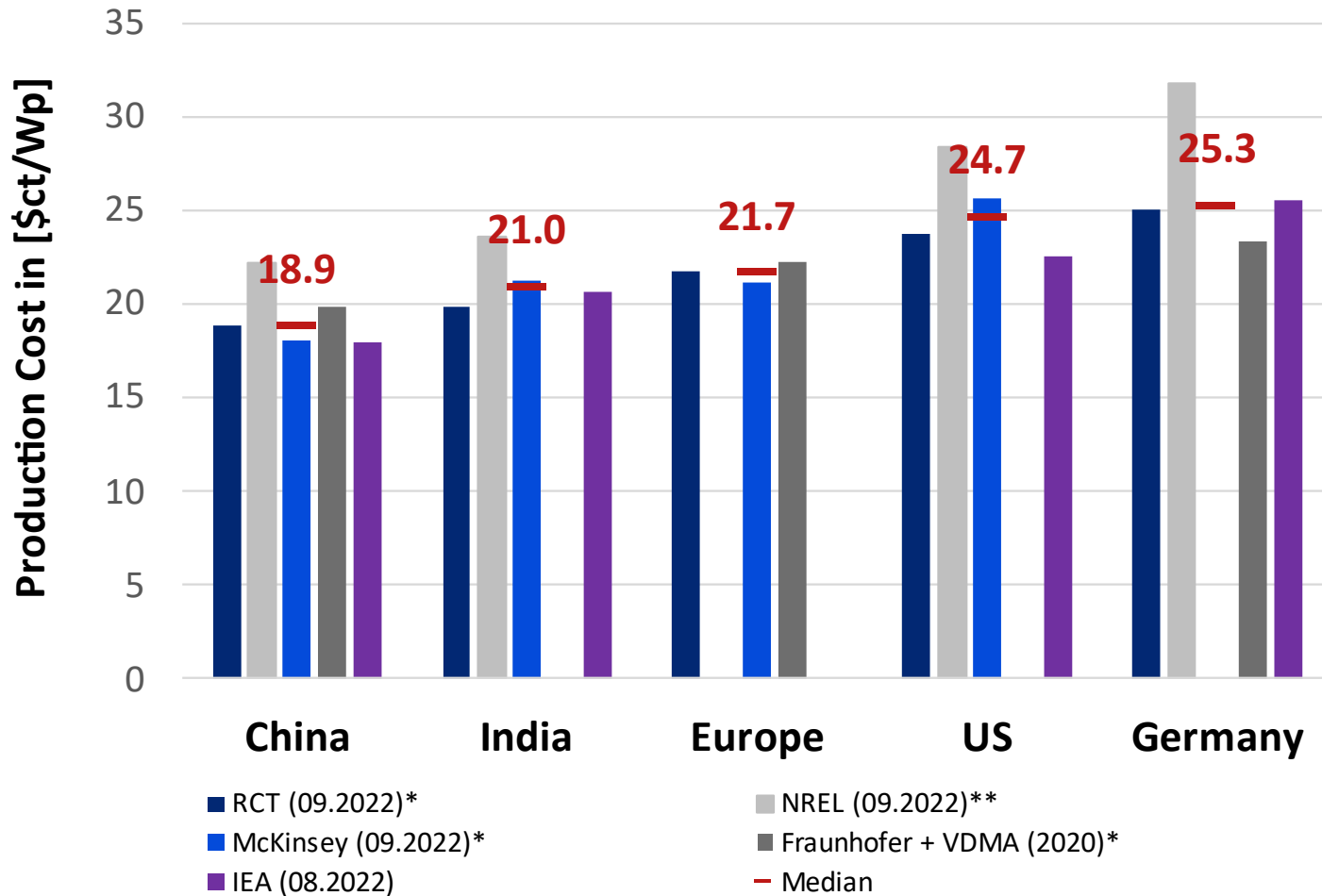


Photovoltaics Service & Technology Solutions Partner

ETIP PV

Peter Fath,
9 December 2022

1. Overview production costs figures per region



Sources:

RCT (09.2022)*

NREL (09.2022)**

McKinsey (09.2022)*

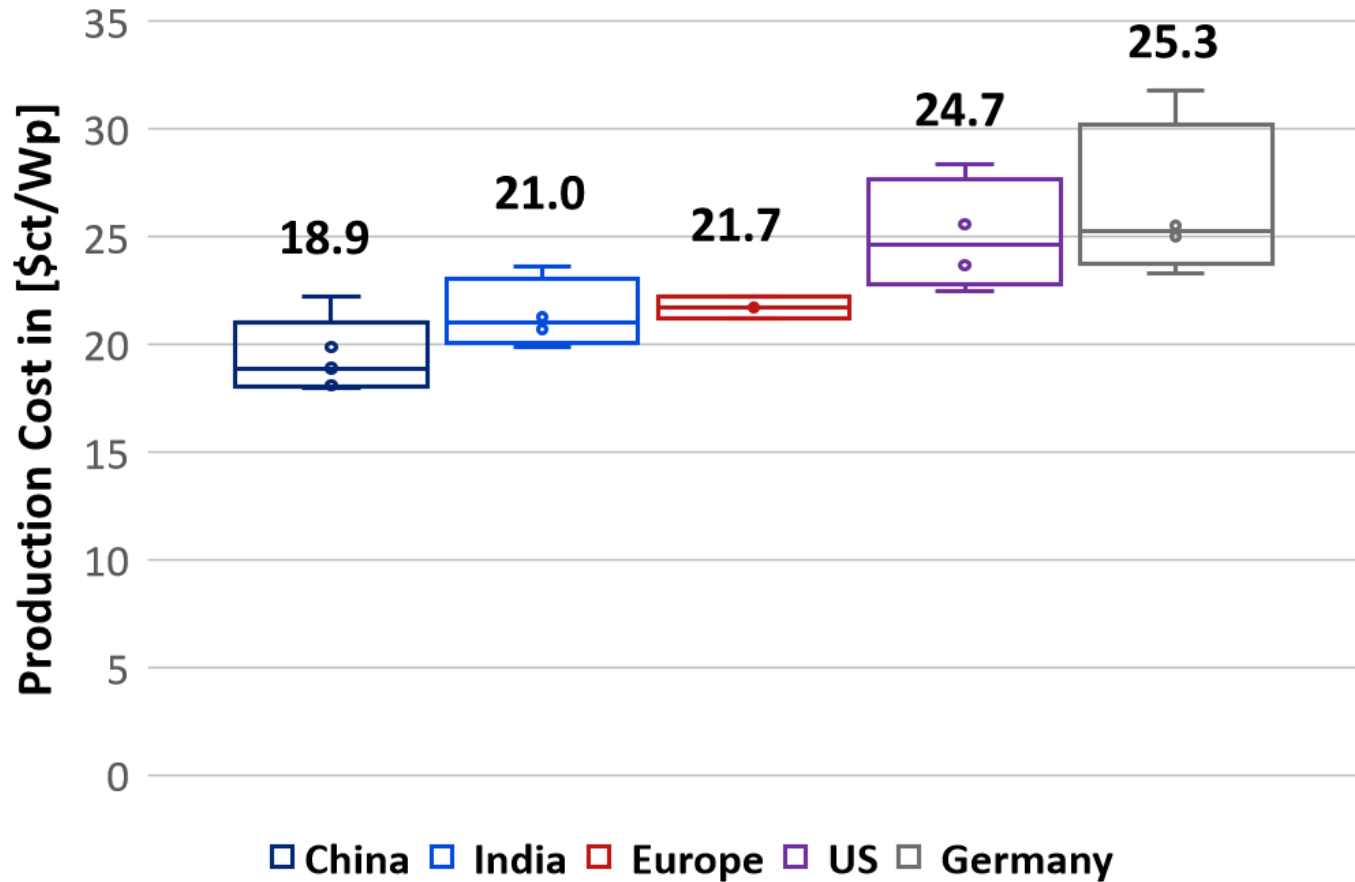
Fraunhofer + VDMA (2020)*

IEA (08.2022)**

* Only Production Cost

** Excl. Overheads and Margin

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* Only Production Cost

** Excl. Overheads and Margin

2. Comparison support schemes intensity per region

Different policies, **one major objective in common**



REPowerEU

20 GW

Production in EU until 2025

1 TW

By the end of 2030

€210 billion

By 2027

40% to 45%

Increase in renewable energy targets

33% to 67%

Doubling the production capacity of renewables



IRA

50 GW

Production capacity

\$30 Billion

Investment in production

\$2 Billion

National Labs / R&D

100%

Manufacturing credit for solar supply chain

100%

Clean Energy by 2035



New Energy

450 GW

Solar's share

\$63 Billion

Government fund

20%

China's market share increase

71%

Amount of subsidies for all sectors



YEKA (1)

1+1 GW

Installed power on a single site

\$1 Billion

Investment

20%

Increase of renewable share

20 Million m²

Dessert Area

Superincentives

Energy, labor, tax, customs



PLI

45 GW

Capacity

\$3.2 Billion

Investment Combined

55 GW

Modules

250 GW

In 5 years

90%

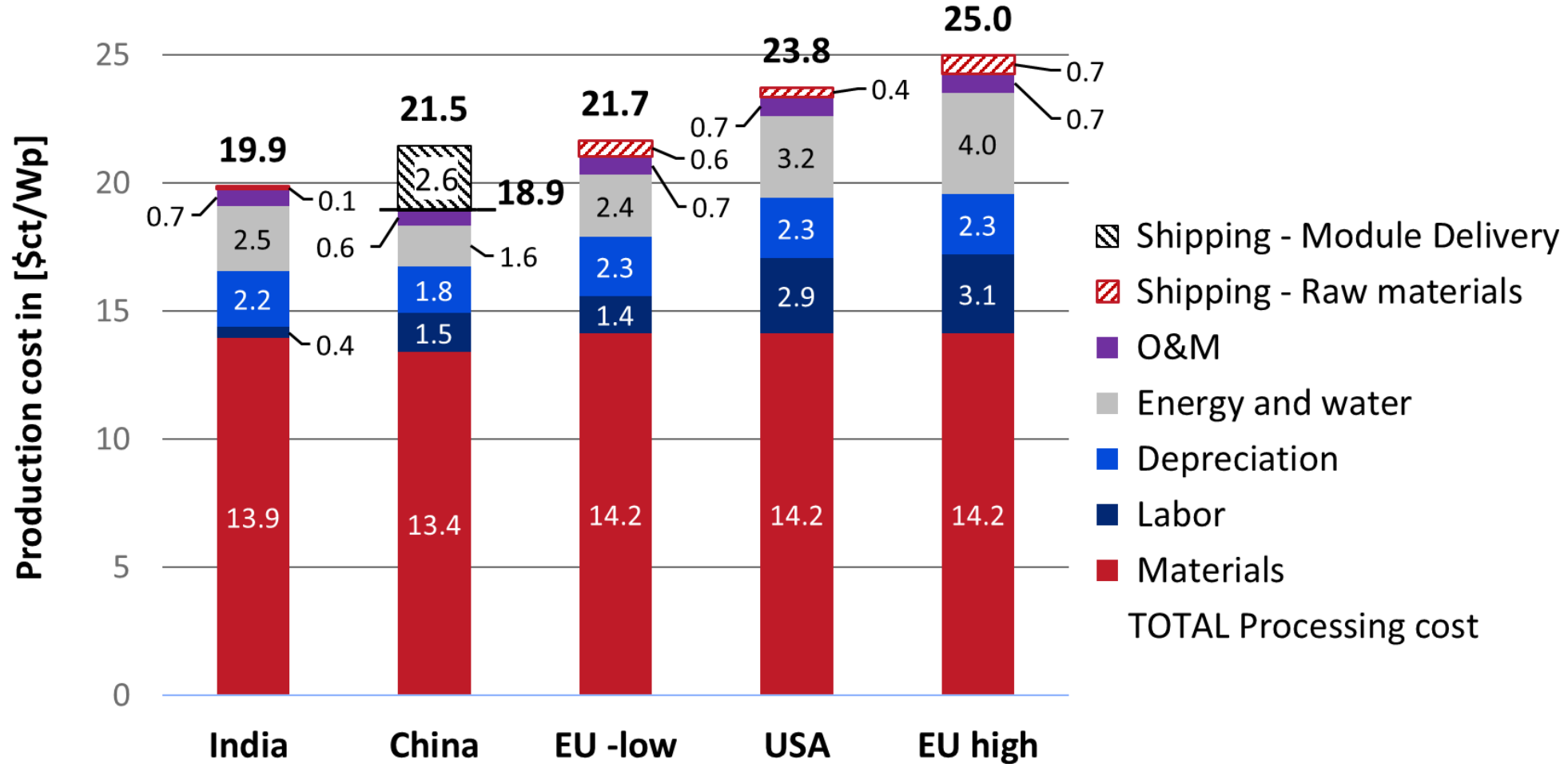
Local production

Common goal



Integrated manufacturing

3. Breakdown of cost components per region Major cost differences from electricity, labor and CAPEX



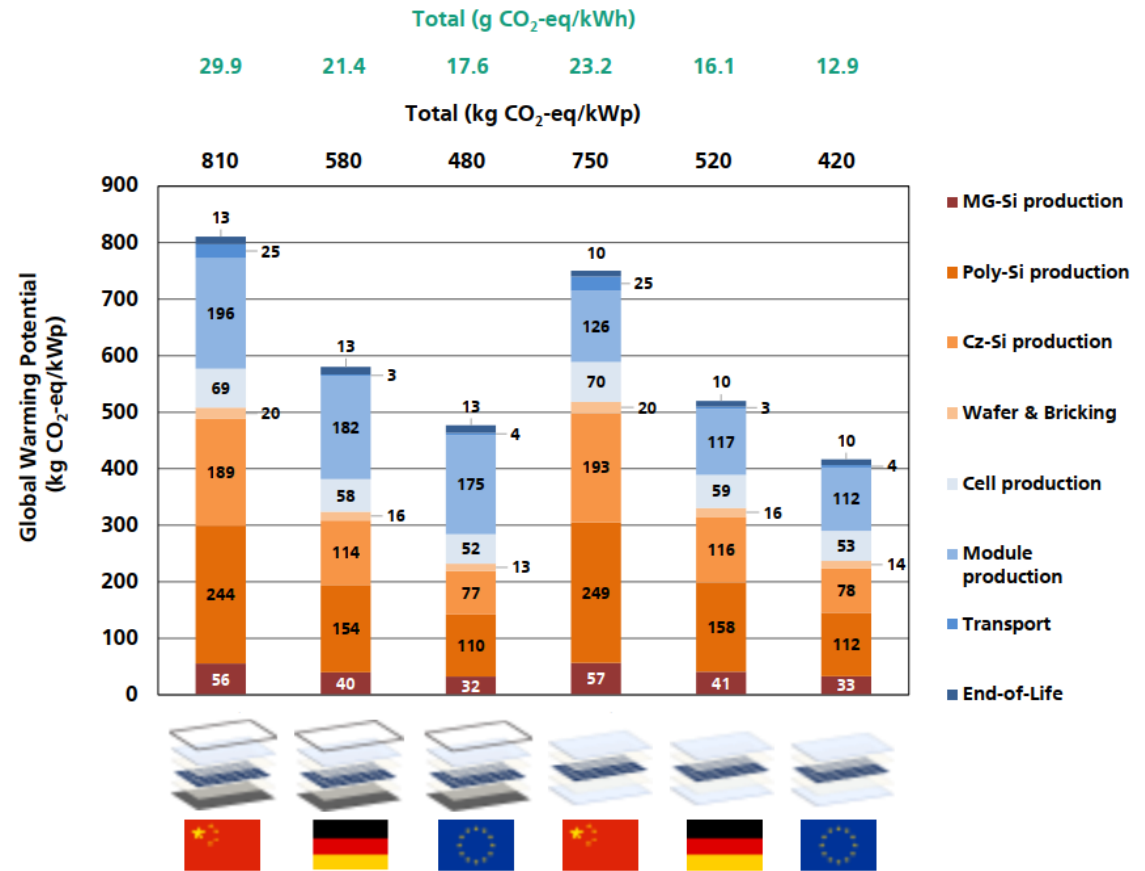
4. Comparison carbon footprint and other factors in production

Model:

- LCA for G/G and G/B modules
 - PERC
 - DWS wafer
- Based on different locations
 - Germany
 - China
 - EU
- Data provided by ecoinvent 3.7
 - China energy mix from 2014
 - EU energy mix by 2017

Result:

- G/G modules compared to G/B
- 40% reduction for EU production
- 30% reduction for German production



Fraunhofer ISE - Christian Reichel, Amelie Müller, Lorenz Friedrich, Sina Herceg, Max Mittag, Dirk Holger Neuhäus

https://www.ise.fraunhofer.de/content/dam/ise/de/documents/publications/conference-paper/wcpec-8/Reichel_5DV234.pdf

4. Comparison carbon footprint and other factors in production

Detailed
Breakdown

