

«Create with passion– solaresthetics for the future»

IPV an opportunity for Europe

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CO2 change always happend but..

3S

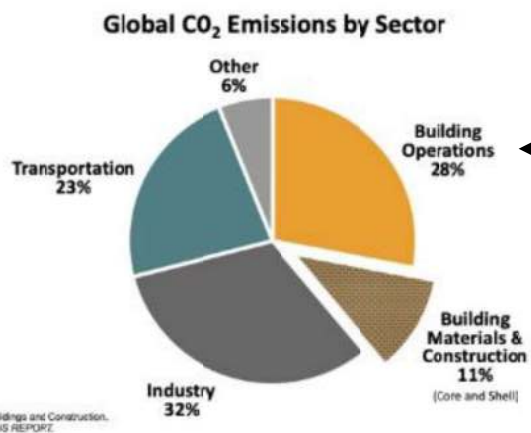


«We have no other choice than to act and to reduce CO2»

Active building skins is one of the keys!

Global CO2 emissions by sector

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← **Must become CO2 free**

← **Replacement:** this material needs to be reused

Retrofit: Less CO2 in materials needed

Buildings are responsible for approx. 40% of CO2 emissions!
Buildings can and must become CO2 free!

Demolition or retrofit

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Demolish and Replace

- Loss of building materials (captured CO₂)
- The new building can be «ideal»



Retrofit

- Existing structure can be kept (Identity of the building)
- May be not 100% ideal as new building

Retrofit of a single family home

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Insulation of the roof; PV; replacement of the heating system oil -> heatpump



CO2 free in 25 days
(a project of Umweltarena)

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New windows
Insulation of the roof
Solarroof with Battery system
Solar balcony

Exchange of heating Oil -> heatpump
and hybrid box (cogeneration biogas)

No Insulation of the facade
tenants could remain in the apartments
during retrofit
no significant rent increase

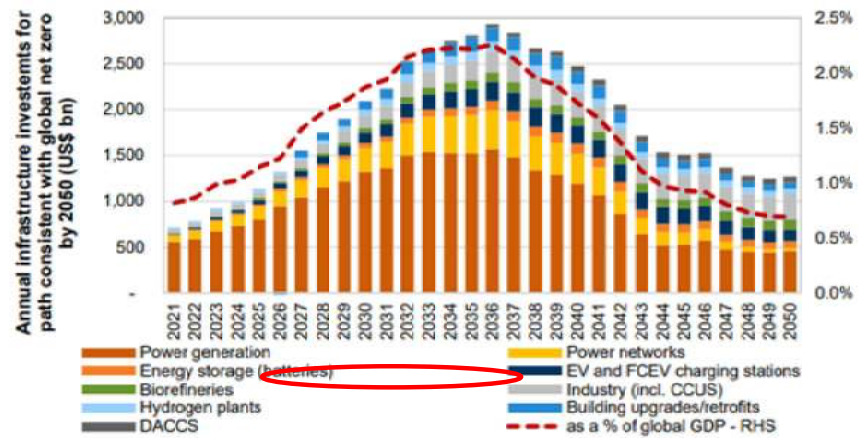
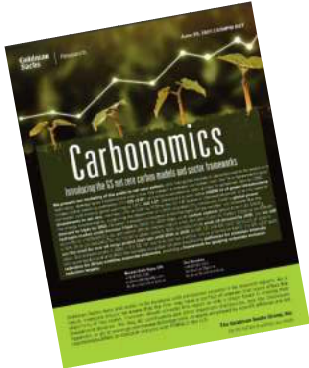
source: SRF and Umweltarena



Buildings a key for the climate goals

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Exhibit 7: ...reaching >2% of GDP by 2032 in the 1.5° scenario
Annual infrastructure investments for net zero by 2050 (US\$ tn)



Source: Goldman Sachs Global Investment Research

History of BIPV in Switzerland

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solar sail 1999



Meanwhile, about 10'000 MegaSlate systems realised



2000

2001



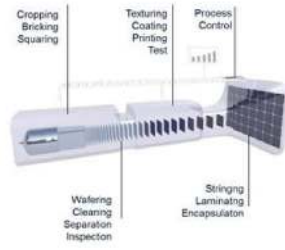
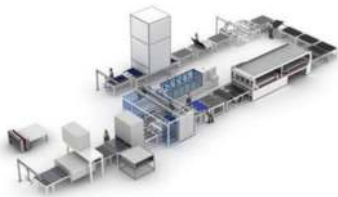
Swiss Solar Systems

3S to 3S Solar Plus



From 2004 focus on machines

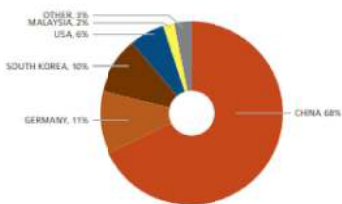
2010 Merger with Meyer Burger, 2018 3S self-employed again
Purchase of Roth&Rau



«Reindustrialize Europe» in a smart way

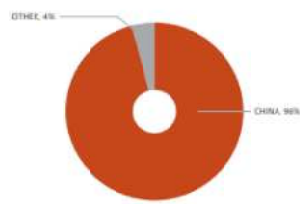


FIGURE 4.2: SHARE OF PV POLYSILICON PRODUCTION IN 2019



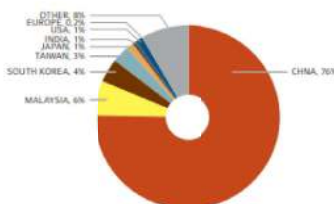
SOURCE: IEA PVPS, IHS CORPORA

FIGURE 4.3: SHARE OF PV WAFERS PRODUCTION IN 2019



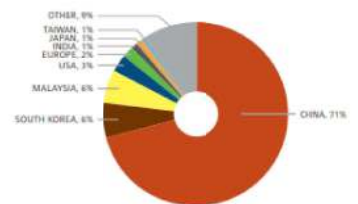
SOURCE: IEA PVPS

FIGURE 4.4: SHARE OF PV CELLS PRODUCTION IN 2019



SOURCE: IEA PVPS, IHS CORPORATION

FIGURE 4.5: SHARE OF PV MODULES PRODUCTION IN 2019



SOURCE: IEA PVPS, IHS CORPORATION

supply chain for the PV market

CN 68%
EU 11%

96%
<0.1%

76%
0.2%

71%
2%

Local supply chain is a key to long term success. IPV offers a chance to most European manufacturer. Cooperation needs to be improved in order to restore supply chain.

What standards to apply...

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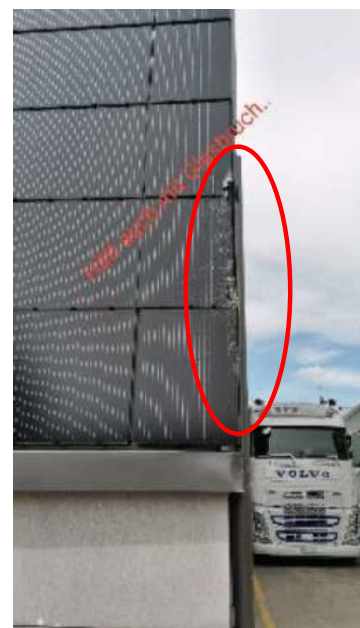
Safety in buildings

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glued glass façade after rupture of the bond

Active building skins combines PV and building standards and know-how



MegaSlate® Façade after truck hit

Conclusion

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- Active usage of building skins is a must for decarbonisation of the building sector
- Retrofit of old buildings is an opportunity for the PV-reindustrialisation of Europe
- Standards made for standard PV modules are harmful for IPV (Change of the relevant standards from 2005 version to newer ones)
- Cooperation needs to be reinforced to reconstruct European supply chain
- Longevity of the products are a key to success





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