



25 – 26 November 2025
Chamber of Commerce
Florence, Italy



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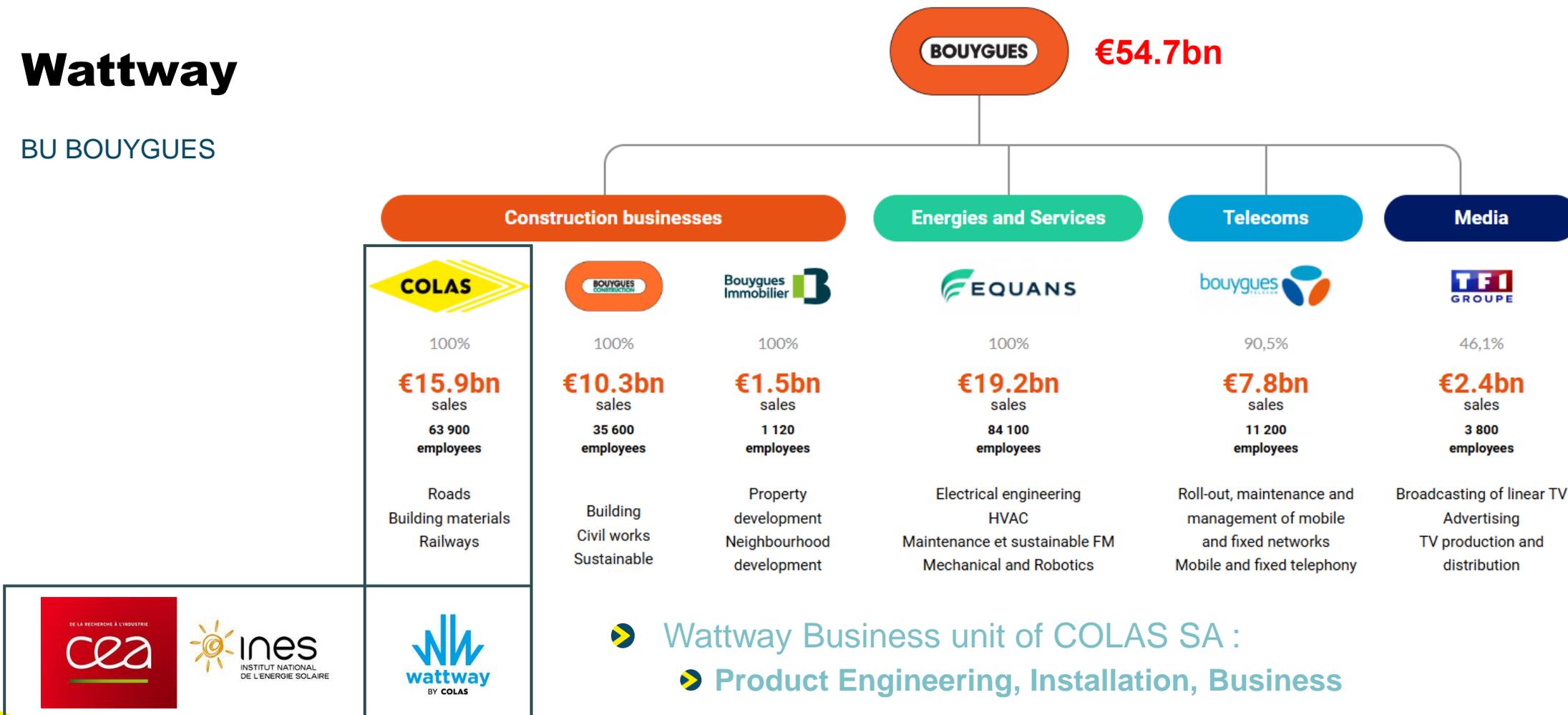
1) Colas

2) CEA INES

The First Cost Efficient Pavement Integrated PV for Electricity Production

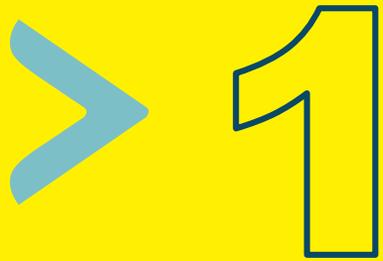
Wattway

BU BOUYGUES



➤ Wattway Business unit of COLAS SA :
 ➤ Product Engineering, Installation, Business

➤ CEA INES :
 ➤ Research institute on solar energy, 10 Year partner



Context



Pavement Integrated PV (PIPV)

CONTEXT *How to make a robust and cost-effective solution*

PIPV market attract growing interest :

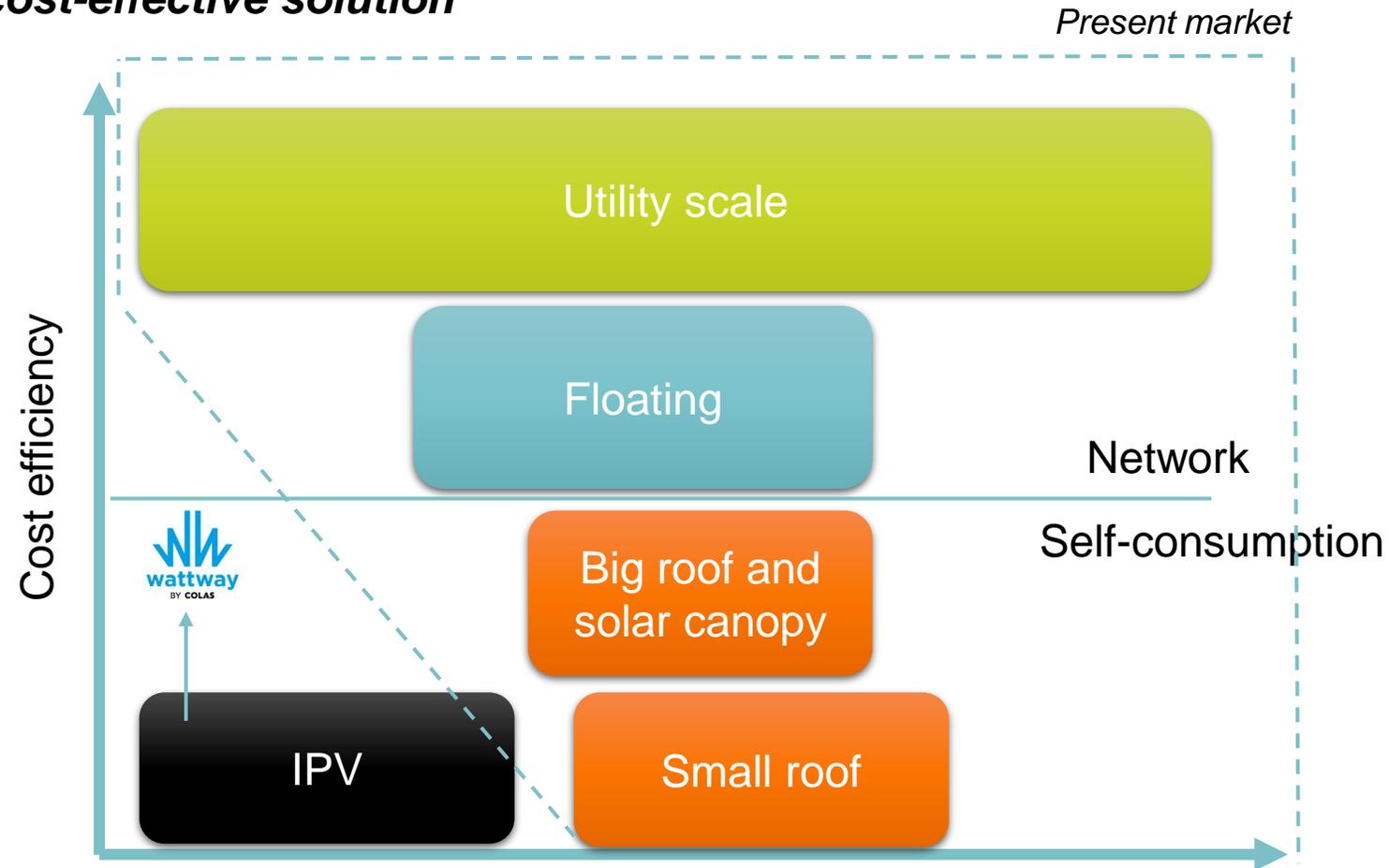
Dual use bicycle paths, parking lots, forecourts, piers

Pros :

Low impact + Social acceptance + Integration + Flat surface + Resilience

Cons :

Flat surface + Traffic (mechanics)



Impacts & Risks (ACV, Social acceptance, Aesthetic, Space, climate)

Pavement Integrated PV (PIPV)

LIMITS OF PIPV

- Flat installation, performance impact :
 - In European latitudes, energy production of a module flat on the ground is 14% lower in South Italy and 19 % in North UK compared to an optimal tilted one**
- Traffic, price increase :
 - Resistance to light or heavy vehicles requires a module reinforcement

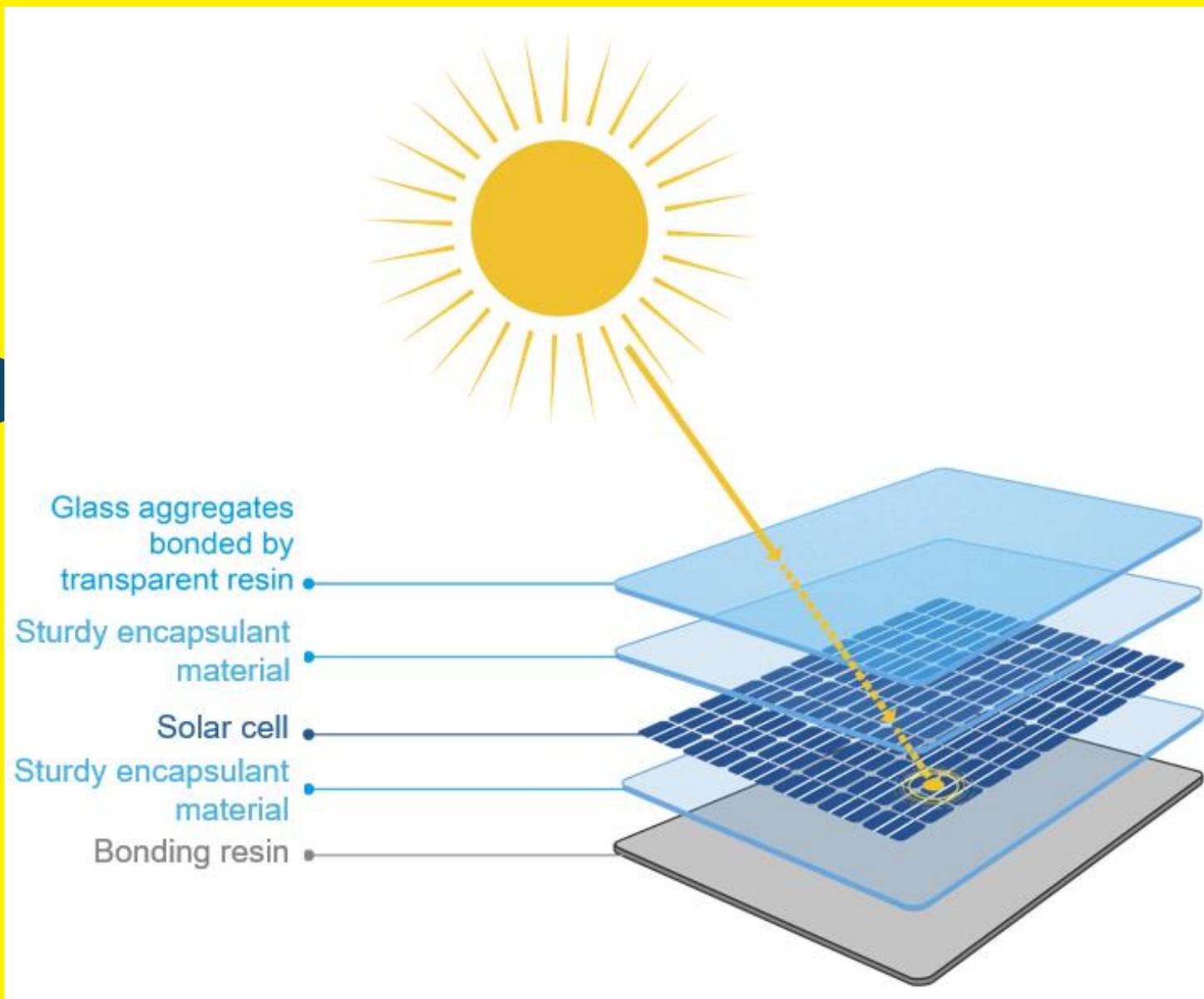


* Rolling Solar Final Report, Interreg Euregio Meuse-Rhine, 2022.

** Failure mode analysis of Austria's first road-integrated photovoltaic system, A. Erber and B. Grasel, EP J Photovoltaics 15, 42 (2024)

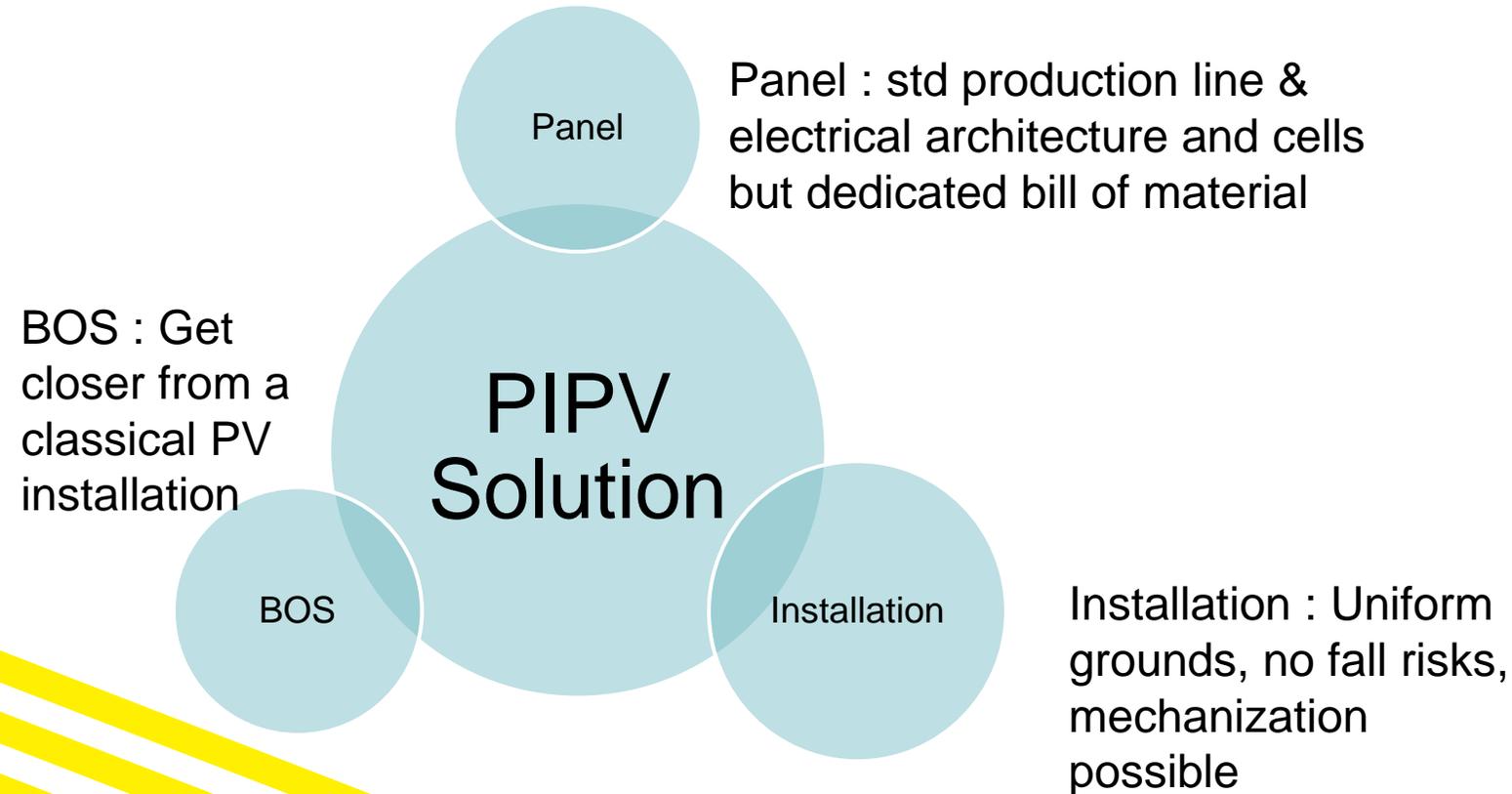
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DESIGN



Design

KEYSTONE FOR EFFECTIVE SOLUTION



Wattway worked on the complete system to reach the required robustness and cost performance

> 3

Robustness



Robustness

BEYOND THE NORM

- WW Module passed IEC 61215 & 61730
 - Not enough because it do not qualify trafficable module
- Complementary Qualification & validation test :
 - EN 62262 : 20 joules impact test
 - EN 1824 : SRT > 0.45 after 2M wheel passages real motorway
 - NF EN 12697-22 : 0,6 MPa tire pressure, back and forth at 5 km/hour
 - Water : Immersion 500h + IPX9
 - Real traffic conditions ageing:
 - 400.000 wheel truck passages



All components of Wattway PIPV solution (module stack, top coating, pavement bonding) successfully pass this validation process for the targeted 15 to 25 years lifetime

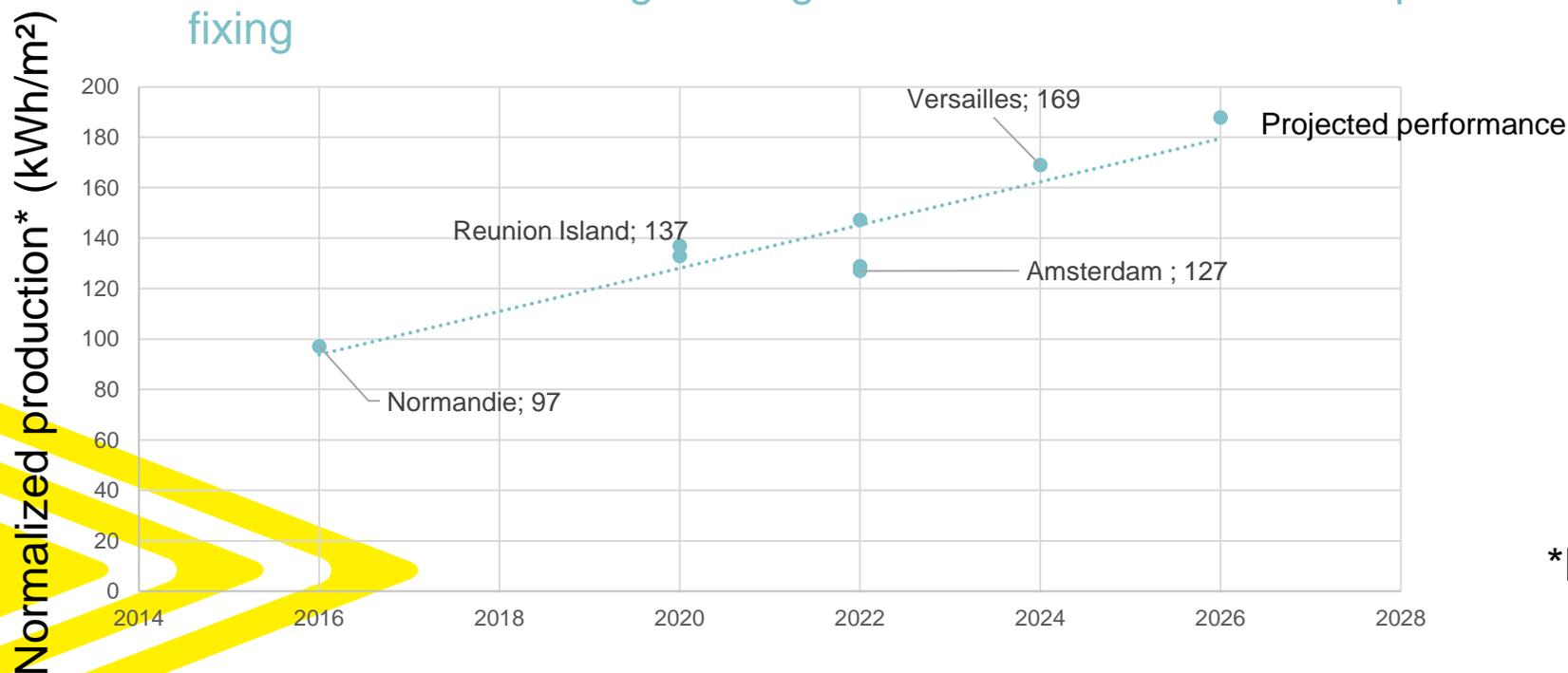
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**Cost
effectiveness**



Cost effectiveness

- Cost reduction : 51% reduction cost in Wp/m²
- BOM : BOM materials optimization and minimization of module lamination time
- Installed cost : civil engineering machines & machine development -> 10x faster on surface prep. and fixing

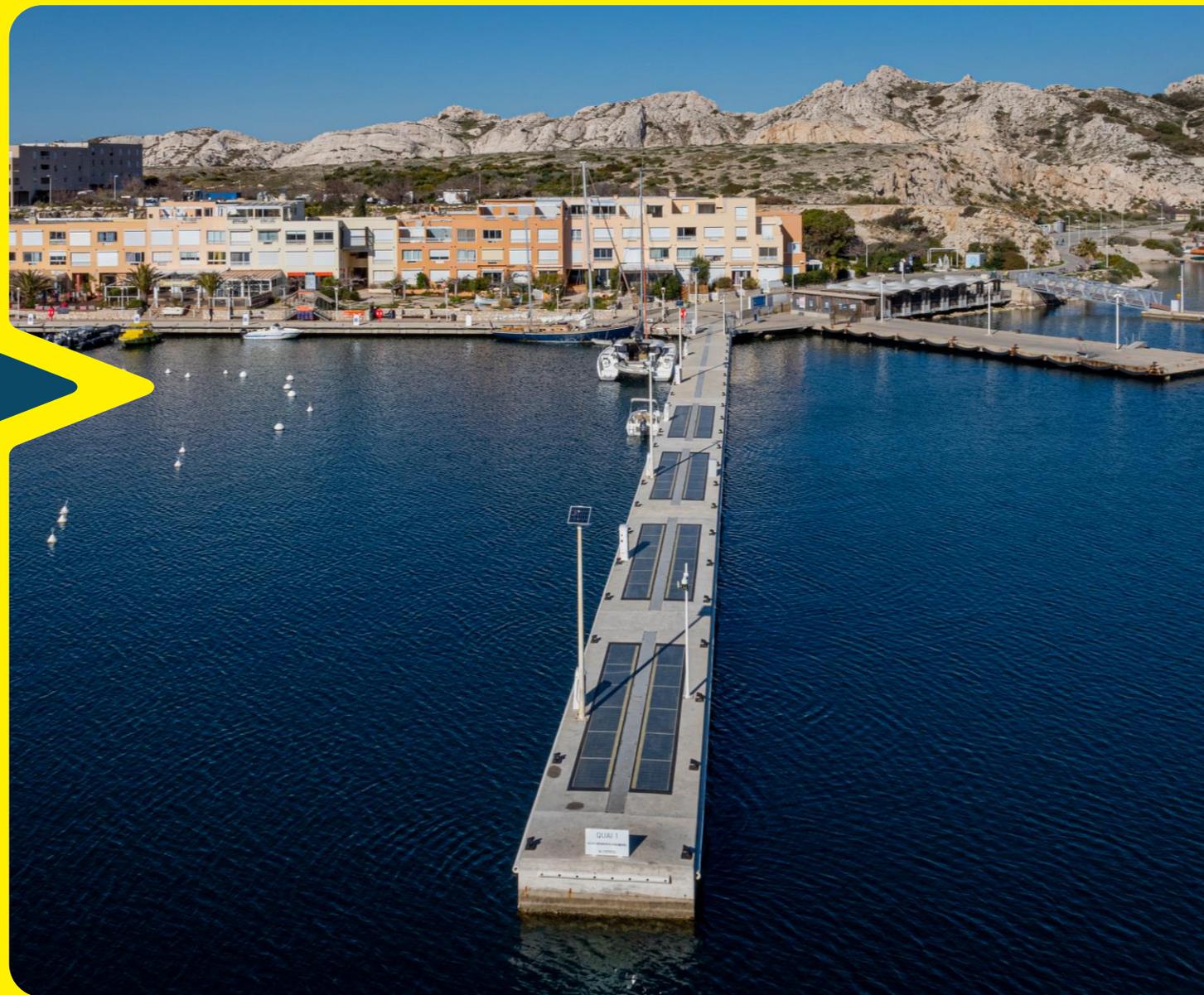


As a result, we now reach a full system price below 2,5 €/Wp for a 200 kWp turnkey solution.

*Normalized at location near Paris

> 5

BUSINESS POSITIONING



Business positioning

- At this price level, Wattway is today a cheaper solution for sourcing electricity than grid
- For example, the LCOE for a 500 kWp bicycle path with 20 years lifetime in Florence is 141,7 €/MWh.
- To develop the market, we focus on 5 dual use PIPV use cases where conventional PV is difficult to deploy:

For instance, in Europe : 10 % of the 190 000 km cycle lane networks alone could harvest more than 8 GWp*



Perspectives

- Wattway PIPV solution is today a cost-efficient solution for electricity production
- It is proven robust and IEC-certified.
- We continue to pursue improvements in performance and cost
 - **e.g. in module stack optimization and automation of the installation process.**
- TOPCon Wattway module is in development.
- Our target is to ultimately reach a LCOE below 100 €/MWh.





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Thank you!

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