Colored PV modules for highly integrated projects

From the case of Guggenheim Museum in Bilbao to industrial and residential installation

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Nicola Baggio

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The only Italian module manufacturer with exclusive property of its own factory in China

Silk Colour

Maximum chromatic integration

- Tile Red, Terracotta Orange, Silver and Green as standard
- Coloured glass for a consistent appearance over time
- Power 360 - 390 kWp
- Suitable in areas subject to historical and landscape constraints
- Excellent temperature coefficient -0.29%/°C

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Coloured modules development

How to increase the efficiency keeping the appearance

- The module is based on a standard M10 cell, black backsheet, to reduce the cost
- Coloured glass with high uniformity implies higher power loss
- First versions of the modules with power of about 250 Wp
- Compromise between transparency / aesthetic / power

2021: Silk Pro Colour

240 - 280 Wp | 120 PERC cells
1755 x 1038 x 35 mm

166 mm

2023: Silk Plus Colour

350 - 360 Wp | 108 PERC cells
1722 x 1134 x 30 mm

182 mm

2024: Silk Nova Colour

360 - 390 Wp | 108 n-type cells
1722 x 1134 x 30 mm

182 mm

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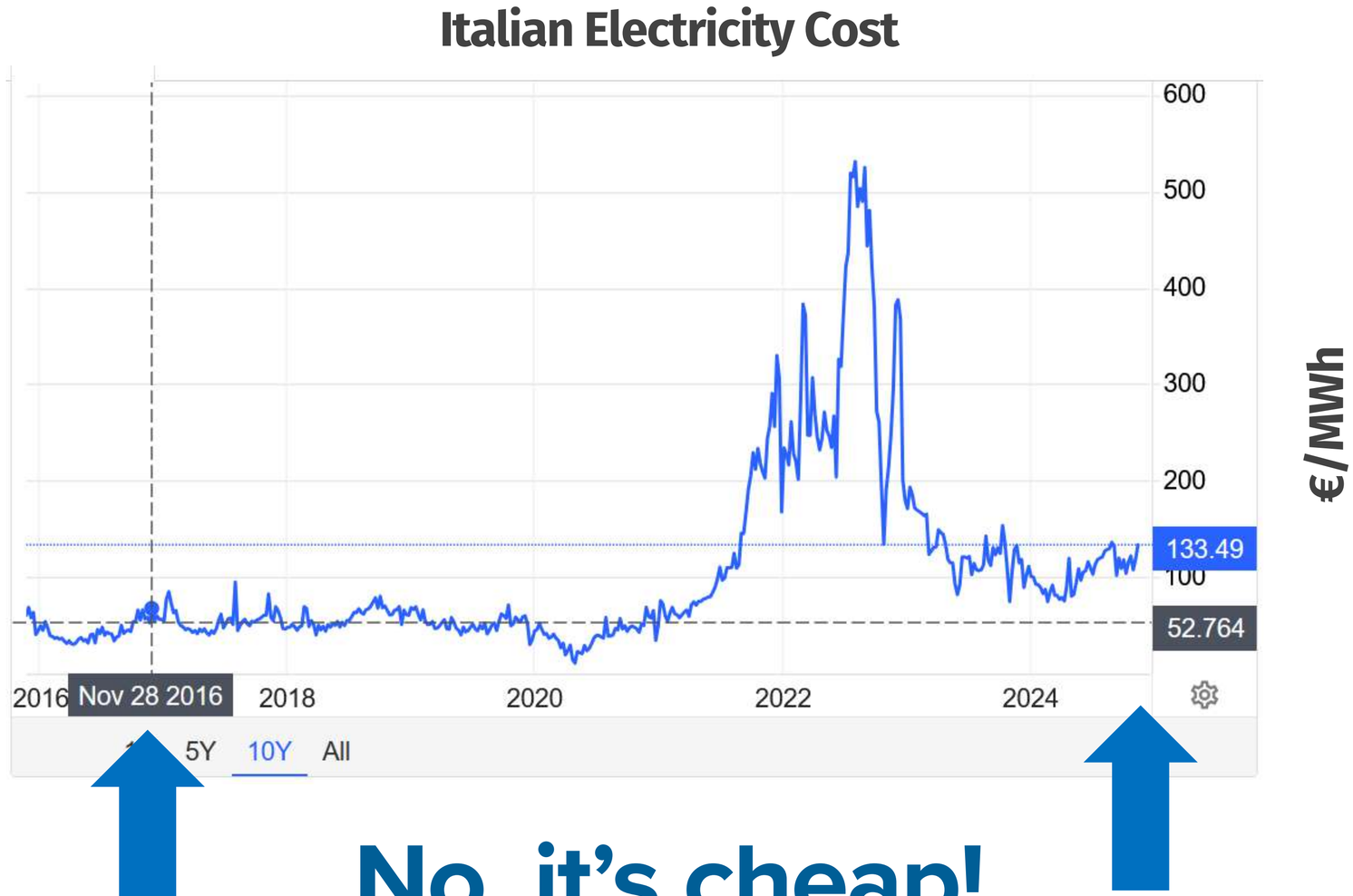
Composition

Silk Nova Colour

Solar glass with an anti-reflective coating and internal coloring achieved through a complex coating process, resulting in a vibrant, fabric-like chromatic effect.

Is BIPV expensive?

- No
- With a standard module layout it is possible to benefit from the price reduction
- Nowadays the colored module price is lower than standard's one 10 year ago, while electricity price is double



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BIPV Installations

FuturaSun Coloured PV modules

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Guggenheim Museum Bilbao case

Maximum chromatic integration

- Façade installations impossible
- Limited space on the roofs
- Strict architectural constraints so as not to alter the existing iconic appearance
- Even if the photovoltaic modules are not visible from the ground or surroundings
- 80 kWp installation
- Limited production due to the site and flat installation (80 MWh/year)

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Silk Silver

Silver PV module

- 360 Wp
- Silver glass for special architectural requirements
- Maximum chromatic integration of the PV system on grey or metal roofs
- Similar to RAL 7043
- 1722 x 1134 x 30 mm

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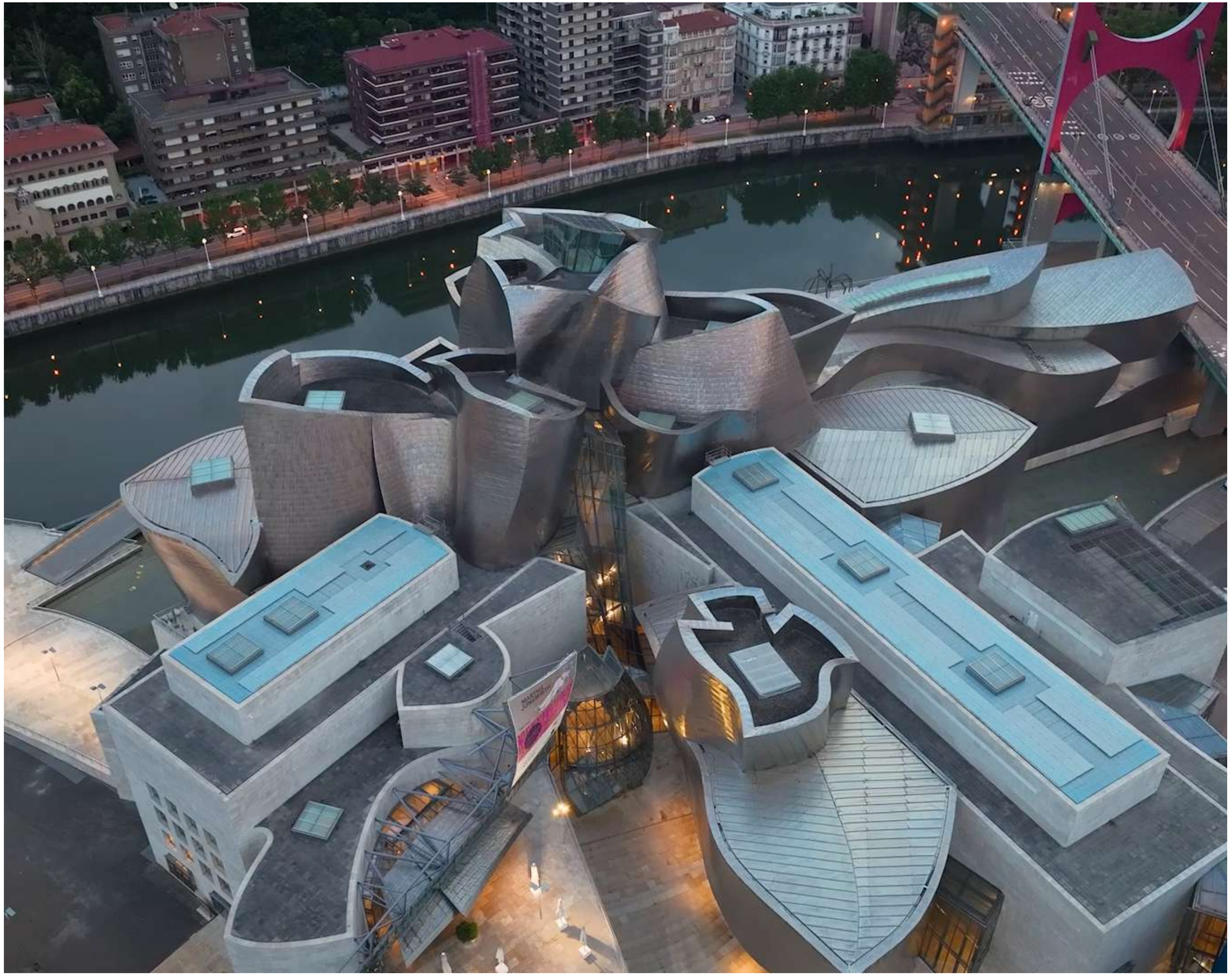

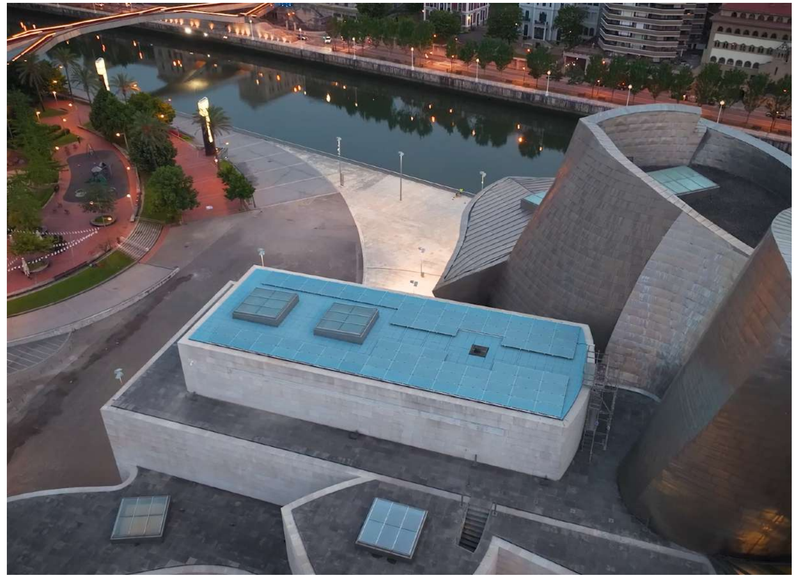

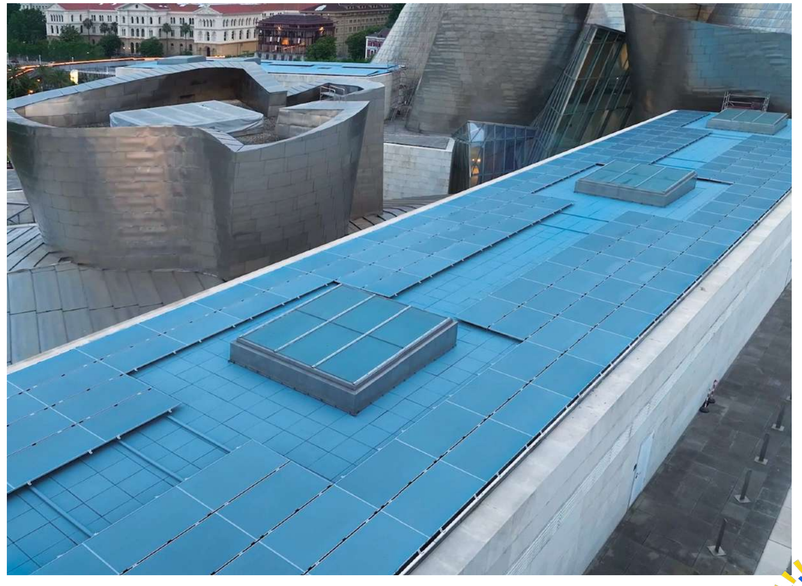

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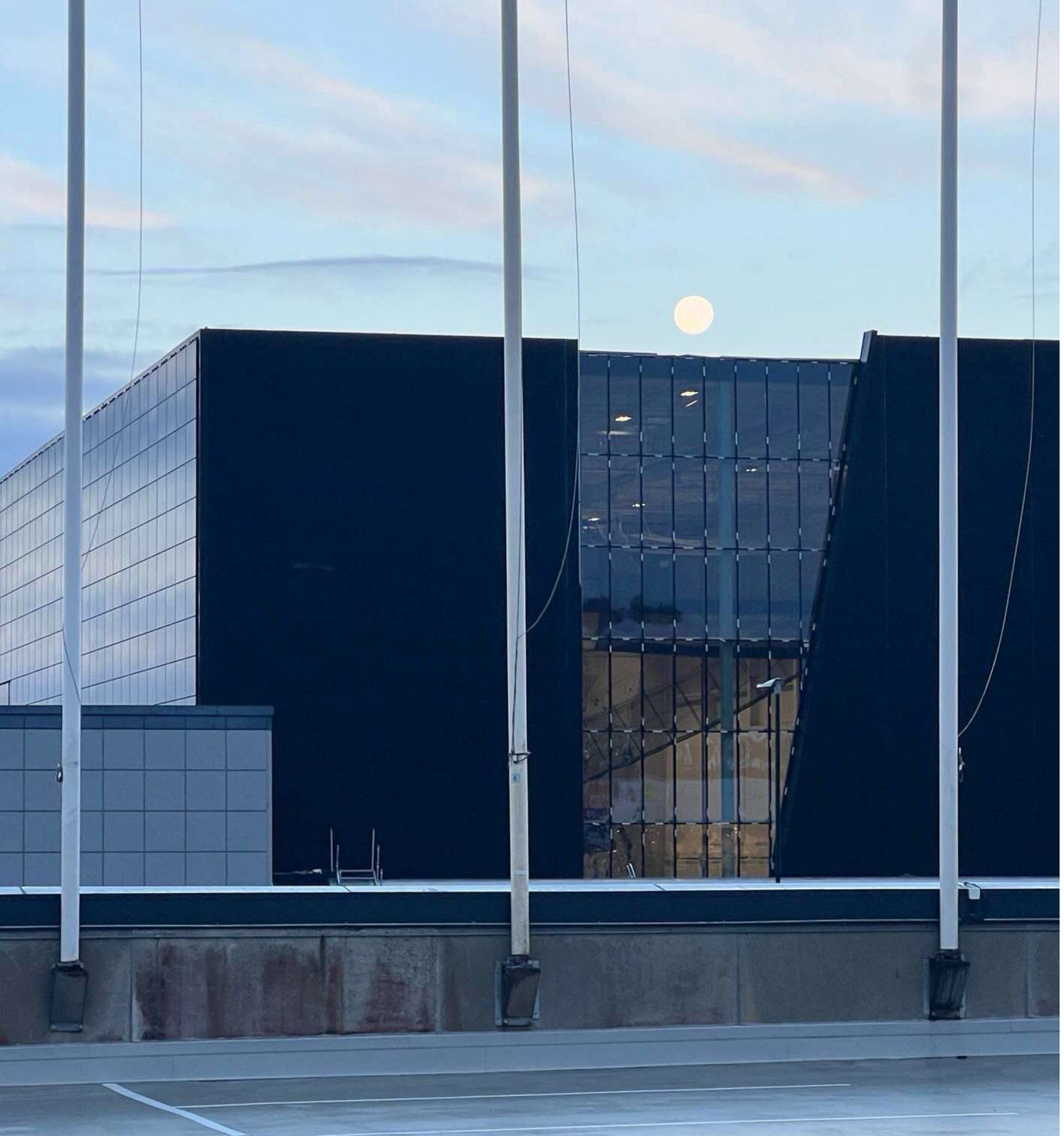

The largest single-building PV façade in Norway

880 FU420M Silk Nova Duetto All Black panels

Estimated annual production 260,000 kWh - to be considered that a façade in Norway has a higher yield than a flat roof during the winter months due to low irradiation

The façade is installed on a shopping centre and will cover, together with the existing system on the roof, 16% of the shopping centre's total consumption.

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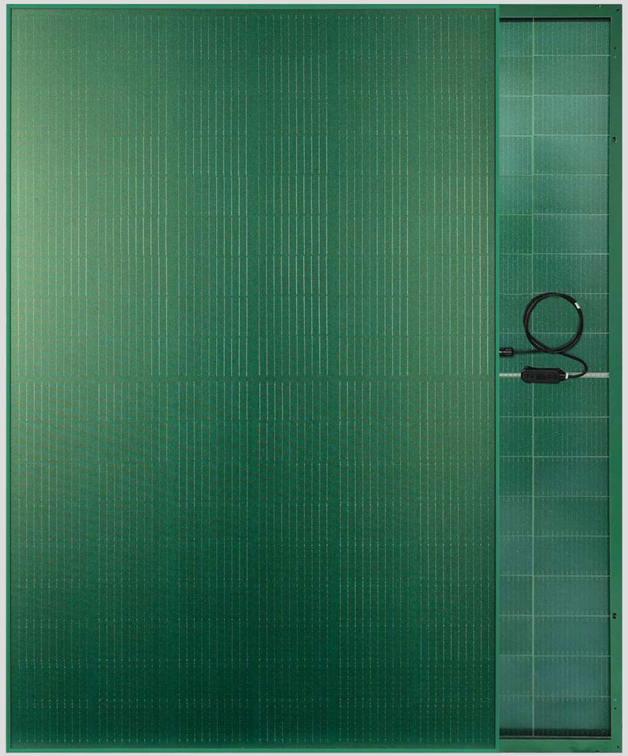

Silk Nova Green Duetto

Green PV module - glass/glass

- Power 390 Watt
- Green colored glass and frame for special achitectural requirements (similar to RAL 6000)
- Ideal for “invisible” greenfield installations and fences
- 108 M10 n-type bifacial half-cut cells
- Coloured glass for a consistent appearance over time
- 1722 x 1134 x 30 mm

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Norway

Serbia, 10.5 kWp

Switzerland, 160 kWp

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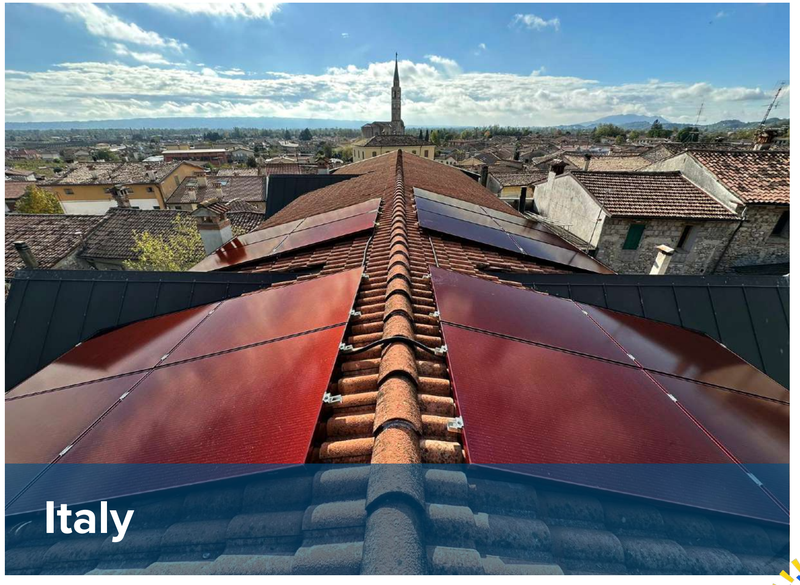

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