

ENERGIZING LIFE TOGETHER



**Choosing a solar panel
manufacturer:**

**The importance of
Quality, Performance,
and Partnership**

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November 19, 2013





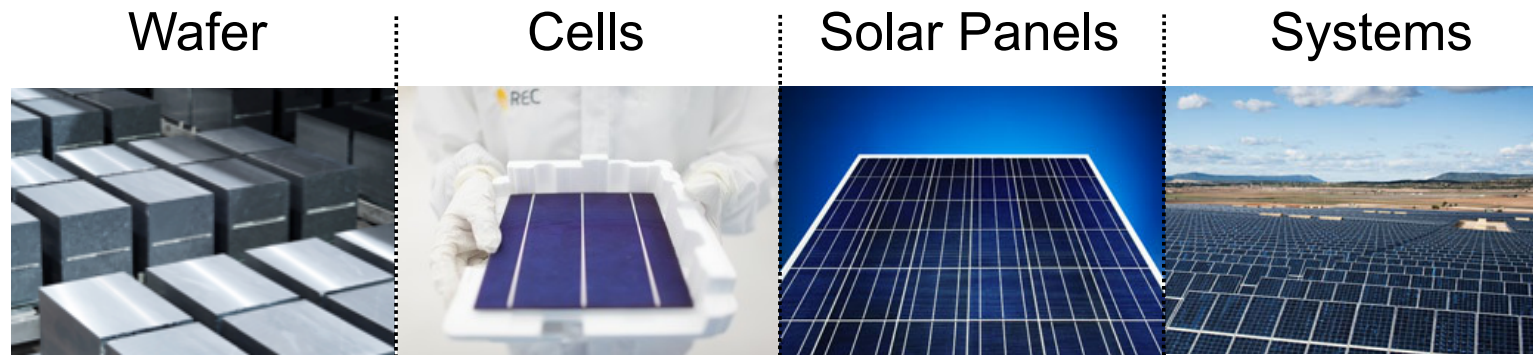
- REC – a leading global provider of solar
- REC Quality – setting new industry standards
- REC's commitment to Partnership
- Romanian success story: Izvoru
- Investment opportunity: Mlzil

REC – a leading global
provider
of solar energy solutions with
demonstrated longevity

About REC



- Established in Norway 1996
- REC's value chain extends beyond solar panels and into Systems – providing expert project development and system integration services



- Strong cash position and balance sheet
- Present in all key markets and segments
- In 2010, state-of-the-art integrated production facility opened in Tuas, Singapore – investment of SGD 2.5 billion; around 1,500 employees locally
- Listed on the Oslo Stock Exchange (ticker: RECSOL) and headquartered in Singapore

History of REC



1990s	1996	REC established in Norway
	1997	Wafer production Glomfjord
2000s	2002	Cell production in Narvik
	2003	Solar panel production in Glava
	2006	Listed on Oslo Stock Exchange
	2008	Wafer production Herøya
2010s	2010	Wafer, cell & solar panel production Singapore
	2011	Narvik & Glava shutdown
	2012	Glomfjord & Herøya shutdown
	2012	Division headquarters move to Singapore
	2013	Split of REC Solar ASA from Renewable Energy Corporation ASA

Why the split?

- Increasingly demanding to grow and maintain leading position with vertically integrated business model
- Limited operational synergies between former Silicon and Solar divisions
- Now purely focused on delivering leading solar energy solutions

Can REC stay a leader in the industry?

- With very competitive products and services supported by secure assets, a strong balance sheet and well-respected brand, for REC the future is bright

Is REC's financial position negatively affected?

- With cash available, secure assets, zero debt and demonstrated profitability in today's market, REC is uniquely in a solid financial position

Will customers experience any changes because of the split?

- No; same high-quality products, sales support, customer programs, name, brand, logo, website, online services, and commitment to partnership

REC's integrated manufacturing facility in Singapore



REC WAFER PLANT

- Wafer size: 156mm x 156mm
- Wafer type: p-type multicrystalline
- 2 wafer factories

REC CELL PLANT

- mc-Si cell type
- 8 cell lines
- 8 operators/line

REC SOLAR PANEL PLANT

- 4 solar panel lines
- 8 operators/line

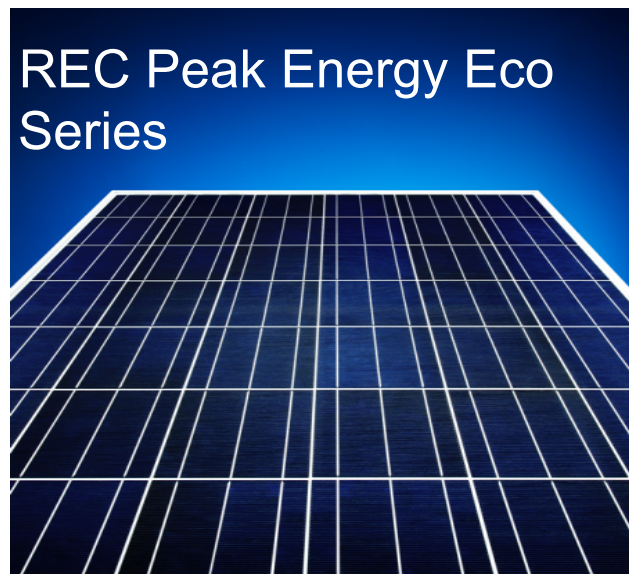
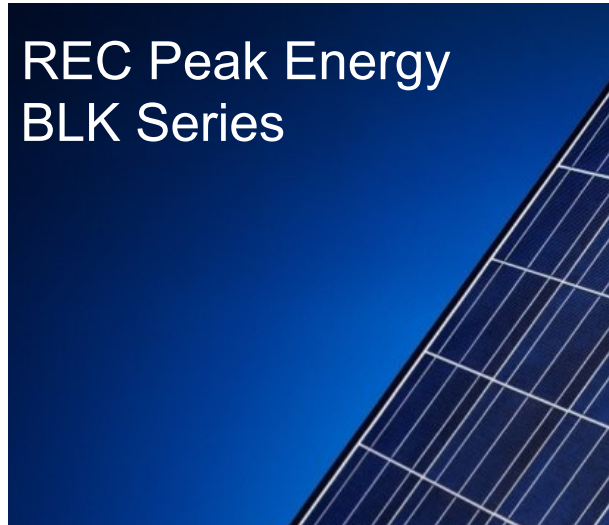
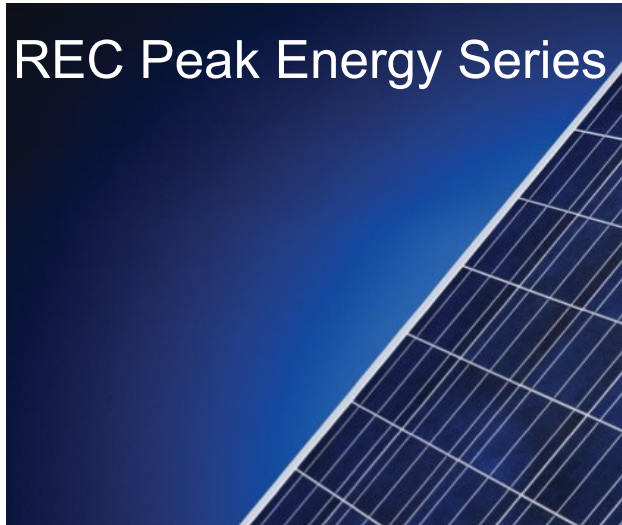
Solar panel production: 800 MW p.a.

REC – a global company



- Headquarters
- Legal entities
- Solar representative

REC Peak Energy Series solar panels



More energy per m^2



Robust and durable design



Easy to install

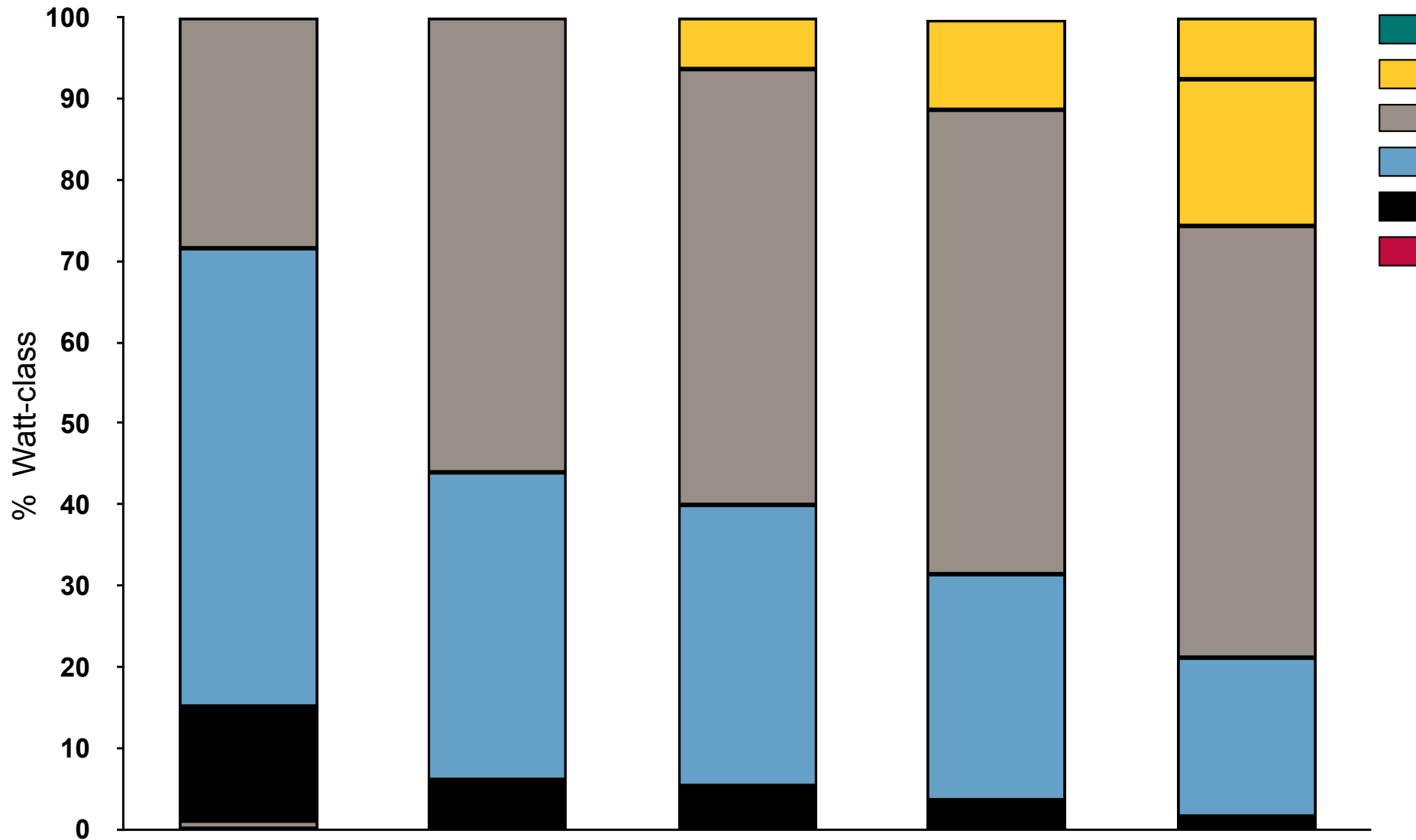


Optimized for all sunlight conditions



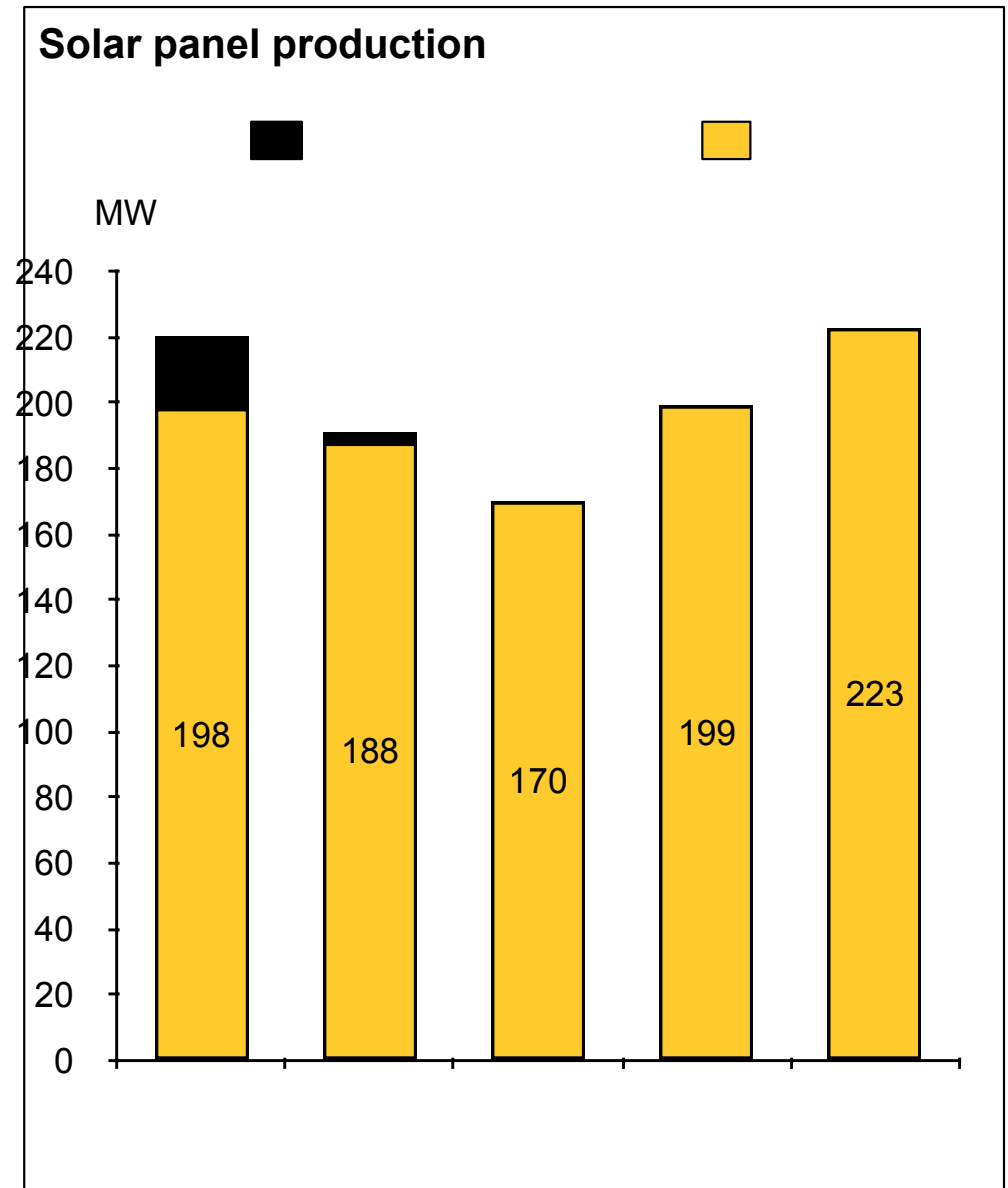
Energy payback time of one year

REC Peak Energy Series Watt-Class Development: Dominant watt-class in 2014 will be 260 Wp



Higher production volumes

- Strong production growth – driven by higher solar panel throughput and cell efficiency
- September average cell efficiency of 17.6 percent

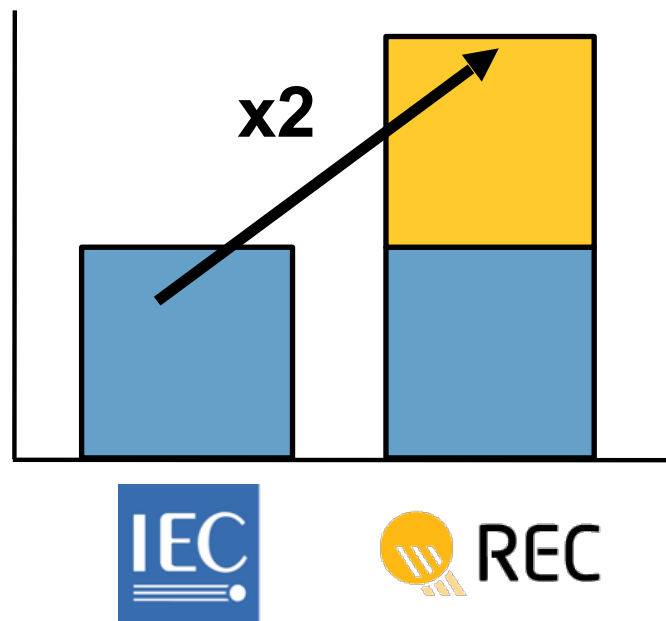


REC Quality pushes industry standards

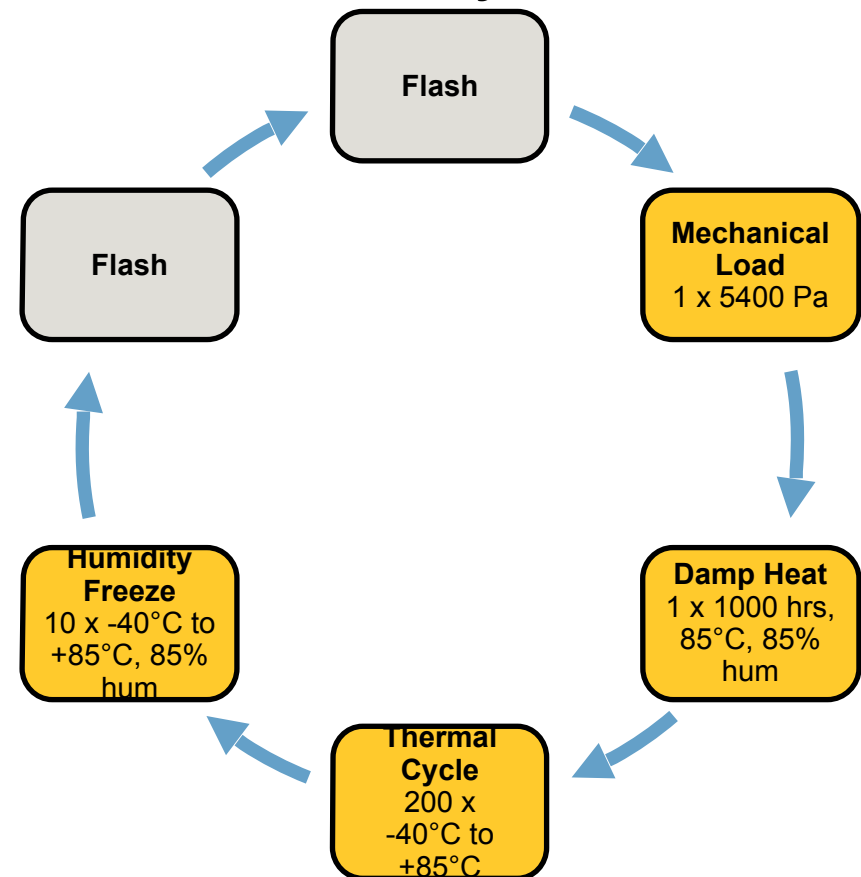
REC sets new industry standards for quality

- Major design changes undergo an extended qualification process, where panels are tested beyond normal industry standards
- This extreme testing ensures panels can perform in the most severe environments, ensuring increased reliability

Extended Test



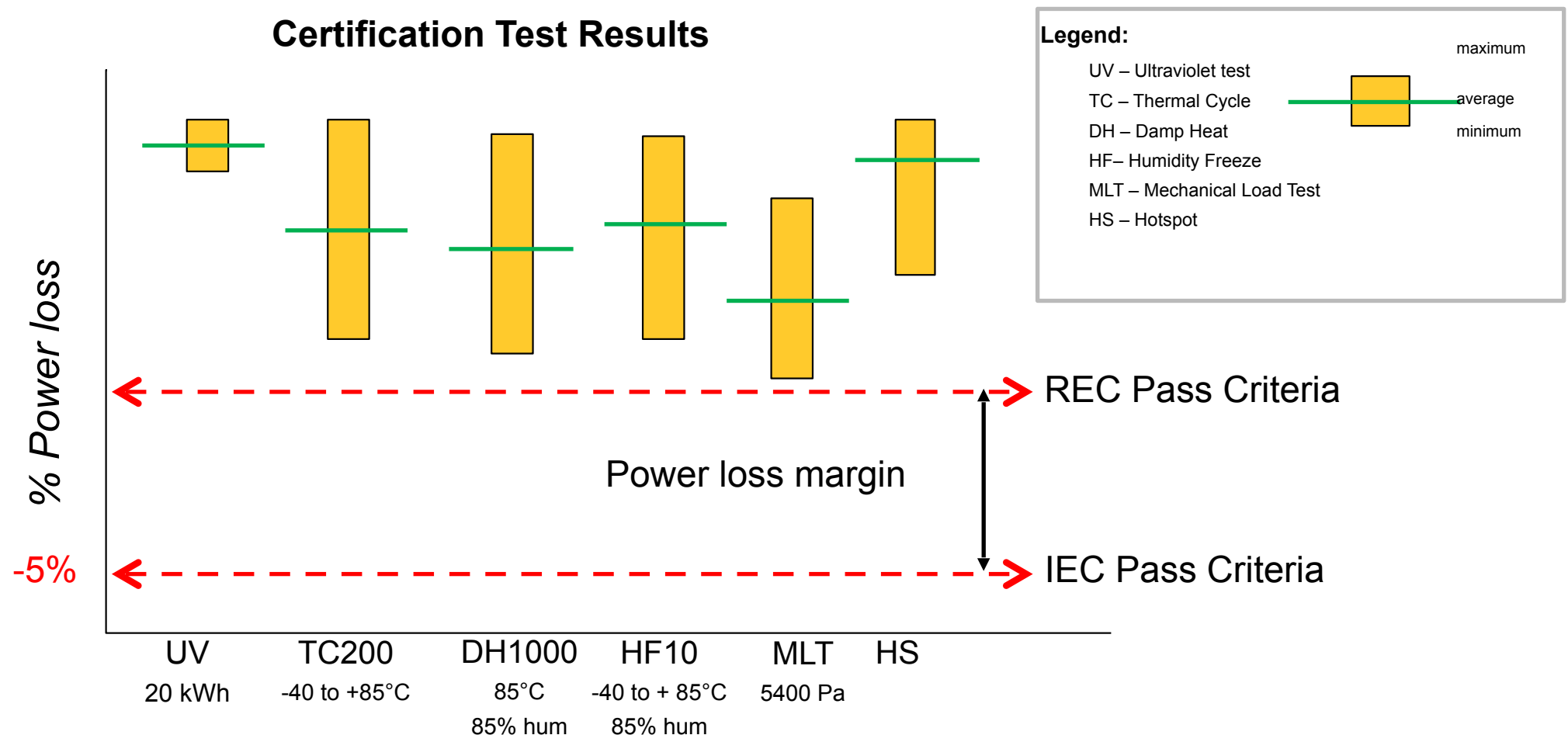
Combined Cycle Test



REC performs above requirements in certification tests



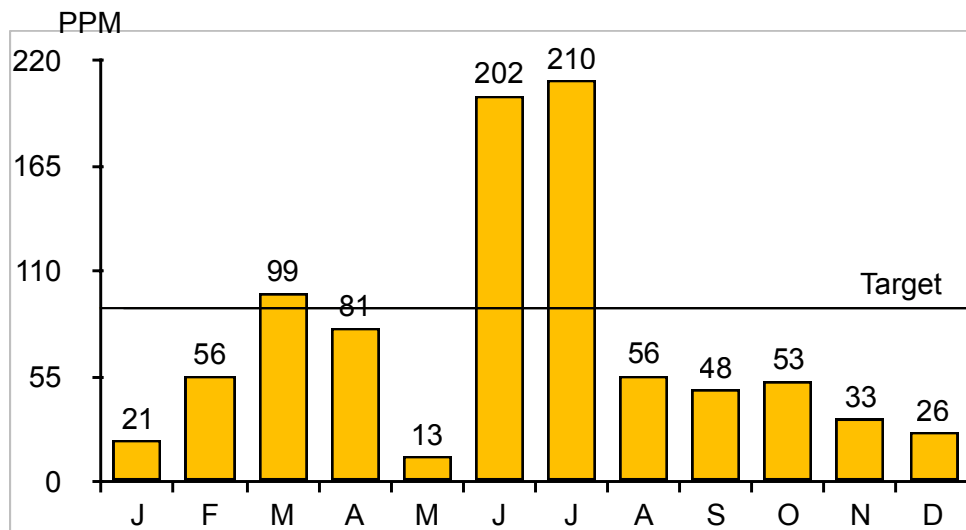
- The performance of REC panels during certification is far higher than the IEC certification threshold
- As REC has stricter internal qualification test requirements, passing the certification test with a significant “quality margin” is straightforward



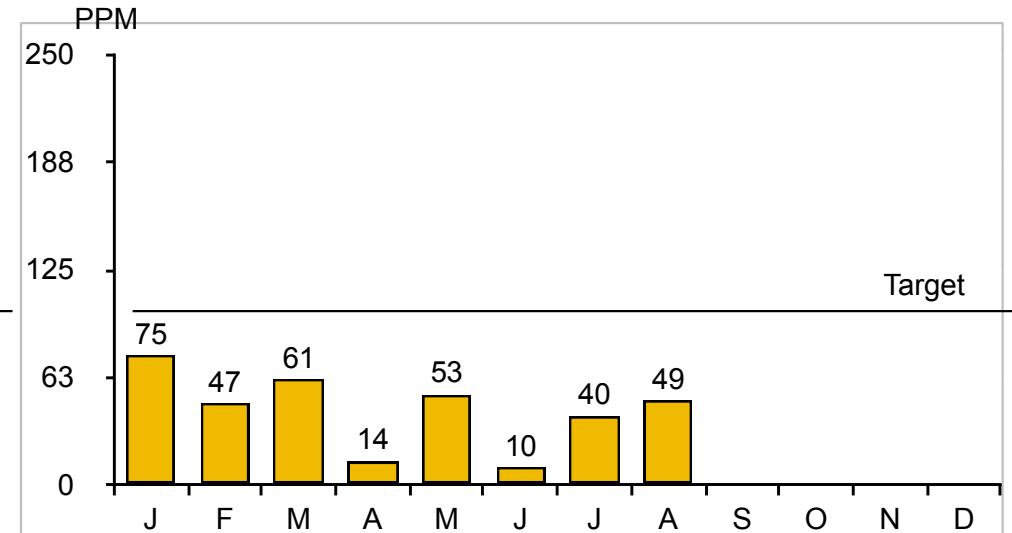
Low claims PPM rate: Further proof of REC's quality in the field



2012 claims (PPM)



2013 claims (PPM)



- REC has a world-class target of <100 PPM
- Out of approximately 3 million solar panels manufactured on a yearly basis, less than 300 return to REC from the field with defects
- Dedicated team to handle claims from the field quickly and with a streamlined process
- Analysis of claims helps improve product quality
- Parallel feedback process in place to handle non-claim issues

REC's quality recognized by external parties (ii)



→ Third party engineering companies who have carried audits in REC's integrated manufacturing plant in Singapore confirm superior REC quality

Black & Veatch



"BV finds the design for the panels to be similar or superior to the designs of other crystalline silicon PV panels."

"The materials and components come from suppliers with long track records."

"The panel assembly facility is highly automated and the capital equipment appears to be state of the art."

"BV believes that the cell placement and busbar soldering operations are superior to widely accepted industry practices."

"REC performs 100% inline cell IR imaging and dark IV testing which are not widespread in the industry."

"BV believes that the supplier selection and monitoring process is consistent with, or superior to, accepted industry practices."

"Representatives of the quality assurance organization were present throughout the manufacturing line."

"The quality assurance facilities are well-organized and well-managed."

Mott MacDonald



"MM has formed a very positive opinion of the facility due to the clean, organised and well-managed cell and panel production lines."

"The rate of automation of REC facilities provides important benefits and advantages against less automated factories."

"The panel mismatch loss is very small."

"Suppliers have been benchmarked and classified."

Once the wafers enter the cell-manufacturing line, they go through a 100% automated process with no manual labour involved."

"The quality of the checks implemented in the cell manufacturing line give comfort that reliable cells are produced by REC."

"REC's internal quality requirements provide extra comfort on the long term behaviour of REC PV panels."

"This overall approach indicates that the company's attention to detail will assist in maintaining a quality product."

REC provides award-winning solar solutions



- Solar Industry Award for Module Manufacturing Innovation
- Frost & Sullivan Customer Value Enhancement Award for Global Solar Industry
- 1st Place in Photon Module Field Performance Test
- Top Brand PV Seal from EuPD Research
- Largest European supplier globally according to IHS Research



A Partnership that goes a long way

A partnership approach to business



- REC is a well-recognized brand in the global solar industry
- A focus on and demonstrated commitment to partnership
- Not only offer high-quality products and services, but also importantly: a reliable and lasting partnership
- This mentality is lived by our four values:
 - We are Responsible
 - We are Experienced
 - We are Collaborative
 - We are Straightforward





Our Vision:

We want every person to benefit from electricity directly from the sun.



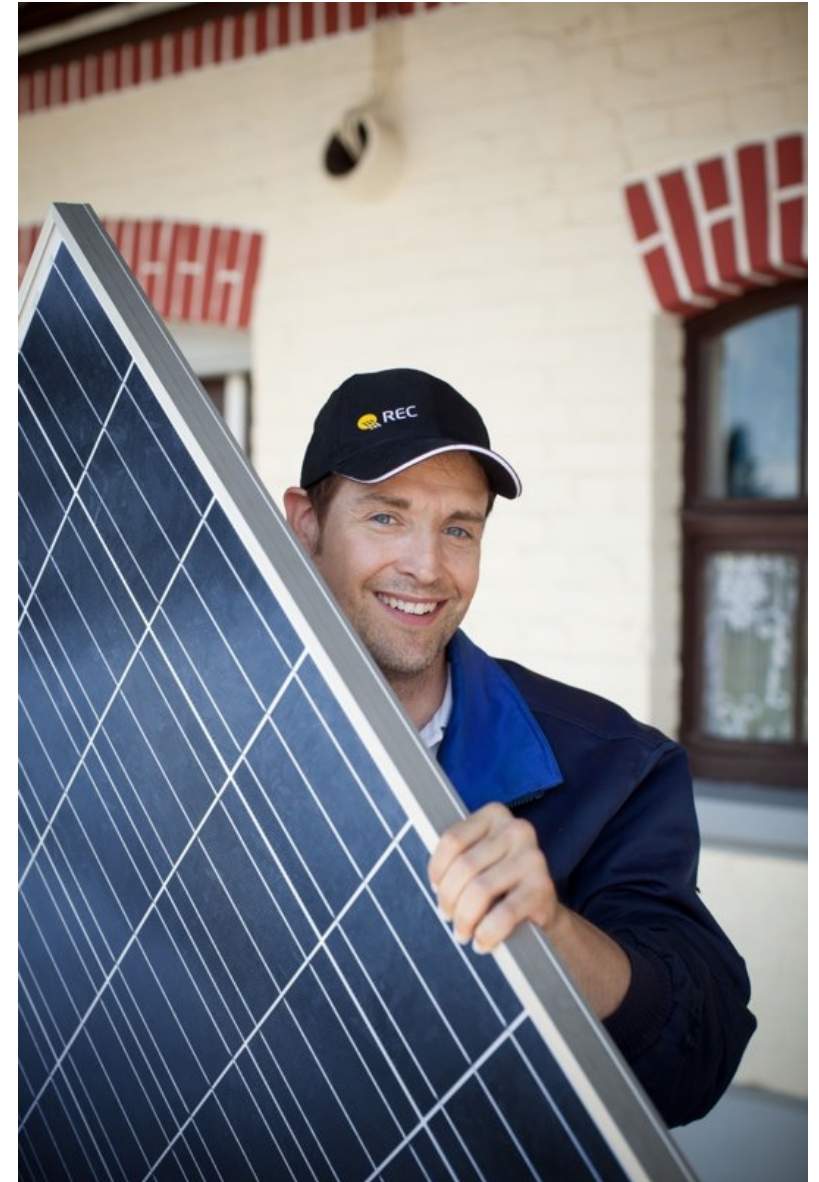
Our Value Proposition:

In close collaboration with our partners we deliver reliable, customer focused solar electricity products, services and solutions that create long-term value.

Industry-leading Installer certification program



- REC Solar Professional Program offers added benefits to solar installers
- Unique training on how to best install and sell REC solar panels, enabling installers to maximize business potential
- Exclusive access to tools and services:
 - Warranty extension (10+2 years)
 - Flash data
 - REC Marketing & Print Shop (including co-branded material)
 - Training videos
- Recertification sessions to ensure installers stay at the forefront



Solar power plant in Romania with REC solar panels

Romanian success story: Izvoru Photovoltaic Park



- Located in Giurgiu County
- 10 MW
- 13,500 MWh annual Capacity
- 9,000 Tons CO₂ saved annually
- 41,760 REC solar panels
- Ground-mounted installation
- Produces enough electricity to supply 4,300 households
- Largest installation in Romania at time of completion (February 2013)
- Installation covering 30 hectares completed in only four months



Investment opportunity: Mizil – 8 MW system by REC

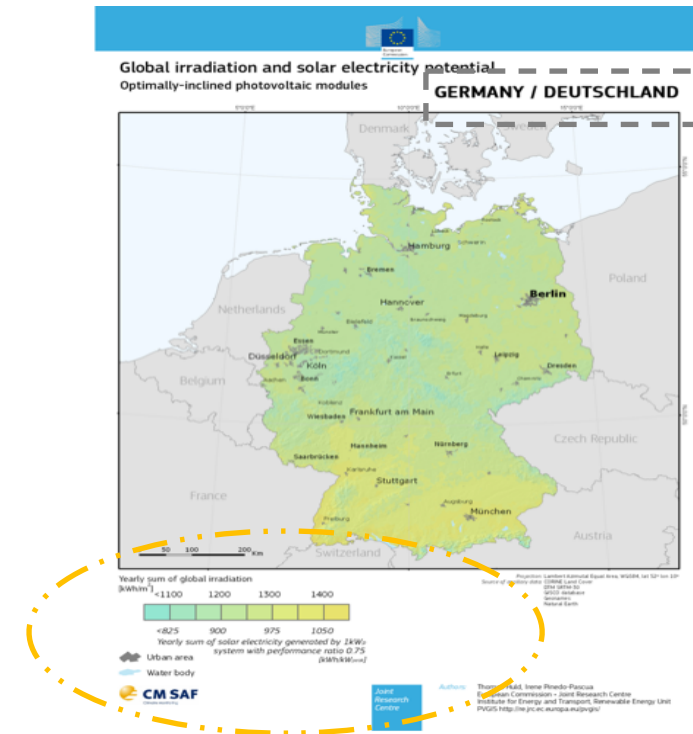
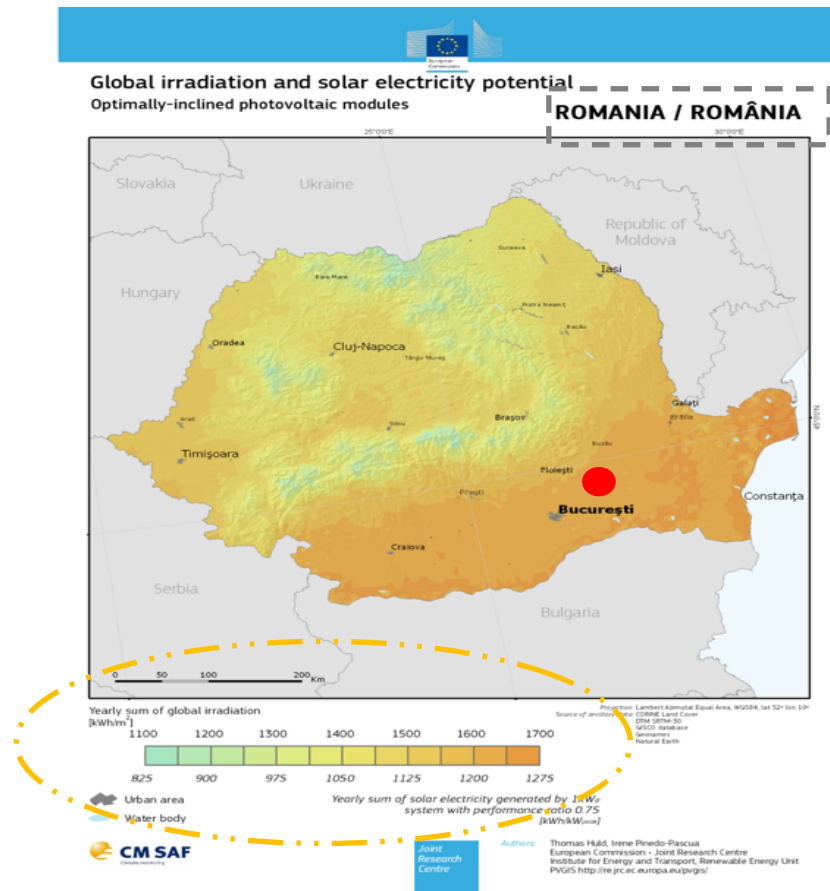
Executive Project Summary



'Mizil' solar PV project, Romania – green field

SPV	<i>Already established SRL (Greenlight Solutions)</i>
Project Owner	<i>Project owned by REC Systems Germany GmbH</i>
EPC Contractor	<i>REC Systems Germany GmbH</i>
Type & Capacity	<i>Ground mounted solar PV park (fixed mount) Total peak capacity ca. 8.345 MWp (DC)</i>
Expected Yield	<i>ca. 1,320 kWh/kWp p.a.</i>
Start of Construction	<i>February 2013</i>
Project Completion	<i>Q2 2013 (already grid-connected)</i>
Revenue Components <i>(1) 6 Green Certificates per MWh generated</i>	<i>15 yrs off-take contract for Green Certificates secured with E.ON Romania</i>
Permit Status	<i>Fully permitted</i>
Project Site	<i>Fully owned by SPV</i>
Grid Connection	<i>20 kV (medium voltage port at the substation)</i>
Modules	<i>REC Peak Energy Series / Polycrystalline Technology</i>
BoS Components	<i>Bankable European high quality components (Inverters: Danfoss, Mounting systems:</i>

Project Location in Romania – High Irradiation Levels

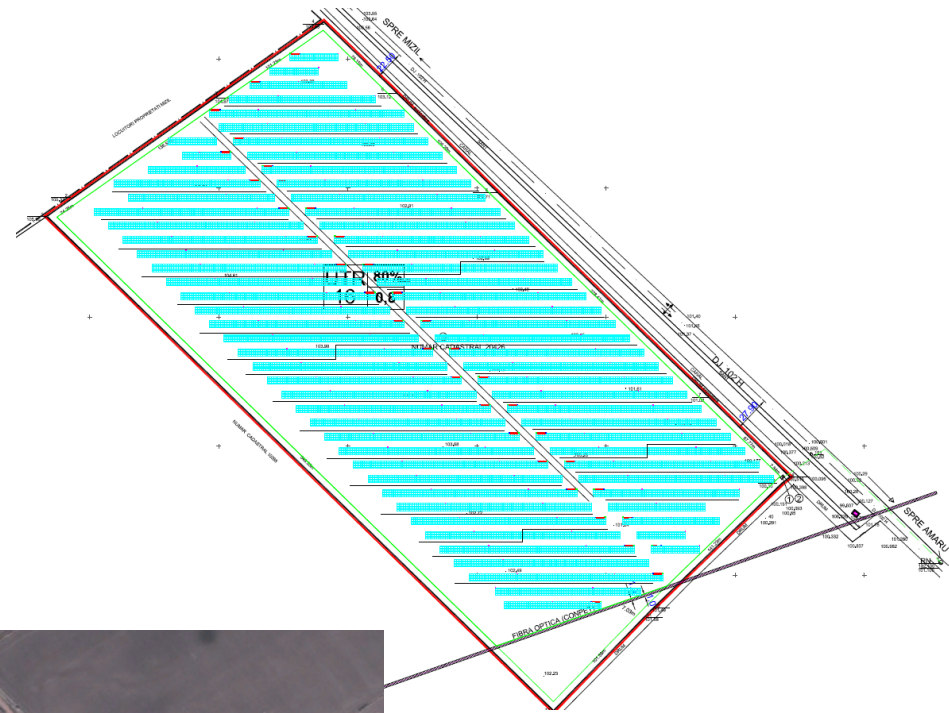


→ The project is located in an area with high irradiation north of Bucharest

- Site Type: Green Field (industrial land)
- Location: North of Bucharest – Prahova District
- Final total peak capacity: 8.345 MWp (DC)
- Irradiation levels above 1,600 kWh/sqm in the region North of Bucharest
 - Irradiation in South of Germany is about 1,300 kWh/sqm in comparison

Project Layout

- Initial installed power: 8.345 MWp (DC)
- Fixed structure with ramming pole foundations
- Total fenced area: 12.8 ha
- 100% power export
- Specific Yield per kWp installed:
1.320 kWh / kWp (module angle of 20°)
- Land purchase agreement signed
 - The SPV is owner of the land, paid upfront
 - No additional costs / ongoing land costs
- Grid Point of Connection:
 - 20 kV grid connection line to Sub-station
 - Grid connection completed in June 2013



Construction status as of June 2013



“I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait till oil and coal run out before we tackle that.”

Thomas Edison to his friends Henry Ford and Harvey Firestone (1931)

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THANK YOU

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