• The core focus of REC is the **sustainable production of clean energy products** – growing from a pioneer in the solar industry, to a world leader

• REC’s combination of **product quality, company reliability**, and commitment to **sustainability** is unparalleled in the solar PV industry

• With **20 years** in the business of solar power, REC has demonstrated **longevity** in an industry where many players quickly come and go

<table>
<thead>
<tr>
<th>20</th>
<th>5</th>
<th>8</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Million modules manufactured</td>
<td>Gigawatts produced</td>
<td>Million people powered at home</td>
<td>Founded in Norway</td>
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REC’s total global numbers as of end-2015
REC Q3 2016 Highlights

• REC had a solid performance in Q3 2016 despite challenging market conditions, with module shipments totaling 276 MW.

• Once again, the U.S. accounted for the majority of REC shipments in Q3 2016 with a 60% share.

• The APAC region performed well with an 88% increase in shipments quarter-over-quarter, mainly due to strong sales in India and Japan.

• The quarter saw the official opening of our Herøya ingot plant with Norway’s Prime Minister Erna Solberg cutting the ribbon.

• REC successfully launched its new 72-cell version of the award-winning REC TwinPeak Series, rated up to 340 Wp.

• REC achieved an in-house record cell efficiency of 20.46% for multicrystalline solar cells, with over 20% efficiency expected in mass production starting in early 2017.
Promotion of Shankar Sridhara to Vice President, Technology

• REC is pleased to announce the promotion of Shankar Sridhara to the position of Vice-President, Technology

• Mr. Sridhara will be responsible for defining and driving REC’s technology vision – including all aspects of the company’s technology roadmap and research & development programs

• Mr. Sridhara holds a Ph.D in Physics from University of Pittsburgh (Pittsburgh, PA, USA) and has joined REC in 2006 at REC ScanModule AB in Glava, Sweden.

• Over the 10 last years, he focused on product design, cost, reliability and field performance, leading for example to the successful development and industrialization of the REC TwinPeak product family
REC Highlights – Q3 2016
• Production of ingot blocks at facility in Herøya, began on **September 13, 2016** and Elkem Solar hosted an opening ceremony to commemorate the event

• Norwegian **Prime Minister Erna Solberg** did the ribbon cutting

• **Also present were** Helge Aasen (Chairman), Geir Ausland (Plant Director), and Steve O’Neil (CEO)

• Elkem Solar uses an advanced, highly automated process to produce a **high purity silicon block**

• **Production of this solar-grade silicon** requires only 25% of the energy consumption and CO₂ emissions of polysilicon produced using the Siemens process – leading to one of the **lowest carbon footprints in the industry**
REC to provide panels for Canal & Suspended Structure project in the state of Punjab (India)

- REC to supply **5.3 MW of modules for a canal project** in the state of Punjab, planned for commissioning in January 2017

- **Unique features of this project** include:
  - To be implemented with a **suspended structure**
  - **First canal project with private sector investment in India**

- The solar PV modules will cover the canal and canal banks to produce **eco-friendly power** while **minimizing the use of valuable land** compared to typical large-scale ground-mounted solar PV systems.
REC donates solar system for the innovative Singapore Sustainability Academy

- REC has **donated** a solar system to the newly founded **Singapore Sustainability Academy**
- The **launch** took place on August 5, 2016 with **Dr. Amy Khor** (Senior Minister of State, Ministry of the Environment and Water Resources) as the **Guest of Honor**
- The solar PV system, **designed and built by REC**, is expected to **fulfill** most of the **energy needs of the Academy**
- The project partnership is a natural fit for both parties, and is aligned with REC’s goals of **promoting a low-carbon economy based on resource-efficient and sustainable practices**
- The construction is expected to be completed by mid-2017
Global Performance – Q3 2016
REC saw a drop in shipments due to a very challenging quarter for the entire industry.

Module Shipments by Quarter (in MW)

- **Q3 2016** module shipments totaled 276 MW
- Quarterly volume decline by 15% compared to Q2 2016 as REC emphasized profitability over chasing market share
- Strong outlook for the remainder of the year
In Q3 2016, 60% of REC’s shipments were to the U.S., with APAC performing great as well.

- Once again, the U.S. accounted for the majority of REC shipments in Q3 2016 with a 60% share.
- The APAC region performed well, with an 88% increase in shipments quarter-over-quarter due to a strong performance in India and Japan.
- U.S. shipments declined by 18% quarter-over-quarter.
- Shipments to the EMEA region fell by 36% compared to Q2 2016 although Germany remained very strong for REC.

* Excluding China
Regional Performance Q3 2016
**Americas – REC performance and Regional highlights**

### Q3 2016 Module Shipments split by Segment (in MW)

- **Utility**
- **Commercial**
- **Residential**

**Source:** REC; GTM Research September 2016; IHS Markit

### REC Performance Highlights

- **60% of Q3 2016 total REC shipments were delivered to the U.S.**, the 2nd largest market globally.
- The high quality of REC’s products was evidenced by the following accomplishments in the US market:
  - **#1 most popular panel brand for residential installations in California**
  - **#2 most popular panel brand for residential installations in the entire U.S.**
- REC completed supply of 800,000 panels for the 258 MW Tranquility project in California, brought into commercial operation by Recurrent Energy.
- Continued and growing interest in Latin America for REC products.

### U.S. Market Development Highlights

- **Project spillover into 2017** due to ITC extension.
- **Community solar** emerging as driver for increased solar PV deployment.
- **Net metering policy certainty needed** to ensure ongoing growth in residential and commercial installations.

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1. REC market segment module shipment volume splits are best estimates; 2 Total market estimate; 3 Based on 1H 2016, published September 2016.

**Source:** REC; GTM Research September 2016; IHS Markit
EMEA – REC performance and Regional highlights

**REC Performance Highlights**

- Shipments to the EMEA region declined by 36% from the previous quarter and 22% year-over-year
- **Strong performance in Germany**, solid performance in the U.K. and Netherlands
- REC has increased its presence in the utility segment in Europe while performing well in the residential and C&I segment due to its excellent customer service and high level of customer trust

**EMEA Region Development Highlights**

- An increasing number of markets announced **auctions for solar PV procurement** (incl. the 1st cross-border PV auction between Germany and Denmark)
- Latest numbers illustrate that concerns regarding grid stability due to the increasing share of intermittent renewable energy sources are overstated – e.g. Germany: higher grid stability than 10 years ago, while the electricity generation from renewables increased to almost a third of the total

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1 REC market segment module shipment volume splits are best estimates; 2 Total market estimate

Source: REC; IHS Markit
REC Performance Highlights

- Very strong performance in India, with REC increasing its footprint in the market (e.g. REC supplying 5.3 MW modules for a canal project in the state of Punjab)
- Japan shipments were solid, but affected by the overall slower market conditions
- REC sales into Taiwan increased as the market offers strong potential due to the preference for high-performance products

APAC Region Development Highlights

- The Indian solar market continuous its strong development with the government announcing support measures for the domestic PV manufacturing industry
- Taiwan introduced feed-in tariff rates, providing a bonus for the usage of adopting high-efficiency modules; The Taiwanese government aims at a 20% share of renewables in country’s energy mix by 2025

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1 REC market segment module shipment volume splits are best estimates; 2 Total market estimate (ex. China)

Source: REC; IHS Markit, Bloomberg
Product and Technology Highlights
REC successfully launched its new 340 Wp 72-cell version of the award-winning REC TwinPeak module

- REC TwinPeak 72 is based on the award-winning 60-cell REC TwinPeak Series, combining key technologies: half-cut cells, PERC, four busbars and split junction box
- REC TwinPeak 72 is available globally and certified for a maximum system voltage of 1000V, with a 1500V variant also available
- Immediate benefits of this 72-cell REC TwinPeak module include:
  - Lower balance of system costs
  - Higher yield via increased power output (around 20 Wp) compared to standard 72-cell products
  - Improved performance in shaded conditions
REC achieves milestone efficiency for multicrystalline solar cells

- REC achieved a multi-crystalline solar cell efficiency of 20.46% and expects to see an average efficiency above 20% in mass production from the beginning of 2017.
- This achievement illustrates REC’s focus on technology leadership and commitment to delivering the greatest value to our customers worldwide.
- REC is the first known manufacturer to successfully achieve such a high cell efficiency on a multicrystalline platform for industrial-scale production.
- “REC continuously strives to develop new products and processes that provide customers with high quality, high power, and high value solar panels,” says Steve O’Neil, Chief Executive Officer at REC.
REC engineer sets industry standard for solar PV module degradation modeling

• As part of REC’s obligation to strive for best performance, we are actively investing into data modeling and data analysis

• The degradation analysis focuses on weather conditions and systematic drifting as causes for large uncontrollable fluctuations in operational data – representing challenges for calculating degradation rates of solar PV modules

• The REC method – new numerical Two-Step Approach (“TSA” method) – is able to overcome these analytical challenges

• “Degradation analysis of photovoltaic modules based on real operational data is essential to the future development of the PV industry” by REC has been presented at the International Conference on New Energy and Future Energy System
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)*