UN Symposium on SDG7

Ensuring universal access to affordable, reliable and modern energy services

Raymond Carlsen, CEO
October 19th, 2017

Our values
• Predictable
• Driving results
• Changemakers
• Working together
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Introduction
Our focus: Utility Scale Solar Power Plants

IN OPERATION
322 MW

PRODUCTION
791 GWh

BACKLOG
1,143 MW

# POWER PLANTS
12
Introduction

A growing and diversified asset portfolio

In operation

- **Czech Republic**: 20 MW
- **Kalkbult, RSA**: 75 MW
- **Linde, RSA**: 40 MW
- **Dreunberg, RSA**: 75 MW
- **ASYV, Rwanda**: 9 MW
- **Agua Fria, Honduras**: 60 MW
- **Jordan**: 43 MW

**Total**: 322 MW

Projects in backlog*

- **Honduras**: 53 MW
- **South Africa**: 258 MW
- **Mali**: 33 MW
- **Mozambique**: 40 MW
- **Brazil**: 162 MW
- **Malaysia**: 197 MW
- **Egypt**: 400 MW

**Total**: 1,143 MW

Pipeline & opportunities

- **3.0 GW**

(*) Projects with secured tariff and/or off take agreements
PV market:
Solar and wind dominate the future of electricity

Global cumulative installed capacity: 2016

- Coal: 30%
- Gas: 24%
- Hydro: 17%
- Nuclear: 5%
- Oil: 6%
- Utility-scale PV: 3%
- Onshore wind: 7%
- Small-scale PV: 2%
- Global cumulative installed capacity: 6,719 GW

Global cumulative installed capacity: 2040

- Coal: 13%
- Gas: 14%
- Hydro: 12%
- Nuclear: 3%
- Onshore wind: 14%
- Utility-scale PV: 22%
- Small-scale PV: 10%
- Flexible capacity: 13,919 GW

Source: Bloomberg New Energy Finance, 2017
PV market:
Solar technology is getting cheaper, faster

Source: Bloomberg New Energy Finance, 2017
PV market:
Tipping point: new vs new

Source: Bloomberg New Energy Finance, 2017
Tipping point 2: new vs existing

China

U.S.

$/MWh (real 2016)

Source: Bloomberg New Energy Finance, 2017
APAC: 47% of investment
China & India: 83% of investment in APAC

Cumulative capacity additions
($ billion – 2016 real)

APAC $4,828
AMER $1,454
META $1,454
RoW $1,264
Europe $1,185

Cumulative investment
($ billion – 2016 real)

China $2,823
India $1,157
SE Asia $431
Japan $195
South Korea $142
Australia $79

Source: Bloomberg New Energy Finance, 2017
…but 2 degree is an additional $5.3 trillion

Global power sector CO2 emissions

Total investment in zero-carbon capacity

Source: Bloomberg New Energy Finance, 2017
New technology solutions being considered

<table>
<thead>
<tr>
<th>PV + battery Storage</th>
<th>PV-Engine off-grid hybrid</th>
<th>Floating solar</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Battery Icon" /></td>
<td><img src="image2.png" alt="PV-Engine Icon" /></td>
<td><img src="image3.png" alt="Floting Solar Icon" /></td>
</tr>
<tr>
<td>PV combined with storage enables energy shifting and supporting utilities with grid stabilizing services</td>
<td>Sustainable power solution for utilities and industrial operations on islands and off-grid locations.</td>
<td>PV panels mounted on floating structures opens for solar energy without using farmlands.</td>
</tr>
<tr>
<td>ABB, Tesla, AES++</td>
<td>Industry partners</td>
<td>Ciel &amp;Terre (structure), Huawei (inverter)</td>
</tr>
<tr>
<td>Opens for new markets and new revenue streams. We also expect storage to be a requirement in future PPA as solar energy penetration increases.</td>
<td>Reduce fuel consumption by &gt;20%. Adding storage can increase fuel saving to &gt;30% plus significantly reduce running hours on the engines.</td>
<td>Alternative to ground mounted systems. Natural cooling increase efficiency.</td>
</tr>
<tr>
<td>Commercially available</td>
<td>Pilots have been deployed in different regions</td>
<td>Pilots have been deployed in different regions</td>
</tr>
</tbody>
</table>
Li-ion battery prices to fall another 73% to 2030

Source: Bloomberg New Energy Finance, 2017
Electric vehicles will cost less than internal combustion vehicles in the 2020s

Vehicle prices

Battery electric vehicle cost breakdown

Source: Bloomberg New Energy Finance, 2017
**Project backlog**

**Solid progress on projects across backlog (i)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Details</th>
</tr>
</thead>
</table>
| **Malaysia, 197 MW** | - 21 year PPA with TNB  
- Capex: MYR 1,240 million                                                                                                                                 |
| **Honduras, 53 MW** | - 20 year PPA with ENEE  
- Capex: USD 100 million                                                                                                                                 |
| **Mozambique, 40 MW** | - 25 year PPA with EDM  
- Capex: USD 80 million                                                                                                                                 |

**Status**

- Project finance – MYR 1000 million green Islamic Bond – well received in the Malaysian debt market  
- Certain construction activities initiated

- Finalising remaining conditions to close financing for first phase (35 MW)  
- Certain construction activities initiated

- Finalising remaining conditions to close financing  
- Construction preparations ongoing
# Project backlog

## Solid progress on projects across backlog (ii)

<table>
<thead>
<tr>
<th>Region</th>
<th>Capacity (MW)</th>
<th>Details</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>400</td>
<td>25 year PPAs with Gov of Egypt, Capex: USD 450 million</td>
<td>Credit committee and board approval obtained for project finance by bank consortium, Financial close by end of October</td>
</tr>
<tr>
<td>South Africa</td>
<td>258</td>
<td>20 year PPA with Eskom, Capex: ZAR 4,600 million</td>
<td>Timing of financial close relies on alignment between Eskom and the various government bodies</td>
</tr>
<tr>
<td>Brazil</td>
<td>162</td>
<td>20 year PPA with ANEEL, Capex: BRL 680 million</td>
<td>All permits secured for the project, Good progress on debt and equity structuring</td>
</tr>
<tr>
<td>Mali</td>
<td>33</td>
<td>25 year PPA with Energie du Mali, Capex: EUR 52 million</td>
<td>Board approval obtained for IFC project finance and for Partial Risk Guarantee from the World Bank, Awaiting final board approval by AfDB</td>
</tr>
</tbody>
</table>
# Key activities in development and delivery of Utility scale solar plants

<table>
<thead>
<tr>
<th>Phases</th>
<th>Origination</th>
<th>Development</th>
<th>Structuring</th>
<th>Delivery</th>
<th>Power Production O&amp;M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Opportunity</td>
<td>• Pipeline</td>
<td>• Backlog</td>
<td>• Construction</td>
<td>• Operation</td>
</tr>
</tbody>
</table>

## Key activities

### Origination
- Opportunity

### Development
- Partners
- Stakeholders
- Award of PPA/Permits
- Land
- Financing
- Socialisation of the project

### Structuring
- Partners
- Stakeholders
- Procurement
- Financing
- Socialisation of the project

### Delivery
- Partners
- Stakeholders
- Award of PPA/Permits
- Land
- Procurement
- Operation and maintenance
- Sale of electricity
A truly sustainable business model

• Solar plants embedded in local communities in emerging economies for 20-25 years

• Economic activity is of vital importance to both countries and communities

• Local suppliers, local employees and good relations with local communities impact performance, cost and risks

• Environmental and Social Impact Assessments are undertaken at the start of the project phase

• Community relations, social and environmental impacts are managed as an integrated part of the business

• Specialist advisors engaged to manage CSR and Economic Development programs
Environmental, social and governance integration

- Operate in line with the Equator Principles and IFC Performance Standards

- Work with trusted business partners (IFC, Norfund, KLP and more)

- Conduct Environmental and Social Impact Assessments for all projects

- Grievance mechanism
## Local job creation

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>JOB CREATION (DURING THE PEAK CONSTRUCTION PERIOD)</th>
<th>% LOCAL EMPLOYEES (CITIZENS)</th>
<th>NO. OF WORKERS WITH DOCUMENTED SKILL ENHANCEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agua Fria</td>
<td>1,050</td>
<td>82%</td>
<td>27(^1)</td>
</tr>
<tr>
<td>Utah Red Hills</td>
<td>192</td>
<td>92%</td>
<td>30(^1)</td>
</tr>
<tr>
<td>Jordan portfolio</td>
<td>585</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Linde</td>
<td>550</td>
<td>70%</td>
<td>79(^1)</td>
</tr>
<tr>
<td>Dreunberg</td>
<td>1,400</td>
<td>77%</td>
<td>142(^1)</td>
</tr>
<tr>
<td>ASYV</td>
<td>600</td>
<td>85%</td>
<td>400(^2)</td>
</tr>
<tr>
<td>Kalkbult</td>
<td>900</td>
<td>80%</td>
<td>N/A</td>
</tr>
<tr>
<td>Czech portfolio</td>
<td>133</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,410</strong></td>
<td><strong>81% on average</strong></td>
<td><strong>926</strong></td>
</tr>
</tbody>
</table>

1) Workers certified.
2) Workers with formalised documentation of experience.
Summary

- Technology innovation and cost reductions make solar the lowest cost source of electricity.
- Emerging economies are taking advantage of renewables – low cost, clean and rapidly deployed.
- Scatec Solar is set to grow and strengthen its position as an emerging market focused IPP.
- Partnerships and new business models are being explored for additional growth opportunities.

Growth target (MWs)

- In operation: 322 MWs
- Backlog: 1,143 MWs
- Pipeline: 745 MWs
- In operation and under construction by end 2018: 1,300 – 1,500 MWs
Thank you

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• Predictable
• Driving results
• Changemakers
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