Wind industry in the green Hydrogen revolution
Siemens Energy Hydrogen Day

Andreas Nauen, CEO
Siemens Gamesa Renewable Energy

© Siemens Gamesa Renewable Energy S.A.
Disclaimer

This document has been prepared by Siemens Gamesa Renewable Energy, S.A. exclusively for use during the presentation of Siemens Energy “Hydrogen Day”. As a consequence thereof, this document may not be disclosed or published, nor used by any other person or entity, for any other reason without the express and prior written consent of Siemens Gamesa Renewable Energy, S.A. Siemens Gamesa Renewable Energy, S.A. does not assume liability for this document if it is used with a purpose other than the above. The information and any opinions or statements made in this document have not been verified by independent third parties; therefore, no express or implied warranty is made as to the impartiality, accuracy, completeness or correctness of the information or the opinions or statements expressed herein. Neither Siemens Gamesa Renewable Energy, S.A. nor its subsidiaries or other companies of the Siemens Gamesa Renewable Energy Group or its affiliates assume liability of any kind, whether for negligence or any other reason, for any loss or damage arising from any use of this document or its contents. Neither this document nor any part of it constitutes a contract, nor may it be used for incorporation into or construction of any contract or agreement.

IMPORTANT INFORMATION

The information contained in this presentation is subject to, and must be read in conjunction with, all other publicly available information, including, where relevant any fuller disclosure document published by Siemens Gamesa Renewable Energy and, in particular, with the financial data presented in the consolidated financial statements available on the CNMV’s website (www.cnmv.es) and on Siemens’ website (www.siemensgamesa.com/en/). Any person at any time acquiring securities must do so on the basis of such person’s own judgment as to the merits or the suitability of the securities for its purpose and only on such information as is contained in such public information having taken all such professional or other advice as it considers necessary or appropriate in the circumstances and not in reliance on the information contained in the presentation. No investment activity should be undertaken on the basis of the information contained in this presentation. In making this presentation available, Siemens Gamesa Renewable Energy gives no advice and makes no recommendation to buy, sell or otherwise deal in shares in Siemens Gamesa Renewable Energy, S.A. or in any other securities or investments whatsoever. This document does not constitute an offer or invitation to purchase or subscribe shares, in accordance with the provisions of (i) the restated text of the Securities Market Law approved by Royal Legislative Decree 4/2015, of 23 October; (ii) Royal Decree-Law 5/2005, of 11 March; (iii) Royal Decree 1310/2005, of 4 November; (iv) and their implementing regulations. In addition, this document does not constitute an offer of purchase, sale or exchange, nor a request for an offer of purchase, sale or exchange of securities, nor a request for any vote or approval in any of the shareholders. The jurisdictions of Siemens Gamesa Renewable Energy, S.A. may not be offered or sold in the United States of America except pursuant to an effective registration statement under the Securities Act of 1933 or pursuant to a valid exemption from registration.

FORWARD LOOKING INFORMATION

The presentation contains statements related to our future business and financial performance and future events or developments involving Siemens Gamesa Renewable Energy group that may constitute forward-looking statements. These statements may be identified by words such as “expect,” “look forward to,” “anticipate” “intend,” “plan,” “believe,” “seek,” “estimate,” “will,” “project” or words of similar meaning. We may also make forward-looking statements in other reports, in presentations, in material delivered to shareholders and in press releases and include, without limitation, statements concerning our future business development and economic performance and our shareholder remuneration policy. In addition, our representatives may from time to time make oral forward-looking statements. Such statements are based on the current expectations and certain assumptions of Siemens Gamesa Renewable Energy’s management, of which many are beyond Siemens Gamesa Renewable Energy’s control. These are subject to a number of risks, uncertainties and factors, including, but not limited to: (1) general market, macro-economic, industry, governmental and regulatory trends; (2) movements in local and international securities markets, currency exchange rates and interest rates; (3) competitive pressures; (4) technological developments; and (5) changes in the financial position or credit worthiness of our customers, obligors and counterparties. Should one or more of these risks or uncertainties materialize or should underlying assumptions not occur or assumptions prove incorrect, actual results, performance or achievements of Siemens may (negatively or positively) vary materially from those described explicitly or implicitly in the relevant forward-looking statement. Siemens Gamesa Renewable Energy neither intends, nor assumes any obligation, to update or revise these forward-looking statements in light of developments which differ from those anticipated. Any aspirational targets regarding financial performance or other performance indicators which may have been included in this presentation must not be deemed, unless otherwise clearly indicated in the presentation, as forecasts or market guidance regarding the group’s future performance for the current financial period and/or financial periods subsequent to that period. Forward-looking statements speak only as of the date of this presentation and are based on the knowledge, information available and views taken on such date; such knowledge, information and views may change at any time. There is significant uncertainty relating to the severity of the near-, mid- and long-term adverse impact of Covid-19 on the global economy and the global financial markets, and consequently the Covid-19 impact is only an estimate as of today. Siemens Gamesa Renewable Energy does not undertake any obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise. The following program includes – if IFRS not clearly defined – supplemental financial measures that are or may be non-IFRS financial measures. These supplemental financial measures should not be viewed in isolation or as alternatives to measures of Siemens Gamesa Renewable Energy net assets and financial positions or results of operations as presented in accordance with IFRS in its Consolidated Financial Statements. Other companies that report or describe similarly titled financial measures may calculate them differently. The businesses included in each of our geographic segments and the accounting principles under which their results are presented here may differ from the included businesses and local applicable accounting principles of our public subsidiaries in such gaographies. Accordingly, the results of operations and trends shown for our geographic segments may differ materially from those of such subsidiaries. Due to rounding, numbers presented throughout this and other documents may not add up precisely to the totals provided and percentages may not precisely reflect the absolute figures.

© Siemens Gamesa Renewable Energy S.A.
Wind industry in the green Hydrogen revolution

Wind will be at the center of green Hydrogen revolution

Wind will unlock additional demand potential for Wind installations

Global cumulative Wind capacity installed to produce green Hydrogen

<table>
<thead>
<tr>
<th>Year</th>
<th>Base Case Scenario</th>
<th>High Case Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>2030</td>
<td>60 GW</td>
<td>100 GW</td>
</tr>
<tr>
<td>2035</td>
<td>275 GW</td>
<td>275 GW</td>
</tr>
<tr>
<td>2045</td>
<td>245 GW</td>
<td>620 GW</td>
</tr>
</tbody>
</table>

(c. 460 GW | c. 725 GW | c. 1,370 GW)

1) Based on analyst reports and Hydrogen EU.
3) Source: IHS “Global Wind Power Market Outlook” (March 2020)
Cost of green H2 falling rapidly, with Wind as key enabler of future competitiveness

Future cost of green H2 will be below those for blue H2 fossil fuels

Levelized cost of hydrogen (USD/kg H2)

- Low-cost solar and wind resources start to achieve fossil fuel parity within the next five years (e.g. Chile, Saudi Arabia, Australia)
- Green H2 is currently more expensive than conventional H2 production from fossil fuels
- Cost of green H2 falling rapidly due to combined effects of reduced electrolyzer cost and cheaper renewable power
- Pricing of CO2 emissions from fossil fuels could further improve competitiveness of green H2
- In the best locations, renewable H2 is competitive in the next 5 years compared to fossil fuels

Highlight

- Green H2 is currently more expensive than conventional H2 production from fossil fuels
- Cost of green H2 falling rapidly due to combined effects of reduced electrolyzer cost and cheaper renewable power
- Pricing of CO2 emissions from fossil fuels could further improve competitiveness of green H2
- In the best locations, renewable H2 is competitive in the next 5 years compared to fossil fuels
Wind industry in the green Hydrogen revolution

Onshore: source of green H2 production in the near future, with large scale projects from 2026 onwards

Global cumulative capacity of Wind Onshore for H2 production

GW (Excl. China)

• Onshore large scale projects expected from 2026 onwards
  - Prototypes already before 2025
  - Small-scale projects for mobility applications or existing H2 use cases (e.g. fertilizers) expected from 2023 onwards

• Large-scale Hybrid projects (Onshore Wind + PV) in countries with favorable resources (Australia, Chile) also constitute a low-cost source for H2 export

Globally announced Onshore Hydrogen projects

Key markets (with announced projects)

1) Based on analyst reports and Hydrogen EU
3) Based on public announcements

© Siemens Gamesa Renewable Energy S.A.
Wind industry in the green Hydrogen revolution

**Offshore: strong growth expected from 2030 onwards, with significant potential**

Global cumulative capacity of Wind Offshore for H2 production

GW (Excl. China)

- First offshore large scale projects planned before the end of the decade
- North Sea initially as the most promising area, combining both good wind resources and strong potential demand for H2 (rest of the world to follow with further potential)
- Offshore Wind scalability, capacity factors and availability optimal for large scale deployment in the longer-term

<table>
<thead>
<tr>
<th>Year</th>
<th>Base</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>2030</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>2035</td>
<td>100</td>
<td>35</td>
</tr>
<tr>
<td>2045</td>
<td>245</td>
<td>155</td>
</tr>
</tbody>
</table>

Key markets (with announced projects)

- 275 GW (Excl. China)
- 620 GW (Globally announced Offshore Hydrogen projects)
- 20% Wind Offshore

1) Based on analyst reports and Hydrogen EU
3) Based on public announcements
Brownfield: Adding an electrolyzer into existing Wind farms could also have substantial potential

Key uses cases for brownfield H2 production

Wind farms with expiring feed-in tariffs/ incentives, willing to identify new revenue streams…

… in markets with decreasing/ low electricity prices and/or high volatility

… and located close to large Hydrogen demand hubs (e.g. harbors, ammonia clusters, etc.)

Brownfield H2 production expected to have strong growth, allowing existing assets to contribute even further to the energy transition

• First brownfield projects expected already before 2025, with some demonstrators currently being deployed

• Brownfield Hydrogen sites can yield significant benefits vs. Greenfield
  
  o Existing plants’ life extension implies lower CAPEX requirements and thus more competitive LCOH
  
  o Simplified project development and feasibility analysis as the plant is already known (real data availability)

Sample markets for brownfield H2 production

© Siemens Gamesa Renewable Energy S.A.
SGRE exploring different business models by Business Unit

**Business Model**

<table>
<thead>
<tr>
<th>Onshore</th>
<th>Offshore</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Centralized solution (at least for first phase)</strong></td>
<td><strong>Decentralized solution</strong></td>
<td><strong>Greenfield and brownfield opportunities with potential opportunity for expanded scope</strong></td>
</tr>
<tr>
<td>• Electrolyzer located at substation level or close to consumer facilities</td>
<td>• Electrolyzer integrated on the WTG</td>
<td></td>
</tr>
<tr>
<td>• No significant hydrogen specific Wind turbine development required in the short-term</td>
<td>• Wind turbine adaptations required</td>
<td></td>
</tr>
</tbody>
</table>

**Upstream**

- Renewable Power

**Downstream**

- Electrolyzer
- End customer, factory, transportation

© Siemens Gamesa Renewable Energy S.A.
SGRE already taking significant steps in shaping the industry: Brownfield Concept

Renewable H2 Upgrade product integrates an electrolyzer into an existing Wind farm...

Product concept description

Existing Wind farm

Pilot project

Brande (DK) demonstrator:

3MW onshore turbine
300kW electrolyzer

H₂ output to be used to fuel Copenhagen taxis

Benefits

1. Adds a new value stream by enabling the generation of green Hydrogen
2. Increases the value of Wind power by using it before it goes to grid
3. Makes the plant flexible, allowing the assets to contribute even more to the energy transition
SGRE already taking significant steps in shaping the industry: Decentralized offshore solution

Offshore decentralized solution integrates SE Electrolyzer into the Wind turbine…

Offshore decentralized solution description

Wind industry in the green Hydrogen revolution

Benefits (vs. centralized solution)

• **CAPEX reduction** by replacing high cost HV infrastructure with pipes network

• **Increase of system efficiency** due to lower HV electrical loses

• **Increase of plant load factor** as electrolyzer load more flexible than electrical network requirements

© Siemens Gamesa Renewable Energy S.A.
Wind industry in the green Hydrogen revolution

**SGRE already taking significant steps in shaping the industry:** Partnership with Siemens Energy combines the strengths of the two companies

### Collaboration Strengths

- First Wind OEM announcing a H2 integrated solution
- Global market leader in Offshore Wind

### Scope of collaboration in Product Development

- Adaptation of largest offshore turbine (SG14-222)
- Full integrated Wind+Electrolyzer solution

- Multi-MW electrolyzer with presence in the whole Hydrogen value chain
- Leader in PEM electrolysis technology
- Commercial scale electrolyzer with specific design for offshore use case
- Containerized, modular, scalable and pressurized plug & play platform solution