



# OptimaFlex Optimization through flexibility



Increasing  
profitability

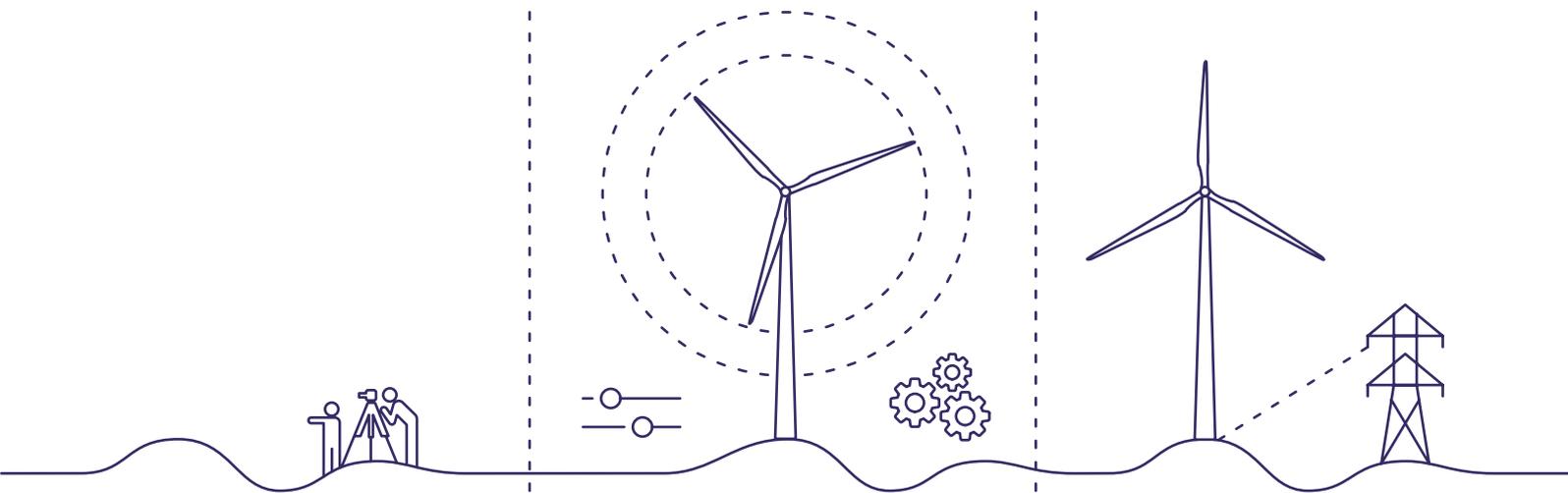


Siemens Gamesa turbines can be configured to adapt perfectly to site conditions, offering our customers the suitable product for their projects

Beyond the traditional off-the-shelf approach, which results in products that more or less fit all the sites, but are sub-optimal for many, the Siemens Gamesa OptimaFlex technology delivers a uniquely tailored solution that is perfect for our customers' specific needs.

Optimized site design combined with a customizable product platform, based on flexible power rating, site specific towers and optimized BoP solutions, allow Siemens Gamesa to deliver reduced LCoE by increasing AEP while optimizing cost.

# Flexibility at every stage of the project's life cycle



## Customer collaboration

We engage with our customers from the very early stage of the project development and assess with them every single detail to ensure the minimum LCoE.

- Detailed study of the business case combined with comprehensive site analysis.
- Expert technical input at the outset of the planning process.
- Enhanced site design tools.

Only such an in-depth collaboration allows us to deliver profitability and returns over the project's lifetime.

## A flexible product platform

In life, change is the only constant. In wind power, that means changing environmental conditions as well as the fluctuating economic barometer that has an impact on our customers' business case.

Thanks to the Siemens Gamesa OptimaFlex technology, turbines can be precisely configured to suit site conditions:

- Customization of product offer to optimize performance.
- Site specific tower portfolio to offer the most suitable hub height and full adaptability to site loads.

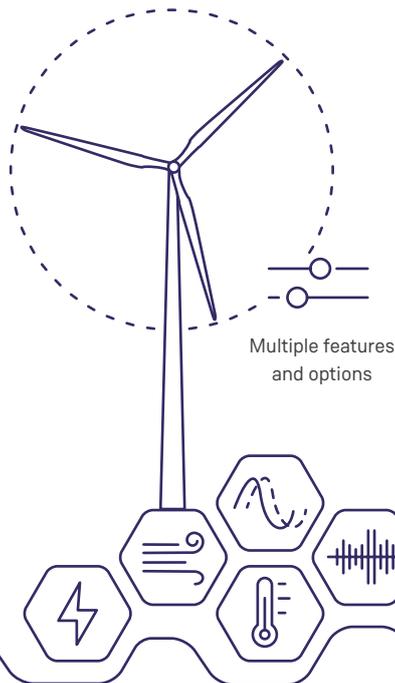
## Ongoing optimization

OptimaFlex is ready for your projects, meaning our turbines will be able to react to contingencies over the lifetime of the project:

- Changing site and business case conditions.
- Grid connectivity requirements.

Constant monitoring of environmental, grid and turbine physical conditions allows for real-time power optimization. Longer term changes can be responded to through re-calibration of the turbine.

# Increasing profitability



## Flexible rating

The availability of a flexible power rating enables turbines to be configured for enhanced performance in each individual project and to achieve maximum returns. Every product is available with a number of Application Modes fully configurable via control software and supported by technical documentation, type certificate and the required contractual warranties.

This way, Siemens Gamesa delivers the suitable product configuration, depending on the project requirements and the actual environmental conditions of the site, with the perfect mix of the following parameters:

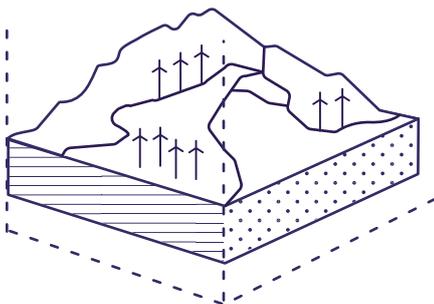
- Active power.
- Wind conditions.
- Ambient temperature.
- Reactive power capabilities.
- Aerodynamic noise.

## Advanced site optimization

Thanks to advanced siting and design tools, we deliver the optimum site design that maximizes production and reduces loads.

We analyze the following met mast and wind farm data to define the optimal layout:

- Wind data (Vavg, Vref, TI, Weibull k, wind shear, etc.).
- Noise limitations.
- Tip height restrictions.
- Flickering requirements.
- Site orography / complex terrain.
- Distance requirements from houses and roads nearby.

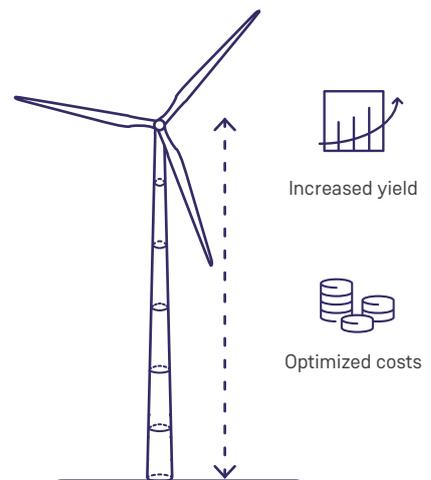


# Site specific tower portfolio

Siemens Gamesa advanced tower portfolio enables cost savings and higher energy production from the very early stage of the bidding process. Also, site and market specific designs maximize competitiveness.

With our innovative flexible design approach, we deliver towers fully adapted to the specific needs of each project. The result is a tower design that can be customized per project and engineered to order:

- Multiple tower heights available to comply with the specific tip height restrictions of the project and maximize production.
- For each height, several structural designs are available to meet project and market constraints and site loads.
- Multiple tower technologies available, with different materials (steel, concrete and hybrid).
- The adoption of pedestals solutions (high-foundation) allows us to offer those heights otherwise not technically feasible for dynamic reasons.



# BoP optimization

## ONE methodology:

Thanks to the Siemens Gamesa ONE methodology, we offer an optimized cost-efficient BoP solution for the project, resulting from a thorough analysis of the logistics, construction and other BoP data and requirements in the site.

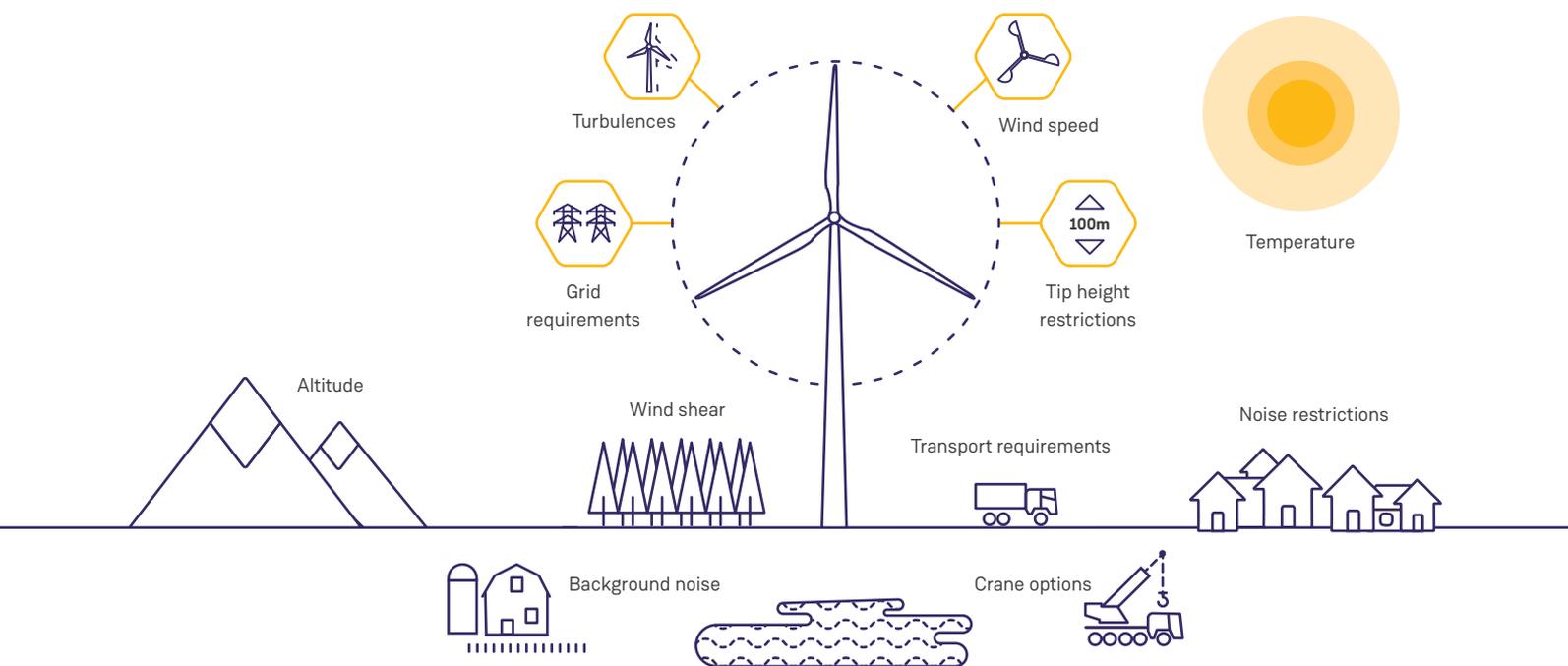
Even when the BoP is not in the scope of supply of Siemens Gamesa, customers are provided with engineering support to reduce the overall expenditures in their wind energy project by optimizing the BoP costs, which normally accounts for 25-30% of the total costs, thus affecting significantly the business case.

## Foundation design:

Siemens Gamesa's engineering teams provide extensive expertise in foundation design. The wind turbine foundation accounts for 7-9% of the total costs and can be optimized on a project-by-project basis to reduce LCoE.



# OptimaFlex implementation in Siemens Gamesa platforms



## Siemens Gamesa flexible product platforms

Our product portfolio represents a fresh approach to wind power. Conventionally, turbines are designed to meet the demands of the most challenging conditions: the most remote sites, severe legal restrictions, extreme ambient temperatures and so on.

Siemens Gamesa OptimaFlex technology is a radical departure from this off-the-shelf philosophy. The deep insights we gain through collaboration with our customers are transformed into bespoke solutions that fit our customers' needs precisely:

- Turbines are designed and certified to cover a wide range of project requirements and environmental conditions.

- Every turbine is configured via control software to guarantee the lowest LCoE for the project.
- A unique nacelle, hub, blade hardware for every turbine model optimizes the supply chain and improves internal costs of complexity.
- Real-time configuration of operational parameters ensures continuous optimal performance.

Moving from off-the-shelf to  
tailor-made solutions

**Spain**

P. Tecnológico de Bizkaia, edif. 222  
48170 Zamudio, Vizcaya

Calle Ramírez de Arellano, 37  
28043 Madrid

Avda. Ciudad de la Innovación, 9-11  
31621 Sarriguren, Navarra

**Australia**

Level 3, Botanicca 3  
570 Swan Street, Burnley  
Melbourne, 3121

**Finland**

Tarvonsalmenkatu 19  
FI-02600 Espoo

**Italy**

Centro Direzionale Argonauta  
Via Ostiense 131/L  
Corpo C1 9° piano  
00154 Rome

**Poland**

Zupnicza street 11  
3rd Floor  
03-821 Warsaw

**Austria**

Siemensstrasse 90  
Vienna 1210

**France**

Immeuble le Colisée  
Bâtiment A - 2 ème étage  
10 avenue de l'Arche  
92419 Courbevoie

Via Vipiteno 4  
20128 Milan

**Serbia**

Tadije Sondermajera 11  
11070 Novi Beograd, Beograd  
(zgrada/building AFI, 8th floor)

**Brazil**

Avenida Rebouças, 3970 - 5º andar  
Pinheiros 05.402-918, São Paulo

97 allée Alexandre Borodine  
Cedre 3  
69800 Saint Priest

**Japan**

14F Tokyo Shiodome Building  
1-9-1, Higashi Shimbashi  
Minato-ku, Tokyo

**Singapore**

60 MacPherson Road  
Singapore, 348615

**Canada**

1577 North Service Road East  
Oakville, Ontario L6H 0H6

**Germany**

Beim Strohause 17-31  
20097 Hamburg

**Mexico**

Paseo de la Reforma 505  
Torre Mayor, 37th Floor  
Col. Cuauhtémoc  
Del. Cuauhtémoc  
06500 Mexico City

**South Africa**

Siemens Park  
300 Janadel Avenue  
Halfway House  
Midrand 1685

**Chile**

Edificio Territoria El Bosque  
Avenida Apoquindo 2827, Piso 19  
Las Condes, Santiago de Chile

Mary-Sommerville-Straße 14  
28359 Bremen

**Morocco**

Anfa Place Blvd. de la Corniche  
Centre d'Affaires "Est", RDC  
20200 Casablanca

**South Korea**

Seoul Square 5th Floor 416  
Hangang-daero  
Jung-gu  
Seoul 04637

**China**

Siemens Center Beijing, 2nd Floor  
No.7 South Wangjing Zhonghuan  
Road, Chaoyang District  
Beijing 100102

**Greece**

28 Vouliagmenis Ave.  
Elliniko  
Athens, 16777

**Netherlands**

Prinses Beatrixlaan 800  
2595 BN Den Haag

**Sweden**

Evenemangsgatan 21  
169 79 Solna

8-10F, (Building N3), No. 2, Lane 131  
Qiantan Avenue, Pudong New Area  
200126 Shanghai

**India**

No. 489, GNT Road  
Thandalkazhani Village  
Vadagarai PO  
Redhills  
Chennai 600052

**Norway**

Østre Aker vei 88  
NO-0596 OSLO

**United Kingdom**

Arena Business Centre  
Watchmoor Park  
Riverside Way  
Camberley, GU15 3YL

**Croatia**

Slavonska avenija 1a  
(zgrada/building C, 1st floor)  
HR-10000 Zagreb, Croatia

**Indonesia**

Menara Karya, 28th floor  
JL. HR. Rasuna Said Blok X-5  
Kav. 1-2  
Jakarta

**Pakistan**

No 148/49, 1st F  
Luxus Mall, Gulberg Green  
Islamabad

**United States**

11950 Corporate Boulevard  
Orlando, FL 32826

**Denmark**

Borupvej 16, 7330 Brande

**Ireland**

Innovation House  
DCU Alpha  
Old Finglas Road 11  
Glasnevin  
Dublin 11

**Philippines**

10th Floor  
8767 Paseo de Roxas, Makati

**Vietnam**

14th Floor, Saigon Centre  
65 Le Loi street  
Ben Nghe ward District 1  
Ho Chi Minh City

**Egypt**

90th North St - New Cairo  
Section no. 1 - 5th Settlement  
Building 47, Floor 1, Office 103  
11835 New Cairo

The present document, its content, its annexes and/or amendments has been drawn up by Siemens Gamesa Renewable Energy, S.A.U. for information purposes only and could be modified without prior notice. The information given only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract. All the content of the document is protected by intellectual and industrial property rights owned by Siemens Gamesa Renewable Energy, S.A.U. The addressee shall not reproduce any of the information, neither totally nor partially.

02/2024

comercial\_consultas@siemensgamesa.com  
www.siemensgamesa.com