

OptimaFlex

Solutions as flexible  
as the wind is variable





# OptimaFlex: ready for anything

OptimaFlex is a radically different direct drive approach that combines advanced site design with bespoke product solutions to offer variable rating wind turbines that are right for you and only you.

It doesn't stop there. Each wind turbine can be finely tuned throughout its lifetime to respond to changing conditions – be they climatic, topographical, or even economic.

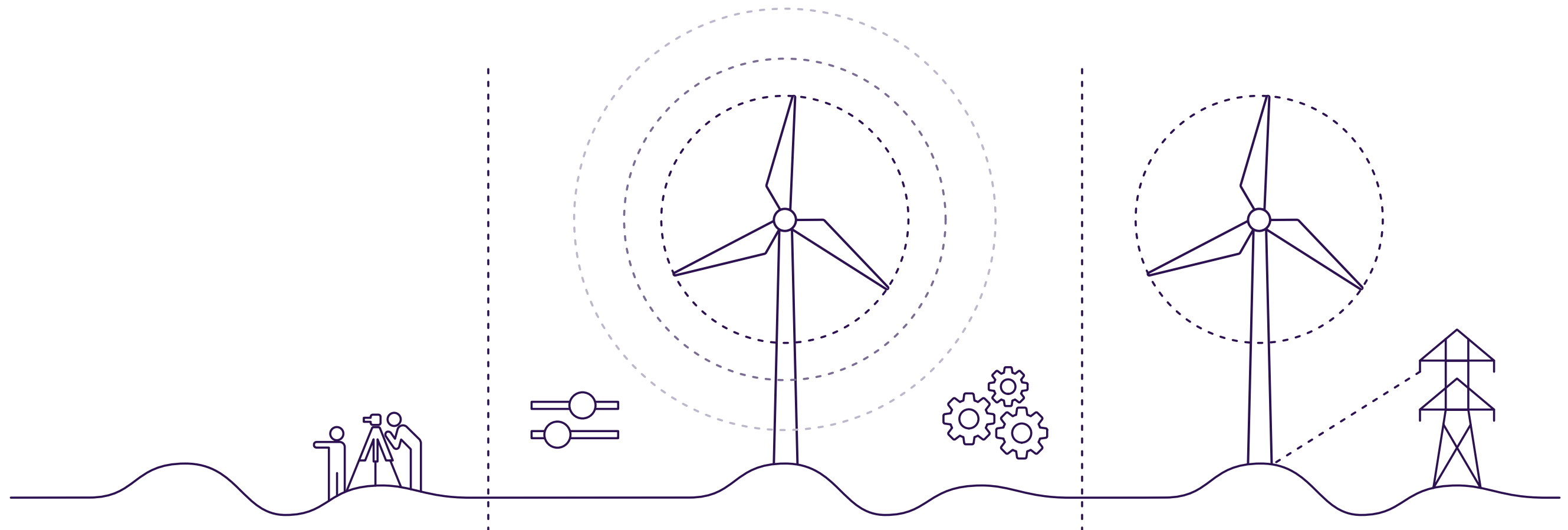
With a reduction of Levelized Cost of Energy (LCoE) of up to 15% per project, OptimaFlex gives you the optimal wind turbine configuration and project layout on day one and for every single day thereafter.

[Discover OptimaFlex online.](#)

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 your business plan.



# Unparalleled flexibility at every stage of your project's life cycle



## Customer collaboration

- Detailed study of your business case combined with highly detailed analysis of your site
- Highly skilled technical input from the very beginning of the planning process
- State-of-the-art site design tools

## A flexible product platform

- Turbines can be precisely configured to turn deep insights about your business and site conditions into lower LCoE
- Unprecedented customization: over 100 features and options for product configuration to optimize performance
- Revolutionary flexible tower design concept that combines modular internal components with tower height and steel shell thickness that are engineered to order

## Ongoing optimization

- Direct drive technology that works with the onboard SICS converter and controller to deliver continuous optimization of performance throughout your project's lifetime
- Recalibration of assets over time to enhance returns

[Watch the OptimaFlex video here.](#)



# Customer collaboration

We engage with you at the first opportunity, in order to develop a high-definition view of every detail of your project.

Both our sales team and full contingent of engineers work with you to gain an appreciation of the geographical and climatic conditions at your site, as well as the priorities of your business.

Only such an in-depth collaboration gives you confidence that the approach taken will deliver maximum profitability and returns over your project's lifetime.

## **Advanced Site Engineering**

You want to ensure maximum LCoE gains – maximizing production revenues while minimizing costs. To ensure you meet that ambition, we first make a thorough analysis of the topography and conditions at your

site. And after a process of comprehensive consultation with your business, we use CFD modelling and load analysis to make proposals for turbine selection and configuration as well as BoP layout that will maximize returns for your project over its lifetime. Early collaboration with our customers also allows us to make preliminary grid studies to ensure grid performance optimization from day one and into the future.

Our design and engineering teams also take into account the business case for your project to make sure the layout and site design solutions we bring you will deliver against your commercial objectives.

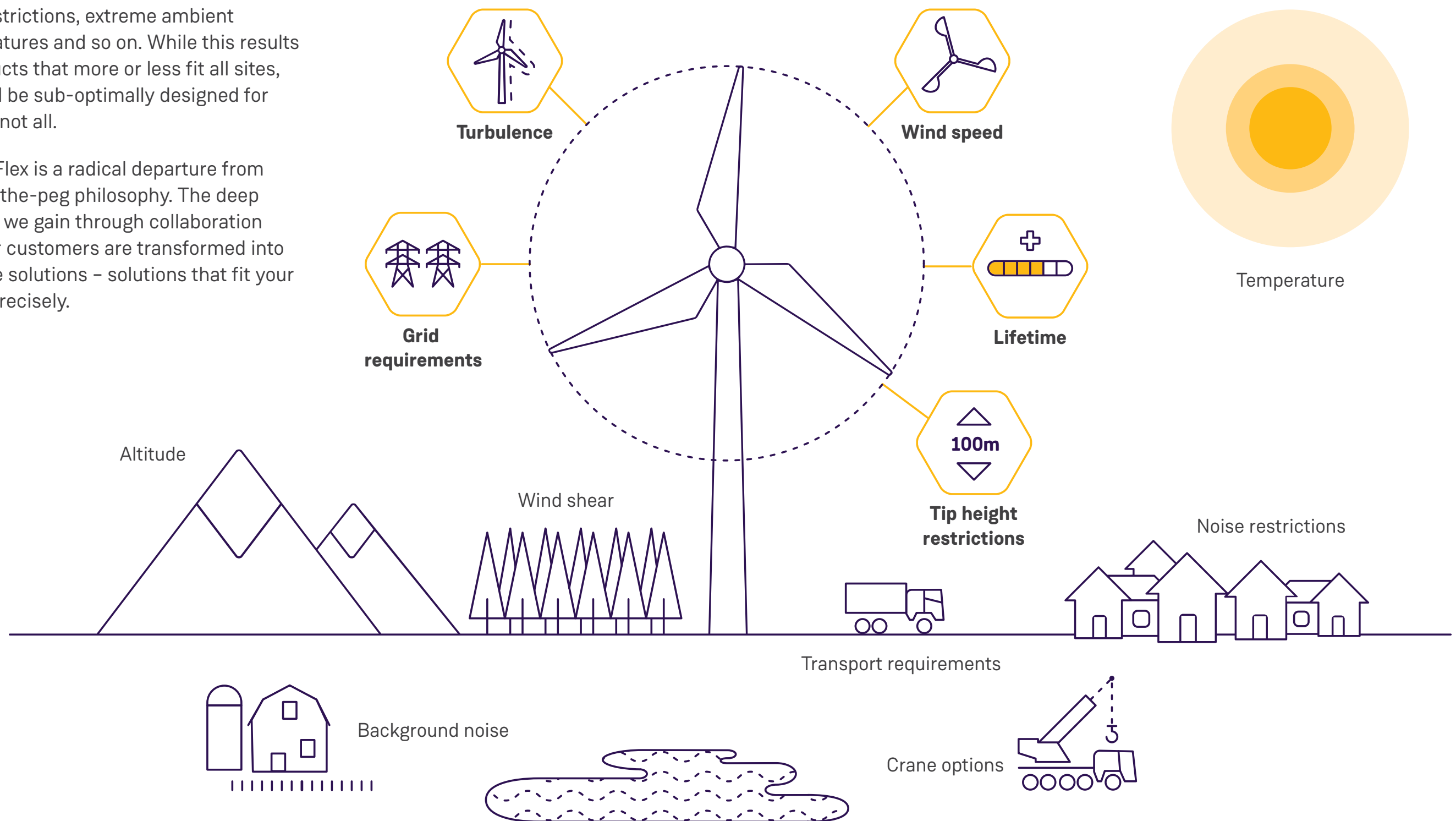


# A flexible product platform

Our new 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. While this results in products that more or less fit all sites, they will be sub-optimally designed for some if not all.

OptimaFlex is a radical departure from this off-the-peg philosophy. The deep insights we gain through collaboration with our customers are transformed into bespoke solutions – solutions that fit your needs precisely.





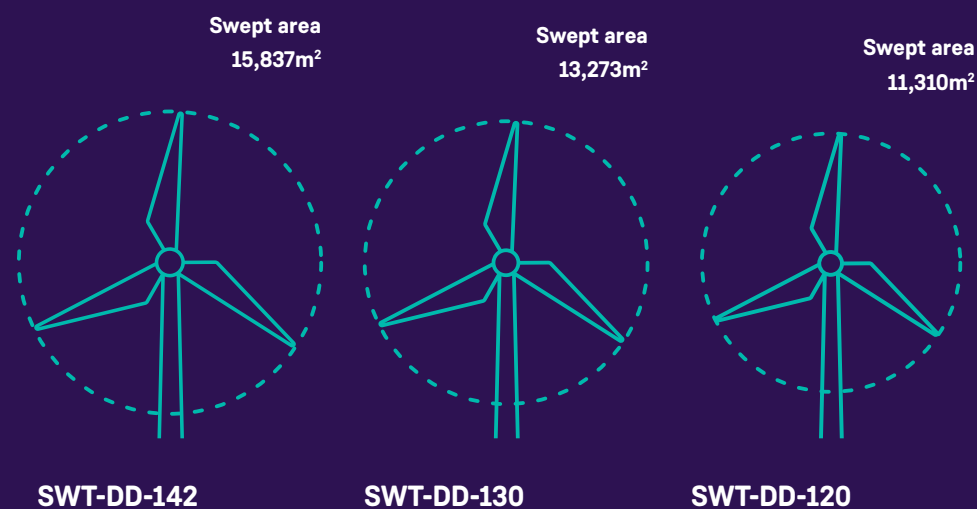
# Putting analysis into practice – delivering precisely the right product configuration for you

OptimaFlex represents an entirely new way to buy Siemens Gamesa wind turbines. Its inherent flexibility, derived from the combination of our direct drive technology with the SICS control system and full-scale converter, allows you to select exactly the right turbine setup for your needs.

We take the learnings collected in the design phase (see customer collaboration above) and make precise calculations to work out

exactly the rotor size, nameplate rating and tower solution that will deliver the optimum returns for your project.

This market-leading level of flexibility is offered on a robust product that you can trust. Our direct drive offering has been at the forefront of gearless turbine design for 10 years, and our product design approach means turbine components and nacelle designs are standardized and modular across the range.



IEC Class	IIB	S (IB, except $V_{ref} = 45$ m/s)	IA / S / T
Nominal Power	3.5 - 3.9MW	3.9 - 4.2MW	3.9 - 4.3MW
Rotor Diameter	142m	130m	120m
Hub heights	99 - 165m, site specific	85 - 155m, site specific	75 - 155m, site specific
Sound power	97 - 107dB (A)	97 - 107dB (A)	97 - 107dB (A)



Through our unique software tuning, the turbine can be programmed to operate on a scale of noise modes. These noise modes allow for an optimal trade-off to be reached between maximization of output and compliance with noise regulations. These modes are responsive to any or all of the following parameters: sound power level, day of the week, time of day, wind direction or wind speed.





## Flexible tower design: moving from off-the-peg to tailor-made

Traditionally, wind turbine towers are made to withstand extreme wind conditions. However, Siemens Gamesa's innovative flexible tower design approach delivers tower designs that are built with the precise needs of your project in mind. Height, steel shell thickness, materials and bottom flange diameters can be precisely optimized for your project. The result is a tower that is not overengineered, but just right for your needs.

We have proven experience in producing site-specific tower solutions – experience that OptimaFlex builds upon. Significant investment in our processes and infrastructure allows us to deliver new levels of customization.

This flexible tower concept is another example of how close collaboration between our engineers and our customers can pay dividends for years to come. By completely understanding the fine detail of your project and listening to your issues, we can build the perfect solution for your site and business plan.

[Visit our customer reference page.](#)



# Ongoing optimization

OptimaFlex is ready for anything, meaning our turbines will be able to react to contingencies as they arise over the lifetime of your project.

## **Changing site conditions**

Changes to the surrounding environment, such as deforestation, can affect turbulence levels, thereby altering the performance of your turbines. OptimaFlex can adapt to these changes in two ways:

1. Real time power optimization delivered through the turbine's on-board control system to react to short-term variations.
2. Manual recalibration of turbines to react to long-term, systemic shifts in environmental conditions at your site.

## **Changing business conditions**

Just as site conditions change, so too can the business landscape. With its ability to be retuned and recalibrated after installation, OptimaFlex can adapt and react to these contingencies.

For example, if subsidies are suddenly altered, this could have a significant impact on your project's breakeven point and lifetime requirements.

## **Continuous data capture**

As conditions change over time, we are able to work with you to make sure data is gathered continuously over the lifetime of your project.

That data can then be used to make small, or even significant changes to the configuration of your assets to ensure you continue maximizing returns into the future.

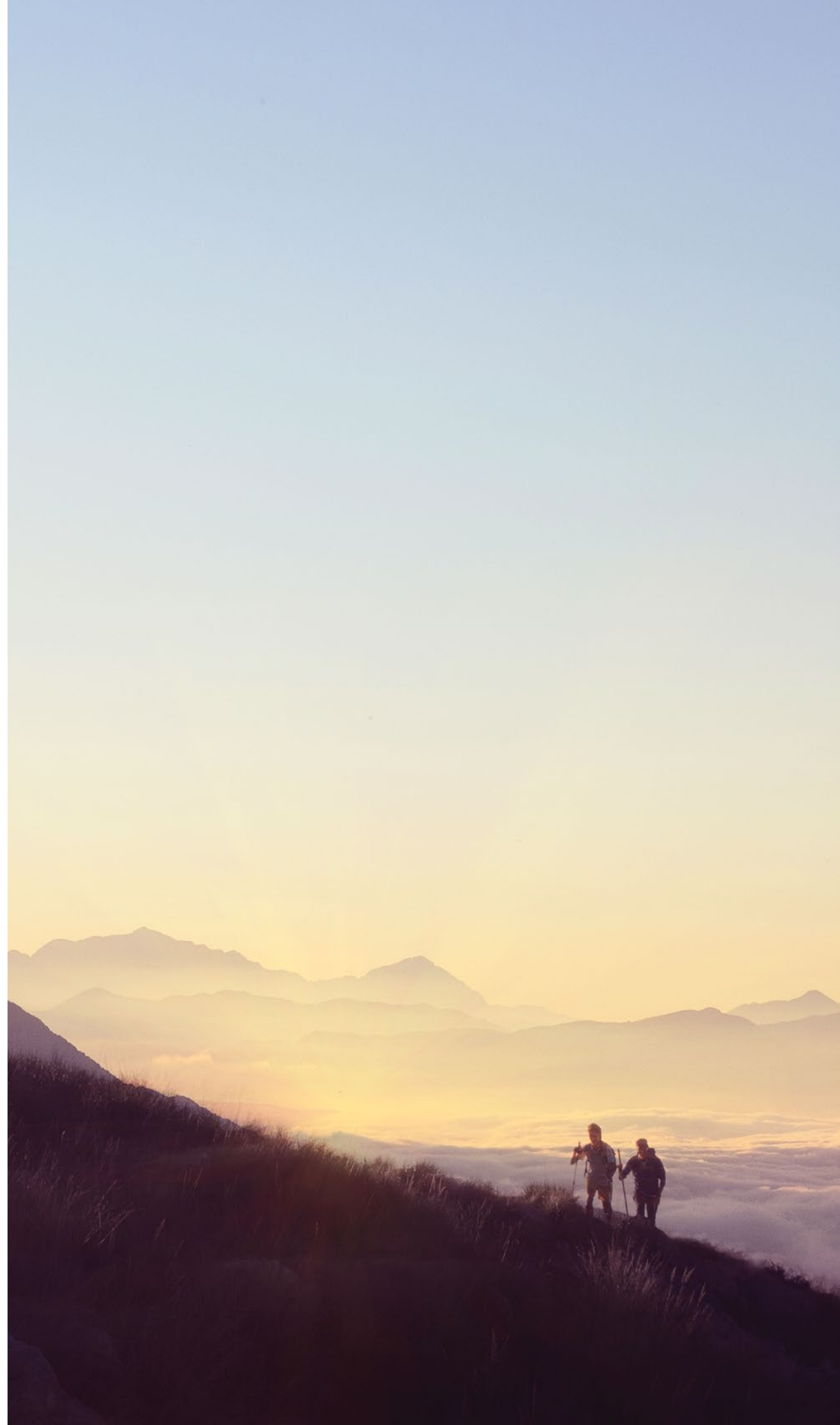
## **Grid connectivity requirements**

As more and more energy is fed into the grid each year from renewable sources, grid codes place greater and greater requirements on power providers.

OptimaFlex offers over 25 features to increase grid stability and enhance grid performance.

Siemens NetConverter® provides extra value to your project by boosting revenues and reducing maintenance costs.

[Learn more about Grid Management in our power plant portfolio Winsight360.](#)





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