



**Swiss Re**  
Corporate Solutions

# Swiss Re Wind Protection

Risk management solutions for the renewable energy sector



**Environmental  
Finance  
Deals of the Year Awards  
Winner**

2016

### Insuring wind production – protecting your balance sheet

Year after year, wind-generated energy is playing a growing role in worldwide power production. Carbon-free and cost-free, wind “fuel” delivers huge benefits. However, the wind does not always blow as needed. Too little or too much can impact production and hurt your balance sheet. But now insuring shortfalls in wind production is possible, helping you to steady your income stream no matter how the wind blows.

### Wind power production – a challenge to weather

Wind power production has seen a tremendous growth over the past few years. Starting from very low levels in 2000, investments in wind totaled USD 25 bn in 2012<sup>1</sup>. And the International Energy Agency expects this to rise to USD 150 bn per year until 2050<sup>2</sup>.

Still, experience has shown that wind production does not always meet expectations. Experts estimate that wind variability causes production to fluctuate between 10 to 20 percent a year. For investors and operators, the current generation of operating wind farms has produced mixed results that fell short of what their devel-

opers expected. Now, the industry is turning to risk management products to manage the uncertainty of wind availability, and ultimately, reduce the overall risk exposure of wind power projects.

### Insuring the shortfall

Until now, protection against wind production variability has been available using modeled production as the basis for settlement. The chart below compares modelled and actual production for a typical wind farm using a modelled index as the basis for protection. As can be seen, the variance between modelled and actual production may not always be large but can be troubling depending on the stakeholders risk appetite.

Now investors, wind farm operators and financial stakeholders can improve returns and reduce risk of wind power projects using Swiss Re Wind Protection which pays out for actual production lost.

### Swiss Re Wind Protection – meeting your needs with our solution

Swiss Re Corporate Solutions and its partner, 4initia, have developed Swiss Re Wind Protection which compensates buyers for actual production lost from excessively high or low wind. Essentially, Swiss Re

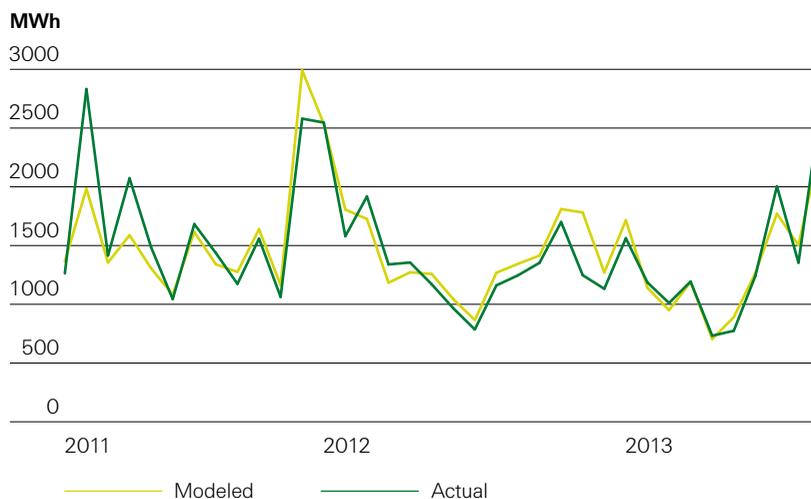
Wind Protection is a contract to financially protect physical wind power generation against natural fluctuations. After having adjusted for non-generation due to outages and grid congestions, the cover provides a financial floor on an agreed level of power produced by a wind generator. With Wind Protection, a wind power producer, buyer or investor can secure the financial equivalent of reliable wind production, thereby increasing the ability to:

- safeguard obligations resulting from power purchase agreements
- improve borrowing conditions such as increase of debt capacity, reduction of margin and reduction of debt service reserve account
- secure cash returns for investors

### How does it work?

Once the floor level is agreed, compensation is based on the total amount of electricity generated by a wind park as stated on the grid operators’ invoices. At the end of the risk period, the sum of these amounts is increased by the total quantity unproduced due to:

- technical unavailability, subject to specific error codes of the underlying turbines
- events which are covered by traditional insurance policies (e.g. business interruption following a fire), subject to specific error codes of the underlying turbines
- non-acceptance by the system, e.g. due to transmission constraints or permit collateral clauses, subject to specific error codes of the underlying turbines



1 Profiling the risks in solar and wind, Bloomberg New Energy and Finance and Swiss Re  
 2 Technology Roadmap: Wind Energy – 2013 Edition International Energy Agency

This means that buyers are not paying for protection they are already getting from other sources. After this adjustment, the resulting amount of power is compared with the agreed level of the production floor, and the buyer recovers any shortfall

Since our solution is based on actual production, the covered assets need a minimum of two years' historical production data to qualify for coverage.

A hypothetical example of Swiss Re Wind Protection is illustrated in the chart below.

### What kind of clients are using Swiss Re Wind Protection cover?

Here's how Swiss Re Wind Protection solves problems for players along the wind power value chain:

- A wind power producer in Germany sells a fixed annual minimum amount of power within a power purchase agreement and needs to pay a penalty for each MWh not generated
- An asset management fund in Switzerland acquires wind parks and secures dividend payments by fixing a production floor
- A utility company intends to buy an existing wind park and wants to improve financing conditions by showing a lender a guaranteed floor production

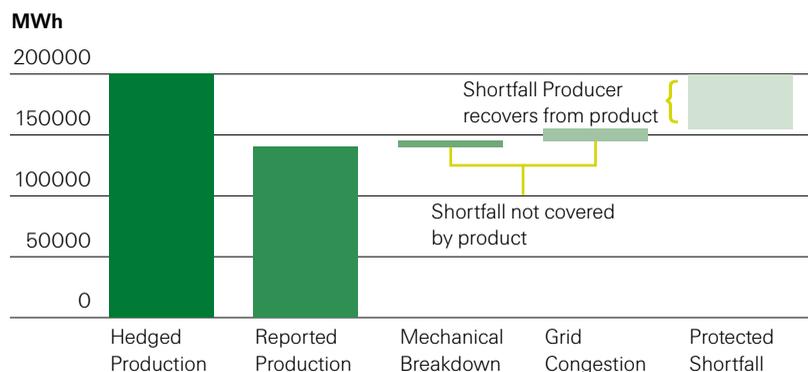
### Our team

Our Weather & Energy team offers tailor-made weather and weather-contingent commodity price products which help protect firms from adverse earnings events caused by sales volume and commodity price risks. Operating from Houston, London, New York, Sydney and Zurich; our highly-skilled team offers a wide variety of financial and insurance based solutions that can be structured as swaps, floors, caps or collars to protect earnings. The team also offers energy producers and traders protection from revenue loss which may result from unplanned power production outages.

### Our partner

4initia is a consulting and project management firm that delivers innovative solutions for the emerging challenges of renewable energy investments. Within its unique product portfolio, 4initia provides a range of services encompassing the entire value chain of a wind farm project: from strategic project definition and development (e.g. site selection, technical due diligence and permit applications), to the purchase and management of the wind farm, from both an engineering and commercial perspective.

[www.4initia.de](http://www.4initia.de)



### Installed Capacity 100MW

	Example 1	Example 2
Hedged production	200 000	200 000
Reported production	140 000	140 000
i: Mechanical breakdown	0	5 000
ii: Grid congestion	0	10 000
Adjusted production	140 000	155 000
Protected shortfall	60 000	45 000
<b>Recovery for short-fall @ € 75/MWh</b>	<b>4 500 000</b>	<b>3 375 000</b>

Swiss Re Corporate Solutions  
Mythenquai 50/60  
P.O. Box  
8022 Zurich  
Switzerland

Telephone +41 43 285 2121  
Fax +41 43 285 2999  
[corporatesolutions.swissre.com](http://corporatesolutions.swissre.com)

**Contact:**  
**Swiss Re Corporate Solutions**

Stuart Brown  
Head of Origination Europe,  
Middle East, Africa & Asia Pacific  
London +44 20 7933 4730  
[Stuart\\_Brown@swissre.com](mailto:Stuart_Brown@swissre.com)

Brian Beebe  
Head of Origination, North America  
Telephone +1 713 552 2306  
[Brian\\_Beebe@swissre.com](mailto:Brian_Beebe@swissre.com)

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