

# Data analytics for parametric insurance

**Wind energy is the second most popular renewable energy source after solar PV, and continues to grow rapidly. In 2019, the overall capacity of all wind turbines installed worldwide reached 651GW\*, which can meet 6% of the world's total electricity demand.\***

Even though offshore wind farms are more expensive than onshore wind, they are rising in popularity and will be a bigger source of wind energy investments than their onshore counterparts (Figure 1).

As the wind industry matures, investors and operators are facing a set of new challenges, including increased competition for lucrative projects and a need to streamline operations, optimize capital cost, and reduce overall costs. Secure and efficient data operations can solve these challenges, as well as help unlock new value using analytics and AI modeling. This requires increased data collaboration with multiple partners.

## The challenge

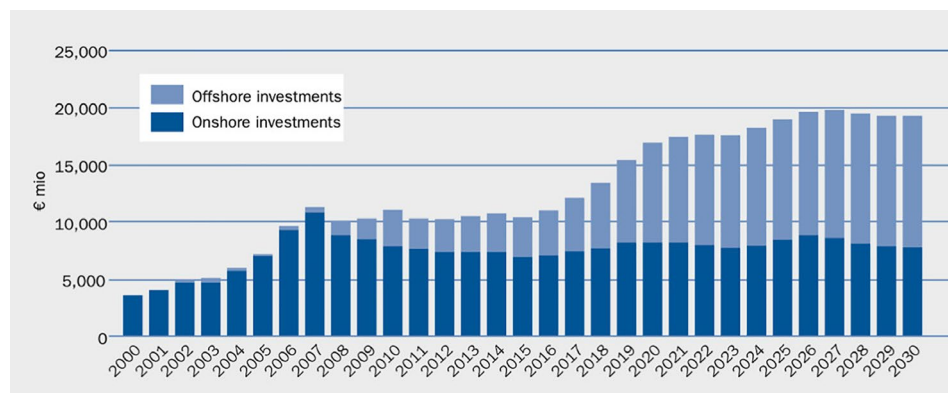
In addition to standard insurance for wind energy projects, wind farm financiers and owners are increasingly adding insurance to cover against losses caused by unexpectedly low energy yields. Such insurance acts as a revenue backstop in case of underperformance in suboptimal wind years. This helps reduce the cost of debt, makes the equity investments more attractive, and acts as a motivating factor for financiers, investors, and developers.

Unlike standard insurance, these types of insurance policies are based on measurable and immutable parameters, like IoT sensors from the turbines, their supporting systems, environmental and weather pattern detection systems, operations and maintenance (O&M) management systems, and more.

Insurance companies seek to use parametric data to investigate insurability of wind farms, or yield loss events. Wind farm operators can benefit by providing trusted IoT sensor data in secure environments to enable new and valuable types of insurance and settle insurance claims faster.

This leads to a set of data management and data interoperability challenges. How can the wind farm operator share information and insights without exposing confidential data? How can very large volumes of data from myriad sources and formats be made available to multiple parties in a highly trustworthy manner? How can trust be maintained to ensure there is no manipulation of data, whether by accident or on purpose? How can analytical decisions be made to settle insurance claims using machine learning and AI-driven automation, avoiding cumbersome manual legal reviews?

Figure 1: Wind energy investments 2000-2030 (€); source: European Wind Energy Association.



\* World Wind Energy Association (WWEA).

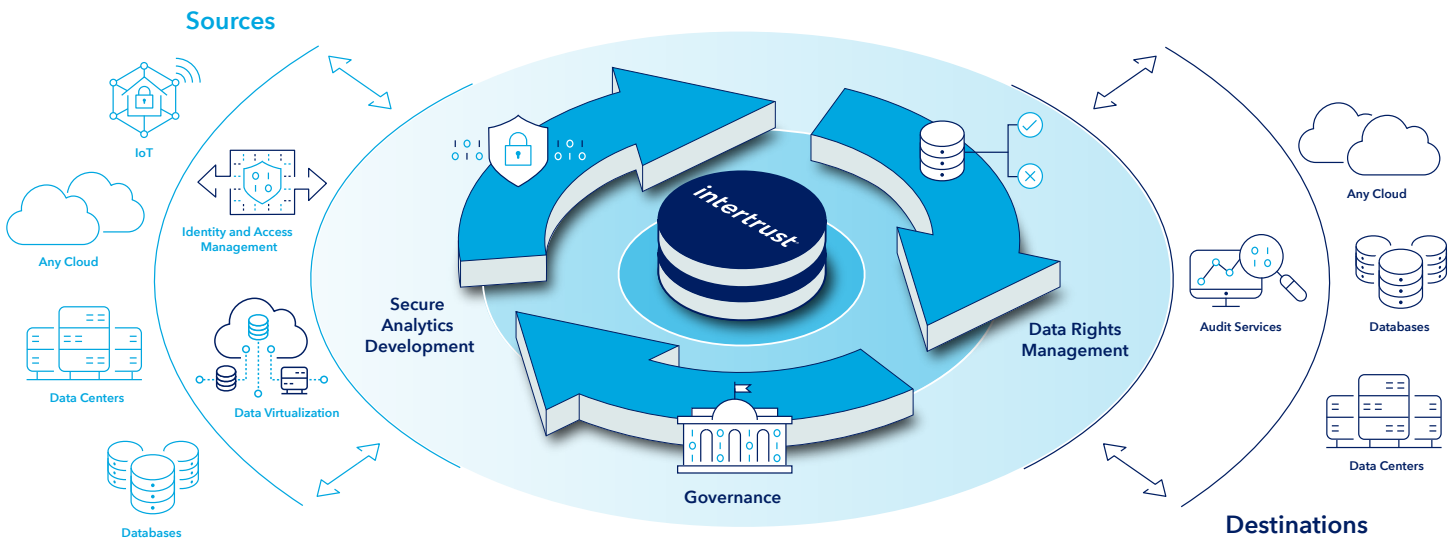


Figure 2: Intertrust Platform facilitates secure data exchanges and collaboration between internal or external partners, allowing them to secure, govern, and monetize their data, across any cloud service, IoT system, or infrastructure.

## The solution

Intertrust Platform™ is a proven solution used as a trusted data operations intermediary by insurance companies that specialize in offering policies to cover against potential energy yield shortfalls. The Platform enables secure data ingestion and analytics development from a large number of sources: climate sensors, weather forecasts, current weather conditions, energy prices, turbine operational status, maintenance systems and alarm logs, SCADA and substation information, and more.

Intertrust Platform is an interoperability layer that provides secure links for diverse datasets and devices—from edge to cloud. Backed by Intertrust's patented technologies in data rights management and software security solutions, the Platform facilitates secure data exchanges and collaboration between internal or external partners, allowing them to secure, govern, and monetize their data, across any cloud service, IoT system, or infrastructure.

Using applications that run on the Intertrust Platform, like Powerboard™, wind farm operators can aggregate, customize, view, and share hundreds of data parameters related to wind farm operations and financial metrics. Additionally, they can choose to share them, securely, with fine-grained control over data access rights and governance policies. This is done in isolated containers in the cloud to allow internal or external partners, like data scientists, to create algorithms on the shared data without any data ownership rights being violated or risk of IP theft.

The wind farm operational data can be made available for insurability studies and insurance settlement calculations. This data can then be used to create additional value-added, data-driven services. By making the data available in secure execution environments, data owners can invite data scientists and analysts to create, test, and deploy AI/ML-based algorithms to create optimized energy generation or trading plans.

## How it works

Integration	Data validation	Coverage model	Reports	Settlement
<p>SCADA data from the operator is integrated into the Intertrust Platform. Intertrust configures the policy holders' accounts and assets.</p> <p><b>1</b></p>	<p>The system reviews and verifies data attributes against the predefined data specifications. The policy holder, the insurer, and Intertrust sign off on the data.</p> <p><b>2</b></p>	<p>Operator selects the level and type of coverage. Intertrust validates and runs the coverage model in the system. All parties sign off.</p> <p><b>3</b></p>	<p>Monthly and annual reports are made available online to all stakeholders via customizable dashboards. All data is securely stored by Intertrust for at least one year unless stated otherwise. Raw data is not shared with the insurer.</p> <p><b>4</b></p>	<p>Lost production is calculated: e.g., annual basis as an aggregate of monthly results. Authoritative wind speed data can be used as reference.</p> <p><b>5</b></p>

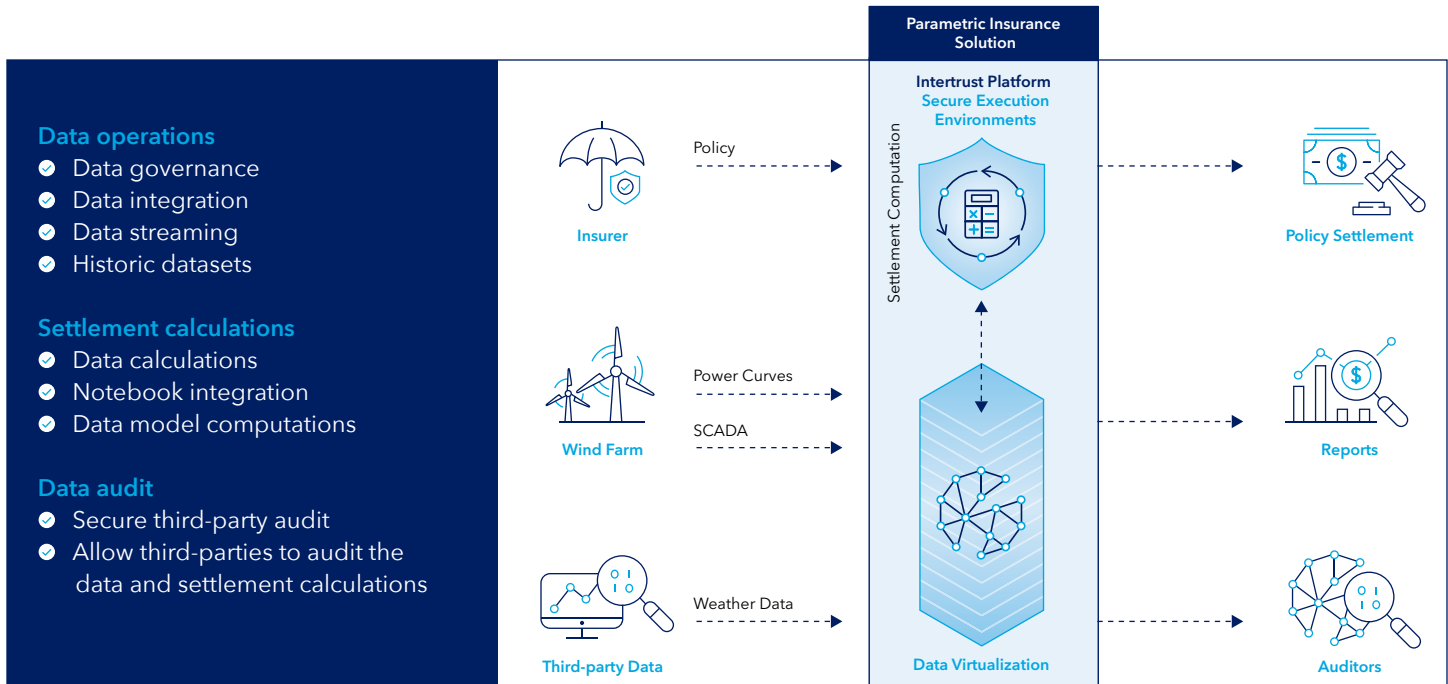


Figure 3: Intertrust Platform acts as the trusted intermediary that facilitates data ingestion through virtualization and provides secure compute containers in which policy settlement algorithms are run.

## Intertrust Platform™

The Platform leverages container orchestration technologies such as Kubernetes and Docker to make deployments cloud-agnostic.



### Identity and Access Management

Device and user identity, authentication, and authorization; maintains platform objects and their relationships.



### Secure Execution Environment

Secure network-isolatable environments for workload execution and controlled, interactive data exploration.



### Data Virtualization

Data object definitions, permissions, restrictions. Provides data interfaces, manages DBs and virtualized datasets.



### Time Series Database

Scalable, efficient, high performance database designed for time series data.

The Identity and Access Management (IAM) service is responsible for the authentication of platform users and authorization of their requests.

The Data Virtualization features of the Intertrust Platform enable secure access to operational data sources without the need for data migration or replication, saving development time and storage costs.

Secure Execution Environments allow service providers to deploy their data-consuming workloads within isolated compute clusters. Data access within a secure execution environment is subject to the governance rules and policies established within the IAM service. All requests are logged in immutable audit records for review and compliance.

A Time Series Database is included specifically to ingest, store, and manage time-stamped data, such as data from wind turbines and other IoT sensors.

## The results

Intertrust Platform acts as a trusted data intermediary that wind farm owners/operators and insurance companies can use to enable new coverage policies, automate insurability studies, and settle legitimate insurance claims in real time. With the Intertrust Platform, wind energy yields can be compared against historical data and past weather patterns and automatically settled, using indisputable data from sensors, environmental conditions, geographical and climate readings, O&M management systems, turbine performance, and more. In addition, data from these sources can be made available in secure containers for third parties to develop additional data-driven services.

For more information on how the Intertrust Platform can solve your data interoperability challenges, please visit: [intertrust.com/products/platform](https://intertrust.com/products/platform)



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