

## SUCCESS STORY



# EMPOWERING AN ENERGY UTILITIES BUSINESS WITH ADVANCED ANALYTICS SOLUTIONS

## PROJECT OVERVIEW

The platform primarily handles Weather forecast data, historical energy consumption data, and data from IoT sensors.

The client required an advanced analytics solution to make use of the data to generate insights that:

- Help their business forecast demand for Distribution Companies.
- Detect outliers for ill-performing wind turbine.

## CLIENT DOMAIN

Energy & Utilities

## SOLUTION DELIVERED

Advanced Analytics

## KEY HIGHLIGHTS

- Reduced surplus and inventory costs by 5% for DISCOMS
- Preventive maintenance of turbines resulted in the reduction downtime losses by 5-6%

## ABOUT CLIENT

The client develops, sells and services energy analytics software to renewable energy producers, OEMs, transmission and distribution utilities, and other energy companies.

## BUSINESS REQUIREMENTS

Indium Software's approach focused on two use cases:

- Demand Forecasting
- Survival Analysis

### Demand Forecasting Problem

- The data flux from the Weather reports, Energy Consumption and IoT Sensor data is of high frequencies and volumes.
- Using the data, create a model of High Accuracy and Less Variance forecasting values.

### Survival Analysis Problem

- Use of data sources from Weather forecast reports, Wind Turbine sensor data from a large number of wind turbines.
- Predict failures in advance to leave enough device repair and maintenance time.

## SOLUTION HIGHLIGHTS

### Demand Forecasting Problem

- Indium Software implemented Generalized Additive Modelling to achieve high accuracy and less variance results.
- The high volume, high frequency data is handled using OpenTSdb.
- Used Non-parametric regression for more generalization, piecewise splines.
- Saved the Model in a PMML Object and use it for inflowing data to generate demand forecasting results.

### Survival Analysis Problem

- Indium Software leveraged OpenTSdb to handle unbalanced data.  
Used Survival Analysis which gives
- probability of failure in a given window of time.
- Used Isolation Forest and Advanced Outlier Detection methods.

## BUSINESS IMPACT

### Demand Forecasting Problem

The client was able to use the model to realize real-time business benefits.

- Reduced surplus and inventory costs by 5% for DISCOMS.
- With better inputs for financial, operational planning and budgeting, revenue management process became proactive and efficient.

### Survival Analysis Problem

The client was able to use the model to realize real time business benefits.

- Energy grids get alerted and repair the turbines before they go out of the order. This projected a significant 5-6% cost savings in repair and maintenance.
- Enhanced Predictive Maintenance aided the client business to maximize revenue recovery, reducing sunk costs by 2-3%.

## TECH STACK



# ABOUT INDIUM

Indium Software is a fast-growing Digital Engineering company, focused on building modern solutions across Applications, Data, and Gaming for its clients. With deep expertise in next-gen offerings combining data and applications, Indium offers a wide range of services including Product Engineering, Low-Code development, Data Engineering, Ai/ML, Digital Assurance, and end-to-end Gaming services.



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