



Prediction

Conclusive mathematical methods for effective predictions



Energetic systems influence our lives more and more. Modern society cannot depend just on predictions based on human intuition, experiences or assumptions. We should act responsibly and use the most relevant and precise data we are able to. This approach can help our society to **be smarter in cutting costs, more effective in precise operations and – the most important – be safe thanks to predictive tools for possible disasters...**

Examples of using predictions

Companies' needs	Advantages of Predictions usage
Gas suppliers usually cannot determine the exact location and components in their network in case of pipe ruptures, which leads to unnecessary maintenance costs	Maintenance planning is effective and safe with prediction of failures in any section
Photovoltaic electricity suppliers are dependent on weather prediction due to intensity and duration of solar exposure	Ability to accurately predict electricity production and to optimize electricity purchases in order to cover consumption and reduce costs
Temperature inversion can cause a complete decommission of photovoltaic power plants by increasing electricity consumption and influences the electricity price	With the correct data about temperature inversion electricity can be purchased for lower costs and own production share can be optimized
Electricity suppliers face unexpected growth in local production (e.g. photovoltaic and wind power plants) which may cause overloads of low and middle-voltage systems	Information about the future network input enabling optimization in advance and protection of low and middle-voltage systems against overloads

We can offer you the following prediction systems

Maintenance for utilities

- Intended for Electricity distribution services operators, District Heating Company, GAS suppliers and Water companies
 - Inform about the necessary pipe maintenance in advance
 - Calculate with many aspects (e.g. pipe producers, soil composition, traffic, load-strain-stress, etc.)
 - Reduce costs of ineffective maintenance

Weather forecast for photovoltaic companies

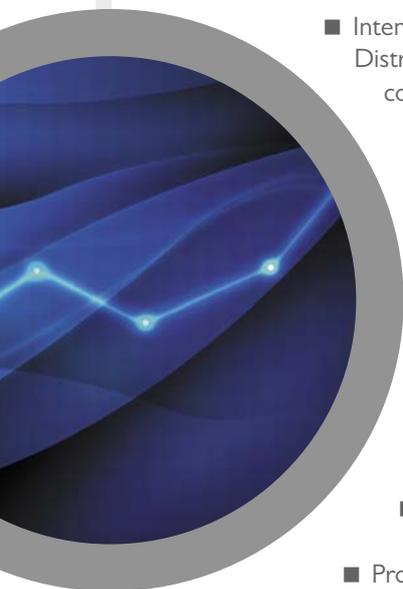
- Inform about the volume and power of sun light in advance
- Inform about the possible freezing in advance
- Help to manage the production and distribution more effectively
- Protect the business against the expensive buying electricity in addition

Failures in machinery companies

- Inform about the possible failures in advance
- Calculate with many aspects (e.g. load-strain-stress, number of produced manufactures, historical behavior of the machinery, surrounding conditions, etc.)
- Protect the business against the business-critical failures and reduce maintenance costs

Optimal production for energy producers

- Inform about the most effective involvement of each source in advance
- Reduce production costs with optimal utilization of all accessible sources



Take advantage of our experience

IT as a Service
Energy Management
Prediction & Simulation
Automated Meter Management
Security
Prediction of Customer Behaviour
Testing
Application Integration
ERP
Portals/eCommerce
eProcurement
Risk Management
Mobile
Big Data
Outsourcing
Dispatch Control System
CRM & Campaign Management
Business Intelligence & DWH
Infrastructure
Smart Energy
Application Development
Digitization
Billing

Calculate possible scenarios

To protect ourselves against the unanticipated disasters, we must have an idea about what is happening around us or rather, what is going to happen around us in advance. In every epoch there were people, who were aiming their potential into the prediction of the future to assure harvest or daily human needs. Most of these predictive methods came from the historical data and analyzing of coherences. People, who had the real experience were able to hit the target sometimes.

We don't want to hit the target just sometimes, we want to be effective and bring our results near to 99% success rate.

Incredible development in IT gives us the chance to supplement the human analyzing power with the methodical systems for processing the huge amount of data in the short time. We have the experience from the past, which can be stored for the next usage.

Based on these data and high-computing analytical power, we are able to calculate possible scenarios so we are really close to our resolution with the high success rate now.



We are building our prediction systems on the best rudiments available...

What gave us the possibility to build the really strong prediction tool?



Basic description of the maintenance prediction deployment project

Each prediction model required specific setting of deployment. It shows only prepared model example of deployment for maintenance management to plan effectively and safely with prediction of for example failures in any of individual sections.

1. Definition of the required **outputs**
2. **Data analyzes** – research of the accessible **inputs**
 - What kind of data are in the current system
 - What kind of data is necessary to add in the current system
 - Recommendations to complement suitable data to ensure better accuracy of prediction
 - Selection of the prediction algorithm which will calculate probability based on the input of data
3. **Blueprint** of the prediction system deployment
 - Maintenance model with reference to failure rate of individual sections
 - Creation of table and diversification of sections with frequencies of disorders based on selected elements (e.g. manufacturer of tubes, bedrock in which the tube is stored, utilization of tubes, the intensity of the surrounding traffic, etc.)
4. **Pilot project**
 - Technology and in&outputs testing at the defined area/locality
5. **Roll-out**
6. **Project support**



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