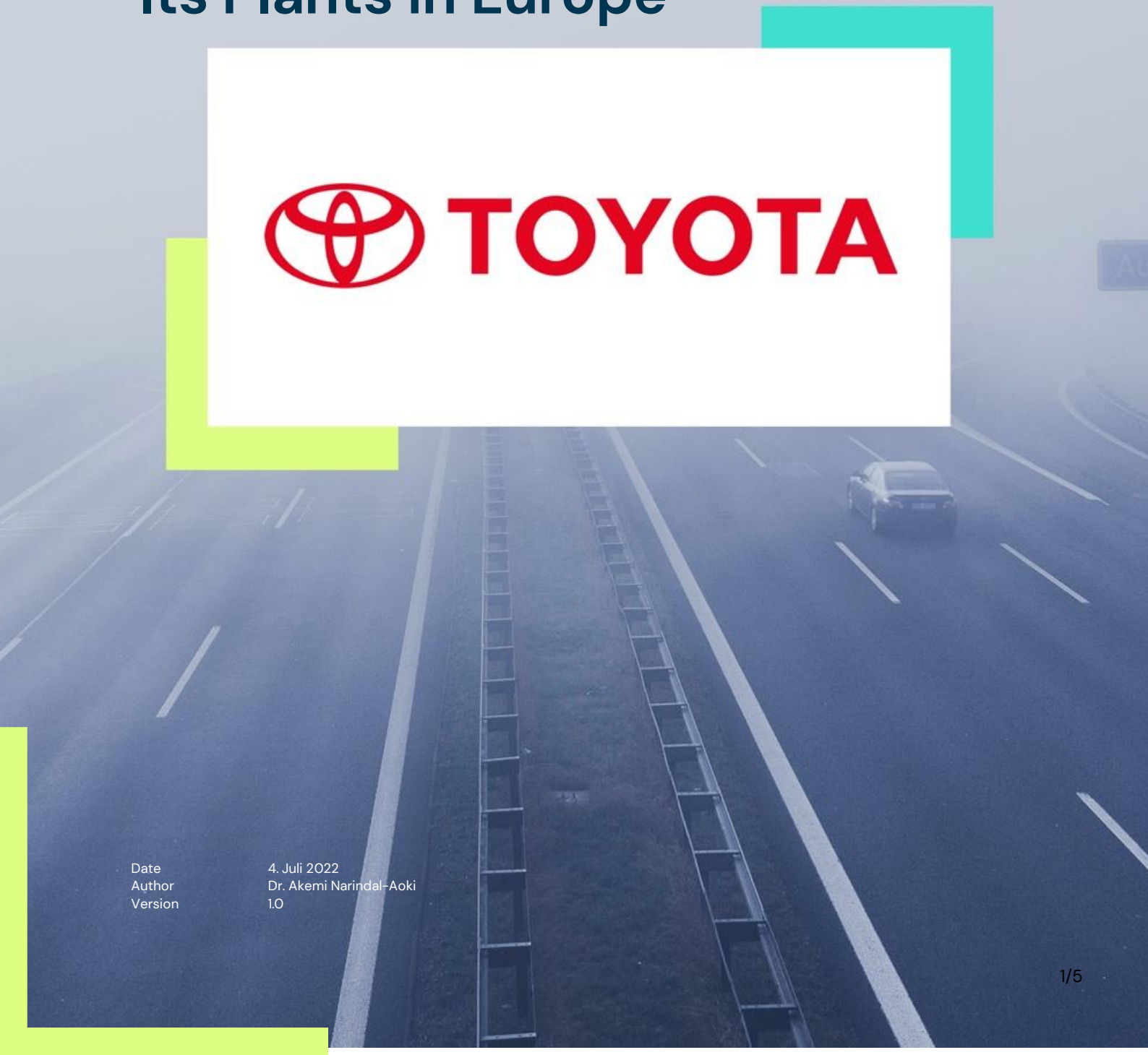
Weather Data Helps Toyota Optimize Energy Consumption at Its Plants in Europe



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Author	Dr. Akemi Narindal-Aoki
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Management Summary

Weather conditions influence energy consumption in industrial facilities, affecting companies' operations planning. In this article, we describe how Meteomatics' weather API helps Toyota manage energy consumption in its European assembly plants and factories, thereby contributing to the conservation of the environment and making financial savings at the same time.

Toyota Environmental Challenge 2050

Because of the impact of fossil fuels on the environment, the automotive industry is one of the prominent participants in the race to halt the climate changes predicted for this century.

To help ensure a sustainable future for humanity, Toyota has developed the project "Toyota Environmental Challenge 2050". The company is committed to reduce CO2 emissions, protect water resources, boost recycling, and conserve biodiversity.

In terms of carbon emission reduction, Toyota intends to act on three fronts:

- New Vehicle CO2 Emissions Challenge – Reduce CO2 emissions from new vehicles by 90% (2010 baseline)
- Operations CO2 Emissions Challenge – Eliminate CO2 emissions from operations
- Life Cycle CO2 Emissions Challenge – Eliminate CO2 emissions from suppliers and dealers

It is in the operations sector of the European plants that Meteomatics supports Toyota. We help them to ensure that the plants provide safe, reliable and efficient utility/energy in a cost-effective way to achieve their challenging targets for energy cost and CO2 reduction.

The Importance of Weather Data for Energy Optimization of Industrial Plants

80% of the Toyota cars sold in Europe are manufactured on the continent thanks to the 9 assembly plants, engine plants and transmission system plants based in France, Great Britain, Turkey, Czech Republic, Russia, Portugal and Poland. Since the 1970s, they have produced more than 13 million vehicles.

The intensive production line requires large amounts of energy. The energy needed for cooling and heating the infrastructure is directly related to the outside temperature, humidity, and wind. These factors influence the ambient temperature inside the facilities, which must be kept stable for the equipment to function properly.

In addition, factories are transitioning to renewable energy sources, whose supply capabilities are sensitive to weather variations.

The more accurate the weather forecasts, the more effective the planning of energy systems. Therefore, easy and quick access to weather data has become essential.

"We worked with several weather data providers simultaneously for a while. The problem was that if there was a problem with one of them, it created an information gap that compromised our operations. We felt we needed a single data source that would provide us with all the information we needed," says Kevin Rosati, Senior Facilities Engineer at Toyota Motor Europe.

Figure 1 Carbon-free Air Handling Unit for Paint Process of plastic parts at Toyota's plant in France. Toyota uses Meteomatics data to understand energy consumption of Air Handling Units for buildings and processes.

Toyota Gained Unified Access to Weather Data

After conducting a promising first meeting, we offered Toyota a trial period of our API. During the evaluation phase they confirmed the accuracy of our data. Soon after, we started our collaboration, and Meteomatics became their sole weather data provider.

As Matteo Biasciutti, Graduate Energy Engineer in the Production Engineering Plant and Environmental Engineering division explains, "Meteomatics' Weather API offers a variety of parameters. We work essentially with those that are most relevant in terms of energy consumption analysis – temperature, humidity and wind speed. We have a script that accesses the API and requests real-time data every 15 minutes. We download the data in CSV files that are easily imported into our system."

This seamless integration makes the data gathering process more convenient and efficient. With flexible and real-time access to accurate weather data for all European facilities, Toyota can work faster and make more precise decisions. By accessing historical data, estimates for the future can be made which serve as a baseline to set facility energy consumption targets, improve existing systems, and determine the best types of technology to employ.

Toyota engineers are thus able to optimize the planning of their goals and quantify the potential energy reduction and economic benefit. For Kevin Rosati, "Meteomatics helps us in our quest for continuous improvement, since the accuracy of its weather data helps us to plan better, to increase the efficiency of our energy systems, and to reduce costs."

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>
> **Kevin Rosati, Senior Facilities and Energy Management Engineer at Toyota Europe**

Together in the Race to Reduce CO2 Emissions and Energy Costs

Meteomatics is proud to support projects that contribute to combat climate change and strives to expand this kind of cooperation even further. Because of how the weather influences energy consumption, access to accurate weather information is one of the must-haves of this century. By consulting weather data, companies are able to improve the efficiency of their energy systems, thus reducing the impact of its business on the world as well as its expenses.

We are therefore delighted to be able to continue to support Toyota's drive to reduce greenhouse gas emissions and invest in renewable energy sources. We are proud of the role we play in their innovative path to develop more efficient energy consumption and production systems at their industrial facilities.

About Toyota Motor Europe

Toyota Motor Europe (TME) is headquartered in Brussels, Belgium. It is Toyota's operating subsidiary that oversees its operations in Europe and western Asia (Turkey, Russia, Israel, Kazakhstan and Caucasus). Toyota first arrived in Europe in the 1960s and its activities have since extended to every corner of the continent. They include manufacturing plants, logistics hubs, sales and marketing businesses, R&D facility, training and design centers, a world-class motorsports operation and thousands of local retailers.

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We are looking forward to receiving your message!

Melanie Luther
Head of Sales and Meteorologist
mluther@meteomatics.com

Brad Guay
Meteorologist and Client Manager
bguay@meteomatics.com