# Smarticity
## THE WAY OF POWER

**Software platform for optimal management of renewable energy systems**

# Smarticity Prosumer

### Bring renewable energy into your life

With the introduction of affordable clean energy sources, such as solar panels and wind turbines, everyone can become not only a consumer but also a producer of electricity. If you are a "prosumer", you can use your own energy to power devices or production machines, charge electric vehicles, and even sell surplus energy on the market.

### Challenges

However, the renewable energy sources strongly depend on weather conditions, so it may happen that you don't have energy from your own sources exactly when you need it, or that you have it in abundance when you don't need it. You may be able to sell the surplus energy on the market, but under less favorable conditions than you would have bought it.

### How to use your energy system efficiently

To achieve maximum efficiency in utilizing your energy system, you can adjust your consumption habits to periods when you have energy from your own sources. Alternatively, if you have an energy storage system, you can save excess energy for times when you need it the most. However, in order to effectively plan the usage of the system, it is essential to have the ability to predict the amount of energy that will be produced in the near future and the expected consumption within the same period.

### We are here to help

Smarticity Prosumer is a software platform that utilizes data on your past production and consumption to determine an optimal energy usage plan. By analyzing your energy patterns, the platform minimizes costs while ensuring your electricity needs are met.

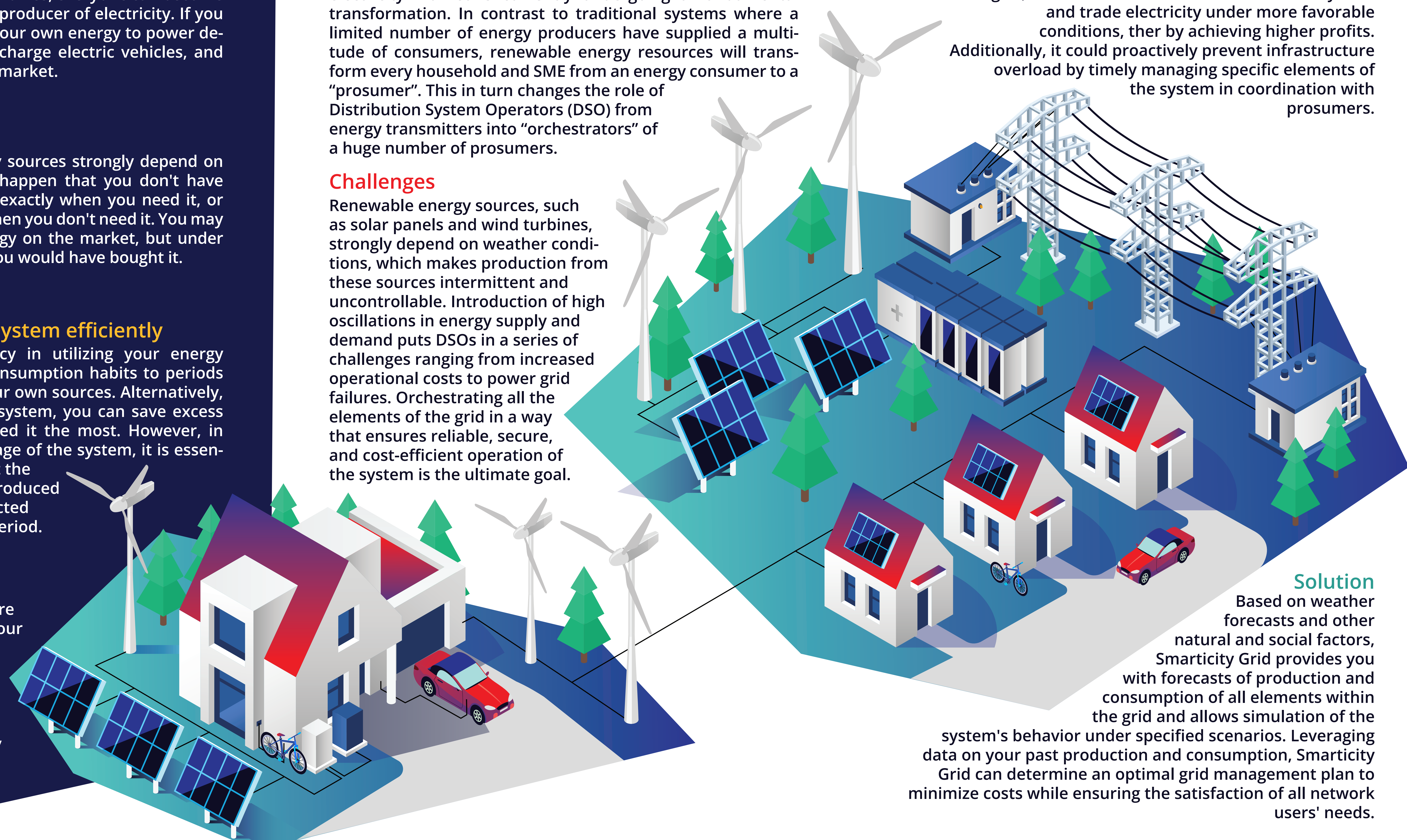# Smarticity Grid

### Opportunity

Due to the transition to carbon neutral energy sources, the electricity market is currently undergoing a fundamental transformation. In contrast to traditional systems where a limited number of energy producers have supplied a multitude of consumers, renewable energy resources will transform every household and SME from an energy consumer to a "prosumer". This in turn changes the role of Distribution System Operators (DSO) from energy transmitters into "orchestrators" of a huge number of prosumers.

### Challenges

Renewable energy sources, such as solar panels and wind turbines, strongly depend on weather conditions, which makes production from these sources intermittent and uncontrollable. Introduction of high oscillations in energy supply and demand puts DSOs in a series of challenges ranging from increased operational costs to power grid failures. Orchestrating all the elements of the grid in a way that ensures reliable, secure, and cost-efficient operation of the system is the ultimate goal.

### How DSOs can improve their operations

If a DSO can predict electricity production and consumption within the grid, it will be able to better balance the system and trade electricity under more favorable conditions, ther by achieving higher profits. Additionally, it could proactively prevent infrastructure overload by timely managing specific elements of the system in coordination with prosumers.

### Solution

Based on weather forecasts and other natural and social factors, Smarticity Grid provides you with forecasts of production and consumption of all elements within the grid and allows simulation of the system's behavior under specified scenarios. Leveraging data on your past production and consumption, Smarticity Grid can determine an optimal grid management plan to minimize costs while ensuring the satisfaction of all network users' needs.
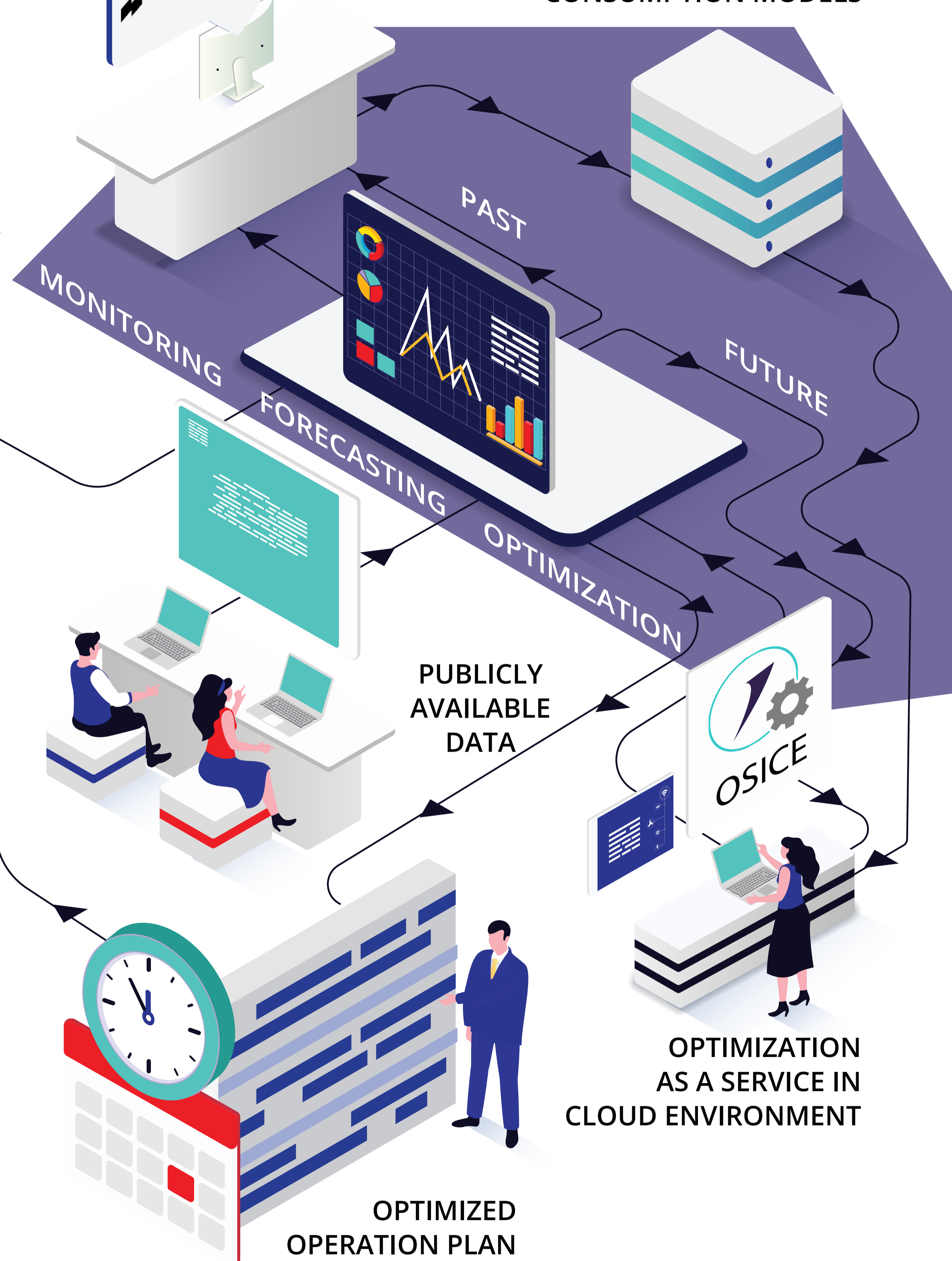
PRODUCTION
AND CONSUMPTION
DATA

AUTOMATED
GENERATION
OF PREDICTIVE
MODELS

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**BLACKFOX**
www.blackfox.ai

PRODUCTION AND
CONSUMPTION MODELS

PAST

MONITORING

FUTURE

FORECASTING

OPTIMIZATION

PUBLICLY
AVAILABLE
DATA

OSICE

OPTIMIZATION
AS A SERVICE IN
CLOUD ENVIRONMENT

OPTIMIZED
OPERATION PLAN

Smarticity is a comprehensive energy management tool that completely automates the finding of an optimal pattern in energy consumption and production.

Based on the data acquired during the energy system exploitation, Smarticity automatically creates the most adequate predictive models of energy production and consumption, which enable the simulation of any hypothetic operation plan. The results obtained from the simulations, along with all other grid features and external factors, are subjected to an optimization process in order to find the optimal energy management pattern.

The core component of Smarticity is Blackfox, our AI-based tool for automated creation, monitoring, and maintenance of machine learning models that evolve together with the energy system and ever-changing environment.

## RESOURCE MONITORING

Visualization, management, and real-time analysis of measured data acquired from various electrical assets.

Identification of energy production and consumption patterns, and tracking performance over time.

## AI-POWERED FORECASTING

Accurate predictions of energy production and consumption, demand fluctuations, peaks, and overloads.

Improved efficiency, reduced costs, increased reliability, and better customer service.
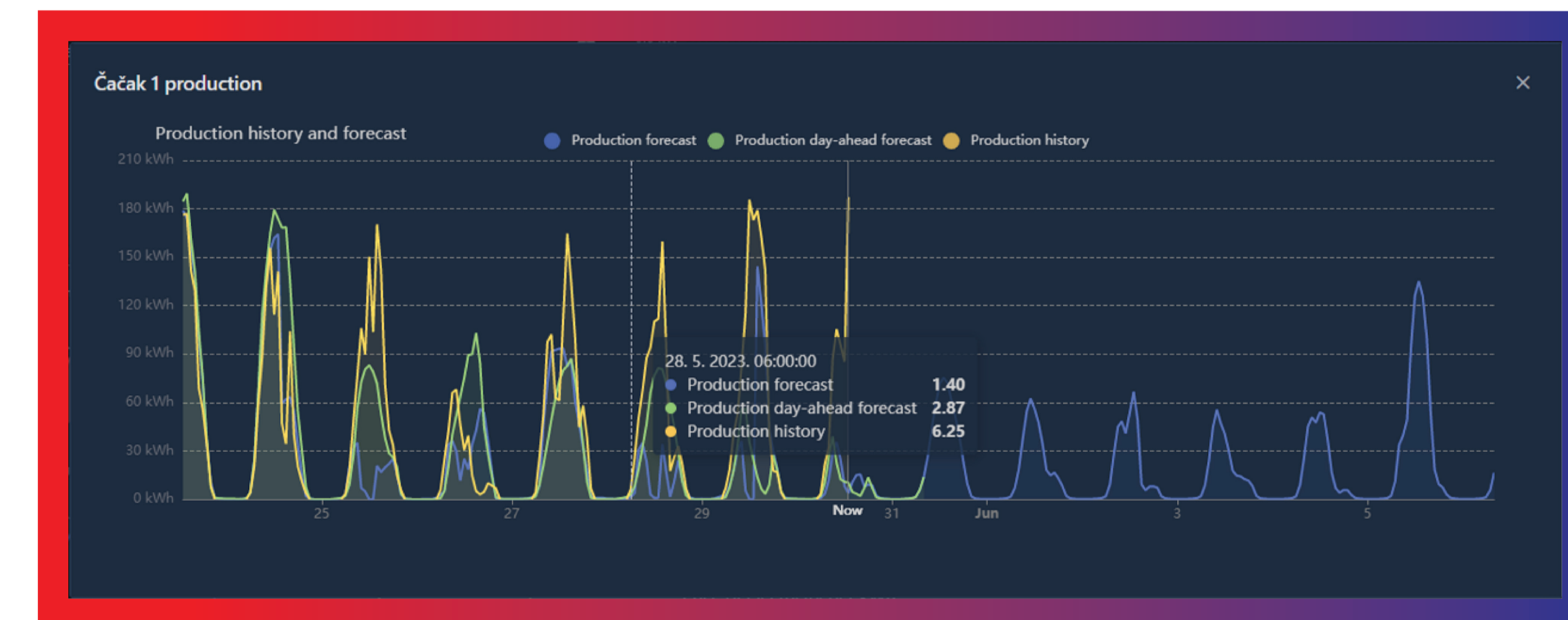
## OPTIMIZED RESOURCE MANAGEMENT

Optimal strategy for resource utilization according to specified goals while respecting technological, economic, and legal constraints.

Informed decision-making for power traders and balance responsible parties.