SF SYSTEM

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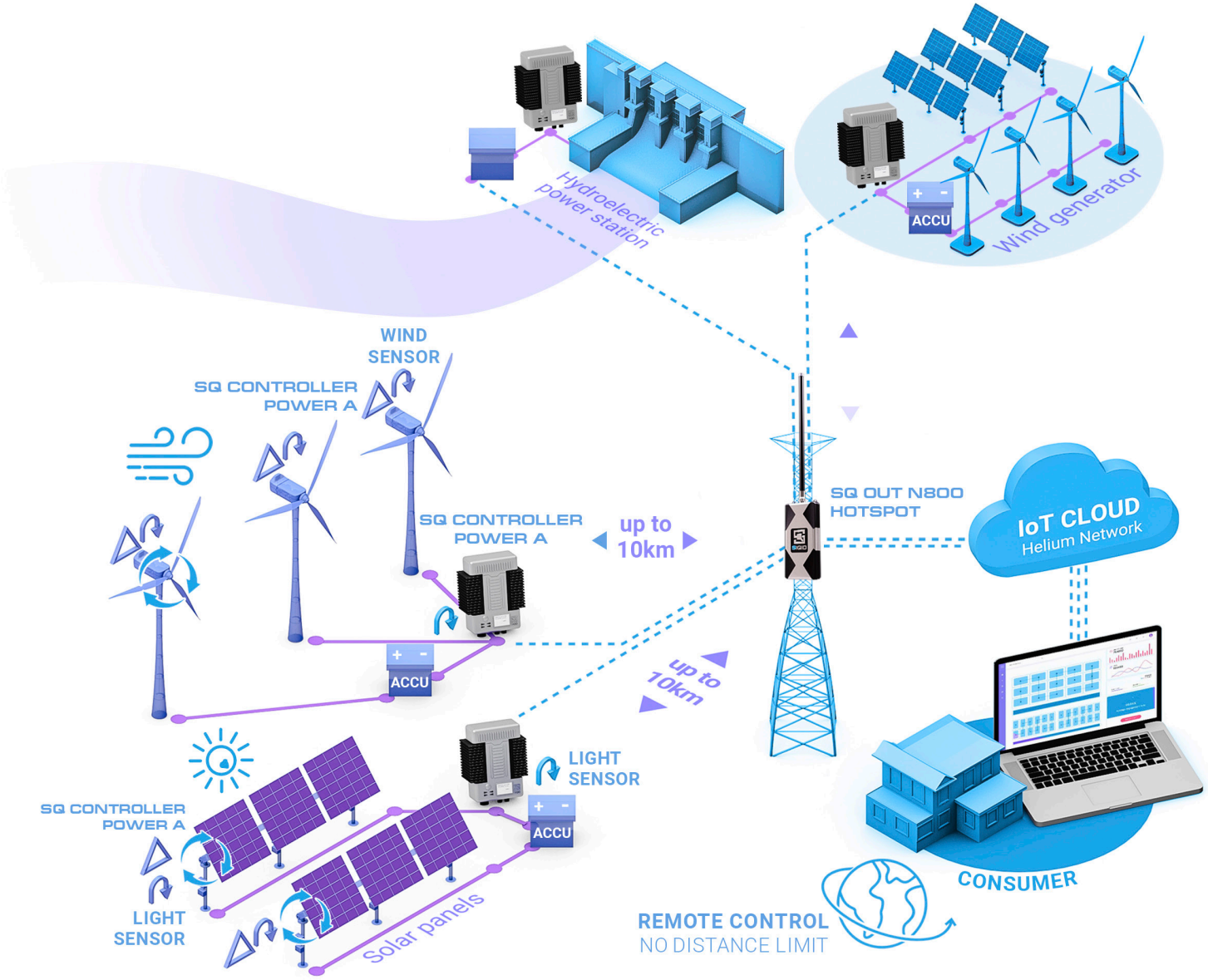


SF SMART ENERGY

New generation renewable energy technology

www.sfs-pro.com

Introducing SF SMART ENERGY, a solar, wind and hydro power plant management system that helps you achieve maximum efficiency in power generation.

- Fossil energy sources are nearly exhausted
- Their extraction and use cause great damage to the environment.
- The existing electrical grids are overloaded, and the needs of mankind for electricity are constantly growing,
- Remote communities often have power problems, and troubleshooting is time-consuming

People are experiencing shortages of electricity and problems accessing it

Renewable energy can make things better!

They:

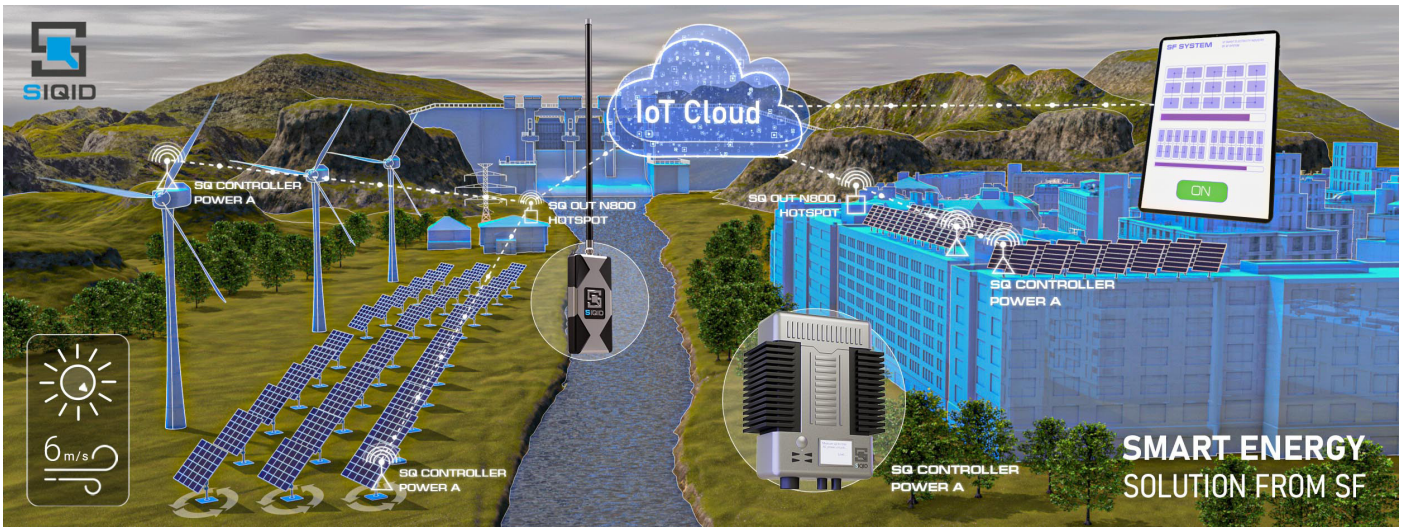
- do not pollute the environment,
- use inexhaustible energy sources,
- are easy to deploy and operate
- are more accessible and safer in maintenance and repair

The Energy Transition Requires New Models of Supply and Demand Management

SF SYSTEM offers SF SMART ENERGY:

a one-stop solution for stabilizing and maximizing efficiency from renewable energy sources, as well as continuously monitoring their performance, quickly responding to failures and urgent troubleshooting.

SF SMART ENERGY is a technology that allows you to manage your electricity production from renewable sources.



SF SMART ENERGY combines physical and digital assets such as batteries, artificial intelligence, and cloud applications.

With SF SMART ENERGY you can:

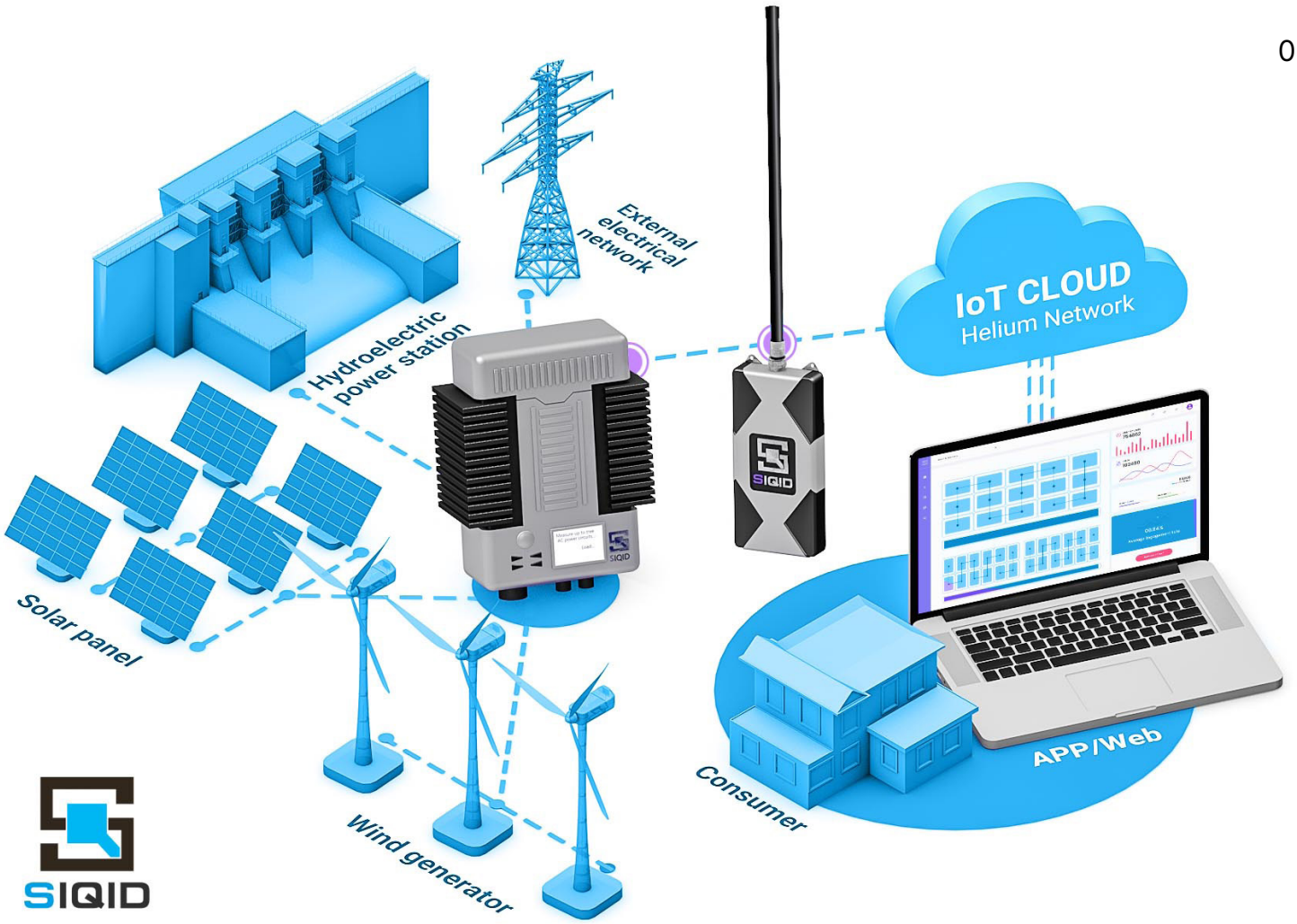
- save energy produced from renewable sources for periods of low productivity

- predict load and generation to guide and balance them

- smooth energy peaks and valleys: all SF SMART ENERGY devices have a built-in function to smooth out ripples in the incoming voltage of the city power supply. The system switches to batteries and generators when the input voltage is too high or too low. After the input voltage returns to normal, the system is connected back to the city network

- balance the use of the city's power grid, having connected generators, and due to the connected batteries, power consumers for a while. Or, with sufficient current generation by generators, it can work completely autonomously, without being connected to the city network.

When using SF SMART ENERGY, equipment breakdowns due to a malfunction in the city network are practically excluded.



SF SMART ENERGY performance is achieved through the following functional solutions:

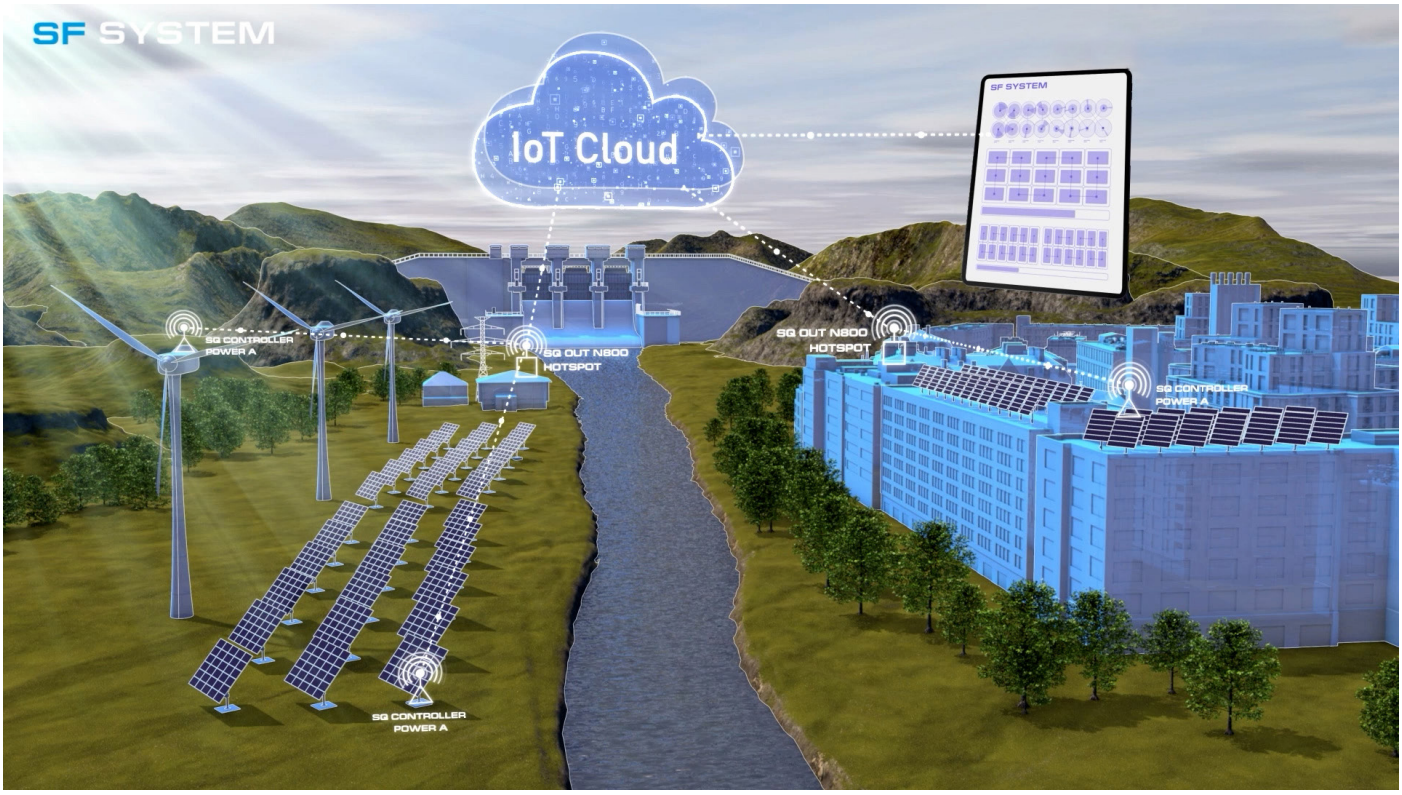
- metering of solar panels, wind power plants and hydroelectric power plants
- remote work monitoring
- Peak and off-peak pricing management
- fault detection, rapid diagnosis of breakdown or failure
- remote control and switching

The SF SMART ENERGY solution allows you to make renewable energy smarter and more sustainable!

- Renewable energy production becomes more interconnected, more intelligent, and more controllable.

- Increasing control over production leads to better cost management and waste reduction.

- With smart devices, multiple processes can be activated simultaneously, while automated services increase the stability of energy production and its controllability through better control of production processes.


SF SYSTEM
IoT Cloud
SF SYSTEM
SQ CONTROLLER POWER A
SQ OUT N800 HOTSPOT
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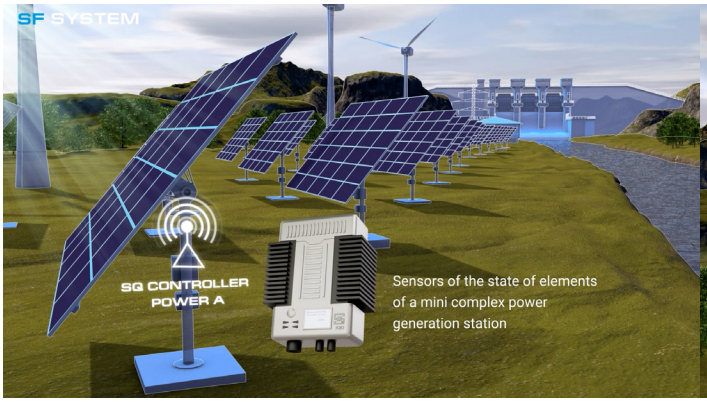
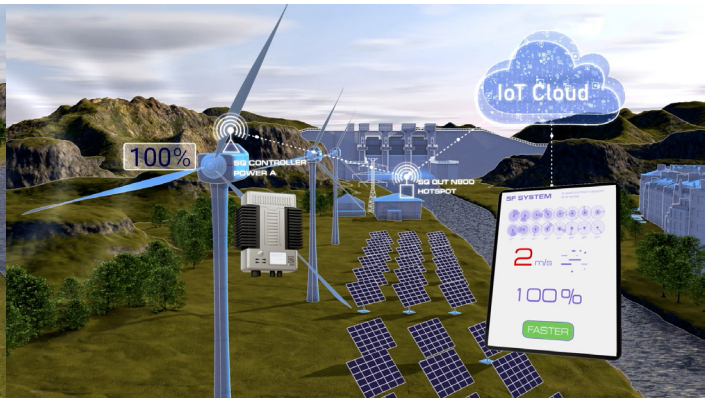
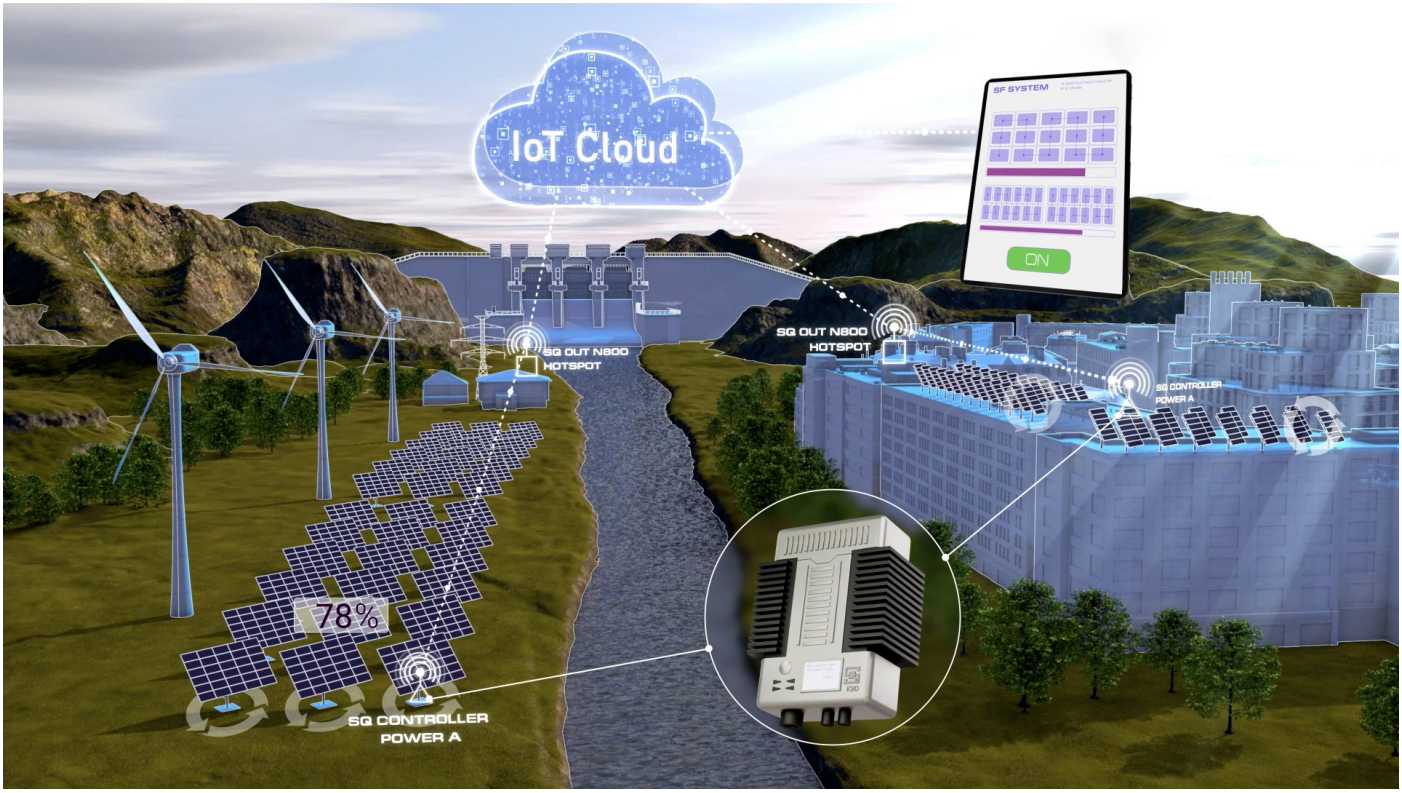
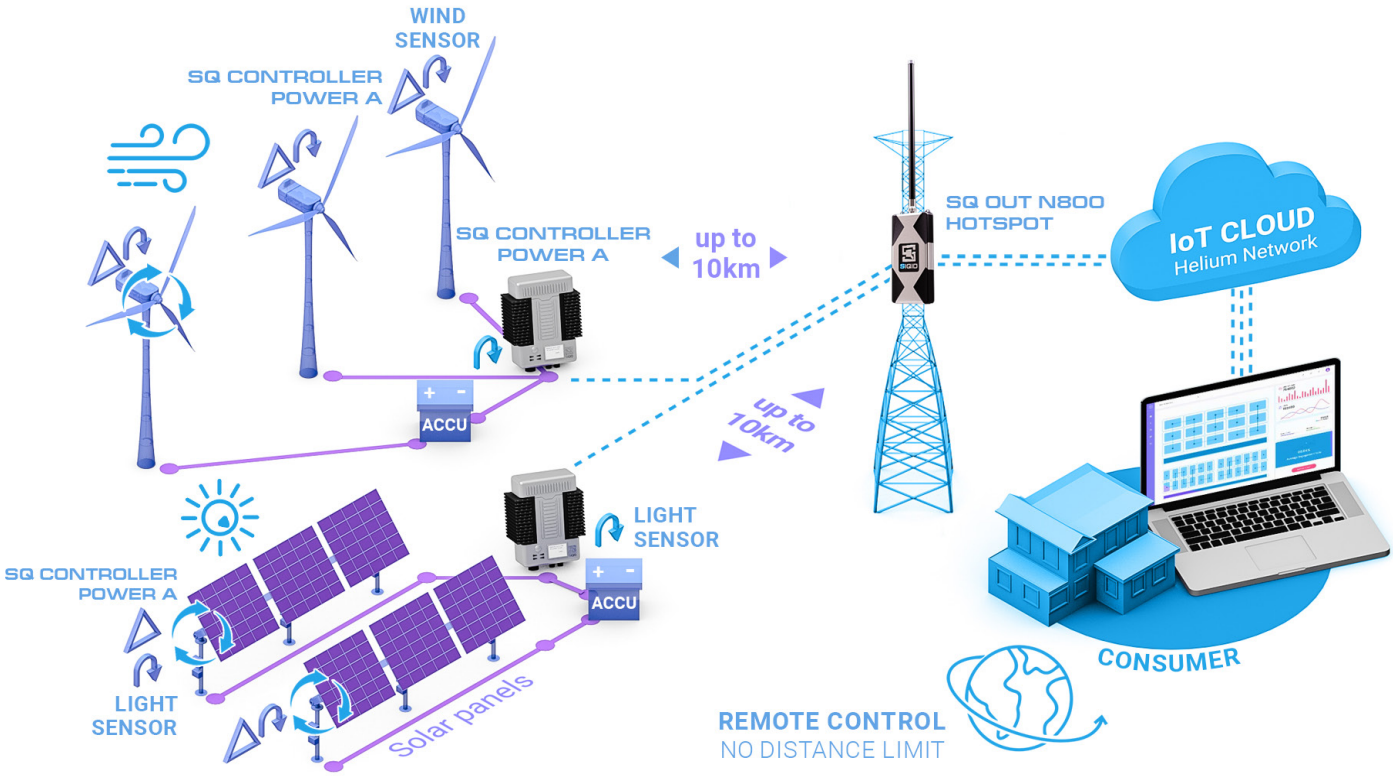

SF SYSTEM
SQ CONTROLLER POWER A
Sensors of the state of elements of a mini complex power generation station


IoT Cloud
100%
SQ CONTROLLER POWER A
SQ OUT N800 HOTSPOT
SF SYSTEM
2 m/s
100%
FASTER


IoT Cloud
SF SYSTEM
ON
SQ OUT N800 HOTSPOT
SQ OUT N800 HOTSPOT
SQ CONTROLLER POWER A
78%
SQ CONTROLLER POWER A



SF SMART ENERGY improves the efficiency of energy production in 4 steps:

1. **Data collection**

Sensors installed at all critical points in the energy sector collect and transmit data on air, wind direction, sun, etc.

2. **Diagnostics**

The system analyzes collected data, draws conclusions about the state of the monitored object or process, and identifies potential problems.

3. **Decision making**

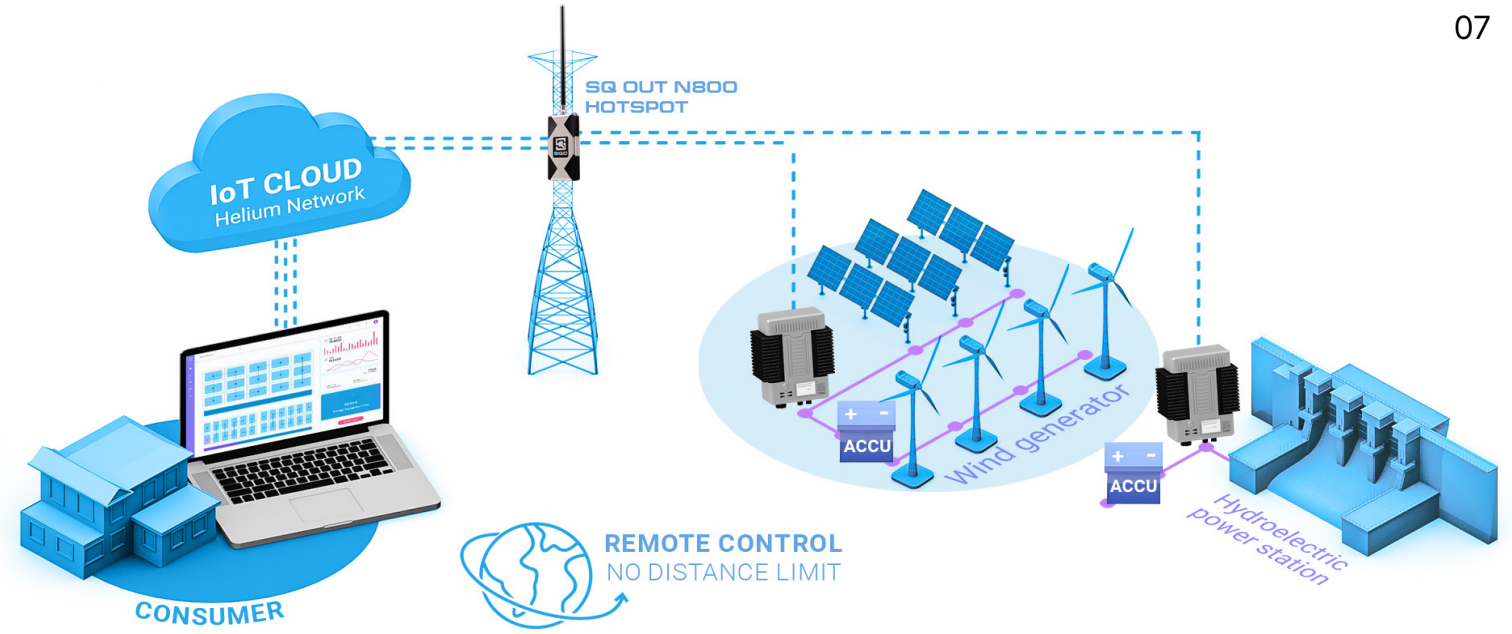
Based on the problems identified in the previous steps, the software platform and/or the person managing the platform decides about the actions to be taken:

- rotate the solar panels to the most advantageous angle relative to the sun;
- accelerate or slow down the rotation of the wind generator blades (in case of insufficient wind, reduce the resistance and increase the rotation of the blades to increase the generation efficiency);
- speed up / slow down the speed of the hydroelectric turbine, etc.

4. **Performing actions**

Solar panels, wind turbines and hydroelectric turbines are controlled, as appropriate, to increase the efficiency of electricity generation.

SF SMART ENERGY allows you to quickly adapt to changing weather conditions and flexibly control the settings of solar panels, wind turbines and hydroelectric power plants to increase their productivity.



Wherever you are - you can manage your electrical power

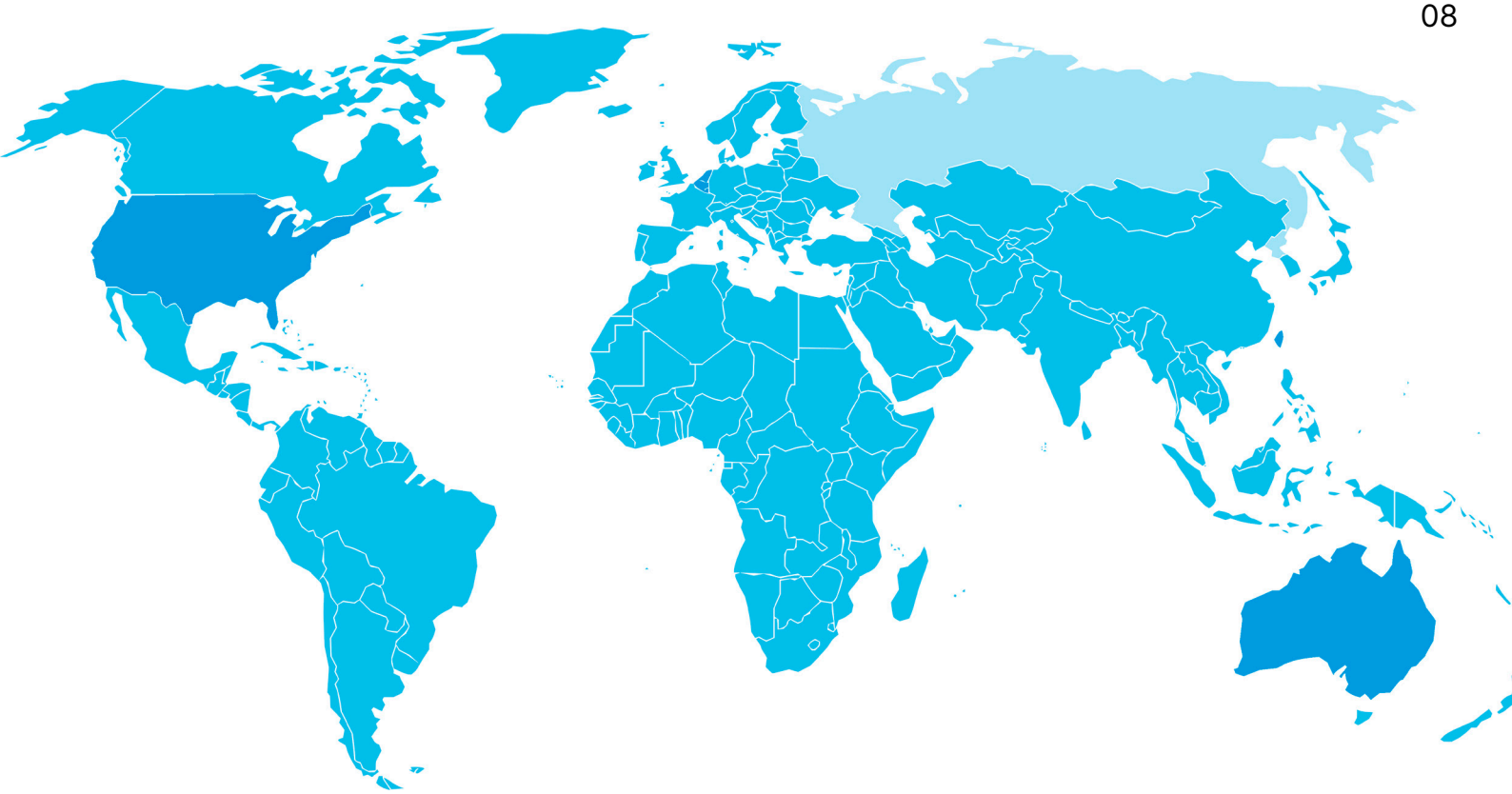
- **Remote monitoring from anywhere in the world:** no need to be near devices to monitor their status and read data - this is done remotely using any SF device through the application or SF browser.

- **Control connected generators without connecting to the server** and waiting for a response from it, to achieve the maximum possible amount of electricity generated by various generators. Data transfer is made via HOTSPOT.

- **Work with a large number of generators simultaneously,** including different types. Our system will manage them to achieve maximum efficiency.

- **Combine remote generators into a system:** wind turbines, solar panels, hydroelectric power plants can be located at a great distance from each other and the control center. The number of power generators and their geographic location does not matter for the SF SMART ENERGY system. You will see them all and manage them all at once!

You will always have information and make prompt decisions on the management of wind turbines, solar panels, and hydroelectric power plan

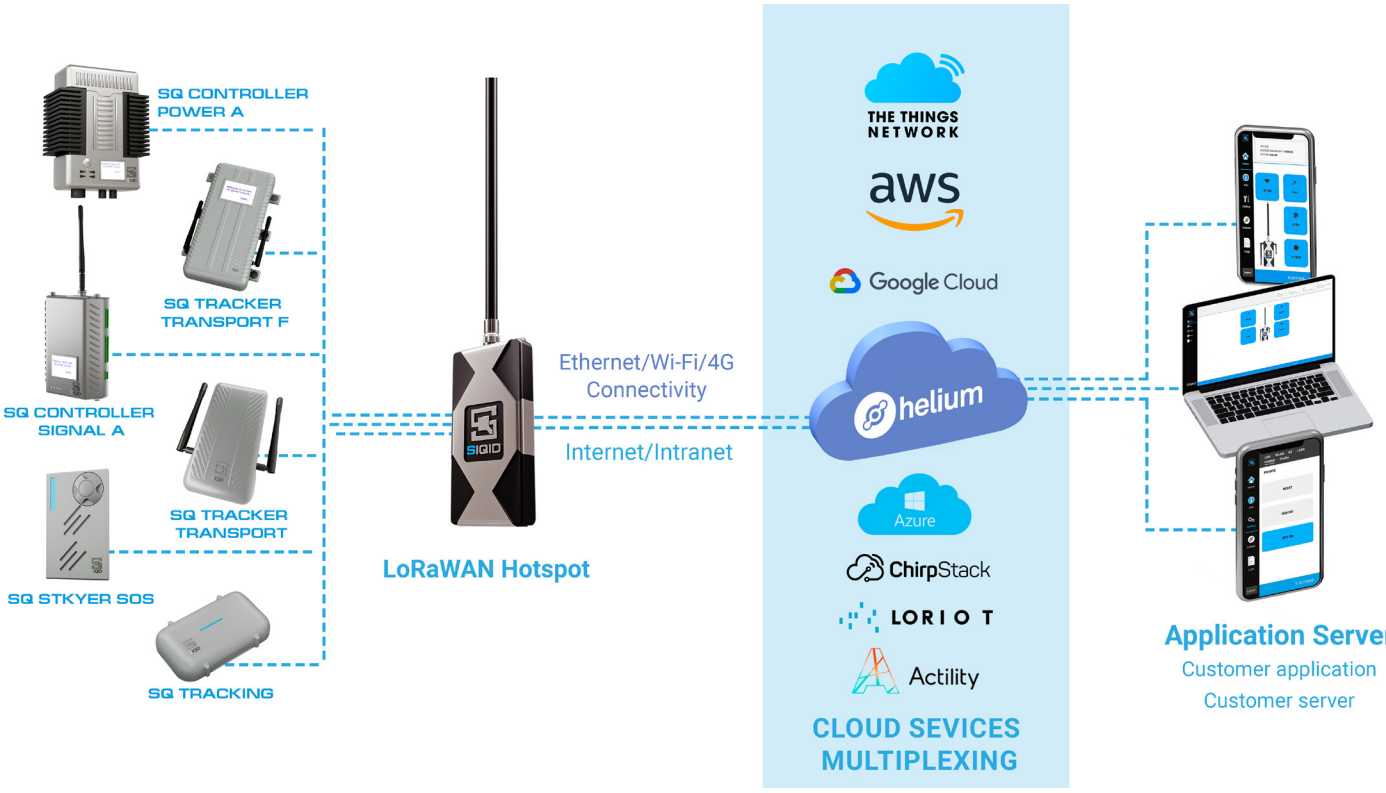


The use of SF SYSTEM devices to create a sustainable LoRaWAN® coverage and work in LoRaWAN® networks to control, manage and maintain energy generation systems can **reduce costs by 30% and increase energy efficiency by 22%** due to reduced equipment downtime.

Also, using LoRaWAN® devices allows you to regularly transmit operational parameters controlled by sensors directly to the SCADA control room, which can r**educe the cost of expanding such systems by 20%.**

Some countries (USA, Australia, Taiwan, and the Netherlands) have made LoRaWAN® the national standard for IoT networks.

Another significant advantage of SF SYSTEM LoRaWAN® devices is georeferencing:
you can always see the status of elements and sensors on the map in real-time.



SF SYSTEM produces ready-to-use IoT devices that use the decentralized LoRaWAN® network, the fastest-growing public network.

Our solutions are:

- autonomous - use energy-efficient LoRaWAN® technology instead of Wi-Fi®, thereby increasing the range and reducing battery consumption

- reliable – devices operate at temperatures from -40°C to +85°C and are resistant to harsh environmental conditions

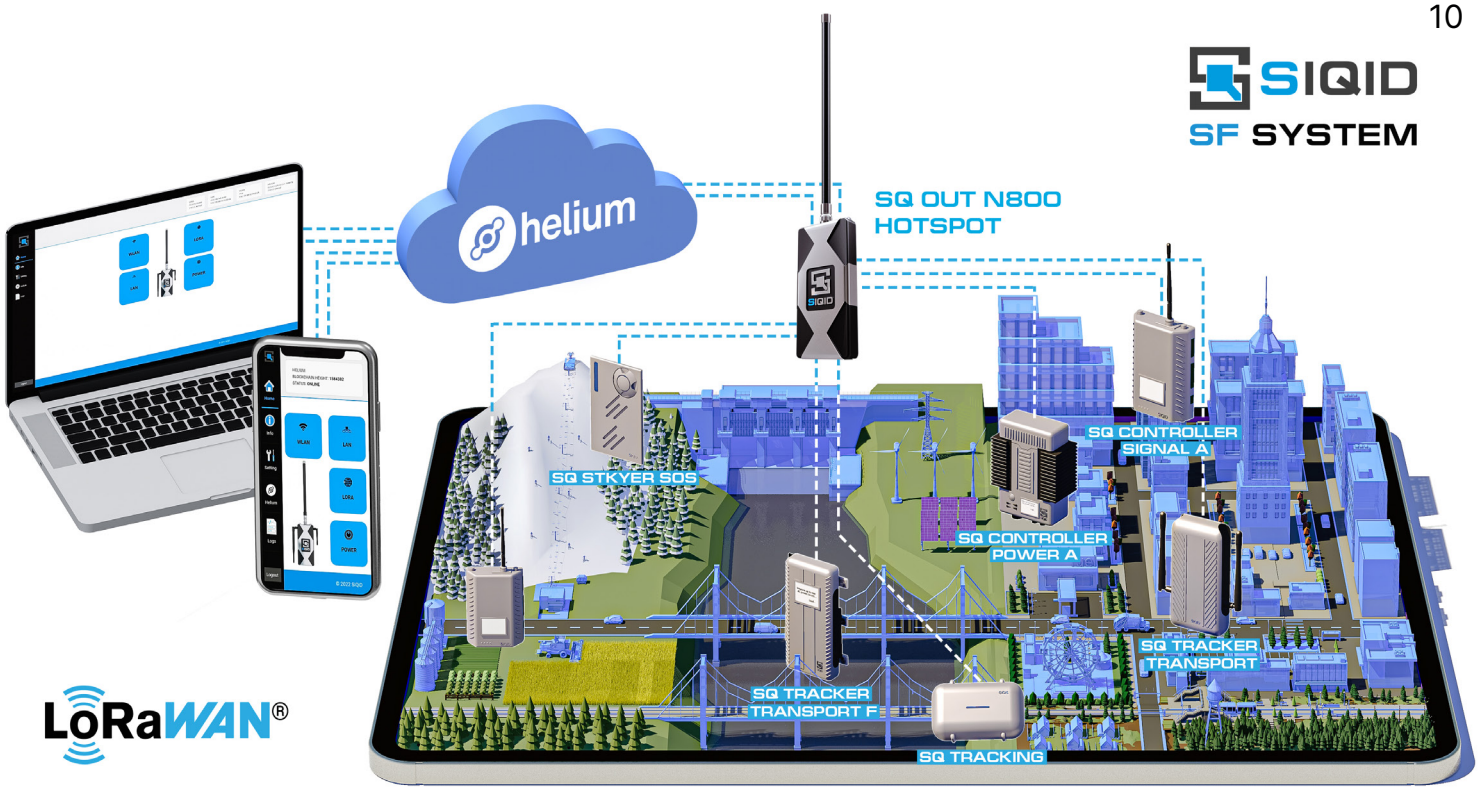
- suitable for mining - by deploying the device for your purposes, you can simultaneously earn a new cryptocurrency - HNT

- configured individually for your needs - connect a variety of sensors and readers from different manufacturers

- easily scalable - you can install an unlimited number of sensors and hotspots, covering any area. In addition, no wires are required for installation.

You come to us with a task - we create a solution.
The system of any configuration and any size. A solution that will work for you the way you need it - with maximum profit and cost reduction

SIQID
SF SYSTEM



SF SYSTEM is a software development company with 15 years of experience. We are based in the Zona Franca Industrial da Madeira and operate around the world providing state-of-the-art technological solutions for a wide range of industries: helping farmers improve crop yields, building systems for smart cities, working in the energy sector, offering solutions for the recreational industry, and also develop individual systems based on the capabilities of the Internet of Things.

Our company started with the development of optical-electronic products for the military industry - and in this direction we have achieved significant success, becoming one of the world leaders. Now we have used our experience to create smart systems.
We are located in Portugal: solutions are born here, all SF SYSTEM equipment is designed and manufactured, and the software is developed. We are close to you - and always ready for a personal meeting!

Applying our advanced technologies to control and manage elements of renewable energy sources will allow you to support yourself with abundance, help those in need, and influence the reduction of the global energy crisis..

We bring innovation to Portuguese businesses, from small private companies to public corporations. We will form a system for you from our ready-made elements or develop a unique solution for your needs.

Do you want to transform your business into a digital environment?
SF SYSTEM will become a reliable guide for you on this path!

SIQID

SF SYSTEM

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