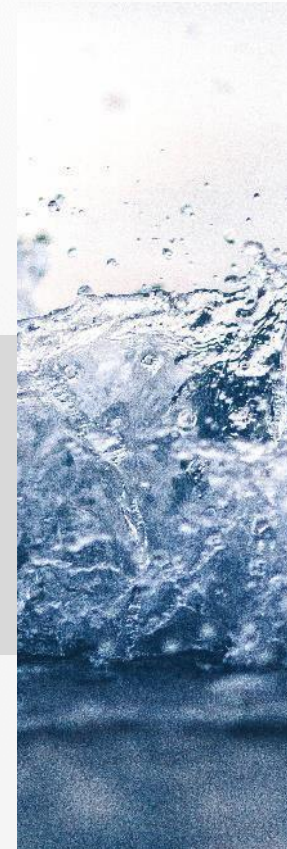


Akuo

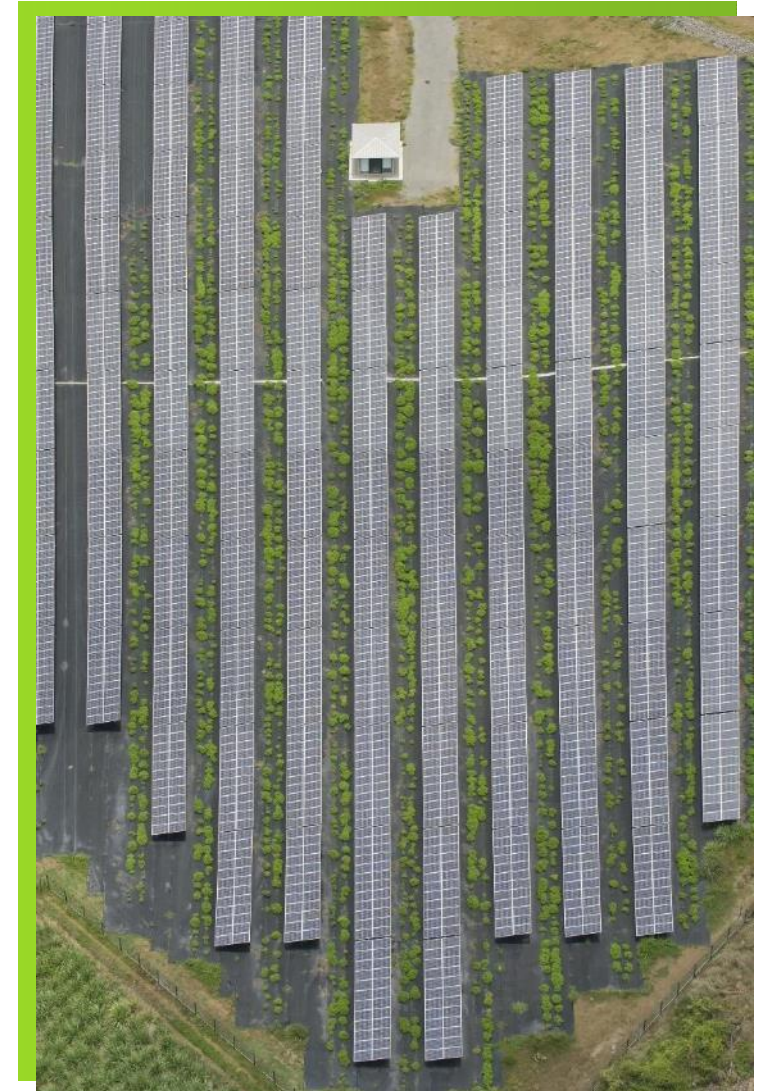
Islands expertise

Pacific Power Association
26 08 2021



Summary

- **Akuo Group**
- **Our Renewable Energy Island Strategy**
- **Agrinergie®**: key solution for Islands' Energy Transition
- **Storage**: towards a balanced grid
- **GEM®**: secure clean energy supply in off-grid areas





AKUO

| ENTREPRENEURS BY NATURE

French renewable energy **Independent Power Producer and Solutions Provider**

2007

Creation

Independence

The 2 founders of the group remain majority shareholder and respectively President and CEO

Integrated player

Development,
Construction,
Financing, Asset
Management - O&M

Focus on territories

Decentralized renewable
energy solutions

€285m

Consolidated revenues
(audited figure)

> 15

Local entities worldwide

€2.6bn

Cumulative investment

> 350

Employees



1,3 GW
Electric power



95 MWth
Heat power



100 MWh
storage

Capacity in operation
and under construction



Wind



Solar



Hydro



Storage



Confidentiel

2020 year-end

| PURE PLAYER IN RENEWABLES

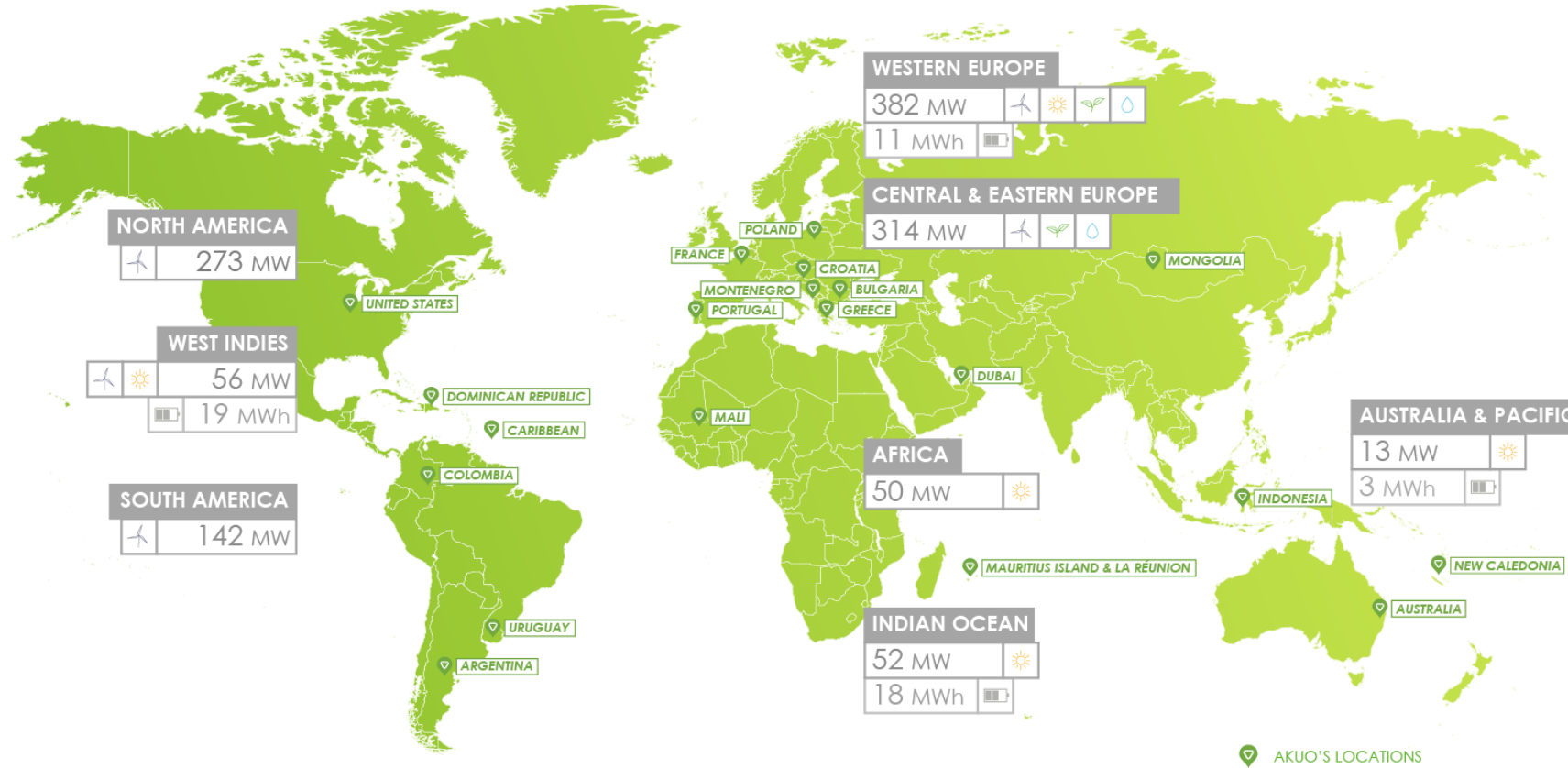


€285m in energy sales in 2020
(audited figures)



Curbans (France)
10MW
Commissioning in 2020

| A GLOBAL RENEWABLE ENERGY POWER PRODUCER



| Capacity in operation and under construction:

1,3 GW > **50 MWh**
Electric power Storage

| Technologies:



Note : data as of December 2020



An aerial photograph of a coastal facility. On the left, there are several long, parallel rows of solar panels. In the center, there is a large building with a green roof and a smaller structure with a brown roof. To the right, there is a body of water with a pier and a small boat. The text "ISLANDS STRATEGY" is overlaid in the center of the image.

ISLANDS STRATEGY



Confidential

Akuo offers **adapted** and **tailor-made solutions** considering the specific constraints faced by Islands to foster a successful energy transition and promote renewables' integration.

- **Agrinergie®** - overcoming the lack of available land
- **Storage** — towards a more resilient and independent energy system
- **GEM®** - secure clean energy supply in off-grid areas
- **Anti-cyclonic Wind Farms** : tailor-made designed power plants for territories with complex geographical and climate conditions
- **AKUO COOP** — towards a more inclusive energy transition



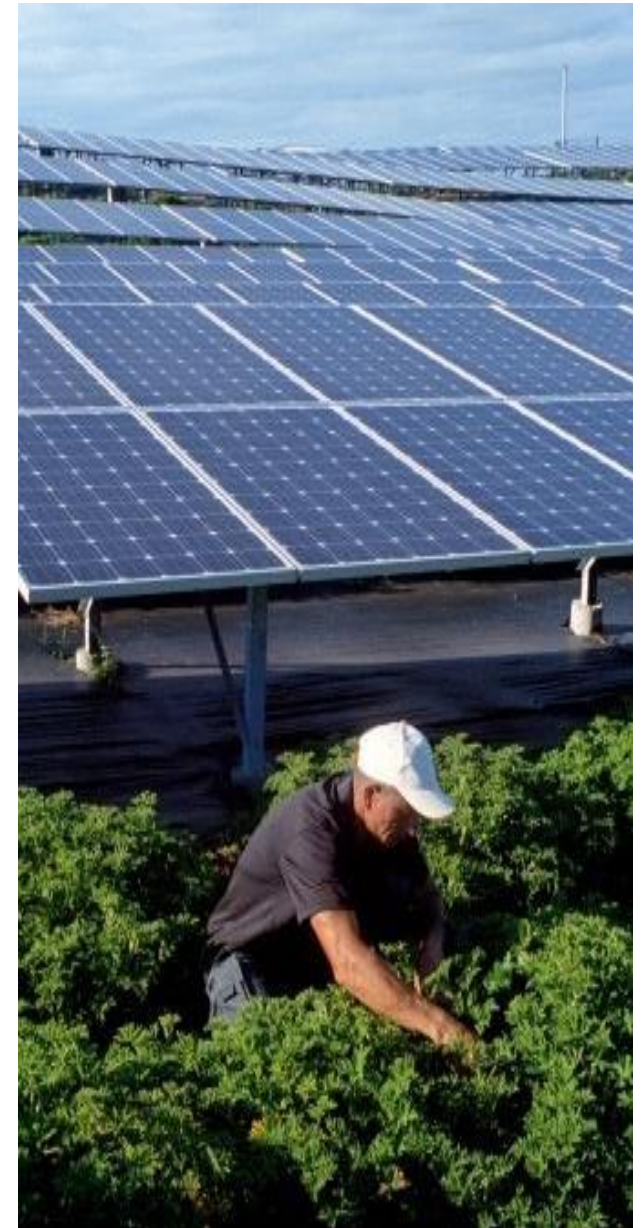
An aerial photograph of a lush green valley with rolling hills and a winding river. A semi-transparent white rectangular box is overlaid on the center of the image. Inside this box, the word "AGRINERGIE" is written in a bold, dark grey sans-serif font, followed by a registered trademark symbol (®). Below the text, a series of white, 3D rectangular blocks are arranged in a stepped, terraced pattern, representing a proposed solar farm layout. The background within the box is a faded version of the valley landscape.

AGRINERGIE®

| AGRINERGIE®

Combining **clean energy** and **agricultural production** in the same area, Akuo is:

- Promoting Island energy independency
- Decreasing greenhouse gas emissions
- Solving conflicts over land uses
- Contributing to energy and food security
- Fostering business models tailor-made to the needs and conditions of each islands
- Securing farmer's income while creating new jobs



| AGRINERGIE® - EVOLVING TO MEET ISLANDS' NECESSITIES

Agrinergie® - First generation

It combines **ground-based solar panels** with farming to **raise land availability** and **decrease competitiveness for land use**.

Crops are farmed between rows of solar panels. Several varieties of plants such as aromatic plants or medicinal plants and vegetables can be cultivated, promoting traditional regional crops.



1

Agrinergie® - Second generation

It combines **greenhouses with a semi-photovoltaic covers** than can be cyclone-proof.

Yields are protected all year long from **weather hazards** encouraging **more sustainable agriculture practices** and **better management** of the production cycles, water and control yields.



2



Agrinergie® - Third generation

It combines Agrinergie® first or second generation with a **storage facility**

Akuo has been able to adapt its storage facility to meet the requirements of an industrial-scale solar plant overcoming the hurdle posed by the intermittent nature of RES.



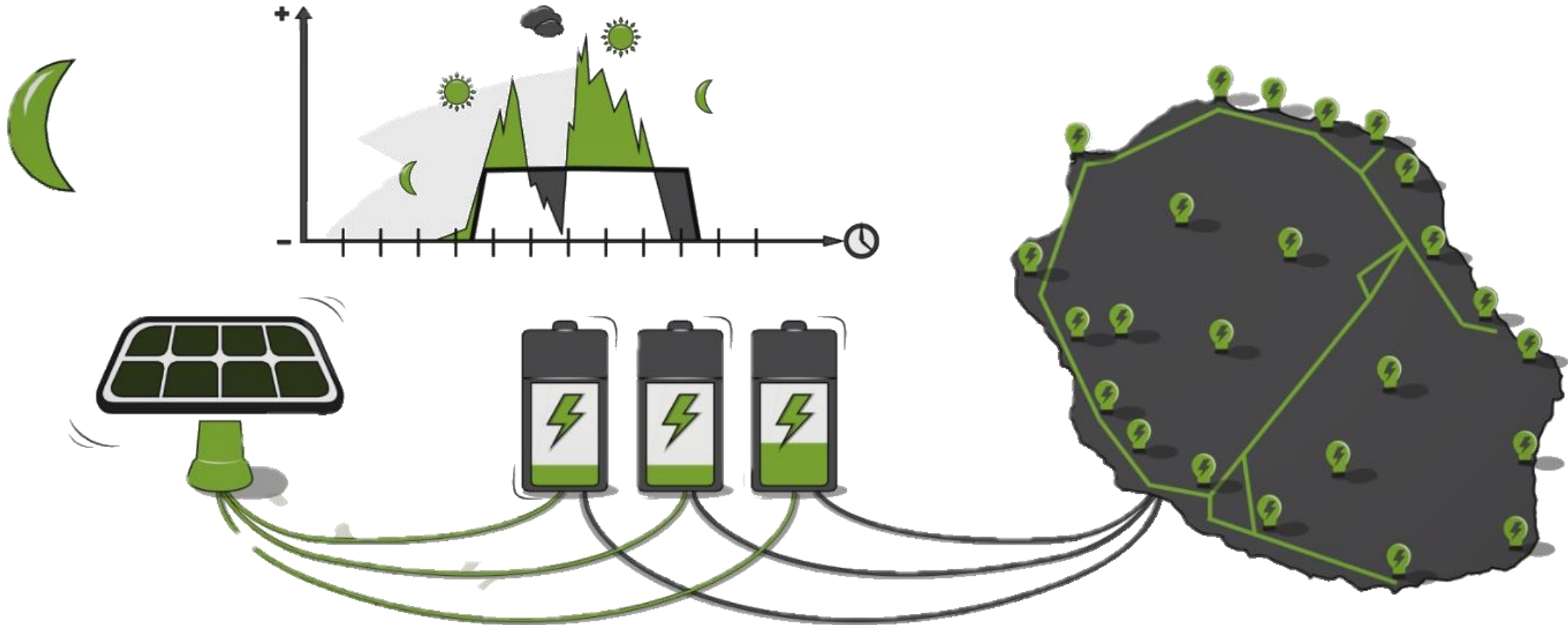


STORAGE

| STORAGE: KEY FOR A CLEANER AND INDEPENDENT ENERGY SYSTEM

Islands and microgrids are often **disconnected** from continental and large grid systems.

Storage improves the **reliability and flexibility** of island's grids, secures a **balanced and steady supply of clean energy** and **increases the penetration of renewable energy sources**.



AKUO'S TOOLS USED TO MANAGE ENERGY STORAGE

Hybrid power system simulator, Energy Management System (EMS) and Load Banks

AKUO Optimization Model for Isolated Systems (AKOMIS)

- A design and modelling tool for hybrid power plants (solar, BESS, thermal generators).
- Long-term simulations (more than 20 years).
- Developed by Akuo.



Energy Management System (EMS)

- Energy management platform for plants equipped with a storage system through smart strategies that control the plant. Is remotely accessible.
- It is adapted to each project.
- Developed by Akuo.



Load Bank

- Located in the Reunion island.
- Tests for batteries, inverters and thermal generators.
- Able to simulate charges.



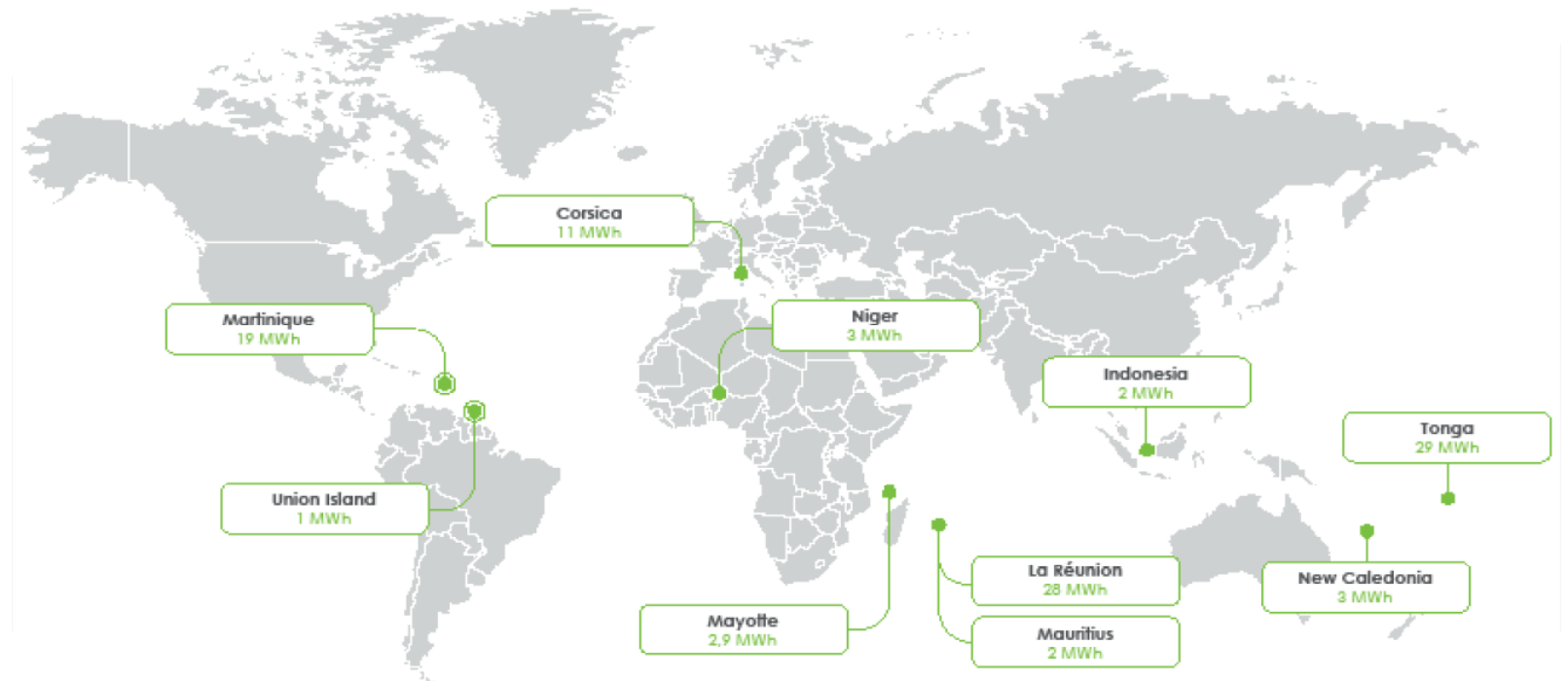
| AKUO – Leaders in storage solutions on islands

Entering french islands market

After the Green School in Bali in 2009, Akuo developed **4 hybrid projects** for a total of **29 MWh**. Four hybrid plants combining solar & storage were commissioned in 2014 in the Reunion Island and Corsica.

Today, we have **installed more than 100 MWh** of storage capacity by combining our hybrid projects, GEMs and storage projects.

And most of this capacity is on islands!



GOING GLOBAL - MORE THAN 34Wh OF STORAGE CAPACITY

Reunion Island
18 MWh



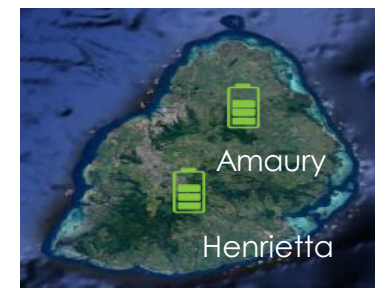
Corsica
11 MWh



Union Island
1 MWh



Mauritius
2 MWh



Indonesia
2 MWh



Hybrid system : solar plant + storage

- Renewable energy is injected into the grid
- Stability regardless weather conditions
- Ability to commit the day before on a smoothed and curtailed power profile specified by grid utility
- Commissioned in 2014-2015

Vinlec : Union island

- PV + storage plant
- Full hybridization with existing genset
- EMS controls the whole island

Storage systems

- Storage's technologies
- Capacity firming
- Control of the grid frequency and voltage through the Central Electricity Board

Off-grid storage

- Rural electrification of 3 villages thanks to Akuo's GEM solutions.
- Call for tenders "Millennium Challenge Account"
- Off-grid context
- Conveys clean energy to isolated populations

| 52 MWh under construction in 2020/2021

Akuo EMS controls the whole grid island

Martinique
19 MWh



French CRE tender

- 12 MW/19,2 MWh
- Arbitrage
- Commissioned in 2020

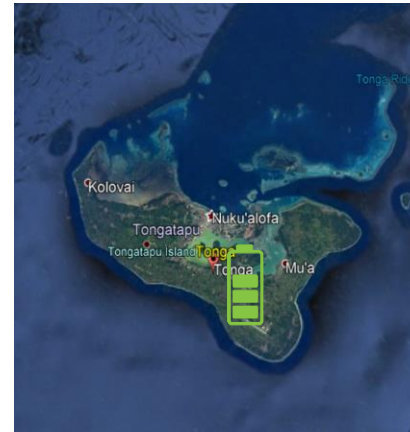
Tonga island
5 MWh



ADB tender

- 10 MW / 5 MWh
- Frequency and voltage regulation
- Commissioning Q3-2021

Tonga island
23 MWh



ADB tender

- 6 MW / 23 MWh
- Load-shifting
- Commissioning Q3-2021

New Caledonia
3 MWh



Solar + Storage Plant

- Integration of renewable energy
- Ability to commit the power profile communicated the day before
- Commissioning Q1-2022

BESS TONGA 1



Kingdom of Tonga



10 MW / 5 MWh

Increases **grid flexibility and reliability**, renewables' penetration and provide frequency and voltage regulation.



Funded by ADB, Tonga's government, Tonga Power Limited, Australia's government and the Green Climate Fund

In construction – commissioning expected Q3-2021

BESS TONGA 2



Kingdom of Tonga



6 MW / 23 MWh

Smoothing out the electricity supply from RES ensuring the supply of generation matches the demand including at peak times



Funded by the ADB, Tonga's government, Tonga Power Limited, Australia's government and the Green Climate Fund

In construction – commissioning expected Q3-2021



In both cases, the batteries are owned and operated by the grid's operator **Tonga Power Limited** who will be trained by Akuo. Akuo's revenues come from the selling and installation of the product.

| GEM® - CLEAN ENERGY FOR OFF-GRID AREAS

Solar GEM and **Storage GEM** are containerized solutions (20 feet) for solar energy production and energy storage. **A solution for off-grid areas**, GEM® are fully operational in isolated areas, supplying with energy a wide variety of direct consumers (whether they are communities, resorts or industrials).

Fully mobile and portable, both can be used **for long-term and short-term purposes**.

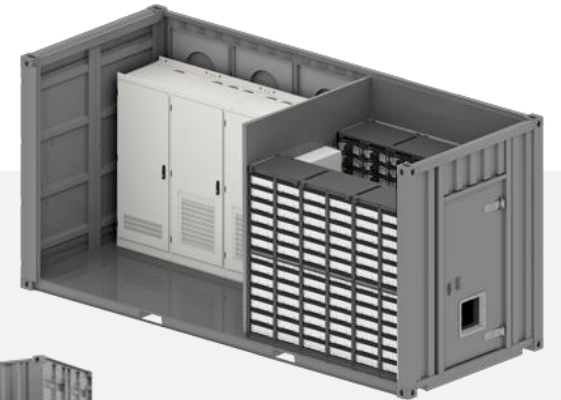
Solar GEM®

74 kWc solution, is pre-assembled and has optimized and pre-wired solar panels



Storage GEM®

0,2 to 1,5 MWh of storage in a 20-foot High Cube container.



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