



Energywith Energy Storage Solutions for a Sustainable Future



· The information in this brochure is current as of March 2024.
 · Service contents are subject to change without notice.
 · While the examples presented in this brochure are based on actual results, they do not guarantee similar outcomes during practical use.

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No, definitely not. There are many different types, but each storage battery has its own features and advantages or disadvantages. They include our Tuflong LL. This battery is large and heavy so it isn't suitable for your smartphone so it isn't suitable for your smartphone, but it offers superior safety and recyclability while emitting minimal CO₂ during its lifecycle, making it clean and eco-friendly. Tuflong LL. This tough, long-life storage system maximizes the potential of renewable energy generation, which is easily affected by seasons and weather, and provides a wealth of solutions for realizing a more sustainable world.

Are you ready to try Tuflong LL?



There are so many types of storage battery.

But aren't they all just basically the same?

Building a decarbonized economy while recycling resources

Create a Sustainable World with Tuflong LL

Made in Japan

Energywith
Tuflong LL production

Remote monitoring enables installation in isolated areas.
See question 3 on page 8

Can be installed in locations where firefighting services are limited.
See questions 2 and 3 on page 8

Recycled materials

The battery contains no hazardous materials, allowing installation in a wide range of locations.
See question 5 on page 9

Use the rooftop of storage battery buildings effectively.
See case 3 on page 7

Combine battery storage with renewable generation to provide everyone with clean energy.
See case 1 on page 7

Fire resistance enables installation in high-density residential areas.
See question 2 on page 8

Emergency backup power source that creates disaster-resilient and sustainable communities.
See question 6 on page 9

Reduce electricity bills in hospitals, schools, public facilities and factories.
See case 1 on page 7

Storage battery installation

Install Tuflong LL under solar panels to use land more efficiently.
See question 5 on page 9

Reduce electricity bills in stores.
See case 1 on page 7

Use Energywith's one-stop service for installation proposals. Minimize cost and effort.
See case 2 on page 7

Tuflong LL operation

Collection of used Tuflong LL systems

Nearly 100% recyclable

Zero landfill waste

Taking responsibility, from manufacturing to collection for recycling.
See question 1 on page 8



To develop Tuflong LL, we drew on our vast experience built up working with storage batteries over more than 100 years. This product now has a proven track record of more than 20 years in the renewable energy market.

Item	Battery type	
	LL-WS	LL-G
Maximum discharge rate (C ₁₀ A)	0.6	1.0
Maximum charge rate (C ₁₀ A)	0.3	0.6
Expected service life* ¹	Cycles	4,500* ²
	Years	Approx. 17* ²
Expected service life* ¹	Cycles	5,250* ³
	Years	Approx. 20* ³

Compatible with renewable energy applications

Tuflong LL can be used even when not fully charged (partial state of charge, or PSOC), allowing charging and discharging at any time. It can be used to even out fluctuations in renewable energy generation, enabling effective use of electricity, and to adjust for imbalances between supply and demand.

Long-life, high-cycle performance

The expected service life*² of Tuflong (LL-G) is approximately 20 years*³ with a cycle rate of 5,250.*³

High input/output characteristics

The maximum charge rate of Tuflong (LL-G) is 0.6 C₁₀A, while its maximum discharge rate is 1.0C₁₀A.

Usable at normal temperatures

Tuflong LL can be used without air conditioning when the ambient temperature is between 0 to 40°C.

Superior safety

The aqueous solution used as the electrolyte in Tuflong LL is not classified as a hazardous material under Japan's Fire Service Act.

Multi-purpose system

Tuflong LL can be used as backup power source in emergencies.

Proven track record of over 20 years in the renewable energy market

Fault detection via remote monitoring

Recycling of main components

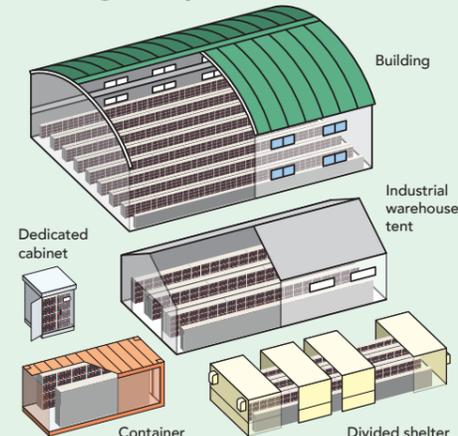
No refilling or measuring of specific gravity

*1: Expected service life refers to the design life we have estimated for Tuflong LL based on tests performed under fixed conditions. This period may vary depending on operating conditions and is not a guaranteed value. *2: The figures for years and cycles are expected values based on tests we have performed under operating conditions (temperature: 25°C, depth of discharge: 70%, discharge current: 0.175 C₁₀A, charging under specified conditions). (Depth of discharge (DOD) is an index indicating the percentage of a battery's capacity that is discharged. It is calculated based on accumulated current after setting the fully charged state to 0%.) *3: The figures for years and cycles are expected values based on tests we have performed under fixed operating conditions (temperature: 25°C, state of charge: 30% to 90%, discharge current: 0.1 C₁₀A, charging under specified conditions). (State of charge (SOC) is an index indicating the percentage of a battery's capacity that is charged. It is calculated based on accumulated current after setting the fully charged state to 100%.)

Configuration Example for Tuflong LL System

Output (kWh)	Effective capacity (kWh)	Installation type	Main applications
25~50	100	Dedicated cabinet	Municipal facilities, small stores, hospitals
50~100	~350	20 ft container×1	Large stores, general hospitals, hotels, condominiums, small to medium factories
100~200	~700	40 ft container×1	
200~300	~1,400	Divided shelter or 40 ft container×2	Factories, logistics warehouses
300~500	~2,100	Divided shelter or 40 ft container×3	
500	2,000	Industrial tents, buildings, etc.	Electric power companies
1,000	4,000	Industrial tents, buildings, etc.	
10,000	40,000	Industrial tents, buildings, etc.	

Housing Examples

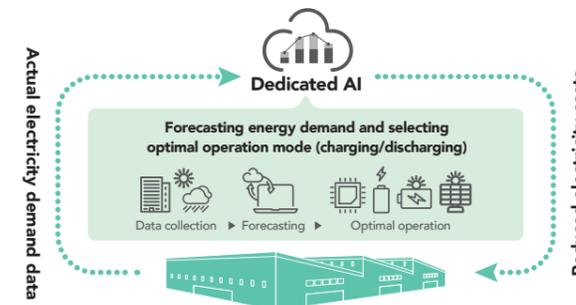


CASE STUDIES



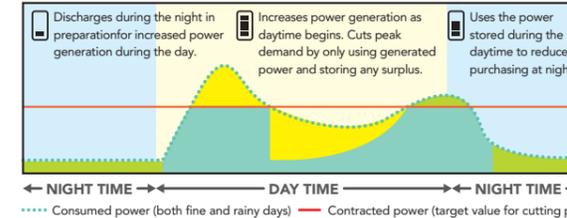
CASE 1 How Can We Cut Daily Energy Costs?

We are thinking about installing solar panels but are worried about whether it will really reduce our electricity costs... especially since solar power is affected by the weather.

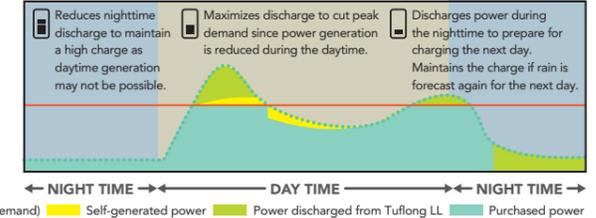


The Tuflong LL system will store surplus power for use if you have a shortage. This helps to reduce your electricity costs (basic and metered charges). We can propose an optimal storage system using an individual simulation based on your current energy costs and usage. Tuflong LL is an excellent complement to solar and wind power systems, which are easily affected by weather conditions. The system automatically controls operation using our proprietary demand prediction model trained on weather forecasting data. This allows it to consistently minimize your costs.

Forecasts for Fine Weather



Forecasts for Rainy Weather



Consumed power (both fine and rainy days) Contracted power (target value for cutting peak demand) Self-generated power Power discharged from Tuflong LL Purchased power

CASE 2 What about Installation and Operating Costs?



Even if electricity costs are lower, it's meaningless if initial and maintenance costs are high.

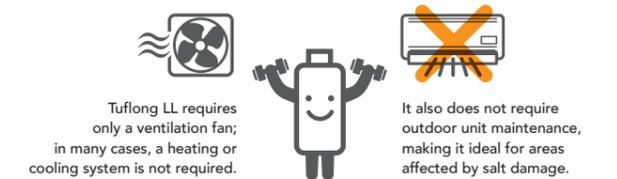
We can create a customized proposal to minimize costs throughout the total lifecycle of your system, from initial investment to operation and final disposal. Our team will even collect your used batteries, saving you time and effort as well as money.* By taking full advantage of Tuflong LL's ability to

operate at room temperature, you can reduce the need to invest in air conditioning systems, lower electricity costs, and minimize operational expenses.

* Business operators must dispose of their own industrial waste (Article 11, Paragraph 1 of the Waste Management Law)



Minimize Installation and Operating Costs



CASE 3 Can We Install a System in a Basement?



We don't have any more space at ground level. But isn't installing in a basement dangerous? We also sometimes use open flames in our store.

Lithium-ion and NaS batteries contain hazardous materials, and there are laws requiring systems to be installed at a safe distance from public facilities once they reach a certain size. Tuflong LL does not use any such materials specified by Japan's Fire Service Act and is not subject to these regulations. You have

a lot of flexibility in choosing where to install. We have already successfully placed systems in the basements of various commercial buildings. Alternatively, you can construct a new area for housing the batteries on the ground floor, for example, allowing the second floor and rooftop to be utilized for other purposes.

* The systems and regulations mentioned in this brochure are generally based on Japanese laws.

Questions and Answers

Q1

We hear that batteries are not really eco-friendly when you consider the whole life cycle from production to disposal.

Tuflong LL is almost 100% recyclable.

Used Tuflong LL units can usually be collected under wide area certification schemes, and almost 100% of their components are recyclable. Tuflong LL is produced and can be recycled domestically, contributing to sustainable resource circulation. This also ensures reliable procurement of materials and optimizes delivery lead times.



Recycling cuts CO₂ emissions by half.

According to our calculations, using recycled materials cuts CO₂ emissions* by over 50%, compared to manufacturing that uses only materials derived from mineral sources. Our well-established recycling scheme is already helping to achieve a decarbonized economy.

*Source: Reference materials provided by Boliden mining and smelting corporation, based in Sweden.

- Promote the introduction of renewable energy with Tuflong LL
- Eliminate concerns about waste disposal
- Use resources more effectively
- Reduce environmental impact

Q2

Even smartphone batteries can catch fire. Doesn't that mean energy storage systems are dangerous?

Tuflong LL's electrolyte is an aqueous solution and is not classified as a hazardous material under Japan's Fire Service Act.

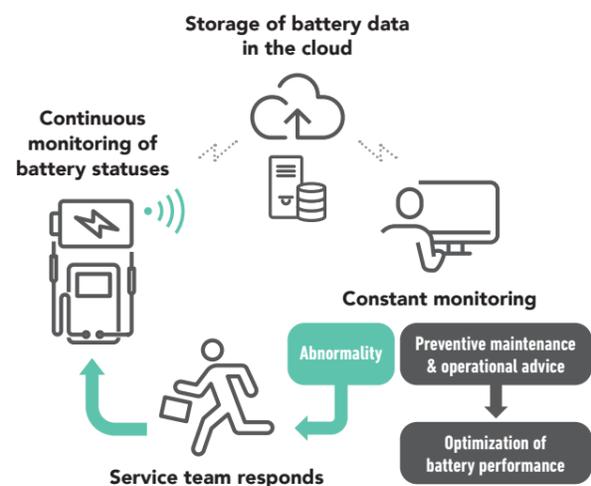
This means there is little risk of the system igniting from within or catching fire from the outside, so you can even use it in high-density residential areas. Backup storage batteries that include the same main raw materials as Tuflong LL are also widely used in applications for nuclear power generation, where reliability is obviously critical.

Q3

If a battery deteriorates or develops an issue, will it continue operating without letting me know?

The condition of the batteries is constantly monitored remotely.

- Rapid detection of problems
- Installation in remote areas
- Preventive maintenance and operational advice
- Reduction of maintenance costs



Q4

I don't really understand how the energy storage system works.

You can easily see the operating status.

The Tuflong LL system includes display software that helps you understand the operating status at a glance. You can check your generated and purchased power, as well as the charging level and charge/discharge status in real time. Tuflong LL also estimates the impact of reducing your electricity purchases and CO₂ emissions so you can more easily understand the results of installing the system.



*The above images are for illustrative purposes only.

We can provide customized proposals for each client.

"What kind of system is right for our business?" It's surprisingly difficult to know. We conduct solar power generation simulations based on meteorological information for the installation location. Then, we use your electricity bill and power consumption data to create a customized system proposal. In addition, operations will be optimized using AI control technology that can prepare for power outages and other emergencies based on disaster warnings.

Q5

Energy storage systems seem large. Are they difficult to install?

Tuflong LL offers solutions that work where other energy storage systems don't.

Under Solar Panels	Inside Buildings	Without Air Conditioning
The area required for batteries can be reduced by utilizing the dead space under panels	Large-scale installation is possible as the batteries do not contain hazardous materials	The equipment, operating and maintenance costs for air conditioning can all be reduced
There is no need to acquire new land when installing alongside existing solar power generation facilities	Upper floors and rooftops can also be used for other purposes such as panel installation	Even in areas prone to salt damage, there are no concerns about outdoor unit breakdowns

Q6

What exactly are Tuflong LL's selling points?

Tuflong LL is made in Japan and features outstanding safety, durability and recyclability. It has a proven track record for renewable energy applications that spans more than 20 years. Most of the time, the system operates in cost saving mode. However, during emergencies, it switches to BCP operation mode to prevent energy supply risks and avert critical situations. This is truly a multi-use energy storage system. Its BCP operation is based on the expertise we have gained during more than 100 years of working with backup batteries.



*The systems and regulations mentioned in this brochure are based on Japanese laws.