SmartEnergi®

Powering The World ™

# Frequently Asked Questions About SmartEnergi Power Assurance Service (SPAS™)

**Q: What is SmartEnergi Power Assurance Service (SPAS™)?**

**A:** SmartEnergi Power Assurance Service (SPAS™) is an energy and power resiliency service, which provides critical back-up or emergency electrical power supply service to private companies, hospitals, non-profit organizations, state, local and government agencies that are running critical operations or sensitive equipment that cannot be allowed to be disrupted due to planned or unplanned power cuts.

We provide clean, flexible automatic power backup services with instant-on (bulletproof) reliability to handle both short- and long-term interruptions of mission-critical electric power needs. SPAS is provided via our proprietary intelligent battery energy storage system (iBESS™) platform, which uses Lithium ion and Flow battery technology depending on client need. iBESS is integrated using purpose-built software for instant backup technology (*milliseconds switchover*), maintenance and monitoring.

The value of our solution to businesses, government agencies and hospitals include helping save lives, protecting critical data, protecting asset values, and preventing avoidable economic losses when electric power from the grid fails.

To ensure faster implementation and lower acquisition cost, SmartEnergi owns and installs the iBESS and requires no capital investment from the customer. Customers pay a small monthly subscription fee. Prior to signing to the service, SmartEnergi helps our customers undertake economic justification using our proprietary financial analysis software in order to see the savings that they can expect with our resiliency services. With SPAS™, customers now have a flexible, faster and cheaper way to achieve power resilience to support critical operations when power from the grid is not available. The SmartEnergi Power Assurance Service has major advantages over other power backup technologies:

- **Instant-on reliability.** SPAS's unique lithium-ion and flow battery backup technologies and software allows timely monitoring and preventive maintenance, as well as instant failover when disaster strikes.
- **Flexibility.** SPAS's clean technology can be installed inside or outside, making it usable in offices or apartment buildings where diesel generators would be impossible to deploy.
- **Scalability.** SPAS can handle both short- and long-term power interruptions, at scales as small as a critical appliance, or as large as a multi-tenant building complex, or a whole city requiring multi gigawatt-hour systems
- **Lower cost.** As a subscription service, SPAS minimizes company capital and maintenance costs, turning power backup into a safe and predictable operating cost.

**Q: What is the difference between iBESS™ and SPAS™ ?**

**A:** iBESS™ is the brand name for our intelligent battery energy storage system, which uses lithium-ion and flow battery energy storage with ***automatic backup technology*** built-in. SPAS™ is a brand name for our electrical power assurance service, which is delivered using iBESS™.

**Q: What Deployment Options Do You Have for SPAS™ and How Does it Work?**
**A:** SmartEnergi's design philosophy recognizes that in an emergency, not every power consuming equipment is critical. Moreover, every organization has its perception of what is critical. Therefore, we provide our customers with the flexibility to deploy our iBESS™ in one of the following ways:

1) Connect to specific appliances/devices.
2) Connect to specific electrical zone to provide resiliency service to all equipment connected to that electrical zone.
3) Whole building deployment to support electrical consuming devices in the building.
4) Whole community, city or micro-grid deployments supporting multi GWh power needs

For each of these deployment options, we have built automatic switch that enables our iBESS™ to automatically take over to provide power when power from the grid fails.

**Q: Can I move the iBESS™ around to power specific load in an emergency?**

**A:** Yes. Several models of our iBESS™ are designed to enable easy mobility. They have wheels under them to give users the option to easily move them around to power specific equipment.

**Q: Which iBESS™ model do I need?**

**A:** It depends on answers to the following questions:

(1) What are the critical or sensitive equipment that need immediate and non-stop electrical power supply in case of power outage?
(2) How many hours of power resiliency are required for each equipment?

Base on your requirements, our account managers can work with you to determine which models are appropriate for you.

**Q: Do I need an electrician to deploy SPAS™?**
**A:** It depends:

(1) No, you don't need an electrician if you just want to connect directly to the equipment (s) being provided the resiliency service. The iBESS™ can be installed as easily as an appliance. Plug it into the wall and it is ready to be used!
(2) Yes, you need a qualified electrician if you want to connect to specific electrical zones to power specific devices connected to the zone, to power the entire building, city or micro-grid. However, the installation is faster because the units already have built-in inverter. SmartEnergi will make sure properly trained electrician, if necessary, installs the iBESS™ .

**Q: I have a backup generator. Why do I need your service?**

**A:** If you already own a backup generator, our SPAS™ could be a nice complement to ensure that your critical operations are running without the fear of interruption.

Potential areas of risk that we can eliminate in this case include the following:

1) Extreme weather events that renders the diesel generator (which is located outside) inoperable.

2) In many cases, the diesel generator may have been installed a long time ago and over time, the load in the building increases. In some cases, the increase in the load is such that when there is a power failure and the generator is turned on, the excess generator load could blow out the entire unit, and leave users with no power when it is needed the most.
3) For those generators that are in good working condition, there may be a short time between the onsets of a power failure from the grid to when the generator comes on line. While this time may be short, perhaps as short as 10 seconds, critical operations cannot afford to be disrupted.
4) Sabotage or terrorism.

Other customers may face fuel shortages and may want to limit the use of the generator, and complement its functions with our iBESS™.

Nevertheless, it is important to note that generators have been proven to be unreliable when needed the most. For instance, in October 2012, New York Langone Medical Center was forced to evacuate 215 patients during Hurricane Sandy because the backup generators failed to turn on. According to the *Electric Power Research Institute*, backup generators fail 20 to 30 percent of the time. Even more concerning are reports from those in the frontlines of disaster recovery such as FEMA and the US Army Corp of Engineers indicating that failure of these backup generators can be as high as 50% when needed the most. Dan Zimmerle, assistant research professor at Colorado State University's Engines and Energy Conversion laboratory, and an expert on diesel engines notes the reason for the high failure rate:

*"It's not an issue with the actual quality of the generators. It's maintenance related. For instance, if you don't burn diesel fuel sitting in the tank, it will start to degrade and clog the fuel filters. Things that don't get used tend to fail.*[1]"

**Q: Can I use this service as a replacement for my backup generator?**

**A:** Yes. Diesel generators are generally expensive, noisy, polluting, may be an overkill for resiliency services, and may be vulnerable to sabotage or terrorism because it is usually located outside. More important, diesel generators have been proven to be unreliable. It is time for a more reliable modern clean Microgrid technology with instant-on reliability. We will work with you to determine how many hours or days of resilience your application requires, and choose the appropriate iBESS™ models to fit your needs.

Unlike diesel generators which are usually installed in the basement, our solution can be installed both outside or inside a building in plain site because they are noiseless and do not pollute. Additional advantage is that our solution can also be installed at higher elevations or indoors at any floor level, and therefore are able to remove potential risk of malfunction and expensive repairs should the basement be flooded during extreme weather events. The iBESS™ can be highly targeted to support specific critical application. We also have options to support large scale outdoor deployments.

**Q: When the iBESS™ energy is depleted what do I charge the iBESS™ with?**

**A:** The iBESS™ was designed with disaster management as a guiding principle, and the recognition that in an emergency, users need to be able to use whatever power source is available. Therefore, we designed the iBESS™ to be able to support charging with power from the grid, power from solar, power from portable wind turbine, and even power from a diesel generator.

---

[1] From an article by Maggie Koerth-Baker, "*In Backup generators we trust*?" https://boingboing.net/2012/11/02/in-backup-generators-we-trust.html

**Q: Can I use the iBESS™ for load shifting to lower my energy bills?**

**A:** Yes. Optionally, and based on customer preference, we can size a larger backup energy storage system to provide energy cost savings in addition to energy/power resilience. With this option, a portion of the available capacity can be dedicated to load shifting to save customers on their utility demand charges. For example, our system can be charged during periods of low demand and use a percentage of the stored energy to deliver electricity during periods of high demand in order to cut down on electricity bills. As result, this option enables our system to provide dual benefits: energy resiliency, primarily, with optional secondary benefit of energy cost savings.

Q: Would I be able to use the iBESS™ in the hot summer months in states such as Texas where it can get extremely hot?

**A:** Yes, the iBESS™ has a built-in fan to cool the unit down to enable you to use it to power your load, including powering air conditioning unit if needed. In the unusual event of a failed fan in an iBESS™ where the ambient and operating temperatures are extremely high, the temperature probe in the iBESS™ will sense and send a signal to the built-in alarm to beep, followed by automatic shut off of the iBESS™ to protect the unit and users.