



Rfusion R POWER UltraSolar Nano Technology
Solar Modules & RFusion-AMPOWR Battery Storage

July 28th, 2022

**R POWER Effective Solar System is
Unbeatable in Weight, Performance, and
Longevity. Breaking the Boundary Of Reality
For The Last Fifteen Years, Is Now Available
Commercially and Globally.**

Bold statement?

No, factual, proven, and totally 'Grunt Proof.'

Designed, created, and produced for specialized use by the U.S. Military for the last eighteen years, this evolutionary solar solution is the most efficient in the solar marketplace today.

RFusion has a solid history; it has not just been invented in a laboratory, never having seen the light of day and waiting for the investment to move forward, which you read about in glossy inert magazines and newsletters.

RFusion's American manufactured R POWER UltraSolar Nano Solar Modules Technology is the ***disruptive evolutionary*** element of our future in capturing efficiently, using **Mother Natures Sun, but more importantly, Light Waves.**

We have earned the right to share our expertise in developing grid-connected and off-grid photovoltaic power plants worldwide, including using **RFusion/Ampowr Lead Crystal Battery Storage.**

We are accelerating the next generation, which we have brought you today—manufactured future-proof **energy** collection and storage systems that are safe, powerful, longevity, and, importantly, reliable. **Now is the time to take charge in all senses of the word.**

From the point of collecting *light waves*, *R POWER UltraSolar Nano Solar Modules Technology* is genuinely disruptive, patented, and proven.

Power Conversion Efficiency is vital, and there is a radical productive difference between *RFusion* and anyone else in this market.

Clean Energy reduces dependence on fossil fuels, pollution, and waste from energy generation and consumption.

With dramatic rising fossil fuel prices, concerns about energy security and climate change, and ever-increasing demand for Energy worldwide, clean energy projects present solid investment opportunities. *RFusion* looks at the needs and longevity with the lifecycle necessary for the continuum of our markets and needs.

R POWER Solar modules have one job: They collect light waves and transform them into electricity. But they can make that Energy only when there is enough light, which in *RFusion's* case is majorly different.

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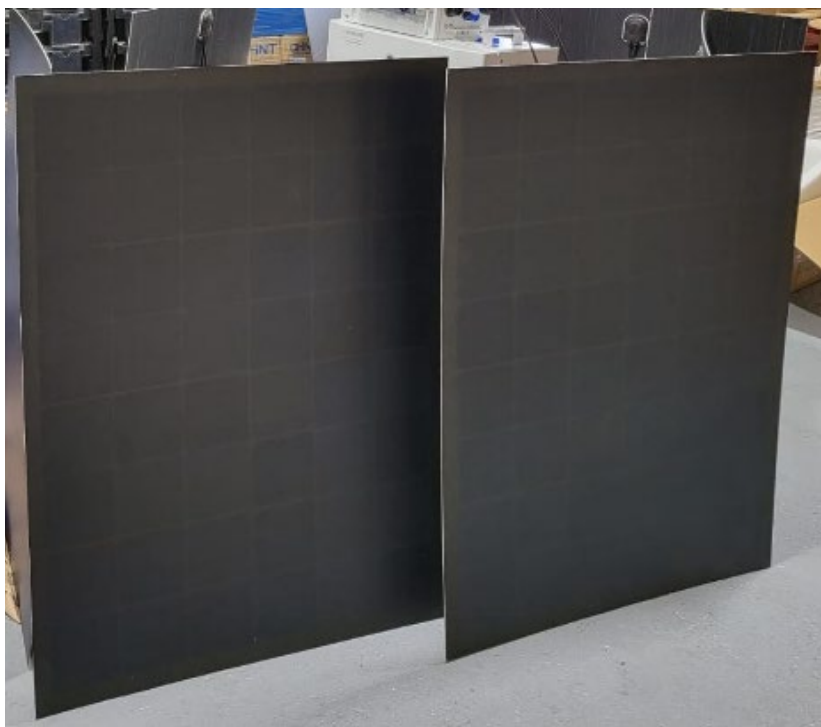
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RFusion R POWER UltraSolar Nano Technology Solar Modules are much more than just another solar module if you understand the principles of capturing light waves and securing transference.

R Power is one of the world's first integrators to use **non-glass**, UL-certified crystalline P.V. modules. The module's multi-layered structure provides excellent resistance to harsh environmental conditions, and the fluoropolymer front sheet protects the module from all chemicals.

Panel Specifications	
Rfusion Part Number:	RPC170
Panel Type:	Rigid Panel
Maximum Power (W): (+/- 5W)	170 W
Optimum Power Voltage (Vmp):	29.5 V
Optimum Operating Current (Imp):	5.75 A
Open Circuit Voltage (Voc):	35.0 V
Short Circuit Current (Isc):	6.01 A
Solar Cell Efficiency (%):	24%
Number of Bypass Diodes:	8
Number of Solar Cells:	48
Module Weight:	8.5 lb. (3.86 kg)
Solar Module Configuration:	6 x 8
Module Dimension (Open) (in):	43" x 32.5"
Module Area: (sf) (m ²)	9.7 sf; (0.9m ²)
Module Efficiency:	18.8%
Nominal Operating Cell Temperature:	45 °C
Temperature Coefficient (Current):	-0.27%/°C
Operational Temperature Range:	-40 °C to 70 °C
Maximum System Voltage:	600 VDC
Maximum System Current:	15A
Junction Box Type:	Amphenol
Connection Protection Degree:	IP 67
Connector Type:	MC4
Anti-Glare / Anti-Reflection:	yes



There is more to the *R POWER Solar Solution* than just a price per kilowatt, which is impossible to quote. It is a guesstimate, as the energy collection fluctuates daily. If someone mentions a cost per kilowatt to you, they really have no idea of energy capture and distribution.



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Let us give you all of the attributes of R POWER Solar Solution:

IP67, UL1703 certified, IEC61215 Resistance tested.

Weighing 8.5 lbs (3.856 kilograms)	Size: 43" x 32.5" (1.0922 meters x 82.55 centimeters)	Installed in the Vertical and Horizontal
The R POWER Solar Module is 0.118 inches (3mm) thin. Shallow profile.	RFusion's Solar Modules, on average, are 25% efficient. All other Chinese or Asian assembled solar panels average 15%.	RFusion Solar Modules are 24.4% more efficient!
North facing installed R POWER Solar Modules gather 88% light waves in the vertical.	There are no shading issues with eight blocking diodes that protect the R POWER Solar Module.	R POWER Solar Modules produce and collect Energy earlier and still collect after dusk.
The solar modules are inert, so they will not catch fire.	Serviceable via software, which only the client has control over. No other access is allowed, only when invited.	Simplest installation! Qualified electrician for final hookup. Power Grid or no Power Grid operation with battery storage.

Why may you ask do we achieve this? Simple, our solar cells are not flat; [they are undulated at all angles](#), so we capture light waves and photons. It is likened to using an onion dip with a potato chip, regular chips, it just slides off, and a crinkle-cut chip adheres to all surfaces. It is that simple!



That's why the ability to store Solar Energy for later use is essential:

It helps to keep the balance between electricity generation and your demands.

In simplest terms, energy storage enables electricity to be saved for use later when and where it is most needed—creating efficiencies and capabilities for your commercial facility, residence, and the electric grid, including reducing greenhouse gas (GHG) emissions.

Firstly you must install highly efficient solar modules that operate from first light and collect as much of these lightwaves as possible.

We have logically evaluated, created, designed, beta-tested, manufactured, and verified that our thoughts are not theories; they are the answer.

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Fossil fuel has been a profit center on the planet since we burned wood in our early habits of the caves. Villages opened up with a forest and a river; these attributes provided the sustenance to live a meager life.

It is 2022; for the last twenty-three years, senior members and owners of *RFusion* have dedicated their personal Energy, skill-sets, and experience to work harmoniously with infrastructure issues.

Sure, call us '*nerds*' with no life, but someone has to take the bull by the horns because the majority have no clue what is in front of them and are so out of touch and expect others to fix it, and not take their portion of responsibility.

Oil, gas, coal, and water have been our mainstay of Energy in modern times. The Middle East played its role, as they had the oil and gas assets the Western world carved out for them.

Yes, they had the primary volume until 1960/the 1970s, when both America and the U.K. started serious exploration for oil and found significant pockets of gas, which changed the competitive landscape. Australia found its immense gas reserves, and the list goes on with the discovery of more fossil fuels, which, as we know, cause issues with our atmosphere.

No, we are not '*Greenies*,' we know there is a better way of improving the energy infrastructure, and it is with **Mother Nature and Her S.U.N.!**



RFusion's advantage is that we are not subsidized or produce products using overworked and underpaid labor.

Globally, nations with foresight have recognized **[RFusion R POWER Vertical Hybrid Solar Microgrids and Nanogrids](#)** as the correct, practical, and speed approach. *RFusion* has proven technology and manufacturing implementation capabilities and is discussing license facilities to enhance the demands, **[using light waves and photons in the vertical](#)**.

Why Rfusion R POWER Solar Panels.

Glass panels require around 23 degrees elevation due to how light repels and reflects from glass surfaces. No angle is necessary with *Rfusion's* solar panels. They can be mounted vertically or horizontally.

However, an angle is beneficial in sandy environments to stop the panels from being buried in the sand. R POWER Solar Panels do not scratch, as do glass panels, which degrade the solar collection's productivity.

Our Solar modules are laminated with a patented lamination that provides dimples on the panel to increase the cell surface area, which means we can absorb more light.

They also are floatable and used in saltwater environments.

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The panels do not discolor or melt like non-glass panels as we do not use a resin adhesion system.

Lighter stronger. Moving single glass panels is a 2-man job due to glass weight and Health and Safety implications. Hence one person can handle the RFusion solar panel.

Our panels are reduced weight as we use no glass within the product.

Modules are sealed; nothing can enter the front or back to cause degradation to panels. Thus there is no accelerated degradation, a total non-event.

Cheaper panels die after 12-15 years when sold with a 25-year guarantee. Try getting warranties enforced 15 years later with cheaper panels.

The U.S.A. military has used these solar modules for the last 15 years.

We are 99% recyclable because we are non-glass.

You can use our modules to overlay existing panels when existing panels go faulty.

RFusion is the only company with a patented wraparound panel, i.e., they go cylindrically.

We have folding panels that are 1000's times foldable and not 50-100 folds like others.

Efficiency is up to 26+% due to quality. Most other panels are only up to 15%.

All cells are x-rayed individually before and after manufacture.

Flash testing determines the efficiency metric, and all panels are tested. Each panel is checked individually and not batch tested.

No earthing is needed. No P.I.D. (passive Inductive Degradation) No earth to maintain. This also means we do not produce static electricity stopping dust and sand from sticking to the panel.

We use multiple blocking diodes, so it will not take out the whole panel (think Christmas light bulb scenario.) No need to dispose of the entire panel.

We also do not suffer from early aging due to shading.

Weight approx. 1/4 to 1/2 less, depending on comparisons.

They are manufactured in the U.S.A. and designed in the U.K.

The focus is on expanding the **R POWER Solar Solution**, which is not just about solar panels; there is the need for quality, safe and productive battery storage and an installation (solar husbandry) that is proficient in attaining the goal of sustainable Energy.

China has caused many issues with their glass panels not performing as suggested; ask Australia about their national safety issues. Even solar farms are finding the pitfalls of Chinese-installed solar panels.

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RFusion's services, products, and solutions are connected on a thread continuum of **'Firsts and Benchmarks.'**

Energy storage enables Solar and Wind Energy the ability to generate electricity 24/7. The need to transfer Energy from daytime to nighttime is critical for solar Energy competing with fossil fuels. Once these costs of shifting electricity reach grid parity, it is likely that solar and battery storage will replace many of today's fossil fuel generators.



There are several reasons why alternative technologies have become a key topic in the energy storage industry. The need is greater now, and acceleration to reach grid parity coupled with solar, offpeak electricity, and battery storage.

Understanding that the key argument against lithium-ion is the inherent fire hazard the systems pose.

Several [lithium-ion battery fires](#) throughout South Korea and other global locations brought this safety topic to the forefront over the past few years. Lithium-ion sees annual degradation, both cycling and time-based on the technology side. This degradation can significantly impact the system as it progresses through its life.



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RFusion™-AMPOWR™ has unseated other battery storage aspects: fire safety, longevity, deep temperature acceptance, warranty, and return.

Available for all, even if you cannot install solar modules as you are renting or have no space to place solar panels.

36% of America's population resides in a rented or leased property, which, as we know, comes with restrictions. Do not forget *Home Owners Associations* who ban solar installations too.

The most significant aspect is when you move, it goes with you! Yes, disconnect and take to your new facility, no that you have never heard of before. It is here to ensure you have independent sustainable Energy for all emergencies and is cost-effective.







Welcome to **BESS**; she will be there 24/7/365, takes no sick days, never complains, and has complete control of your energy needs when others have lost their electricity, are left in the dark, cannot work, worry about the food in the freezer and connection to the Internet.

RFusion-AMPIHOME™ BESS

The **RFusion-AmpiHOME Battery Energy Storage System (BESS)** integrates the Inverter with the Battery Packs. Thanks to the proprietary cell and battery architecture, power electronics, battery management (B.M.S.,) and manufacturing methods, *RFusion-AmpiHOME* is a safe, reliable, long-life, and highly scalable on-demand power solution.

TYPICAL SYSTEM SIZE:

-  Inverter + 2 battery packs - 15.84kWh
-  Inverter 5.5kW each DC/AC (you can parallel connect 6 inverters 33kW)
-  Battery 7.92kWh each (you can parallel connect 13 battery packs 103kWh)
-  Max Storage 13 Battery Packs x 6 parallel inverters = 617.76kWh

GET TO KNOW RFusion-AMPIHOME™

The system's electrical interface provides a simple connection to any home or building. Its compact design achieves market-leading energy density. Smart cable connect points make it very simple and quick to install.

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If you have no access to solar modules, then the significant difference is you use off-peak electricity at a significantly reduced cost. Understand the only time you are using the grid power is to charge the *RFusion-AmpiHOME*, which is after it is used for emergencies, so it is not drawing any grid energy whatsoever.

FLEXIBLE MODULAR CONFIGURATIONS

Affordable energy storage systems that parallel connects to grow with your needs and applications.

STRUCTURE

All in one stackable Solar Battery Energy Storage System. Available for residential and commercial applications. The system uses non-toxic Nano Crystal NCPB batteries.

STORAGE

Each Inverter can parallel connect thirteen (13) battery packs per Inverter. Six (6) inverters can be parallel connected to provide a total capacity of $6 \times 13 = 78$ Battery Packs.

CONTROLS

Self-consumption and feedback to the grid. Programmable P.V., Battery, and Grid supply priority, built-in timer for different modes of on and off operation, Grid-tie, Off-grid, and Grid-tie with Backup.

COMMS.

Communication compatibility with USB, RS232, Modbus, SNMP, GPRS, and WiFi. Systems are supplied with an iOS monitoring Software and App for real-time status display and control.



GOODBYE DIESEL POLLUTION

Various forms of greenhouse gas emissions plague climate change, and diesel generators have increased air emissions, impacting human health and the food chain.

GET TO KNOW RFusion-AMPIDEN™

100% charged by renewable Energy, designed in a flat-pack configuration for transport into remote areas, and fully IoT ready for remote monitoring and control. *RFusion-AmpiDEN* is the perfect solution for diesel displacement. The system is designed to prioritize Solar & Battery while utilizing a generator for last-resort backup.

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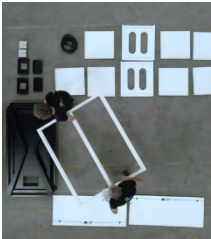
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HELPING HOMES TO STORE SURPLUS PV ENERGY

The customer benefits from a system that can reduce electricity costs by as much as 80% and move towards grid independence.





STRUCTURE

All in one flat-pack IP65 rated Solar Battery Energy Storage System including all components, fittings, and tooling designed for simple, quick, and remote installation. Suitable for large residential, commercial, and industrial applications.



STORAGE

Flexible configurations utilizing 99% recyclable lead-based Crystal Batteries or choose Nano-Crystal NCPB or NCTB I

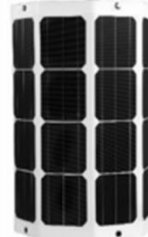
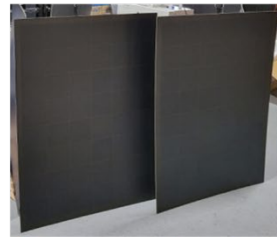
Our Commitment to Sustainable Energy via R POWER Solar Modules and RFusion-AMPOWR Battery Storage for America.

Book a ZOOM Conference for a meaningful discussion.

R's

Nicholas Ashton

Nicholas Ashton
President,
RFusion L.L.C.



RFusion is the Global Heartbeat of Proven Solar & Battery Progressive Storage & Reusable Energy



Up to 3,500 cycles



3,500 to 10,000 cycles



10,000 to 30,000 cycles



Cycles based on Battery Selection



Home energy storage from 15.84kWh per system



Industrial energy storage Up to 86.4kWh per system



Outdoor energy storage Up to 57.6kWh per system



Containerised ESS 0.1MWh to 100+MWh

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The Technology Core of Effective Efficient Renewable Energy/Storage!

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