



Panasonic

SUSTAINABLE ENERGY SOLUTIONS
Powering industry with
clean energy

How do we move toward sustainability?

Renewable technology is the answer

There's no way around it: we require electricity to live, work and play. But that need doesn't have to come at the cost of sustainability.

At Panasonic, we're inspired by the power of renewable technology and are tapping its potential to solve our growing energy needs. With each passing year, we continue to improve technologies that bring a brighter, more eco-responsible future a little closer. If you're thinking solar is the key, you're right, but that's only the beginning of our story.

Opportunity burns bright

For two decades, Panasonic has been working with city planners, industry leaders and utilities, as well as builders and architects, to revolutionize the solar energy industry. Breakthrough panel materials and system design have led to record-setting efficiency. That's good news for the environment in itself, and even better news when you see the related technologies we're developing alongside it:

- Solar tracking systems that make the most of every ray of sun
- High-density lithium-ion batteries
- Flexible, bendable batteries that eliminate product design barriers
- Smart, connected cities that create their own energy
- And much more



Tesla, Ericsson, Gulf Power and Sonoma Raceway are creating a more sustainable future with help from Panasonic.

Sustainable Energy has never looked better

Top to bottom, a better panel

The world keeps asking more of solar, but advances in solar panel efficiency have been hard to come by. Fortunately, the heterojunction (HIT) technology found in Panasonic's panels offers some distinct advantages, allowing for higher energy output:

- Ultra-thin, amorphous silicon layers retain and absorb more sunlight
- An ingenious bifacial design captures light from both sides of the panel
- A unique interior structure reflects less light out
- Advanced solar tracking systems optimize the panels' angle throughout the day in enterprise-level deployments

More light in and better use of it means fewer panels to install and greater cost savings.

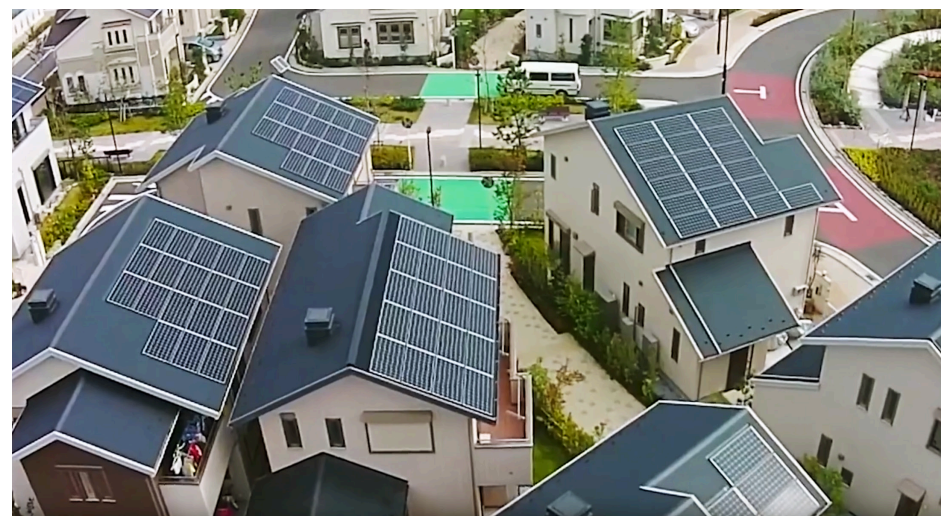


How solar is helping cellular

Information and communication companies face many energy challenges: power-hungry infrastructure, obsolete backup systems and demand that grows exponentially. To reduce operating costs, Panasonic has customized a suite of solutions combining Li-Ion batteries with solar modules and centralized management software to offer tower operators energy efficiency and enhanced reliability.

Demand-side capabilities redefine the power grid

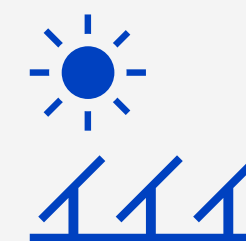
Panasonic's storage solutions solve issues of excess electricity generated by large-scale renewable energy projects. They're helping meet peak demand on hot days, and when equipment is damaged by storms or suffers mechanical failure. Beyond providers of sustainable energy, traditional power plants can also benefit from our energy storage systems, eliminating the need to build new facilities to handle growing peak demand.



> SUSTAINABLE ENERGY

+ World's most efficient solar

Stand outside on a clear day and you can't help but marvel at the power of the sun. The trick, though, is how to convert more of it into electricity. Nonstop R&D has led us to a record-setting solar cell efficiency of 25.6%. To us that's just a milestone, not our destination.



1 BILLION SOLAR
CELLS

Cumulative production
of Panasonic solar cells

Improving how the U.S. lives and works

Solving challenges coast to coast

Throughout the country, Panasonic is collaborating with utility, public and private partners to plan, finance and complete game-changing sustainable energy programs quickly and efficiently.

In Tulare County, California, for example, a 34-megawatt solar installation will serve 9,000 homes.

And at Eglin Air Force Base in Pensacola, Florida, and two nearby Naval Air Station landing fields, 1.5 million Panasonic solar panels will generate 120 megawatts for Gulf Power, enough electricity for approximately 18,000 homes each year. As one of the Sunshine State's largest solar projects, it's a model for future public-private sector renewable energy initiatives.

Sustainability on every street corner

As a leading partner in our CityNOW program, Denver has adopted a holistic, integrated approach to clean energy solutions. Starting with energy and sustainability analyses, the city has made plans for solar panels, battery storage, smart buildings, energy efficiency technologies, demand-side management and microgrid applications.

The future vision includes bus shelters that power themselves, electric vehicles that drive themselves, and street lamps that dim when not in use to conserve energy. The city's Peña Station NEXT is serving as a proving ground for these and other smart and sustainable technologies, transforming the airport and rail station into an ultra-modern connected community.

Powering electric vehicles

Out in the Nevada desert at the Gigafactory, Tesla and Panasonic have partnered to mass-produce lithium-ion battery cells that will be used in energy storage products and Tesla's Model 3 vehicle.

Flexible by design

What if a battery could be bendable? What if it could be made thinner? Panasonic is answering those questions, and the needs of modern industry. Our revolutionary flexible Li-Ion cells safely retain their storage properties even when repeatedly twisted, making them ideal for wearable devices. And at about .55 mm thick, they can power devices thin enough to slide into your wallet, like smart keys.

25.6% EFFICIENCY

World's highest solar cell conversion efficiency



> Technologies that move us toward a better life and world

At Panasonic, we anticipate the future, innovate continuously and integrate disruptive technologies into breakthrough solutions for our customers. Our goal? Create technologies that move us toward a better life and a better world. We provide integrated solutions in these four areas:

Integrated Supply Chain solutions that bring intelligence and insight to how products are made, shipped and sold

A Connected World that meets today's information, connectivity and mobility needs

Immersive Experiences that turn live events into unforgettable, personalized experiences

Sustainable Energy that advances eco technologies and transforms industries

Learn how Panasonic can help move your business forward.

na.panasonic.com/ca