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THE MAGAZINE FOR  
24 HOURS OF SUN.

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# JOIN THE FORCE.

ENERGY SECTOR INTEGRATION FOR A  
WORLD WITH 100% RENEWABLES.

100% renewable  
energy is already  
a reality

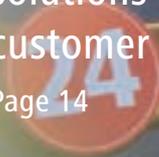
Page 8

Commercial inverters:  
does bigger always  
mean better?

Page 10

Individual storage  
solutions for every  
customer

Page 14



24 hours of sun is the vision of a future powered by 100% renewable energy sources. In order to make 24 hours of sun a reality, we need technologies and solutions that help us to more efficiently produce, store, distribute and consume renewable energy. At Fronius, we work towards this goal every day.

## Dear readers, Join the force – Be 24 hours of sun!

This is our call to action: We would like to invite you to actively take part in the energy revolution. The change in our energy system affects us all. However challenging it might be, the time we live in is also very exciting and promising.

On the one hand, there is digitalization which is demanding a great deal from all of us. It is urging us to alter the way we think and to make quick yet reasonable decisions. On the other hand, our time also bears many good opportunities, such as the decarbonization of our power industry. In the course of the consolidation of electricity, mobility and heating, also known as energy sector integration, it will be possible to once and for all bid farewell to fossil fuels.

At Fronius, we try to make the most of the opportunities we are given. Our goal is to do the right things the right way, so we can follow a more sustainable path towards a world with 100% renewable energy sources.

That is what we call 24 hours of sun – the vision that drives us. We cannot realize this vision on our own – we need your support. There are many ways for you to be 24 hours of sun. By storing energy for example. Read more on this topic on our article on storing solar power.

Welcome to the force!

I hope you enjoy the first issue of **24 – the magazine for 24 hours of sun.**

Yours,  
Martin Hackl



Head of Business Unit Solar Energy





## WHY WE SHOULD TAKE A HOLISTIC APPROACH TO SUSTAINABILITY

# SUSTAINABILITY – JUST ANOTHER EMPTY PHRASE?

The concept of sustainability is becoming increasingly more relevant, from grocery shopping to choosing energy suppliers and even in our workplaces. Many companies are singing the virtues of sustainability, but alas this all too often consists of big words that fail to be backed up with physical action. Fronius is truly committed to sustainability. With our vision of 24 hours of sun and a world in which 100% of our electricity needs are met through renewable energy sources, achieving a sustainable energy supply has become one of the main reasons for our very existence. But is it enough? Does having a grand vision and being a part of the renewable energy sector really give us a right to call ourselves sustainable? Or do we need to do more? And if yes, then what does this mean for our company?

The energy revolution is a decisive step in the battle against climate change and renewable energy technologies are the key. The end goal is a sustainable energy system – which Fronius calls 24 hours of sun – which will propel humankind into a worthwhile future for us all. Ultimately that also means that the energy revolution itself must be a completely sustainable process. It is not enough to simply do the right thing. We need to do the right thing in the right way!

Generating energy from renewable sources must therefore be treated as a holistic concept. This means considering factors such as the origin of materials, the sustainability of supply chains and the working conditions of those employed in the industry. If we do not take this approach, we will create simply another unsustainable system.

Some companies are already claiming to be 100% sustainable. Most of the time this claim is rather questionable, since anyone who wants to be truly sustainable soon discovers that it is almost impossible to be so in our industrialized world. This is not simply because sustainability costs a lot of money, but mainly because, as both people and compa-

nies, we are all currently part of a system that is not sustainable. Attempting to completely detach yourself from this system can only be a long-term goal at the moment.

At Fronius, we recognise that sustainability is a process that will take decades to complete and one in which energy will play a key role. Based on a corporate identity where sustainability is one of our five core values, we never lose sight of the overall picture as we actively drive this process forward. This means that Fronius will not become sustainable overnight, but each day will take another step towards our goal: from the renewable energy systems at our sites to supplying our staff restaurants with local produce and honey made on company premises, not to mention the continuous adoption of electric models for our fleet of company cars. We only process conflict-free minerals in accordance with the Dodd-Frank Act, manufacture our products in Austria's high-wage economy and have produced an award-winning sustainability report.

As a manufacturer we naturally place a great deal of emphasis on the sustainability of our products and solutions. The



*Fronius site with geothermal field in Thalheim, Austria*

traditional Fronius formula for success of high-quality goods with long service lives is more than just a selling point for us, but a way of conserving resources.

Fronius takes an exceptional position when it comes to our support services. While many manufacturers in our industry neglect this area, producing inverters that are meant to be disposed of, we stay true to our philosophy, operating repair centres across the globe for fixing defective devices. As well as this, we save thousands of service kilometres (and the associated travel time) for our installers every year with the Fronius PC board replacement process, which al-

lows trained installers to repair defective devices on site. In the ideal scenario, a service technician will not even need to attend in the first place if a problem can be rectified through a remote software update. In this sense, sustainability does not have to mean going without, but can instead mean efficiency, cost reduction and creating more value for the customer.

Doing the right thing in the right way is how Fronius tries to approach matters both large and small. It is important because sustainability has many shapes and forms. Only a holistic outlook can pave the way to a sustainable future.

We all have to play our part, whether as a company or an individual. That is also one of the fundamental principles underlying our vision of 24 hours of sun – it is about doing whatever you can to make the world a better place.

*Canteen at Fronius site in Pettenbach, Austria*

## ELECTRIFYING HEAT AND MOBILITY

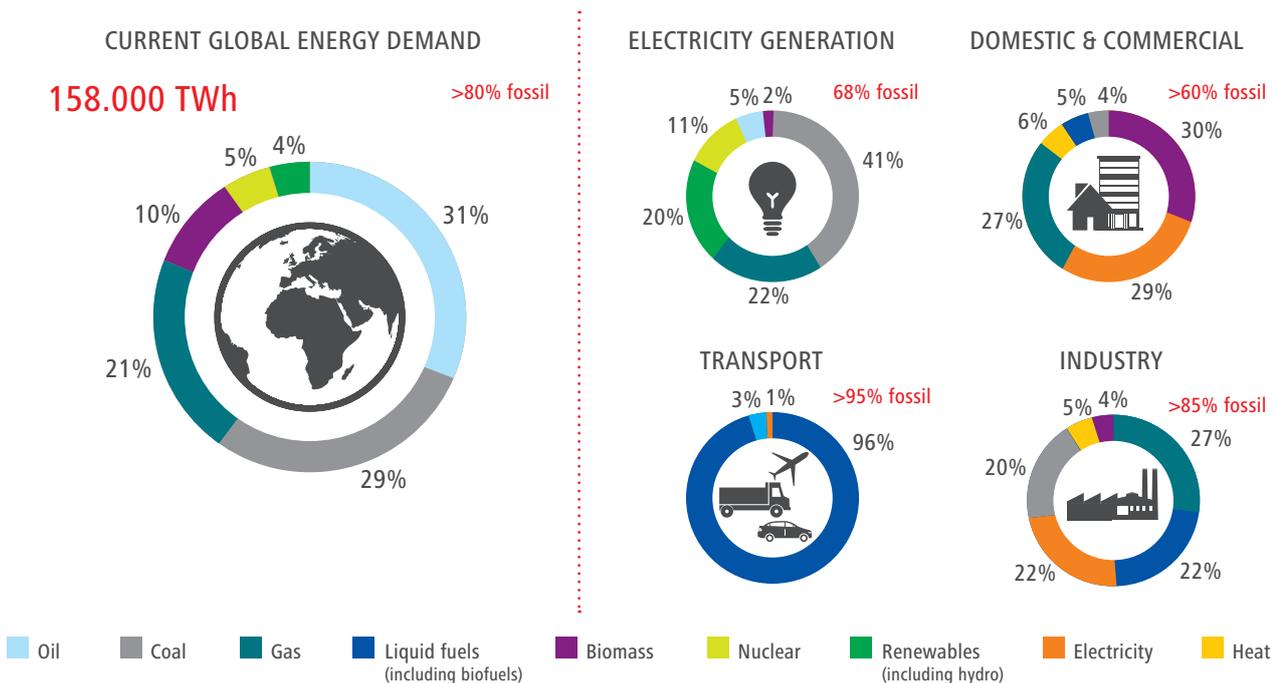
# 100% RENEWABLE ENERGY IS ALREADY A REALITY – AND OFTEN PAYS OFF

The energy revolution means one thing above all: replacing coal, oil and gas with renewable energy. However, it's not just a question of generating electricity in a renewable manner – although this is, of course, an important element. At the same time, all fossil fuels that are currently used in mobility, industry and private homes need to be replaced by electricity, which, in turn, also needs to be generated by renewable means. This linking of our energy systems – known as integrated energy – is the key to making Fronius' 24 hours of sun vision a reality.

Replacing fossil fuels with renewable alternatives requires huge change. There is set to be enormous demand for renewable electricity, and we can expect there to be massive expansion in the renewable energy sector in the coming decades, particularly for wind and solar energy. At the same time, a switch in energy usage towards the electrifica-

tion of mobility, heat generation and industry is also required. In-depth research is being carried out in the industrial sector – into the generation and use of green hydrogen, for example – and the initial signs are promising (you can read more about the topic of hydrogen on page 12.) In the home sector, however, the required technologies are already

### FOSSIL FUELS AND RENEWABLE ENERGY SOURCES: SHARES IN ENERGY SECTORS WORLDWIDE



Data source: International Energy Agency, Key World Energy Statistics 2015 and World Energy Outlook 2015



dy available, affordable and, often, also make a lot of sense from an economic perspective. In the area of mobility, the switch from combustion engines to electric drives is already in full swing. Prices of electric vehicles are falling rapidly and increasing numbers of drivers are taking an interest or even buying them. For the first time, property owners are also now able to take charge of decarbonising their own personal mobility: with sufficient photovoltaics on the roof and an intelligent charging infrastructure in their garage, many are now able to use electricity for most of their daily transport needs.

There are even more appealing opportunities in heat generation. Here, the Fronius Ohmpilot, for example, enables excess energy from PV systems to be used to produce warm water, or operate heating panel and other ohmic consumers. This means the sun is your heating system and also puts decarbonisation into the hands of the homeowner. On top of this, PV heat is financially beneficial. In countries with low feed-in tariffs, this is solely based on the savings made on energy costs, with investments often paying for themselves after just three to four years. There is also a general cost benefit in that the use of PV heat

prolongs the service life of conventional heating systems. This is simply because heating systems that use PV heat don't need to start up as much, if at all, between spring and autumn so they are subject to less wear. Depending on the specific situation, this can help prolong the service life of the heating system by 20 to 30 per cent; in the best case, in a low-energy house for example, it might even be possible to double the service life. All this saves thousands of euros in the process.

In private homes, there is also a wide range of possibilities available today (to see how this looks in a real-world operation, see page xx.) For installers, this means a whole host of exciting potential applications in new business areas. In order to make use of these, however, it is necessary to embrace new technologies and to think beyond the boundaries of the industry. Manufacturers like Fronius are helping to expand upon the know-how required by providing relevant training programmes. And it goes without saying that this is being done with smart solutions that optimise the use of energy in private homes and provide a genuine and clearly perceptible added value for end customers – just like the Fronius Ohmpilot.

## IT PAYS TO TAKE A CLOSER LOOK WHEN SELECTING YOUR INVERTER DOES BIGGER ALWAYS MEAN BETTER AND CHEAPER WHEN IT COMES TO INVERTERS?

If you are looking for a high return on investment (ROI) from your project in the long term, it's not enough only to look at the purchase costs of the inverter. The initial costs of the whole system and the operating costs over its entire service life are what really make the difference. The comparative study about a PV-System in northern Italy revealed what will be surprising results for many.



A PV project always begins with system design. During this process, the planner takes a series of technical decisions, both general and relating specifically to the system components. CAPEX (capital expenditure) plays a key role here. CAPEX for a PV system includes the costs for inverters, PV modules, labour and BOS (Balance of System) costs etc. Here, the inverter usually makes up less than 10% of the CAPEX, but, nonetheless, does have a significant influence on the operating costs and the ROI of the PV system.

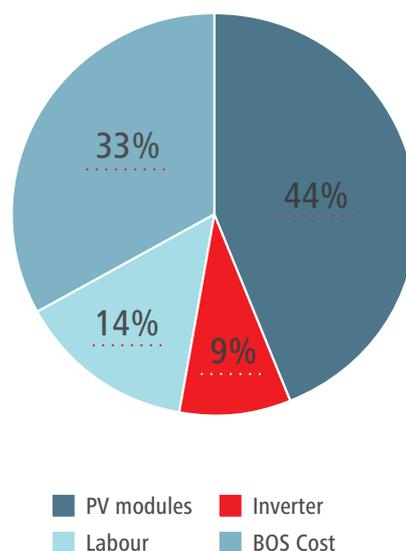
This is also evident in the present case, where it shows that the Fronius Eco 27.0 (27 kW), compared with a competitor's 60kW device, can achieve a cost advantage of up to 62% in some aspects of BOS costs. The saving is the result of differences in cabling design and the components required for the AC and DC distribution. The Fronius Eco does exceed the 60 kW unit in a cent-per-watt comparison, however, the saving in the overall system costs that can be realized through reducing BOS costs make the Eco the more cost effective choice.

The Eco also comes out on top in terms of the OPEX costs (operational expenditure). Among other things, this is attributed to its active cooling technology. Compare the Eco to passively cooled devices that need to have the cooling element cleaned at least twice a year (if this is not done, owners risk invalidating their warranty). For the Fronius Eco, just one maintenance is recommended once a year. This is an important factor given the costs of servicing. This can also be seen in the event of technical problems, where the Eco is again a significantly better value. While faults with the Fronius device can be rectified immediately and on-site by a Fronius Service Partner replacing the PC board, the heavy 60 kW device needs to be replaced in its entirety. A full replacement is already expensive, but the weight of the device also means that at least two service technicians and, depending on the installation location, tools such as lifting

platforms are required. This can lead to considerable cost increases.

Ultimately, the expected energy yield is an important factor and the Eco doesn't fail to impress here either! According to the yield forecast, over the course of 15 years in a 400 kW system, the Eco generates up to EUR 41,000 more yield than a competitor's passively cooled 33 kW device subject to the same monitoring. In this case, the additional yield is attributed to the Fronius Eco's considerably superior power derating behaviour in summer temperatures.

This clearly shows that bigger is **not** automatically better, and is often more expensive. System planners that - instead of focusing on the inverter price only - take into account CAPEX, OPEX and energy yield can significantly increase the system's ROI.



CAPEX of a 400 kW installation

## THE KEY TO GREEN MOBILITY AND HEAT

# HYDROGEN AS THE ENERGY SOURCE OF THE FUTURE

Hydrogen as an energy source – to many people that still sounds like something out of science fiction. But for the past 15 years, Fronius has been working on science fact: researching the potential of H<sub>2</sub> for 24 hours of sun, our vision of a world powered by 100% renewable energy. We asked expert Thomas Rühlringer why the company still believes in the importance of hydrogen for the future of energy. In our interview he describes the potential that hydrogen has to offer, particularly in the commercial and municipal sectors.

### MR RÜHRLINGER, WHY IS FRONIUS STILL RESEARCHING HYDROGEN? DIDN'T E-MOBILITY MAKE HYDROGEN REDUNDANT A LONG TIME AGO?

Quite the opposite! When we speak of electric vehicles, we also include those running on electricity generated from hydrogen and oxygen using fuel cells. The combination of hydrogen and batteries enables the respective advantages of both technologies to be harnessed and will play an important role in achieving 24 hours of sun. Hydrogen also helps to bring renewable energy to the mobility sector, allowing the use of fossil fuels to be gradually eradicated over time.

### WHY IS USING HYDROGEN AS A FUEL ADVANTAGEOUS FOR E-MOBILITY?

The use of H<sub>2</sub> means shorter refuelling times and increased range for e-mobility vehicles, making it increasingly competitive in comparison to fossil fuels. Furthermore, waste heat is an inescapable by-product when hydrogen is generated (electrolysis uses electricity to generate hydrogen and oxygen from water) and consumed (a fuel cell turns hydrogen and oxygen back into electricity and heat). For the commercial sector in particular, this heat can be

harnessed very effectively. Fronius is also researching the possibility of using hydrogen for the seasonal storage of renewable energy.

### SO, HYDROGEN IS A REAL ENERGY-SECTOR INTEGRATOR! WHAT MAKES THE SOLUTIONS FROM FRONIUS SO SPECIAL?

Using hydrogen for mobility is nothing new. Hydrogen refuelling stations where you can refuel an H<sub>2</sub>-powered vehicle already exist. But most of these systems rely on hydrogen that has been generated using fossil fuels, which does nothing to help decarbonise our energy system! As an expert in photovoltaics, Fronius will develop and offer holistic, sustainable solutions in this field.

### WHAT WILL THOSE BE?

One pilot project is already being implemented – an in-house refuelling station for commercial and municipal vehicles at the Thalheim site in Austria. Green hydrogen is generated from PV energy using a high-pressure electrolyser, which can then be used to refuel vehicles or be temporarily stored in steel cylinders. The system also offers the possibility of reconverting the stored H<sub>2</sub> back into electricity using a fuel cell.



*The H<sub>2</sub> fuel station at the Fronius site in Thalheim, Österreich*

**MR RÜHRLINGER, WHAT DOES THE FUTURE OF H<sub>2</sub> RESEARCH AT FRONIUS LOOK LIKE? CAN YOU GIVE US AN INSIGHT INTO WHAT IS GOING ON BEHIND THE SCENES?**

We believe that hydrogen has an important role to play and we are therefore researching different uses and components. This means that in the future it may be possible for homeowners to seasonally store PV energy generated in the summer for use in winter. Even though such projects are a long way from being a viable commercial solution, we're investing in them now. We don't just want to live through the energy revolution; we want to be one of its main protagonists in order to get closer to achieving our goal of 24 hours of sun.

Thank you, Mr Rührlinger.

Fronius is already a reliable partner in the energy revolution and would like to remain one – that's why the company is investing in research and innovation, thus playing our part in revolutionising our energy world. An in-house H<sub>2</sub> refuelling station supplying green hydrogen was just a dream not so long ago – now it is a reality. We are excited to see which ideas Fronius realises next.

## THE PATH TO MAXIMUM INDEPENDENCE

# INDIVIDUAL ENERGY-STORAGE SOLUTIONS FROM FRONIUS FOR EVERY CUSTOMER

Fronius offers bespoke energy-storage solutions to suit every need. Regardless of the living situation, financial means or preferences of the customer, Fronius can be relied upon to deliver the ideal solution – be it from laying the foundations for a future storage solution to installing a fully integrated Fronius system: the Fronius Energy Package.

Anyone who has visited Intersolar in recent years will have soon noticed that the solar trade fair has also become an energy-storage trade fair. What had previously been the main stomping ground of inverter and module manufacturers has now become an opportunity for battery and storage solution manufacturers to show off their wares. In fact, there are just as many energy-storage options on display as there used to be solar modules and inverters. This means that – once again – you are bombarded with numerous battery and storage brands offering different products and promising to provide the best solution. For both the installer and the end customer, this raises the question of which product and which solution is the right one for me?

Thankfully Fronius is on hand to help provide the answer – and an answer that is unique to each customer. Because, unlike other energy-storage providers, Fronius is not seeking to sell a “one-size-fits-all perfect solution”. Instead Fronius offers the widest range of options, allowing installers to find and offer solutions that match the individual situation and preferences of their customers. Fronius advises on everything from hot water tanks and compatible battery products from leading manufacturers such as LG Chem or BYD to a fully integrated solution from a single source: the Fronius Energy Package. The only thing these solutions have in common is that they have all made it through the most stringent Fronius quality tests. This means that the customer is not just buying a tested product from a leading manufacturer, but also a piece of Fronius security.

### DC-COUPLED STORAGE SYSTEMS

Fronius Symo Hybrid is compatible with LG Chem RESU and BYD Battery Box storage systems. These can be combined to produce competitively priced storage solutions for quality- and cost-conscious system owners.



### FRONIUS SYMO HYBRID WITH FRONIUS SMART METER AND SOLAR.WEB

Not everybody who purchases a photovoltaic system can or wants to immediately invest in a storage system. With a Fronius Symo Hybrid, a PV system can still be storage system ready, however. Combining it with a Fronius Smart Meter and Fronius Solar.web gives the customer the option of analysing their own energy requirements and usage. This information can then be used as the perfect basis for retrofitting a storage system at a later date.



### FRONIUS ENERGY PACKAGE WITH THERMAL STORAGE

The Fronius Energy Package with integrated Ohmpilot heating solution can maximise your rate of self-consumption to up to 100%. The unique system with thermal and battery storage combines maximum independence with the security of a fully integrated Fronius system.



### FRONIUS ENERGY PACKAGE

The complete storage solution offers the highest quality, unrivalled emergency power supply functions and reliable Fronius Technical Support in the event of a problem. Everything is supplied from a single source, giving you complete peace of mind.



### MODULE STRING-COUPLED STORAGE SYSTEMS

A Fronius Primo working in conjunction with compatible batteries from Solarwatt is also an exciting storage solution for single-phase markets.



### FRONIUS OHMPILOT: PV THERMAL STORAGE SOLUTION

Energy doesn't always have to be stored in a battery. The Fronius Ohmpilot makes it possible for the excess energy from your PV system to be harnessed by your heating system or boiler, presenting a low-cost solution that still leaves you the option of installing a battery at a later date.



WHAT I LIKE MOST ABOUT THE COLLABORATION:

**"FINDING THE BEST SOLUTION FOR  
OUR CUSTOMERS IS JUST AS IMPORTANT  
TO FRONIUS AS IT IS TO US"**

*Andrew McCarthy, founder and CEO of Gippsland Solar*

*„With the help of Solar.web, we know about system faults often before the owner even notices. That's great for customers because we can solve problems before they even realise they have one,”* explains Robert Kimmich, Elektro Brodbeck & Kimmich. *“And if it's a more serious fault, then the Fronius Technical Support Hotline is there to help. It's the best on the market.”*

For over 25 years, having a close relationship with installers has been essential to achieving maximum customer satisfaction at Fronius – and thus key to the success of both parties. Back in 2001, Fronius began constructing the Fronius Service Partner installer network. At the beginning, this was mostly about providing an after-sales service. Nowadays, the term “service” has become a more holistic concept, starting with the development of the perfect solution for the customer and leading up to after-sales support. For the end customer, this means the highest quality experience, while for the installer it means new opportunities and potential with a strong partner.

Installers all over the world have come to discover and appreciate the benefits of the Fronius Service Partnership. This consists of a combination of innovative products and services, efficient tools and processes, an extensive training programme, the fastest support service on the market and, last but not least, close personal relationships with the experts at Fronius. *“We only invest in projects with a long and successful lifespan. To realise this goal, we need partners we can rely on for decades to come. This is why we opted for Fronius for the megawatt system“*, means Roger Kanzenbach von Activ-Solar. *“Together we achieve a degree of customer satisfaction that neither Fronius nor the installer could accomplish alone,”* says Elöd Albert, head of the Fronius Service Partner network at Fronius International.

An example of this is the Fronius PC board replacement service, which makes it possible to rectify a problem with the inverter by replacing a defective component. That is a unique feature in the solar industry, as only Fronius const-

ruits devices designed to even make this possible. Of course, it also requires installers who have sent their service technicians on Fronius training courses – because these are ultimately the people who carry out the service. For the installer, PC board replacement is also very attractive because a defective device can be repaired immediately on site and with just one visit. It is usually much more complicated to replace or repair solar inverters and requires multiple journeys: one to diagnose the fault and one to actually replace the faulty device once the new inverter has been delivered. For the installer, this means much higher costs than is the case with PC board replacement. Most importantly, a faster and more reliable service means a happy customer, which in turn means follow-up business and recommendations. The result is win-win for all concerned.

Fronius also supports their partners with digital tools, such as the Fronius SOS service platform – which allows for highly efficient support service administration – or Froni-





us Solar.web. With Solar.web, the installer can effectively ensure the seamless performance of the systems of their customers, carry out software updates or receive error messages. The Fronius training programme has become ever more important for its partners in recent years. This is because digitisation, radical changes in the energy world and the mobility revolution have dramatically altered the industry – bringing about many new opportunities and risks. The large number of new energy-storage technologies, e-mobility, PV heat and increasingly intelligent energy management solutions are becoming more important to installers as they try to think in terms of systems, understand

this approach and advise their customers accordingly. The expertise required by an installer five years ago is no longer sufficient. Fronius offers an extensive training and webinar programme to its partners that allows them to gain and develop the necessary know-how.

This and much more means that the Fronius Service Partnership has been unique in its field for almost 20 years now – and successful at that. It is supported by the vision of 24 hours of sun and the realisation that we can only accomplish our goals if we work together.

*The trainings for Fronius Service Partners are held by competent experts.*



### FRONIUS SYSTEM PARTNER?

As already mentioned in this article, PV heating and e-mobility are becoming increasingly important alongside the classic photovoltaic energy applications concerning energy-storage systems. That is just as true for installers as it is for Fronius. Fronius now wants to reflect this in the name it gives its partner network and that is why Fronius Service Partner will now be replaced with the name **Fronius System Partner**.



## INDIVIDUAL SOLUTIONS THAT MAKE SENSE

# HOW INSTALLERS CREATE VALUE-ADDED SOLUTIONS FOR THEIR CUSTOMERS USING DIGITAL MEANS

We are living in revolutionary times. The energy revolution, mobility revolution and digital revolution are changing our personal lives as well as our workplaces. Yet change can never take place without a certain element of insecurity, expense and resistance, leading us to often prefer to leave things exactly how they are. But change always opens the door to new opportunities too. Using the Fronius Solar.web platform, we want to take a closer look at how a manufacturer like Fronius can help installers to harness the opportunities of a digital age.

Many view the Fronius Solar.web platform as nothing more than a PV monitoring and visualisation tool. Thomas Obermüller, product manager for Solar.web at Fronius, does not agree: *“This may have been the case in the past, but Solar.web can do so much more today. With the increasing electrification of heat generation and mobility (see article on page 8) as well as its energy profiling functions, Solar.web is maturing into a complete control centre for the end user, giving them oversight over all their energy flows. For the installer, Solar.web will be a fixture in their future business environment.”*

Thomas Obermüller’s final claim is based on the fact that Solar.web allows the installer to conduct a thorough analysis of their customer’s energy profile (i.e. energy profiling) and provide expert advice based on the outcome. The result is targeted measures that are truly beneficial for the customer in question. The installer is therefore able to offer bespoke solutions against which off-the-shelf products from their competitors can barely hold a candle. A win-win situation for customer and installer alike.

Effective energy profiling relies on two prerequisites:

- 1) A customer system must be registered in Solar.web.
- 2) Alongside PV generation and storage data, the most important consumption data (e.g. heat data) must also be

recorded. In other words, the most important appliances and other electrical consumers must be fitted with Fronius Smart Meters. Only once these two conditions have been satisfied can the data generated in Solar.web be used to create an energy profile that can be subsequently analysed. For the installer, this does mean that a certain amount of expenditure has to be incurred upfront: an investment in the future, so to say. After all, this needs to be explained and ultimately sold to the end customer. But the cost is worth it, as with every new energy profiling system sold, the installer is building up a pool of installations and thereby creating the basis for their future business, be it a battery, a wallbox for a new electric car, a PV heating system, or an expansion of the PV system.

All these features are already available in Solar.web, but Fronius does not rest on its laurels and is working hard to improve and simplify the tool. *“Solar.web should help the end customer to develop a greater understanding of their energy usage patterns, which will allow them to make informed decisions regarding their energy supply. The installer on the other hand has a tool that allows them to provide bespoke, data-based customer advice. Our goal is to simplify the associated functions as far as possible. In this respect, we will be unveiling some completely new possibilities over*



*the coming years,”* says Thomas Obermüller on the exciting future of Solar.web.

However, installers must not lose sight of the fact that to harness the sales and consultancy opportunities that digitisation will bring, they must start laying the foundations today. In other words, they must fit every customer system with Smart Meters, register these systems in Solar.web, and thus build up a pool of solar installations. Although a system that has already been installed and commissioned can be upgraded, this is a far costlier approach. Thomas Obermüller adds: *“The data is the key. The best time to start collecting it is right now.”*

### FRONIUS ENERGY PROFILING

The cornerstone of data-based customer consultancy services is Fronius Energy Profiling. This is based on acquiring the most important consumption data from individual systems, using up to four Fronius Smart Meters. The data acquired is then available in Fronius Solar.web in various formats to aid further analysis and evaluation.



*The Fronius Smart Meter together with Fronius Solar.web allow installers, to get more insight into their customers needs.*



## WE ARE 24 HOURS OF SUN

TOGETHER, WE CAN MAKE 24 HOURS OF SUN A REALITY. TWO PROJECTS OF FRONIUS CUSTOMERS SHOW HOW IT CAN BE DONE

### 100% SELF CONSUMPTION ON THE PHILIPPINES

Batangas, Philippines: High energy costs and the statutory situation regarding zero feed-in mean that the entire solar energy yield from this 4.77 MWp roof-mounted system is being used for self-consumption. The high quality of Fronius components and the well-thought-out design ensure that the system generates the highest returns over its intended lifetime, paying back double its investment costs.

SYSTEM DATA	BATANGAS, PHILIPPINEN
Size of installation	4,77 MWp
System type	Roof-top installation
Inverter	213 Fronius Symo 20.0-3-M
Commissioned	February 2018
Annual yield	6.500 MWh
CO <sub>2</sub> savings / year	3.900 t
Special features	The largest self-consumption system in south-east Asia



- / The lowest service costs due to the quickest service programme on the market
- / Maintenance-free for the entire service life
- / Optimal feed-in management enables zero feed-in

### ENERGY SECTOR INTEGRATION IN PRACTICE

RIEDEN, Germany: A roof-mounted system owned by the Auer family in southern Germany is a classic example of an intelligent complete solution. The 16-kWp photovoltaic system has a battery for storing energy, a Fronius Ohmpilot for heating water and a wallbox for intelligently charging an electric car. As a result, it provides the six-person household with maximum independence from rising electricity prices.

- / SELF-SUFFICIENCY OF UP TO 90%
- / INCREASE IN HEAT PUMP SERVICE LIFE OF UP TO 20% AND MORE
- / AVOID THERMAL LOSSES OF THE HEAT PUMP IN SUMMER



## 12 GIGAWATT OF SOLAR ENERGY

With the recent delivery of the 1.5 millionth inverter Fronius has achieved another milestone on the way to 24 hours of sun.



## FRONIUS RECORDS STRONG GROWTH IN THE LATIN AMERICAN PV MARKET

Experts are predicting a significant increase in the demand for PV-solutions in Latin America. Fronius makes use of this development and expands its presence on the continent. Alongside its activities in the most important markets of Mexico and Brazil, Fronius is currently focusing on Colombia where the company has advanced to being market leader due to its innovative products as well as its high quality service concept.

*Martin Schwarzmüller, Area Sales Manager, Latin America, and Camilo Belmar, Technical Sales Advisor Latin America*



## AWARD-WINNING SHORT FILM ON 24 HOURS OF SUN

The 24 hours of sun film has been nominated for an award at the Deauville Green Awards. The film tells the story of 3 people from different parts of the globe and their contribution to 24 hours of sun. The video can be watched on the 24 hours of sun website: [www.24hoursofsun.com](http://www.24hoursofsun.com)



/ Perfect Welding / Solar Energy / Perfect Charging



# NEXT LEVEL SOLAR.

24hoursofsun.com



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