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When digital meets renewables, energy storage and citizens engagement



**Giorgia Concas, SolarPower Europe Senior Policy Advisor
@ EUFORES IPM, Tallinn, 29 September 2017**

Who is SolarPower Europe

SPONSORS

PREMIUM

CORPORATE

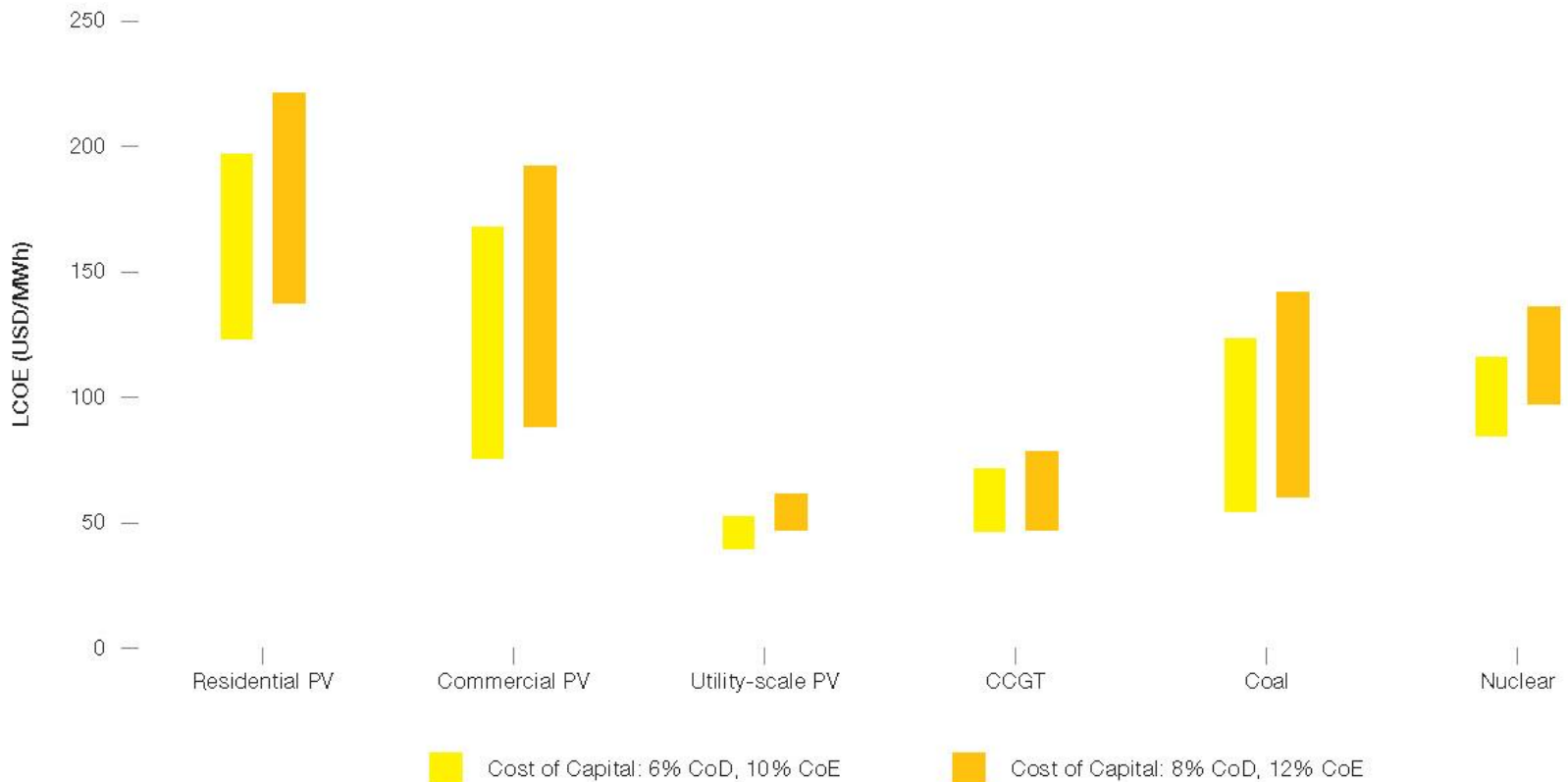
ASSOCIATE



Solar PV has great deployment potential

Large scale solar PV is becoming competitive with conventional techs

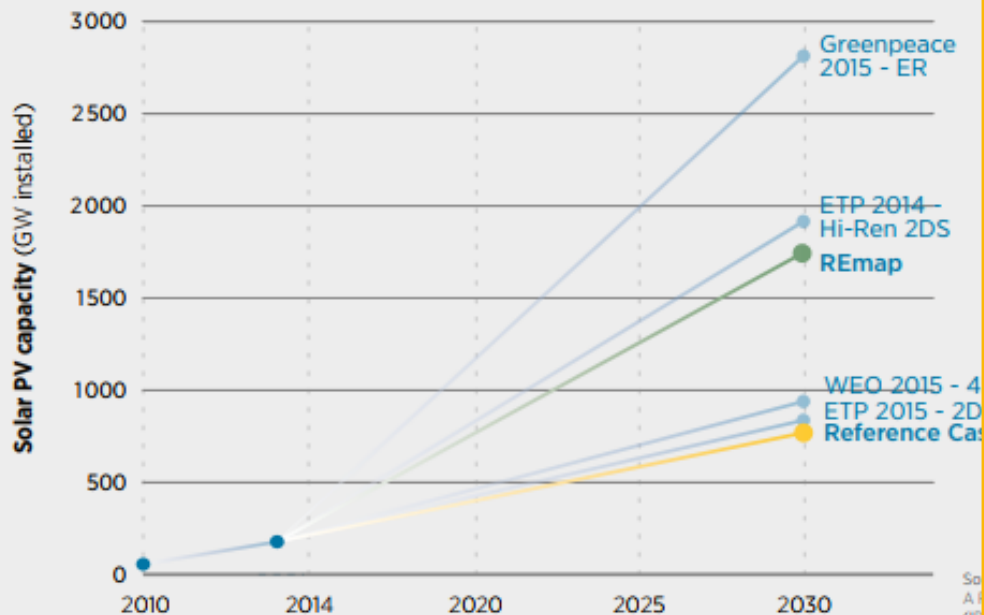
Solar electricity generation cost in comparison with other power sources



Solar PV has great deployment potential

Many organisations predict a significant solar PV growth...

Figure 9: Recent solar PV projections by different organisations



Source: IRENA – Letting in the light 2016

...We think solar PV can greatly contribute to a minimum 35% RES target in Europe by 2030



Higher renewable energy ambition required to avoid deployment slowdown

European renewable energy industry statement on the European 2030 renewable energy target

Dear Member of the European Parliament,

The Clean Energy for All Europeans package proposed by the European Commission in November last year suggests a European binding target of at least 27% renewable energy by 2030.

This target's lack of ambition translates to a slow-down in renewable energy deployment after 2020. Going below a target of 35% would mean that, over the next decade, Europe installs less new renewable energy capacity than in the current one, putting its competitive edge at risk.

We therefore urge you to support a binding target of at least 35% as being the bare minimum to keep momentum going in this fast-growing industry and ensure Europe reaps the economic benefits resulting from a sustained renewable energy deployment.

If Europe's objective is to be number one in renewables and to honour the Paris agreements, a higher target should be considered in line with the proposals of the co-rapporteurs of the regulation on the governance of the Energy Union.

We would be delighted to meet with you to discuss this crucial matter and look forward to your response.

Best wishes,

AEBIOM
EUROPEAN BIOMASS ASSOCIATION

EBA
European Biogas Association

EGEC
GEOTHERMAL

ehpa
european heat pump association

ESTELA

EREF
EUROPEAN RENEWABLE ENERGIES FEDERATION

ESTIP
European Solar Thermal Industry Federation

EUREC

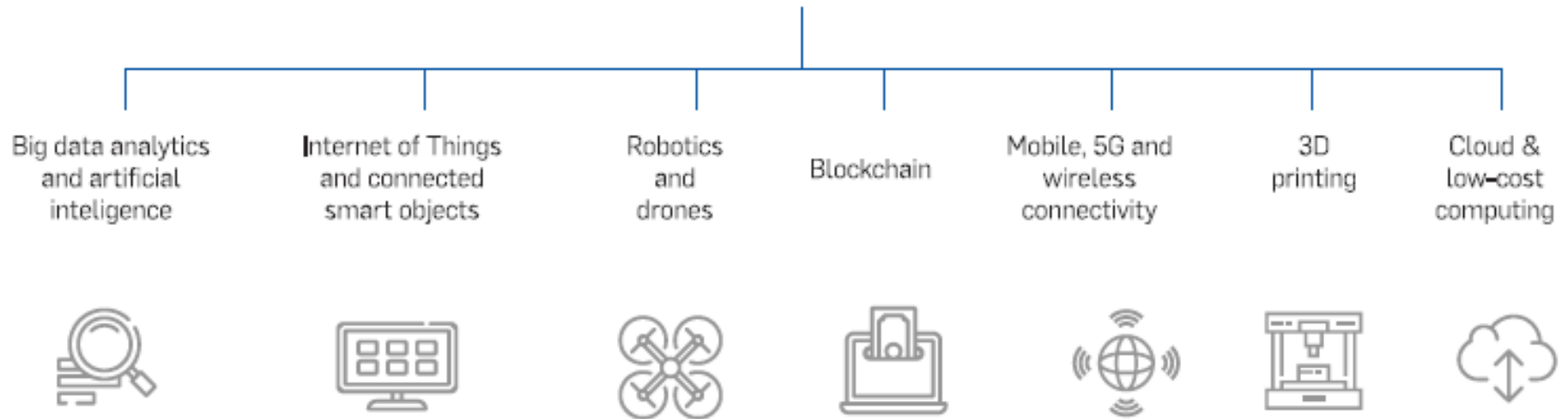
Ocean Energy Europe

SolarPower Europe

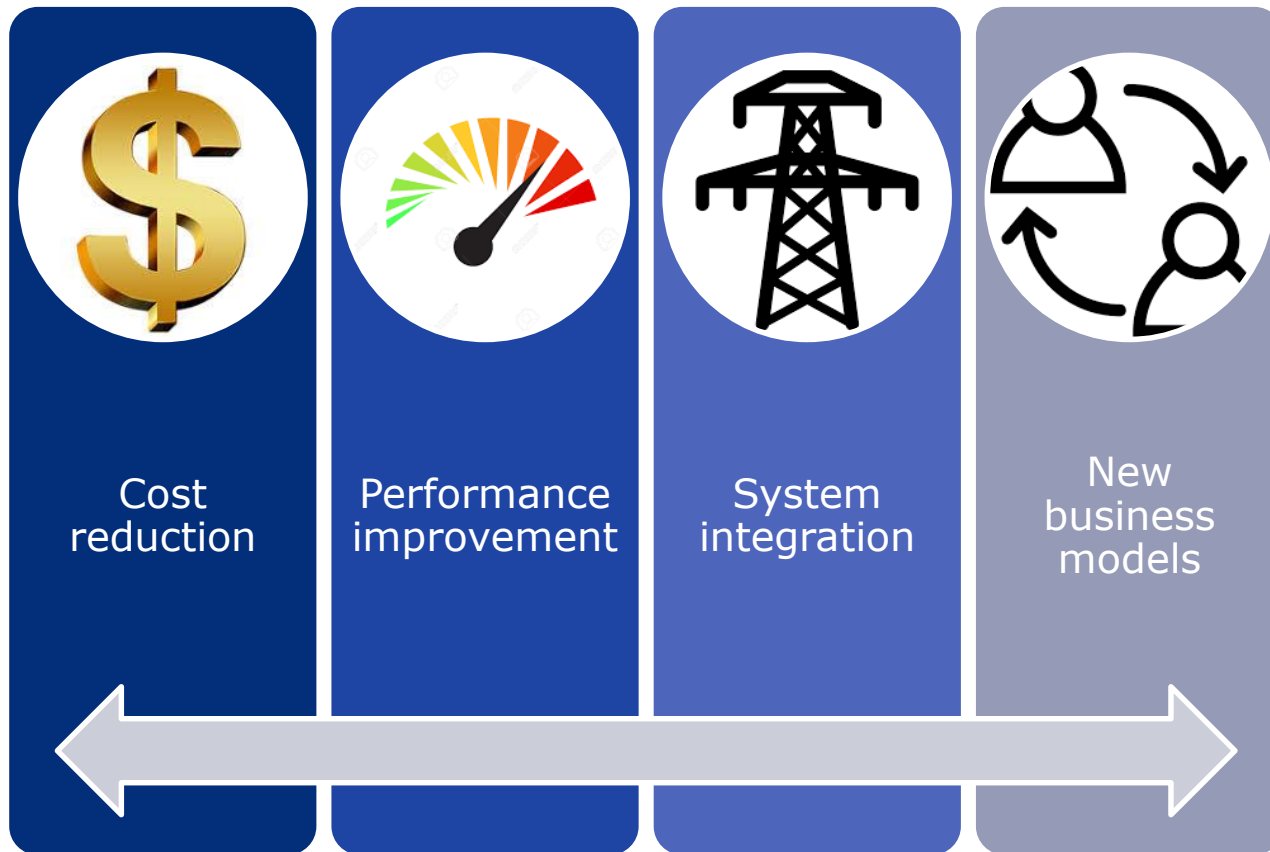
Wind EUROPE

How to get there and how can digi help?

WHAT IS DIGITALISATION?



How to get there and and how can digi help?



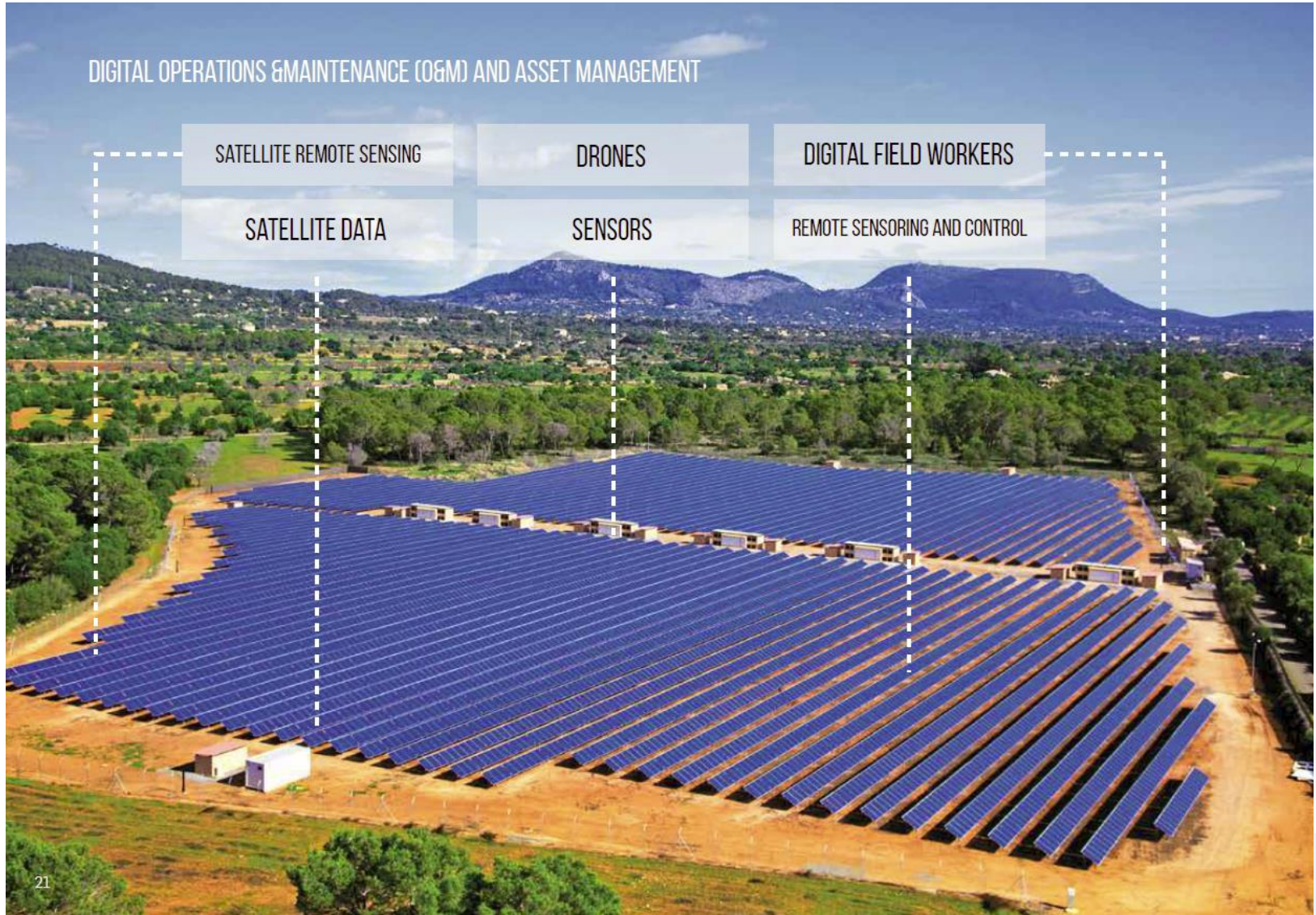
Cost reduction potential

From connected factories of the future...



...To satellite PV maps

Performance improvement



21

System integration

INCREASING SELF-CONSUMPTION RATES

Smart building technology, which can apply to both residential and commercial buildings, can be a major driver of increased self-consumption rates and therefore increase the profitability of self-consumption business models. Looking ahead, solar is likely to be sold as a core part of a smart building package. (Conversely, the drive to self-consume solar electricity is a driver for smart building technology.)

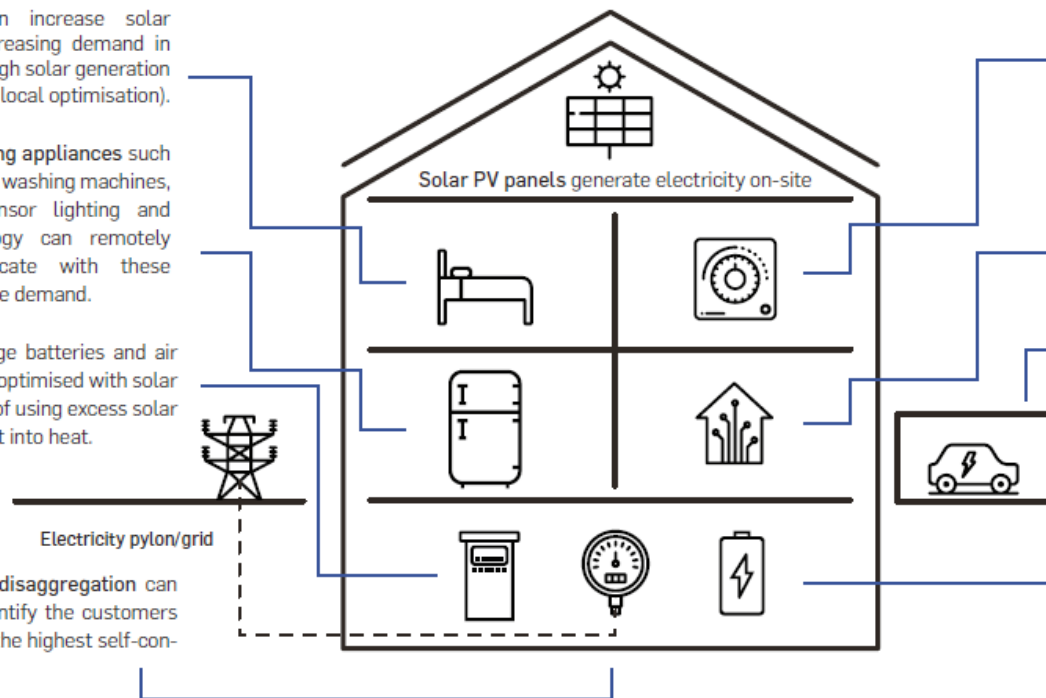
THE SMART BUILDING PACKAGE

Demand response can increase solar self-consumption by increasing demand in the building at times of high solar generation and vice versa (known as local optimisation).

Smart automated building appliances such as fridges, tumble dryers, washing machines, dishwashers, motion-sensor lighting and blinds. Digital technology can remotely control and communicate with these appliances to adapt on-site demand.

Heat pumps, heat storage batteries and air conditioning units can be optimised with solar generation and be a way of using excess solar electricity by converting it into heat.

Smart meter data and disaggregation can also be used to help identify the customers that are likeliest to have the highest self-consumption rates.



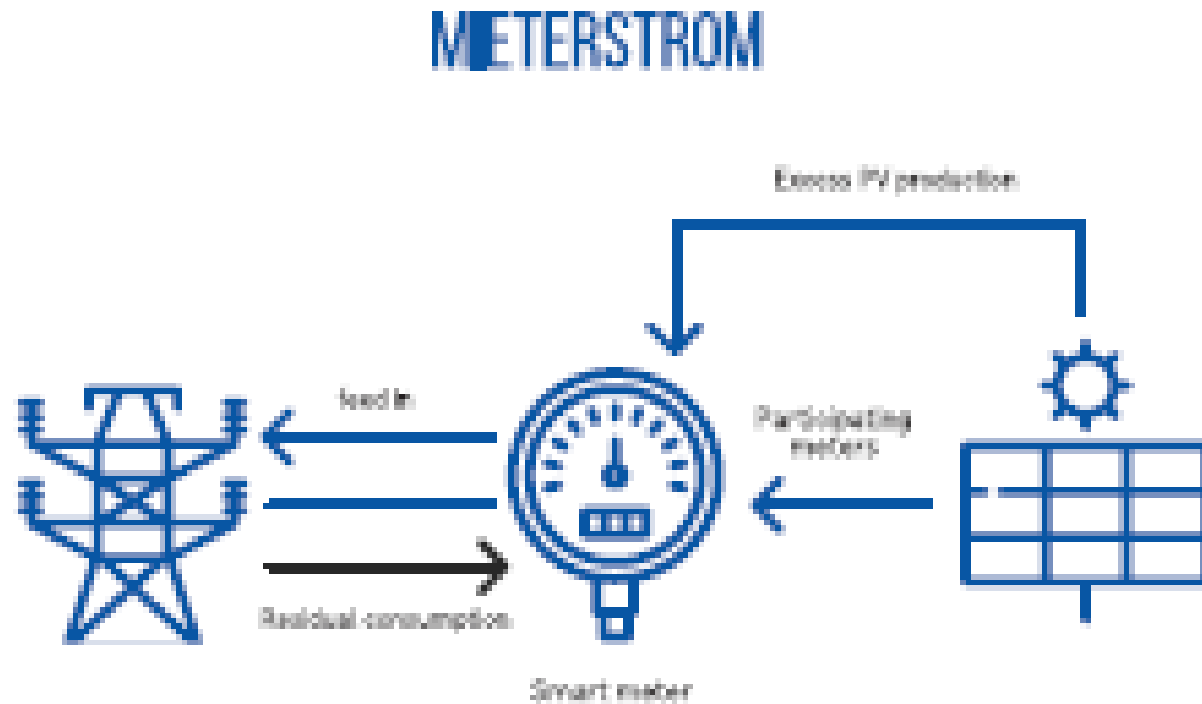
Smart learning thermostats that are internet connected can be combined with electric heating or cooling. Solar providers in the US are already offering customers free smart thermostats.

Smart building energy management systems which can also provide monitoring, made possible with wireless communications, advanced data analytics and the Internet of Things.

Smart electric vehicle charging in car parks and the PV4EV 'drive on sunshine' solution could significantly increase self-consumption rates for some households and businesses, especially when combined with storage.

Battery storage is a mutually reinforcing technology when combined with PV. Residential storage can increase solar PV self-consumption rates from approximately 30% to 70% with added system benefits of reducing network and system costs.

New business models



How can EU regulation support the digitalisation of solar



Remove barriers to
community PV

Building regulation to push
smartness

Reform markets to allow
aggregated PV participation

Speedy EU action on data
exchange, interoperability,
standards

Solar industry engagement...

The solar industry's seven commitments on digitalisation

1. **Prosumer choice:** We will promote transparency and choice for prosumers in particular encouraging mechanisms for easy switching from one product, platform or aggregator, to another.
2. **Peer-to-peer exchanges:** We will support decentralised peer-to-peer energy exchanges and explore innovative solutions, such as blockchain technology.
3. **Smart and stable grids:** We will collaborate closely with network operators to build smart and stable grids that include solar, storage and flexible demand. These grids will use real-time data to optimise electricity generation and demand. This will also allow the system to maximise the market-based ancillary services that inverters can provide and be remunerated for, such as reactive power and frequency response.
4. **Reducing costs:** We will use digitalisation to make solar more cost-effective both in terms of up-front costs and levelised cost of electricity (LCOE), thus enhancing the competitiveness of solar.
5. **Interoperability:** We will encourage the interoperability of software with compatible hardware, to enable the transfer and sharing of data that is both secure and efficient.
6. **Data protection and cybersecurity:** We will champion data protection and recommend that all companies active in the solar industry implement state-of-the-art data protection, in-line with established EU-wide principles. We will put in place stringent cybersecurity measures.
7. **Sharing excellence:** We will endeavour to share digitalisation excellence, gathered within the European industry with the rest of the world, with specific emphasis on supporting the developing world.

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SolarPower Europe's "Seven commitments on digitalisation" were drawn up by the Digitalisation and Solar Task Force, a group of members within the association working together to ensure that the solar PV sector in Europe makes the most of the opportunities arising from the digitalisation of the energy system. The European solar PV sector commits to these seven points with the aim of aiding the transition to fully digitalised solar. A set of regulatory asks and an in-depth report on the market opportunities for digitalised solar will follow later this year.



Solar industry engagement...

SolarPower Europe's regulatory asks on solar and digitalisation

1. Remove barriers to the **peer-to-peer trading of electricity**, such as (but not exclusively) supply license requirements, concluding contracts between peers, network charging and existing and future systems for the delivery and billing of electricity.
2. Ensure that the implementation of regulation does not preclude **new technologies and business models** for the trading of and accounting for electricity, such as Blockchain and cryptocurrencies that create incentives for PV and enable prosumers to participate in energy markets.
3. Encourage regulation that allows **aggregators** to compete with conventional generators in all electricity markets and offer services in these markets via new or different digital technologies, such as Virtual Power Plants. Allow aggregators to combine resources from all voltage levels and use appropriate measuring equipment for the size of the installation.
4. Use digitalisation to develop **flexibility markets with more automated tools** and standardised products, as well as standardised requirements for the provision of system services both behind the meter and at distribution and transmission level. Reform intraday and spot-markets to enable large-scale solar and solar-plus-storage plants to take on balancing responsibilities.
5. Accelerate the deployment of **smart grid** technology, so that more solar can be integrated into the system and both utility-scale and small-scale solar can provide services to the grid. In conjunction, reform incentives for network operators, to encourage them to implement smart grid technology as an alternative to strengthening cables and transformers. Also provide more funding to smart grid and smart market integration projects such as within the Connecting Europe Facility funding instrument.
6. Reward the speed and accuracy that distributed energy resources such as solar and storage can provide in terms of **grid support services**.
7. Accelerate the deployment of **smart metering functionality**, real-time measurement of consumption and grid feed-in, as smart metering is a catalyst for new solar business models. Ensure that consumers have access to their smart meter data and guarantee that the roll-out of smart meters will not discriminate against new and existing innovative solutions and solar prosumers. Avoid imposing extra costs on smart meter customers, or mandating a single gateway for all energy data in and out of a building. Ensure that self-consumed electricity is not subject to taxes, fees or charges.
8. Ensure that proposals within the market design package for metering and consumption **data** to be made available between DSOs, TSOs, customers, suppliers, aggregators and energy service companies are maintained. Guarantee that state of the art and up-to-date data protection and cybersecurity standards are put in place.
9. Maintain provisions in the proposed revision of the Energy Performance of Buildings Directive on a **smartness indicator** for homes and ensure that on-site electricity generation is given a bonus within the methodology for setting cost-optimal minimum energy performance requirements for new and renovated buildings. Ensure that this methodology takes a holistic view of sector coupling, so that excess PV electricity can be used and stored e.g. as heat via heat pumps, or hot water storage.
10. Ensure that EU-level work on **standards and interoperability**, within the Digital Single Market includes solar PV systems, smart buildings and smart grids. Encourage the Commission to come forward with its 'baseline' standardised data format as soon as possible, which individual device or service manufacturers will then add additional features to.

SolarPower Europe's "Regulatory asks on solar and digitalisation" were drawn up by the Digitalisation and Solar Task Force, a group of members within the association working together to ensure that the solar PV sector in Europe makes the most of the opportunities arising from the digitalisation of the energy system. It follows the [Solar industry's seven commitments on digitalisation](#). An in-depth report on the market opportunities for digitalised solar will follow later this year.



Our forthcoming report...

DIGITALISATION & SOLAR: THE MARKET OPPORTUNITIES

A report of the SolarPower Europe Digitalisation & Solar Task Force

October 2017



To be
launched at
the EU Utility
Week on 3-7
October

Thank you!

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