Imec, partner in EnergyVille, and PVcase co-develop next-generation yield-simulation software for solar parks

LEUVEN (Belgium), SEPTEMBER 9, 2019 — Today at the European Photovoltaic Solar Energy Conference (EU PVSEC) in Marseille (France), Imec, a world-leading research and innovation hub in nanoelectronics, energy and digital technologies and EnergyVille, together with PVcase, a Lithuanian software company disrupting the way solar parks are engineered globally, present their partnership to develop a commercial software solution that allows to easily design and accurately predict the energy yield of state-of-the-art photovoltaic (PV) power plants. First blind tests of the prototype software already show best-in-class results for bifacial PV plants and the go to market is targeted for the first half of 2020.

Solar energy is booming and market studies indicate a continuous growth of utility-scale PV power plants for the coming years. In the development of these PV power plants, bifacial and sun-tracking systems are becoming increasingly popular. Bifacial systems also generate electricity from sunlight reflecting on the backside of the solar panels, resulting in an increased production and lower levelized cost of electricity (LCOE). Their market share is predicted to grow to 40% of all installations in the next decade. While sun-tracking systems promise LCOE reductions as well, the combination of both technologies have the potential of reaching record low energy-cost levels.

For investors and EPC (engineering, procurement and construction) companies developing PV power plants, the ability to predict the energy yield (and thereby the return on investment) of their plants in the design phase is crucial. Current available software tools have limited modelling capabilities for bifacial and sun-tracking systems, resulting in time consuming design iterations and limited accuracy for these new technologies. The simulation software engine developed by imec relies on a bottom-up physics-based methodology combined with calculation-efficient ray-tracing algorithms, resulting in an accurate and computation efficient software tool. By combining imec's simulation methodology with the know-how of PVcase in PV site planning and software development, a commercially available solution will be born, offering a streamlined workflow to design PV power plants including accurate energy yield at acceptable costs.

A simulation using the new tool starts from the PV technology parameters (e.g. cell and module specs) and takes into account contextual factors such as climate data (light, wind, weather…), anticipated plant layout and geometry, surrounding obstacles etc. The prototype software already outperformed the competition in a blind test by a potential launching customer. At this moment PVcase has transferred imec's computation core in a user-friendly, web-based environment, which enables the use of cloud computing. This gave both parties the confidence to agree on a partnership for further development and commercialization. In the coming period, the exact valorization strategy will be outlined. Interactions with additional partners, potential investors and launching customers are already ongoing. If all goes to plan, the software should be launched in the first half of 2020.

David Trainavicius, CEO of PVcase: "We are excited about the collaboration with imec. As a leading research institute they give us the guarantee of qualitative technological input and a solid reputation towards future developments. This software will give us a tool to increase our momentum in becoming

a leading player in design and engineering software for PV power plants. It will allow us to better serve our existing customers and broaden towards a new client base."

Jozef Szlufcik, PV department director at imec: "PVcase is an important partner for us because of their experience in commercial PV simulation software. The recent interactions have proven that we have an ideal match to successfully develop our prototype into a market-ready solution. It's this kind of innovations and collaborations that show that Europe still is bringing substantial added value to the globalized PV market."

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About imec

Imec is a world-leading research and innovation hub in nanoelectronics and digital technologies. The combination of our widely acclaimed leadership in microchip technology and profound software and ICT expertise is what makes us unique. By leveraging our world-class infrastructure and local and global ecosystem of partners across a multitude of industries, we create groundbreaking innovation in application domains such as healthcare, smart cities and mobility, logistics and manufacturing, energy and education.

As a trusted partner for companies, start-ups and universities we bring together more than 4,000 brilliant minds from over 97 nationalities. Imec is headquartered in Leuven, Belgium and has distributed R&D groups at a number of Flemish universities, in the Netherlands, Taiwan, USA, and offices in China, India and Japan. In 2018, imec's revenue (P&L) totaled 583 million euro. Further information on imec can be found at www.imec-int.com.

About EnergyVille

EnergyVille is a collaboration of the Flemish research institutes KU Leuven, VITO, imec and UHasselt in the field of sustainable energy and intelligent energy systems. Our researchers provide expertise to industry and public authorities on energy-efficient buildings and intelligent networks for a sustainable urban environment. This includes, for example, smart grids and advanced district heating and cooling.

One of the objectives of EnergyVille is to become a top of European innovative energy research initiative. In this context, the center was embedded in major national and international networks right from the start. It covers research, development, training and innovative industrial activities under one name and in close collaboration with local, regional and international partners. EnergyVille aims to be a driver in the Thor science park in Genk in the areas of research, business development and employment creation. The research collaboration is supported by the city of Genk, the Flemish Government, The Province of Limburg, LRM, Nuhma, POM Limburg and the European structural funds.

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About PVcase

PVcase is a next generation PV software company. Driven by engineering know-how and cutting edge development team, we change the rules when it comes to solar design operations worldwide. Our customer base extends from Europe to North and South Americas, Asia and Australia, rapidly adding new customers with every software iteration.

PVcase's approach to utility scale solar layout design strives to become the new industry standard as the PV industry is forced to evolve in an environment with significantly reduced subsidies. Our focus on automation and accuracy from the very earliest stages of planning, incorporating 3D topographical data points to simulate the actual location of the solar plant, allows our customers to be able to compete for and win more projects by delivering greater yields.

PVcase's automation plug-in for AutoCAD has already been used to design over 3 GW of projects by some of the world's largest players in solar renewable energy. With our extensive experience in the solar design industry we see other opportunities to optimize and create efficiencies in other aspects of the evaluation and planning of commercial and utility scale PV projects and have several other products in the development process.

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