Forbes Article Offers Engineering Solution to Inertia Shortfall in Renewable Energy

WASHINGTON , DC, UNITED STATES, December 2, 2024 /EINPresswire.com/ -- A Maryland engineering company is set to play a critical role in the future of renewable energy, according to a article in Forbes by Llewellyn King.

> DDMotion, based in Owings Mills, MD, and its president and chief scientist, Key Han, have developed a technology which will reduce variable input speed to a constant output."
>
> *Llewellyn King*

King says the company, DDMotion, based in Owings Mills, MD, and its president and chief scientist, Key Han, have developed a technology which will reduce variable input speed to a constant output. For example, river flow is variable but with DDMotion technology, it can be converted to a constant output.

This has an especial use with wind and solar because it guarantees vital inertia to an electric grid or subsystem, like a microgrid, King says.

In electricity production, the few seconds or nanoseconds that rotating machinery continues to turn is its inertia, and this is vital in maintaining the grid frequency that determines the usability of electricity.

The U.S. grid operates on 60 Hertz, or cycles per second. If that deviates, the system fails.

With fossil fuel-powered plants inertia was never a problem because they all have rotational inertia.

Wind power, King says, has a rotating core, but that is interrupted by an inverter which changes its power output from direct current to alternating current and so inertia is lost. Solar power never generates any inertia, and that has to be generated.

River turbines are subject to changes in the water flow and need a constant speed output to generate reliable power.

The DDMotion system, according to Han, will eliminate the need for large grid control systems, as in Germany and other parts of Europe, to use power electronics to create ancillary services to keep its grid running smoothly with constant cycles — in Europe, 50 cycles per second.

Han has been perfecting his inertia-saving technology for decades: at first, mechanically with gears and shafts and more recently, electrically.

The electric iteration of the system has added additional benefits for wind turbines, King says. It enables a wind turbine to operate without a gear box and power converter to “groom” the power output on the ground.

King’s article on Han and his engineering breakthrough can be found here: https://www.forbes.com/sites/llewellynking/2024/11/22/company-claims-to-solve-inertia-problems-for-wind-solar-and-river-turbines/

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