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8 QUESTIONS TO NILS MAY

»With the production value-based benchmark approach, remuneration depends on system-friendliness«

1. Mr. May, you discuss here wind turbine design and its impact on the electricity system. What was your jumping-off point? A large share of wind power production takes place in high wind. Because this amount is so large, its market value decreases. It is therefore important to start building system-friendly wind turbines that produce a greater proportion of their electricity at medium and weaker wind speeds, as they are then able to achieve a higher market value.
2. So you're making a distinction between the volume of the electricity and the value of the electricity? Yes. The original funding scheme—the fixed feed-in tariff—only incentivized the maximization of electricity production, because investors received a fixed remuneration for their wind energy yield. But the value of that electricity is also important.
3. Do the existing turbines still fit into our current electricity system? Germany's current wind turbines were installed under conditions in which the value of the electricity was completely irrelevant. Consequently, the turbines are mainly designed so that a lot of electricity can be produced in high wind, but much less can be produced in low wind. This design made sense in the past, but for the future, it is becoming clearer that these wind turbines are primarily producing electricity with a lower market value.
4. What characterizes a "system-friendly" plant design? Alongside the location, we have examined three technical parameters. The first is the hub height: The higher the tower, the higher the wind speeds it is exposed to, which means that more electricity is produced. The second parameter is the rotor blade length: With longer blades, a wind turbine can convert more wind energy into electricity. The third parameter is a lower generator power: With a lower power rating, the maximum conversion of wind energy into electricity is achieved at a lower wind speed. Such a system-friendly wind turbine would therefore generate a larger share of its production at lower and medium wind speeds.
5. What sort of importance would system-friendly turbines have for the entire electricity system? The wind energy would be more constant—that is, less volatile—whereby other flexibility options, such as storage, would be needed less. At the same time, there would be a slight decrease in overall energy output—but this would be more than compensated for, up to a certain point, by the increased value of the electricity produced.
6. To what extent does that pay off for potential investors? That depends on what kinds of expectations investors have with respect to the future development of electricity prices. If the current electricity price profile is used as a basis, the current remuneration with the floating market premium provides little to no incentive for a future-system-friendly plant design.
7. What needs to change in order for such plants to be profitable? We have analyzed two proposals for reform. First, we examined a proposal for the reform of the existing production volume-based benchmark approach that provides some incentives for system-friendly plant designs in certain locations. Secondly, we have proposed a supplementary, so-called "production value-based benchmark approach", which makes today's remuneration dependent on how system-friendly a plant is going to be for the future of the energy system.
8. How exactly does the production value-based benchmark approach provide incentives for investments in system-friendly wind turbines? First, the electricity price profile would be modeled for a future electricity system that includes a higher proportion of renewable energy. Then the value of the generated electricity can be calculated for each site and for each wind turbine. Similar to the definition of a reference location in the previous EEG, the plant-specific level of compensation would emerge from the comparison of these values with the value of a benchmark wind turbine at the same location. Thus, investors could start constructing system-friendly plants today and ensure good financing conditions and thus low cost of capital due to the clarity of future revenues.

Interview by Erich Wittenberg



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