An improved energy yield model for solar parks on land and water

Publieke samenvatting / Public summary

Aanleiding

Bankability is crucial for the implementation of solar parks on land and water. Basis of the bankability is a correct estimation of the energy yield in relation to the projects costs. Current yield models are not capable to include all aspects. Improvements are needed to address bifaciality, alternative layouts and cooling for water based systems.

Doelstelling

Further development and validation of the BIGEYE energy yield model for solar parks on land and water, including temperature effects of the water and albedo effects from water and vegetation. This will result in valid data as a basis for discussion on physical integration and full-load estimations for subsidy.

Korte omschrijving

The bifacial part of the BIGEYE model of TNO has recently been extended with the option to include flexible geometry (sheds of varying orientation and tilt), shade casting objects, diffuse reflectors, dealing with effects of shade in the irradiance on the sheds, but the accuracy of the model is strongly dependent on the validity of the used parameters. A proper validation of the albedo contribution is lacking as well as a validation for floating systems. In this project a measurement system will be designed and built to measure the different model parameters in an accurate way, in existing solar parks of GroenLeven on land and water. Based on these parameters TNO will calculate the annual

Projectinformatie / Project information

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Algemene informatie / General information

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Publicaties en materialen / Publications and attachments

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yield of these parks and the results will be compared with actual field data from GroenLeven parks. GroenLeven will also build a small reference system next to the floating system to compare the temperature effects between the land-based and floating systems.

Resultaat

The project will deliver an improved and validated energy yield model for floating and land-based solar parks. It will be based on improved knowledge on albedo variations (ground and water reflections) and a model for the cooling effect of water on the temperature of solar panels.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.
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