PV-wirefree Redesigning and innovating grid-connected PV systems Henk Oldenkamp¹, Irene de Jong¹, Wim C. Sinke² ¹⁾ OKE-Services ²⁾ ECN Solar Energy Our goals Minimize PV BOS costs Inherently safe PV-systems Our approach: back to basics and keep it simple V Integrate Minimize # Simplify Minimize Design for functions components installation **PV-system** dc-voltage Our solution Paralleling large numbers of PV-modules using a current carrying mounting frame: **PV-wirefree**

and using the advantages without compromises

Ultimate integration of functions and removal of abundant components

- No dc-wiring anymore: mounting frame is used to carry the current
- PV-module frame and junction box are replaced by one component: the module connector
- By paralleling the PV modules many components can be omitted and are removed: bypass diodes,
- internal wiring for bypass diodes, blocking diodes, dc-fuses, dc-overvoltage protection and more

Ultimate reliability and efficiency

- Increase of annual yield of 5-15% since mismatch losses are avoided, and reliability is increased
- Increase of reliability, by avoiding series

connections and minimizing the number of dc-components

Ultimate safety

- Fully touch-safe as the maximum voltage is 21 volts, even when a large number of PV-modules are connected in parallel.
- Fire hazard is strongly reduced compared with PV-strings as the 21 volts maximum system voltage is too small to maintain an arc.

Ultimate ease of installation

- No special tools or devices required to install the PVmodules
- Simple click the module connector onto the mounting bus, and mechanical and electrical installation is complete
- Inherent safe installation by limiting the dc-system voltage to 21 volts

For more information: please visit exhibition stand nr. 10 or http://www.pv-wirefree.com