Swiss PV Circle

Work package 2 - Business model

Documentation requirements for the transfer of photovoltaic systems for reuse

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Mit Unterstützung von energieschweiz

1. Explanations

This document is intended to support installers in collecting and documenting all information useful for the reuse of a specific PV system. This ensures the transfer of information between installation companies that dismantle a system and a second installer.

The document should be used in addition to existing forms (e.g. safety certificates) and documentation (plant documentation). Only information that is necessary in an overview or is not evident in the enclosed documents should be included.

The document is based on the results of the Swiss PV Circle project. The scope and structure of the data collected are based on the guidelines for reuse developed in this project (see Deliverable 2.2). It categorises all relevant information according to the reuse process described in the guidelines and is intended to facilitate data collection in a practical manner.

2. Economic assessment

2.1 Basic information on the system

Pronovo no.	*Pronovo no.*	Type of installation	☐ Roof ☐ Facade ☐ Freestanding
Measurement + test protocol for photovoltaics (SiNa) available	☐ Installation ☐ Current*, from *dd.mm.yyyy*	Integration into the building envelope	☐ Integrated ☐ Structure
Owner	*Name*	Plumber	*Plumber*
Street	*Street*	Street	*Street*
Postcode, city	*Postcode, city*	Postcode, city	*Postcode, city*

*Before dismantling, it is recommended to prepare a new safety certificate for photovoltaics ("SiNa PV") from the "Information on the installed system" section onwards.[1] AC-side measurements are not required.

2.2 Documentation of the components

Modules	☐ according to the enclosed system documentation ☐ according to SiNa	**Inverter**	☐ according to the enclosed system documentation ☐ according to SiNa
Manufacturer	*Manufacturer*	Manufacturer	*Manufacturer*
Model	*Model*	Model	*Model*
Dimensions (HxWxD)	*Dimensions (HxWxD)*	Number of strings, incl. power per string	*e.g. 1x 10kWp, 1x 20kWp*
Nominal power (Wp)	*Nominal power (Wp)*	Total output	*e.g. 30 kWp*
Plug connection	*MC3, MC4, ...*	Plug connection	*MC3, MC4, ...*
Quantity	*Quantity*	Quantity	*Quantity*

Substructure / Integration	☐ according to the enclosed system documentation	**Weights**	☐ according to the enclosed system documentation

[1] "Https://View.Officeapps.Live.Com/Op/View.Aspx?src=https%3A%2F%2Fwww.Vsek.ch%2Fdownload%2Fdownload%2FSiNa_PV.xlsx&wdOrigin=BROWSELINK."

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			☐ according to SiNa
Manufacturer	*Manufacturer*	Description	Additional description where necessary
Model	*Model*		
Fastening (if relevant)	☐ Pitched roof Tile, sheet metal, bitumen... ☐ Flat roof Gravel, green, ... ☐ Facade Details...	**Additions or further components (**	☐ according to the enclosed system documentation ☐ according to SiNa
		Description	Additional description where necessary
Alignment (for flat roofs)	☐ One (S) ☐ Two (O-W)		

Demolition site	☐ Problems with system / modules (insulation faults, ...) ☐ Damage due to events (fire, hail, storm) ☐ Replacement / dismantling ☐ Warranty case

3. Technical assessment

3.1 Production data

Commissioning	Dd.mm.yyyy	Expected decommissioning	Dd.mm.yyyy
Production data	Available ☐ Microinverter level ☐ Level string ☐ Plant level ☐ not available	Flasher data manufacturer available	☐ Yes ☐ No
Age of the system	Age Years	Modules can be assigned to existing Flasher data	☐ Yes ☐ No
Resolution of the production data	☐ yearly ☐ monthly ☐ daily ☐ hourly or higher	Completeness of the production data	☐ >95% ☐ >75% ☐ >50% ☐ >25% ☐ <25%
Current annual production	Annual production MWh	Power loss	Loss % per year

3.2 Error and maintenance log

Maintenance log	☐ Available and complete ☐ available, not complete ☐ not available	Production losses	☐ Yes, reason known: *Details* ☐ Yes, reason unknown ☐ No ☐ Unknown
Inverter replaced during operation	☐ yes, date: *dd.mm.yyyy* ☐ no	Current string measurements available	☐ yes, date*: dd.mm.yyyy* ☐ no
Modules partially replaced during operation	☐ Yes ☐ no	$R_{(ISO)}$ [MΩ] fulfils the requirements	☐ yes, all strings ☐ yes, for strings *no.* ☐ no

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4. Test and disassembly procedure

4.1 Overview

☐ Dismantling companies same as installation companies

Dismantling company	*The company*	Contact person	*Surname First name*
Street	*Street*	Contact e-mail	*e-mail*
Postcode / City	*Postcode, city*	Contact Tel.	*Tel no.*

4.2 Details of dismantling

Dismantling date	*Dd.mm.yyyy*		
Activities carried out	☐ Cleaning the modules ☐ Careful dismantling ☐ Visual inspection[1] ☐ Insulation resistance ☐ Infrared thermography ☐ IV curve ☐ Intermediate storage modules according to recommendation[2]	Number of modules tested (A)	*Number of* pieces
		Number of modules passed (B)	*Number of* pieces
		Pass rate (B / A * 100%)	*Share* %
		Condition of the modules after dismantling	☐ Freshly cleaned ☐ slightly soiled ☐ heavily soiled
Visual inspection	*details*	Measurements	*details*

[1]Oxidation, damaged frames, plugs or diodes, broken glass, damaged backsheet / air bubbles etc.
[2]Carefully stacked on pallets (frame on frame), active side up, cables and plugs not trapped, weather protection (sun / rain), stacking height max. 20 modules

5. Further tests

5.1 Overview

Service provider Further tests	*The company*	Contact person	*Surname First name*
Street	*Street*	Contact e-mail	*e-mail*
Postcode Place	*Postcode, city*	Contact Tel.	*Tel no.*

5.2 Information on tests

Dismantling date	*Dd.mm.yyyy*		
Activities carried out	☐ Cleaning the modules ☐ Performance tests ☐ Safety tests	Details measuring system	☐ Handheld devices ☐ Flasher (Fix / Mobile)
proportion of the modules tested:	☐ <10% ☐ <25% ☐ <50% ☐ <100% ☐ all	Number of modules tested(A)	*Number of* pieces
		Number of modules passed (B)	*Number of* pieces
		Pass rate (B / A * 100%)	*Share* %
Tests carried out	Performance tests ☐ I-V curve	Condition of the modules during tests	☐ Freshly cleaned ☐ slightly soiled

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	☐ Electroluminescence (EL) Safety tests ☐ High-Pot ☐ Insulation value wet More ☐ *more*		☐ heavily soiled
		Information on standards used	☐ IEC61215 ☐ IEC61730 ☐ *more*
		Measured average power per module	*Power* Wp
		Power loss	Loss % per year

6. Overview of reusable components

Reusable modules		**Other reusable components**	
Quantity	Number of pieces	Substructure	☐ Sufficiently available ☐ Partially available ☐ Not available
Rated power	*Power* Wp		
Surface area	*Area* m^2		
Overall performance	*Total output* kWp	Inverter power	☐ Sufficiently available ☐ Partially available ☐ Not available
Warranty information or similar.	*details*	Weighting	☐ Sufficiently available ☐ Partially available ☐ Not available ☐ Not necessary
		Other electronic components (cables etc.)	☐ Sufficiently available ☐ Partially available ☐ Not available *details*

7. Additional documentation

(tick the appropriate box)

Plant documentation	☐ SiNa PV installation ☐ SiNa PV dismantling ☐ Documentation according to SiNa • ☐ System data • ☐ Detailed information on the PV generator, strings • ☐ Data sheets and declarations of conformity Modules, inverters • ☐ Information on the mechanical design, data sheets • ☐ Operating and maintenance information • ☐ Information on maintenance and servicing • ☐ Manufacturer documentation of the anchor device • ☐ Test results and commissioning data, inspection reports ☐ Production data
Documentation of the dismantled components:	☐ Photos Documentation of careful dismantling ☐ Photos of modules prepared for reuse ☐ Photos of WR and electrical installation prepared for reuse ☐ Photos of the substructure prepared for reuse
Documentation of technical tests	☐ Controls carried out ☐ Standards and methods used to calculate indicators (e.g. P_{max}) ☐ Fail / Pass criteria per test ☐ Measured values for individual modules

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8. Accuracy of the information

Responsible dismantling		**Owner of the components prepared for reuse**	
Place, date	*Place, date*	Place, date	*Place, date*
Surname First name	*Surname First name*	Surname First name	*Surname First name*
Signature	*Click or tap here to enter text.*	Signature	*Click or tap here to enter text.*

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