

Using *SolarEdge* systems in PV*SOL

Relates to:

PV*SOL premium 7.0

Last Updated:

13th July 2014

Scope of this Document:

In PV*SOL you have the ability to model the performance of *SolarEdge* power optimisers and string inverters. However, unlike for other inverters, the configuration has to be first achieved via the manufacturer's software then replicated in PV*SOL to allow the physical module layout, performance comparison and yield estimation to be analysed.

1. Introduction

When you select a *SolarEdge* power optimiser from the inverter selection database, you are actually selecting the combined characteristics of the power optimiser <u>and</u> a *SolarEdge* inverter. PV*SOL uses the efficiency curve of a default *SolarEdge* inverter rather than an individual model. There is an inherent margin of error of up to 0.4% with this form of modelling which is generally considered acceptable. Note the margin of error in modelling can be higher depending on the accuracy of site measurements and other assumptions.

The 3D mode of PV*SOL premium should be used to model *SolarEdge* systems as it is only in 3D that you get sufficient performance of individual PV modules with variations in irradiance & temperature.

2. How to model a SolarEdge system in PV*SOL premium

Firstly you need to design and size the system. For this we recommend using *SolarEdge*'s free *SolarEdge* 'Site Designer' software. To download the *SolarEdge* software please see their website: <u>http://www.solaredge.com</u>

Once installed, follow the on-screen instructions to design the system and note the number and type of proposed power optimisers (as illustrated in the red box in the diagram below):

solaredge	System settings	Do not use in design:	* Use in design:	
rchitects of energy "	Optimizer conliguration.			_
contexts of energy	OP250-LV	1P SE3300 (discontinued)	<<< 1P SE2200	
	Inverter DC/AC sizing range:	3 P SE35k available Q1/13	< 1P SE3000	
	(DC@STC) 50 🚔 % - 110 🖨 % Default	3 P. SE40k available Q1/13	1P SE3500	
	Minimum Maximum	3 P SE45k available Q1/13	1P SE4000	
	Recommend again		>>>	
Choose Location	Recommended designs			
Define PV Arrays	1. Inverter 1: String 1: PV Array # SE5000	1 20xOP250-LV	Modules / Inverter: Max achieved DC power: 4.62	20 kW
Get Design			DC/AC sizing:	96%
-	Total: 1 Inverter 1 Strings		Modules:	20
			Max achieved DC power: 4.62 Est. yearly energy: 4 N	/kW /Wh
	2. Inverter 1: Strings 1-2: PV Array # SE5000	1 10xOP250-LV	Modules / Inverter: Max achieved DC power: 4.62	20 2 kW
	Total:		DC/AC sizing:	90%
	1 Inverter 2 Strings		Modules: Max achieved DC power: 4.62 Est. yearly energy: 4 N	20 ! kW //Wh
	3. Inverters 1-2: String 1: PV Array # SE2200	1 10xOP250-LV	Modules / Inverter: Max achieved DC power: 2.31	10 . kW
			DC/AC Sizing: 109/	
	1			_

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Keeping the *SolarEdge* 'Site Designer' dialogue open, now open a 3D project in PV*SOL. Once you have placed your PV modules, click on 'Configure all Unconfigured Modules in this Area' as you would normally using the highlighted icon in the screenshot below.



In the PV*SOL inverter selection dialogue, select the Power Optimiser type and number as noted from the *SolarEdge* 'Site Designer' software. These are chosen as if they are inverters.

The last step is to eliminate any mismatch losses, as they are negated by the *SolarEdge* power optimisers. To do this, navigate to the main part of PV*SOL, click on your array on the 3D Design page and then 'Additional Parameters':

Wodde Data

Number of PV Moddes

12

Power 2.4 kWp

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3D Design

You can then set the 'Power Losses resulting from Mismatching or Reduced Yield' to 0% as indicated below:

	isses res	sulting fi	rom Misi	matchin	g or Re	duced Y	'ield				C	olo 🤊	•
Ground Enter Enter	Reflec yearly a monthly	tion (A Ibedo albedo	lbedo)									20 %	6
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%		
Output Enter	losses yearly k monthly	due to osses d losses	soiling ue to so due to :) of the piling soiling	• PV mo	odules						0 %	6
Output Enter Enter Jan	losses yearly lo monthly Feb	due to osses d losses Mar	soiling ue to so due to so Apr) of the piling soiling May	e PV me	odules Jul	Aug	Sep	Oct	Nov	Dec	0 %	6
Output Enter Enter Jan 0%	losses yearly lo monthly Feb 0%	due to osses d losses Mar 0%	soiling ue to so due to so due to so due to so	of the oiling soiling May	PV mo	odules Jul 0%	Aug 0%	Sep 0%	Oct 0%	Nov 0%	Dec 0%	0 %	6

Make further adjusments as usual in PV*SOL to mimic the site and then proceed to simulate as normal. <u>ENDS</u>.

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