

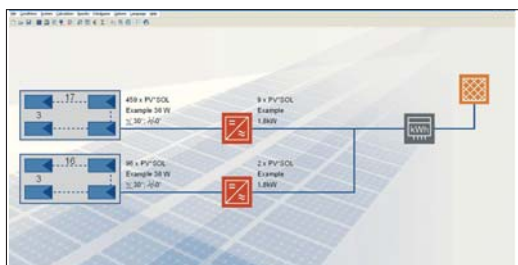


## The Dynamic Simulation Programme for the Design and Calculation of Grid Connected Photovoltaic Systems

### Concept

PV\*SOL gridcon is a programme for the design and simulation of grid connected photovoltaic systems. With PV\*SOL gridcon, the most commonly-used system configurations can be optimised for efficient system design.

This dynamic simulation programme has been developed for engineers, planners, roofing specialists and electrical engineering or building technicians.



You can create your system using a wide range of modules and the programme helps you to determine the size of the system with the roof layout facility. After testing all the relevant physical parameters, the programme shows you the right inverter and PV array configuration.



### Module-Inverter Configuration

After setting up a new project with the Quick Design facility, the different configurations for the PV generator and the selected inverters are shown in all the possible combinations. The configurations are sorted by the dimensioning factor, the number of modules in series per string and the number of modules per inverter.

### Simulation

The calculations are based on hourly balances. The output of a PV system, which is determined by simulation over a period of one year, is based on a mathematical model which allows the exact reproduction of the characteristic curve for each of the PV modules contained in the database. This also allows the precise calculation of outputs for thin-film modules. If different module types or differently oriented arrays are used within a PV system, the programme simulates this by combining module groups into PV sub-arrays.

### Economic Efficiency Calculation

Detailed costings for modules, inverters or installation can be entered here. In respect of any loans, the discounts, depreciation and tax payments, as well as the month the system first goes into operation, can be accounted for. Different levels of payments for electricity supply can be entered, e.g. for systems up to 30 kW and over, and the bands for roof, facade or ground mounted systems can be



entered and changed as required. In addition to the capital value of a system, PV\*SOL gridcon also determines the electricity production costs and the amortisation period.



## Climate Data

Climate data for irradiation and air temperature in hourly intervals for a period of one year is delivered with the programme for approximately 650 European locations. The integrated module MeteoSyn contains a further 2000 international locations and can also generate hourly values from monthly data entered by the user. In addition, the German Weather Service's TRY format climate files can be imported into the programme. And with the Swiss programme METEONORM worldwide climate data can be created and imported into PV\*SOL gridcon.

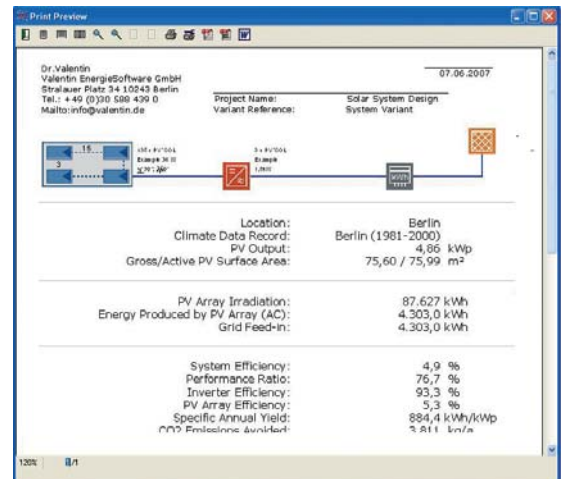
## Shade Editor

PV\*SOL's shade editor can be used to make the corresponding entries for each sub-array in respect of possible shading by the horizon and by buildings or trees.

## Results

The following results can be produced in graphical format, in a comprehensive project report with illustrations for presentation to customers, or in a results overview:

- Projected Specific Annual Yield
- Final Yield
- Performance Ratio
- System Efficiency
- PV Generator Efficiency
- Solar Fraction
- Energy and Other Values in Graph and Table Format
- Economic Efficiency Calculation



Free demo versions of all our programmes are available to download from [www.valentin.de](http://www.valentin.de)



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