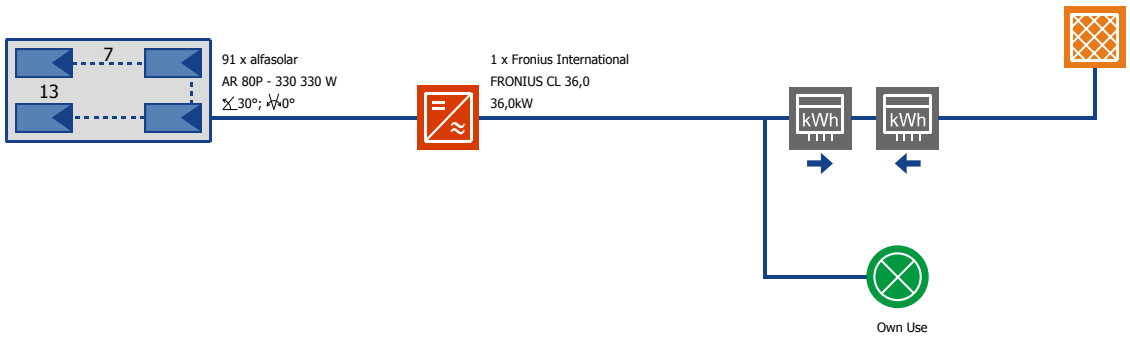
_Project Name: _Solar System Design _6.2.2017._Variant Reference: _System Variant_

Solarna elektrana 30 Kw,  DD electric d.o.o., Bjelovar, Tel: 099/6762 058




| | | |
|---|---|---|
| Location: | Bjelovar | |
| Climate Data Record: | Bjelovar (1986-2017) | |
| PV Output: | 30,03 | kWp |
| Gross/Active PV Surface Area: | 192,44 / 192,63 | m2 |

| | | |
|---|---|---|
| PV Array Irradiation: | 332.077 | kWh |
| Energy Produced by PV Array (AC): | 41.825 | kWh |
| Energy to Grid: | 41.824,9 | kWh |
| Direct Use of PV Energy: | 0 | kWh |
| Energy from Grid: | 100,9 | kWh |

| | | |
|---|---|---|
| System Efficiency: | 12,6 | % |
| Performance Ratio: | 80,6 | % |
| Inverter Efficiency: | 94,3 | % |
| PV Array Efficiency: | 13,3 | % |
| Specific Annual Yield: | 1.389 | kWh/kWp |
| CO2 Emissions Avoided: | 36.995 | kg/a |

The results are determined by a mathematical model calculation. The actual yields of the photovoltaic system can deviate from these values due to fluctuations in the weather, the efficiency of modules and inverters, and other factors.
The System Diagram above does not represent and cannot replace a full technical drawing of the solar system.

**System in Grid Connected Operation**

| | | | |
|---|---|---|---|
| Location: | Bjelovar | PV Output: | 30,03 kWp |
| Climate Data Record: | Bjelovar | Gross/Active PV Surface Area: | 192,4 m2 / 192,6 m2 |
| Number of Arrays: | 1 | | |

**Array 1: Array Name**

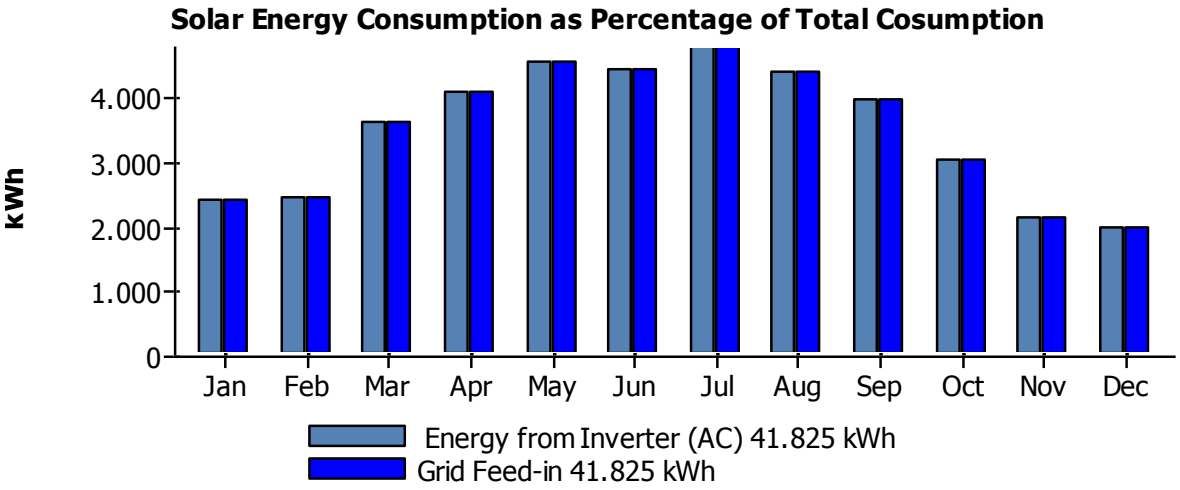
| | | | |
|---|---|---|---|
| Output: | 30,03 kW | Ground Reflection: | 20,0 % |
| Gross/Active Solar Surface Area: | 192,4 m2 / 192,6 m2 | Output Losses due to... | |
| **PV Module** | 91 x | deviation from AM 1.5: | 1,0 % |
| Manufacturer: | alfasolar | deviation from Manufacturer's Specification: | 2,0 % |
| Model: | AR 80P - 330 | in Diodes: | 0,5 % |
| Nominal Output: | 330 W | due to Pollution: | 0,0 % |
| Power Rating Deviation: | 0 % | **Inverter** | 1 x |
| Efficiency (STC): | 15,6 % | Manufacturer: | Fronius International |
| No. of Modules in Series: | 7 | Model: | FRONIUS CL 36,0 |
| MPP Voltage (STC): | 283 V | Output: | 36,00 kW |
| Orientation: | 0,0 ° | European Efficiency: | 95,3 % |
| Inclination: | 30,0 ° | No. of MPP Trackers: | 1 |
| Mount: | with Ventilation | MPP Tracking: | 230 V To 500 V |
| Shade: | No | | |

**Individual Appliances Total Consumption: 0 kWh**

| | | | |
|---|---|---|---|
| Individual Appliance 1 | | Model: User-Independent Appl. | 0 kWh |

## Simulation Results for Total System

| | | | |
|---|---|---|---|
| Irradiation onto Horizontal: | 289.967 kWh | Own Use: | 100,9 kWh |
| PV Array Irradiation: | 332.077 kWh | Energy Produced by PV Array: | 44.231 kWh |
| Irradiation minus Reflection: | 320.827 kWh | Solar Fraction: | 0,0 % |
| Energy from Inverter (AC): | 41.825 kWh | System Efficiency: | 12,6 % |
| Energy to Grid: | 41.825 kWh | Performance Ratio: | 80,6 % |
| Consumption Requirement: | 0 kWh | Final Yield: | 3,8 h/d |
| Direct Use of PV Energy: | 0 kWh | Specific Annual Yield: | 1.389 kWh/kWp |
| Energy from Grid: | 101 kWh | Array Efficiency: | 13,3 % |



# Economic Efficiency Calculation

**System Data**
PV Output: 30,03 kWp
System Operating Start: 1.4.2017.

**Electricity Feed-in**

| | |
|---|---|
| Grid Concept: | Own Use |
| For the First 20 Years: | 0,1572 kn/kWh |
| Thereafter: | 0,0000 kn/kWh |
| Savings due to Own Use: | 0,0000 kn/kWh |

**Basic Economic Efficiency Parameters**

| | |
|---|---|
| Assessment Period: | 20 Years |
| Interest on Capital: | 3,00 % |
| All entries without sales tax | |

**Income and expenditure**

| | |
|---|---|
| Investments: | 42.042,00 kn |
| Operating Costs: | 294,29 kn/a |
| Feed-in Payment Received in First Year: | 6.558,89 kn/a |

**Results According to Net Present Value Method**

| | |
|---|---|
| **Net Present Value:** | **53.027,26 kn** |
| **Payback Period:** | **7,7 Years** |
| **Yield:** | **13,3 %** |
| **Electricity Production Costs:** | **0,07 kn/kWh** |