

Algis Velling
Kumpsu, Metsla, 69711 Viljandi maakond

Customer No.: 1
Project Name: Iseseisev päikesepark
Offer no.: 1

27.04.2024

Your PV system

Address of Installation

Kumpsu, Metsla, 69711 Viljandi maakond



Project Overview

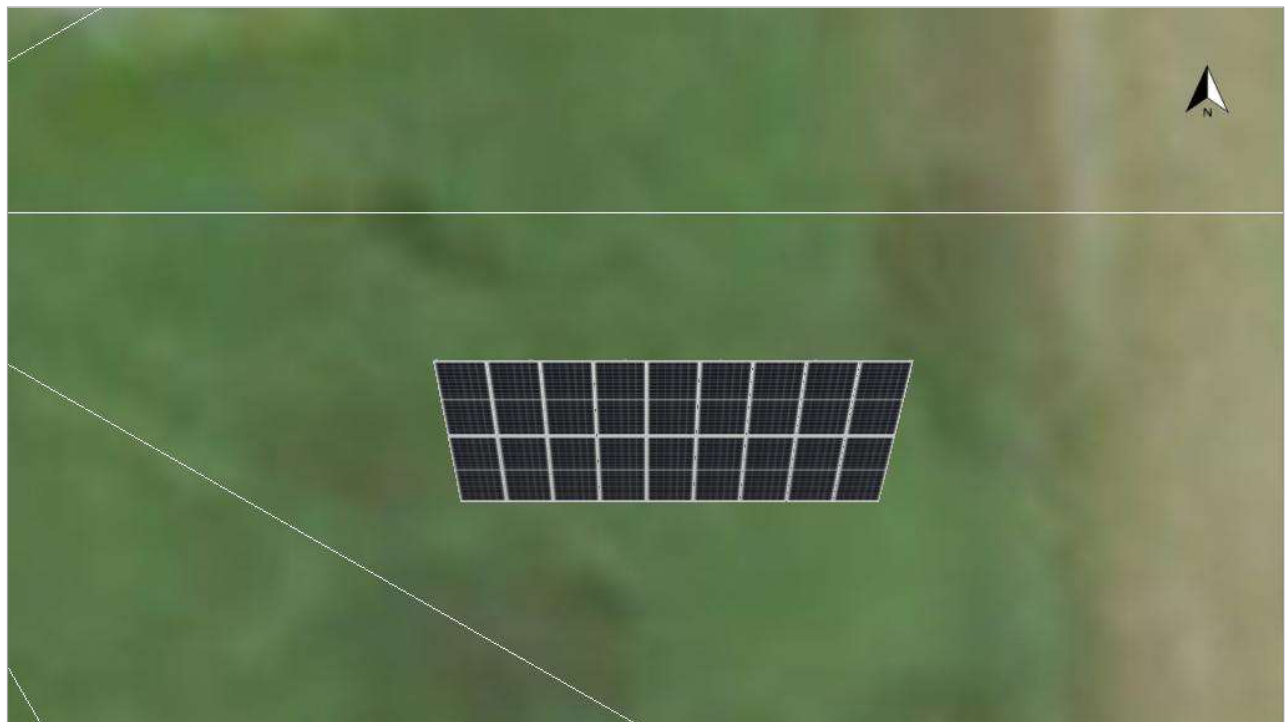


Figure: Overview Image, 3D Design

PV System

3D, Stand-alone PV System

Climate Data	Viljandi vald, EST (2001 - 2020)
Values source	Meteonorm 8.2(i)
PV Generator Output	11,88 kWp
PV Generator Surface	55,9 m²
Number of PV Modules	18
Number of Inverters	1
Number of Batteries	2

Set-up of the System

Overview

System Data

Type of System	3D, Stand-alone PV System
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Climate Data

Location	Viljandi vald, EST (2001 - 2020)
Values source	Meteonorm 8.2(i)
Resolution of the data	1 min
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Reindl reduced
- Irradiance onto tilted surface	Hay & Davies

Consumption

Total Consumption	518 kWh
Kumpsu	518 kWh
Load Peak	6,4 kW

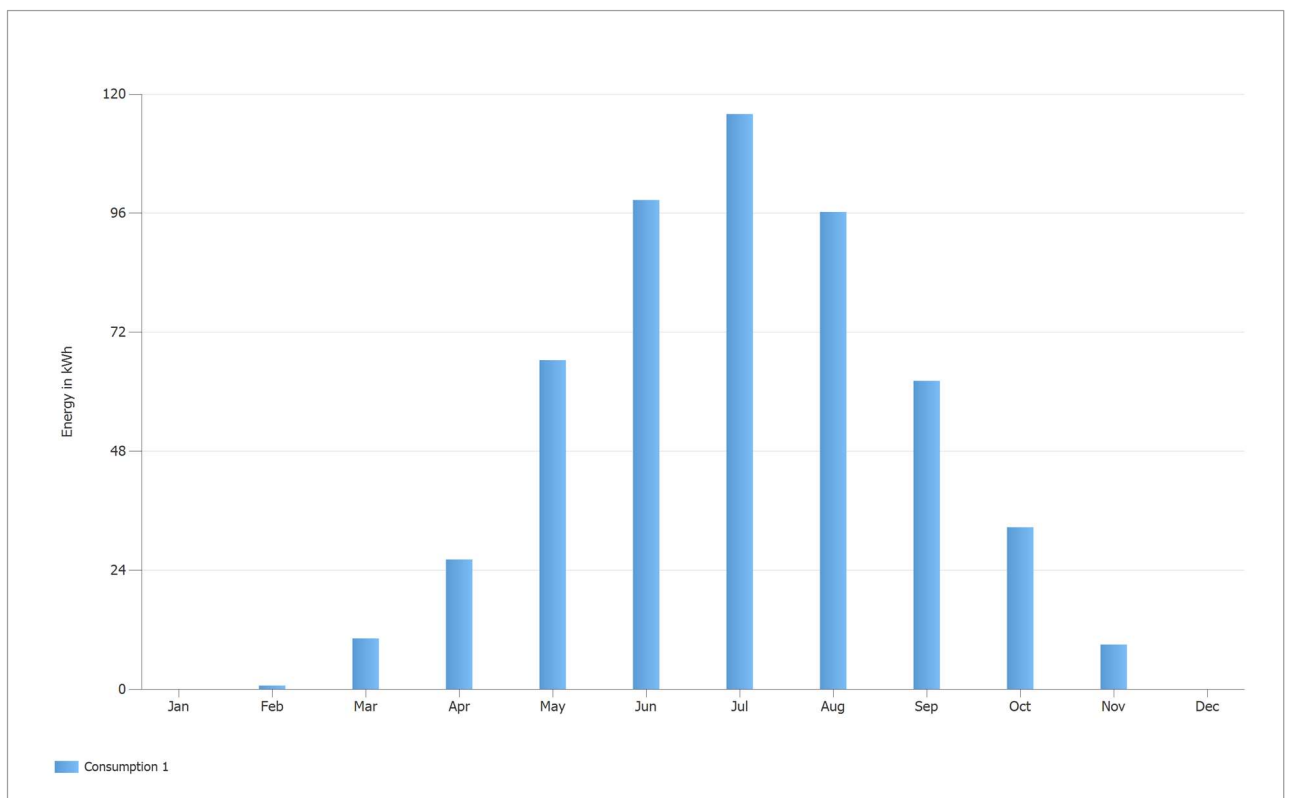


Figure: Consumption

Module Areas

1. Module Area - Open Area (Map Section)-Area South

PV Generator, 1. Module Area - Open Area (Map Section)-Area South

Name	Open Area (Map Section)-Area South
PV Modules	18 x LP210*210-M-66-MH-660W bifacial (v1)
Manufacturer	Leapton Solar
Inclination	45 °
Orientation	South 180 °
Installation Type	Mounted - Open Space
PV Generator Surface	55,9 m ²

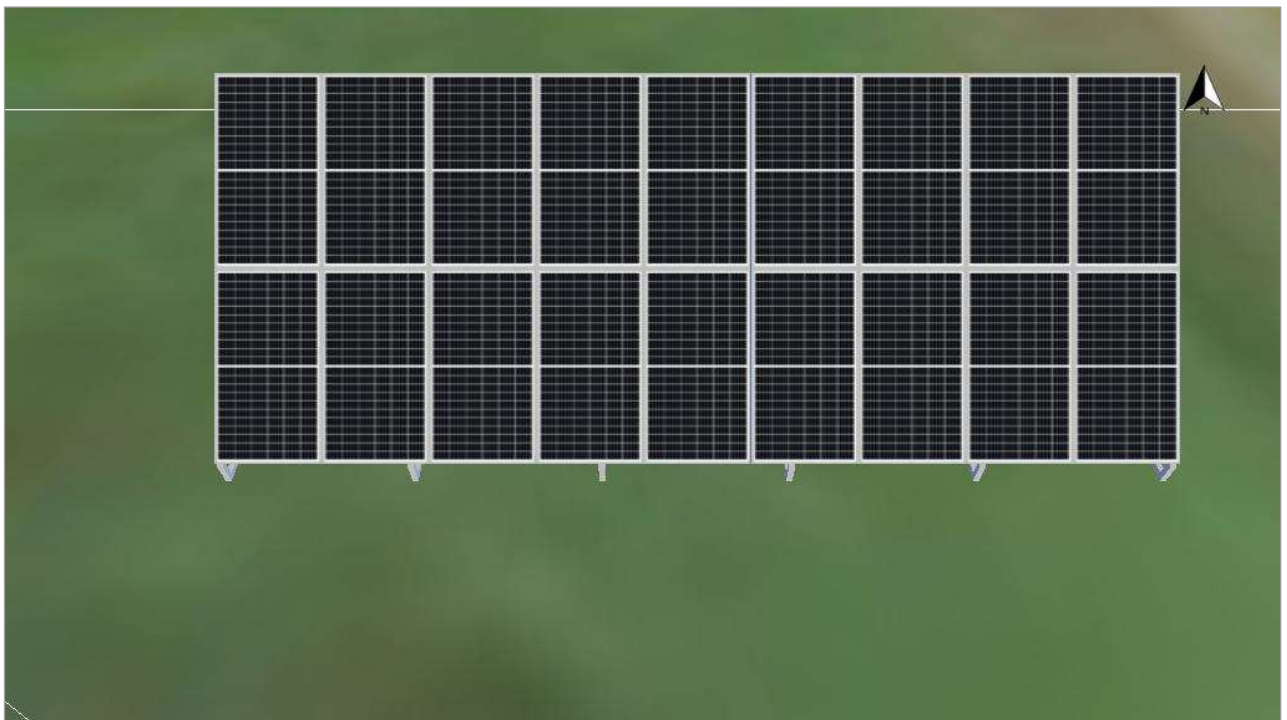


Figure: 1. Module Area - Open Area (Map Section)-Area South

Horizon Line, 3D Design

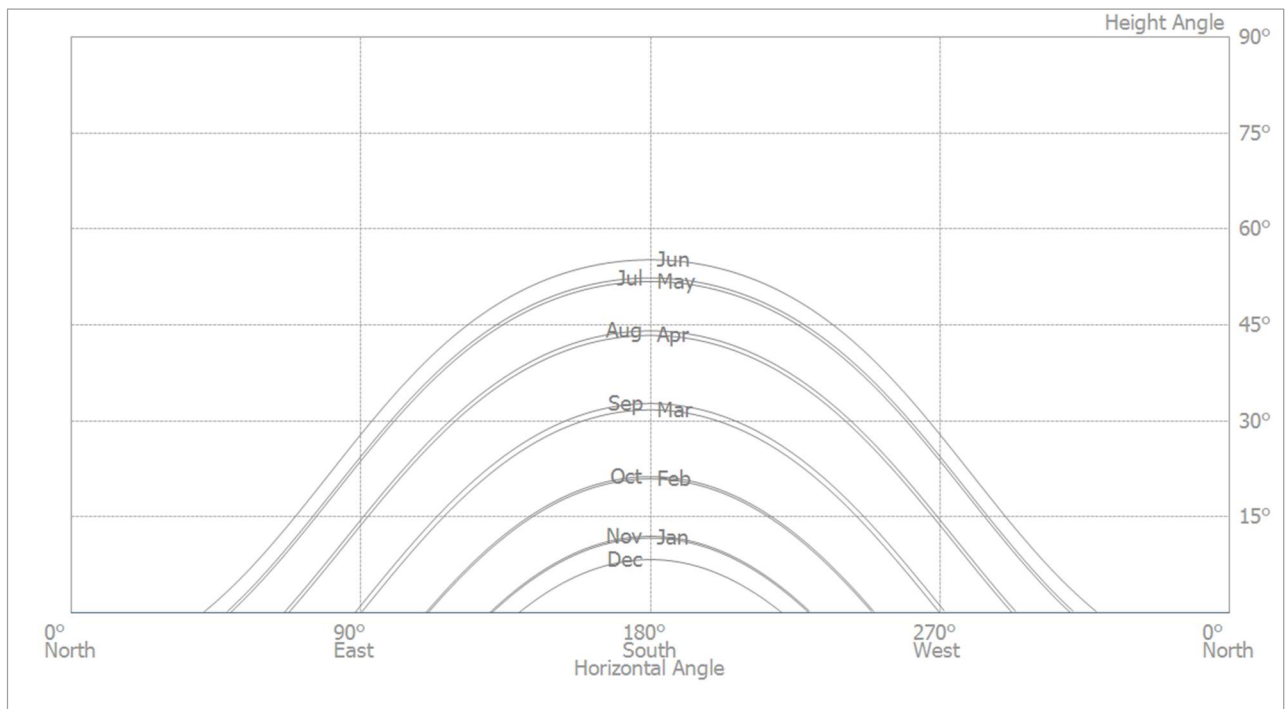


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Area	Open Area (Map Section)-Area South
Inverter 1	
Model	HYD 10KTL-3PH (v1)
Manufacturer	SOFARSOLAR Co., Ltd.
Quantity	1
Sizing Factor	118,8 %
Configuration	MPP 1: 1 x 9 MPP 2: 1 x 9

AC Mains

AC Mains

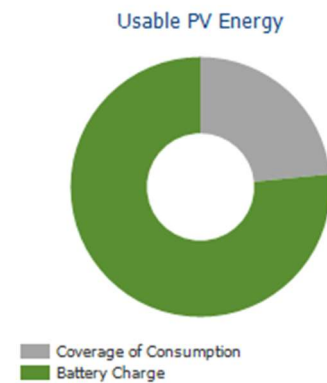
Number of Phases	3
Mains voltage between phase and neutral	230 V
Displacement Power Factor (cos phi)	+/- 1

Simulation Results

Results Total System

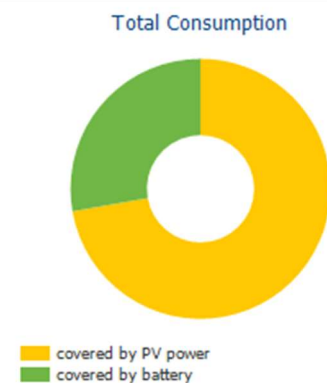
PV System

PV Generator Output	11,88 kWp
Spec. Annual Yield	1 087,54 kWh/kWp
Performance Ratio (PR)	88,36 %
Yield Reduction due to Shading	0,0 %
Maximum possible PV Energy	12 965 kWh/Year
Usable PV Energy	1 752 kWh/Year
Coverage of Consumption	411 kWh/Year



Appliances

Consumption	518 kWh/Year
Consumption with Load Shedding	518 kWh/Year
Standby Consumption (Inverter)	45 kWh/Year
Cable Losses	4 kWh/Year
Total Consumption	477 kWh/Year
covered by PV power	411 kWh/Year
covered by battery	158 kWh/Year
Solar Fraction	100,0 %



Battery System

Battery Charging	1 343 kWh/Year
Coverage of Consumption by the Battery System	158 kWh/Year
Losses due to charging/discharging	1 142 kWh/Year
Losses in Battery	129 kWh/Year
Cycle Load 1	0,2 %
Service Life 1	>20 Years
Cycle Load 2	0,2 %
Service Life 2	>20 Years

Total System

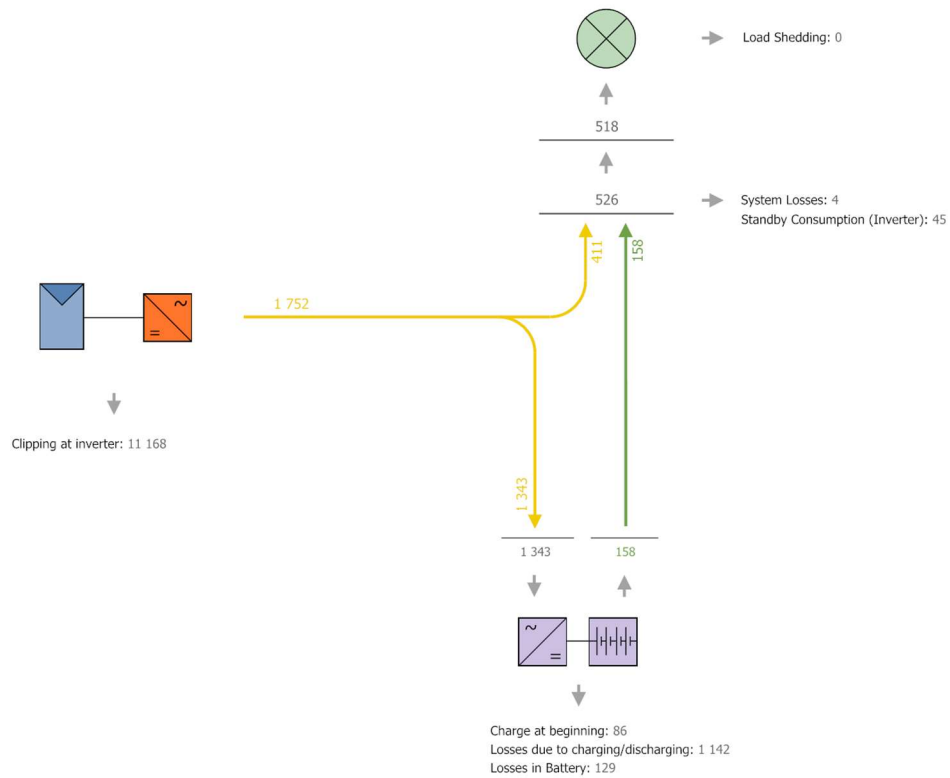
System Efficiency	4,0 %
CO ₂ Emissions avoided	243 kg / year

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Energy Flow Graph

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All values in kWh
Small deviations in the totals can occur due to rounding
created with PV*SOL

Figure: Energy flow

Plans and parts list

Circuit Diagram

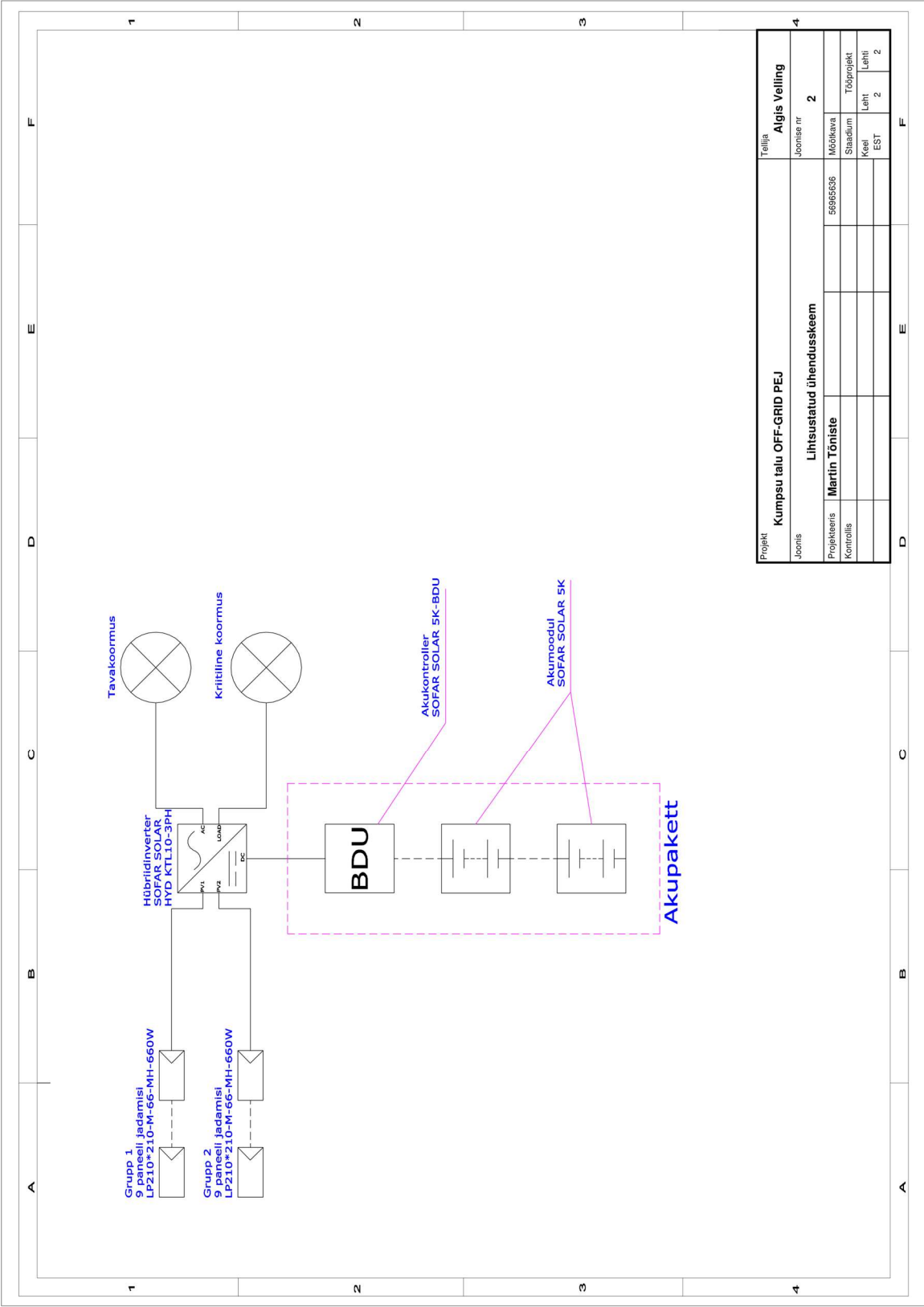


Figure: Circuit Diagram

Overview plan

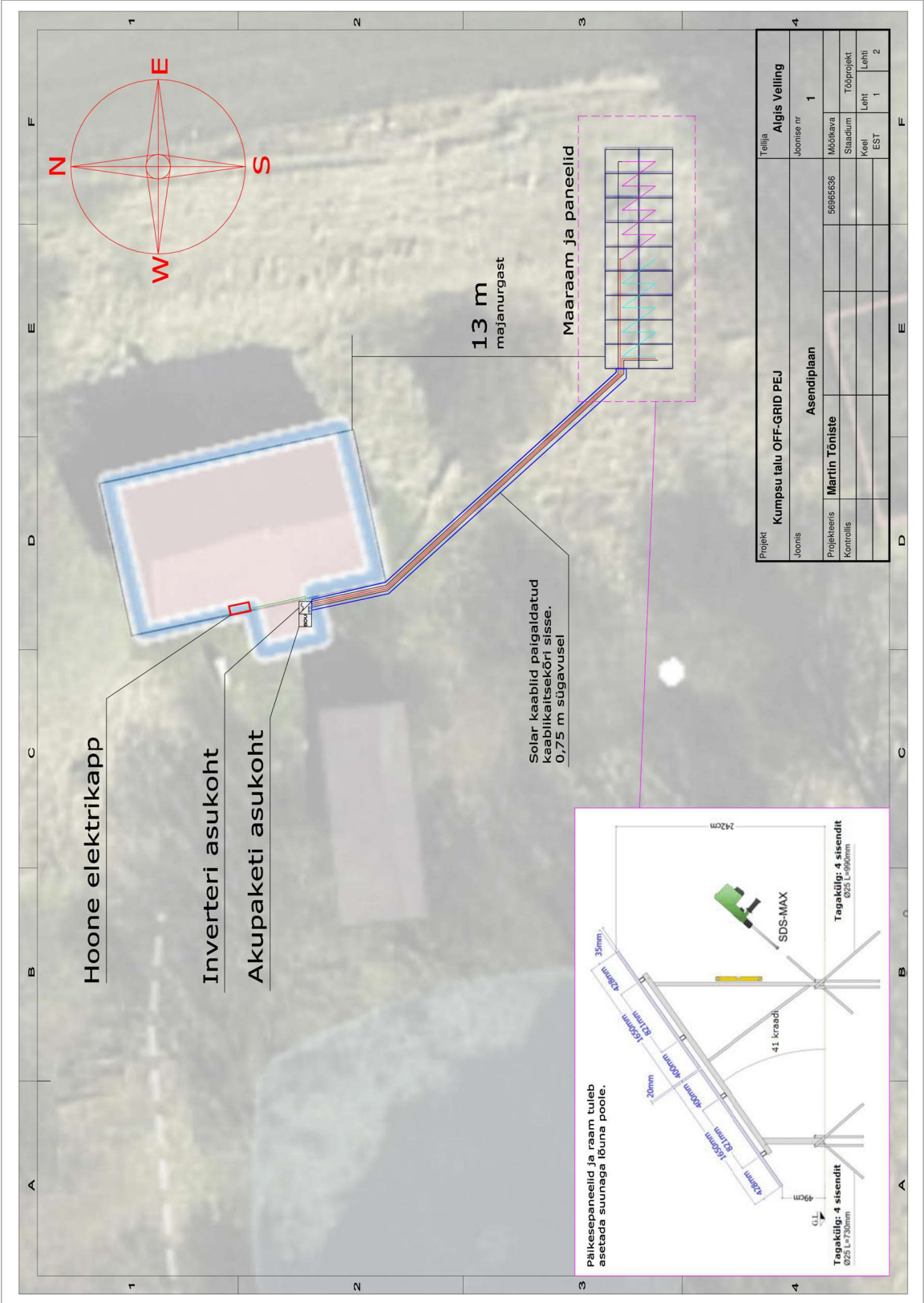


Figure: Overview plan

Iseseisev päikesepark

Offer Number: 1

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		Leapton Solar	LP210*210-M-66-MH-660W bifacial	18	Piece
2	Inverter		SOFARSOLAR Co., Ltd.	HYD 10KTL-3PH	1	Piece
3	Cable			String Cable 4 mm ² Copper Black	70	m
4	Cable			String Cable 4 mm ² Copper Red	60	m
5	Cable			AC cables 3-phase 2,5 16 mm ² Copper		m
6	Battery		SOFARSOLAR Co., Ltd	BTS E5-DS5	2	Piece
7	BDU		SOFARSOLAR Co., Ltd	BDU 5K	1	Piece