INVESTMENT PROPOSAL

SACUIENI 6 MW PHOTOVOLTAIC SOLAR PARK

STUDY DEVELOPER : Resident Group

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TEHNICAL PROPOSAL

SACUIENI SOLAR PARK

PROJECT DEVELOPER : Resident Group - Oradea

PROJECT TYPE : ground fix – grid connected – full feed

NR. OF PV PANELS : 24.000 solar panels – 250W poly

TRANSFORMERS : 6 x 1000 Kw plus 1 connection point

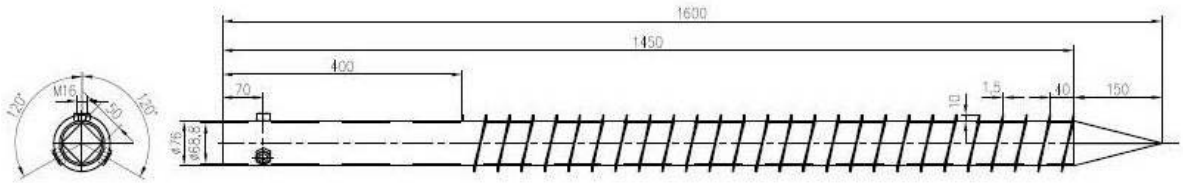
INVERTORS : 24 x 250 Kw

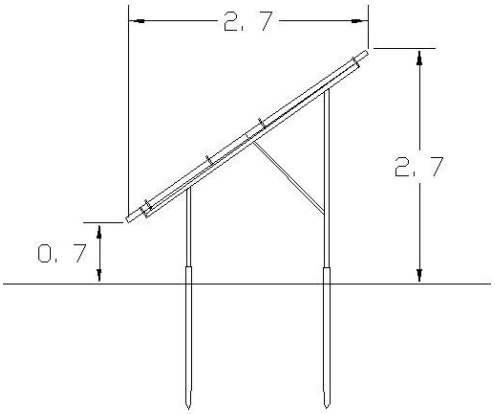
PEAK POWER INSTALLED : 6.000 Kwp [6Mwp]

FIXED SYSTEM: inclination=36 deg.,orientation=-1 deg. (optimum)

DETAILS : The PV Solar park will be built near ORADEA, BIHOR, Romania.

AREA : 150.000 m²

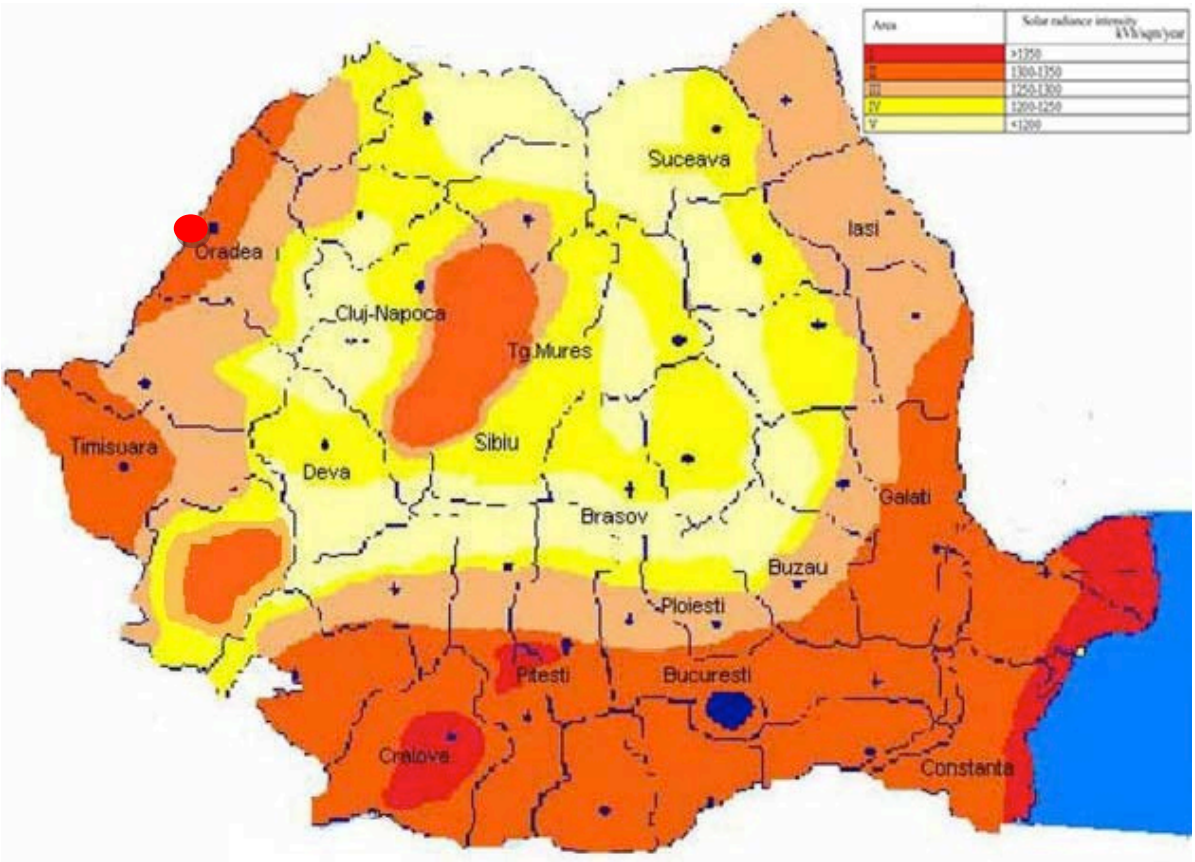




Solar Plant Area Map

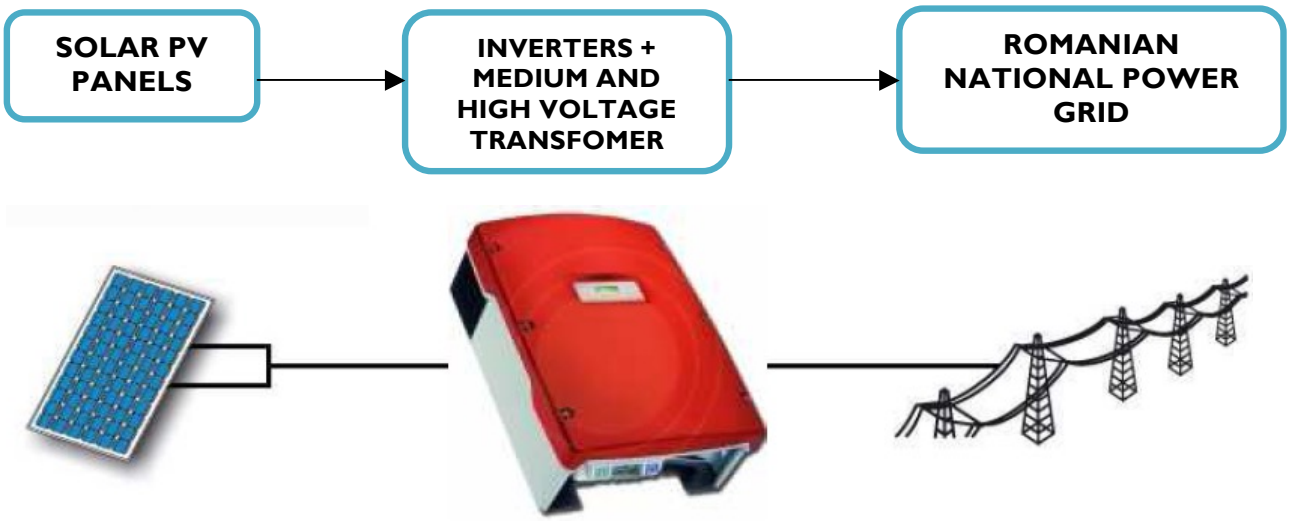
Location : Sacuieni City, Bihor County - 47°22'1.11" North, 22°4'50.78" East,

Solar Radiation & Plant Output



SOLAR RADIATION : To calculate the dimension of the pv array we have taken into consideration a radiation level for optimally inclined solar panels of 1560 kWh / m2 .

TECHNOLOGY :



Photovoltaic cells are made of special materials called semiconductors such as silicon, which is currently used most commonly. Basically, when light strikes the cell, a certain portion of it is absorbed within the semiconductor material. This means that the energy of the absorbed light is transferred to the semiconductor. The energy knocks electrons loose, allowing them to flow freely.

PV cells also all have one or more electric field that acts to force electrons freed by light absorption to flow in a certain direction. This flow of electrons is a current, and by placing metal contacts on the top and bottom of the PV cell, we can draw that current off for external use. This current, together with the cell's voltage (which is a result of its built-in electric field or fields), defines the power (or wattage) that the solar cell can produce.

PV systems provide direct current (DC) voltage. To feed to the grid, this DC voltage has to be inverted to the grid alternating current (AC) voltage by a grid-tied inverter, synchronizing automatically its AC output to the exact AC voltage and frequency of the grid.

This MPP fluctuates during operation in an interval depending on the radiation, the cell temperature and the cell type und has so to be tracked by the inverter controlling unit.

The second important job of the solar power inverter is to control the PV system to run near its Maximum Power Point (MPP), the operating point where the combined values of the current and voltage of the solar modules result in a maximum power output. This MPP fluctuates during operation in an interval depending on the radiation, the cell temperature and the cell type und has so to be tracked by the inverter controlling unit.

- ✓ *Topographic study – Yes*
- ✓ *Feasabillity Study – Yes*
- ✓ *Land Ownership – Yes*
- ✓ *Urban Planning – Yes*
- ✓ *Enviroment Permit – Yes*
- ✓ *Electrica Company Location Permit – Yes*
- ✓ *Grid Connection Permit – Yes*
- ✓ *Build Permit for Solar Park – Yes*
- ✓ *ANRE license authorization – after beginning the plant construction*