MASLOWATEN

MArket uptake of an innovative irrigation Solution based on LOW WATer-ENergy consumption

THE FIVE DEMONSTRATION SITES OF MASLOWATEN

Luis Miguel Carrasco
Coordination

POLITÉCNICA

CAMPUS DE EXCELENCIA INTERNACIONAL

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

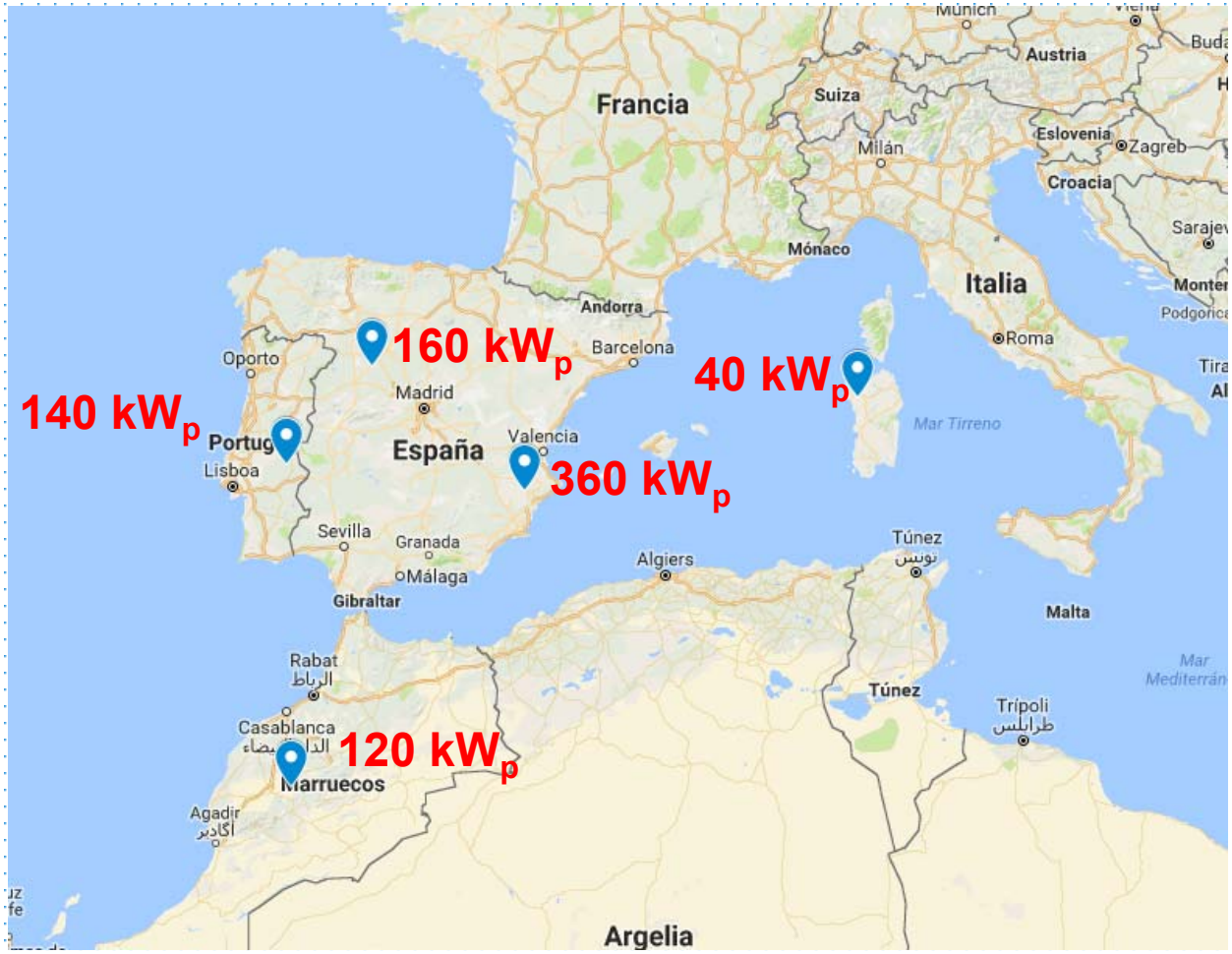
Five demonstrators

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Place for description/details of the activity (Conference, presentation etc)

Five demonstrators

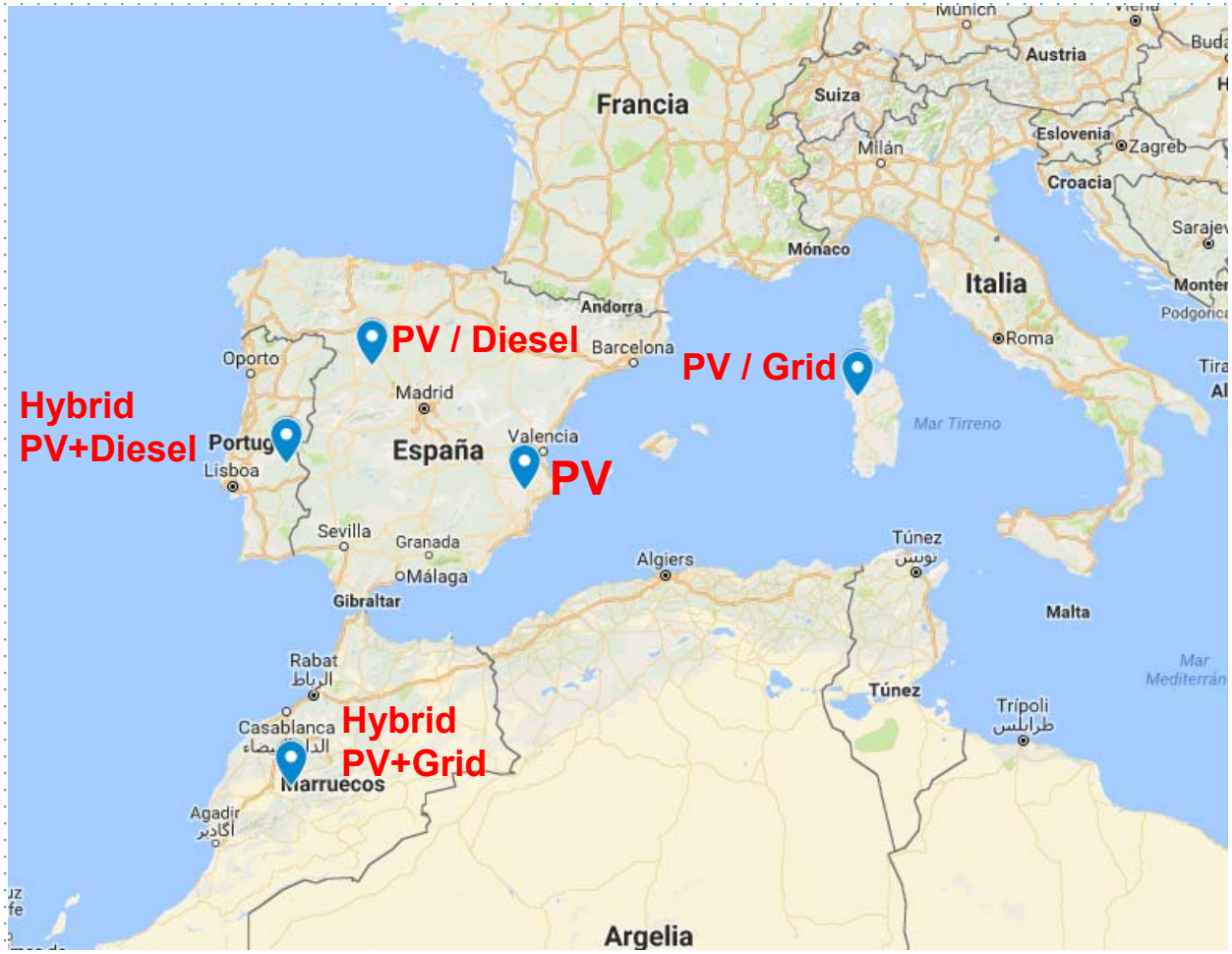
820 kW_p



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

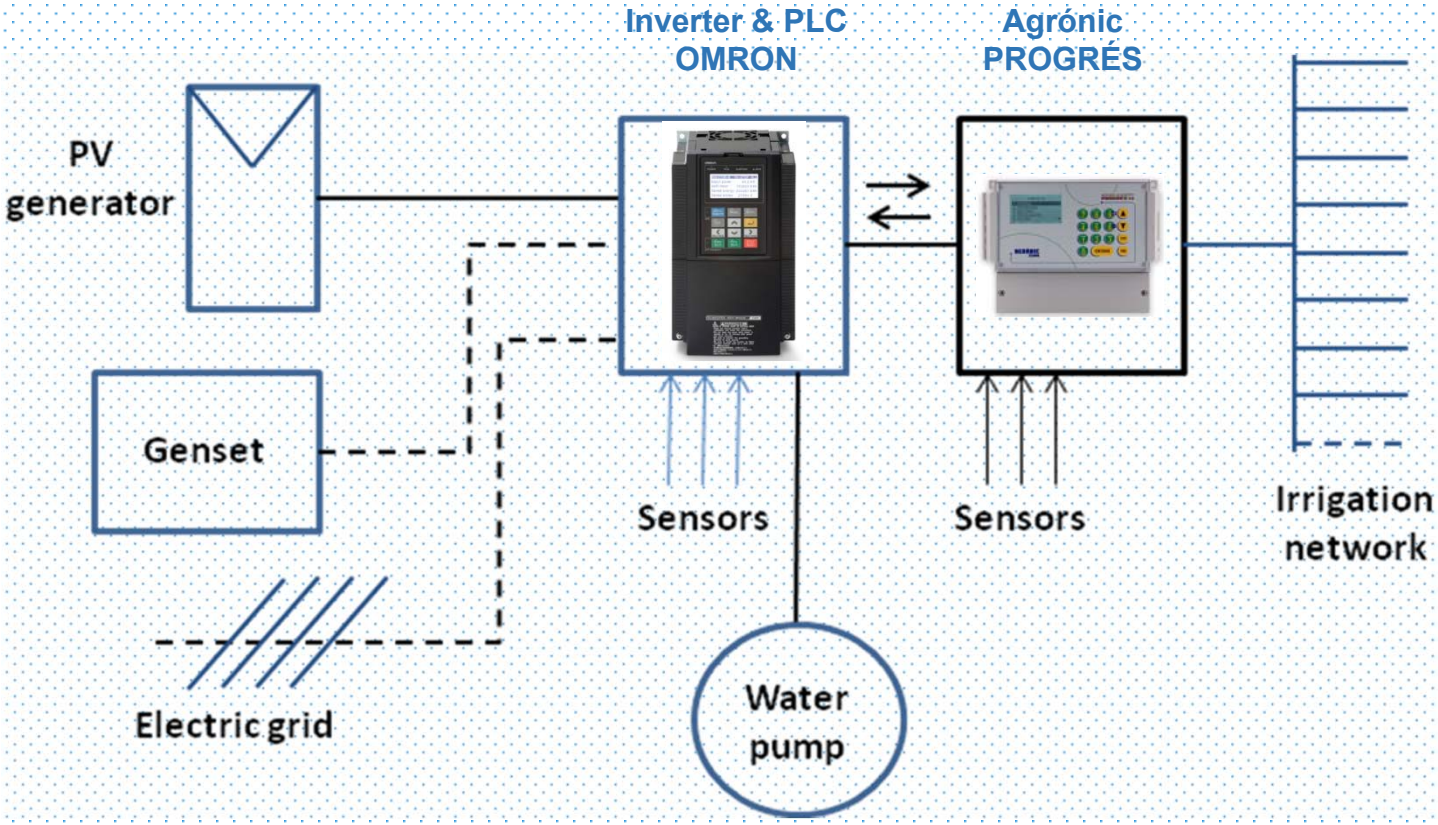
Place for description/details of the activity (Conference, presentation etc)

Five demonstrators



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Integration of PV pumping and Irrigation systems for the correct management of the electricity production and water use



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

PV pumping systems WITH simultaneous energy sources

ALENTEJO PORTUGAL – herade Sao Bernabé 140 kWp
Partial substitution of diesel-motor pump for constant pressure irrigation

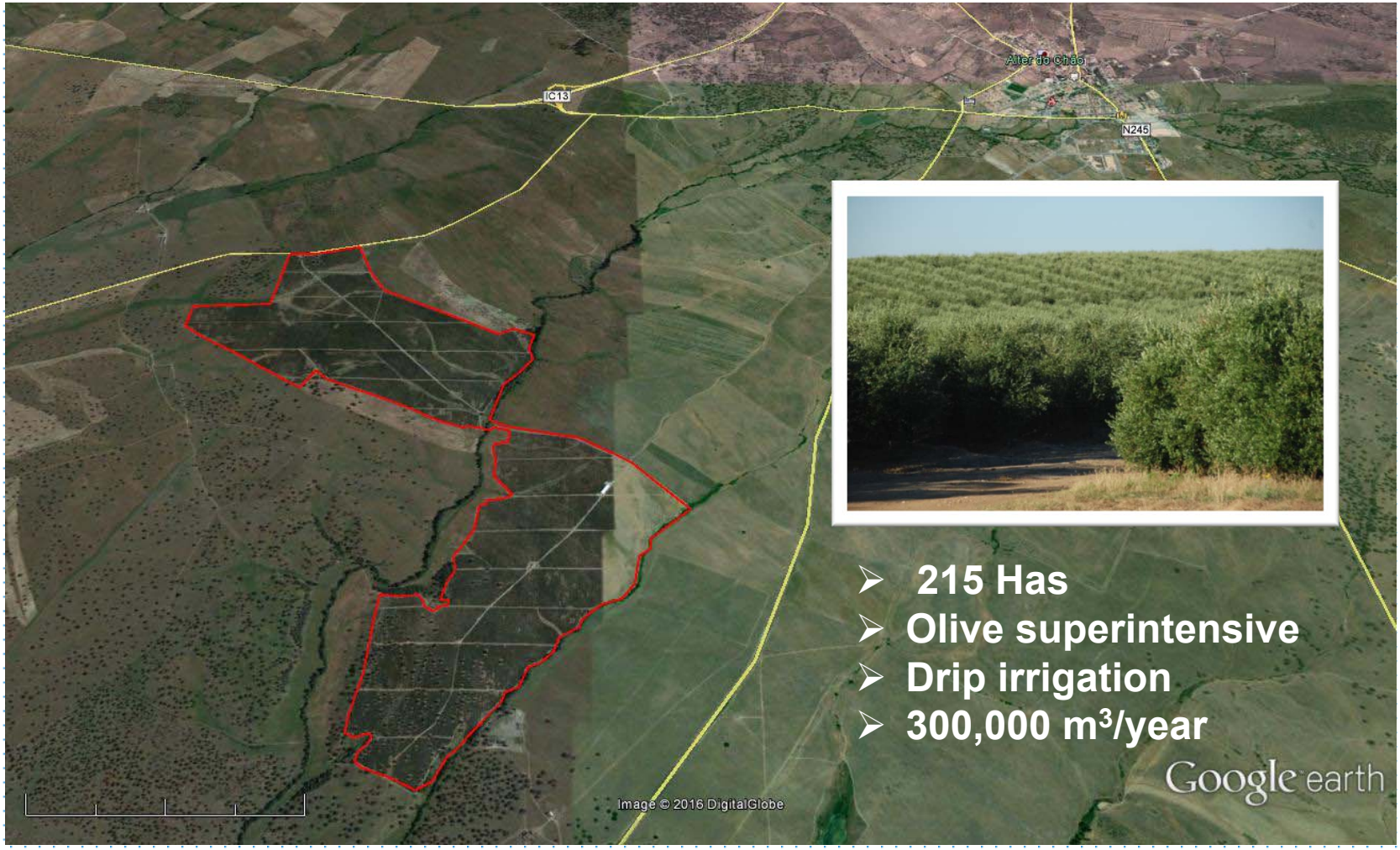
Energy sources : PV and diesel generator
Hydraulic hybridization

TAMELELT MOROCCO– Soprolives 120 kWp
Partial substitution of grid-connected pumps

Energy Sources : PV and grid
Electric Hybridization

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alter do Chao: PORTUGAL – Hybrid PV+Diesel



- 215 Has
- Olive superintensive
- Drip irrigation
- 300,000 m^3/year

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alter do Chao: PORTUGAL – Hybrid PV+Diesel

Owner : ELAIA (Herdade sao Bernabe)

Annual water needs : 334.000 m^3
HMT : 70 m
Flow : 2x 34 l/s

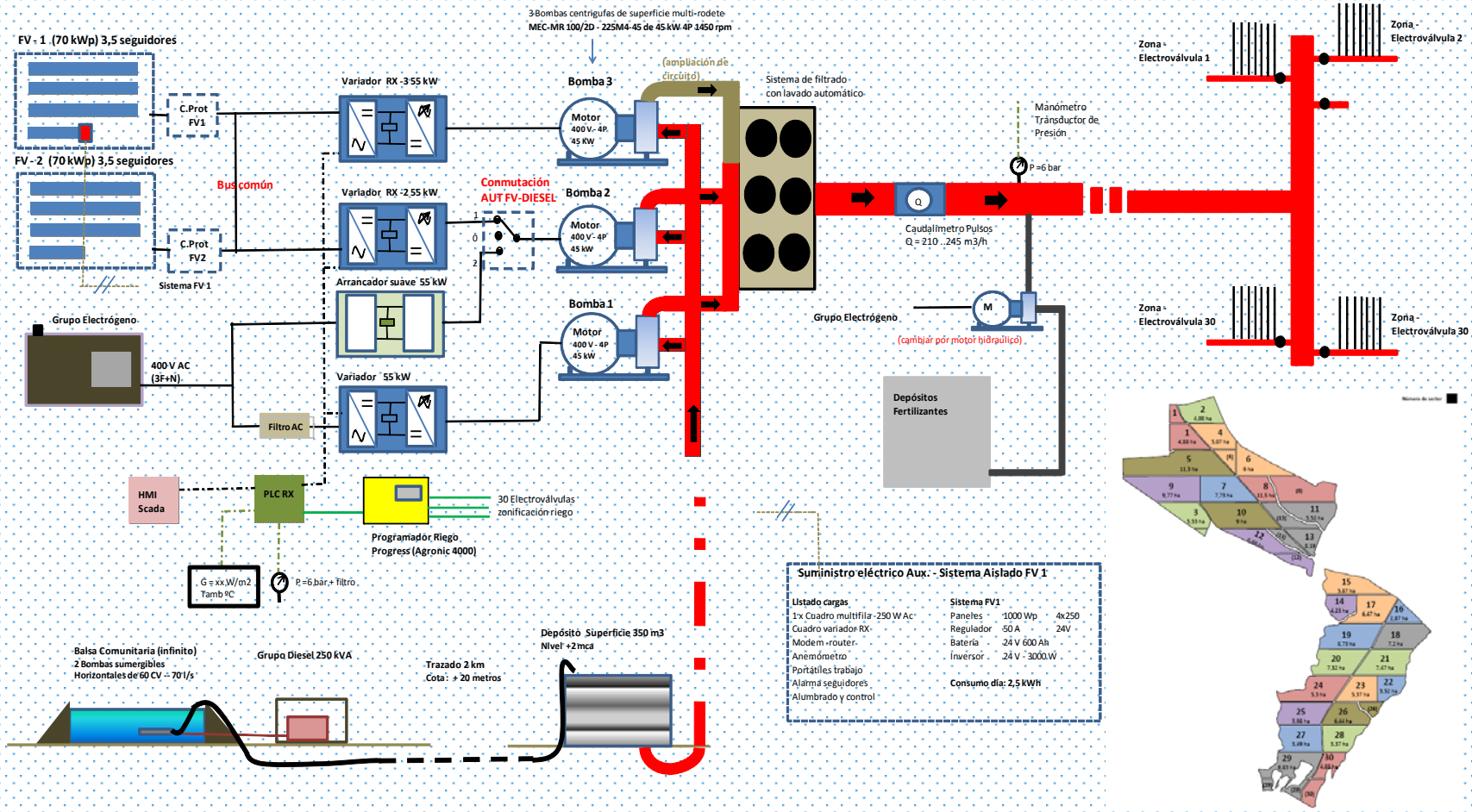
LOCATION	
City,Country	Alter do Chao (Portugal)
Longitude	7º 41' 35'' West
Latitude	39º 10' 0,03'' North
Altitude	208 m

System Configuration

PV Generator: 140 kWp
PV Trackers : 1 x H1250 multi-row (7 axes)
Inverter : 3 x 55 kW
Pumps : 3 x new MEC-MR 100/2 - 45 KW
Irrigation System : already exist
Expected water production : 300.000 m^3 (80% FV- 20% DIESEL)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alter do Chao: PORTUGAL – Hybrid PV+Diesel



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alter do Chao: PORTUGAL – Hybrid PV+Diesel

Irrigation controller *AGRONIC 4000*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alter do Chao: PORTUGAL – Hybrid PV+Diesel

PV modules MARTIFER
Tracker STI Norland

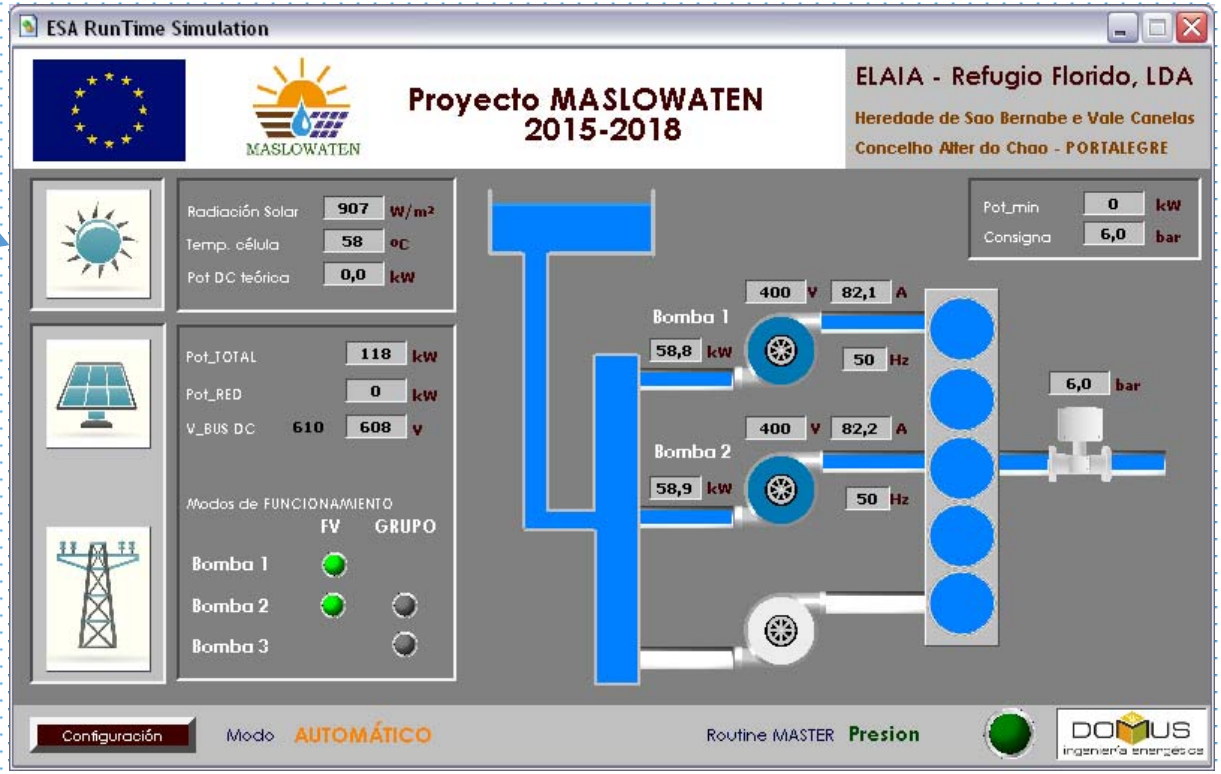
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alter do Chao: PORTUGAL – Hybrid PV+Diesel

CAPRARI MEC-MRS 100/2D **Inverters & PLC OMRON**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alter do Chao: PORTUGAL – Hybrid PV+Diesel



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Tamellalt: MOROCCO – Hybrid PV+Grid

Owner : ELAIA (Soprolives)

Annual water needs : 694.000 m^3
HMT : 60 m
Flow : 2x 53 l/s

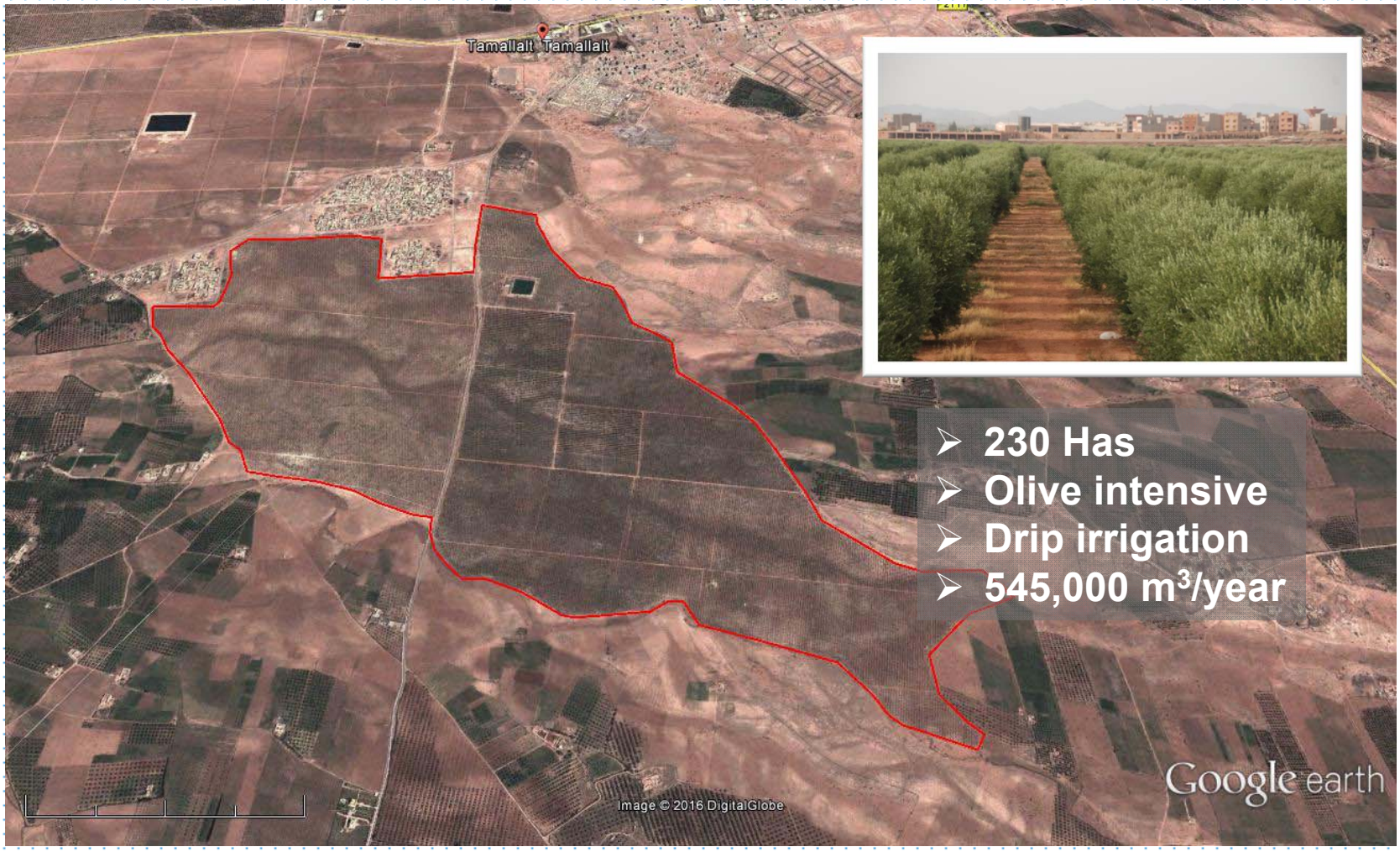
LOCATION	
City,Country	Tamellalt (D'el Kalaa, Morocco)
Longitude	7º 31' 12'' West
Latitude	31º 46' 48'' North
Altitude	584 m

System Configuration

PV Generator: 120 kWp
PV Trackers : 1 x H1250 multirow (6 axes)
Inverter : 2 x 55 kW
Pumps : 2 x new MEC-ARBHZ4/125C
Irrigation System : already exist
Expected water production : 545.000 m^3 (80% FV- 20% GRID)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

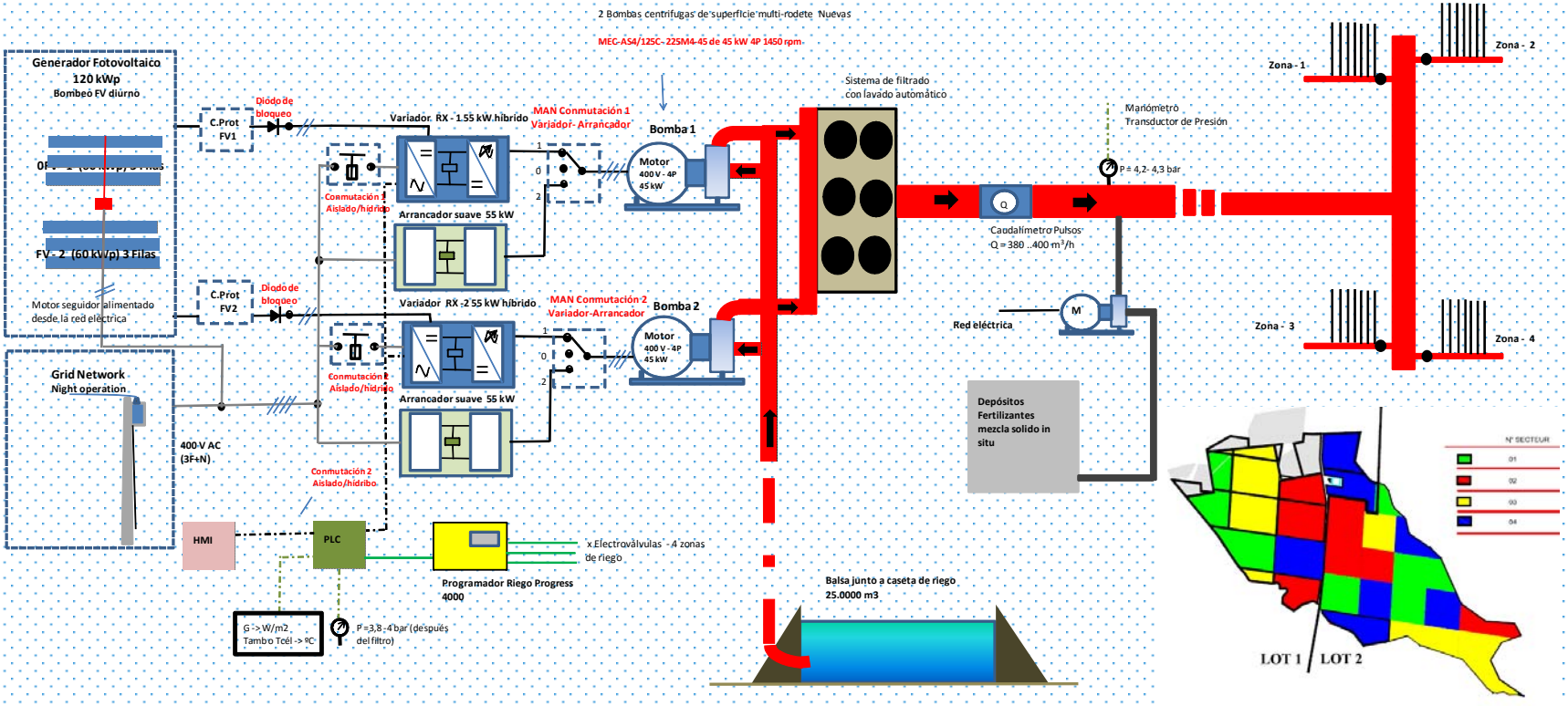
Tamellalt: MOROCCO – Hybrid PV+Grid



- 230 Has
- Olive intensive
- Drip irrigation
- 545,000 m^3/year

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Tamellalt: MOROCCO – Hybrid PV+Grid



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Tamellalt: MOROCCO – Hybrid PV+Grid

PV modules MARTIFER
Tracker STI Norland

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Tamellalt: MOROCCO – Hybrid PV+Grid

Inverters & PLC OMRON

Irrigation controller PROGRÉS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

PV pumping systems WITHOUT simultaneous energy sources

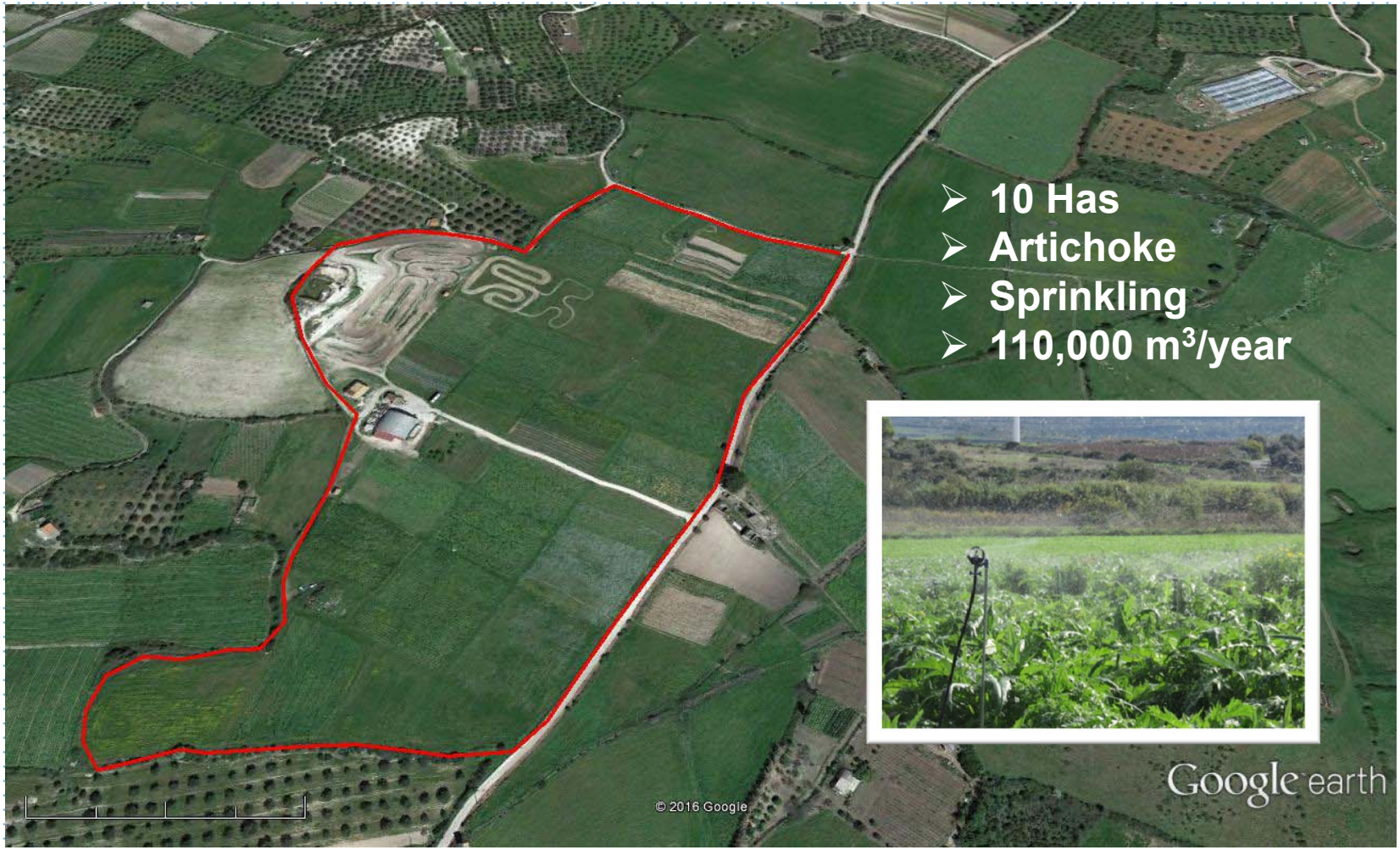
T3.3 : **URI - ITALY – Sarciofo Farm 40 kWp.**
Direct PV pumping at constant pressure through sprinkles
Energy sources: PV or Grid

T3.1 : **VILLENA - SPAIN– Pozo San Cristóbal 360 kWp.**
PV pumping to elevated water pool
Energy sources : Only PV

T3.2 : **VALLADOLID - SPAIN – Finca Coop. La Estrella de San Juan 160 kWp.**
Direct PV pumping at constant pressure through pivots and drip irrigation system
Energy sources: PV or Diesel Generator

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Uri: ITALY – PV / Grid



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Uri: ITALY – PV / Grid

Owner : Roberto Simula

Annual water needs : 100.000 m^3
Two wells : tested in Nov-15
HMT 1 and 2 : 90 m
Flow : Well-1 → 5-10 l/s
Well-2 → 3 l/s

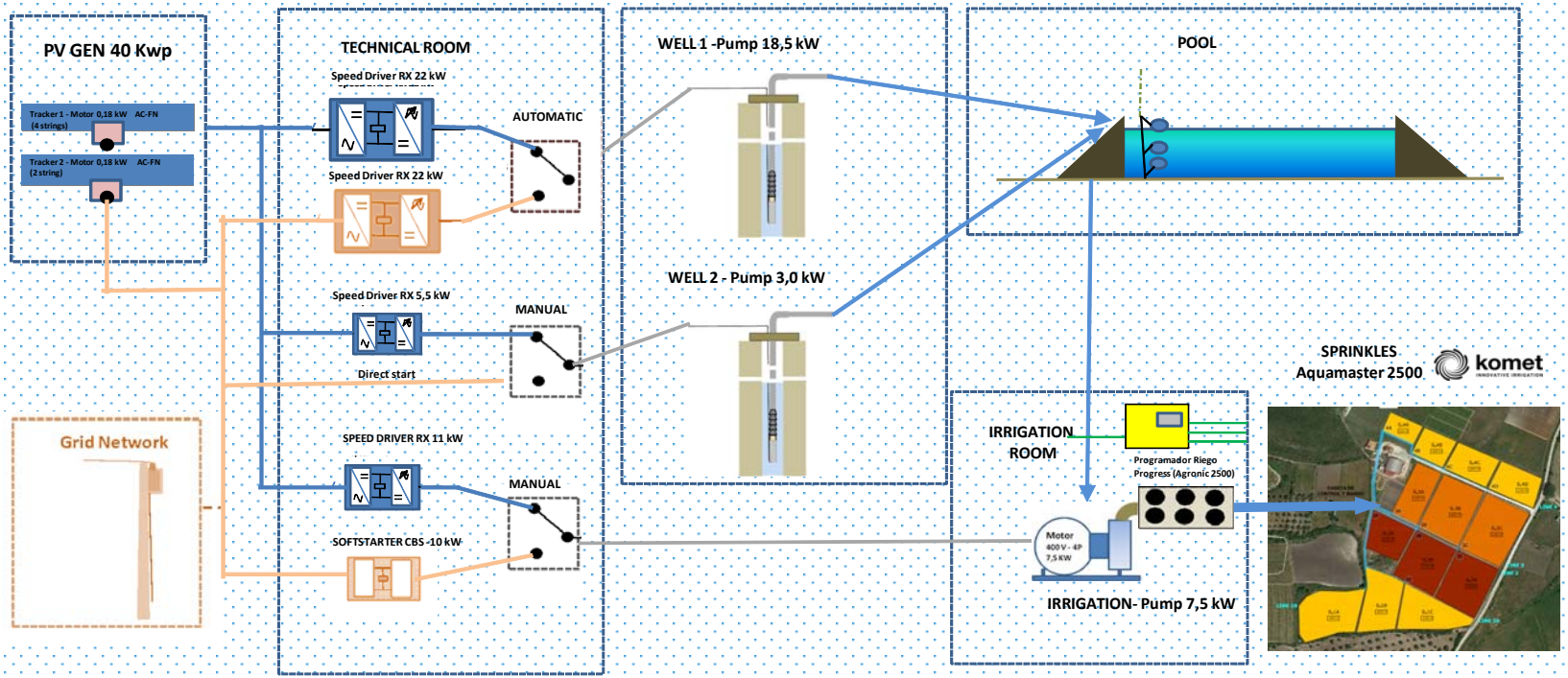
Location	
City,Country	Uri (Sardinia, Italy)
Longitude	40,62º North
Latitude	8,47º East
Altitude	128 m

System Configuration

PV Generator: 40 kWp (MARTIFER)
PV Trackers : 2 x H160 single-row (1 axe)
Inverter : 1 x 22 kW (ND) / 1x 5,5 kW and 1x 11 kW (OMRON)
Pumps : Well1- 18,5 KW submersible vertical electro-pump (CAPRARI)
Well 2 - 3 KW submersible vertical electro-pump
Irrigation 7,5 kW centrifugal surface horizontal axe (CAPRARI)
New Irrigation System : Agronic 2500 and meteorological station (PROGRÉS)
Sprinckles (KOMET)
Expected water production : 104.000 m^3

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Uri: ITALY – PV / Grid



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

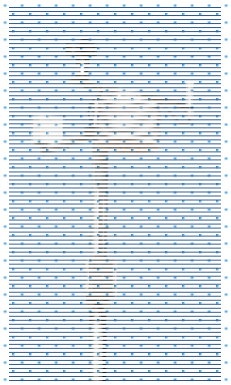
Uri: ITALY – PV / Grid

PV modules MARTIFER
Tracker STI Norland

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Uri: ITALY – PV / Grid

Inverters OMRON



Irrigation controller and sensors PROGRÉS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Uri: ITALY – PV / Grid

CAPRARI MEC-MRS 100/2D

CAPRARI E6SX50/14A

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Villena: SPAIN – PV

- 400 m deep well
- Storage pool
- 660,000 m^3/year

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Villena: SPAIN – PV

Owner : CGUAV

Annual water needs : 650.000 m^3 /22.000.000 m^3
New well: completed in April-16
HMT : 288 m
Flow : 63 l/s (227 m^3/h)

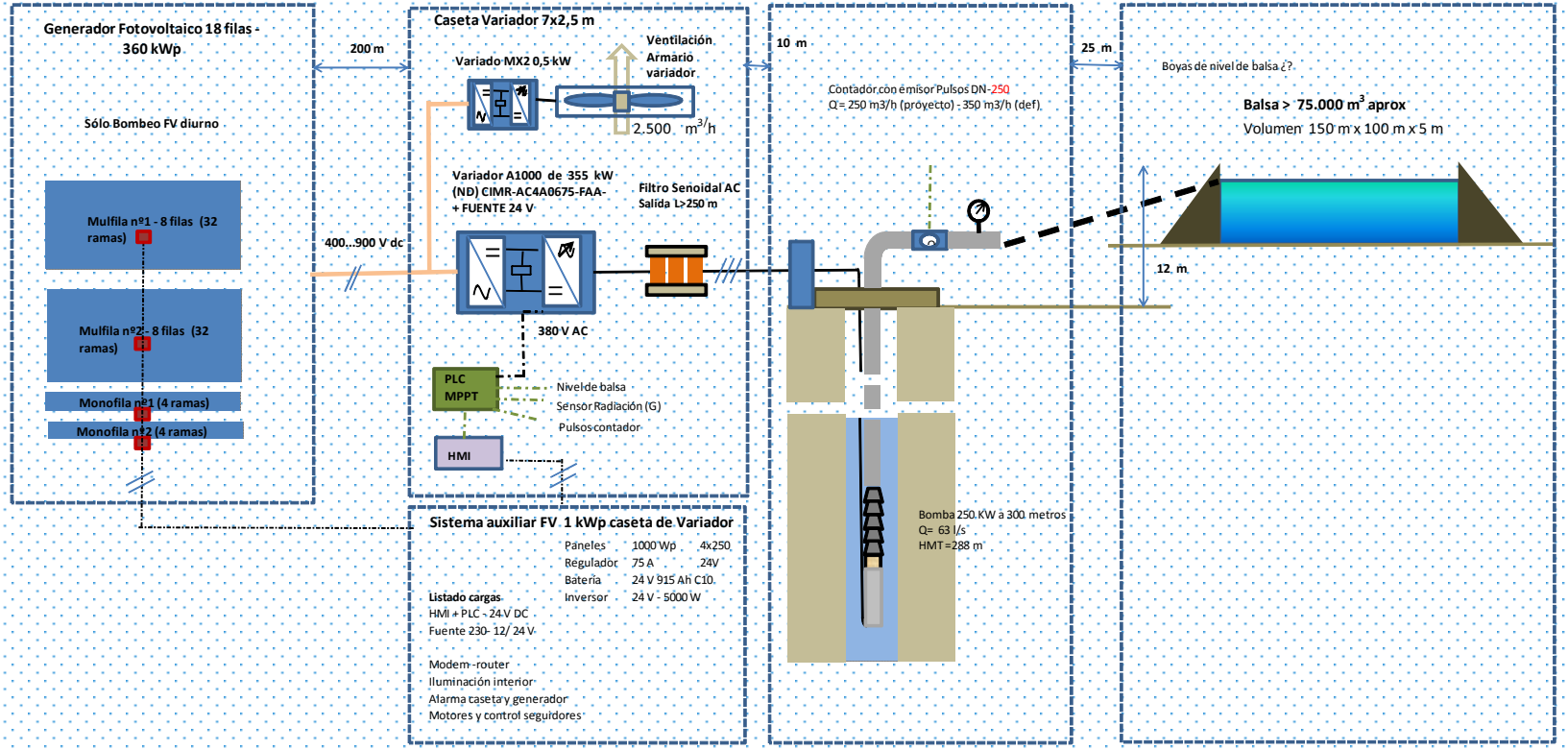
Location	
City,Country	Villena (Alicante), Spain
Longitude	0º 50' 32'' West
Latitude	38º 14' 19'' North
Altitude	593 m

System Configuration

PV Generator: 360 kWp (MARTIFER)
PV Trackers : 2x H1250 multi-rows (8 axes) and
2x H160 single-row (1 axe)
Inverter : 355 kW (ND) (OMRON)
Pump : 250 KW (P2) submersible vertical electro-pump (CAPRARI)
Expected water production : 663.000 m^3

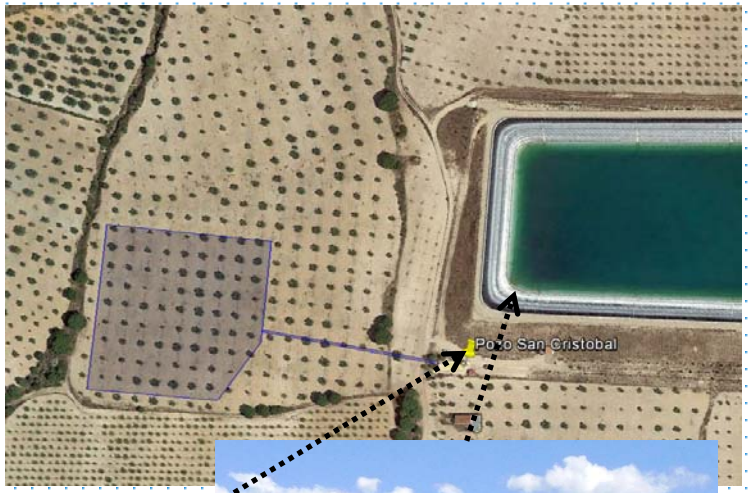
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Villena: SPAIN – PV



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Villena: SPAIN – PV

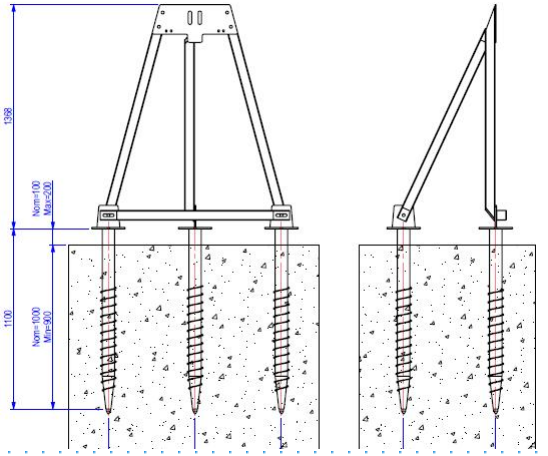


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Villena: SPAIN – PV

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Villena: SPAIN – PV

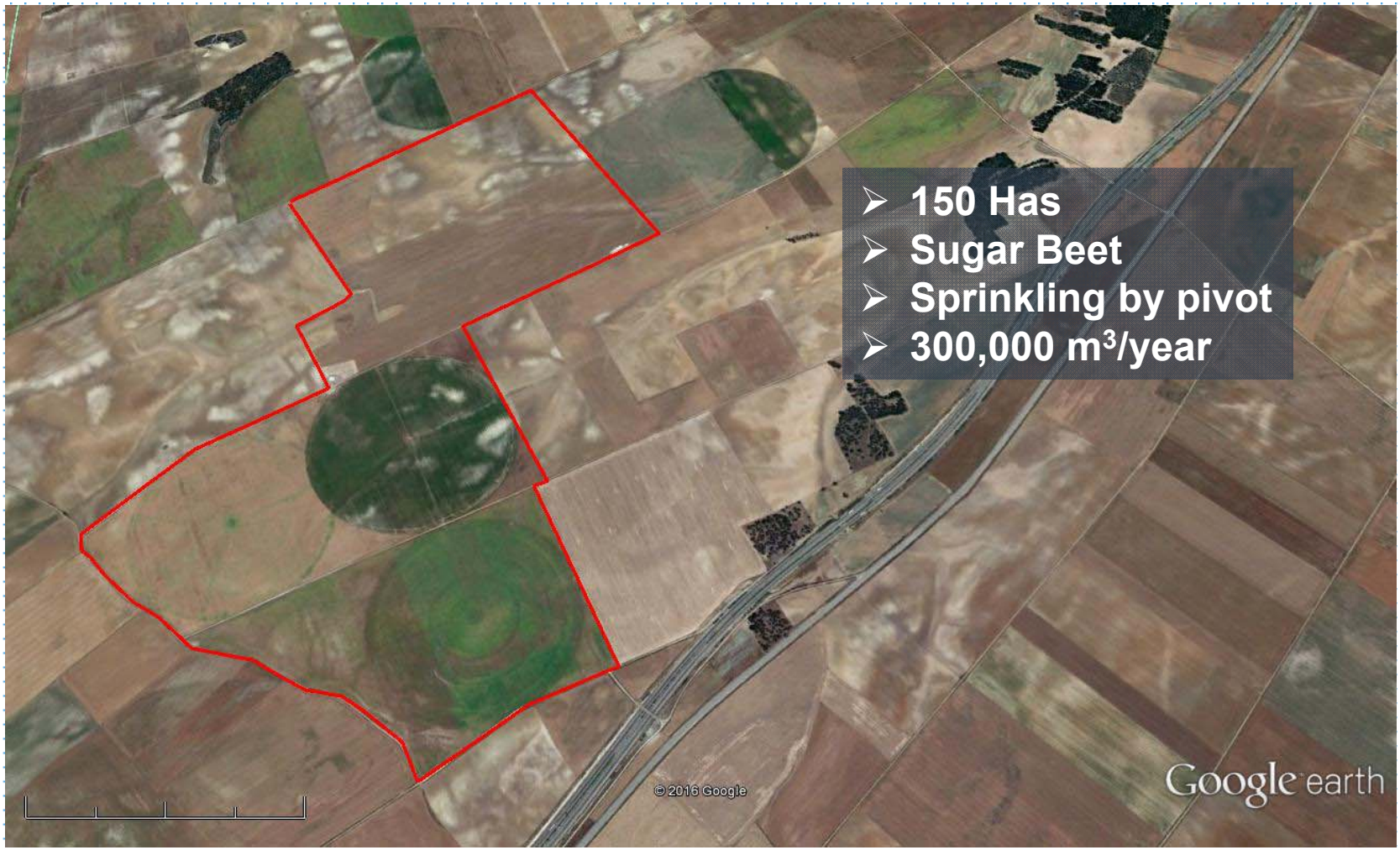


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Villena: SPAIN – PV

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alaejos: SPAIN – PV / Diesel



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alaejos: SPAIN – PV / Diesel

Owner : Coop. La Estrella de San Juan

Annual water needs : 360.000 m^3
New well : tested in Nov-15
HMT : 140 m
Flow : 45 l/s (162 m^3/h)

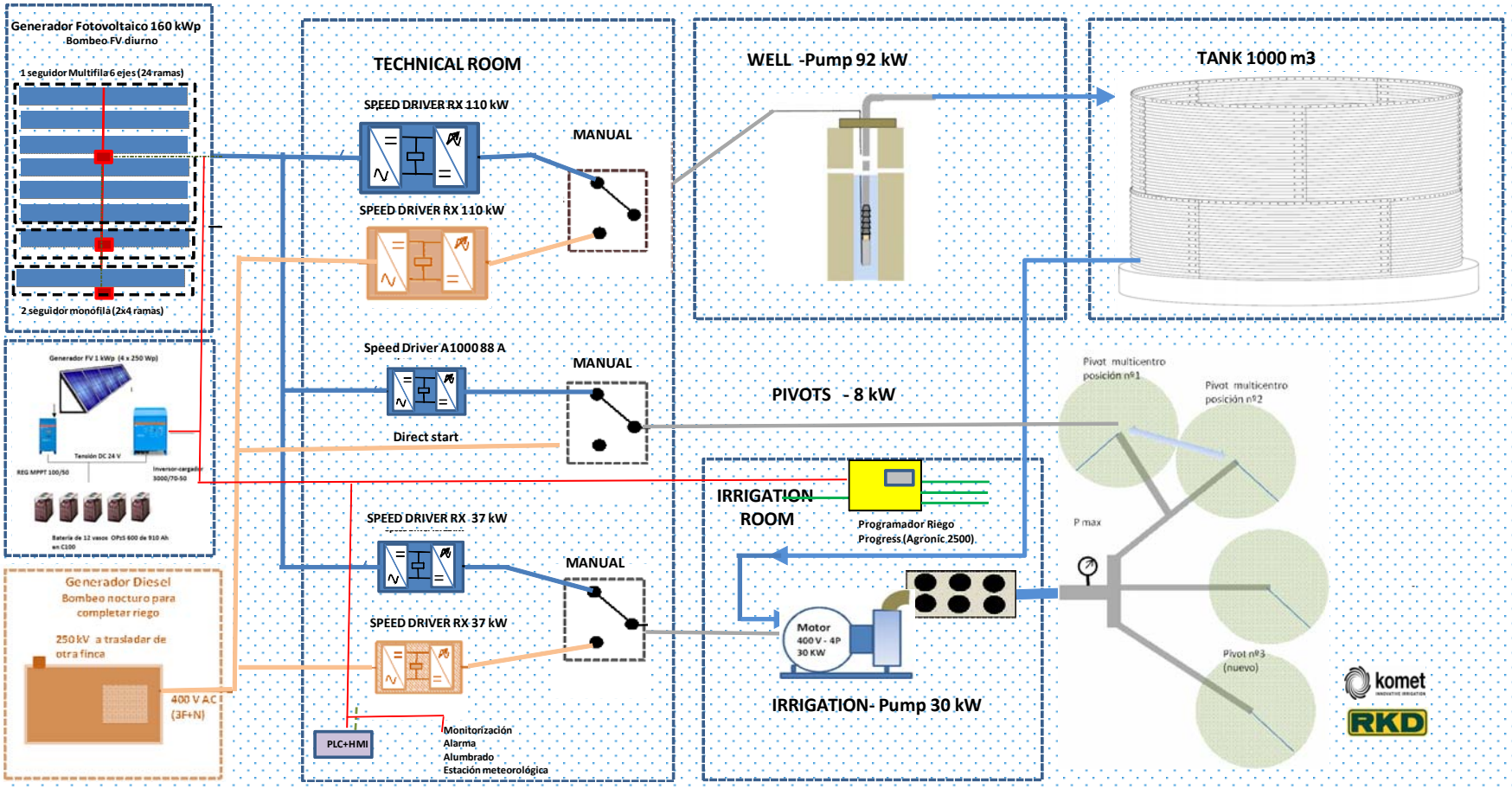
LOCATION	
City,Country	Alaejos (Valladolid), Spain
Longitude	5º 16' 36'' West
Latitude	41º 16' 21'' North
Altitude	794 m

System Configuration

PV Generator: 160 kWp (MARTIFER)
PV Trackers : 1 x H1250 multi-rows (6 axes) and
2 x H160 single-row (1 axe)
Inverter : 2 x 110 kW (ND) and 2 x 37 kW (OMRON)
Pumps : 92 KW submersible vertical electro-pump (CAPRARI)
30 kW centrifugal surface horizontal axe (CAPRARI)
Water tank : 1000 m3
Pivot: 5 towerS (RKD)
Irrigation System : 22 electro-valves and 4 pivots (PROGRÉS + KOMET)
Expected water production : 363.000 m^3

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alaejos: SPAIN – PV / Diesel

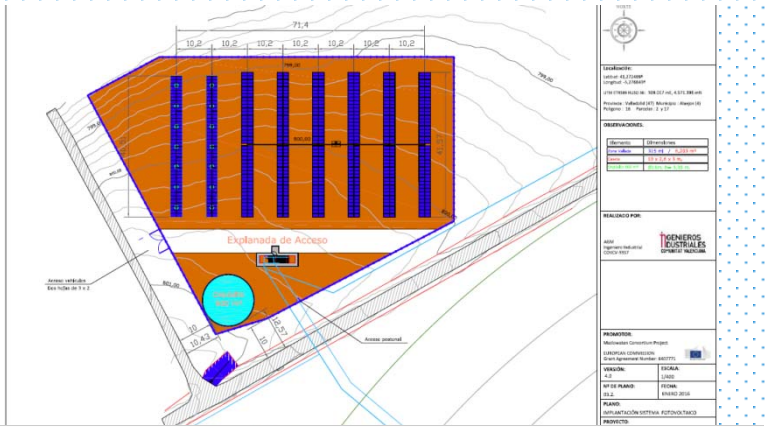


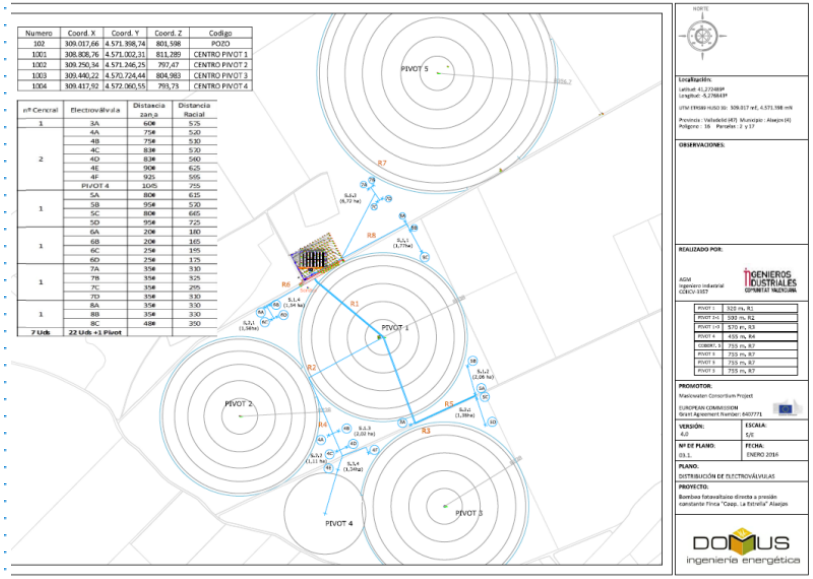
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

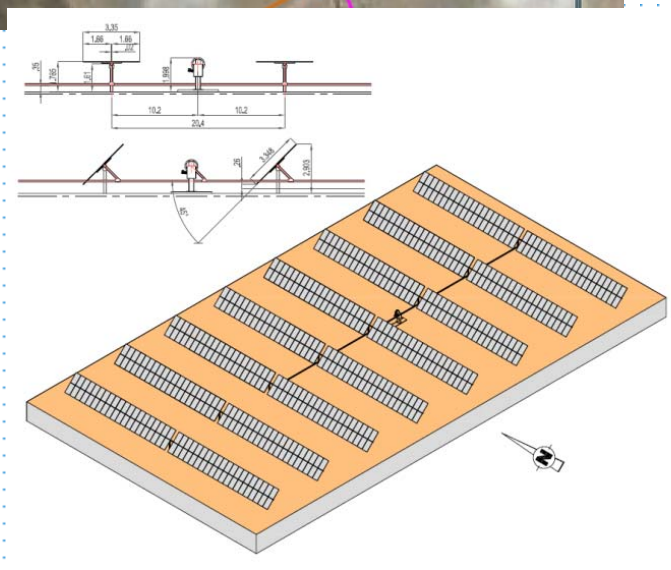
Alaejos: SPAIN – PV / Diesel

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Alaejos: SPAIN – PV / Diesel







This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771

Thanks for your attention, for more information please visit:

www.maslowaten.eu

Luis Miguel Carrasco

UNIVERSIDAD POLITÉCNICA DE MADRID

luismiguel.carrasco@ies-def.upm.es

Ignacio Berdugo, Communications Manager, EIC

iberdugo@fenacore.org

+34 915636318

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No640771