



Dissemination workshop: Key elements for the new solar thermal energy plants

Lucía González Cuadrado

MSLOOP dissemination workshop

Madrid, 9th of July 2019



"This project has received funding from the European Commission for Research and Innovation under grant agreement No 730609".



MSLOOP2.0 Project

MSLOOP2.0 was created to provide the market with a **cost efficient** CSP Parabolic Trough Power Plant using **Ternary Molten Salts** as HTF and an innovative **hybridization system**, HYSOL

Partners



schlaich bergemann
und partner





Project Objectives



- **Increase the performance** of the cycle by enlarging the temperature range
- **Equipment reduction** (heat exchangers, HTF storage system, pumps, ullage)
- **Reduce offline consumption** due to freeze protection as ternary MS freeze at 140°C
- **Increase of total hours of power supply** (HYSOL)

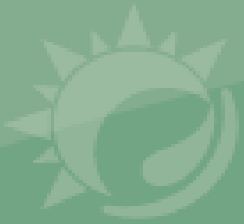


Project Objectives



INCREASE AVAILABILITY, FLEXIBILITY, AND
DISPATCHABILITY THROUGH A HYBRID PLANT
CONCEPT.

- By using HYSOL concept, the **power output can match the grid demand**
- When using biogas in the GT, the **energy is 100% renewable**
- HYSOL provides a **backup for long periods with no sun**



Project Objectives



MORE ECO-FRIENDLY PROCESS BY
ELIMINATING OIL FROM THE PROCESS AND
REDUCING WATER CONSUMPTION.

- **Avoid environmental and safety risks** by removing oil from the process
- **Optimization of water consumption** in the Rankine cycle

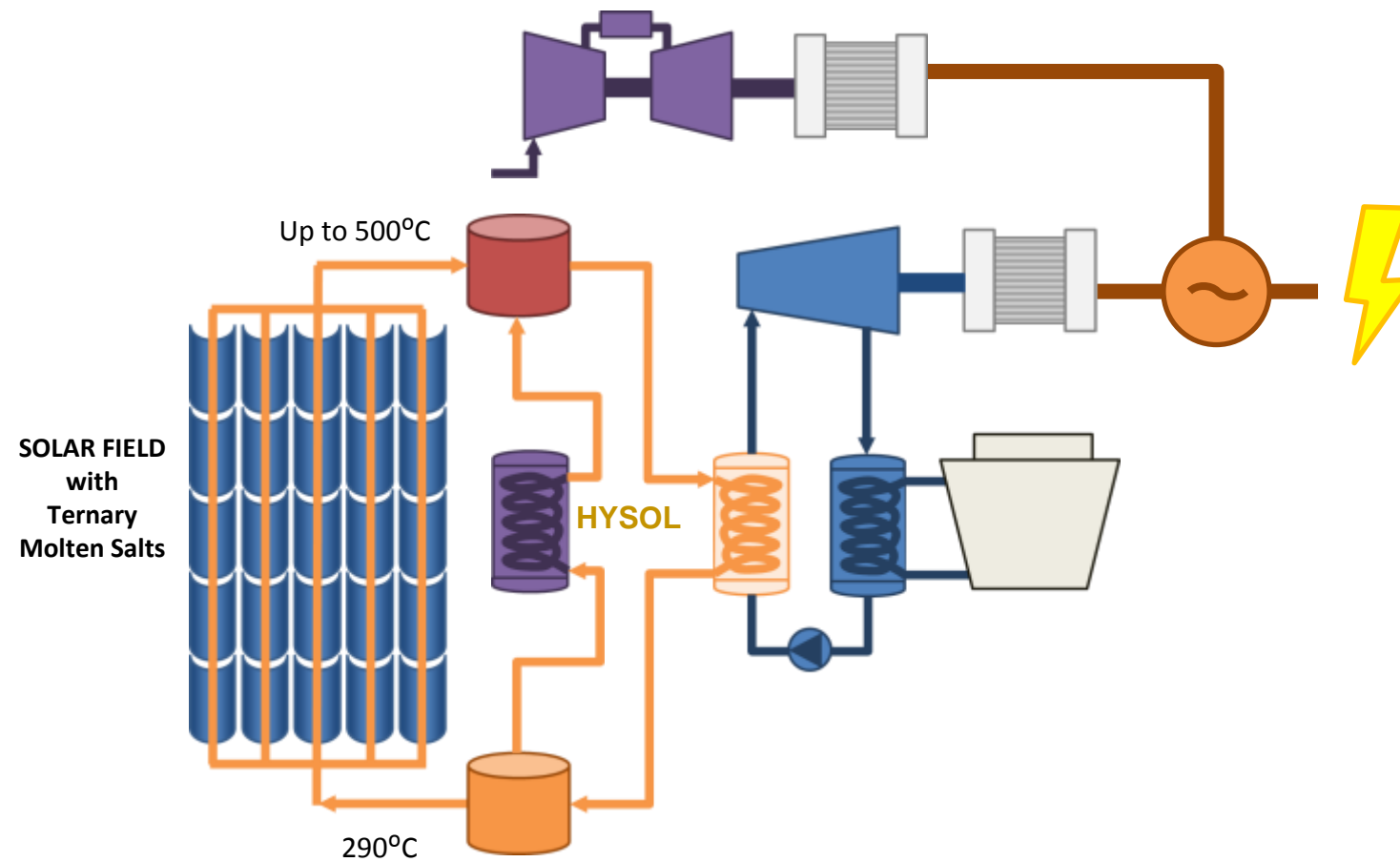


MSLOOP Concept

CSP with molten salts

+
Gas Turbine
+
HYSOL
+
DOME

Dynamic Output
Manager of Energy

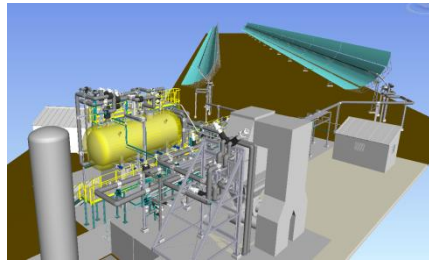




Development Phases of the Technology and Partners

MSLOOP

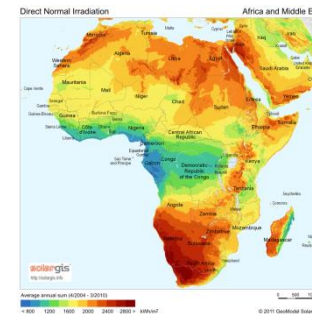
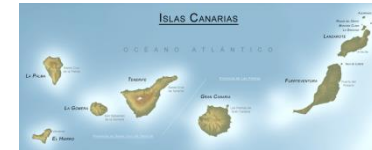
LAZOSALES CDTI



MSLOOP 2.0



COMERCIALIZACION



2010

I STAGE (CDTI)
Detailed Engineering
Assembly

2016

II STAGE (FTI)
Loop Optimization
Certification
Scaling up

2019

**III STAGE
(COMERCIALIZACION)**
Italy, North Africa, South Africa,
MENA, European Islands



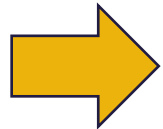
Development Phases of the Technology and Partners

MSLOOP

MSLOOP 2.0



schlaich bergemann
und partner



MSLOOP DEVELOPMENTS AND OPTIMIZATION

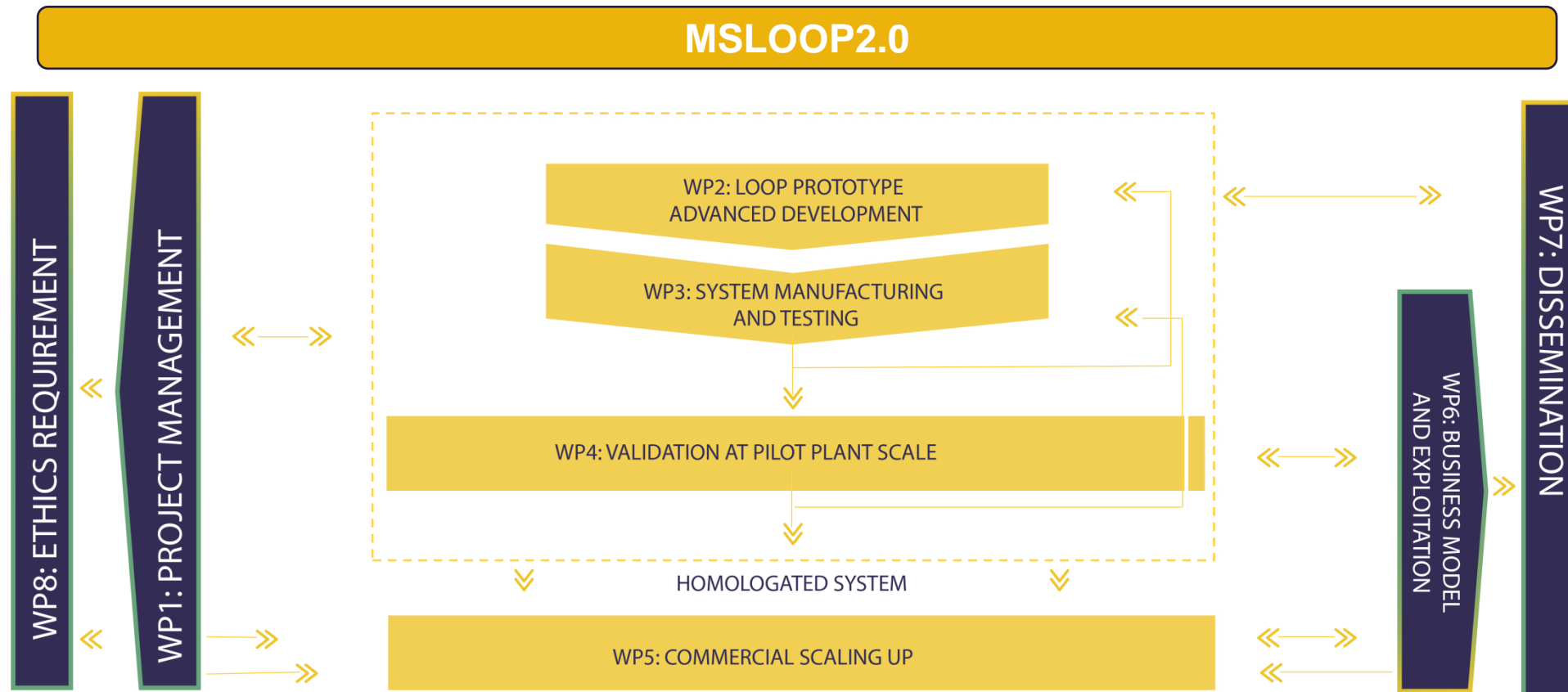
- HCE
- COLLECTOR ELEMENTS
- MS ADDITIVES

- SF Auxiliary systems:
Preheating
Drainage

II STAGE (FTI)
Loop Optimization
Certification
Scaling up



Workpackages





MSLOOP Prototype Location





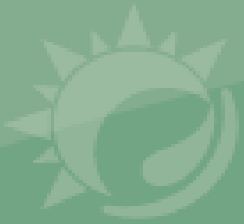
MSLOOP Prototype Location



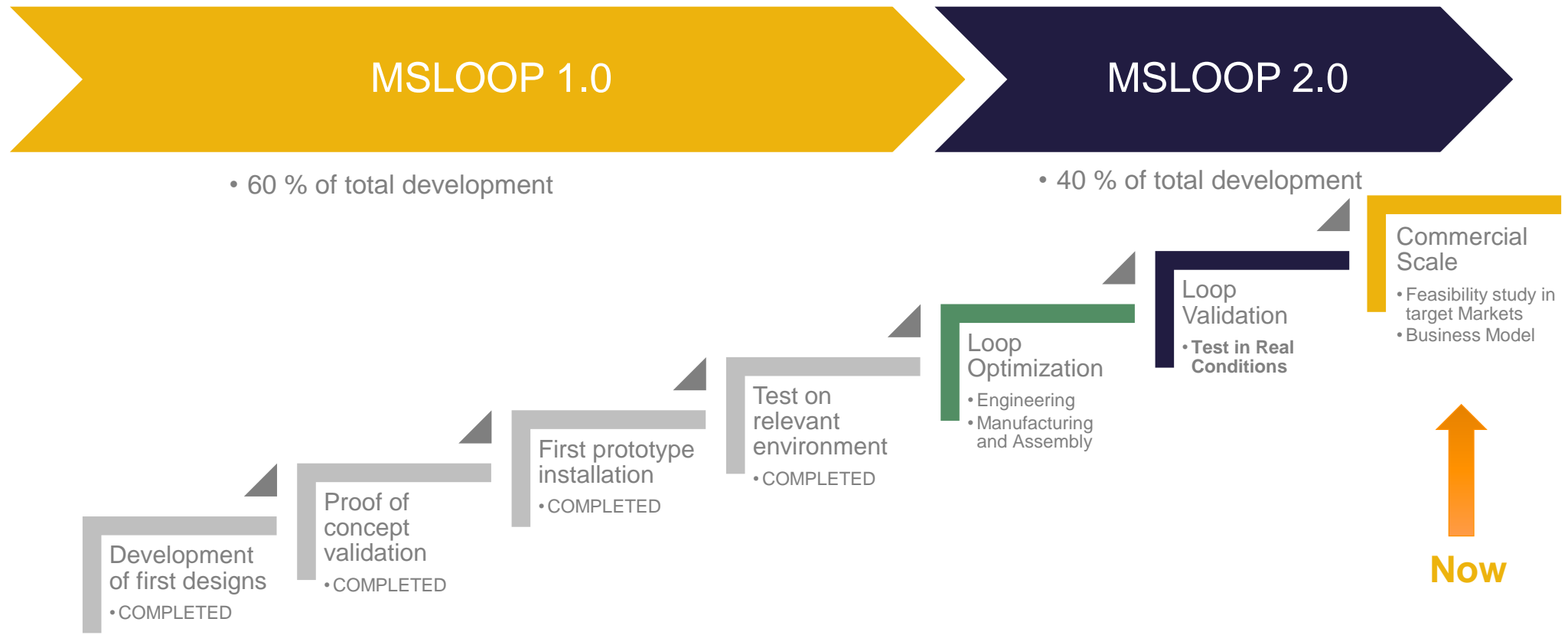


MSLOOP Prototype Location





MSLOOP Timeline





Case Studies

GELA
12 MW

ST	HYSOL	Storage	Hours of solar energy (daily)	Hours of power supply (daily)
12.2 MWe	No	10 h – 310MWh	7.5 h	17.5 h
10.8 MWe	Yes 1.2 MWe GT	13.7 h – 370 MWh	7.5 h	21.2 h

**NORTHERN
CAPE (RSA)**
80 MW

ST	HYSOL	Storage	Hours of solar energy (daily)	Hours of power supply (daily)
80 MWe	No	12.6 h – 2400MWh	7.5 h	20.1 h
72 MWe	Yes 8 MWe GT	15.5 h – 2660 MWh	7.5 h	23 h



MSLOOP



“This project has received funding from the European Commission for Research and Innovation under grant agreement No 730609”

***THANK YOU
FOR YOUR ATTENTION***

Lucía González Cuadrado
Project Coordinator

COBRA Instalaciones y Servicios

luciagonzalez@grupocobra.com

www.msloopproject.eu

 **MSLOOP**

