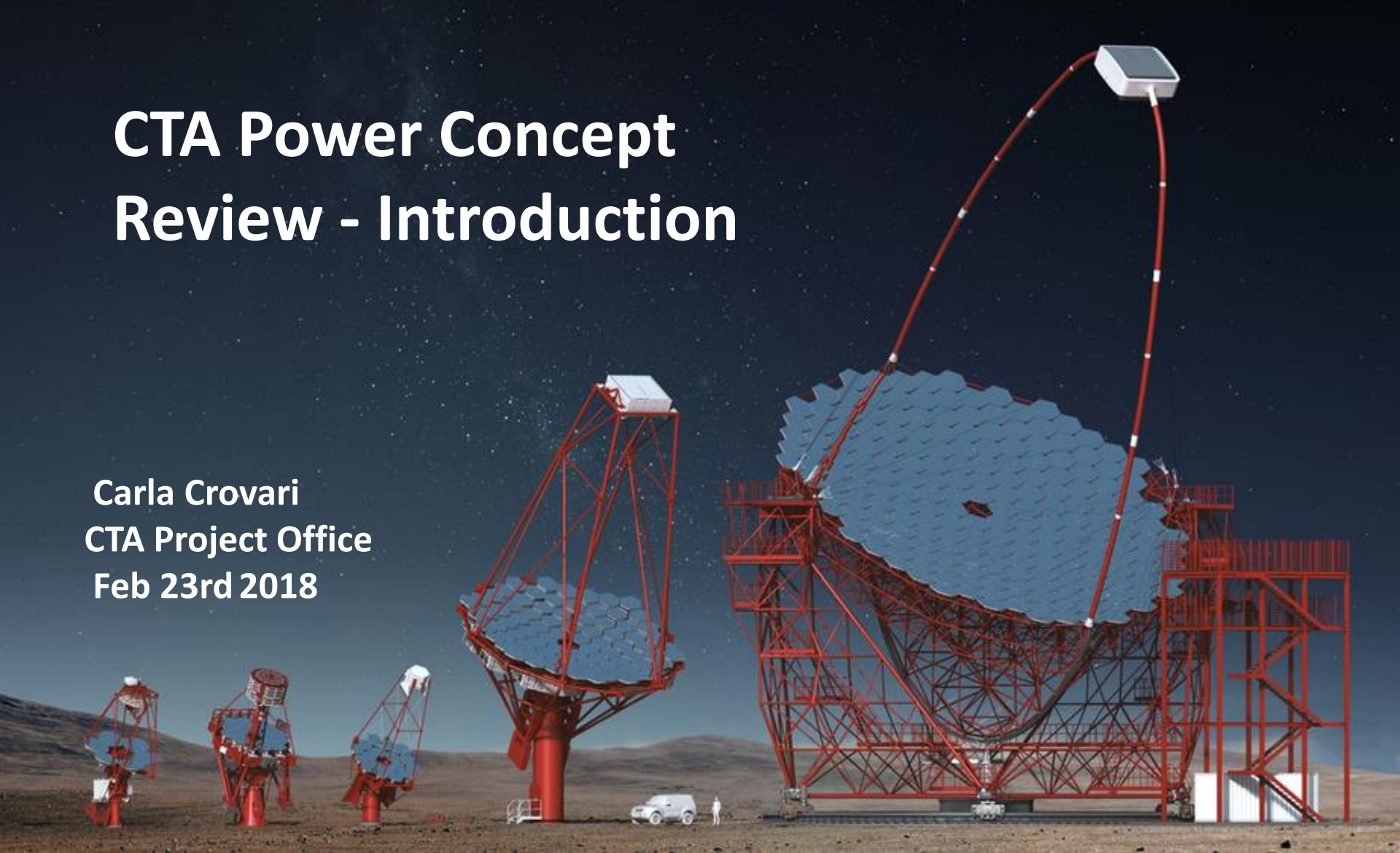




cherenkov  
telescope  
array

# CTA Power Concept Review - Introduction

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**First of all thanks for your participation!**

The Reviewers:

- Mr. Dimitrios Kalaitzoglou - ESO Power Engineer
- Mr. Jorge Gmelch – IAC Power Engineer
- Mr. Cesar Ocampo - CTAO Risk Manager
- Mr. George Pruteanu – CTAO Head of RAMS

The Chairperson of the Review Panel:

- Mr. David Bristow - CTAO Infrastructure Coordinator

# About the Concept Design Review



- Participants
  - Reviewers
  - Presenters
  - Observers
  - Decision Maker
- What will be reviewed
  - Power Requirement
  - Concept Design Review prepared by Consultant Fichtner (Mr. Manfred Engelmann)
- Future stages
  - Interfaces definition
  - Detailed design in stages (1<sup>st</sup> Short project, 2<sup>nd</sup> expansion stage 2)

# Some history



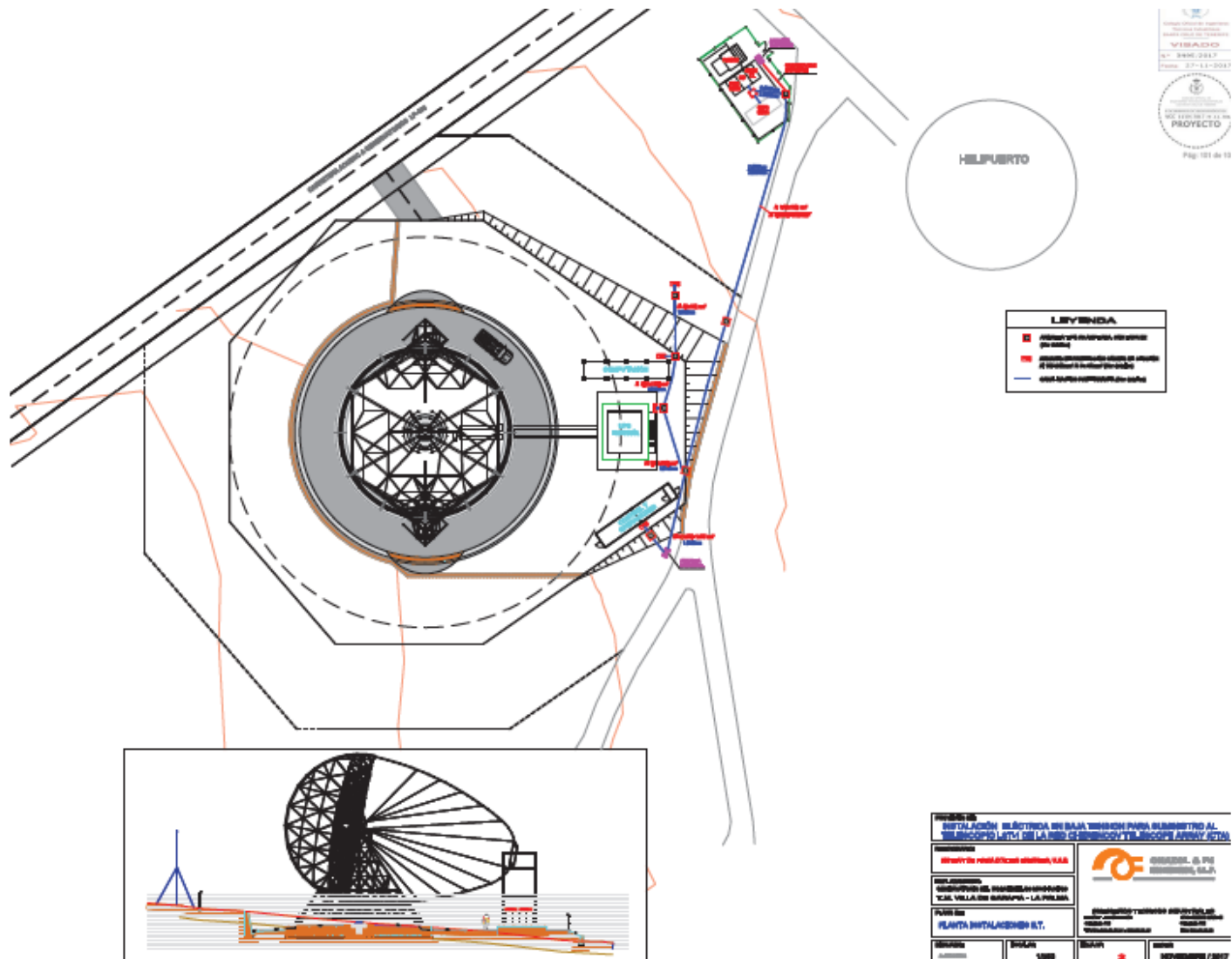
Currently LST 1 prototype is under construction in ORM; Including Substation 1 with 630 kVA transformer, 600 kVA diesel generator, ATS for LV distribution, and Energy Storage system for LST1.



Following stage will be “Short project” (LST 1, 2, 3, and MST 3); all connected to Substation 1.

When Detail design of Expansion stage 2 (14 MSTs, Technical building) will be data available from LST1, about the peak power consumption.

# Current implementation of LST1



# About the Power Consumption estimation (1)



- Table includes peak power consumptions for MST (repositioning) and for LST (load of flywheels after fast repositioning)

| Power consumption  |            |            |     |       |
|--------------------|------------|------------|-----|-------|
| Item               | Mean Power | Peak Power | Day | Night |
|                    | kW         | kW         | kW  | kW    |
| 4 LST              | 88         | 240        | 8   | 240   |
| 5 MST              | 77,5       | 161,5      | 25  | 161,5 |
| <i>10 MST</i>      | <i>155</i> | <i>323</i> | 50  | 323   |
| PC farm            | 100        | 100        | 100 | 100   |
| Operation Building | 40         | 40         | 40  | 10    |
| HVAC               | 10         | 10         | 10  | 0     |
|                    |            |            |     |       |
| 19 telescopes      | 470,5      | 874,5      | 233 | 834,5 |
| 9 telescopes       | 315,5      | 551,5      | 183 | 511,5 |

## About the Power Consumption estimation (2)



- Current LST peak power consumption for the design based on:
- 22 kW (Observing state) + 20 kW (load flywheels) + 18 kW (air conditioning for UPS + flywheel container mainly)
- Values will be better harmonized with LST prototype installed