

Topical session III: High-power test areas

Summary

Objective: Review the status of possibilities for test stands at collaborating institutes.

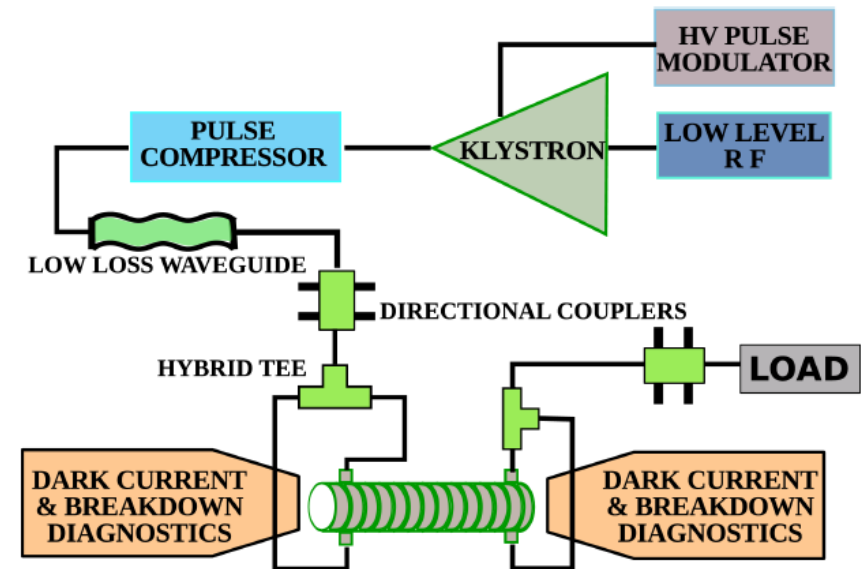
The situation is far better than I had thought.

W. Wuensch
CLIC collaboration meeting
11-5-2012



12 GHz test stand in Uppsala

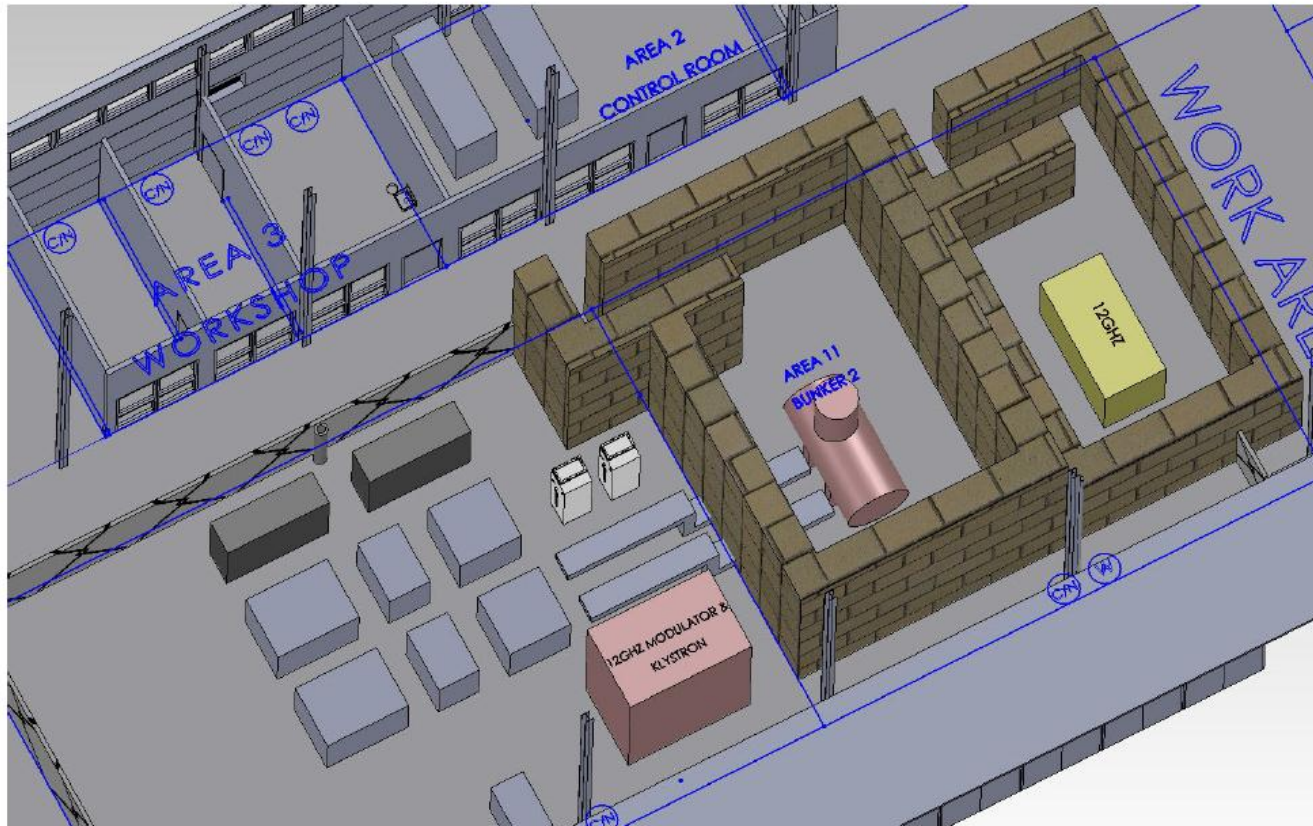
- We plan a system close to CERN's setup
 - 50 MW Klystron
 - Solid state HV pulse modulator
(we hope to profit from the proximity to the ScandiNova Systems AB in Uppsala)
 - Pulse compression
 - RF distribution network
 - RF and discharge diagnostic equipment





CLIC 12 GHz stand-alone test-stand

Bunker for 12 GHz test area



Reserved place for modulator and klystron



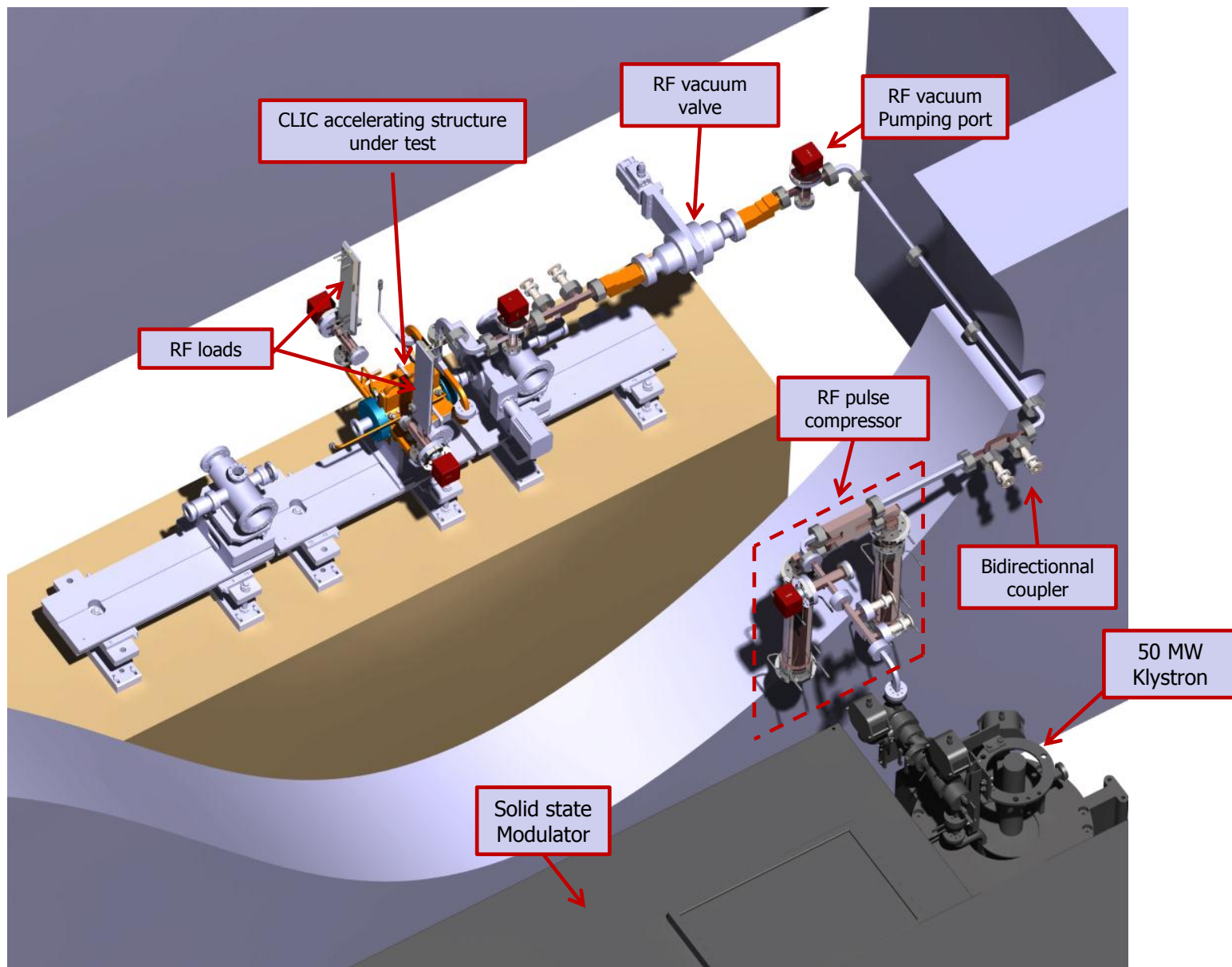
Present situation

- FREIA experimental hall with reserved space for 12 GHz equipment under construction May 2012- June 2013
- Application to Swedish Research Council for CLIC 12 GHz test stand submitted (result Dec 2012)

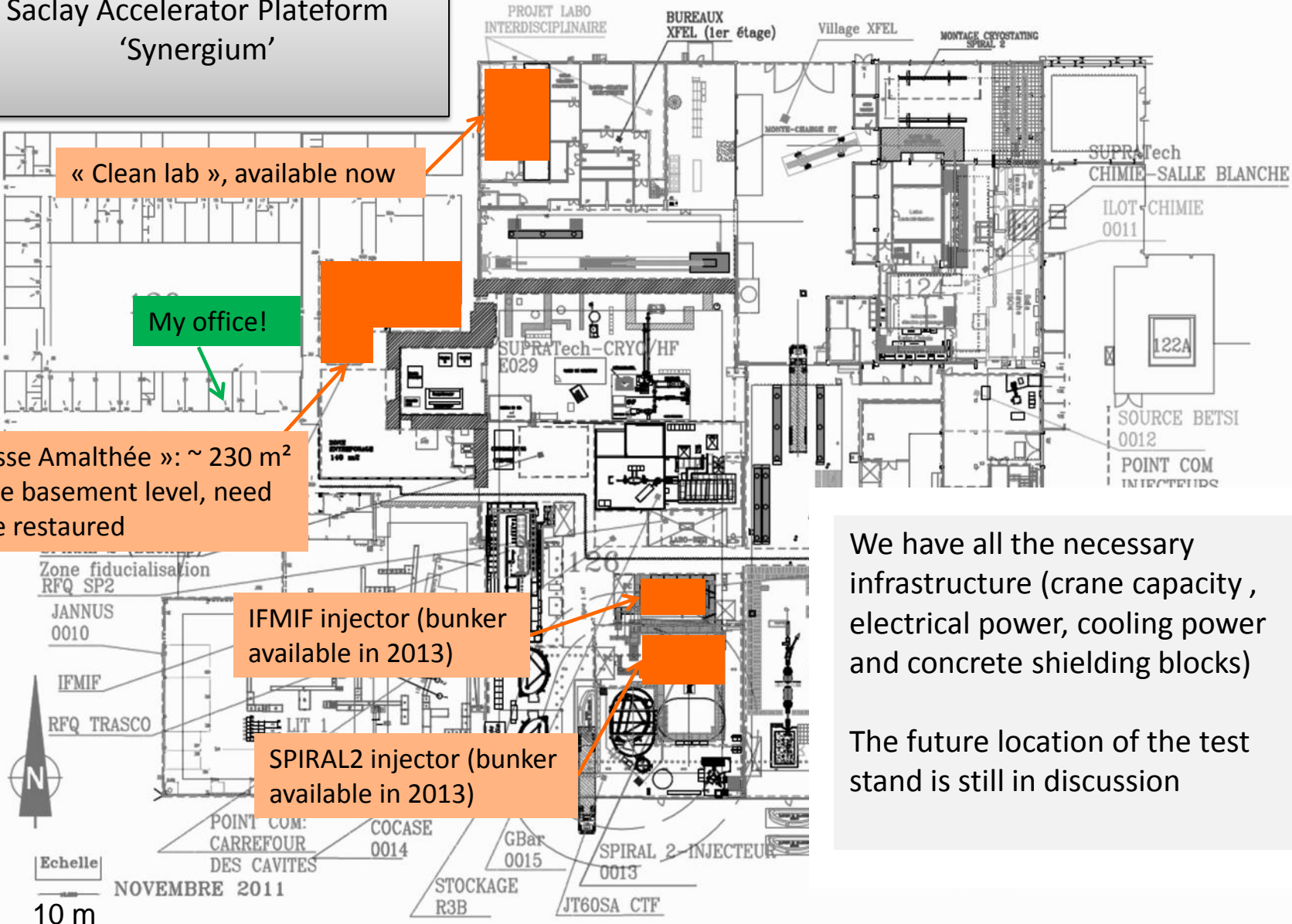
Time schedule:

	2013				2014				2015				2016			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
General																
Tendering		■	■	■	■	■	■	■								
Fabrication components			■	■	■	■	■	■	■							
Assembly & Installation							■	■	■	■	■					
Commissioning										■	■	■	■			

FREIA will become an ideal place for research and training in RF systems, vacuum discharges, surface analysis techniques and more



Saclay Accelerator Platform
'Synergium'



« Clean lab », available now

My office!

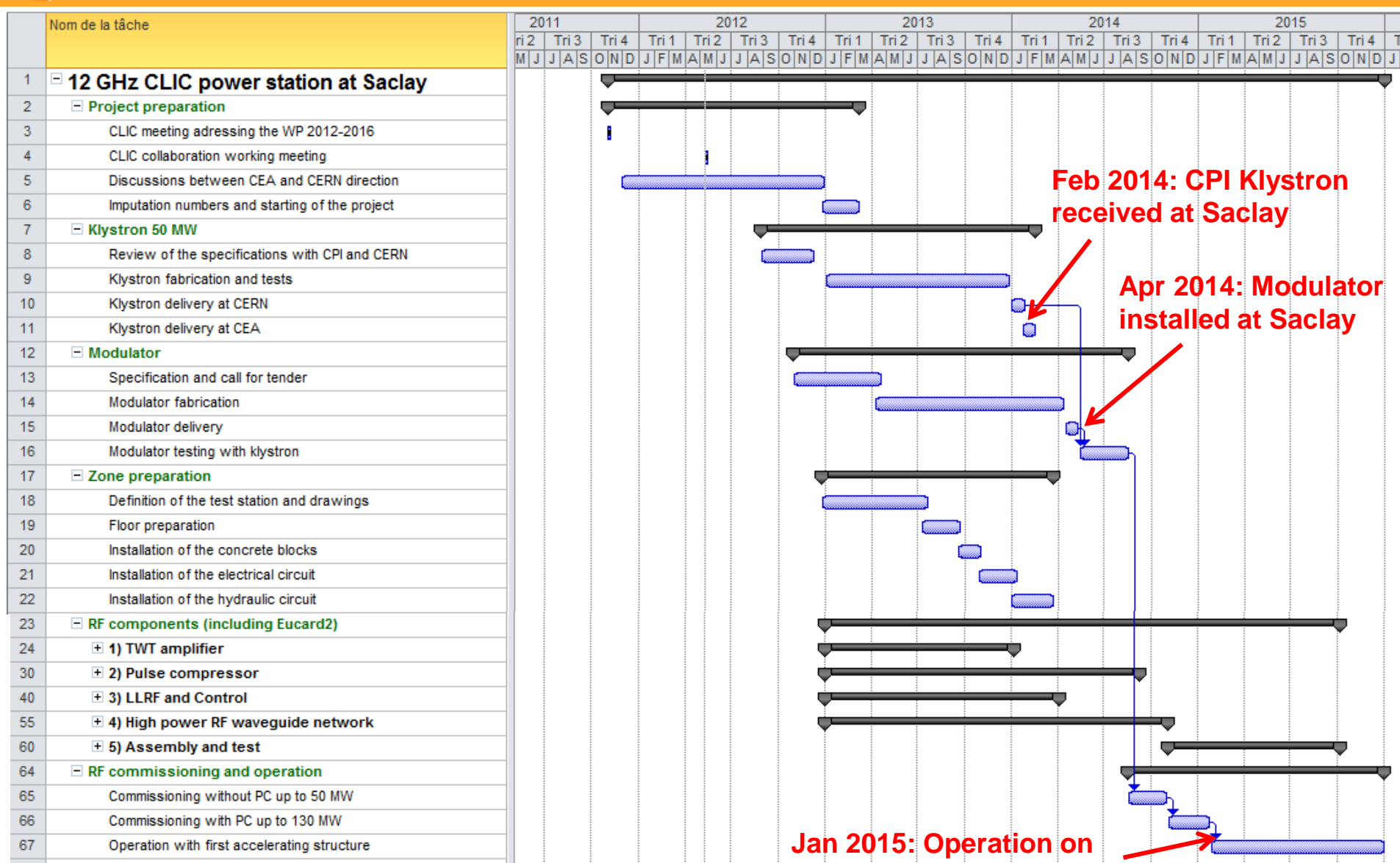
« Fosse Amalthée »: ~ 230 m²
at the basement level, need
to be restaured

IFMIF injector (bunker
available in 2013)

SPIRAL2 injector (bunker
available in 2013)

We have all the necessary
infrastructure (crane capacity,
electrical power, cooling power
and concrete shielding blocks)

The future location of the test
stand is still in discussion



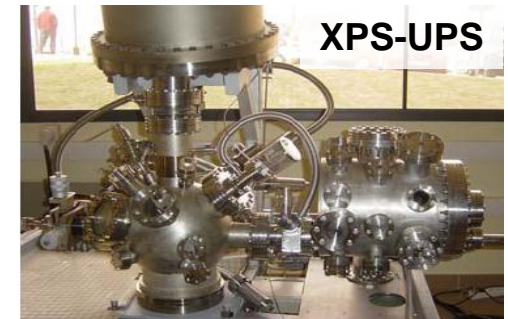
Feb 2014: CPI Klystron received at Saclay

Apr 2014: Modulator installed at Saclay

Jan 2015: Operation on accelerating structure

EXISTING EQUIPMENT

- 5 high-**vacuum chambers** (min. press. 10⁻⁸ mbar),
- **Power amplifiers** from 435 MHz to 30 GHz
- Several spectrum analyzers, network analyzers, ...
- Waveguides, directional couplers, cables, attenuators, circulators, isolators, bolometers and others
- **Multichannel multipactor station** , unique in the world
- Electron sources: electron gun, ⁹⁰Sr, Hg ultraviolet sources
- **XPS-UPS, SEM, electronic spectroscopy**
- Evaporation system for layer growing and outgassing studies
- 2 clean rooms class 10000 (equivalent to ISO 7)
- + mechanics & electronics workshop (2D and 3D metrology system)



TO BE FUNDED

- **9.3 GHz pulsed klystron**: 6 MW peak, 6 kW average
- Modulator

In addition verbal reports from:

- Sincrotrone, Trieste
- JINR, Dubna
- PSI

Institute	Power source	Features
Uppsala	CPI 50 MW	Dedicated new facility, proposal submitted, funding decision in November. Needs klystron.
Saclay	CPI 50 MW	Dedicated new facility, has laboratory support, siting under study, needs klystron, some rf components, some additional support. Details are being prepared.
Trieste	Existing SLAC 50 MW	Uses spare XL-5, existing linac infrastructure, has laboratory support, needs some rf components. Details will be prepared.
PSI	Existing SLAC 50 MW	Waiting for commercialization of XL-5 before even considering risking spare klystron. Everything else would be in place.
Dubna	6 MW cluster	Dedicated new facility. Laboratory support. Hardware from Russian industry. Detailed proposal under preparation. Will require support.
Valencia	6 MW, 9.3 GHz	Accelerator and medical high-gradient linac R&D. Synergy with Val Space Consortium.