THEMATIC WORKSHOP

Electrical systems program

Present Status & Business Opportunities

Jinchao LI

ITER Electrical Systems Program Manager

With 15 years of experience in design, construction, commissioning and operation of Magnetic Confinement Fusion CPSS, Jinchao Li is part of ITER since 2014 and manages the Electrical Systems Program which converts and provides the controlled pulse power to the magnet coils.

The Program also carries out the engineering design of electrical cable trays and cable routing, and provides qualification services of other system equipment working in the tokamak's static magnetic field.

Chairperson:

Max Collins

Business Developer & Project Manager, Big Science Sweden & Lund University
ILO Sweden

IBF/25

INTERNATIONAL ITER BUSINESS FORUM

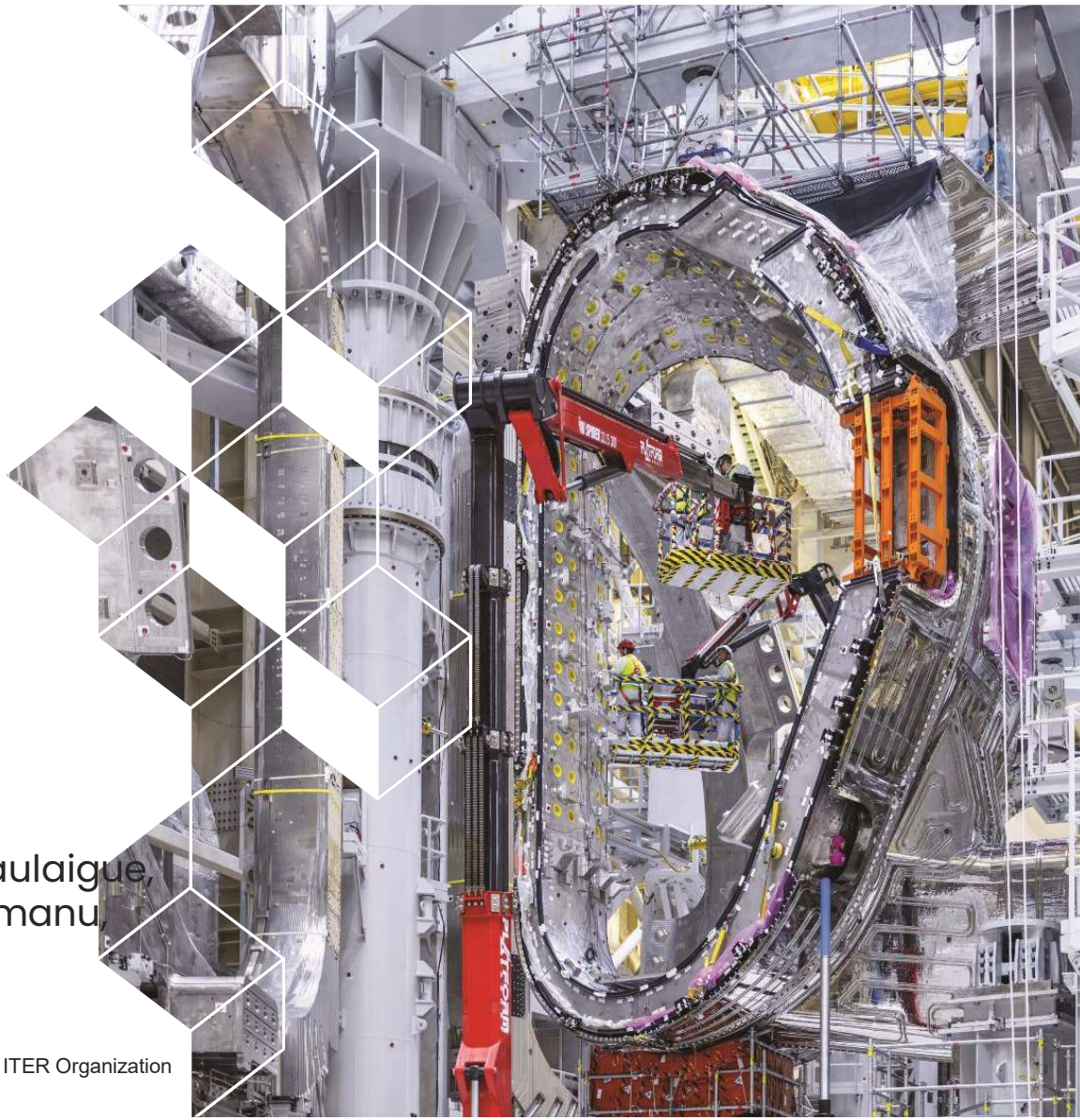
ITER Electrical Systems: Present Status and Business Opportunities

Jinchao Li

ITER, ESP Program Manager

Acknowledgement: Contributions from O. Baulaigue, R. Fan, H. Shen, M. Camuri, M. Tenor, S. Veddemanu, M. Kochergina, etc.

WEDNESDAY APRIL 25th



ITER Electrical Systems: Present Status and Business Opportunities

1. ESP Present Status and Aachievements

1.1 Electrical Power Distribution Systems (PPEN and SSEN)

1.2 Ex-Vessel Power Supply System (EV-PSS)

1.3 In-Vessel Power Supply System (IV-PSS)

1.4 Magnetic Field Compatibility Lab (MFC)

2. Companies' Contributions to the ITER Project

RXHK: Driving Innovation in Fusion Technology

Ampegon AG : Power Electronics

3. Collaboration Opportunities in Near Future

3.1 Upgrade of PPEN

3.2 STATCOM

3.3 VS3 power supply

3.4 Magnetic Field Compatibility Lab (MFC)

1. ESP Present Status and Achievements

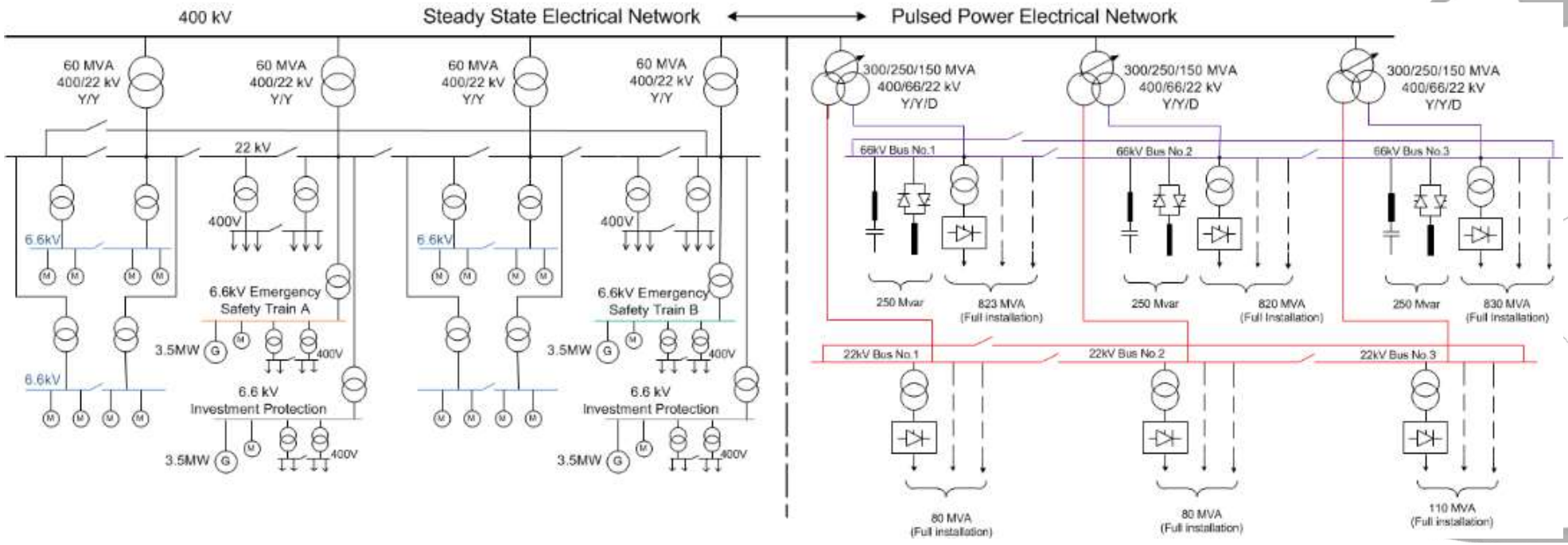
1.1 Electrical Power Distribution Systems (PPEN and SSEN)

1.2 Ex-Vessel Power Supply System (EV-PSS)

1.3 In-Vessel Power Supply System (IV-PSS)

1.4 Magnetic Field Compatibility Lab (MFC)

1.1 Electrical Power Distribution Systems (Configuration)



Steady State Electrical Network

about 120 MW continuous power

Main consumers:

- Cooling Water System
- Cryoplant
- Building services

Pulsed Power Electrical Network

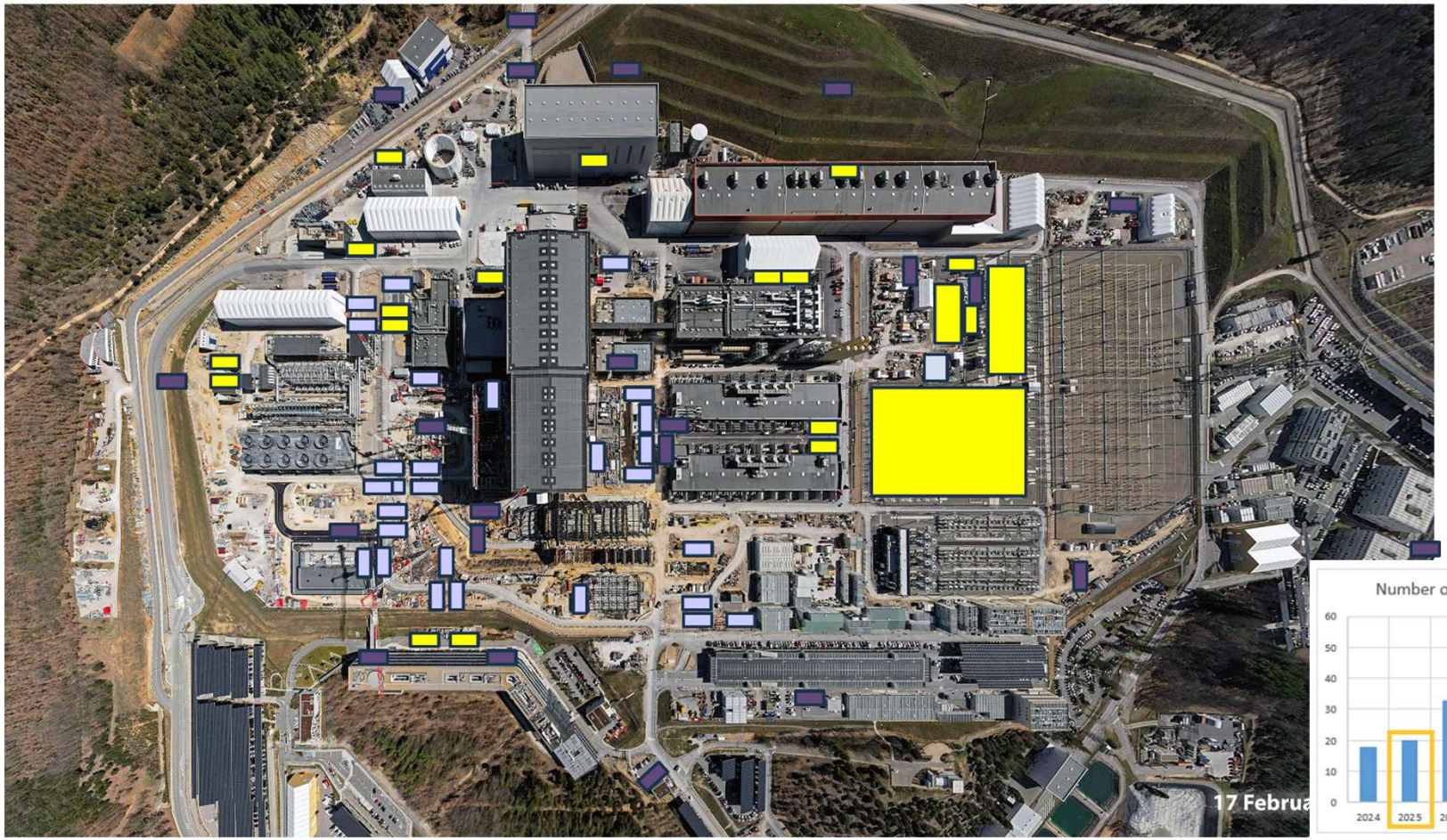
2.2 GVA connected power converters

Main consumers:

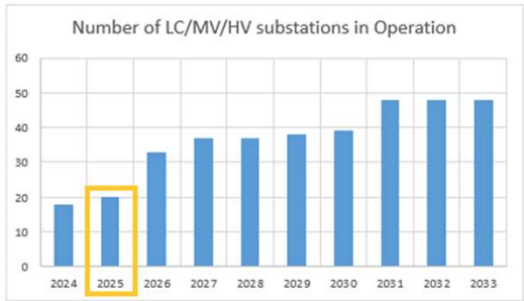
- Coil power converters
- Radio Freq. and Neutral Beam systems

Includes large Static Var Compensators

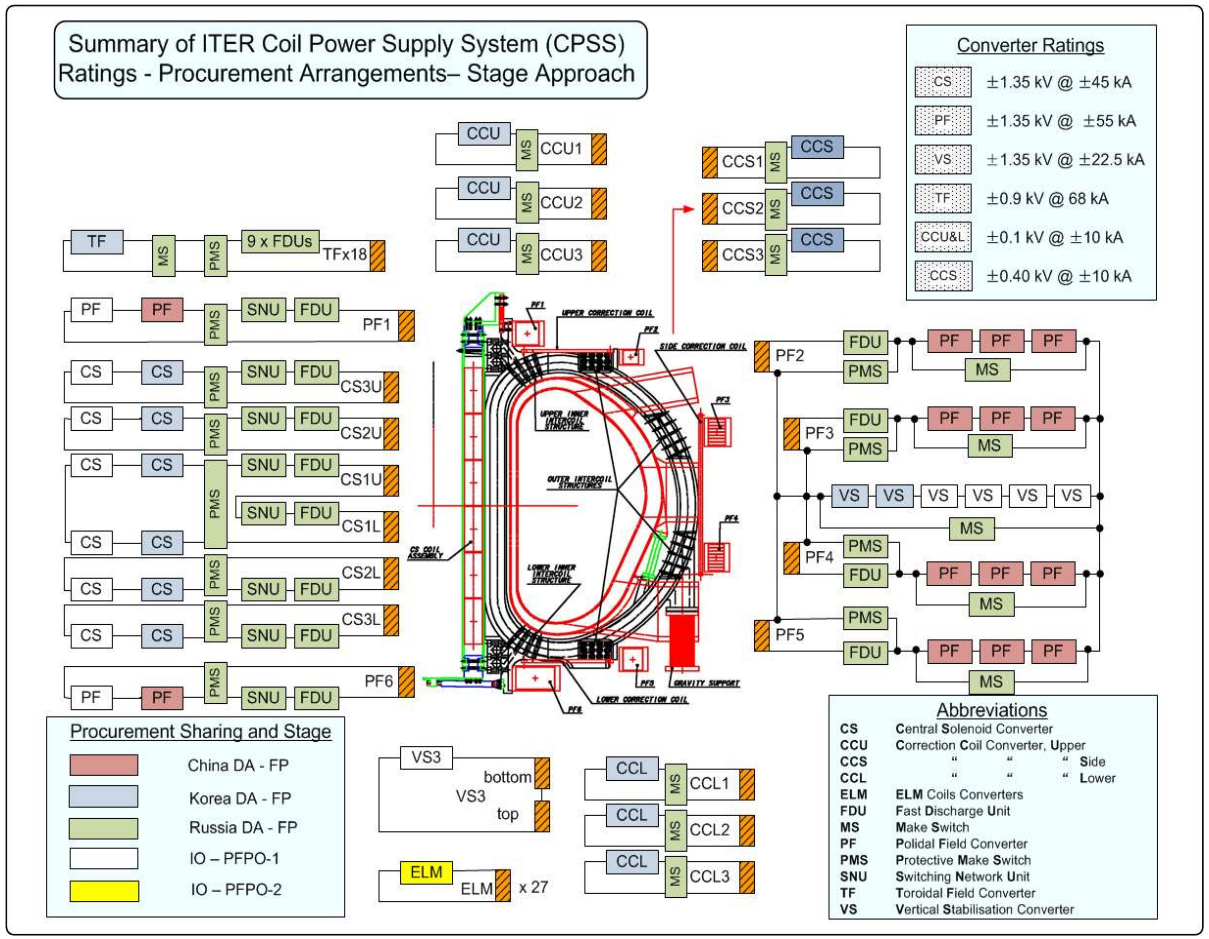
1.1 Electrical Power Distribution Systems (Present Status)



SSEN-PPEN Existing
15kV worksite existing
Future



1.2 Ex-Vessel Power Supply System (Configuration)



Stage 2 Main Coil Power Supply (MCPS)

- 6 CS power converter Units;
- 2 PF power converter Units;
- 4 VS power converter units;
- 10 sets of AC feeding circuits (66 kV);
- 12 sets of DC circuits;
- 3 units of STATCOM (66 kV);
- Cooling water system;
- I&C;
- Others.

The Stage 2 MCPS shall be physically and functionally integrated with the existing ITER system.

1.2 Ex-Vessel Power Supply System (Present Status)

Reactive Power Compensation and Harmonic Filtering (RPC&HF) : Completion of Commissioning and SAT

- The installation and assembly was completed in September 2021.
- The commissioning and Site Acceptance Test (SAT) was completed in November 2024.
- The engineering design, Manufacturing and delivery were contributed by CNDA and its suppliers (RXPE, etc.).
- The installation and assembly was contracted with Fincantieri &SEAT.
- The installation supervision and commissioning and SAT was contracted with RXPE.
- The RPC&HF system is under pre-operation and maintenance.

Figure 1: Thyristor Control Reactors (TCR) in A39

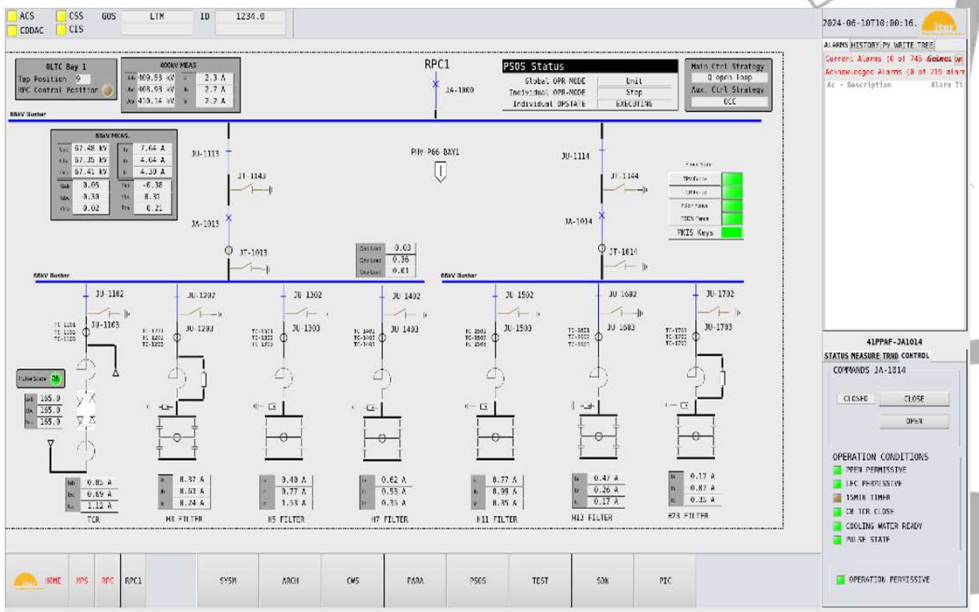
Figure 2: Thyristor Valves (THV) in B38

- ELECTRICAL NOTES of RPC&HF system:
  - Main function: Improve the performance and stability of the PPEN networks by compensating reactive power and eliminating harmonic currents from Coil Power Converters.
  - Total Reactive Power compensated 750 Mvar.
  - Voltage level: 66 kV
  - High voltage insulated cables connecting RPC with PPEN: 72.

1.2 Ex-Vessel Power Supply System (Present Status)

Reactive Power Compensation and Harmonic Filtering (RPC&HF) : Completion of Commissioning and SAT

- Component Tests.
- LV & I&C functional Tests
- Interface tests: Full integration with CODAC
- High Voltage Functional Tests: Power-on tests, no-load tests, dynamic performance tests, control performance tests.
- SAT (stand alone system): PSOS automatic tests and 24 h tests



1.2 Ex-Vessel Power Supply System (Present Status)

Ex-Vessel Coil Power Supplies: the installation and assembly are completed in B32 and 33. Manufacturing, delivery and construction of RFDA equipment are still ongoing.

- The installation and assembly of stage 1 power converters (32 units) was completed by December 2024, the regulatory inspection and corresponding correction are ongoing.
- The manufacturing and delivery of Switch Network Units (SNUs), Fast Discharge Units (FDUs), Protective Make Switches (PMSs) and DC busbar are ongoing. The installation and assembly are ongoing in B11, B74 and B75.

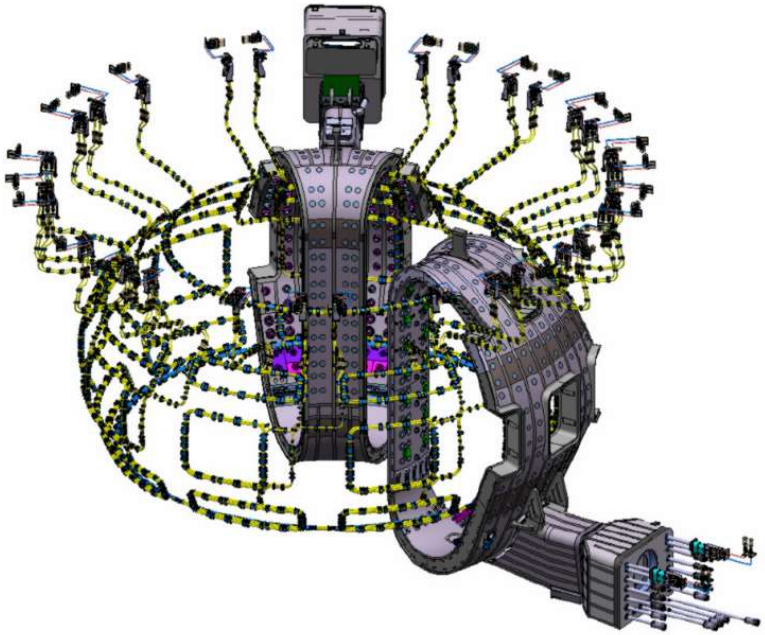
Sub-systems	Da and/or Supplier	Baselined stage of ITER
TF, CS, VS and CC power converters (stage 1)	KODA (PA) and suppliers (Dawonsys, etc.)	SRO
PF power converters (stage 1)	CNDA (PA) and suppliers (ASIPP, etc.)	SRO
RPC&HF System	CNDA (PA) and suppliers (RXPE, etc.)	SRO
SNU, FDU, PMS and DC busbars	RFDA (PA) and suppliers (Efremov Institute, etc.)	SRO
Stage 2 Main Coil Power Converters	Task Agreements with CNDA & KODA (ongoing)	SRO

1.2 Ex-Vessel Power Supply System (Present Status)

Ex-Vessel Coil Power Supplies: Low Voltage commissioning started since December 2024 in B32 and B33.

- The low voltage commissioning of power converters are ongoing in B32 and B33, being conducted by ASIPP and Dawonsys.
- The low voltage commissioning of the switches and DC busbar in B32 and B33 will start in 2026.

1.3 In-Vessel Power Supply System (Configuration)



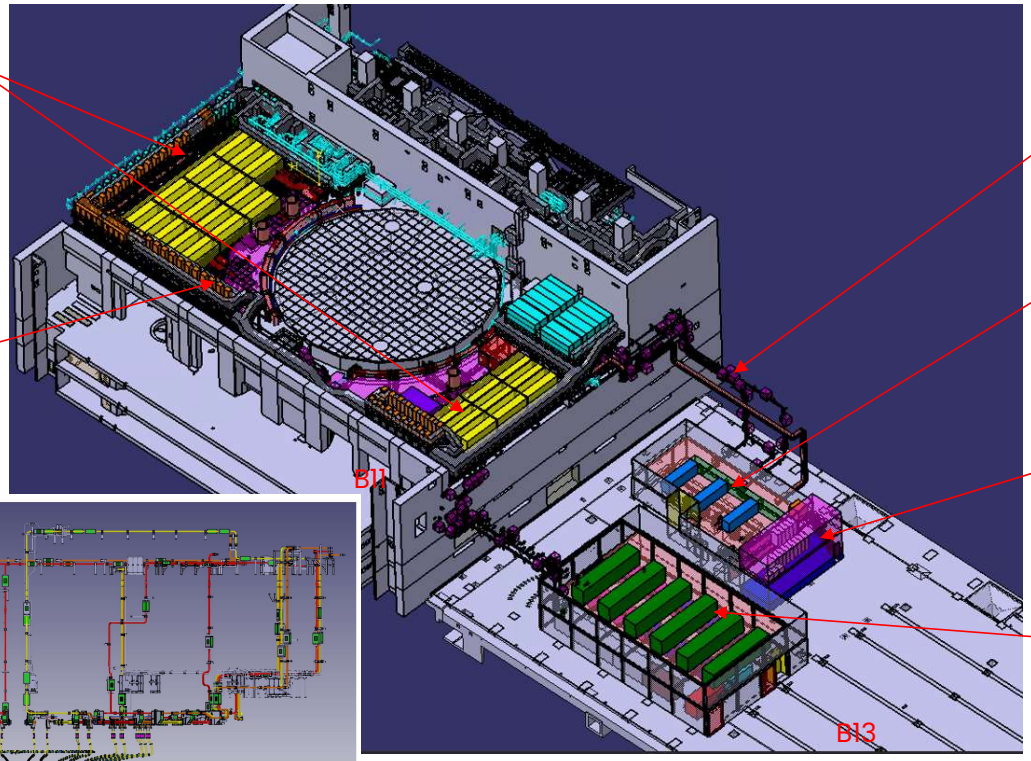
- **2x Vertical Stabilization coils**
- **27x Edge Localized Mode coils**

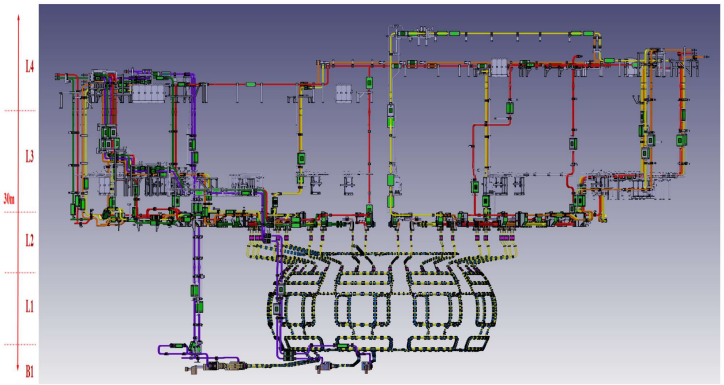
- The In-Vessel Coils (IVCs) and they consist of 27 ELM coils and a VS3 coil (upper and lower coils connected in series with reverse polarity) .
- The ITER In-Vessel Coils System comprised of the “Edge Localized Mode” (ELM) mitigation coils and the “Vertical Stabilization” (VS3) coils.
- The In-Vessel Coils are located just behind the plasma-facing component and are used to balance the plasma equilibrium with fast magnet feedback controls.
- The main function of the function of the IVC power converters is to receive AC electrical power from the Pulsed Power Electric Network (PPEN) and then provide controlled DC power to the IVC coils to ensure plasma stability through magnetic field control.
- There are:
  27 independent power converters for the ELM coils
  15 kA, 180 V, 4 quadrant operation;
  One power converter for the VS coils
  80 kA (pulse), 2.4 kV, 4 quadrant operation.

1.3 In-Vessel Power Supply System (Configuration)

ELM 27 Inverters (in yellow)

ELM Control and LV cubicles (in brown)





ELM PS DC distribution busbars networks

ELM Tx & Rectifiers
Length:27m
Width:16m
Height:8m

IVC MV SUBSTATION
Length:16m
Width:6m
Height:10m

VS3
Length:35m
Width:22m
Height:11m

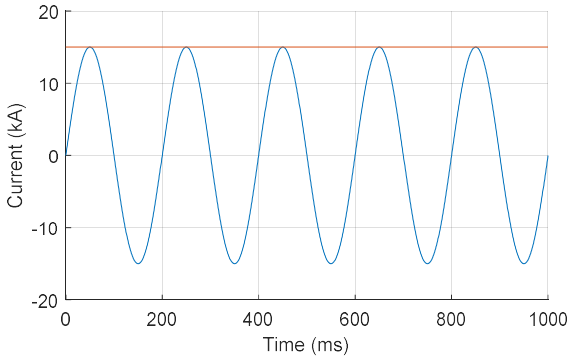
1.3 In-Vessel Power Supply System (ELM-PSS)

- turn-key contract including installation and commissioning
- Electrical ratings
  - Input: 22 kV – 50 Hz
  - Output: 27 individually controlled outputs, 15kA continuously rated, 250 V, with current waveform on the previous slide
  - Load: the table below
- Water cooled, heat dissipation into the building to be minimized
- Background magnetic field: up to 40mT, static or slow changing
- To minimize the size and weight
- Specific seismic, safety and protection requirements

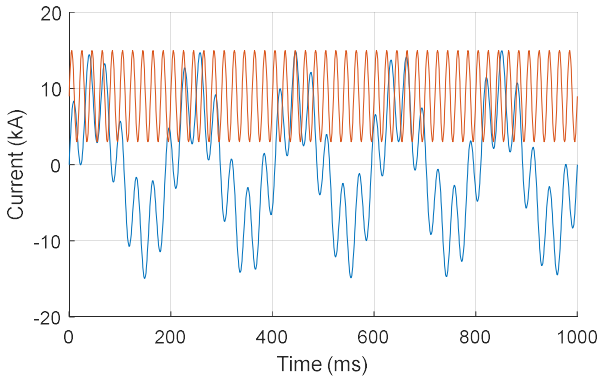
Coil + feeder + VV @ operating temperature	DC mΩ / mH	5Hz mΩ / mH	50Hz mΩ / mH
upper	2.11 / 0.178	3.12 / 0.147	14.0 / 0.0809
Equatorial	2.44 / 0.239	4.01 / 0.169	16.4 / 0.0837
lower	2.57 / 0.197	3.69 / 0.159	14.7 / 0.0885

1.3 In-Vessel Power Supply System (ELM-PSS)

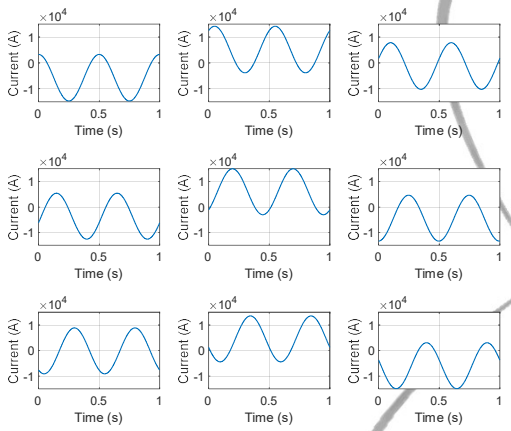
ELM dc or ac



ELM ac + RWM ac



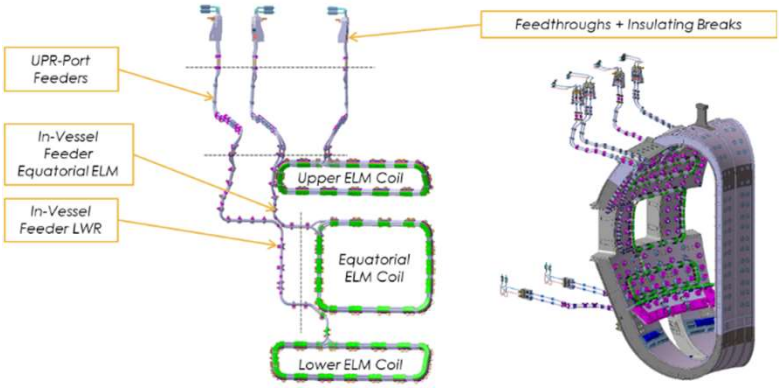
ELM ac + EF dc



$$i_{ELM} = I_{ELM}\cos\{n_{ELM}[\Delta\Phi_k - (\Phi_j - \Phi_{ref})] + 2\pi f_{ELM} t\}$$

$$i_{RWM}(t) = I_{RWM}\cos\{[\Delta\varphi_k - (\Phi_j - \Phi_{ref})] + 2\pi f_{RWM} t\}$$

$$i_{EF}(t) = I_{EF}cos\{n_{EF}[\Delta\varphi_k - (\Phi_j - \Phi_{ref})]$$



f_{ELM}: 0 or 1 ~ 5 Hz

f_{RWM} : 5 ~ 50 Hz

$\Delta\Phi_{top}$ = 66°, $\Delta\Phi_{middle}$ = 0°, $\Delta\Phi_{bottom}$ = 52°

$\Delta\varphi_{top}$ = 66°, $\Delta\varphi_{middle}$= 0°, $\Delta\varphi_{bottom}$ = 52°

n_{ELM}=3 or 4, n_{EF}=1 or 2

$\Phi_j - \Phi_{ref}$ = (j-1) × 40°, j =1, ..., 9

1.4 Magnetic Field Compatibility Lab (Today Status)

Static Magnetic Field Lab is a Laboratory created in 2023 to test and qualify all materials to be installed in ITER reactor and exposed to Static Magnetic Field.

Our Laboratory, temporarily in B32, is unique in Europe for its technical features, and it is providing:

- Static Magnetic Field to test equipment from 0 to 275mT with stability and linearity of 5% in all axis without limitations
- Coil water cooled and stabilized 20±3 °C for better field stability
- SMF values continuously monitored on 3 axis basis in the range ±500mT
- A testing capacity of 1m^3 and 300Kg in automatic mode and 700Kg in manual mode with a 3-axis load capacity for serial tests on circuit breakers, electric motors, electronics, process valves, relays, etc.
- A complete monitoring and data logging system to record simultaneously up to 108 variables with 1µS/S sampling rate.

1.4 Magnetic Field Compatibility Lab (CB Test Bench)

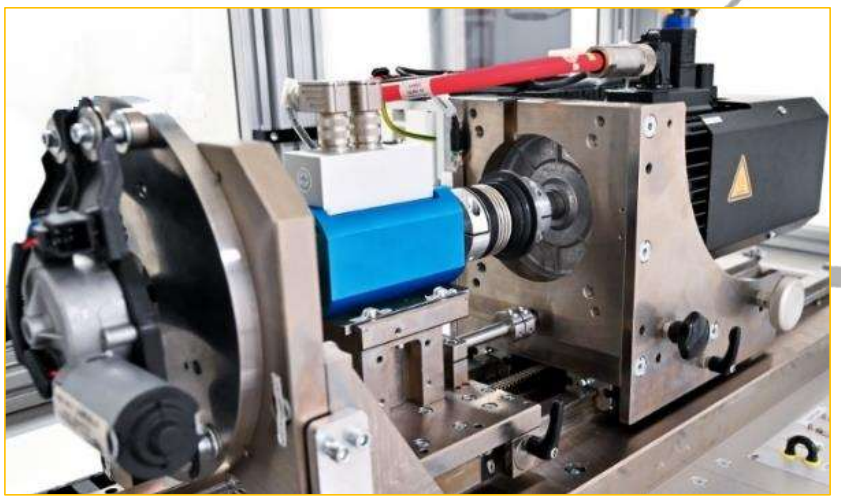
A first advanced expansion available from May 2025 consists of:

- A second testing station dedicated to LV/MV circuit breakers capable to generate from 0 to 50mT (expandable) fully transportable and with pneumatic automation for CBs O-C-O stress and endurance tests under SMF and current.
- Possibility to generate AC test current up to 21.7 kA for intervention or short circuit tests
- Static Magnetic Field with stability and linearity of 5% in all axis without limitations
- A testing capacity of 0.25m^3 and 200Kg in automatic/manual mode with manual load platform for 3 axis objects rotation
- An independent complete monitoring and data logging system to record simultaneously up to 108 process variables with 1µS/S sampling rate and 1TB storage
- SMF values continuously monitored on 1 axis basis in the range ±200mT

1.4 Magnetic Field Compatibility Lab (Motor Test Bench)

A second advanced expansion available from September 2025 will consist of:

- An independent test bench for AC LV asynchronous electric motors tests and qualification up to 25 kW power
- Possibility to run in all 4 quadrants of the working curve (motor/generator)
- Can be associated with the main Coil allowing 0 to 275mT field capacity
- A complete data logging system to record simultaneously up to 108 process variables with 1µS/S sampling rate.



2. Companies' contributions to the ITER Project

Driving Innovation in Fusion Technology (RXHK)

Yao Wu

RXHK, Vice Present

The year our fusion dream initiated…

RXHK

https://www.iter.org/album

APRIL 2009

AIF-VDC

08 APRIL 2009

Contributions to ITER CPSS stage 1

RXHK

Full Commitment &Successful Delivery

66kV direct-connected LTT unique application — 2007

ITER RPC&HF task order signed — 2009

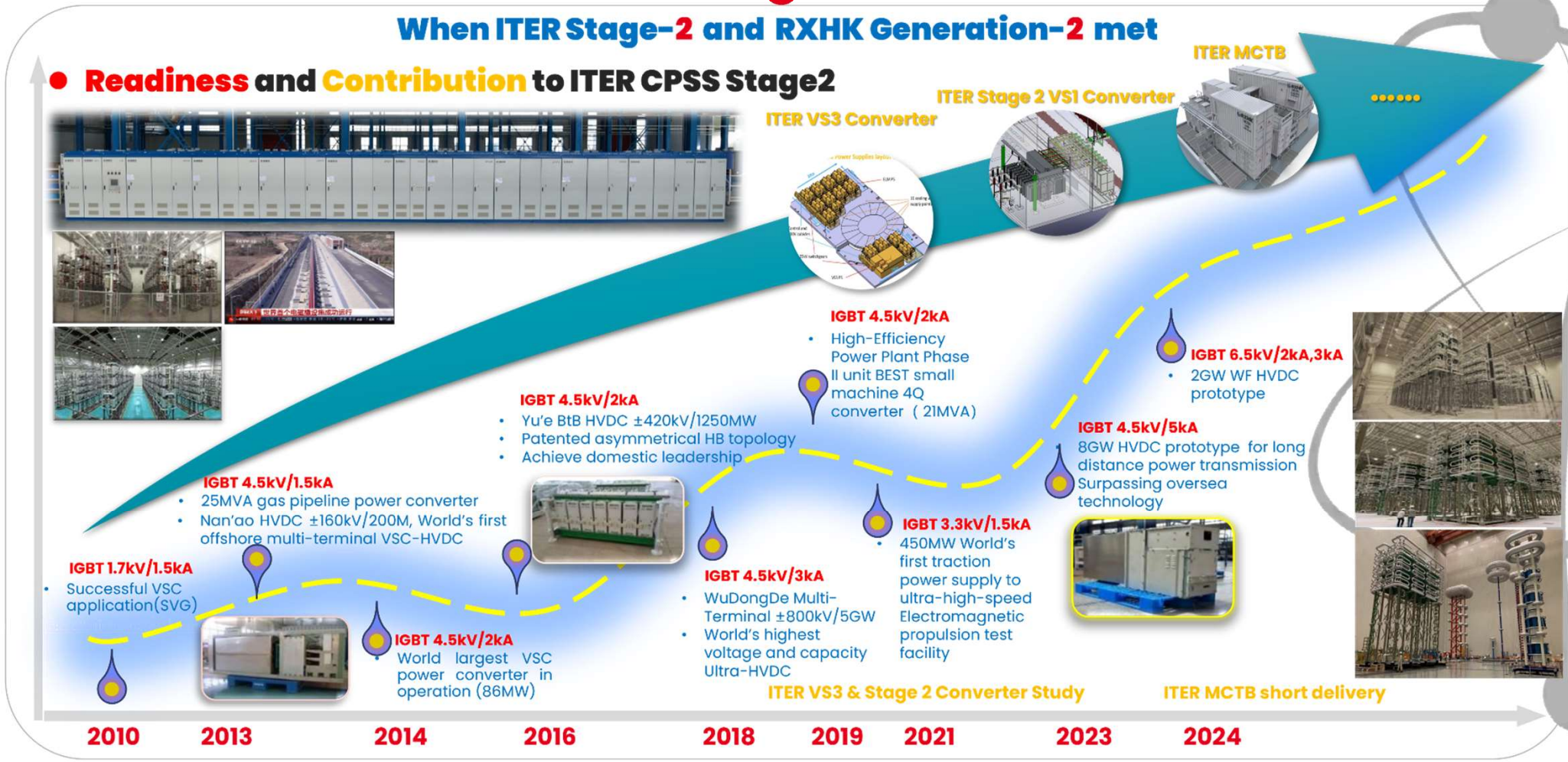
ITER RPC&HF PA signed — 2011

ITER RPC&HF FDR — 2014

ITER RPC&HF SAT — 2024

Contributions to ITER CPSS stage 2

RXHK

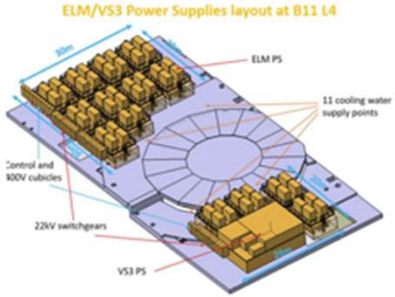


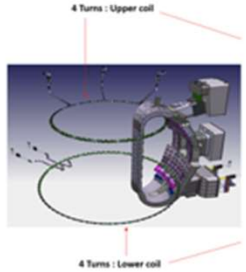
Where our commitment and passion thrive…

Four-quadrant high capacity and high current power converter

ITER In-Vessel Coil Power Supply Topologies Study (IO/21/CT/4300002530)

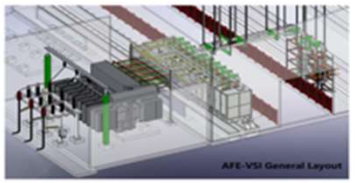
- Contract signing: Dec, 2021
- Successfully delivered

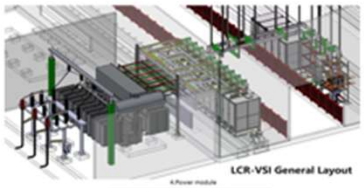


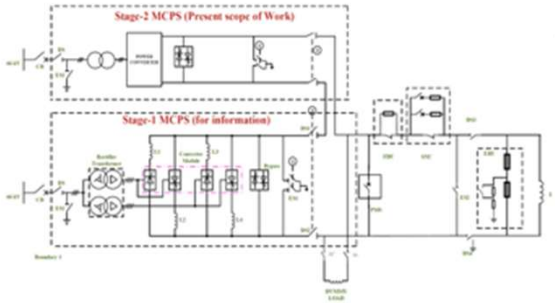


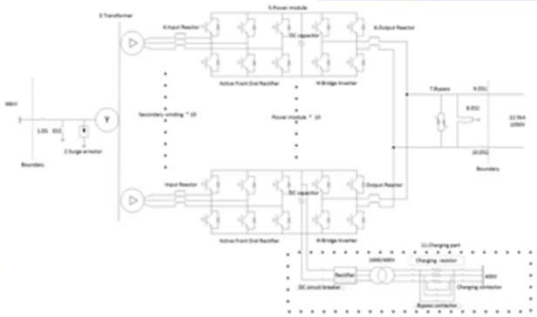
ITER Feasibility Study of Stage 2 VS1 Converter Units (IO/22/CT/4300002727)

- Contract signing: Oct, 2022
- Successfully delivered

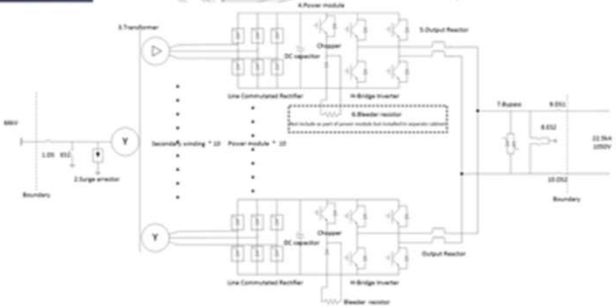








AFE-VSI Solution



LCR-VSI Solution

Where our commitment and passion thrive…

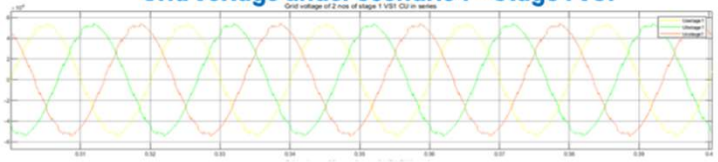
Technology Innovation of Power Conversion

Advantages – Technical Performance

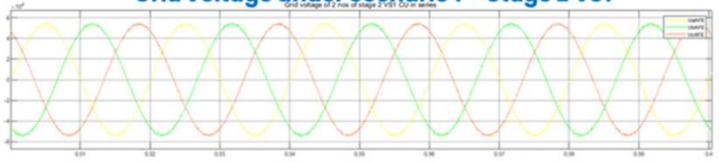
- Better Power Quality at Grid Side

Time (s)	Converter Units	Active power(MW)	Reactive power (MVar)	Apparent power(MVA)	Power factor
0.4 *	2 nos of Stage 1 VSI CU in series	-44.8	38.7	59.2	-0.757
	2 nos of Stage 2 VSI CU (AFE-VSI) in series	-46.98	-0.1	49.99	-0.999

Grid voltage under Scenario 1 – Stage 1 VSI

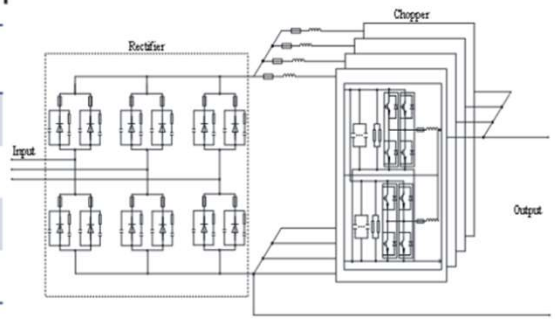


Grid voltage under Scenario 1 – Stage 2 VSI



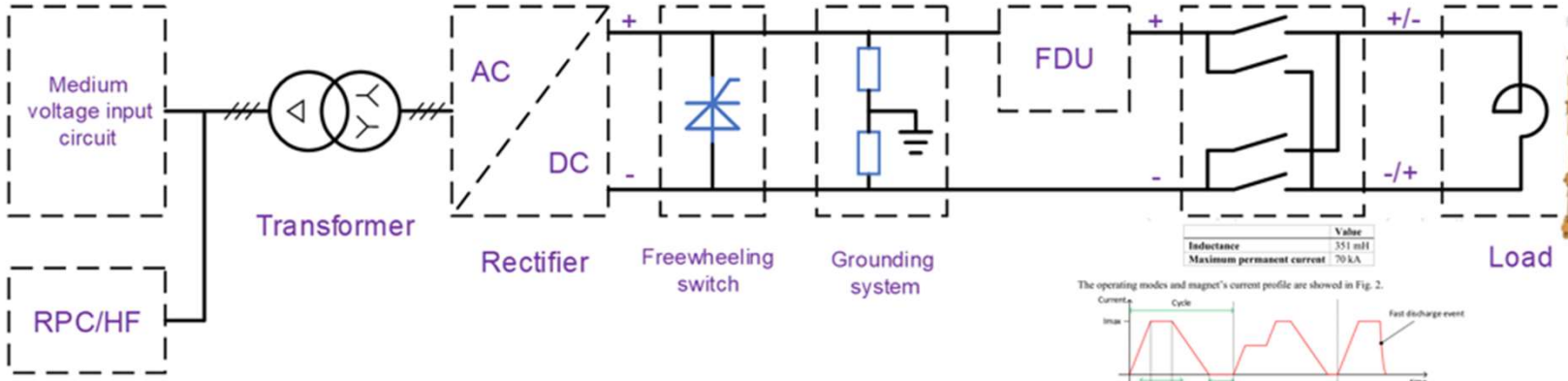
- Four-quadrant Operation with Smooth Current Transition at Zero-Crossing
- Faster Dynamic Response (within 10ms)
- Reliability of Key Components

No	Power uint	DC voltage	DC current
1	ITER PF	±1050 V	±55 kA
2	ITER CS	±1050 V	±45 kA
3	ITER VSI	±1050 V	±22.5 kA
4	DC-EAF	1000V[a]/1500V[b] DC	> 64kA



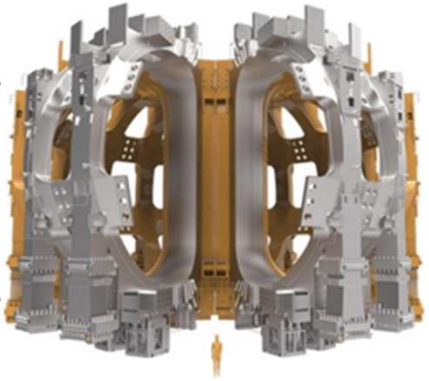
Where our commitment and passion thrive…

Standalone power supply for TF coil test facility



	Value
Inductance	351 mH
Maximum permanent current	70 kA

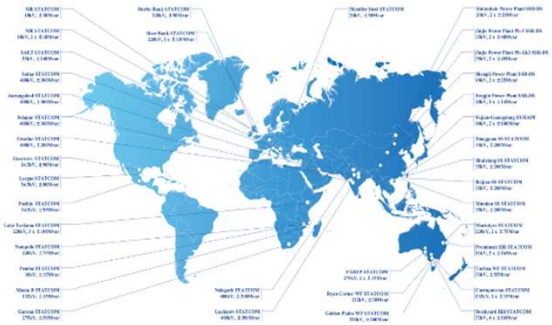
The operating modes and magnet's current profile are showed in Fig. 2.



Where our commitment and passion thrive...

- ITER - A great premier platform for our technological development and innovation

- Enhancing the proficiency of RXHK Project Management team by exemplary project execution in international Mega-Science initiatives



- Accelerating RXHK's globalization process

AMPEGON

ARETÈ & COCCHI TECHNOLOGY

IBF/25: Power supplies for EC Heating

Ampegon Power Electronics AG

April 25, 2025 Elvis Dzindo

CT PACK · Mopa · CTDX · Vortex Systems · CORTI AUTOMAZIONI · Industry Technology Suzhou CHINA · FPE · CT PACK USA · OCEM AirfieldTechnology · MULTI ELECTRIC · OCEM POWER ELECTRONICS · AMPEGON · AUGIER energy · PRIATHERM · ALGOTEX · ACCELERATOR TECHNOLOGIES

Agenda items

1) Introduction: Ampegon Power Electronics

2) Power supplies for ITER EC heating system
   - Main High Voltage Power Supplies (MHVPS)
   - Body Power Supplies (BPS)

3) Learnings from ongoing F4E Contract

4) What is coming next: future developments

5) Global references for EC heating Power Supplies

SCIENCE + : FLASH INFORMATION 2024

Business Unit formed by:

- **OCEM Power Electronics**
- **AMPEGON Power Electronics**
- **ACCELERATOR TECHNOLOGIES**
- **PRIATHERM**

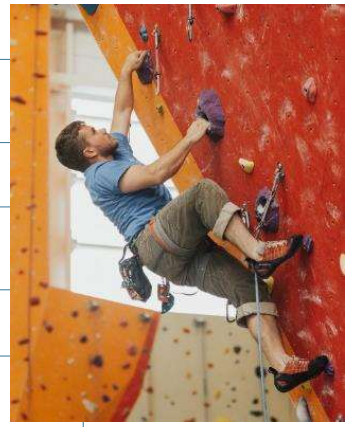
Key points:

- 100 years of experience and know-how in scientific, medical, industrial and transmission technologies;
- Nuclear fusion and accelerator technology;
- Research, innovation, solid states and integrated solutions.

AMPEGON

Ampegon Power Electronics is a leading player in niche markets for Research Institutions and for Medical/Industrial/Broadcast Applications through technology leadership with:

- **High power RF amplifier systems**
- **Pulsed power supply applications**
- **Shortwave transmitter systems**

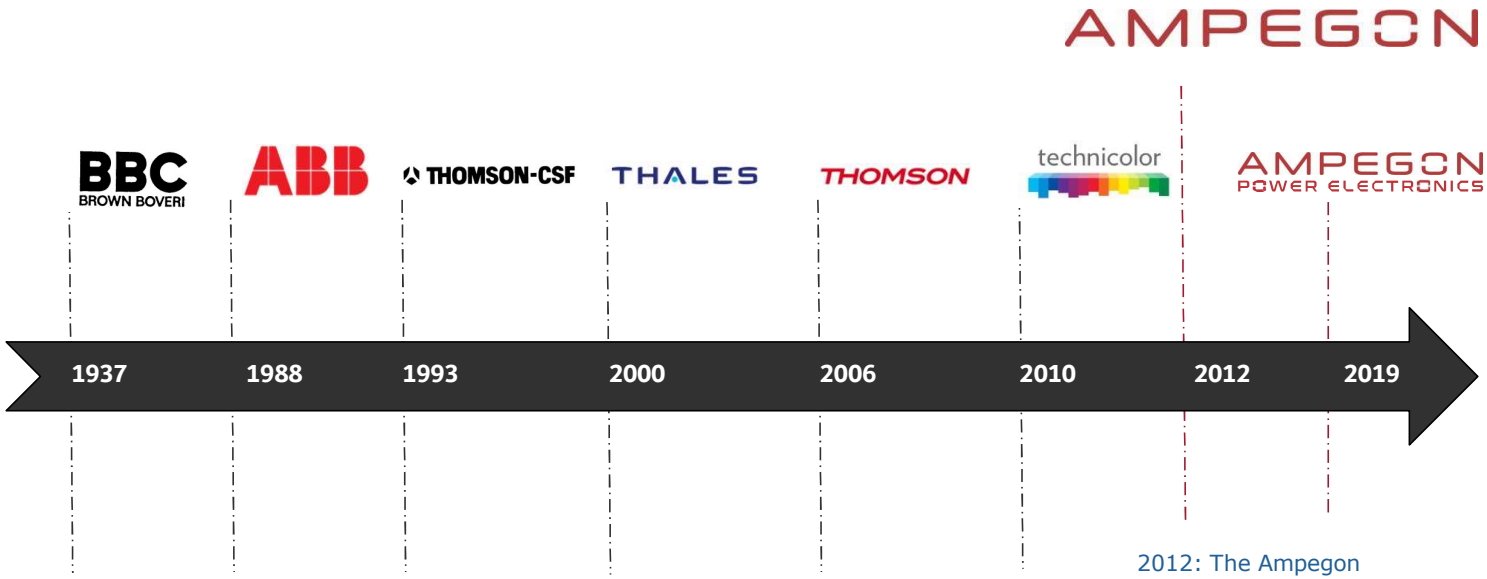


- Design, manufacturing and servicing of dedicated RF amplifiers and HV power supplies for Science, Medical, Industrial and Shortwave Broadcast markets
- Subsidiary of Energy Technology s.r.l., Bologna, Italy (A&CT Group)
- Location: Baden (AG), Switzerland (35 employees)

Science MedTech Industry Broadcast

IBF/25

A Heritage of Excellence



Opening of the Broadcast division at BBC.

BBC and Asea merge to new ABB Group

ABB Infocom sold to Thomson-CSF

Thomson-CSF is renamed to Thales, the Broadcast Division to Thales Broadcast & Multimedia

Thales Broadcast & Multimedia is sold to Thomson

Thomson is renamed to Technicolor and the Broadcast Division to Thomson Broadcast

2012: The Ampegon Brand is established by financial investors out of Thomson Broadcast, as Technicolor restructures.

2019: A new company, Ampegon Power Electronics, is founded by A&CT to take over Ampegon

Our Core Competences

RF Expertise:
Ampegon specializes in RF engineering for single- unit or industrialized production of high power amplifiers

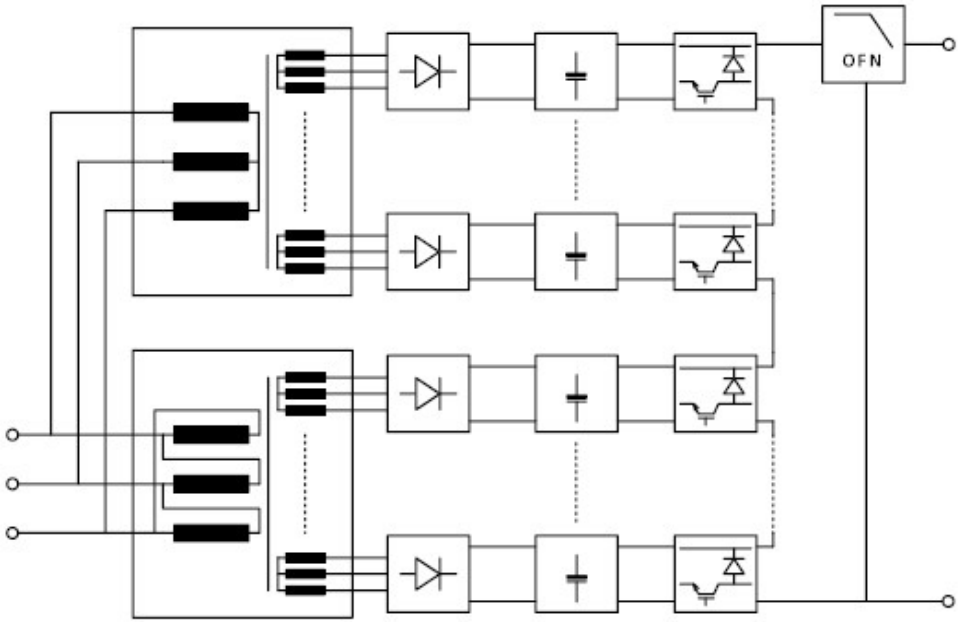
Power Electronics:
Our power electronics provide multi-megawatt outputs with nano-second responses and unrivalled safety

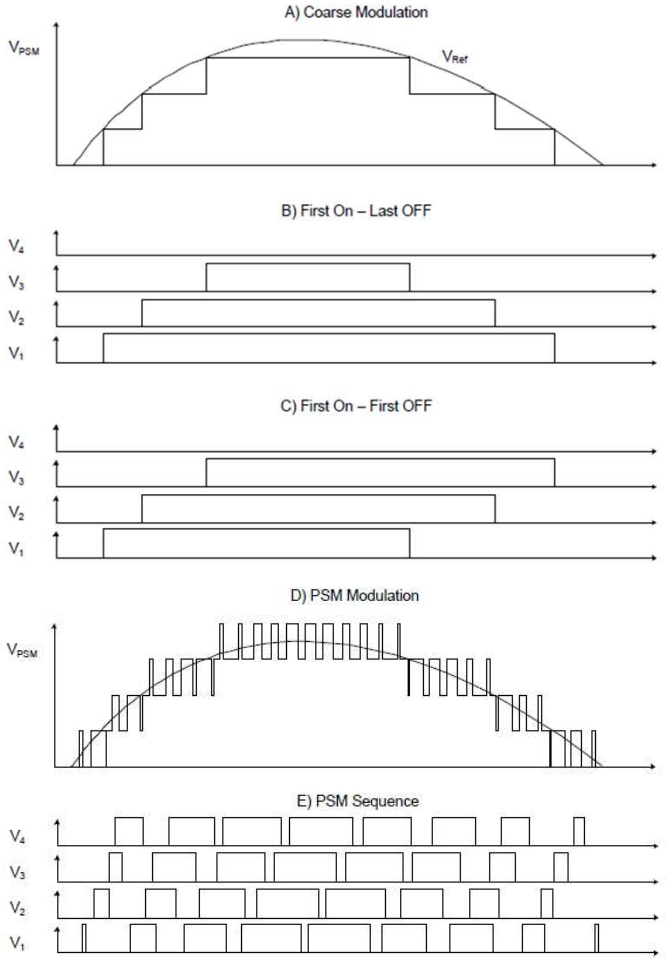
Control Systems:
In-house control development allows use with known standards or custom development as required

Industrial Design:
Bright ideas, clever designs, professionally implemented

Tailor Made Solutions:
Ampegon applies decades of expertise to the requirements of your business.

Pulse Step Modulator (PSM) Technology





Advantages:	High efficiency >97%
	Flexible waveforms, CW output
Limitations:	Overshoot possible
	Pulse ripple (module switching)

2) EC Power Supplies for ITER

Cathode Power Supply (MHVPS)

- ✓ 55kV / 110A CW
- ✓ 2 Gyrotrons (55kV, 55A, 170GHz) per MHVPS
- ✓ On-Off Modulation: ≤ 5kHz
- ✓ Arc Limitation System (ALS)
- ✓ Efficiency: ≥ 97%

Project status

- ➢ All 8 units delivered between 2018 - 2021
- ➢ Site installation is completed
- ➢ Commissioning works ongoing
- ➢ Site works completion: expected within 2026/27

2) EC Power Supplies for ITER

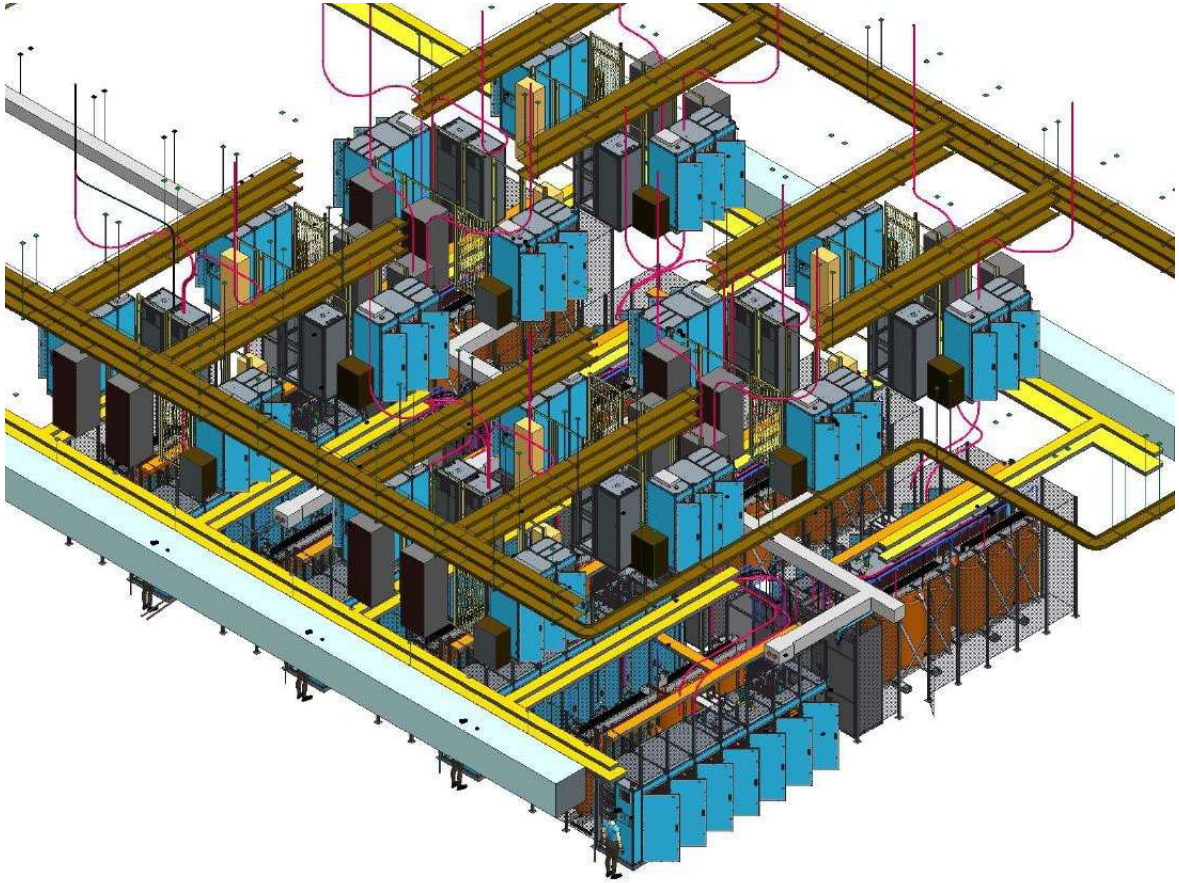
Body Power Supply (BPS)

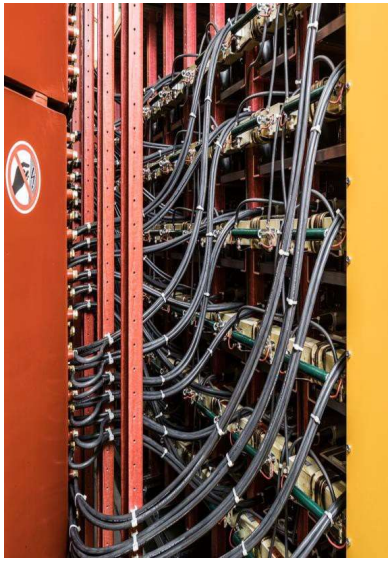
- ✓ 35kV / 100mA
- ✓ 1 BPS per Gyrotron
- ✓ On-Off Modulation ≤ 5kHz

Project Status

- ➢ All 16 units delivered between 2018-2021
- ➢ Site installation works are completed
- ➢ Commisioning work is ongoing
- ➢ Site works completion: expected within 2026/27

2) EC Power Supplies: Site layout





3. Collaboration Opportunities in Near Future

3.1 Upgrade of PPEN

3.2 STATCOM

3.3 VS3 Power Supply (VS3-PS)

3.4 Magnetic Field Compatibility Lab (MFC)

3.1 Upgrade of PPEN

The PPEN upgrade activities concern the **procurement, installation and commissioning** of the following Work packages:

- PPEN AC distribution for Ex-Vessel **Magnet Power Converter stage 2** (10 circuits)
  - ✓ 12km of 66kV cables - 240mm2 & 300mm2
- PPEN AC distribution for **In-Vessel Coil Power Supplies** (VS3 and ELMs feeders)
  - ✓ 8 km of 22kV cables - 185mm2
- PPEN AC distribution for **ICH & ECH – SRO**
  - ✓ 10 km of 22kV cables - 150mm2 & 240mm2
- PPEN AC distribution for **ICH & ECH – DT1**
  - ✓ 28 km Cables 22kV/ (GIS – TBC) 22kV Switchgear 13 feeders - 150mm2 & 240mm2 & 400mm2

PPEN AC Distribution for MCPC stage 2

Activities	2026				2027				2028				2029				2030			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design and Manufacturing																				
Installation and Commissioning																				

PPEN AC Distribution for IVC Power supplies

Activities	2026				2027				2028				2029				2030			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design and Manufacturing																				
Installation and Commissioning																				

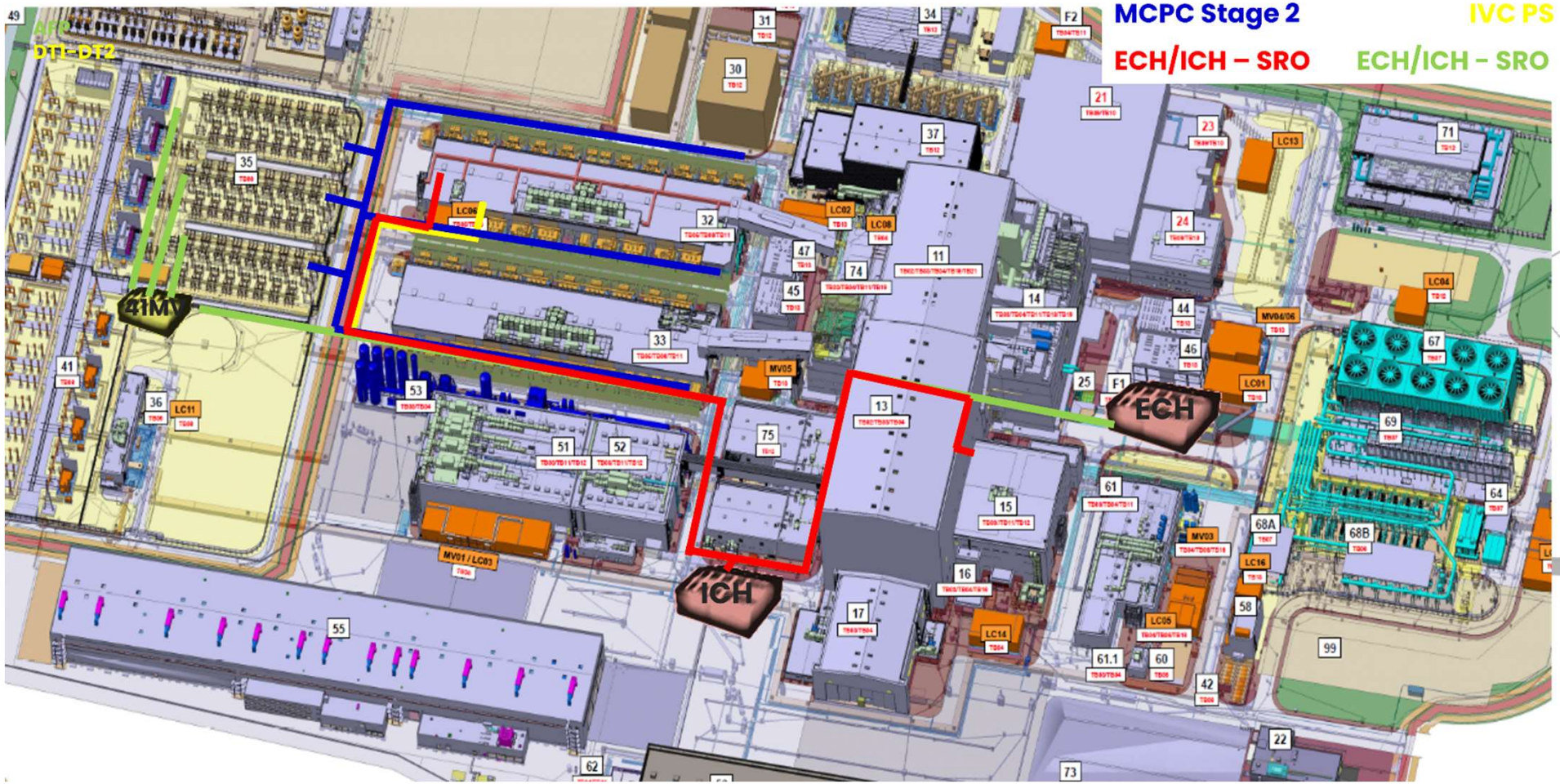
PPEN AC Distribution for ECH & ICH - SRO

Activities	2026				2027				2028				2029				2030			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design and Manufacturing																				
Installation and Commissioning									ECH								ICH			

PPEN AC Distribution for ECH & ICH - DT1

Activities	2026				2027				2028				2029				2030			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design and Manufacturing																				
Installation and Commissioning																				

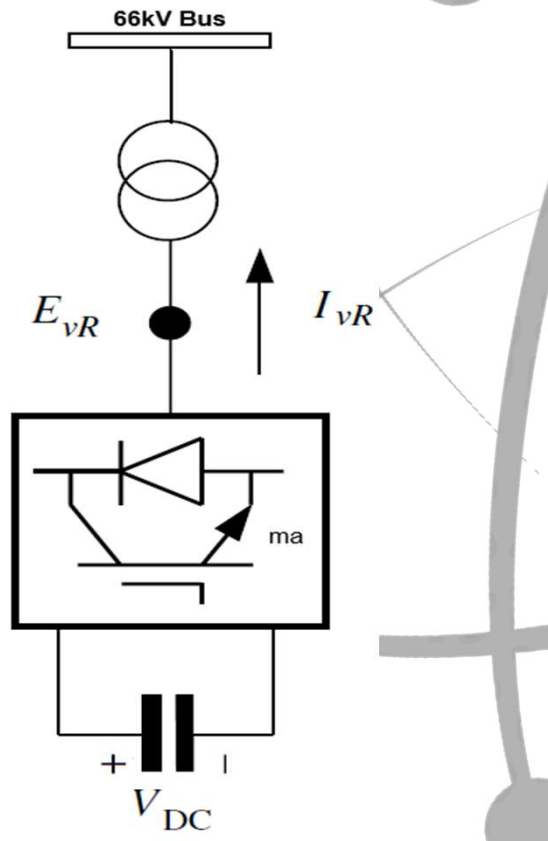
3.1 Upgrade of PPEN



3.2 STATCOM

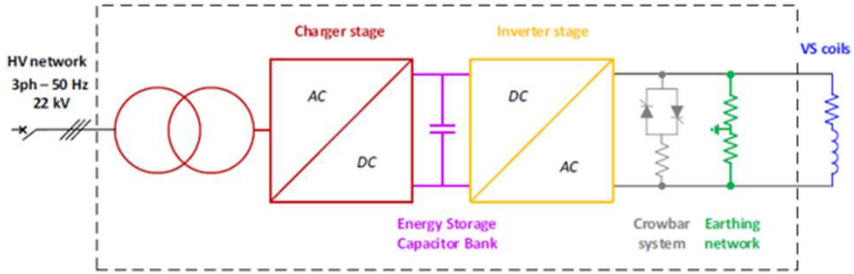
- Stage1 RPC uses SVC (Static Var Compensator) configuration which is mainly controlled by Thyristors.
- STATCOM will be used to integrate with the stage1 RPC system.
- STATCOMs will be designed to integrate with the stage1 RPC system
  - ✓ It Compensates the remaining exceeding reactive power.
  - ✓ It Compensates the remaining harmonics leftover by stage1 RPC system.
  - ✓ It also compensates the slower time response of the stage1 RPC and to mitigate the overvoltage during fast transients such as load rejection.
- STATCOM is expected to connect at 66 kV bus, with or without step-up transformer.

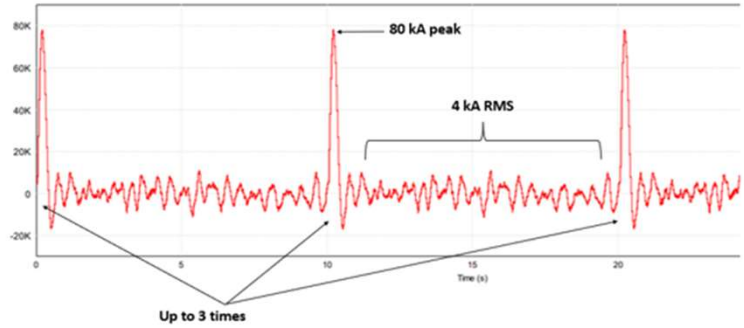
Rating: 3x90 MVAr (Tentative)
Connection: 66 kV level
Control Switch: IGBT



STATCOM for Bus 1

3.3 VS3 Power Supply





$$I = I_{vde} + I_{noise}$$

$$I_{vde} = A\left(\varepsilon^{-t/\tau_1} - \varepsilon^{-t/\tau 2}\right)$$

$$I_{noise} = I_{noise\_rms}\sqrt{2}\sin(2\pi ft)$$

A = 99200 A
τ1 = 0.304 sec
τ2 = 0.016 sec
I_{noise_rms} = 2907 A
f = 30 Hz

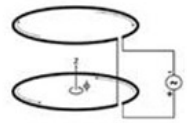
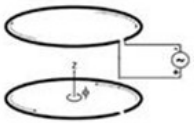
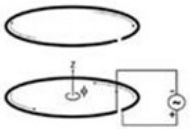
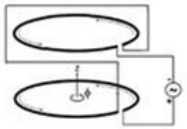
- turn-key contract including installation and commissioning
- Charging power (10s) : 3.5 MW
- Output peak power: 192 MW for 0.3s
- Output peak current: ±80 kA for 0.3s
- Output current (continuous, rms): 4 kA
- Output voltage : ± 2.4 kV_{dc}
- Energy bank : 25 MJ

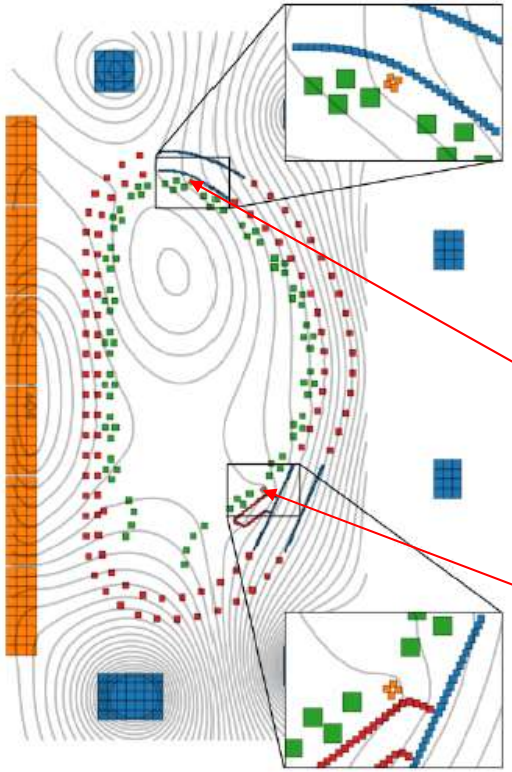
Coil + feeder + VV @ operating temperature	DC mΩ / mH	30Hz mΩ / mH
Upper 4 turns + lower 4 turns	14.0 / 1.33	49.7 / 0.493

3.3 VS3 Power Supply

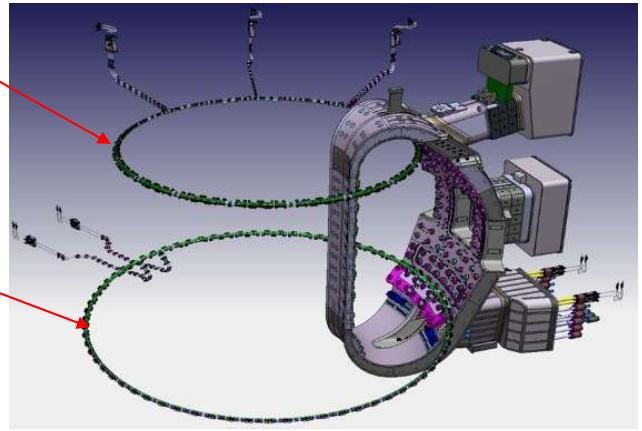
- One **upper** and one **lower 4-turn** “ring” coil connected in an anti-series;
- Control the **vertical position of the plasma**;

Possible operation modes

NORMAL OPERATION	DIAGNOSTIC SENSORS CALIBRATION ACTIVITIES		
Antie-series	Upper singly	Lower singly	Series
			



VS Upper coil : 4 Turns

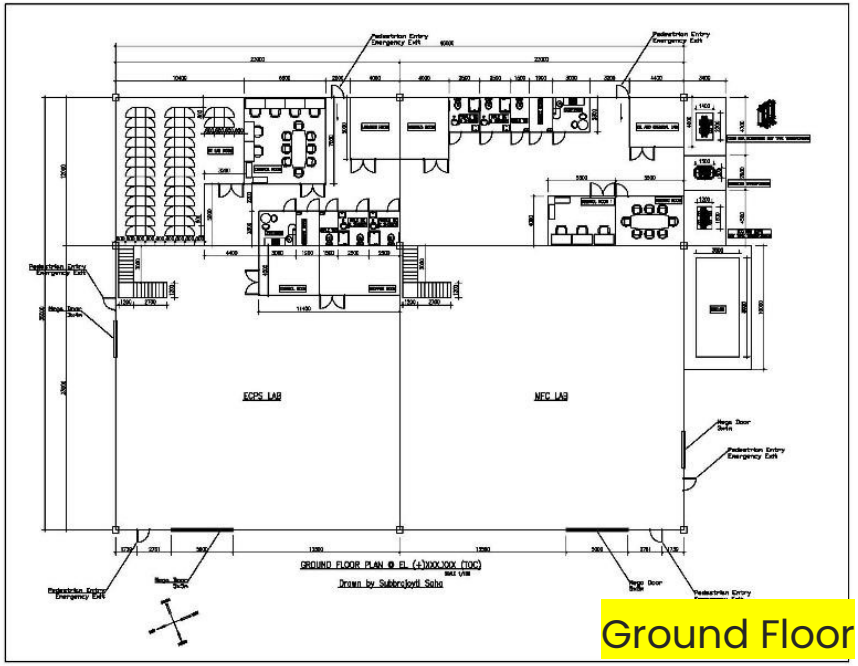


VS Lower coil : 4 Turns

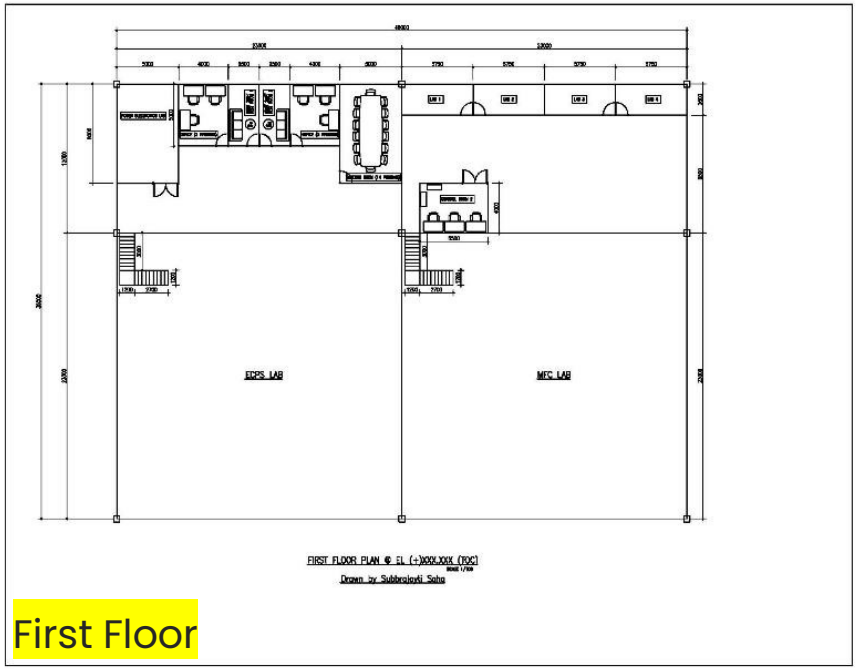
3.4 Magnetic Field Compatibility Lab (New Building)

For the activity future expansion and new business development, a bigger and new location has been designed, and a dedicated International Tender for the construction of a 2000 m^2 internal surface will be launched for civil works and technological installations.

The expected realization time is 12 months, herewith below described the preliminary layout.



Ground Floor



First Floor

3.4 Magnetic Field Compatibility Lab (MFC Service Provider)

Our activity is in strong expansion, aiming to reach 100% of the testing capacity from middle 2025 on producing high quality tests within the three product lines:

- **Static Magnetic Field (SMF) Main Test Facility**
- **Circuit Breaker (CB) Test Bench**
- **Electrical Motor Test Bench**

Our laboratory started the process of COFRAC accreditation which we aim to achieve Q1 2026. It is the highest level of accreditation in France according ISO 17025 STD.

"Thanks to our earned experience, the continuous quality control on all test process, the accreditation, we will be soon in condition to fulfil not only the IO internal demand (IO-DAs), but also all requests coming from external customers (third parties) willing to test and qualify their products for the Fusion global market"

IBF/25
INTERNATIONAL ITER BUSINESS FORUM

THANKS

TO BE PART OF THE WORLDWIDE **FUSION** NETWORK

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