

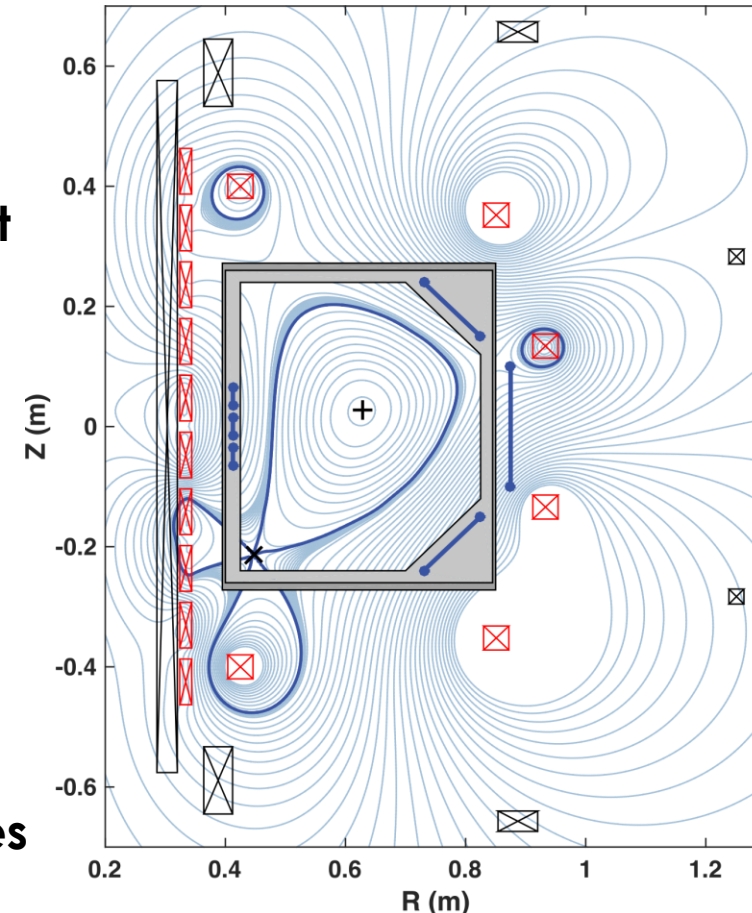
Development of high-current power supplies for the TCABR tokamak

- **Brazil is moving towards the establishing of a national laboratory to coordinate and concentrate studies in nuclear fusion across the country**
 - A compact (spherical), high toroidal field tokamak is envisaged
- **An upgrade of the TCABR tokamak is being conducted**
 - The main purpose of this upgrade is the development of human resources with the "know how" required to operate the facility



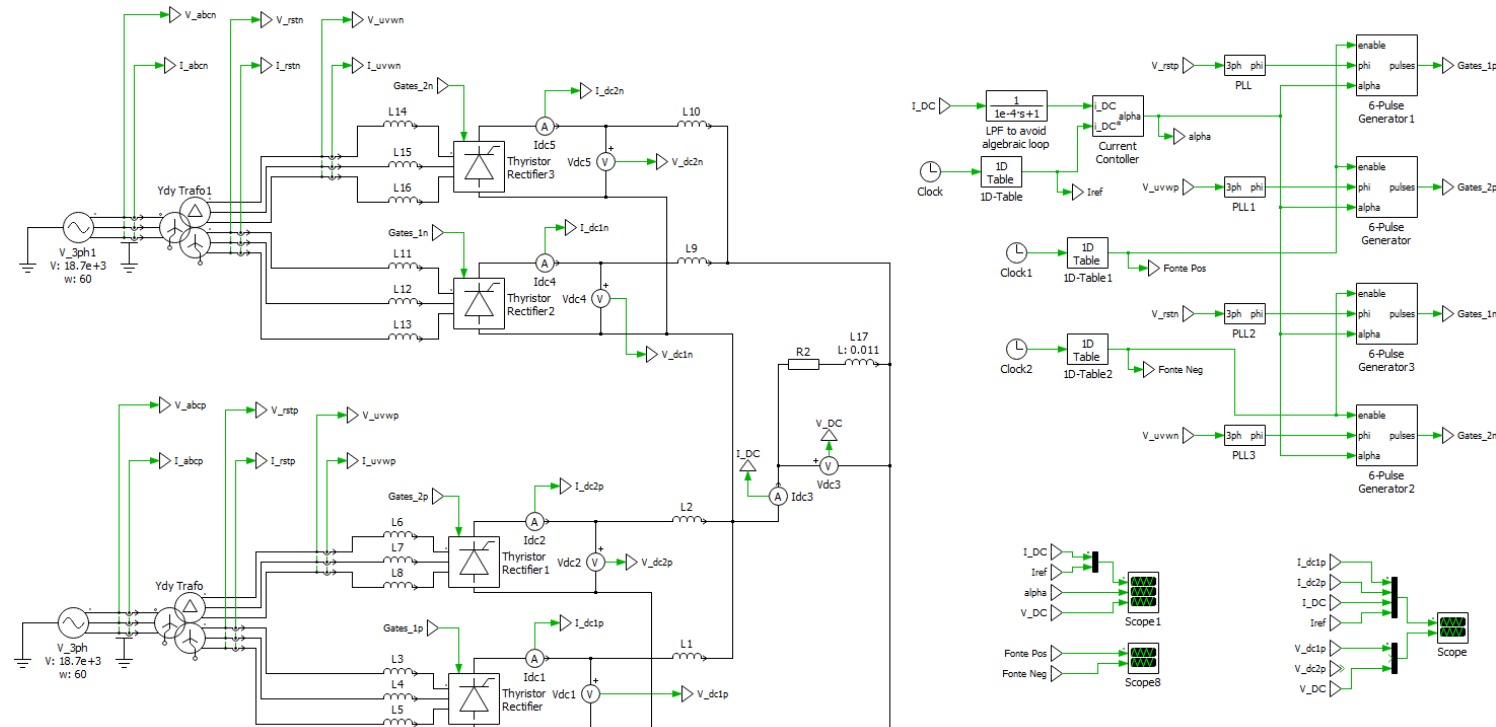
Development of high-current power supplies for the TCABR tokamak

- A versatile plasma control system is being designed for TCABR to allow for a wide range of plasma configurations
- To create the plasma configurations envisaged for TCABR (see P/1-12 / 525), 17 high-current power supplies will be built
- Various power electronics topologies are being considered
 - Thyristor-based
 - IGBT full bridge
 - Resonant converters (Low EMI)
- Objective is to identify the most adequate solution considering the modern topologies available nowadays



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- **PLECS simulations of the thyristor-based topology are in progress**
 - Preliminary simulations are based on a 12-pulse rectifier topology



*Power electronics topology based on those used on TCV and on ASDEX-Upgrade