

ITER ECH System and US ECH Program for ITER

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The Electron Cyclotron Heating and Current Drive (ECH / ECCD) system for ITER has a goal of:

- EC Current Drive (ECCD), on-axis and off-axis.
- EC Heating (ECH), including start-up.
- Neoclassical Tearing Mode (NTM) stabilization.

To accomplish this goal, the ECH system consists of the following five subsystems:

- 24, 1 MW 170 GHz Gyrotron Systems and 3, 1 MW 120 GHz Gyrotron Systems.
- DC Power Supplies and Controls for the Gyrotrons.
- Transmission Line System.
- 1 Equatorial Plane Launcher.
- 3 Upper Port Launchers.

The US ECH community has begun work on possible US contributions to the ITER ECH system. The US is interested in contributing in all areas of ECH technology. The US has completed a study of the 1 MW, 170 GHz gyrotrons and has produced a successful short pulse (3 microseconds) prototype. Work is being initiated on the design of a 1 MW, 120 GHz gyrotron, which would operate with very high reliability. Research is also underway on a remote, steerable launcher, which could contribute to the goal of NTM stabilization. An update will be given of the US program for research and development of components for the ITER ECH system and US plans for contributing hardware to the ITER project.