**The AWA Facility Upgrade**

The AWA facility has recently undergone a series of upgrades in order to extend its reach to higher wakefield accelerating gradients (200 – 500 MV/m) and the generation of higher RF power levels (1 – 3 GW). A resource unique to DOE, the facility maintains the world's two highest charge RF photoinjectors, both capable of 100 nC per bunch.

Installation of front end of the 75 MeV drive linac and the total 15 MeV witness beamline is complete. The former drive gun and its linac tank, capable of generating 15 MeV electron bunches, will be used to provide a witness beam to probe the wakefields produced by the drive bunches. A new beamline switchyard (Fig. 1) will be constructed to allow concomitant experiments using the two electron beams: (a) collinear wakefield acceleration; (b) RF power generation and two beam acceleration; (c) phase space manipulation (emittance exchange, etc); (d) high brightness beam generation; (e) beam diagnostic development. This flexible beamline switchyard will allow a quicker and more efficient transition among several concurrent experimental setups.

The completed beamlines are now ready for final safety approval from Argonne National Lab. Once approval is in hand, experiments will begin again on the newly relocated witness line and commissioning of the drive beamline will commence.

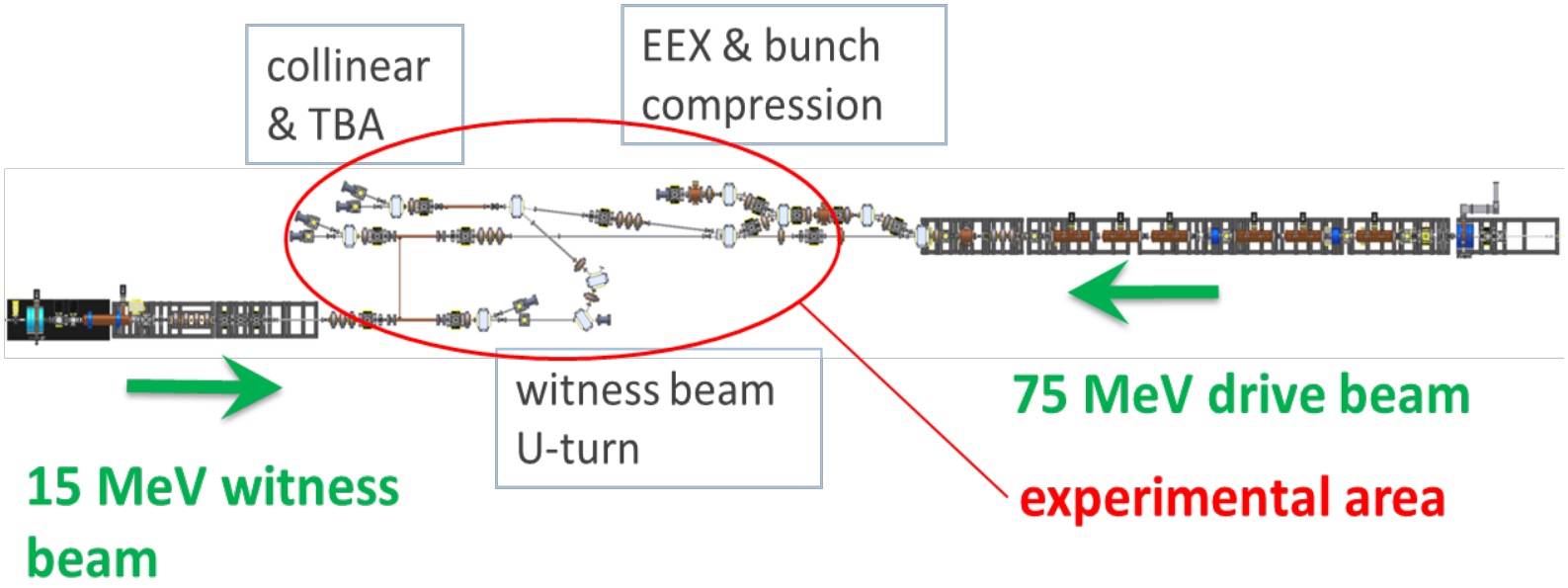

Figure: Schematic of the AWA beamlines, showing the Drive Beamline, the Witness Beamline and the beamline switchyard where the various experiments will take place.

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