

Appendix E. Japanese ST program strengths & near-term plans in the context of the ReNew research elements

Program strategy – to broaden future ST options by innovative research in

- Particle control and plasma-wall interaction in steady state
- Compact ST plasmas at ultra-high beta

Plasma current formation & ramp-up

- EBW-assisted start-up (2.45GHz, 5GHz, 8.2GHz on TST-2, LATE, QUEST)
- Start-up assist with plasma gun (UTST, TST-2)
- Double-null merging start-up (using external coils, UTST)
- Reconnection heating (TS-4, UTST)
- CHI (HIST)
- Ramp-up by LHCD (TST-2, planned) and EBWCD (LATE, QUEST)

Divertor & PFCs

- All-metal PFC in steady state with open divertor (QUEST)
- High-temperature tungsten wall with closed divertor (QUEST, planned)

Confinement & stability

- Fluctuation measurements with probes and reflectometer (TST-2)
- Core fluctuation measurements with heavy ion beam probe (TST-2, proposed)

Stability control

- Stability control with CHI (HIST)

Maintenance of current and control of profiles

- NBCD. (UTST)
- LHCD (TST-2) and EBWCD (LATE, QUEST)
- CHI (HIST)
- Divertor cryopump (QUEST, proposed)

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