

Table 2 Projected Neutron Production Rates for NSTX Upgrades

| NSTX capability | Increase in neutrons per shot relative to present NSTX | MAX neutrons per shot | MAX neutrons per day | Estimated total neutrons per year | MAX neutron rate [1/s] |
|------------------|--|-----------------------|----------------------|-----------------------------------|------------------------|
| Present NSTX | 1.0 | 4.0E+14 | 1.3E+16 | 8.0E+16 | 4.0E+14 |
| 2nd NBI only | 2.5 | 1.0E+15 | 3.2E+16 | 2.0E+17 | 1.0E+15 |
| New CS only | 25.0 | 1.0E+16 | 2.4E+17 | 2.0E+18 | 2.0E+15 |
| New CS + 2nd NBI | 50.0 | 2.0E+16 | 4.8E+17 | 4.0E+18 | 4.0E+15 |

| Shots per day | Current [MA] | Toroidal field [T] | NBI power [MW] | Pulse length [s] |
|---------------|--------------|--------------------|----------------|------------------|
| 32 | 1.2 | 0.5 | 6 | 1 |
| 32 | 1.2 | 0.5 | 8 | 1 |
| 24 | 2 | 1 | 5 | 5 |
| 24 | 2 | 1 | 10 | 5 |

