

Summary of Options

Option	Flux (relative)	Max. Ave. Brightness (relative)	Time Required	Approximate Dark Time	Cost	Technical Risk
APS today	1	1 (2.4m U33)	N/A	N/A	N/A	N/A
ERL@APS	0.5	140 (4.8m U33)	10 years, including R&D	6 months	\$\$\$	Very high
APS 1nm	7	40 (8m U33)	5 years, including R&D	1 year	\$	Moderate
APSx3	7	18 (8m U33)	5 years, including R&D	1 year	\$	Moderate
cAPS	3	2 (8m U33)	5 years, including R&D	0 (use periodic shutdowns)	\$	Moderate
APS-LSS	3~7	4~10 (8m U33~special ID)	6 years	0 (use periodic shutdowns)	\$	Very low
USR7	7	400 (8m U33)	5 years, including R&D	N/A	\$\$\$\$	Moderate
XPS	7	75 (8m U33)	7 years, including R&D	2 years	\$\$	Very high
XFEL-O	1 to 100	10^7 to 10^9	5 years, including R&D	N/A	\$\$	High

- APS-LSS has option to change bending magnets in order to preserve lattice flexibility.
- ERL price range includes options without 7 GeV turn-around arc.