

NSTX UPGRADE PRELIMINARY DESIGN COST ESTIMATE			P3 file: rls9					OUTAGE		Gross risk \$	Weighted Risk \$	Bottoms -up contin- gency\$	total cont incl weighted risk	TOTAL TPC	cont % on etc from FY11-FY14
DESCRIPTION	CD-2 TOTAL	FY 2009 Actual Cost	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014								
Job: 1000 - CSU Analytical Support	\$397		101.4	144.9	55.1	56	39.6	80		\$26	107	\$133	\$530	45%	
Job: 1001 - CS Plasma Facing Components	\$2,510	64.6	322.2	597.7	1050.3	474.8		3,060		\$786	616	\$1,402	\$3,912	66%	
Job: 1002 -Passive Plate Analysis & Upgrade Act	\$176		127.5	48.9				20		\$5	20	\$25	\$201	51%	
Job: 1200 - Vacuum Vsl & Struct Support-SMITH	\$1,159	571.7	586.9							\$0	0	\$0	\$1,159	0%	
Job: 1201 - Outer TF Structures-SMITH	\$237		126.9	66.1	33.9	10	0.4			\$0	75	\$75	\$312	68%	
Job: 1202 - Outer PF2 Coil Structures-SMITH	\$60		31.9	19.1	9.1					\$0	14	\$14	\$74	50%	
Job: 1203 - PF3 Support -SMITH	\$34		10.9	13.8	9.1	0.2				\$0	7	\$7	\$41	30%	
Job: 1204 - PF4/5 Leads & Radial Supports-SMITH	\$96		37.2	16.2	5.3	37.3	0.4			\$0	28	\$28	\$124	47%	
Job: 1205 - Umbrella-SMITH	\$522		115	85.6	13.4	306.4	1.3			\$0	161	\$161	\$683	40%	
Job: 1206 - Pedestal -SMITH	\$108		39.1	18.5	4.2	45.4	0.6			\$0	30	\$30	\$138	44%	
Job: 1207 - Vessel Legs -SMITH	\$34		10.8	15.3	7.9					\$0	8	\$8	\$42	34%	
Job: 1208 - PF4&5 Verticle Support-SMITH	\$301		73.9	71	51.3	103.6	1			\$0	97	\$97	\$398	43%	
Job: 1220 - Misc Structural Design-SMITH	\$145		66.6	78.7						\$0	60	\$60	\$205	76%	
Job: 1300 - Center Stack-CHRZANOWSKI	\$1,063		129.5	272.5	246.7	250.7	163.5			\$0	101	\$101	\$1,164	11%	
Job: 1301 - Outer Toroidal Field Coils	\$349		1.6		19	328.3			100	\$25	89	\$114	\$463	33%	
Job: 1303 - TF Joint Test Stand & Perform Test	\$345		88.1	257.2					130	\$27	63	\$90	\$435	35%	
Job: 1304 - Inner TF Bundle (Dsgn/Fab)	\$3,233		374.6	1169.8	659.3	1010.2	19.4		430	\$108	1015	\$1,123	\$4,356	39%	
Job: 1305 - OHMIC Heating Coil (OH) DSGN/FAB	\$3,560	1055.6	339	386.9	1533.2	245.1		1,725		\$432	751	\$1,183	\$4,743	55%	
Job: 1306 - Inner Poloidal Field Coils (Shaping)	\$655		138.8	20.7	314.9	180.7		100		\$25	142	\$167	\$822	32%	
Job: 1307 - CS Casing Assembly (DSGN/FAB)	\$903		155	13.7	383.7	350.3				\$0	239	\$239	\$1,142	32%	
Job: 1310 - CSU Magnet Systems-CHRZANOWSKI	\$454		454							\$0	0	\$0	\$454	-	
Job: 1302 - Center Stack Assembly	\$888				26.4	582.4	279.2			\$0	246	\$246	\$1,134	28%	
Job: 2300 ECH Analysis	\$145		91.8	53.4					125	\$48	28	\$76	\$1,221	142%	
Job: 2420 - 2nd NBI Sources	\$1,085		3.6	3.8		815.8	261.6			\$0	173	\$173	\$1,258	16%	
Job: 2425 - BL Relocation	\$1,634	15	57	60.2	367.8	1039.4	94.6			\$0	220	\$220	\$1,854	14%	
Job: 2430 - 2nd NBI Decontamination	\$2,123	1238.5	840.1	44.4						\$0	56	\$56	\$2,179	126%	
Job: 2440 - 2nd NBI Beamline	\$2,443	28.6	6.3	619.6	885.1	902.9				\$0	351	\$351	\$2,794	15%	
Job: 2450 - 2nd NBI Services	\$4,016	76.7	203.2	86.6		2799.4	850.2			\$0	457	\$457	\$4,473	12%	
Job: 2460 - 2nd NBI Armor	\$775	35.8	174.1	164	21.2	376.9	2.8			\$0	116	\$116	\$891	21%	
Job: 2470 - 2nd NBI Power	\$3,242	115.2	104.6	33.7	227.1	2289.6	471.4			\$0	654	\$654	\$3,896	22%	
Job: 2475 - 2nd NBI Controls	\$1,906		124.5	119.9	310.7	931.9	419.1			\$0	268	\$268	\$2,174	15%	
Job: 2480 - 2nd NBI/TVPS Duct	\$2,222	183.4	188.3	108.9	753.5	988				\$0	552	\$552	\$2,774	30%	
Job: 2485 - Vacuum Pumping System	\$326		13.8	37.8		116.4	158.3			\$0	48	\$48	\$374	15%	
Job: 2490 - NTC Equipt Relocations	\$3,485	143	118.2	83.9	1140.8	774.4	1224.5	294		\$74	538	\$612	\$4,097	19%	
Job: 3200 - Water Cooling System Mods for CSU	\$233	5.4	61.5	46.5			119.2			\$0	23	\$23	\$256	14%	
Job: 3300 - Bakeout System Mods for CSU	\$83		6.5	3		41.4	32.5			\$0	17	\$17	\$100	22%	
Job: 3400 - Gas Delivery System Mods for CSU	\$128		31	37.3			59.2		10	\$1	25	\$26	\$154	27%	
Job: 4100 - Center Stack Diagnostics for CSU	\$815	11	70.6	94.4	276.1	363.1				\$0	130	\$130	\$945	18%	
Job: 4500 - MPTS VV Modification	\$945		205.2	263.7	269.9	206.4					378	\$378	\$1,323	51%	
Job: 5000 - CSU Power Systems	\$1,084	385.8	698.6							\$0	0	\$0	\$1,084	0%	
Job: 5001 - AC Power-RAKI	\$72					72.2					7	\$7	\$79	10%	
Job: 5002 - AC/DC Converters-RAKI	\$57					56.9					6	\$6	\$63	10%	
Job: 5003 - FCPC PF5 DC Systems-RAKI	\$0										0	\$0	\$0	-	
Job: 5004 - TA-NTC DC Systems-RAKI	\$117					9.6	105.1	2.7			29	\$29	\$147	25%	
Job: 5005 - FCPC DC PF1 & TF Systems-RAKI	\$1,677				182.5	1444.4	49.8				419	\$419	\$2,096	25%	
Job: 5006 - Control & Protection-RAKI	\$1,902				52.8	1755.3	94.1				285	\$285	\$2,188	15%	
Job: 5007 - Systems Design & Integration-RAKI	\$726		42.5	211.8	99.8	131	240.4				73	\$73	\$798	11%	
Job: 5008 - Digital Coil Protection-RAKI	\$1,492		32	127.1	334.9	811.5	186.9				373	\$373	\$1,866	26%	
Job: 5501 - Coil Bus Runs	\$1,115		233.1	157.1		372.2	352.6				288	\$288	\$1,403	33%	
Job: 6100 - Control Sys & Data Acquisition Sys	\$974		28.2	128.1		380.6	437.3	450		\$178	136	\$314	\$1,288	33%	
Job: 7100 - Project Mgt & Integration CSU & NBI	\$5,650	625.8	908.9	878.6	998.2	1220.2	1018.5	150		\$38	723	\$761	\$6,411	18%	
Job: 7200 - Center Stack Management	\$1,451		244.1	325.9	325	317.8	237.7	107		\$27	189	\$216	\$1,667	18%	
Job: 7300 - NB2 Management	\$1,588	63.3	226.4	333.8	348.2	427.3	188.8	75		\$19	199	\$218	\$1,806	17%	
Job: 7400 - Health Physics Support	\$2,542		480.3	322.3	781.8	638	319.6	35		\$21	320	\$341	\$2,883	17%	
JOB: 7700 - NSTX Upgrade HP Allocations	\$1,947		384.4	404.4	417.7	428.8	311.3	130		\$78	236	\$314	\$2,261	20%	
Job: 7710 - Upgrade Allocations	\$819	526.3	56.4	61.1	63.1	64.8	46.8	130		\$78	37	\$115	\$934	49%	
Job: 8200 - Centerstack & Coil Structural Instal	\$4,755		20.2	56.5	1533.6	2067.8	1076.8	1,480		\$370	1287	\$1,657	\$6,412	35%	
Job: 8250 - Remove/Install Centerstack	\$1,129				393.2	62.7	673.2	287		\$61	148	\$209	\$1,338	19%	
Job: 7900 - Integrated System	\$76		4.2	1.8	1.8	66.7				\$0	16	\$16	\$92	22%	
schedule (months)	48	(OT and 2nd shift option utilized on last year of project)					8.0	months				\$2,160	\$2,160	\$2,160	
Base Estimate =	\$72,015	\$5,146	\$8,991	\$8,166	\$14,217	\$25,993	\$9,502	8,918	\$2,427	\$14,835	\$17,262	\$89,269			
Contingency % =		0.0%	15.9%	19.7%	19.2%	85.9%									
Contingency	\$17,262		\$1,300	\$2,800	\$5,000	\$8,162									
Contingency % of ETC =												28%			
Total =	\$89,277	\$5,146	\$8,991	\$9,466	\$17,017	\$30,993	\$17,664								
Guidance =		\$9,000	\$8,380	\$14,630	\$25,280	\$27,540									
shortfall =		\$9	(\$1,086)	(\$2,387)	(\$5,713)	\$9,876									
cum=			(\$1,077)	(\$3,464)	(\$9,177)	\$699									