

Operations Report for FY12 and FY13-Q1/2

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Accelerator Advisory Committee

May 7-9, 2013












Outline

- **FY12 & 13 Run Schedules**
- **Review of SNS Commitments**
- **Performance**
- **Downtime Overview**
- **Summary**

Original plan for FY12

Run Schedule for FY 2012

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
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 Accelerator Physics	 Machine Downtime Major Periods(Maintenance/Upgrades)	 Transition to Neutron Production
 Accelerator Startup/Restore	 Scheduled Maintenance (starts at 06:30)	 Holiday
 Accelerator Physics/Maintenance Periods	 Neutron Production	 Weekend

Original plan for FY13

Run Schedule for FY 2013










	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
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- Accelerator Physics
- Accelerator Startup/Restore
- Accelerator Physics/Maintenance Periods
- Machine Downtime Major Periods(Maintenance/Upgrades)
- Scheduled Maintenance (starts at 06:30)
- Neutron Production
- Holiday
- Weekend
- Transition to Neutron Production

Plans changed due to first target failure (Sept. 22)

Run Schedule for FY 2012

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
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30		30		30		30		30		30		30
31		31		31		31		31		31		31

 Accelerator Physics	 Machine Downtime Major Periods(Maintenance/Upgrades)	 Transition to Neutron Production
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 Accelerator Physics/Maintenance Periods	 Neutron Production	 Weekend

FY13 schedule as executed after second target failure (Oct. 11)

SNS FY 2013 Q1-3 Revision 1 Approved											Revised 2/26/2013					SNS FY 2013 Q4 Revision 1 Planning		
Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept							
1	1	1	1	1	1	1	1	1	1	1	1							
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30	30	30	30	30	30	30	30	30	30	30	30							
31	31	31	31	31	31	31	31	31	31	31	31							

- Accelerator Physics
- Machine Downtime Major Periods(Maintenance/Upgrades)
- Holiday
- Accelerator Startup/Restore
- Scheduled Maintenance (starts at 06:30)
- Weekend
- Accelerator Physics/Maintenance Periods
- Neutron Production
- Transition to Neutron Production

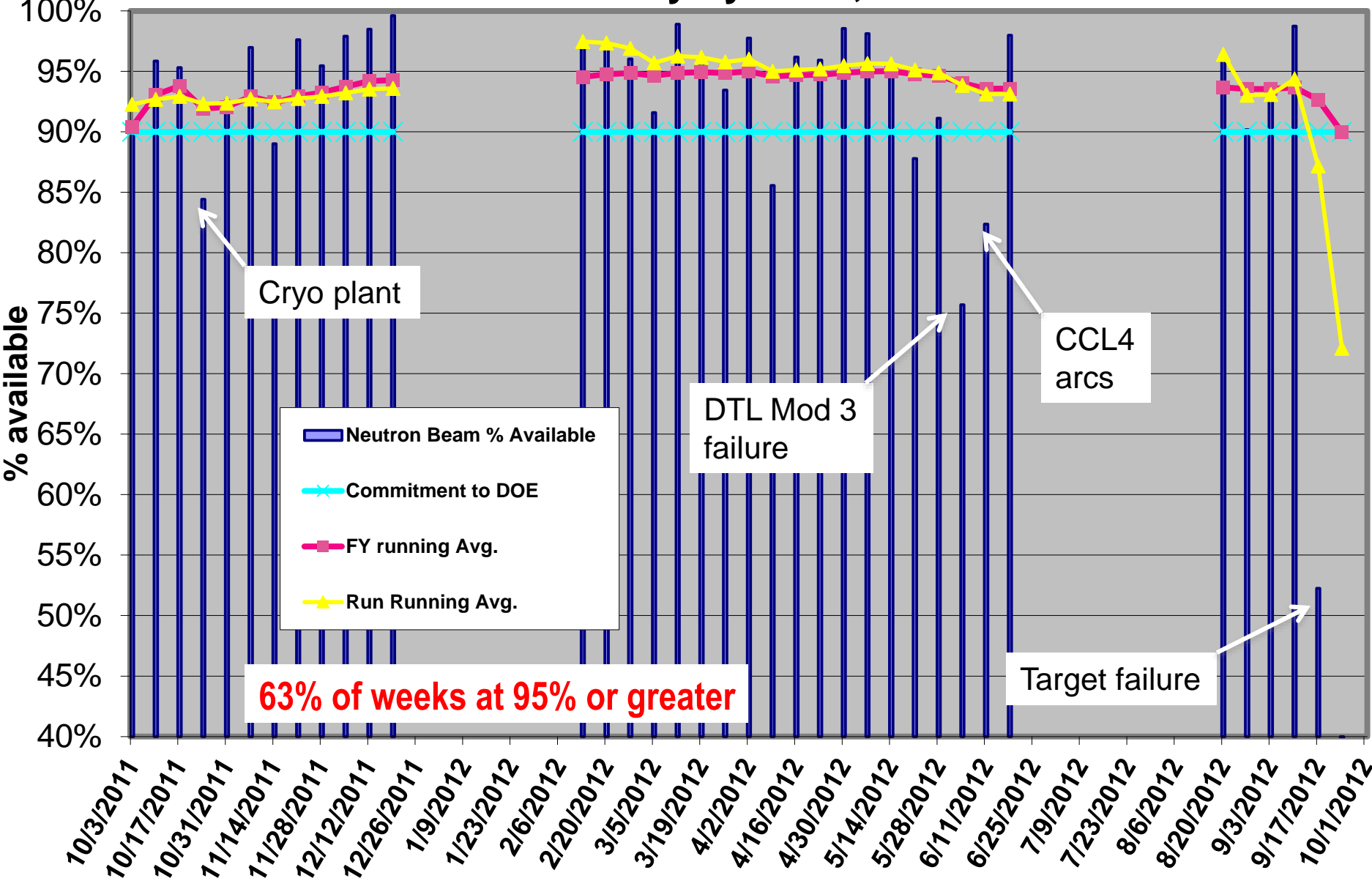
SNS Commitments

Year	Neutron Production Availability		Integrated Beam Power (MW-hrs)	
	Commitment	Actual	Commitment	Actual
FY2007	68.0%	65.7%	117	159
FY2008	74.0%	72.0%	877	945
FY2009	80.0%	80.7%	2031	2166
FY2010	85.0%	85.6%	3253	3455
FY2011	88.0%	92.0%	NA	4132
FY2012	90.0%	90.0%	NA	4368
FY2013 (Q2)	90.0%	61.8%	NA	1935

Year	Neutron Production Hours		Total Operating Hours	
	Commitment	Actual	Commitment	Actual
FY2007	1500	2078	3500	3779
FY2008	2700	2807	4000	4032
FY2009	3500	3553	4500	4916
FY2010	3900	4250	4800	5310
FY2011	4300	5002	5000	5941
FY2012	4500	4725	5000	5746
FY2013 (Q2)	4000	2122	5000	2750

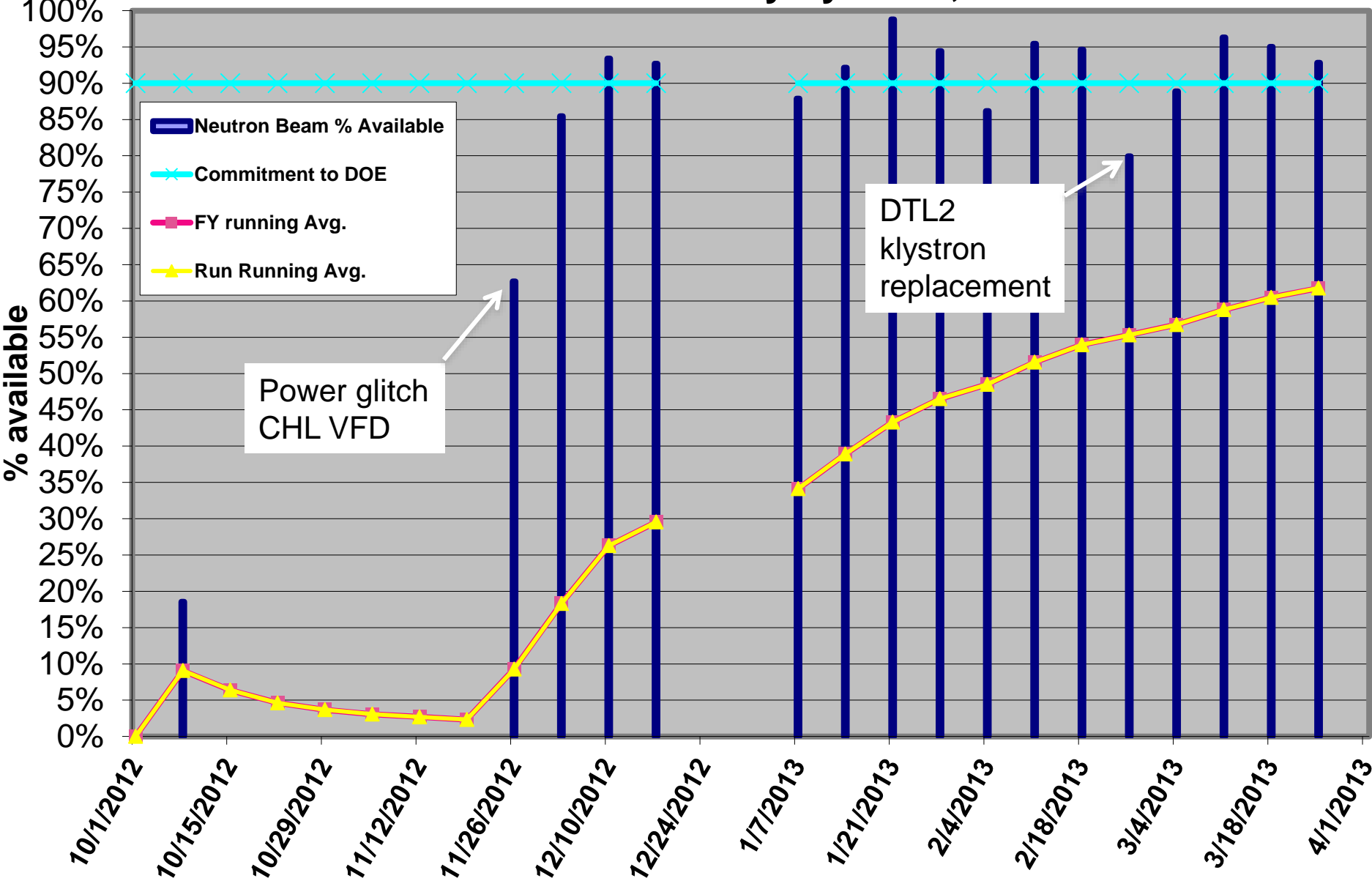
Excellent performance prior to target failures (93.7%)

NP availability by week, FY12



Excellent performance since target changes (91%)

NP availability by week, FY13



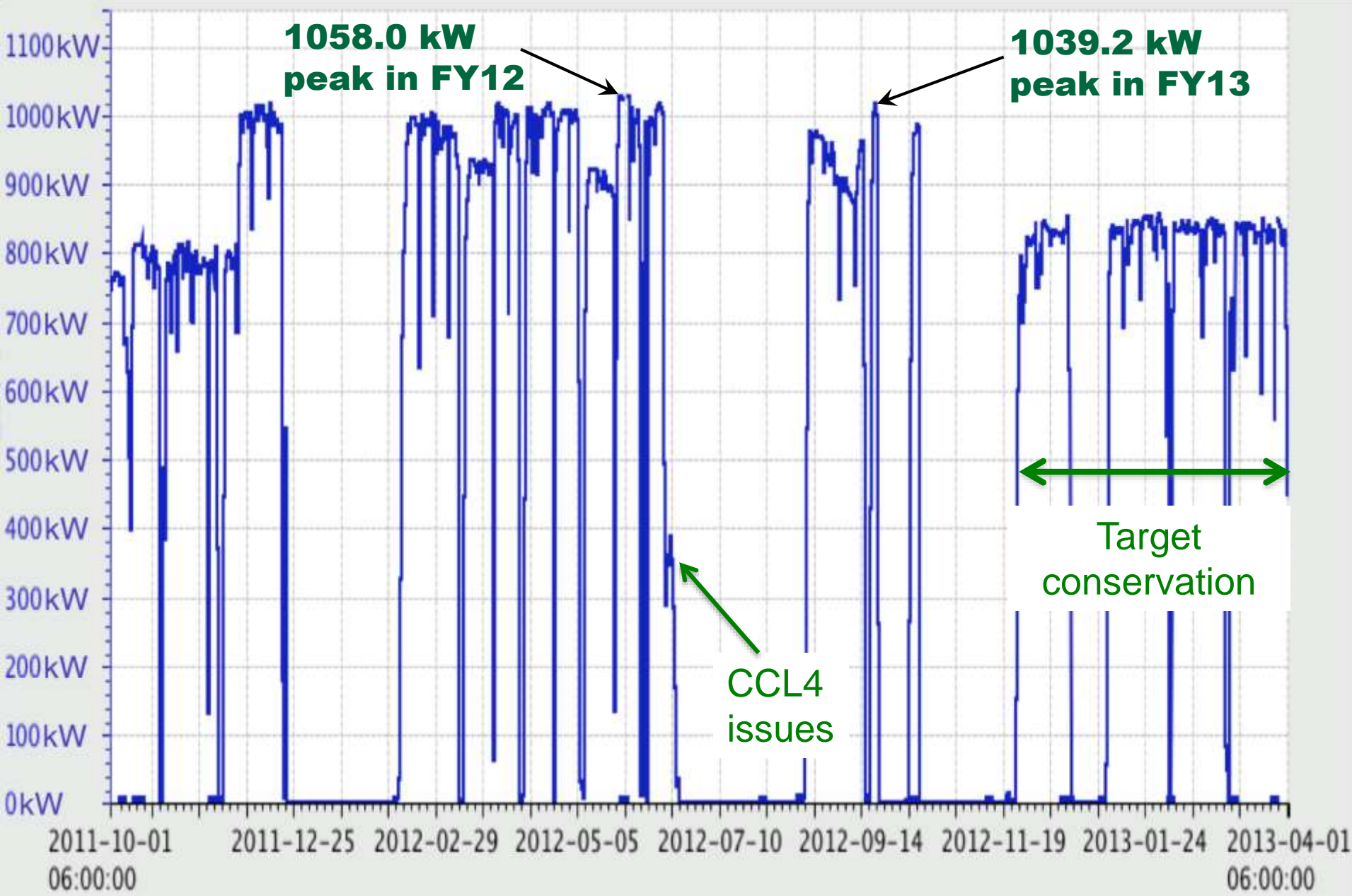
FY07-FY13 Performance Comparison



Q1/Q2

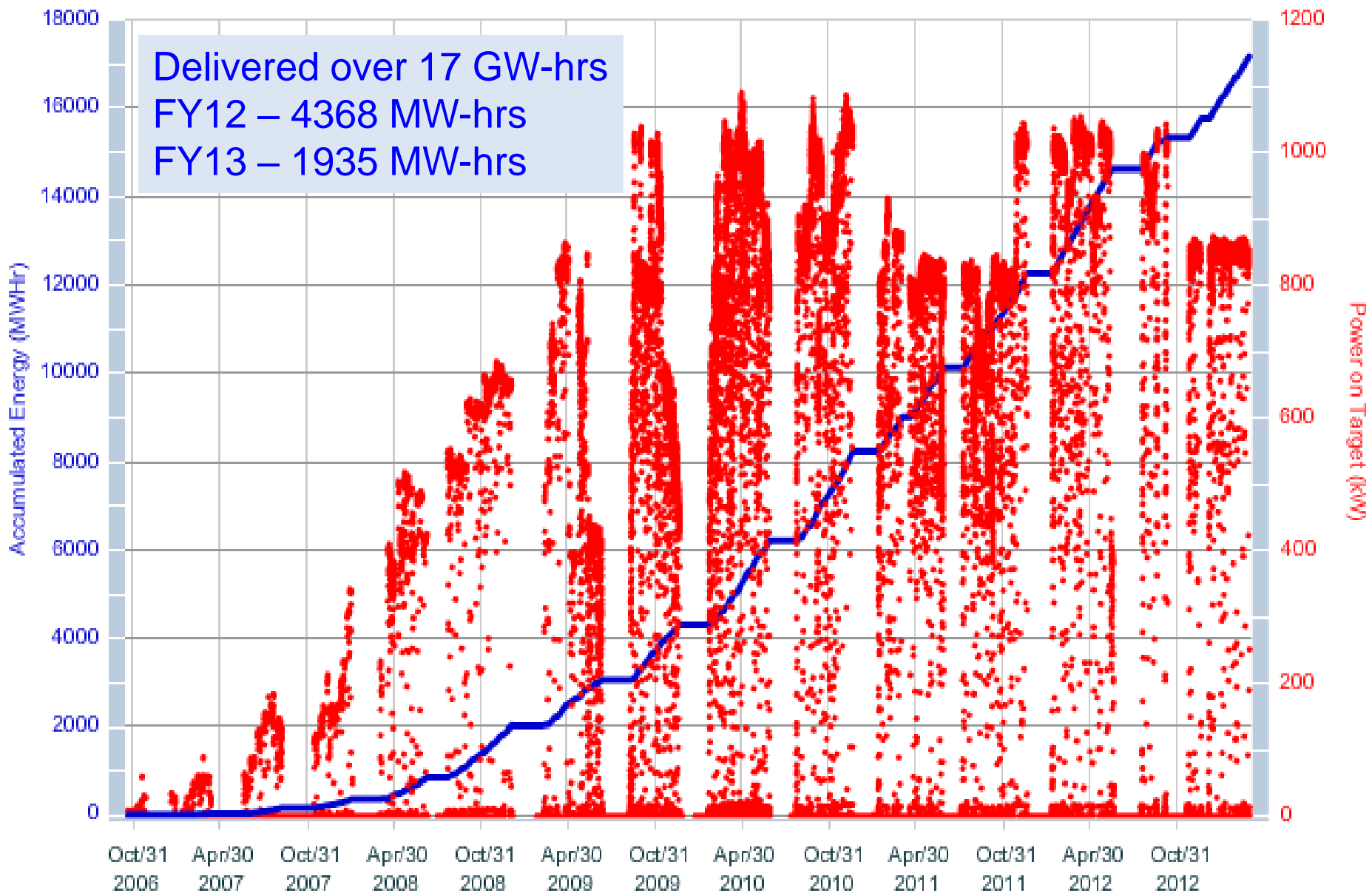
Beam power on target (60 sec average)

Demonstrated MW performance



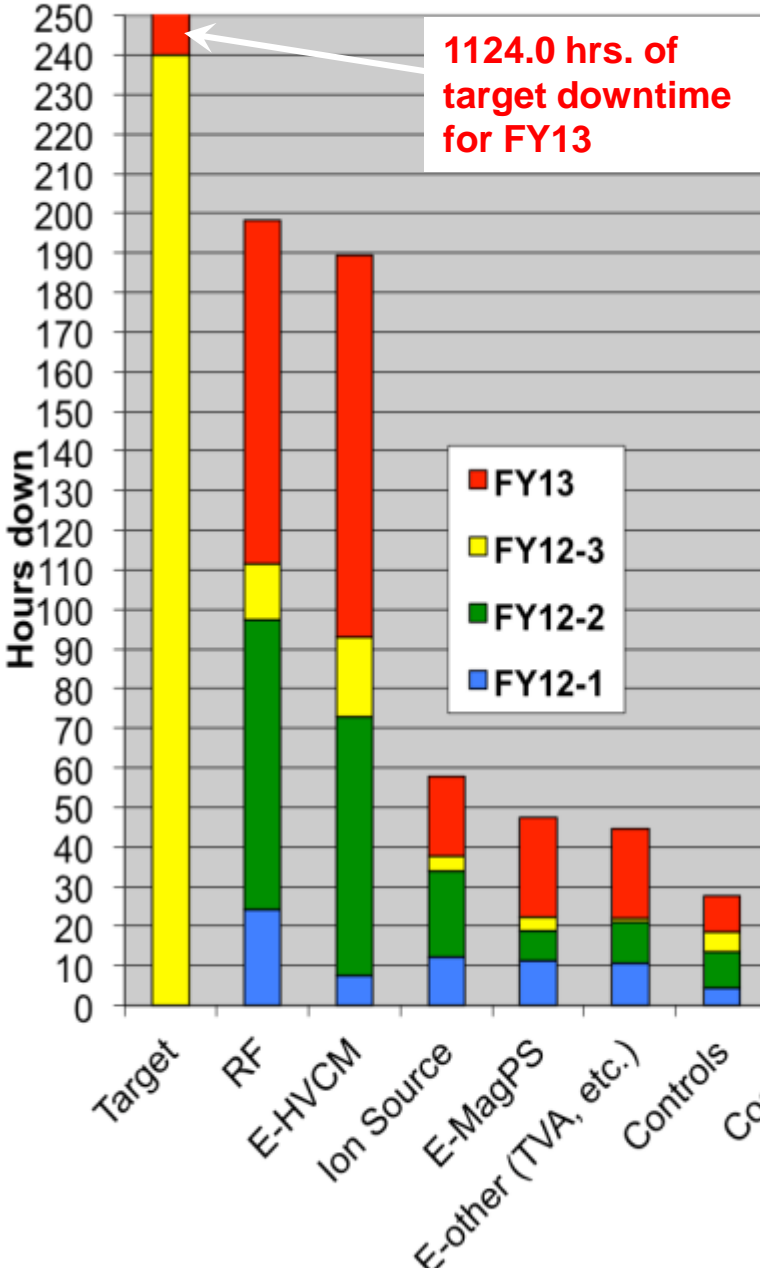
Energy and power on target from October 2006

Power on Target



Target our efforts towards highest downtime systems

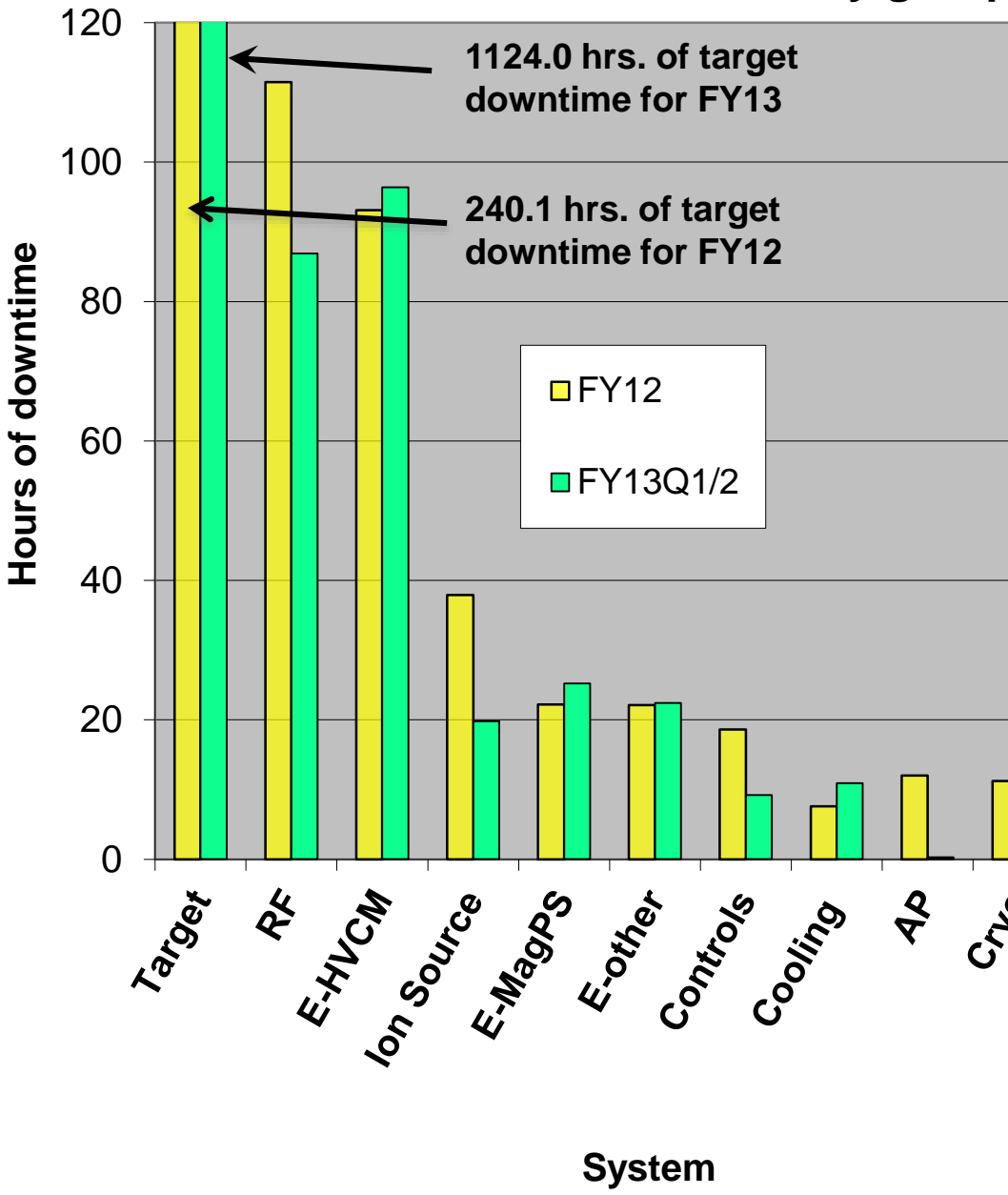
FY12-13Q1/Q2



System	FY12-1	FY12-2	FY12-3	FY13	Total
Target	0.0	0.0	240.1	1124.0	1364.1
RF	24.2	73.3	14.0	86.9	198.4
E-HVCM	7.7	65.2	20.2	96.4	189.5
Ion Source	12.3	21.6	4.0	19.8	57.7
E-MagPS	11.4	7.4	3.4	25.2	47.4
E-other (TVA, etc.)	10.6	10.6	0.9	22.4	44.5
Controls	4.4	9.0	5.2	9.2	27.8
Cooling	0.2	2.8	4.6	10.9	18.5
Physics	9.1	2.9	0.0	0.3	12.3
Cryo	11.2	0.0	0.0	0.0	11.2
Beam Inst.	4.7	5.2	0.0	0.0	9.9
Vacuum	2.6	2.0	0.1	4.2	8.9
CM/SRF	0.7	3.6	1.4	3.0	8.7
Prot. Sys.	2.5	4.3	0.0	1.0	7.8
RS/ESH	0.0	1.8	0.0	4.5	6.3
Mech.	0.0	1.1	3.1	0.0	4.2
E-Choppers	0.0	1.7	0.0	0.1	1.8
Ops	0.1	1.0	0.3	0.0	1.4
Misc.	0.0	0.0	0.5	0.0	0.5
Totals	101.7	213.5	297.8	1407.9	2020.9

FY12-FY13Q1/2 side-by-side comparison

Downtime by group

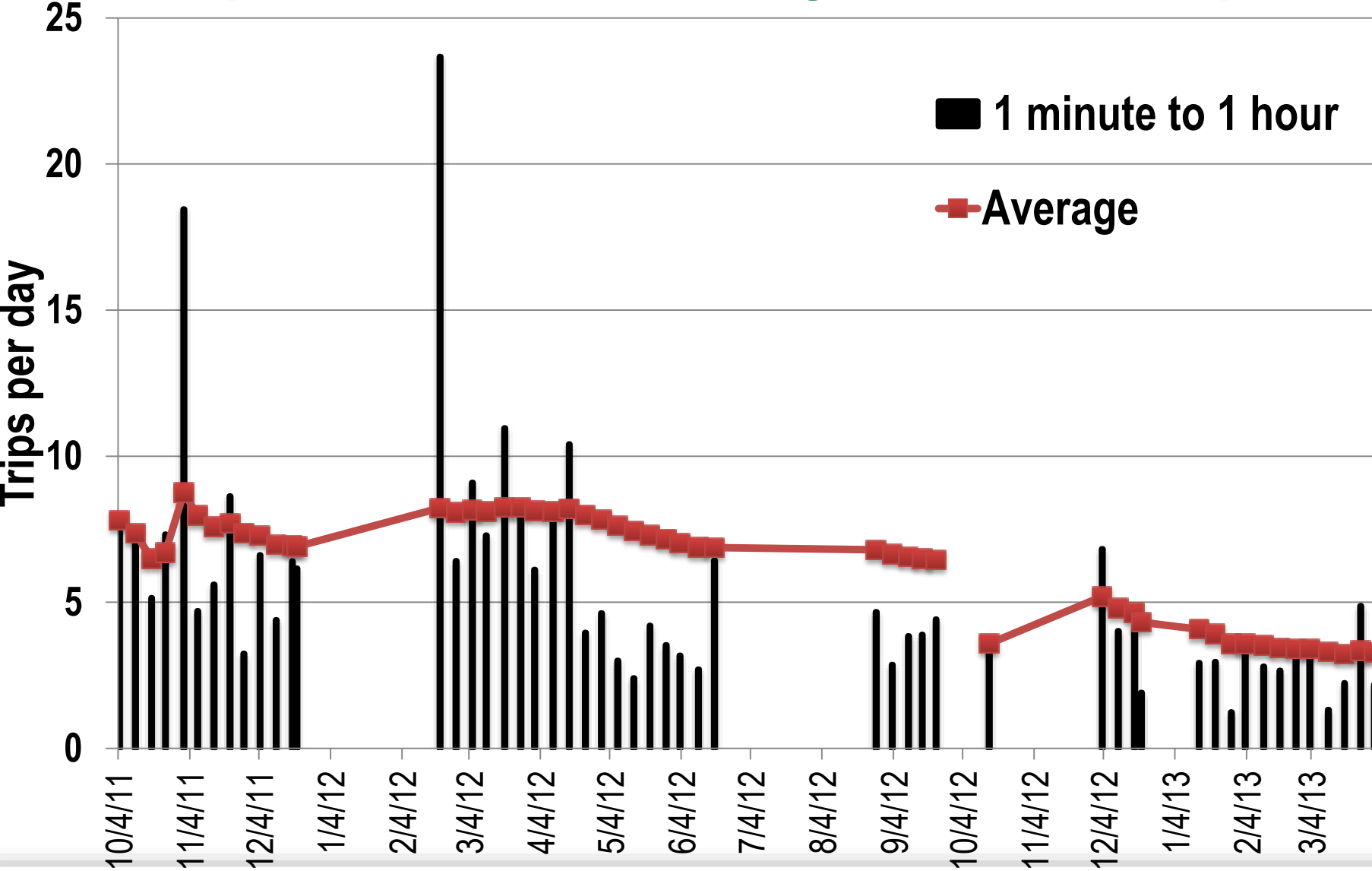


System	FY12	FY13Q1/2	Total:
Target	240.1	1124.0	1364.1
RF	111.5	86.9	198.4
E-HVCM	93.1	96.4	189.5
Ion Source	37.9	19.8	57.7
E-MagPS	22.2	25.2	47.4
E-other	22.1	22.4	44.5
Controls	18.6	9.2	27.8
Cooling	7.6	10.9	18.5
AP	12.0	0.3	12.3
Cryo	11.2	0.0	11.2
BI	9.9	0.0	9.9
Vacuum	4.7	4.2	8.9
CM/SRF	5.7	3.0	8.7
Prot. Sys.	6.8	1.0	7.8
Misc./Mag/RS/ESH	2.3	4.5	6.8
Fac./Mech. Sys.	4.2	0.0	4.2
E-chopper	1.7	0.1	1.8
Ops	1.4	0.0	1.4
Total	613.0	1407.9	2020.9

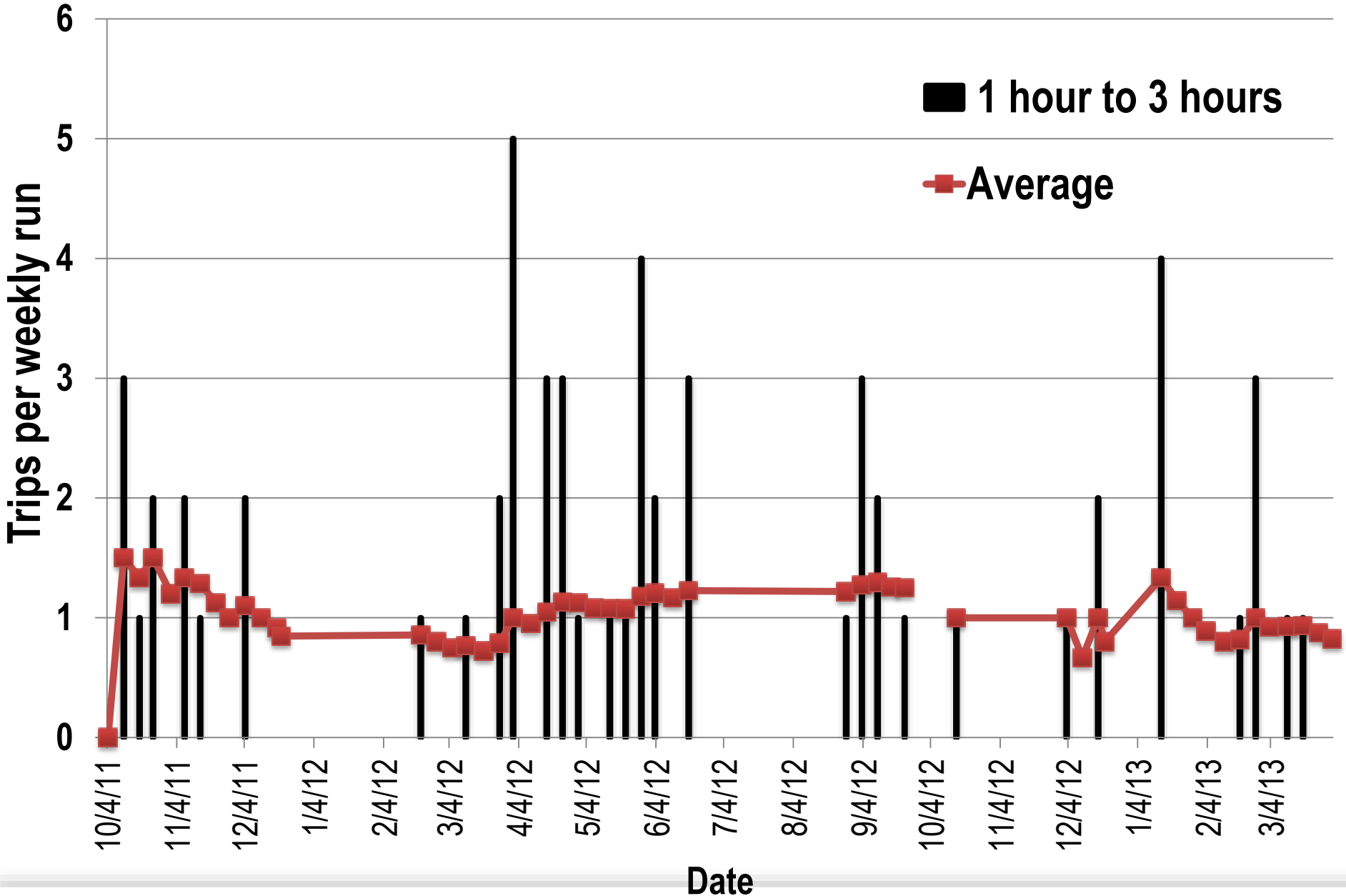
Frequency plots help us spot trends

Shorter duration events improved

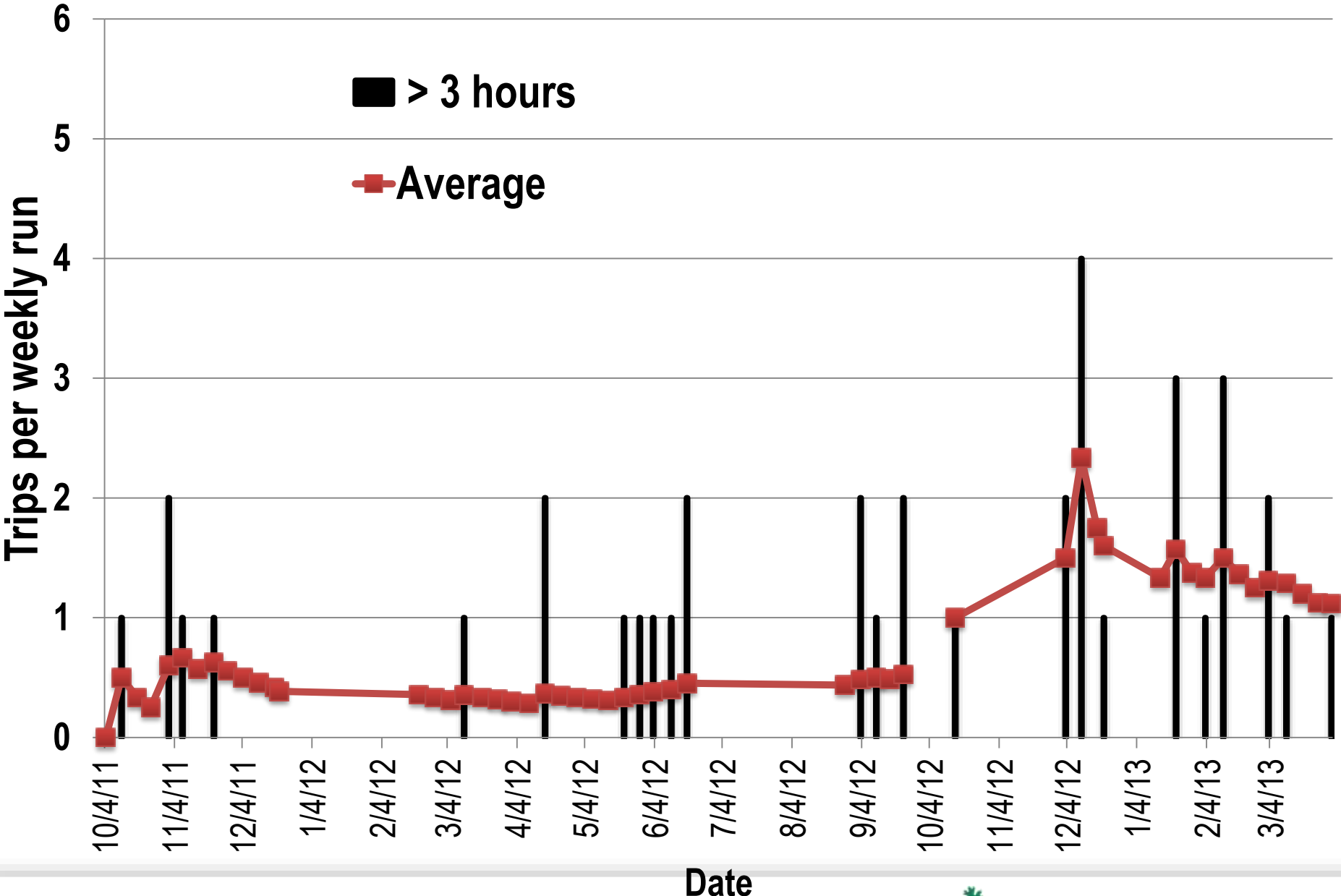
Machine specialist focus on reducing short duration trips



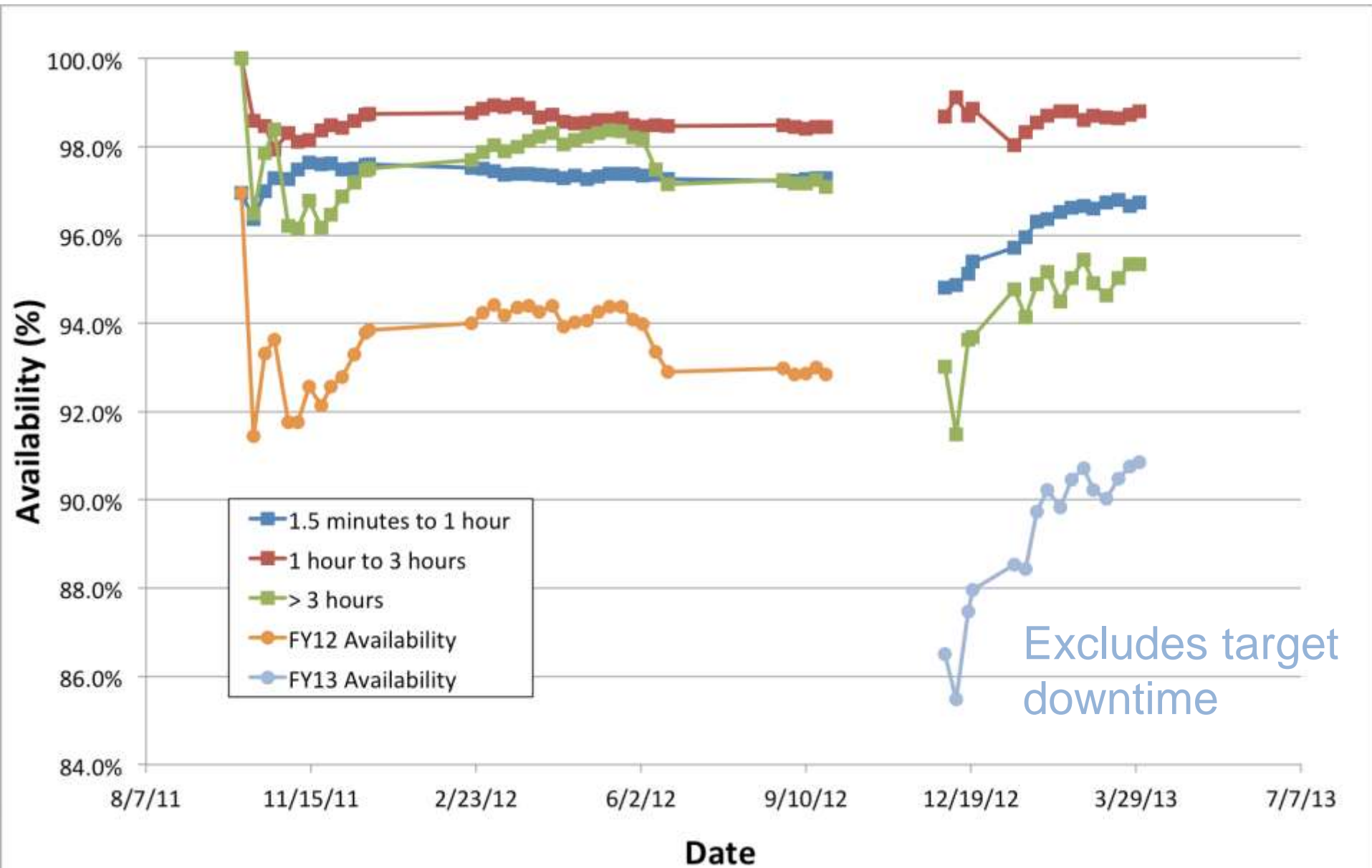
Medium duration events remain constant



Increase in long duration events in FY13



Long duration events dominate the overall downtime structure



Summary

- **Target failures have had an impact on scheduling, performance and beam power levels**
- **Availability was excellent in FY12 until the 2 target failures and we have continued excellent performance after restarting in November**
- **We are seeing a slight increase in the frequency of long downtimes this FY and a decrease in the frequency of short duration trips**
- **Continue to measure our performance and make system improvements as you will hear about over the next 2 days**
- **While we will not meet our DOE availability goal for FY13, we expect to meet our DOE commitments for both neutron production hours and total operating hours delivered**