RHIC Machine/Detector Planning Meeting

Agenda

- **Scheduling Physicist Issues (Gardner)**
- **Machine Issues - (Drees)**
- **Experiment Issues**
  - **PHENIX (Leitch)**
  - **STAR (Christie)**
  - **Monopole (Dzhordzhadze)**
- **RHIC Beam Experiments - (Pilat)**
- **RCF Issues - (Throwe)**

End of Store – the plan, 3/20/07

- Begin first week with 6 hour stores with option for experiments to end store early or extend store – both experiments must agree or store will be terminated after 6 hours.

- After first week, each experiment calculates optimum store time for their experiment. We average the two times and take this as the nominal time at store. This calculation should be revisited at least weekly and details of the calculation defended at our Machine/Experiments Meeting.

- Experiments have the option to end the store early or extend the store – in either case, requires both experiments to agree, otherwise the store will end as scheduled.

- Minimum luminosity for Machine to keep store - TBD

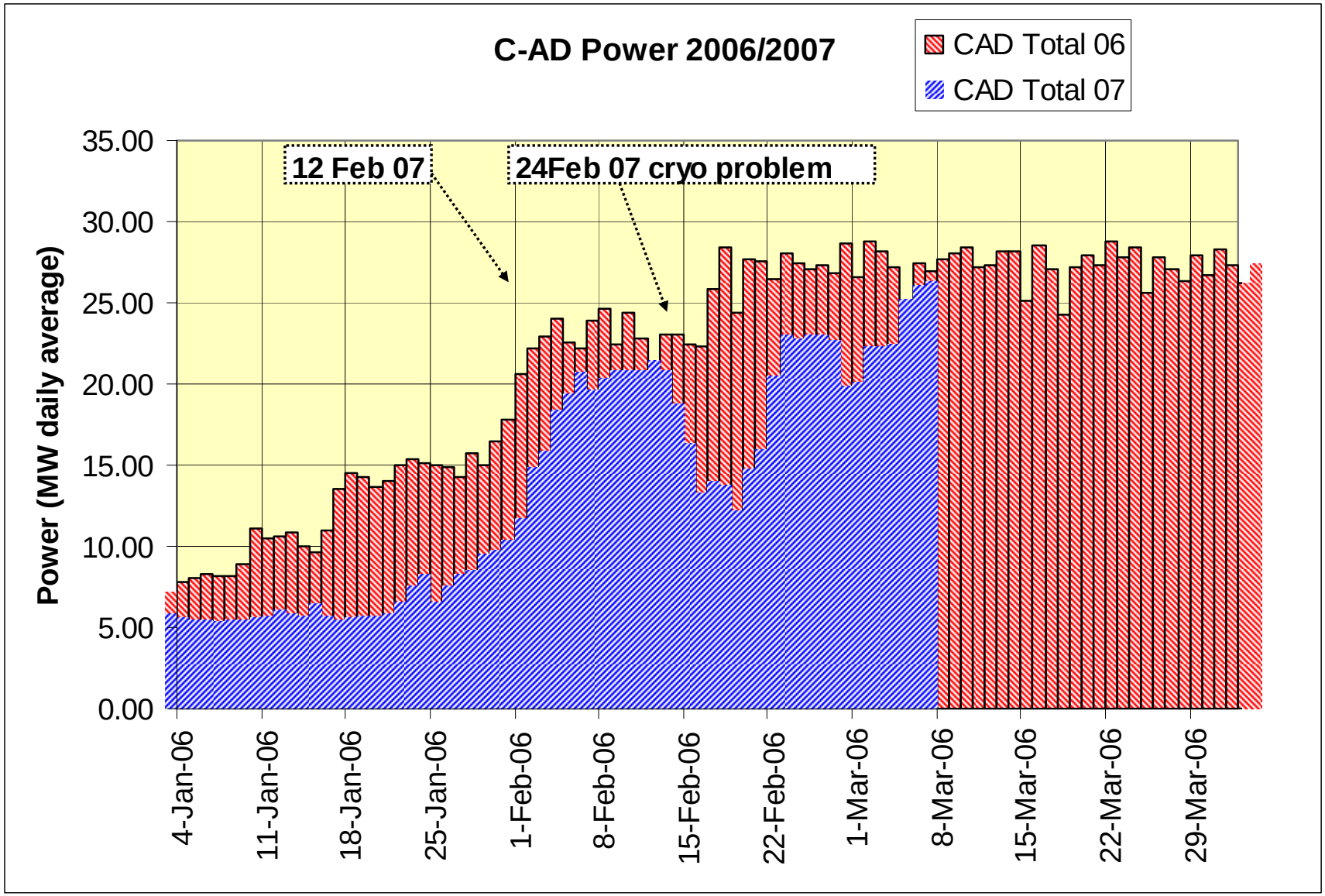
RHIC Run 7 as run/planned

3/20/07

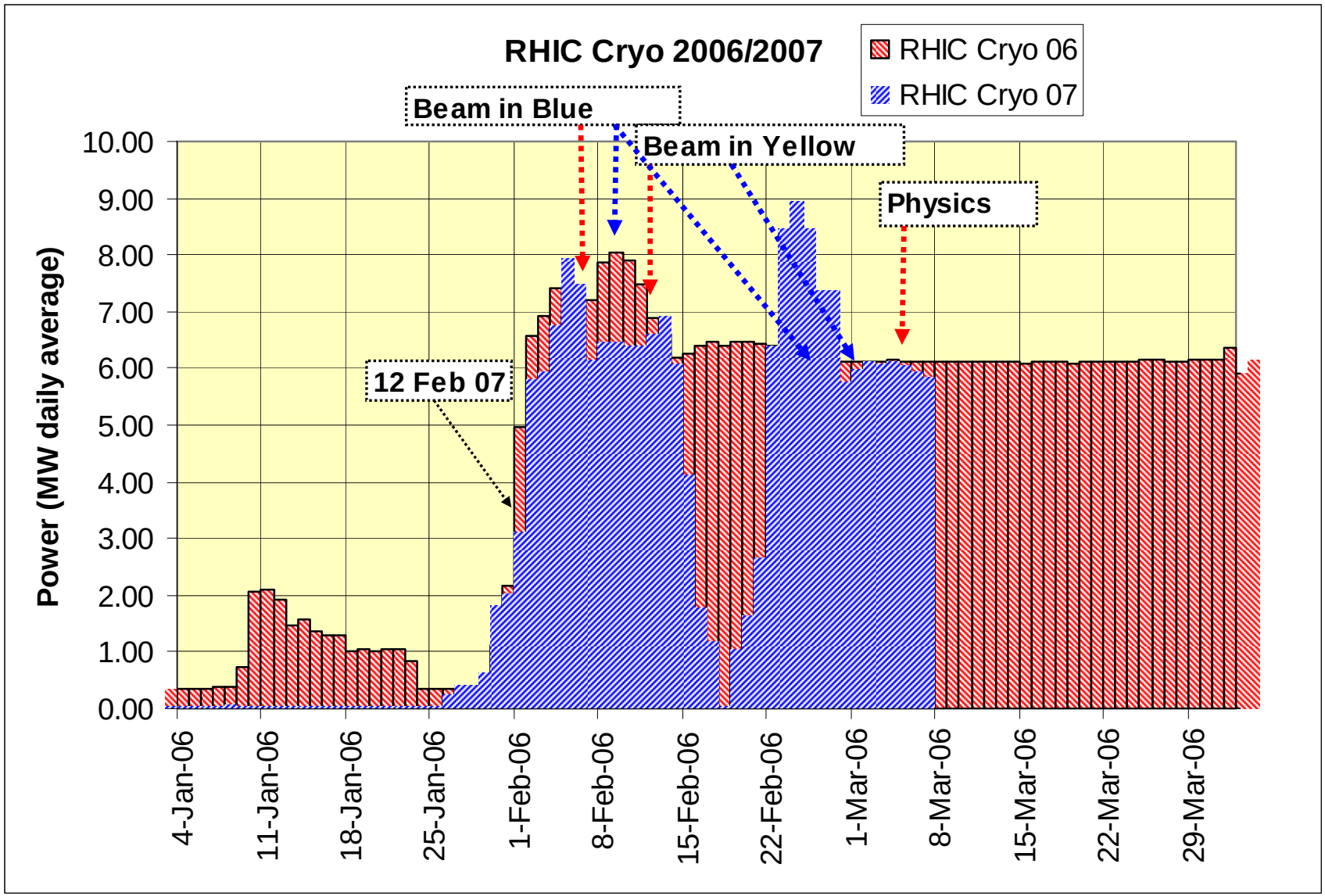
- 12 Feb – cool-down begins
- 17 Feb – blue cold
- 20 Feb – 1st beam in blue ring
- 23 Feb – Initial cold wave through yellow ring, not ready for beam
- 24 Feb – cryo problems, cool-down interrupted
- 26 Feb – cryo problems persist, begin warming up cryo plant
- 4 Mar – cryo back on
- 8 Mar – Blue cold again, ready for power supply setup/beam
- 12 Mar – Yellow cold, ready for power supply setup (lost 2.0 weeks)
- 13 Mar – Beam in Yellow, begin 10 day setup with beams
- 23 Mar – Begin ramp-up mode, overnight stores for experiments
- 28 Mar – 1st Maintenance day
- 30 Mar – physics mode, 100 x 100 GeV/n Au-Au

- 26 Jun –end physics (12.6 weeks), begin warm-up to LN2
- 30 Jun – RHIC Cryo switch to LN2 complete, end 19.7 weeks of cryo operation

As of 18 Mar


C-AD Power 2006/2007
CAD Total 06
CAD Total 07
12 Feb 07
24Feb 07 cryo problem
Power (MW daily average)
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
4-Jan-06
11-Jan-06
18-Jan-06
25-Jan-06
1-Feb-06
8-Feb-06
15-Feb-06
22-Feb-06
1-Mar-06
8-Mar-06
15-Mar-06
22-Mar-06
29-Mar-06

As of 18 Mar


RHIC Cryo 2006/2007
RHIC Cryo 06
RHIC Cryo 07
Beam in Blue
Beam in Yellow
Physics
12 Feb 07
Power (MW daily average)
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
4-Jan-06
11-Jan-06
18-Jan-06
25-Jan-06
1-Feb-06
8-Feb-06
15-Feb-06
22-Feb-06
1-Mar-06
8-Mar-06
15-Mar-06
22-Mar-06
29-Mar-06

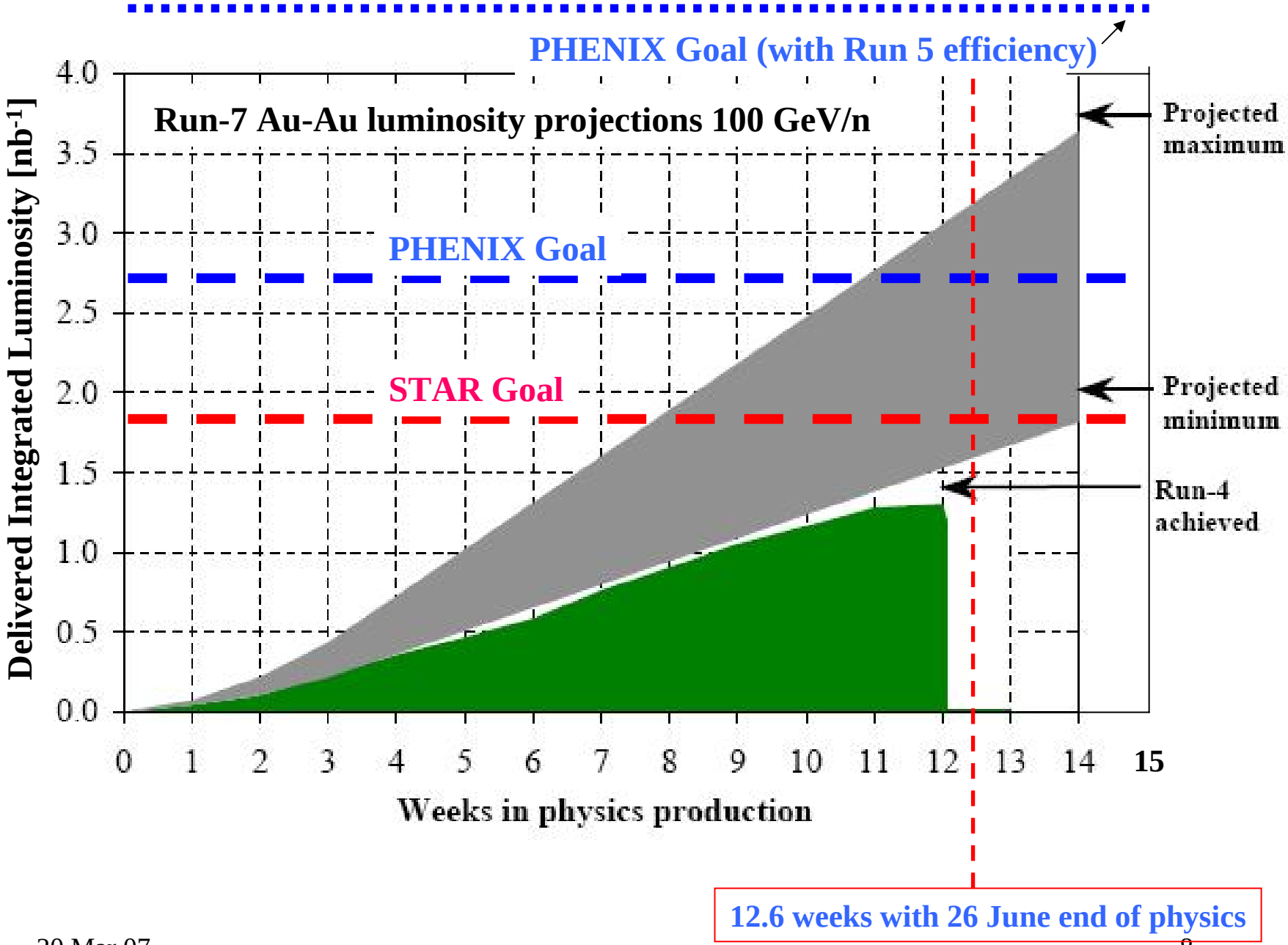
RHIC Machine/Detector Planning Meeting

Next Meeting

Tuesday, March 27, after Time Meeting

RHIC Machine/Detector Planning Meeting

Archive


PHENIX Goal (with Run 5 efficiency)
Run-7 Au-Au luminosity projections 100 GeV/n
PHENIX Goal
STAR Goal
Projected maximum
Projected minimum
Run-4 achieved
Delivered Integrated Luminosity [nb-1]
Weeks in physics production
12.6 weeks with 26 June end of physics

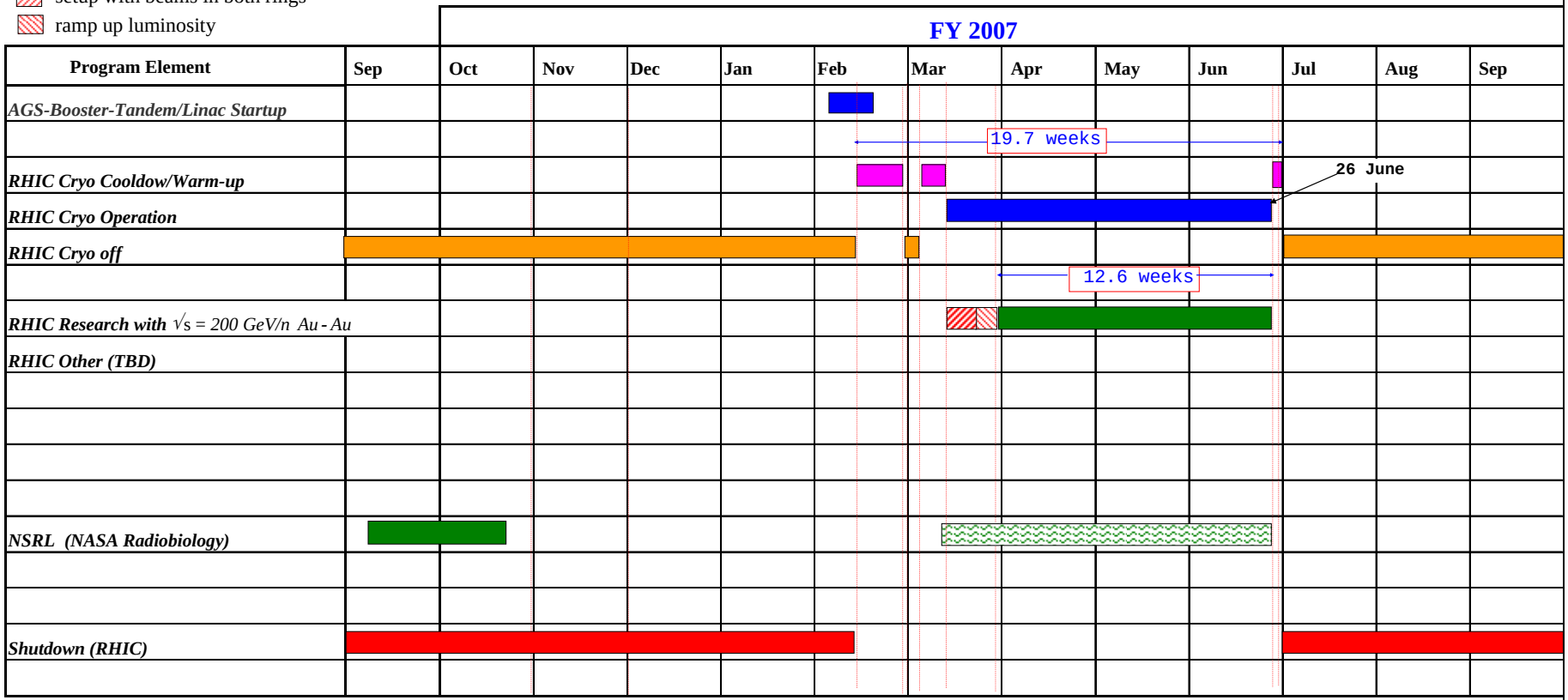
http://www.c-ad.bnl.gov/esfd

C-A Operations-FY07

12 Mar 07

Plan, subject to change

concurrent with RHIC
setup with beams in both rings
ramp up luminosity



RHIC Machine/Detector Planning Meeting

Answer to Questions from the 6 Feb meeting (to be revisited)

(1) Experiments – What are your luminosity goals for the Au-Au run, Delivered and Sampled?

– **PHENIX goals for 100 x 100 GeV/n Au-Au**
- **Delivered Luminosity = 2700 μb^{-1}**
- **Sampled Luminosity = 1100 μb^{-1}**
- **Assumes 68% live time, 60% vertex cut = 40.5% efficient**
- **However, Run5 efficiency factor was 25% (if so, the Run7 requirement is 4400 μb^{-1} delivered)**

– **STAR goals for 100 x 100 GeV/n Au-Au**
- **Delivered Luminosity = 1800 μb^{-1}**
- **Sampled Luminosity = 300 μb^{-1} with 60M usable min-bias events**
- **~50% live time**

RHIC Machine/Detector Planning Meeting

Answer to Questions from the 6 Feb meeting (to be revisited)

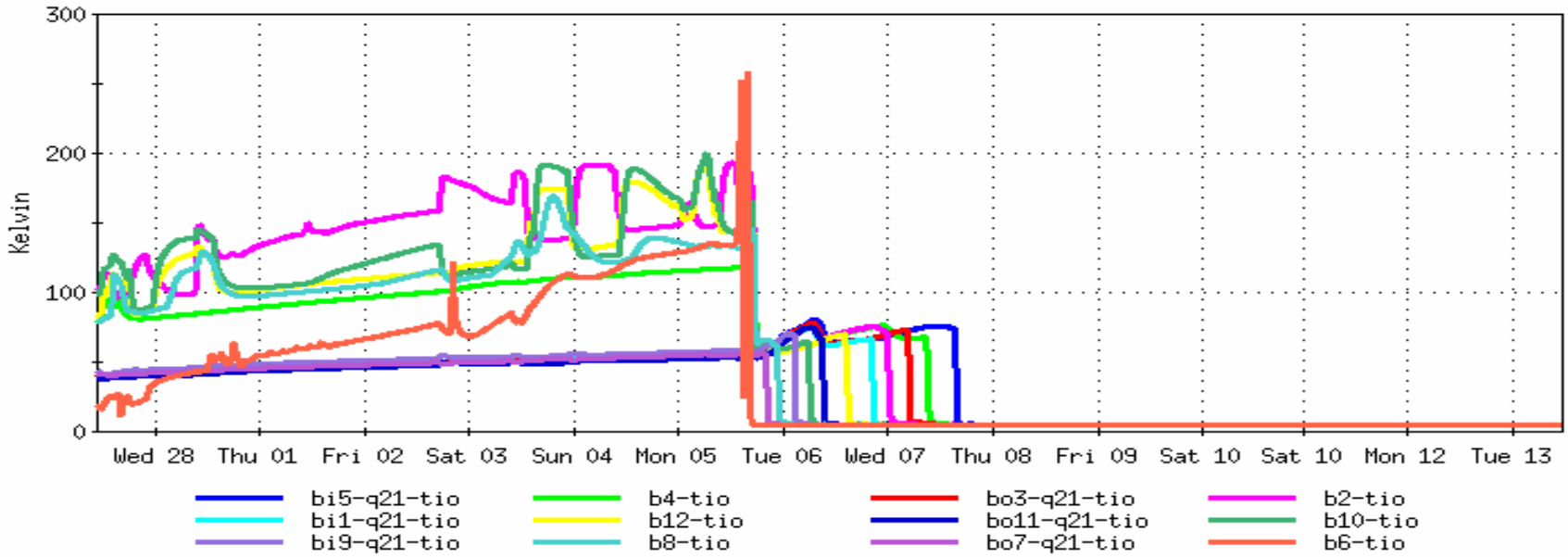
(2) Experiments and Machine - If the Au-Au run goes well and luminosity goals are met with a week or two left to go, what should we do?

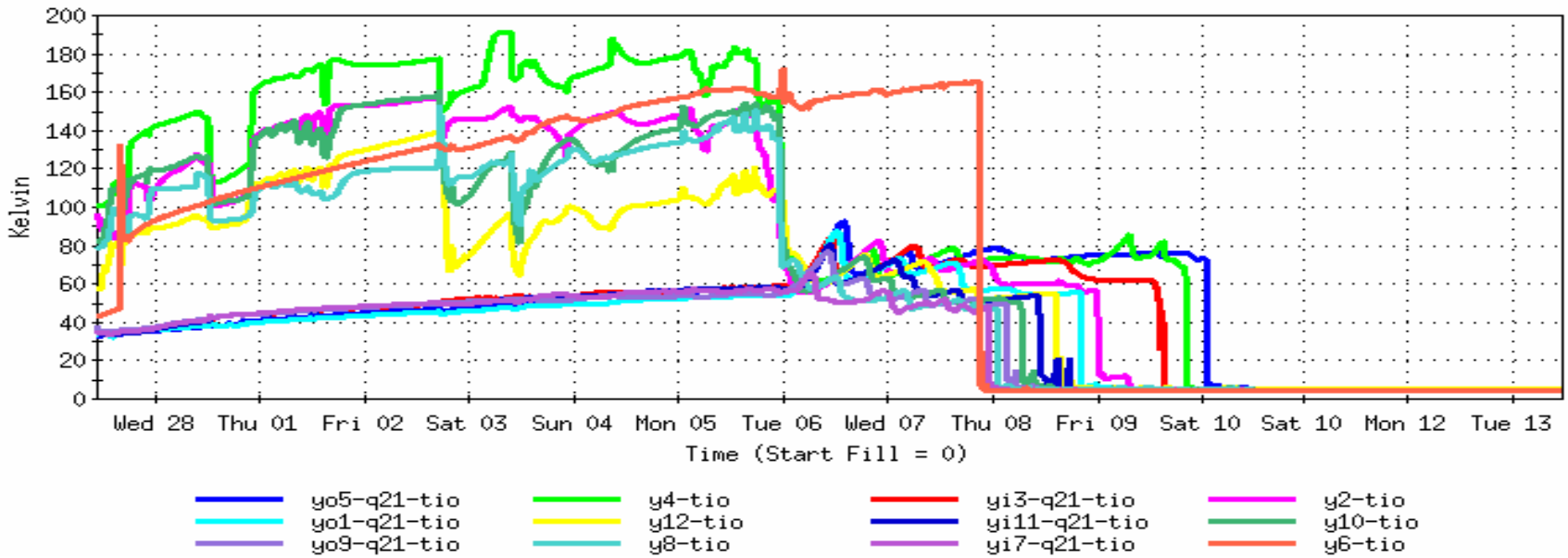
- **PHENIX**
  - **Probably need 15 weeks to achieve Au-Au goals – highest priority**
  - **pp development if well motivated/justified**
    - **Studies to maximize Run8 figure of merit**
    - **500 GeV development**

- **STAR**
  - **Low energy Au-Au development, collider issues, triggering…**

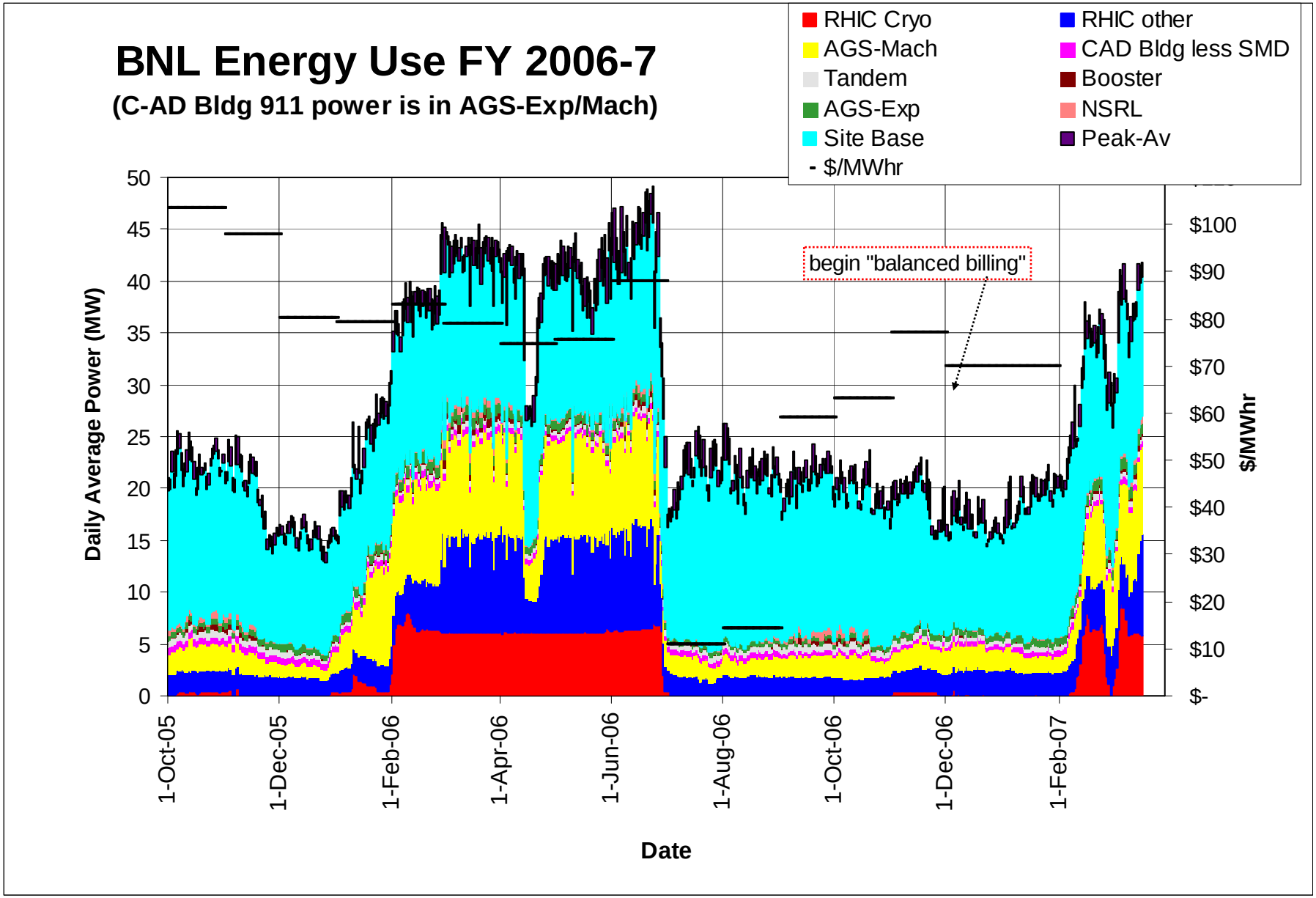
- **Machine**
  - **1-2 days low energy Au-Au development at 0.5 injection energy**
  - **pp development –**
    - **1st priority new RHIC working point (needs ~2 weeks)**
    - **2nd priority 500 GeV development**

As of 12 Mar


300
200
100
0
Kelvin
Wed 28
Thu 01
Fri 02
Sat 03
Sun 04
Mon 05
Tue 06
Wed 07
Thu 08
Fri 09
Sat 10
Sat 10
Mon 12
Tue 13
bi5-q21-tio
bi1-q21-tio
bi9-q21-tio
b4-tio
b12-tio
b8-tio
bo3-q21-tio
bo11-q21-tio
bo7-q21-tio
b2-tio
b10-tio
b6-tio


200
180
160
140
120
100
80
60
40
20
0
Kelvin
Wed 28
Thu 01
Fri 02
Sat 03
Sun 04
Mon 05
Tue 06
Wed 07
Thu 08
Fri 09
Sat 10
Sat 10
Mon 12
Tue 13
Time (Start Fill = 0)
yo5-q21-tio
yo1-q21-tio
yo9-q21-tio
y4-tio
y12-tio
y8-tio
yi3-q21-tio
yi11-q21-tio
yi7-q21-tio
y2-tio
y10-tio
y6-tio

As of 18 Mar


BNL Energy Use FY 2006-7
(C-AD Bldg 911 power is in AGS-Exp/Mach)
RHIC Cryo
RHIC other
AGS-Mach
CAD Bldg less SMD
Tandem
Booster
AGS-Exp
NSRL
Site Base
Peak-Av
$/MWhr
begin "balanced billing"
Daily Average Power (MW)
$/MWhr
Date
0
5
10
15
20
25
30
35
40
45
50
$-
$10
$20
$30
$40
$50
$60
$70
$80
$90
$100
1-Oct-05
1-Dec-05
1-Feb-06
1-Apr-06
1-Jun-06
1-Aug-06
1-Oct-06
1-Dec-06
1-Feb-07