Run 16 RHIC Machine/Experiments Meeting

19 Jan 2016

Agenda:

- **Run 16 Schedule** (Pile)
- **AuAu Run Plan Update** (Gu)
- **STAR** (Xu)
- **PHENIX Update and dAu plan** (Jouan)
- **CeC POP Update and commissioning plan** (Pinayev)
- **Other**

READYTALK LOGIN INFO
Audio Login
Toll-Free (US & Canada): 866.740.1260
Toll: 303.248.0285
Access Code: 8304505

ReadyTalk link https://core.readytalk.com/interface/guest.jsp?host=readytalk&an=8667401260&ac=8304505

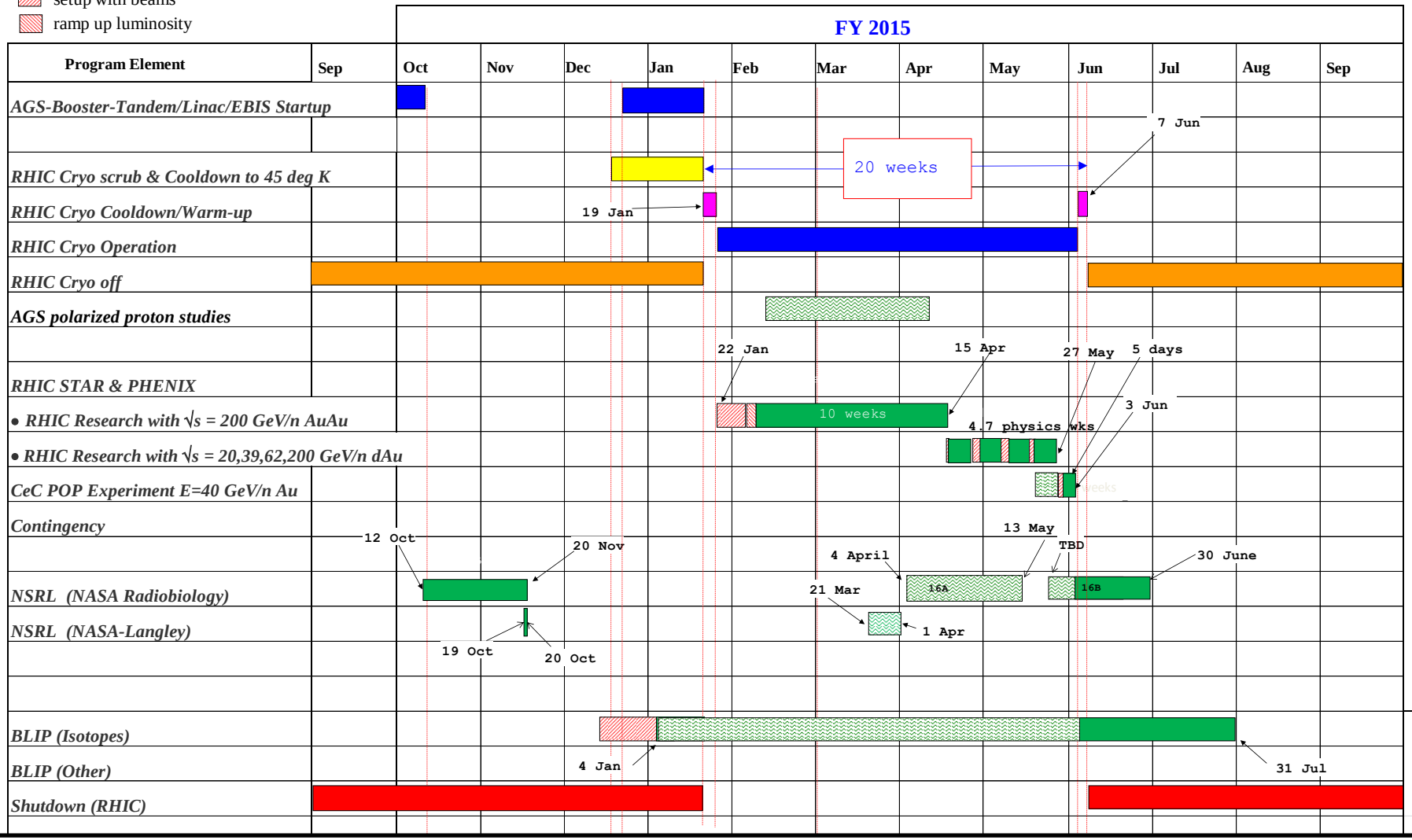
http://www.bnl.gov/cad/esfd

Scheduling Physicist: Christie

C-A Operations-FY16

14 Jan 16

planned



Run 15 plan based on 20 weeks cryo operation

and Fischer et.al. RHIC Collider Projections (FY 2016 – FY 2022), 19 April 2015

today, 19 Jan…

- 19 Jan, Begin cool-down to 4.5K
- 22 Jan, Beam in Blue
- 5 Feb, Begin 10 week **√s=200 GeV/n AuAu** physics run
- 15 April, End 10 week √s=200 GeV/n AuAu physics run
- 16 April, Begin 1.2 week **√s=20 GeV/n dAu** physics run
- 24 April, End 1.2 week √s=20 GeV/n dAu physics run
- 27 April, Begin 1.2 week **√s=39 GeV/n dAu** physics run
- 6 May, End 1.2 week √s=39 GeV/n dAu physics run
- 9 May, Begin 1.2 week **√s=62 GeV/n dAu** physics run
- 17 May, End 1.2 week √s=62 GeV/n dAu physics run
- 19 May, Begin 1.2 week **√s=200 GeV/n dAu** physics run
- 27 May, End 1.2 week √s=200 GeV/n dAu physics run
- 29 May, Begin 5 day **E=40 GeV/n Au** CEC physics run
- 3 June, End 5 day E=40 GeV/n Au CEC physics run
- 3 June, begin cryo warm-up
- 7 June, cryo warm-up complete, ***20.0 cryo weeks*** of operation

dAu setup time as per Chuyu 1/6/16 email

Actual physics time for each energy is TBD

See http://www.rhichome.bnl.gov/AP/RHIC2016/ for the Run Coordinator's detailed plan

PHENIX goals 10 weeks, 1.8 nb-1 with 12 billion MB events recorded within |z|< 10 cm vertex

STAR goals 13 weeks 10nb-1 sampled for MTD and 2 billion MB events recorded for HFT, request dynamic β* squeeze

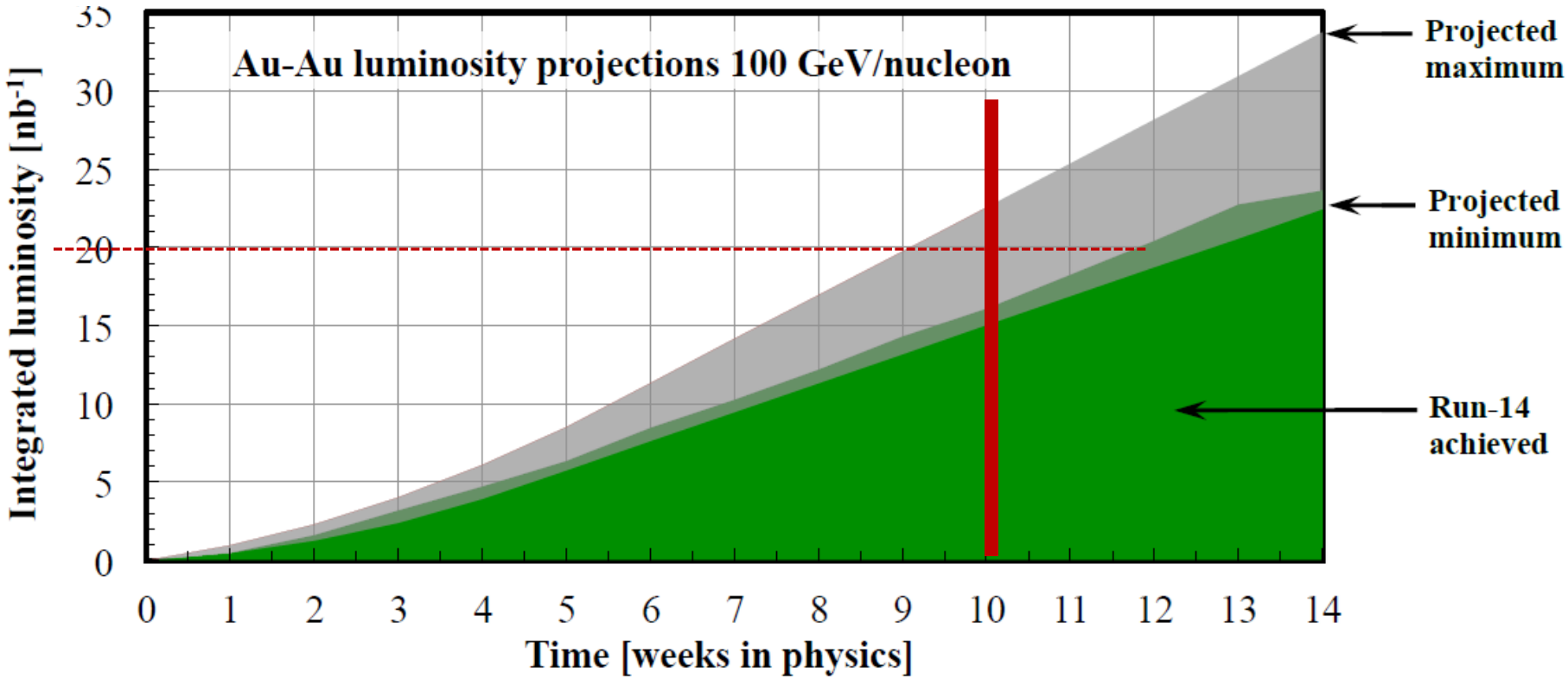


Figure 3: Projected minimum and maximum integrated luminosities for Au+Au collisions at 100 GeV/nucleon beam energy, assuming linear weekly luminosity ramp-up in 6 weeks.

From Fischer et. al., RHIC Collider Projections (FY 2016 – FY 2022), 19 April 2015

Archive

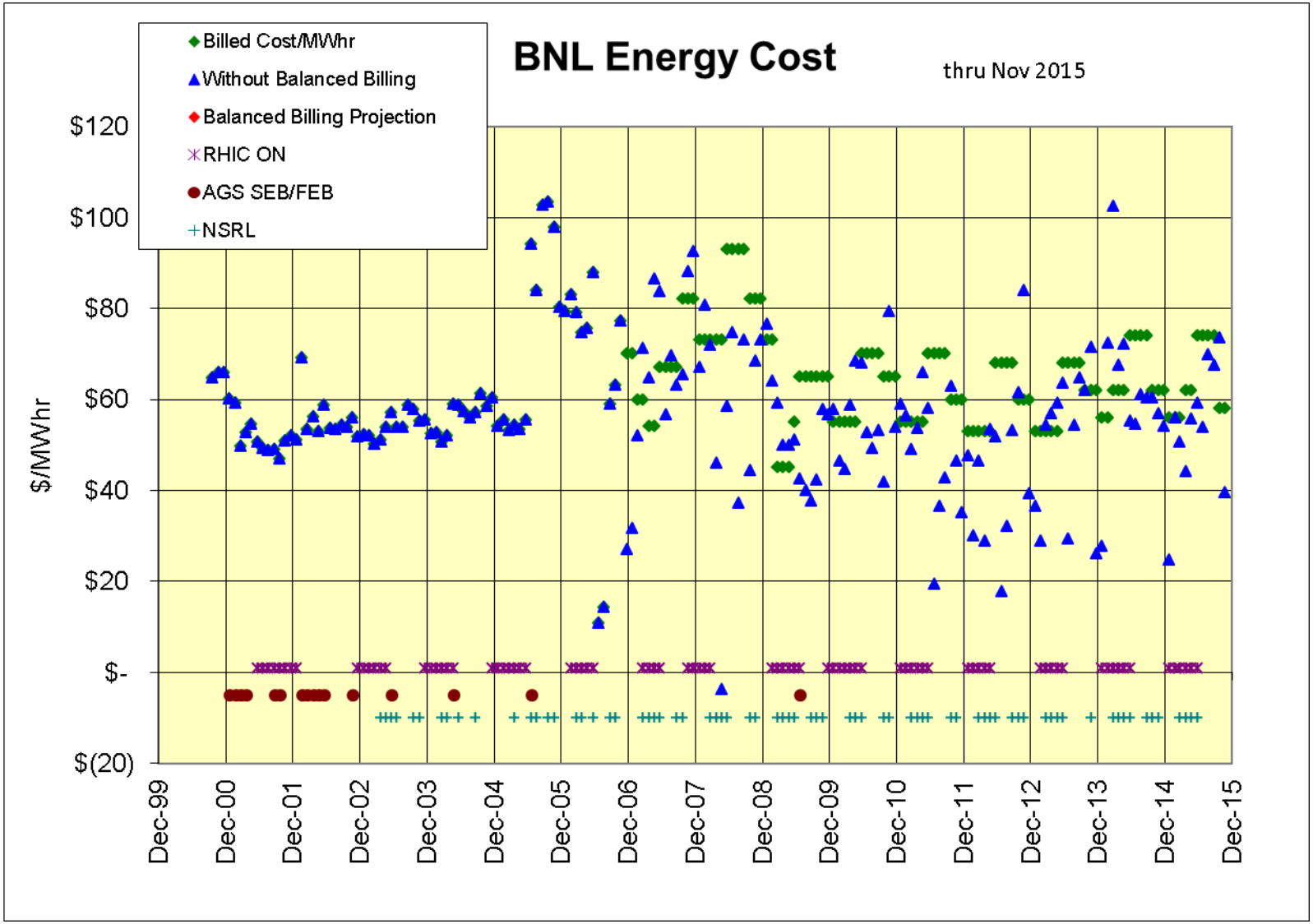
h+Au and d+Au at 31.2, 19.5 and 9.8 GeV/nucleon – h+Au is only possible without the CeC undulator. With the CeC undulator d+Au collisions at these energies are possible. The projected luminosities are:

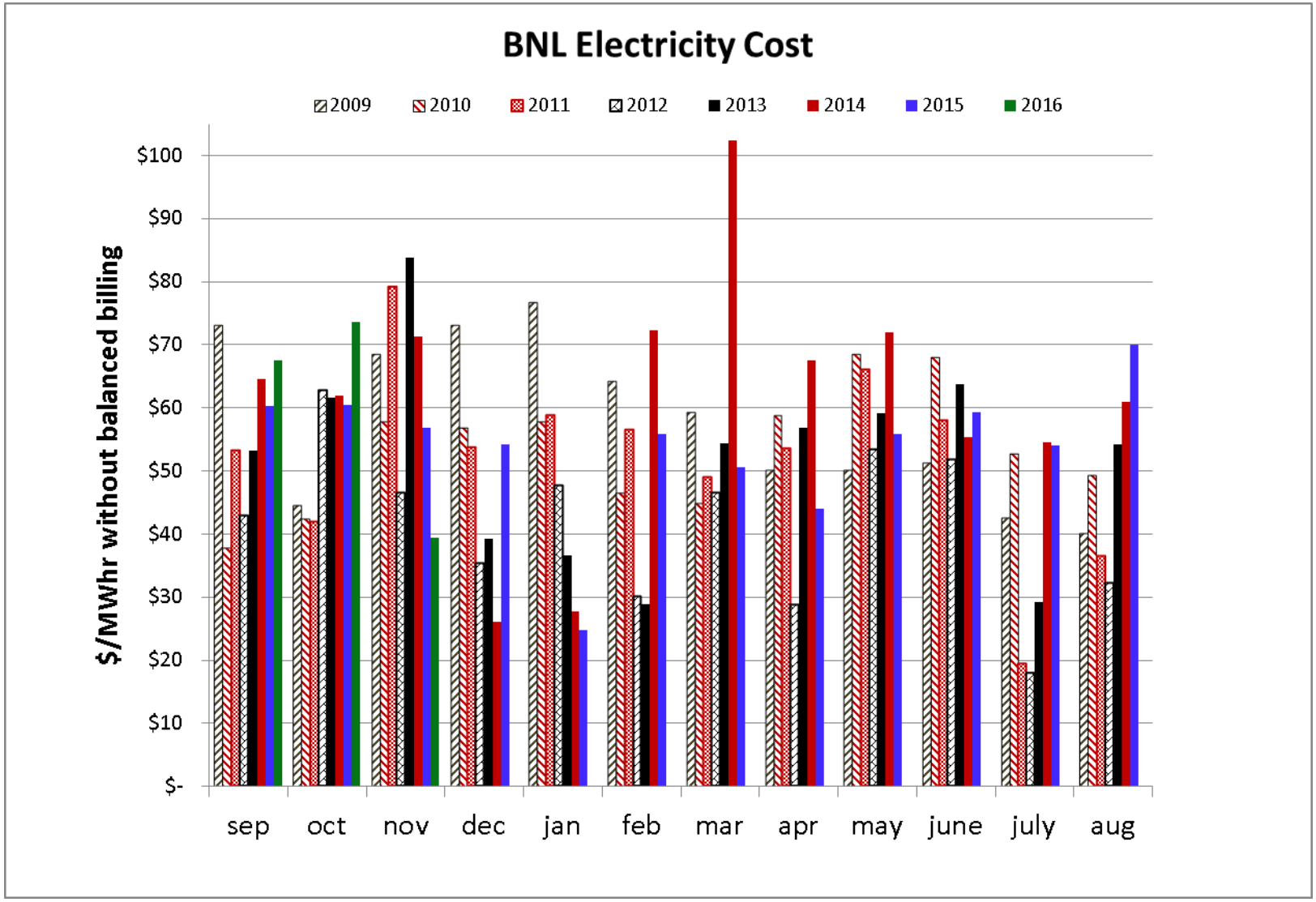
beam energy [GeV/nucleon]	h+Au luminosity [nb^{-1}/week]	d+Au luminosity [nb^{-1}/week]	L in |z|<30 cm [%]	L in |z|<10 cm [%]	comment
100	33	110	50	20	Run-14 performance for h+Au
31.2	3.3	10.6 -- 11.0	50	20	197 MHz on, cooling on for Au
19.5	1.2	3.8 -- 5.0	50	20	197 MHz on, cooling off for Au
9.8	0.3	0.9 -- 1.5	15	5	197 MHz off, cooling off for Au

Chuyu's latest projections

From Fischer et. al., RHIC Collider Projections (FY 2016 – FY 2022), 19 April 2015

Balanced Billing for the lab +$148K (ahead) Sep through Nov 2015




BNL Electricity Cost
2009
2010
2011
2012
2013
2014
2015
2016
$/MWhr without balanced billing
$100
$90
$80
$70
$60
$50
$40
$30
$20
$10
$-
sep
oct
nov
dec
jan
feb
mar
apr
may
june
july
aug

Who's Who for 2016

RHIC 100 x 100 GeV AuAu:
Run Coordinator: Xiaofeng Gu, xgu@bnl.gov , 631-344-4724

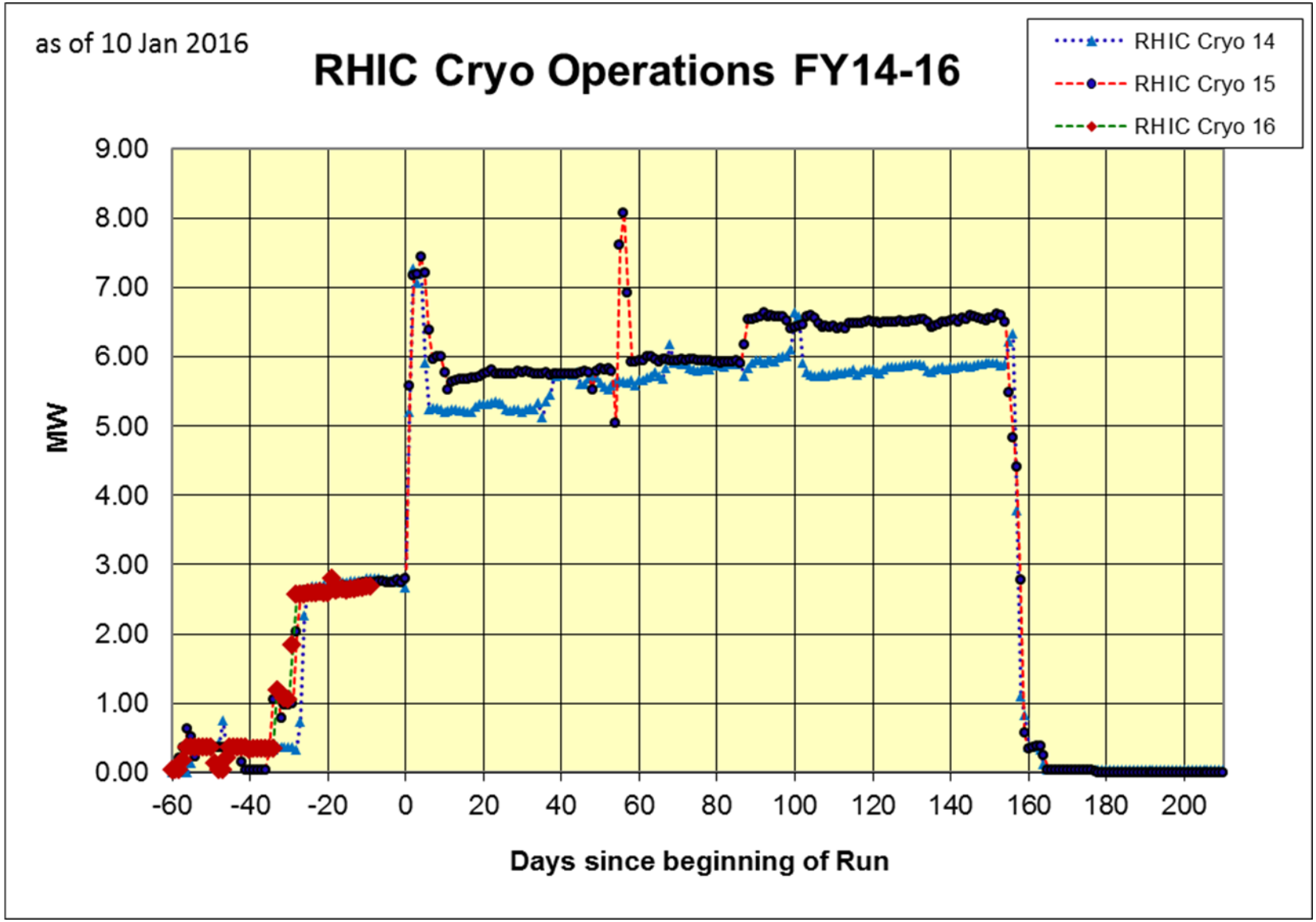
RHIC dAu Energy Scan:
Run Coordinator: Chuyu Liu, cliu1@bnl.gov , 631-344-4431

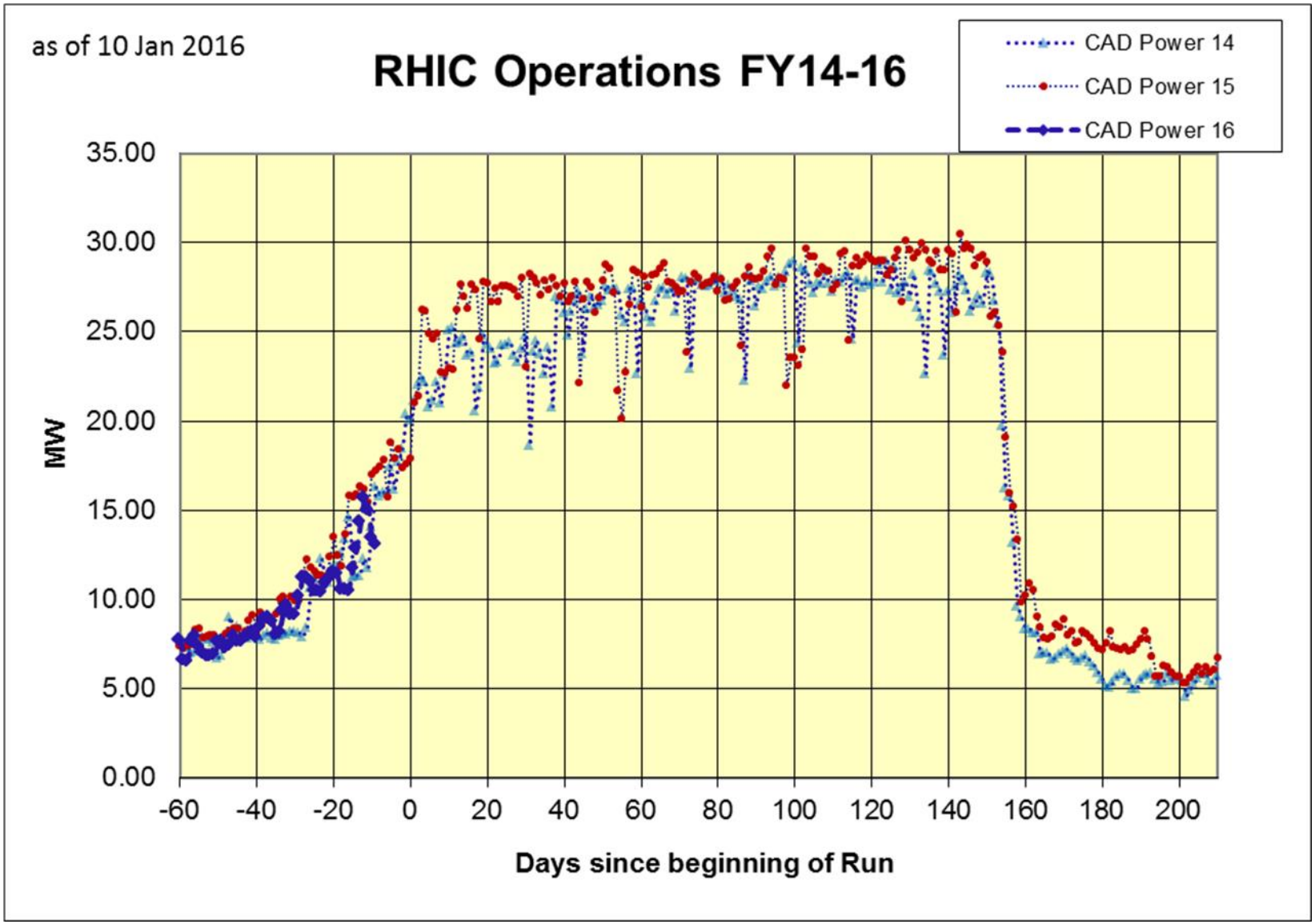
RHIC CeC POP Experiment:
Run Coordinator: TBD

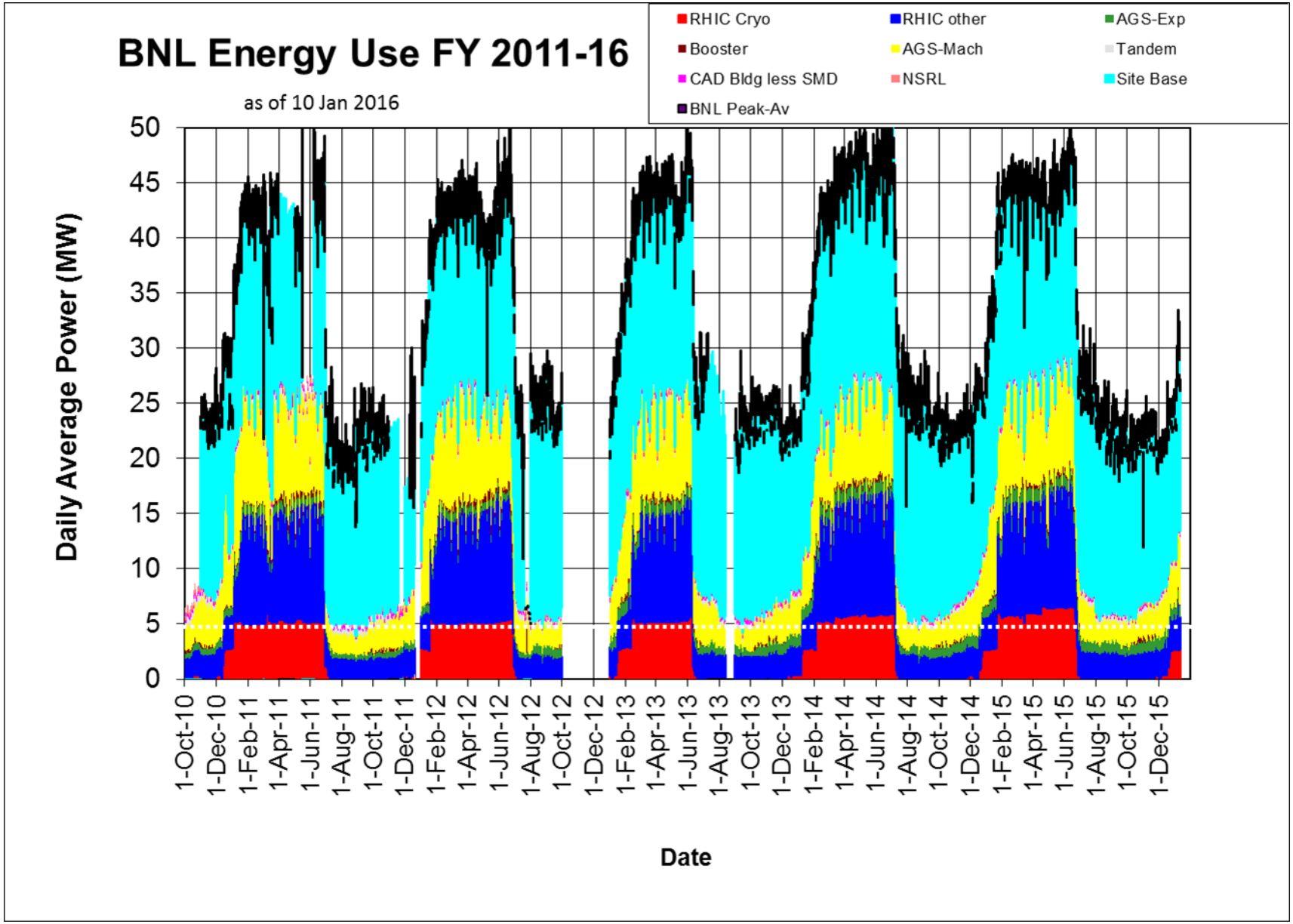
Scheduling Physicist: Bill Christie, christie@bnl.gov, 631-344-7137 (x4643 after 29 Jan)

Assistant Scheduling Physicists through 29 Jan:
Yousef Makdisi, makdisi@bnl.gov, 631-344-4932
Phil Pile, pile@bnl.gov, 631-344-4643

AGS Liaison:
Haixin Huang, huanghai@bnl.gov , 631-344-5446

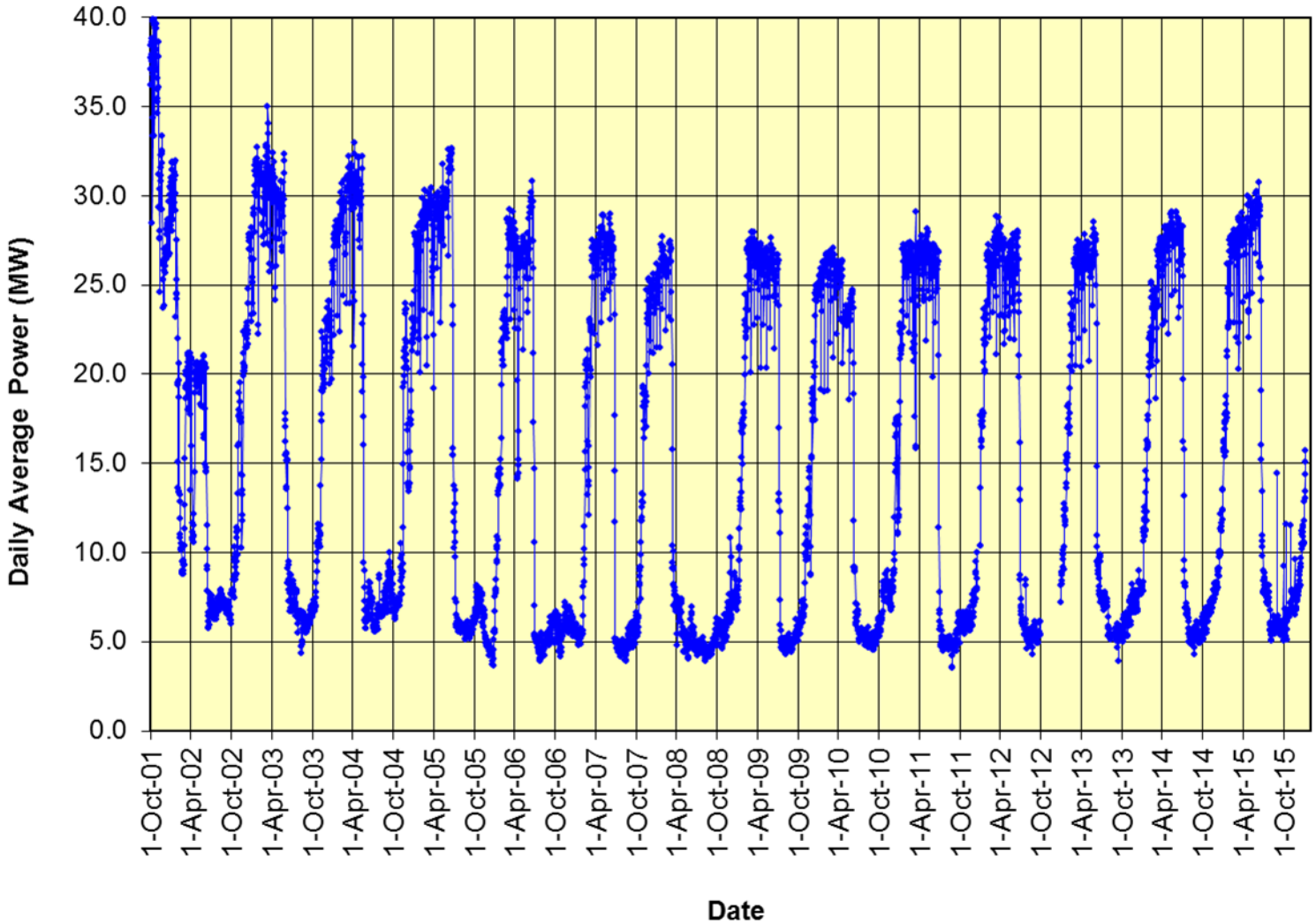

as of 10 Jan 2016
RHIC Cryo Operations FY14-16
RHIC Cryo 14
RHIC Cryo 15
RHIC Cryo 16
MW
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-60
-40
-20
0
20
40
60
80
100
120
140
160
180
200
Days since beginning of Run


as of 10 Jan 2016
RHIC Operations FY14-16
CAD Power 14
CAD Power 15
CAD Power 16
MW
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
-60
-40
-20
0
20
40
60
80
100
120
140
160
180
200
Days since beginning of Run


BNL Energy Use FY 2011-16
as of 10 Jan 2016
RHIC Cryo
RHIC other
AGS-Exp
Booster
AGS-Mach
Tandem
CAD Bldg less SMD
NSRL
Site Base
BNL Peak-Av
Daily Average Power (MW)
50
45
40
35
30
25
20
15
10
5
0
1-Oct-10
1-Dec-10
1-Feb-11
1-Apr-11
1-Jun-11
1-Aug-11
1-Oct-11
1-Dec-11
1-Feb-12
1-Apr-12
1-Jun-12
1-Aug-12
1-Oct-12
1-Dec-12
1-Feb-13
1-Apr-13
1-Jun-13
1-Aug-13
1-Oct-13
1-Dec-13
1-Feb-14
1-Apr-14
1-Jun-14
1-Aug-14
1-Oct-14
1-Dec-14
1-Feb-15
1-Apr-15
1-Jun-15
1-Aug-15
1-Oct-15
1-Dec-15
Date

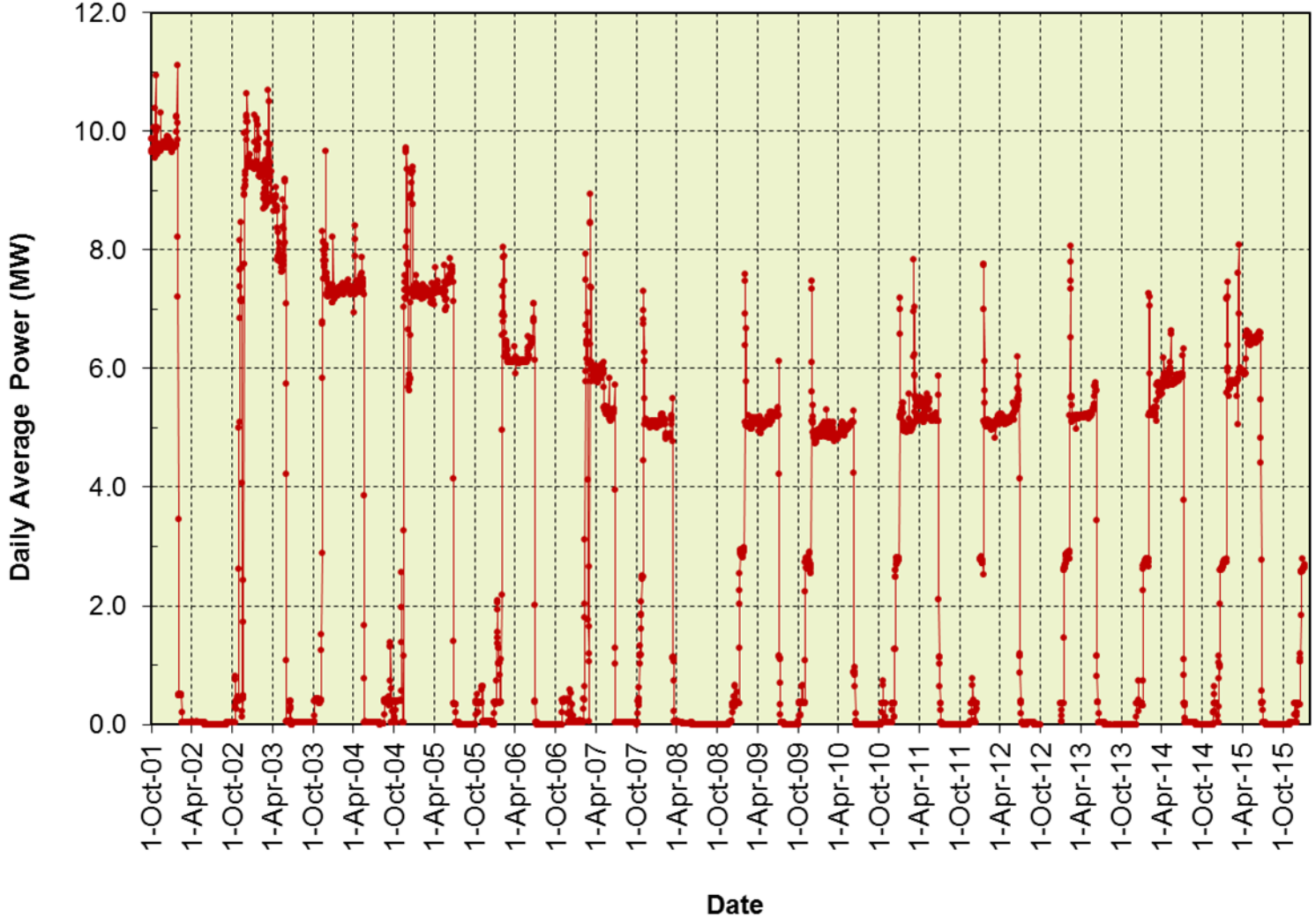
as of 10 Jan 2016

C-AD Energy Use FY 2002-16



as of 10 Jan 2016

C-AD Cryo Energy Use FY 2002-16



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Phil Pile, pile@bnl.gov, 631-344-4643 (office), 631-834-2005 (cell)

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Haixin Huang, huanghai@bnl.gov , 631-344-5446 (office)

Executive Summary Table

Run	Energy	Duration	System	Goals	priority	Sequence
16	$\sqrt{s_{NN}}$=200 GeV	13-wk	Au+Au	Λ_c, D v_2, R_{AA}, Υ R_{AA} 10nb^{-1}, 2billion MB	1	1
	$\sqrt{s_{NN}}$=62 GeV	4-wk	Au+Au	1.5B MB (1B w/ HFT)	4	2
	$\sqrt{s_{NN}}$=19.6 GeV	1-wk	d+Au	100M MB	4	3
17	$\sqrt{s}$ = 510 GeV	11 wk	Transverse p+p	A_N of $W^{\pm}$, γ, Drell-Yan, L=360 pb^{-1}, 55% pol	2	1
	$\sqrt{s_{NN}}$=19.6 GeV	1-wk	p+p	400M MB	4	2
	$\sqrt{s_{NN}}$ =200 GeV	3-wk	Ru+Ru	1.2billion MB	3	3
	$\sqrt{s_{NN}}$=200 GeV	3-wk	Zr+Zr	1.2billion MB	3	4

In each scenario, the data requirements for STAR's two top priority scientific goals will be met. In no scenario can all the data needs for all programs be met in runs 16 and 17

PHENIX Proposal for Run-16

Run-16 Proposal (22 cryo-weeks)

Au+Au @ 200 GeV for 10 weeks

Physics driven goal is 1.8 nb^{-1} (12 billion minimum bias events) recorded within $|z| < 10$ cm

Option A: Au+Au and p+p @ 62.4 GeV Program

Au+Au @ 62.4 GeV for 5 weeks

Physics driven goal is 0.22 nb^{-1} (1.5 billion minimum bias events) recorded within $|z| < 10$ cm

p+p @ 62.4 GeV for 2 weeks, $\langle \mathcal{P} \rangle = 60\%$

Physics driven goal is 0.25 pb^{-1} (10 billion trigger sampled events) recorded within $|z| < 10$ cm

Option B: d+Au Beam Energy Scan

200 GeV for 1.5 weeks, 62.4 GeV for 1.5 weeks, 39 GeV for 2 weeks, 20 GeV for 2 weeks

Physics driven goal is 2400, 230, 110, 7 million central events for the four energies respectively recorded within $|z| < 10$ cm

We present a plan assuming 10 week so Au+Au @ 200 GeV

The optimum for PHENIX is to run Option A and Option B both