Booster Status

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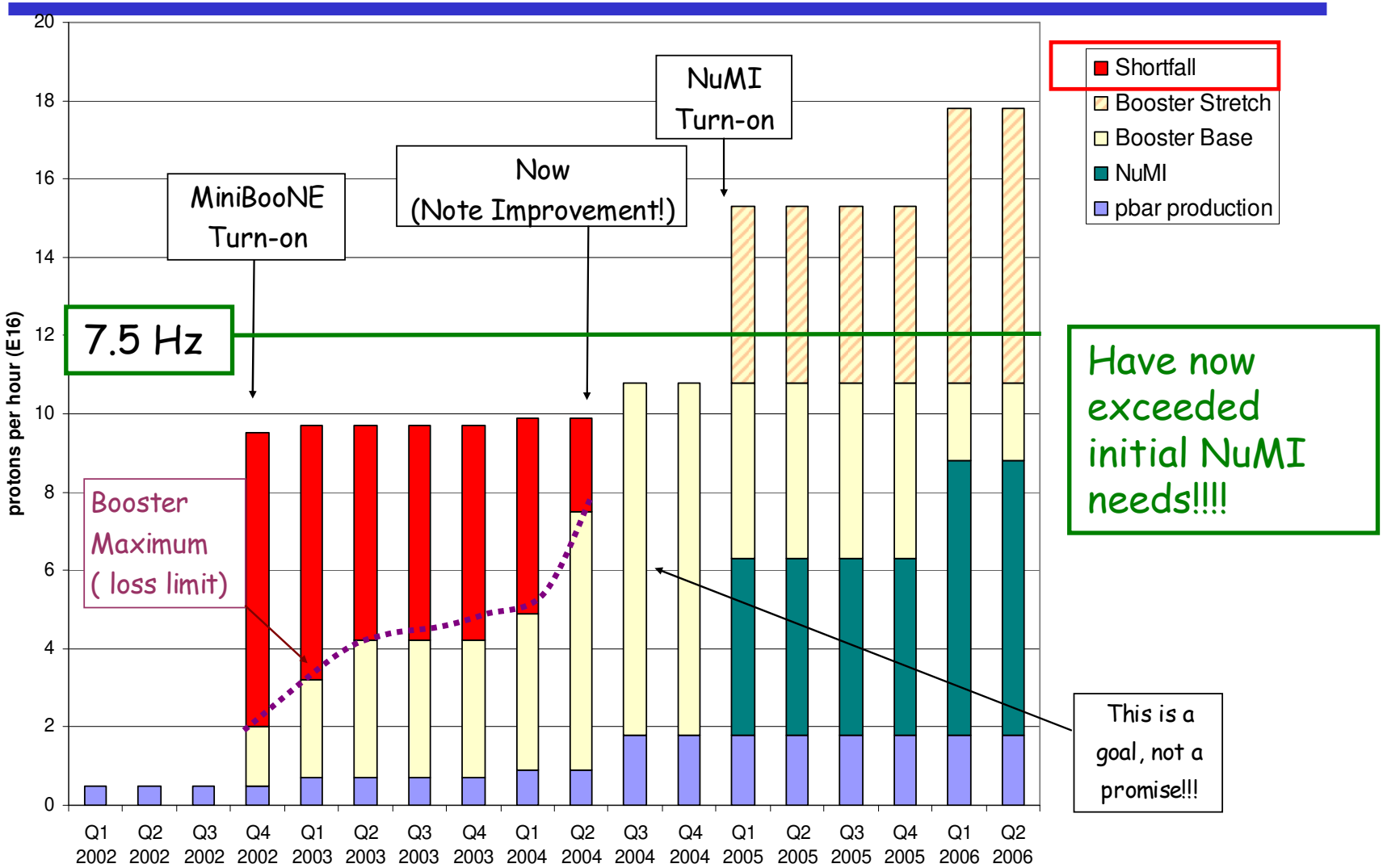
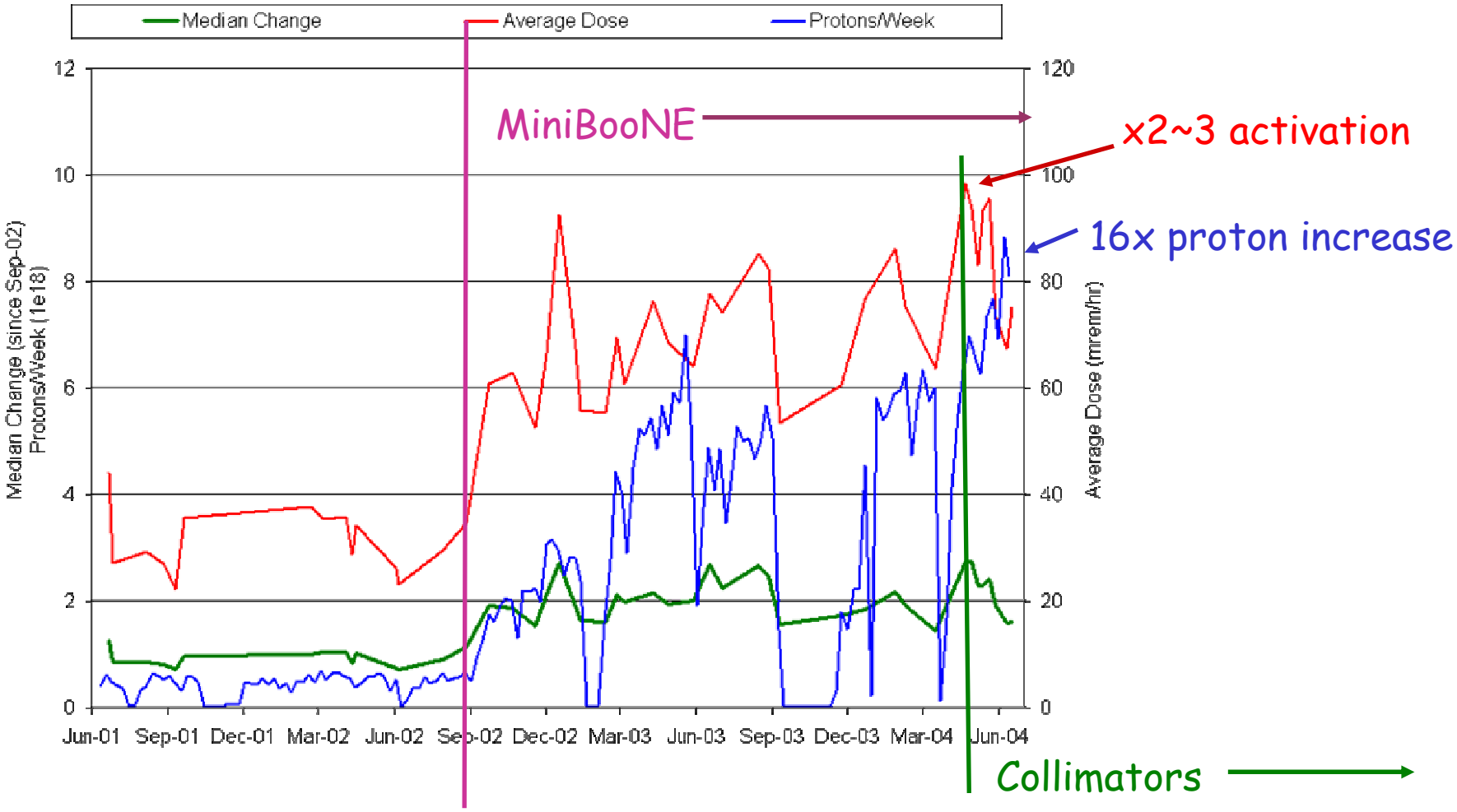
Recent Booster Activities

- Collimators are now used in regular operation
- We have seen a reduction in Booster activation
- We are raising the rate (Watt limit) to try to keep activation more or less constant.
  - Currently at 475W
  - Need to go to ~575W to run full MiniBooNE during shot setup
  - Need to go to 650W to run full MiniBooNE at all times.
- We've hit a max of 8E16 pph to MiniBooNE
- We have now raised the administrative limit to the point where it's no longer a concern.
- We regularly run at the 6.5Hz booster rate needed to go to full MiniBooNE intensity
  - Need only go to 5E12 protons per batch to hit full intensity.
- Wrestling with collimator problems for the last week
  - Good news: NOT stuck (problem in the controller)
  - We *think* it's fixed
- Note: Bill Pellico won an Employee Recognition Award (I'm sure the collaboration's letter helped)

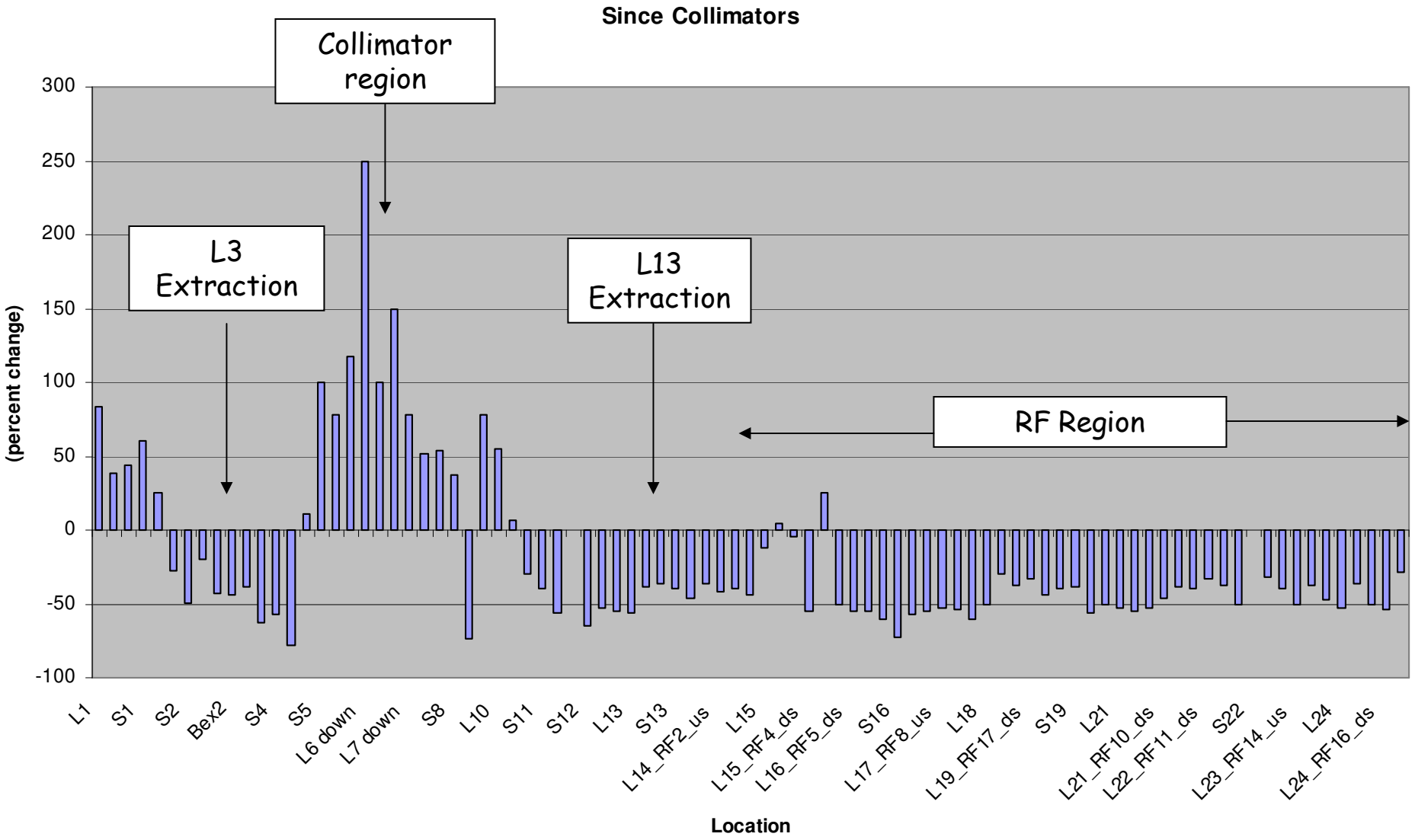
Proton Demand – History (Shown to PAC)



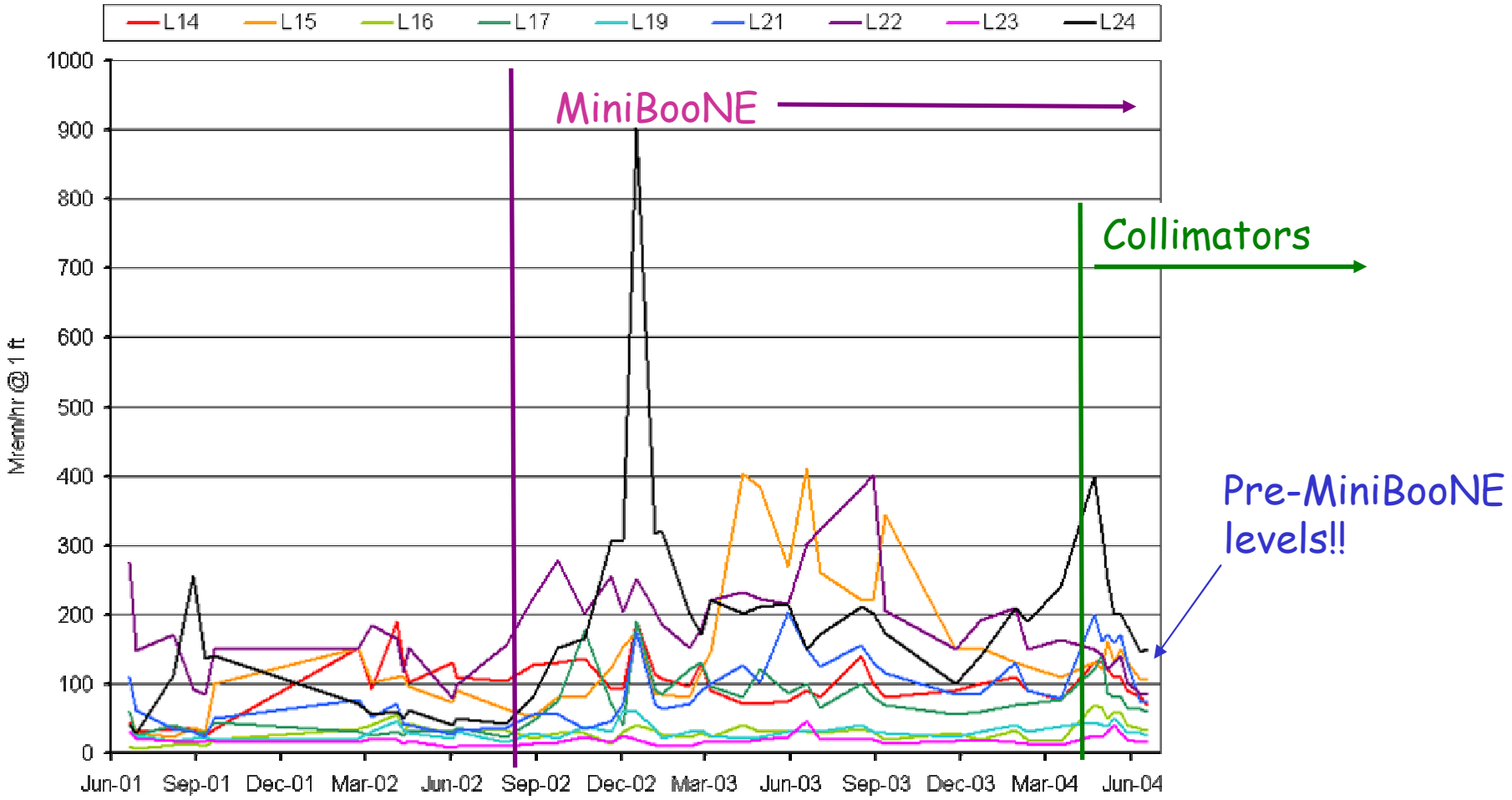
Activation History In Booster (Shown to PAC)



Change In Activation Since Collimators – Shown to PAC

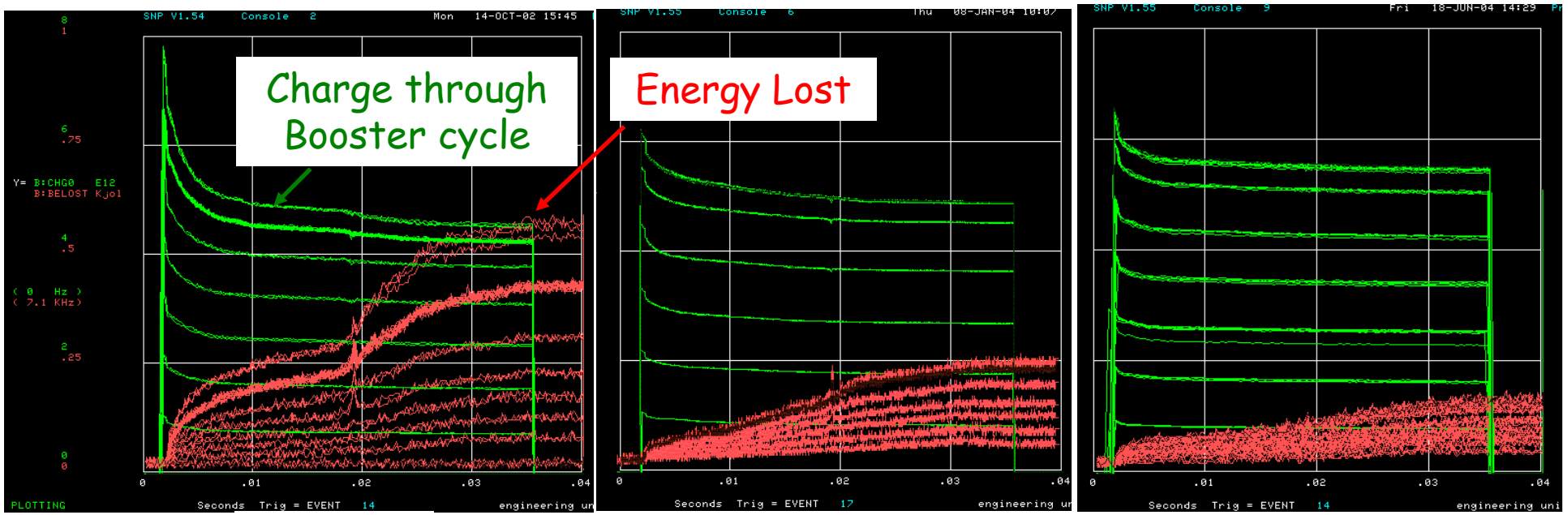


Activation in RF Cavities



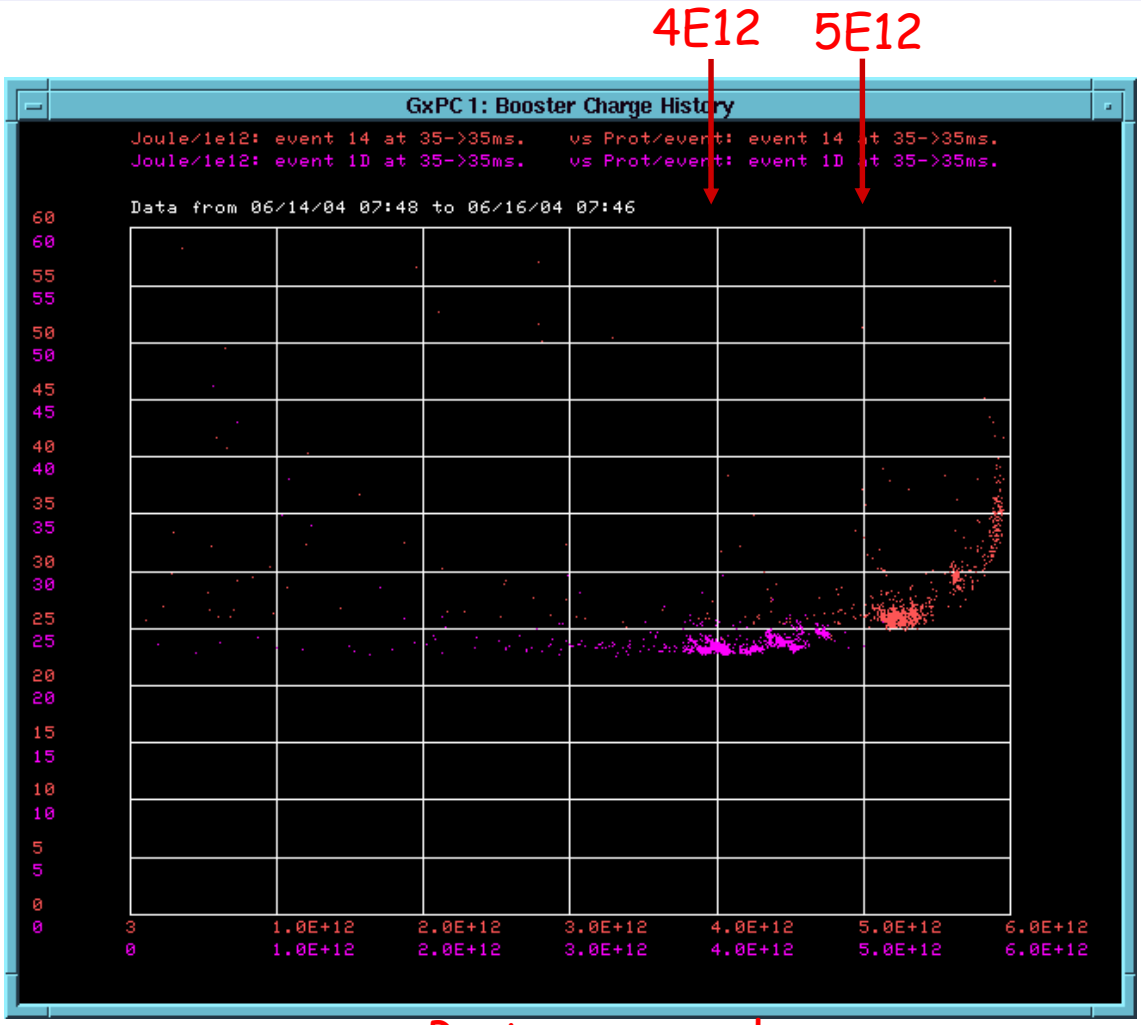
How far have we come?

Oct. 2002 (MB turn-on) Jan. 2004 Now



- Typical:
  - 5.5E12 protons/batch to stacking (Run II handbook = 5E12)
  - >6.5E16 pph to MiniBooNE (MiniBooNE goal 9E16)
  - 9E18 p/wk (MiniBooNE nominal 12.5E18)
- Records:
  - >6E12 protons/batch to stacking
  - 8E16 pph to MiniBooNE
  - 10E18 protons/week

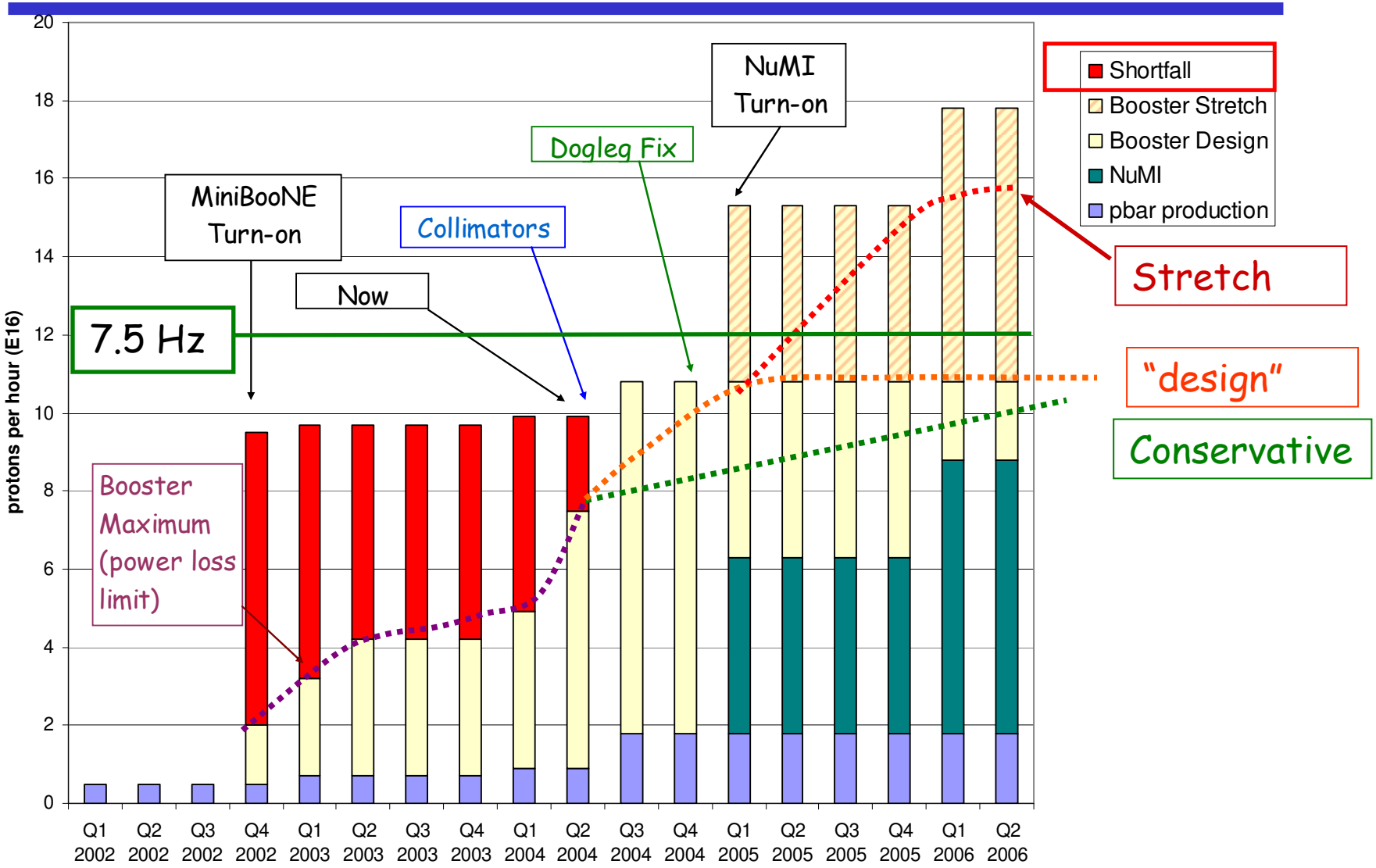
Effect of increased intensity (recent running)



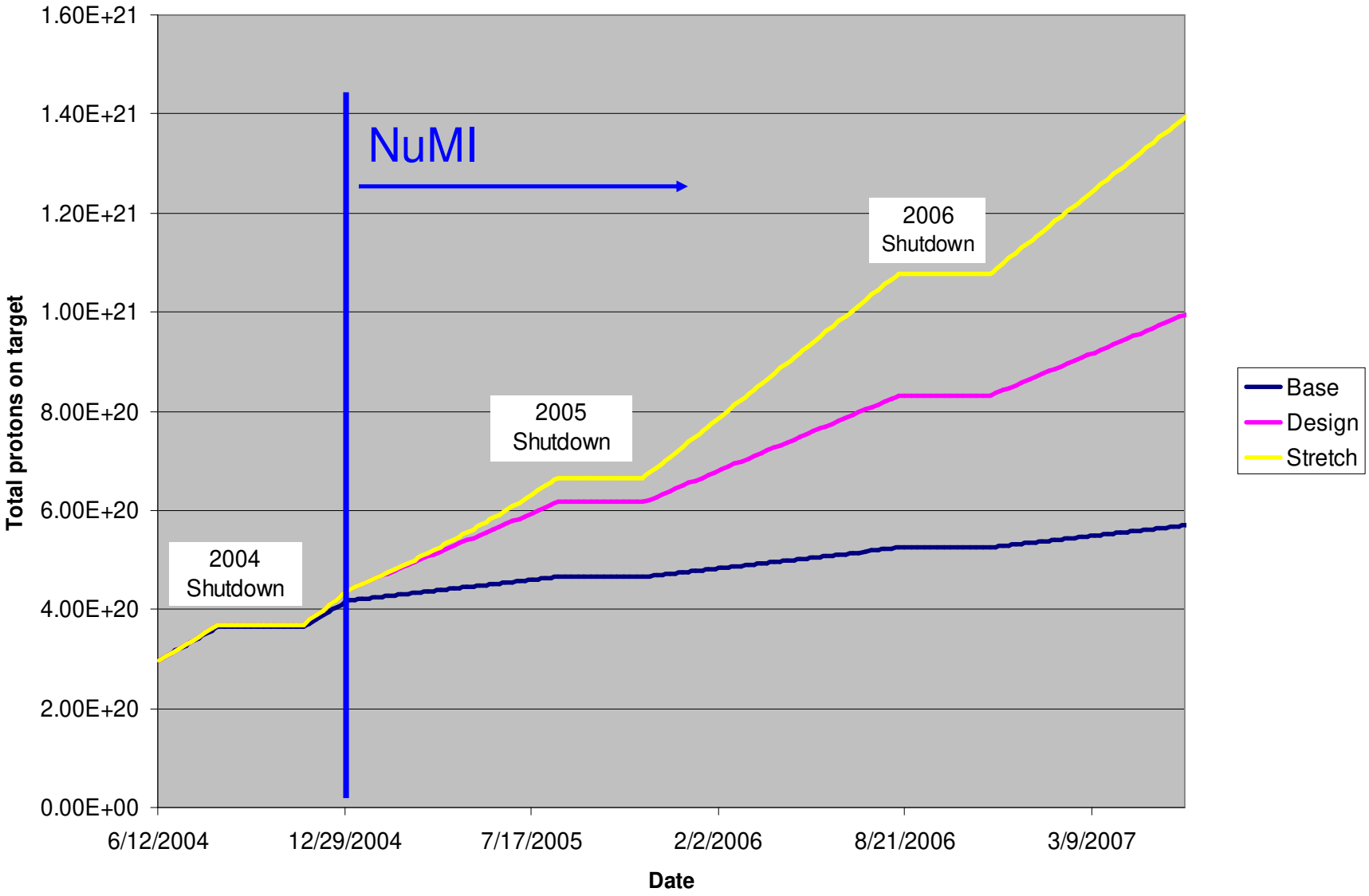
~5% more losses (activation) at 5E12

Can really deliver 5E12 efficiently for the first time!!!!!

Making Projections (shown to PAC)



Protons to MiniBooNE (shown to PAC)



Comments on Pack Meeting

- Things I said (for the first time):
  - We have demonstrated NuMI intensities.
  - I believe we will demonstrate full MiniBooNE instensity soon.
  - I believe we can run the 8 GeV line at some level when NuMI comes on.
- General impression:
  - Committee was impressed and supportive
  - Want to see "design goal" expanded to include estimate of effects of shutdown work
  - "Stretch goal" should disappear

Near Future

- Will discuss Watt limit tomorrow
  - Probably raise to 525W
- Trying to find and optimum collimator configuration that achieves adequate loss reduction around the ring with the minumum increase near the collimators.
- In the near future, will at least demonstrate full MiniBooNE intensity.
- Still hope to hit full intensity soon.

Shutdown Prep

- Long 13 dogleg work
  - On track
  - Will begin after 4 weeks of cooldown
  - Expect big improvement
- RF work
  - On track for a 19th cavity and prep for a 20th
- Kicker work
  - Move period 9 girder to period 5 and rotate horizontal kicker to vertical
    - Notch losses in less sensitive area
    - New vertical kicker helps *both* extraction regions
  - On track
- Alignment
  - Align RF cavities (requires new moving hardware)
  - Complete 3D laser-tracker as found (on track?)
  - *Maybe* to horizontal moves after a period of running
- 400 MeV line:
  - Don't rock the boat!

Gates Status

- Shutdown ~13 weeks
- Major Booster tunnel work
  - Long 13
    - 4 weeks cooldown
    - 2 weeks for project
  - RF work
    - Tunnel: should be done in 6 weeks
    - Upstairs: full preventive maintenance. Time: ?
- Possibility of gates to let MiniBooNE get some beam before end of shutdown??
- Problems:
  - Recycler work planned in gated area through most of shutdown
  - Already 30 technicians short. If resources can be found to install gates, they should be used to shorten shutdown.
  - Booster RF schedule and turn-on needs still unclear. Can't make beam promises.
- AD Conclusion: no gates.
- And now, on to Dave…