



Political Update

NO_vA Collaboration Meeting
Argonne
29 January 2005

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What's New (1)

- **Proton Driver Workshop**
 - **NOvA is an essential justification for the Proton Driver**
 - **The DoE want a site-nonspecific CD0 for a Proton Driver**
 - **Is this a good idea?**
 - **Steve Geer's talk on Sunday**



What's New (2)

- **New Director, Pier Oddone, as of July 1, 2005**
 - John and I have talked with him on a couple of occasions.
 - He considers an expanded neutrino program as an essential part of the future Fermilab program.
 - He is anxious to find new collaborators and new pockets of money for NO ν A.
 - He is acutely aware of the lack of funds in the national program.



What's New (3)

- **The National Academy of Science has started a two-year study of particle physics.**
 - **Title: EPP 2010: Elementary Particle Physics in the 21st Century**
 - **Charge:**
 - To “identify, articulate, and prioritize the scientific questions and opportunities that define elementary-particle physics.”
 - To “Recommend a 15-year implementation plan with realistic, ordered priorities to realize these opportunities.”
 - **22 members, ~1/3 not physicists. Chair is Harold Shapiro; Vice-chair is Sally Dawson.**
 - **There will be a meeting at Fermilab May 16-17.**
 - **Questions have been raised about the depth of this study.**



What's New (4)

- **There will be a new panel: Neutrino SAG**
 - To be appointed at the February HEPAP Meeting
 - Will report to High Energy and Nuclear Physics at the DoE and to the NSF
 - Will build on the APS study and recommend priorities
 - Triggered by proposals from competing reactor experiments
 - Will consider
 - Double beta decay experiments
 - Reactor experiments
 - Accelerator experiments



June 2004 PAC Response (1)

- “To establish a compelling physics case, NO_vA must meet the following criteria:
 1. **Uniqueness.** NO_vA must have a unique physics capability not achieved by any other experiments worldwide.
 2. **Competitiveness with T2K.** NO_vA must compete with T2K, the Japanese program discussed above, within a similar time frame.
 3. **Competitiveness and/or complementarity with future experiments at reactors.** NO_vA must compete in sensitivity with reactor experiments, or provide information not obtainable by reactor experiments.
 4. **Capability for evolution with a future neutrino program.** NO_vA must allow a natural progression to CP violation studies with a future proton driver with the currently proposed detector at the same location.”



PAC Response (2)

- **The report then summarizes the physics case and concludes “The Committee finds the proposal meets the above four criteria if the detector can be built in a timely manner.”**
- **“How soon must NO_vA start taking data in order to be timely?... The Committee concludes that NO_vA must start data-taking in the same time frame as T2K, and complete the far detector within four years to meet this criterion.... The Committee notes that the timely construction of NO_vA is inconsistent with the present budget projection of the Laboratory.”**



PAC Response (3)

- **“The Committee strongly endorses the physics case for the NO_vA detector, and would like to see NO_vA proceed on a fast track that maximizes its physics impact.”**
- **“The Committee encourages the Laboratory to work together with the funding agencies to put the necessary funding profile in place for a construction start in FY 2007, or in FY 2008 at the latest.”**
- **“The Committee strongly endorses the proposed R&D plan and urges the Laboratory to provide adequate support for timely completion of this program.”**



PAC Action

- **“While the Committee applauds [NOvA’s] progress, it concludes that Stage I approval at this time is premature. The collaboration should first complete the following steps:”**
 - **Complete the critical R&D**
 - Adequate signal from a full-length prototype
Slow progress due to problems with extrusions
 - Cosmic ray background test
Only time and resources for simulations
 - Engineering studies for TASD
Good progress
 - **Make a final technology choice**
At this meeting?
 - **Update the proposal**
When? Early March for April PAC. Early May for June PAC, EPP, NuSAG?

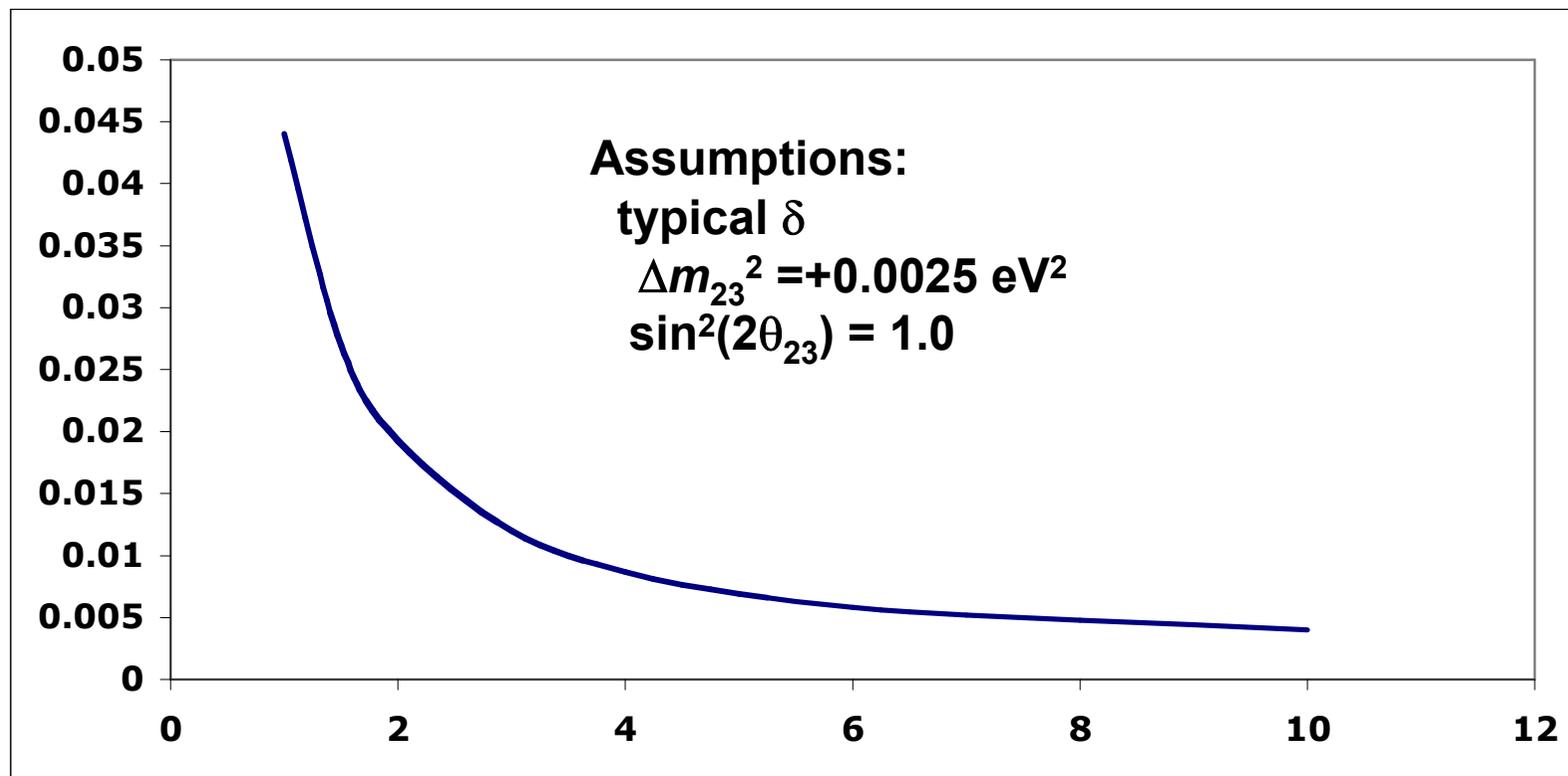


Thoughts on Strategy

- **All the recent work has been on TAsD. I think that is where we are going even though the FoM/\$ might be slightly less.**
- **In writing the TAsD proposal, we should keep the FoM constant, not the \$.**
 - **The PAC has taken great interest in the physics and almost no interest in the cost (within reason).**
 - **Other committees and panels are likely to take the same attitude.**
 - **The beam exists; the detector is modular and can be staged. A large amount of parameter space is covered quickly. (See figure).**



95% CL on $\sin^2(2\theta_{13})$ vs. years from start of installation



Years from start of installation