APS/User Monthly Meeting
January 23, 2004

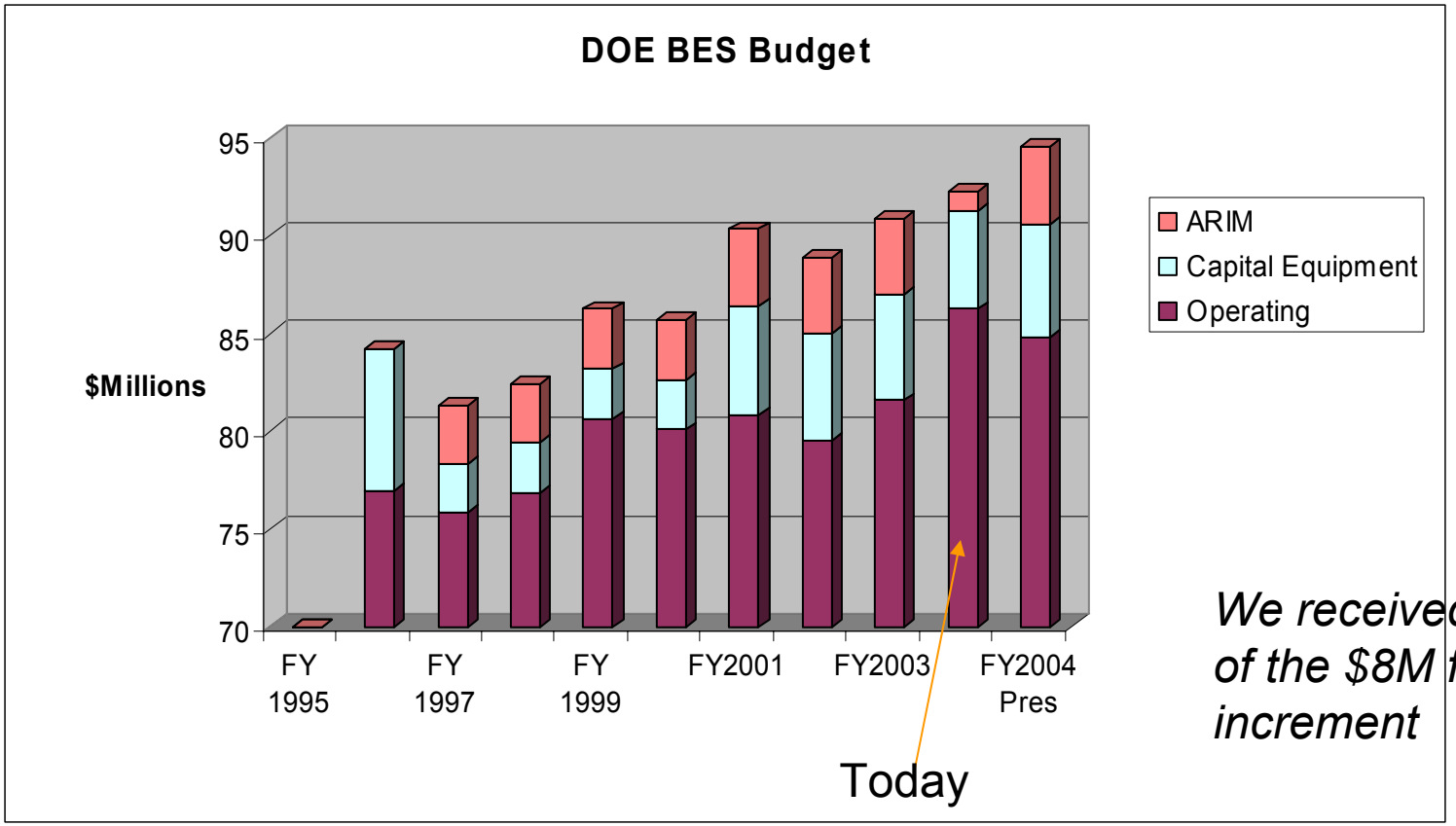
Introduction

Murray Gibson

Agenda

- 2:45 p.m. -- Introduction - Murray Gibson
- 3:00 p.m. -- Update on the Optics Group Capabilities - Al Macrander
- 3:15 p.m. -- Beamline Fault Statistics - Roger Klaffky
- 3:25 p.m. -- Upcoming APSUO Meeting - Mark Rivers
- 3:30 p.m. -- Outcome of APSUO meeting on technical collaboration amongst Biological CATs - Malcolm Capel
- 3:45 p.m. -- Adjourn

Budget Update



We received $2.4M of the $8M facilities increment

Facility BES operating budget in March, $86.23M, will be up $4.7M from last year (5.7%).

But ARIM only $1M, missing $2.9M, => hope to see more.

Other Operating Income for 2004

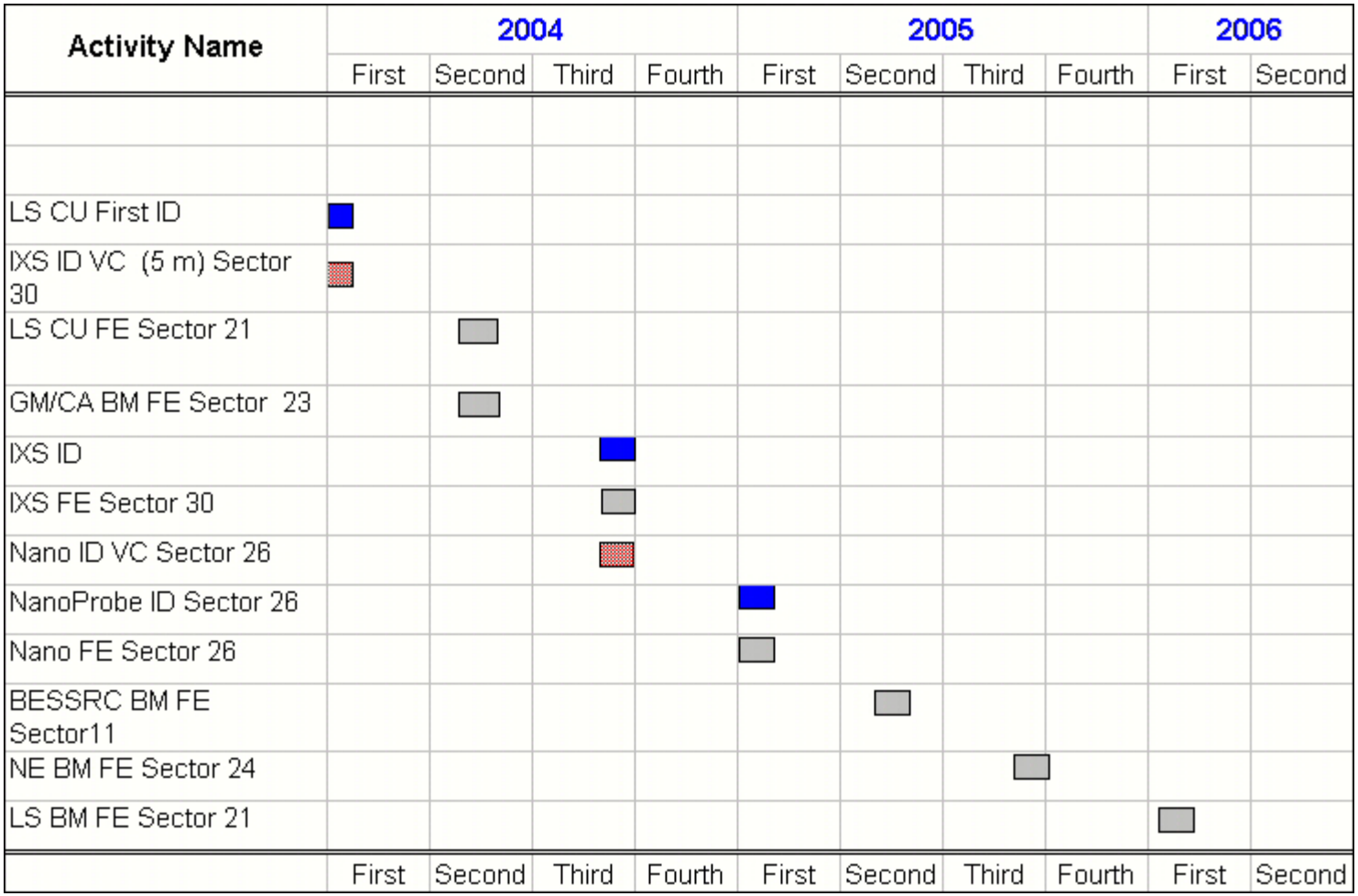
- Total of operating-related contributions ~$5M
  - LDRD for FY'04 is ~$1.5M
  - CNM-related income is ~$1.3M
  - LCLS $1.5-2M
  - Proprietary user fees > $0.5M
    - Extra capital for beamline/ID construction totals ~$20M over 3 years

- Budget planning underway now – expect to hire additional people to support beamlines, user operations, engineering support

Highlights of SAC Meeting

- SRP Reviews
  - BIOCARS, IMCA, SBC,SER, ChemMatCARS, IMM/XOR, MR, PNC
  - Upcoming in 2004:
    - MHATT, UNI (33-34), XOR (1-4), SGX, BIO-CAT
  - Partner Proposals
- Policy Issues
  - Proprietary research
  - CAT members applying for GU time on sector

ID/FE Installation Schedule



APS will formally solicit proposals for upgraded ID/FEs……

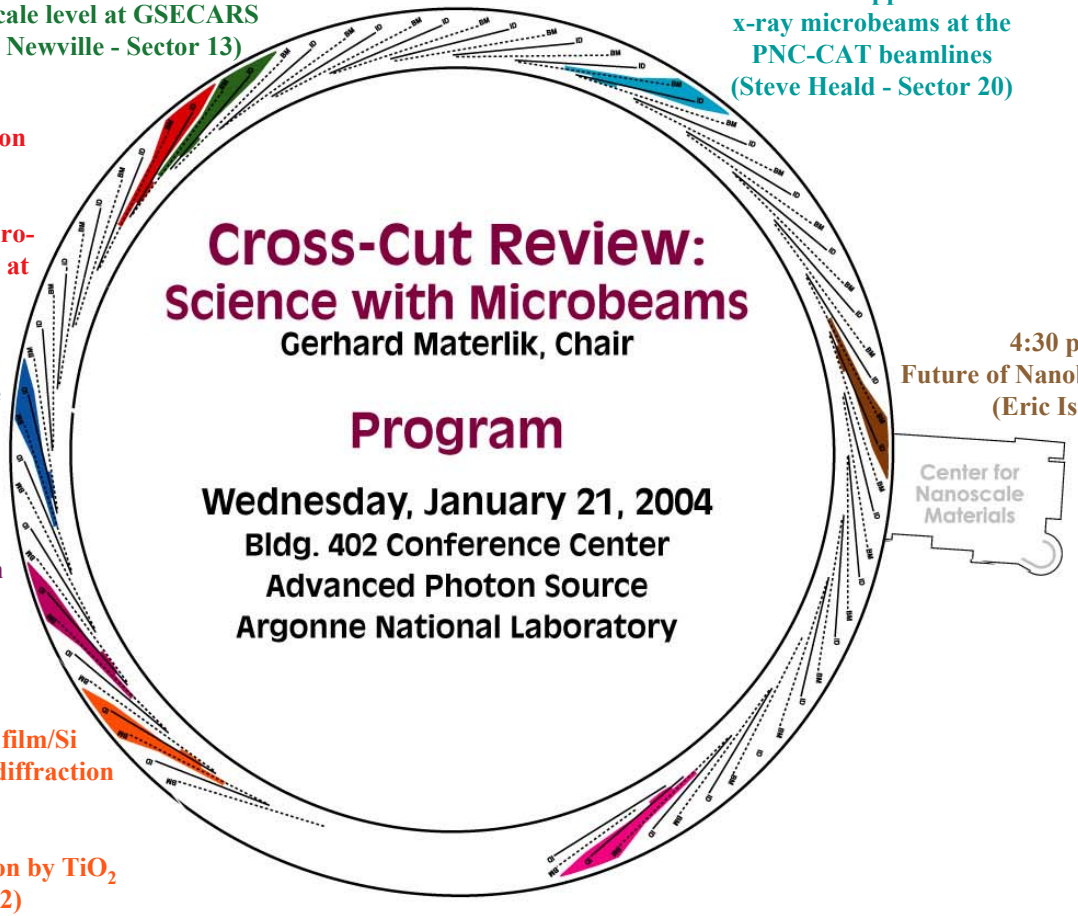
8:45 a.m.: Overview and Charge to the Review Committee
(Murray Gibson)

10:45 a.m.: High-pressure geoscience at GSECARS
(Guoyin Shen - Sector 13)

11:15 a.m.: Earth and environmental science at the microscale level at GSECARS
(Matt Newville - Sector 13)

10:00 a.m.: Applications of x-ray microbeams at the PNC-CAT beamlines
(Steve Heald - Sector 20)

11:45 a.m.: The study of ferroelectric switching using x-ray synchrotron radiation
(Carol Thompson - Sector 12)



2:00 p.m.: Current and planned use of micro-beams for mineral-water interface studies at BESSRC
(Paul Fenter - Sector 12)

4:30 p.m.:
Future of Nanobeam Studies
(Eric Isaacs)

2:30 p.m.: Probing ferroelectricity, charge density wave dynamics, and magnetism with submicron x-ray diffraction
(Paul Evans - Sector 7)

3:30 p.m.: Magnetism studies with microbeams
(George Srajer - Sector 4)

1:30 p.m.: Strain effects in thin film/Si substrates revealed by x-ray microdiffraction
(Cev Noyan - Sector 2)

4:00 p.m.: Intracellular manipulation by TiO_2
(Gayle Woloschak - Sector 2)

9:00 a.m.: Three-dimensional polychromatic microdiffraction studies of mesoscale structure and dynamics
(Gene Ice - Sector 34)
9:35 a.m.: Microbeam imaging of crystals by coherent diffraction at 34-ID-C
(Ian Robinson - Sector 34)

Cross-cut Review

- Report will be made available soon
  - Broad recommendations public
  - Detailed information to sectors

- Next year's subject:
  - "Science which uses the time structure of the beam"

Strategic Planning Meeting

- Plan to hold the next on Aug. 29–Sept. 3, 2004 at Lake Geneva, Wisconsin
- Will focus entirely on “New Scientific Directions for the APS”
  - Study by Gopal Shenoy and Sunil Sinha will include workshops
- 3 days of parallel workshops, 2-day summary discussion
- Aimed at fleshing out Phases I and II of the strategic plan

APS² is on the roadmap…

U.S. Department of Energy

	Priority	Program	Facility
Near-Term	1	FES	ITER
	2	ASCR	UltraScale Scientific Computing Capability
	Tie for 3	HEP	Joint Dark Energy Mission
		BES	Linac Coherent Light Source
		BER	Protein Production and Tags
		NP	Rare Isotope Accelerator
	Tie for 7	BER	Characterization and Imaging
		NP	CEBAF Upgrade
		ASCR	ESnet Upgrade
		ASCR	NERSC Upgrade
		BES	Transmission Electron Achromatic Microscope
	12	HEP	BTeV
	13	HEP	Linear Collider
Mid-Term	Tie for 14	BER	Analysis and Modeling of Cellular Systems
		BES	SNS 2-4 MW Upgrade
		BES	SNS Second Target Station
		BER	Whole Proteome Analysis
	Tie for 18	NP/HEP	Double Beta Decay Underground Detector
		FES	Next-Step Spherical Torus
		NP	RHIC II
Far-Term	Tie for 21	BES	National Synchrotron Light Source Upgrade
		HEP	Super Neutrino Beam
	Tie for 23	BES	Advanced Light Source Upgrade
		BES	Advanced Photon Source Upgrade
		NP	eRHIC
		FES	Fusion Energy Contingency
		BES	HFIR Second Cold Source and Guide Hall
		FES	Integrated Beam Experiment

Facilities for the Future of Science available from http://www.science.doe.gov/Sub/Facilities_for_future/20-Year-Outlook-screen.pdf

Priority: Tie for 23
Advanced Photon Source (APS) Upgrade

The APS upgrade will greatly enhance the brilliance and power of the facility to enable scientists to study very small sample crystals—important for nanoscience research.

The Facility: The Advanced Photon Source (APS) upgrade will create a "super storage ring" of electrons that will greatly enhance the brilliance of the facility, increasing the power of the device and enabling scientists to work on very small sample crystals. Small samples are important: many current experiments are limited by the fact that the subject materials will not grow into large enough crystals for study.

Background: The APS at Argonne National Laboratory was commissioned in 1996. It currently provides the brightest x-ray beams available in the Western Hemisphere for a wide range of research from materials science to structural biology. The 1,104-meter circumference storage ring of the APS, which is large enough to house a baseball park in its center, produces, accelerates, and stores a beam of subatomic particles that is the source of the x-ray beams that feed numerous experimental stations. The APS will support more than 4000 users on 70 beamlines.

What's New: This eventual APS upgrade will replace and upgrade major components of the accelerator to further increase performance in the hard x-ray region of the spectrum, most notably x-ray photon correlation spectroscopy, coherent imaging, inelastic scattering, and x-ray nanoprobe microscopes. The upgrade will be necessary to keep the APS among the best of the hard x-ray facilities, and ensure that its performance and scientific output continue to be ground-breaking.

Applications: Using high-brilliance x-ray beams from the APS, members of the international synchrotron-radiation research community have achieved major advances in basic and applied research in the fields of materials science; biological science; physics; chemistry; environmental, geophysical, and planetary science; archeology; and innovative x-ray instrumentation.

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APS^2

Denny Mills and Kwang-Je Kim to lead strategic planning on APS^2