



Department of Energy

Oakland Operations Office

1301 Clay Street

Oakland, California 94612-5208

JUN 27 2000

CERTIFIED MAIL -
RETURN RECEIPT REQUESTED

Ms. Carrie Peyton
The Sacramento Bee
P.O. Box 15779
2100 Q Street
Sacramento, CA 95852

Subject: Freedom of Information Act Request - #2000-OK-36

Dear Ms. Peyton:

This is in final response to your amended April 13, 2000 Freedom of Information Act (FOIA) request. We provided you a partial response with an enclosure on April 17, 2000.

The remainder of your request is granted in part and denied in part.

Forty-two pages of documents are withheld in their entirety under Exemption 5 of the FOIA (5 U.S.C. 552(b)(5)). Exemption 5 exempts from mandatory disclosure "inter-agency or intra-agency memoranda or letters which would not be available by law to a party other than an agency in litigation with the agency..." Exemption 5 incorporates the deliberative process privilege which protects advice, recommendations, and opinions that are part of the process by which agency decisions and policies are formulated. The protected documents are briefing materials only.

However, we have enclosed all purely factual documents responsive to your request.

Pursuant to 10 CFR Section 1004.1, DOE will make records available which it is authorized to withhold under the FOIA, unless it is determined that such disclosure is not in the public interest. Consideration has been given to waiving Exemption 5, and it has been concluded that the public interest would not be served by doing so. Free expression of ideas and frank and independent discussions among those responsible for making governmental decisions is essential to the operations of the DOE. Any value in releasing this information is outweighed by the public interest in more effective management of the agency.

The FOIA regulations provide in Title 10, Code of Federal Regulations, Section 1004.8(a) that an appeal may be made from portions of this letter which constitute a denial to your request. Such appeal must be made in writing, within 30 days of receipt of

Ms. Peyton
Page 2

Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585. Judicial review will thereafter be available to you: (1) in the district in where you reside; (2) where you have your principal place of business; (3) where the Department's records are situated; or (4) in the District of Columbia. The appeal should contain a concise statement of the grounds upon which it is brought and a description of the relief sought. Both the envelope and the letter must be clearly marked "Freedom of Information Appeal."

I am the official responsible for the above determination.

If you have any questions regarding the above, please call Ms. RoseAnn Pelzner, FOIA Officer, at (510) 637-3195.

Sincerely,



Martin J. Domagala
Deputy Manager
FOIA Authorizing Official

Enclosures



Lawrence Livermore National Laboratory

Office of Laboratory Counsel
(925) 422-7073

May 18, 2000

Richard Vergas, Esq.
General Law Division
U.S. Department of Energy
San Francisco Operations Office
1301 Clay Street, Room 700N
Oakland, CA 94612-5208

Re: **DOE FOIA #2000-OK-031**

Dear Mr. Vergas:

As we discussed yesterday, please find enclosed the documents that respond to FOIA #2000-OK-031. As you can see from the enclosed memorandum from Shirley Petty of the NIF Program, the enclosed documents were prepared as briefing materials to aid in an oral presentation at a DOE meeting. Accordingly, we believe that these documents are exempt from disclosure under FOIA because they are draft materials that were used as part of a predecisional, deliberative process. The NIF program is particularly concerned that as the materials are unannotated, the information may be interpreted in a way that is inaccurate and inappropriate.

We hope that DOE agrees with our conclusion that these documents are exempt from disclosure under FOIA. Please call me if you have questions or if DOE disagrees with our interpretation and intends to release these materials.

Sincerely yours,

John H. Lee
Assistant Laboratory Counsel

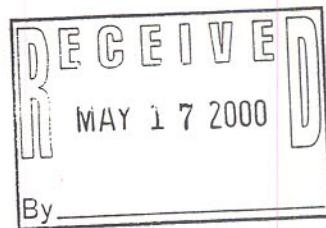
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cc: S.E. Howell, w/o encl.
S.B. Petty, w/o encl.
J.G. Tulk, w/o encl.

Encl.



Interdepartmental letterhead
Mail Station L-20
Ext: 36806



MEMORANDUM – May 16, 2000

TO: Stan Howell
FROM: Shirley Petty, NIF Programs Directorate

In response to Carrie Peyton's April 13, 2000 FOIA request, attached is a copy of the material from our files that was prepared by LLNL. We believe this briefing material is not subject to disclosure because the information is not annotated, it is considered draft, and it was presented at a pre-decisional DOE meeting.

Cc: Joni Schuld.

More extensive delays to installation activities have adverse consequences

NIF

The National Ignition Facility

- Laser Bay 1 vessel setting could be delayed
 - Storage issues
 - Negotiated reduction of cost under a fixed-price contract
- One-half of the Target Bay work could be delayed; However, future construction will be:
 - Extremely difficult
 - More expensive
 - Time consuming
 - Facility operations will be impacted

Impacts of the funding profiles for Options 4, 5 and 6

NIF

The National Ignition Facility

Option 4 has a budget profile that precludes symmetrical NIF operation	
Impact on Stockpile Stewardship	Limited work on campaigns 1, 4 and 10 (Radiation flow and fusion) Initial work on campaigns 1, 2 and 7 (Mix and material properties) are delayed. Completion not possible
Impact on the LLNL Institution	Does not provide a facility consistent with the Lab's responsibility for Stockpile Stewardship
Impact on the long-term NIF Project	Decreases ability of Project to execute with industrial partners
Impact on NIF staffing	25% to 40% reduction in staff (250 -400 FTEs) will result in LLNL layoffs. Decreases ability of LLNL to retain, recruit highly talented individuals

Partial build-out of Infrastructure would reduce current Installation/Assembly estimate

NIF

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Description	Projected Cost Full Build (\$K)	Projected Cost Partial Build (\$K)	Savings
Laser Bay Vessel-Setting	5,630	5,630	0
Laser Bay Beampath	24,720	12,360	12,360
Switchyard Beampath	17,780	9,780	8,000
Laser Bay Beampath/ Utilities	80,600	53,010	27,590
Target Bay Beampath/ Utilities	23,120	23,120	0
Total	151,850	103,900	47,950

More extensive delays to installation activities have adverse consequences

NIF

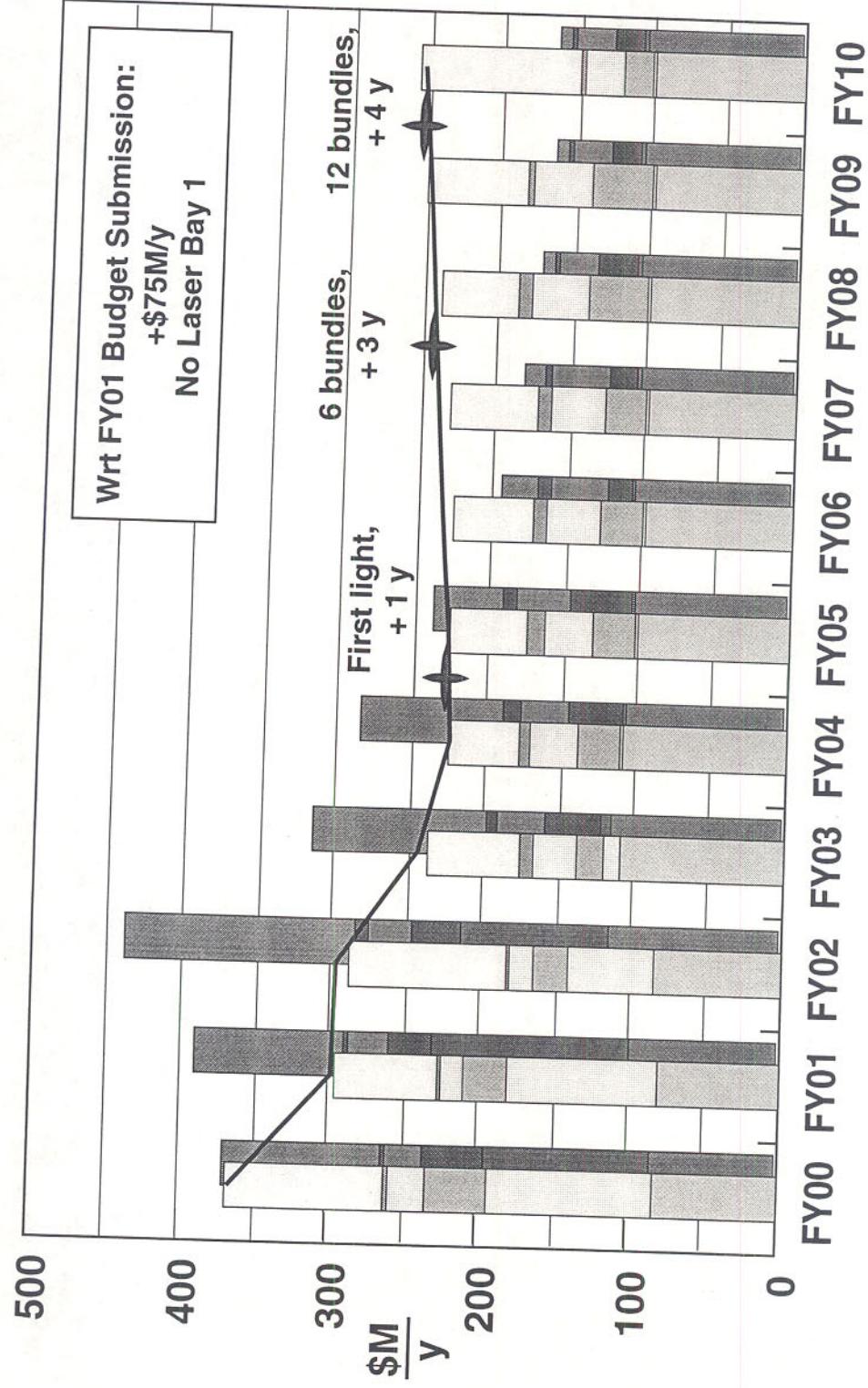
The National Ignition Facility

- Laser Bay 1 vessel setting could be delayed
 - Storage issues
 - Negotiated reduction of cost under a fixed-price contract
- One-half of the Target Bay work could be delayed; However, future construction will be:
 - Extremely difficult
 - More expensive
 - Time consuming
 - Facility operations will be impacted

Option 4 (TPC = \$1.85B)

NIF

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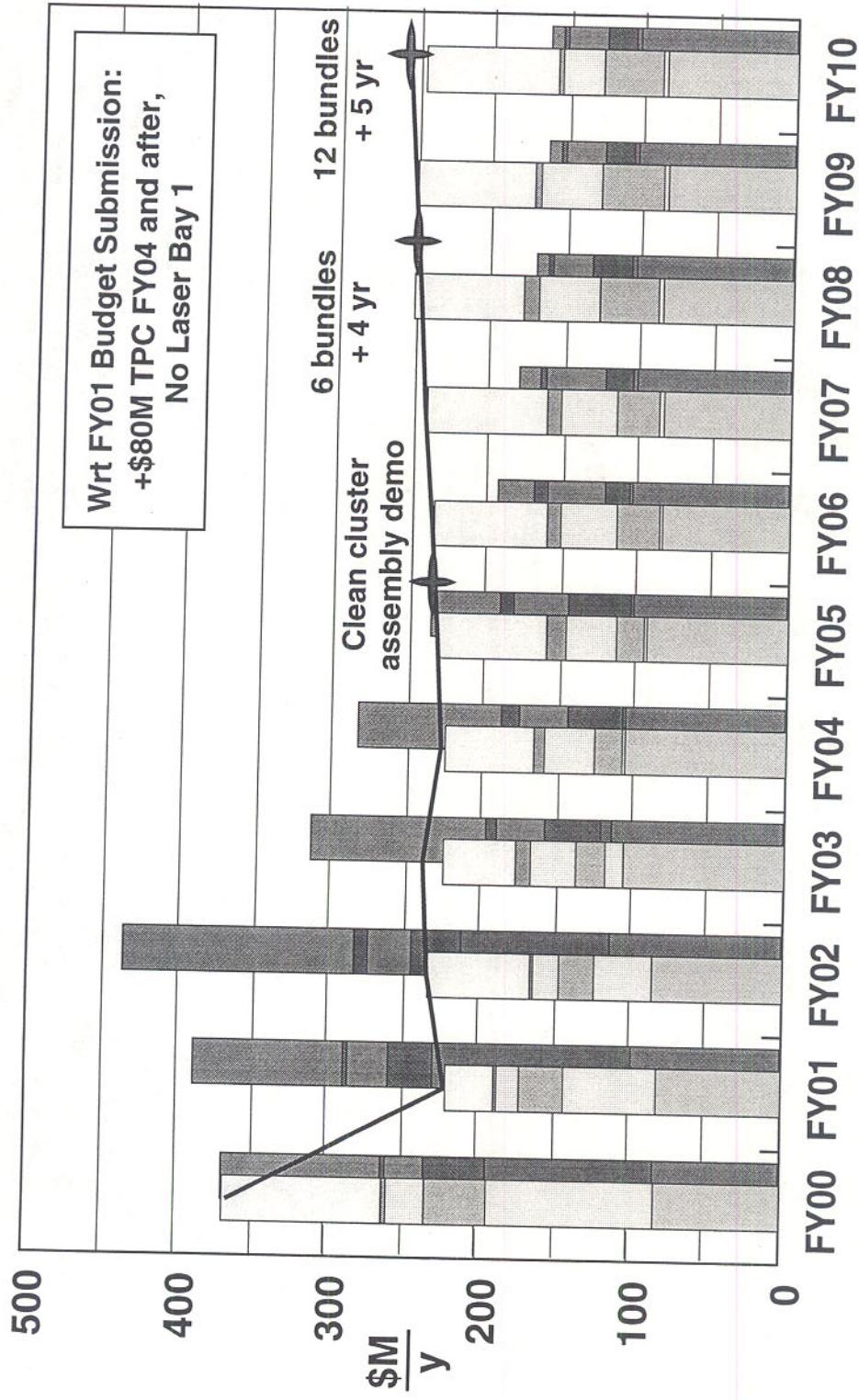


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MLS 4 DC

Option 6 (TPC \approx \$1.90B)

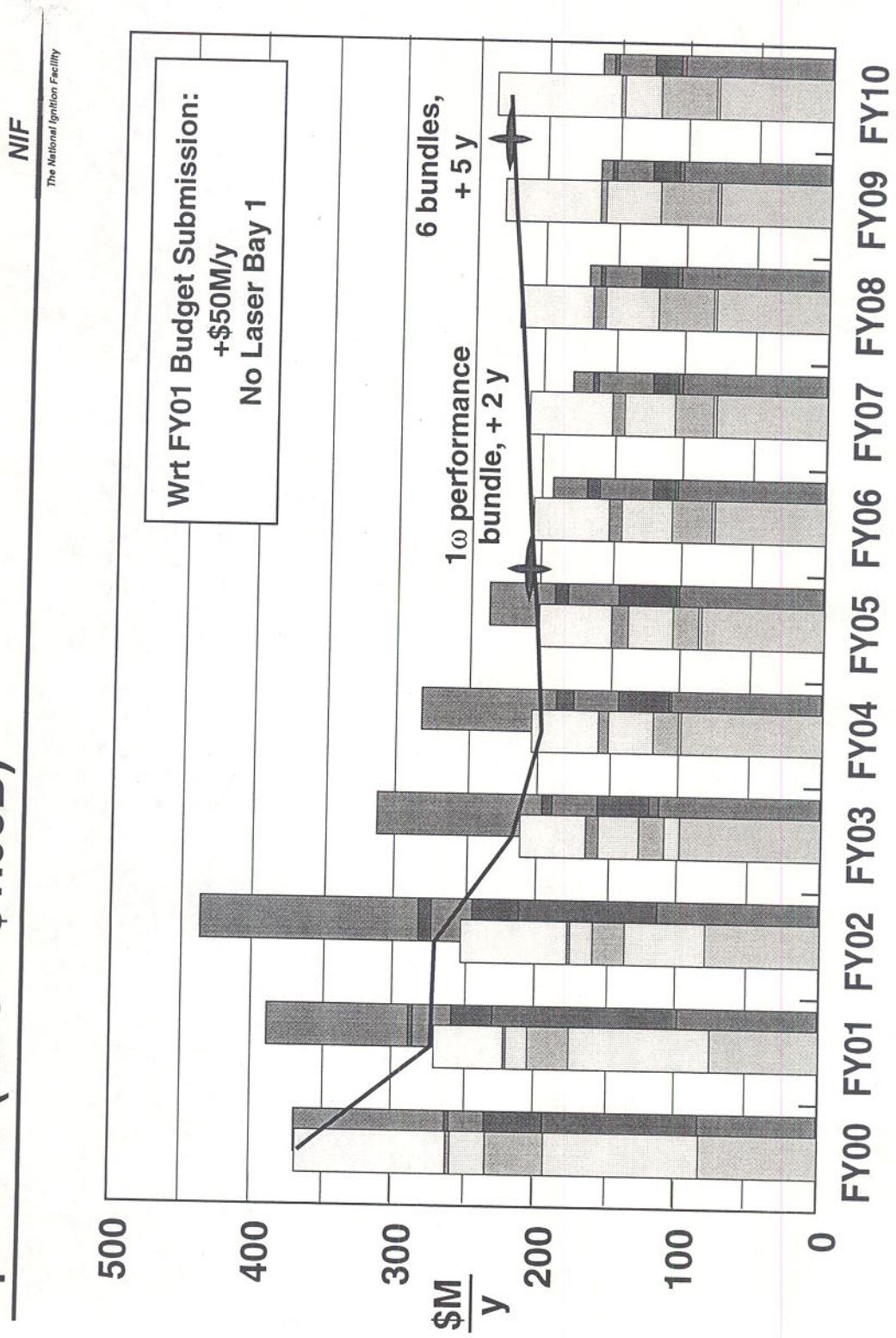
NIF

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MLS/mis

Option 5 (TPC \approx \$1.93B)



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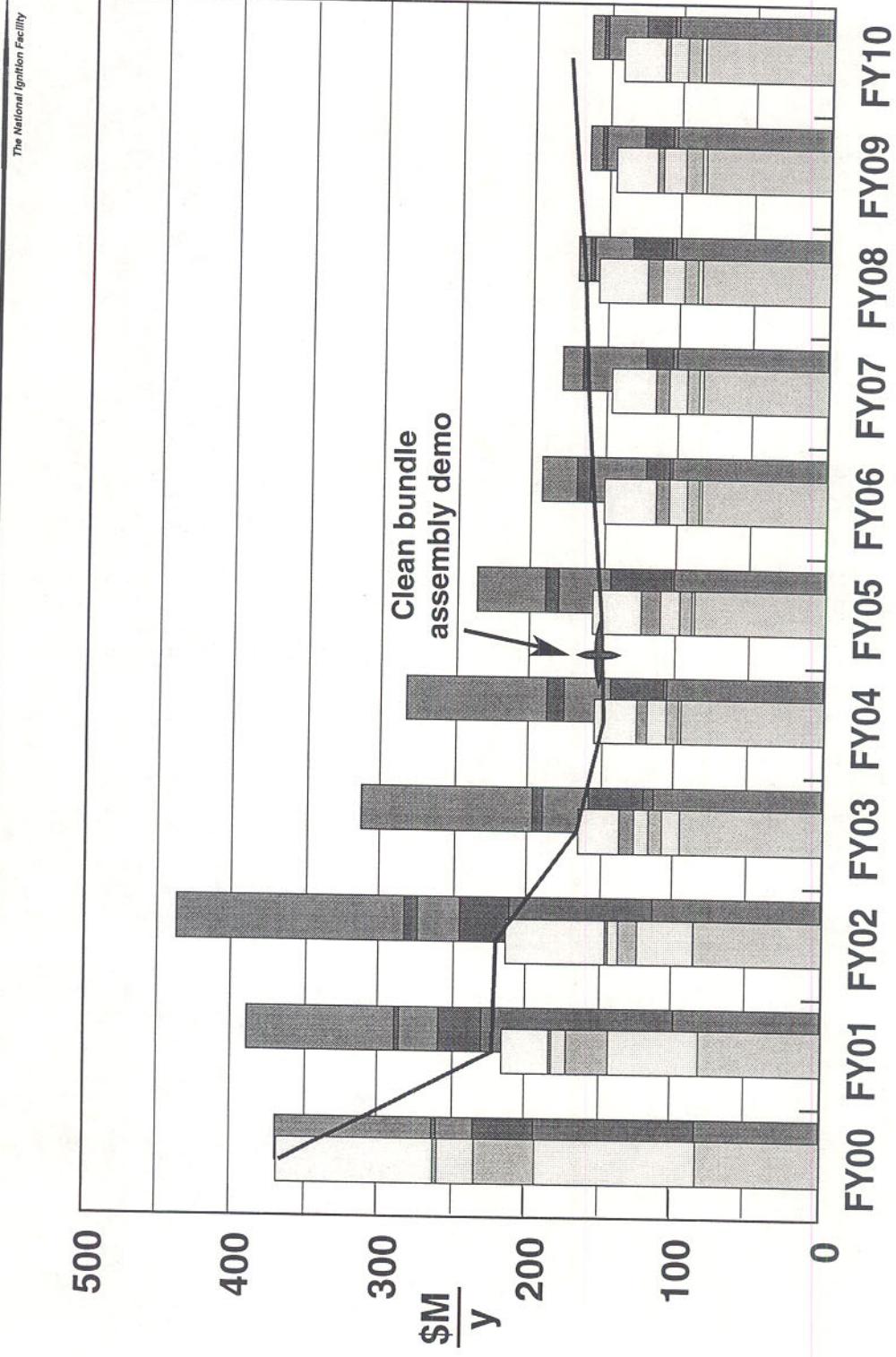
Summary of Options

NIF

The National Ignition Facility

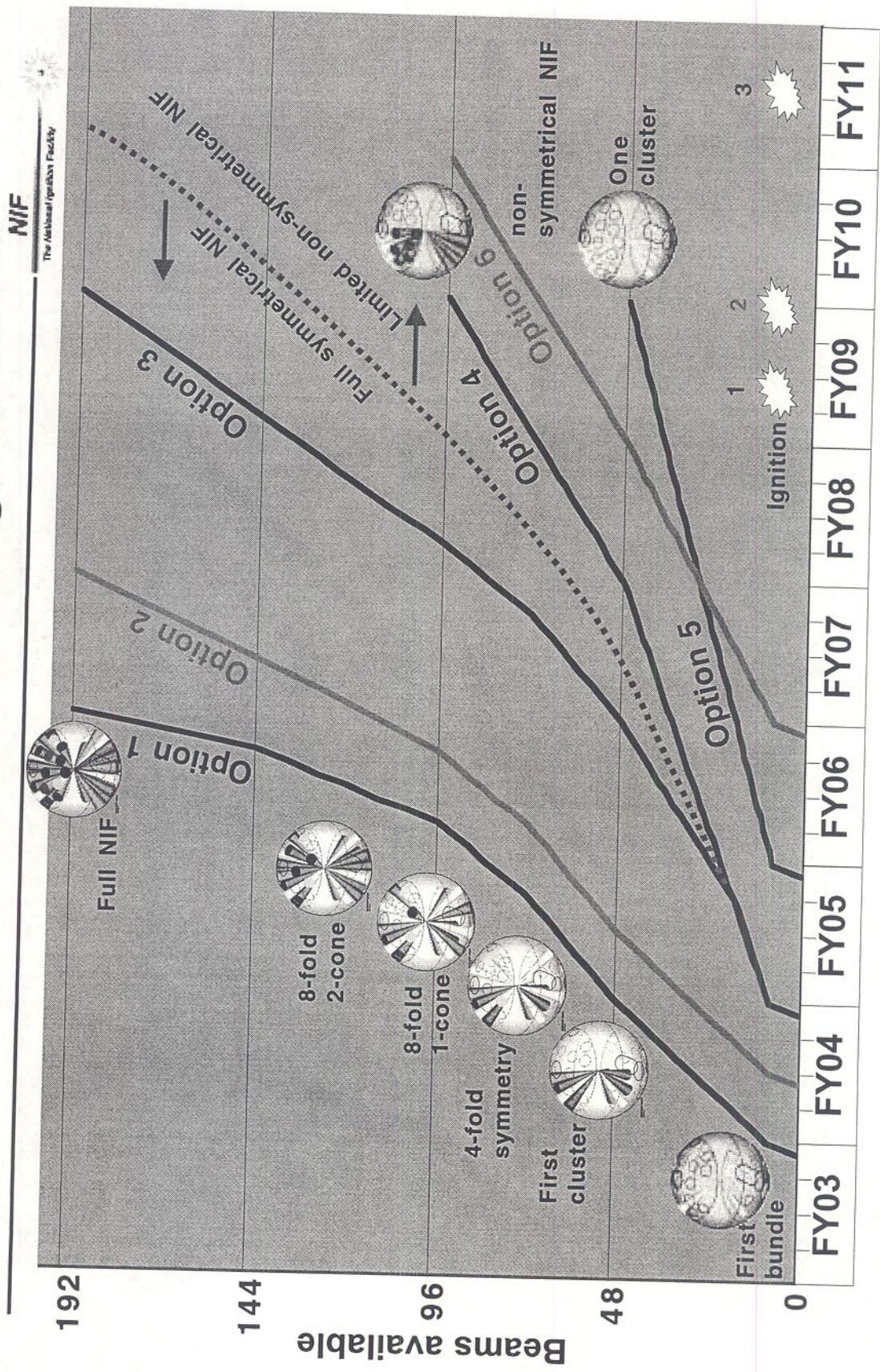
- Full-symmetrical NIF Options 1, 2, and 3 enable full SSP campaign support and allow balancing of Program need/budget pressures as appropriate to DOE needs
- Nonsymmetrical NIF Options 4, 5, and 6 support a limited number of SSP campaign needs with significant schedule delays at nearly the same cost

Option 7 — No budget increase (TPC = \$1.198B) NIF



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MLS/mis

Deployment consistent with six budget scenarios



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16ML_S



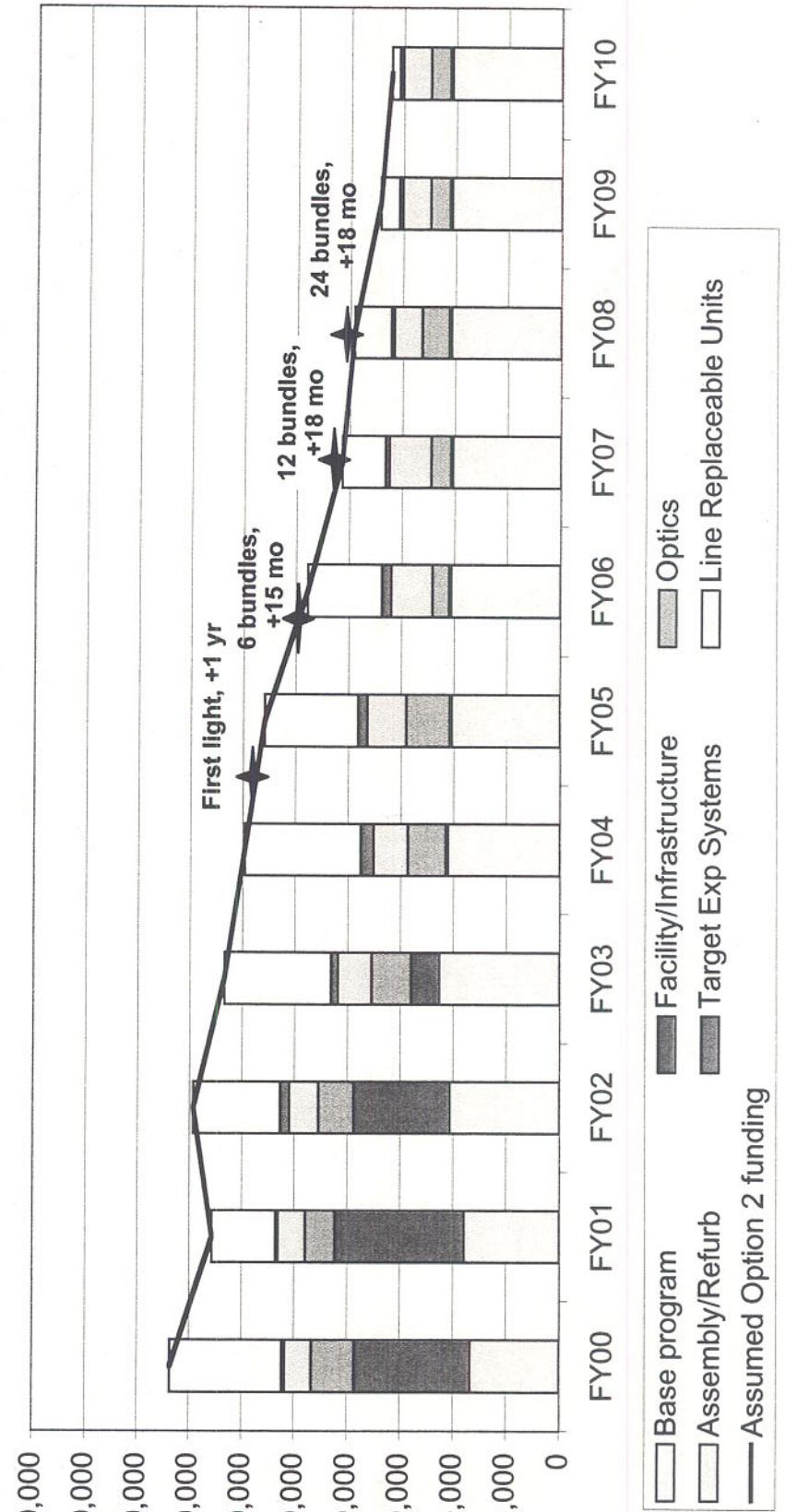
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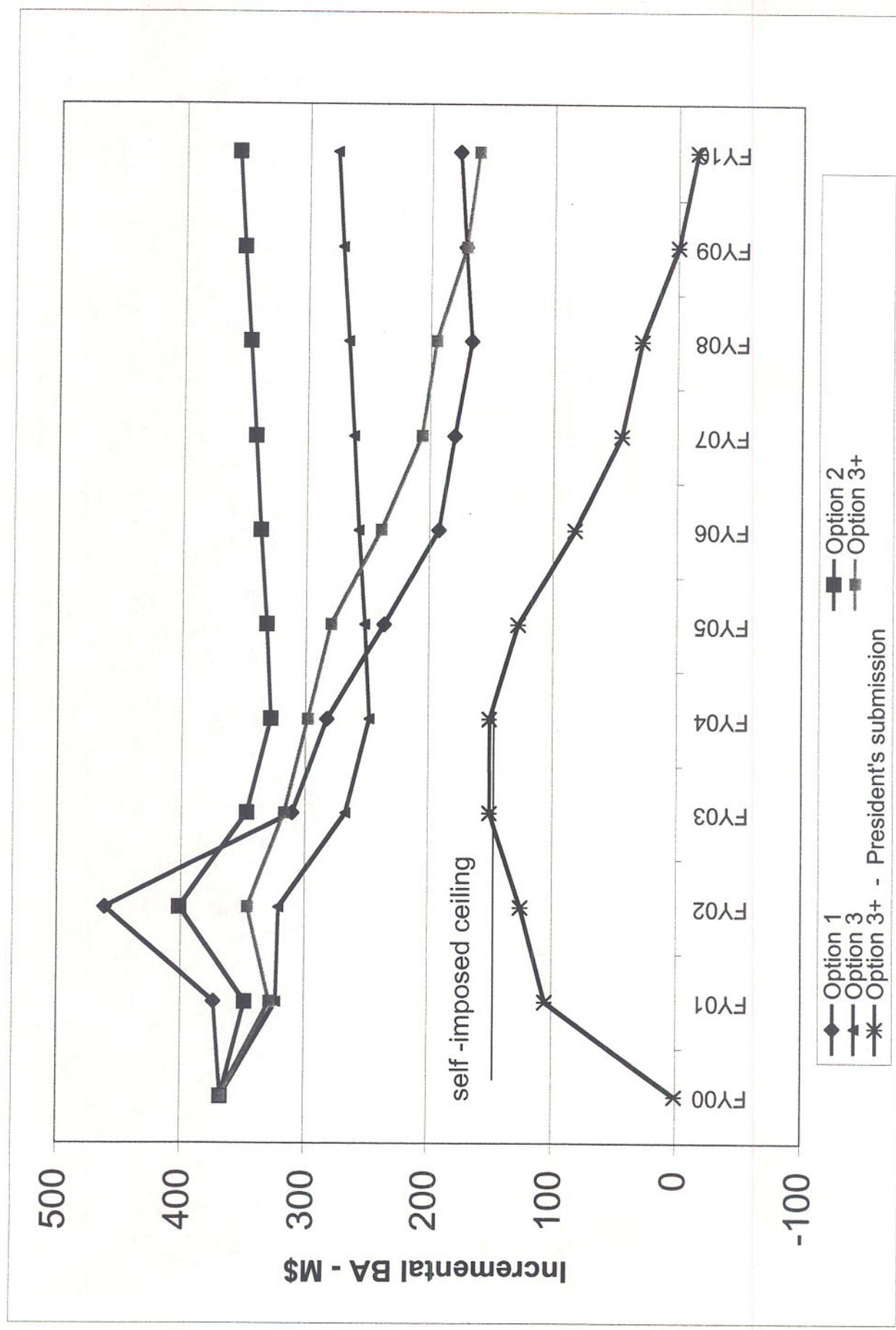
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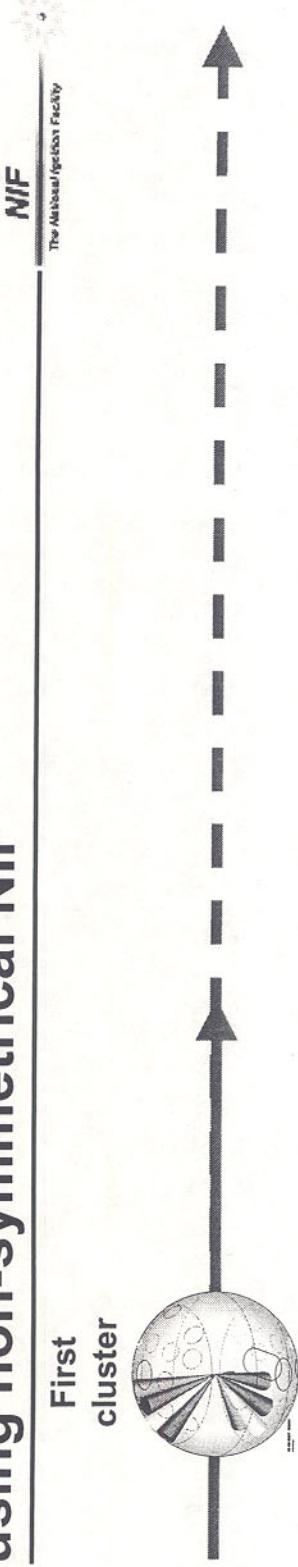
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Option 3A
+100M\$ in FY01, <150M\$ in all outyears, TPC \$2B





Campaign 10, ignition physics, using non-symmetrical NIF



Energetics & LPI
Optimize beam smoothing

Symmetry

Capsule Physics
Shock timing diagnostic
techniques

Ignition Capsules
Target design and fabrication

Direct Drive
2D beam smoothing prototype tests
40-00-1299-2804B
11BJM/mcm

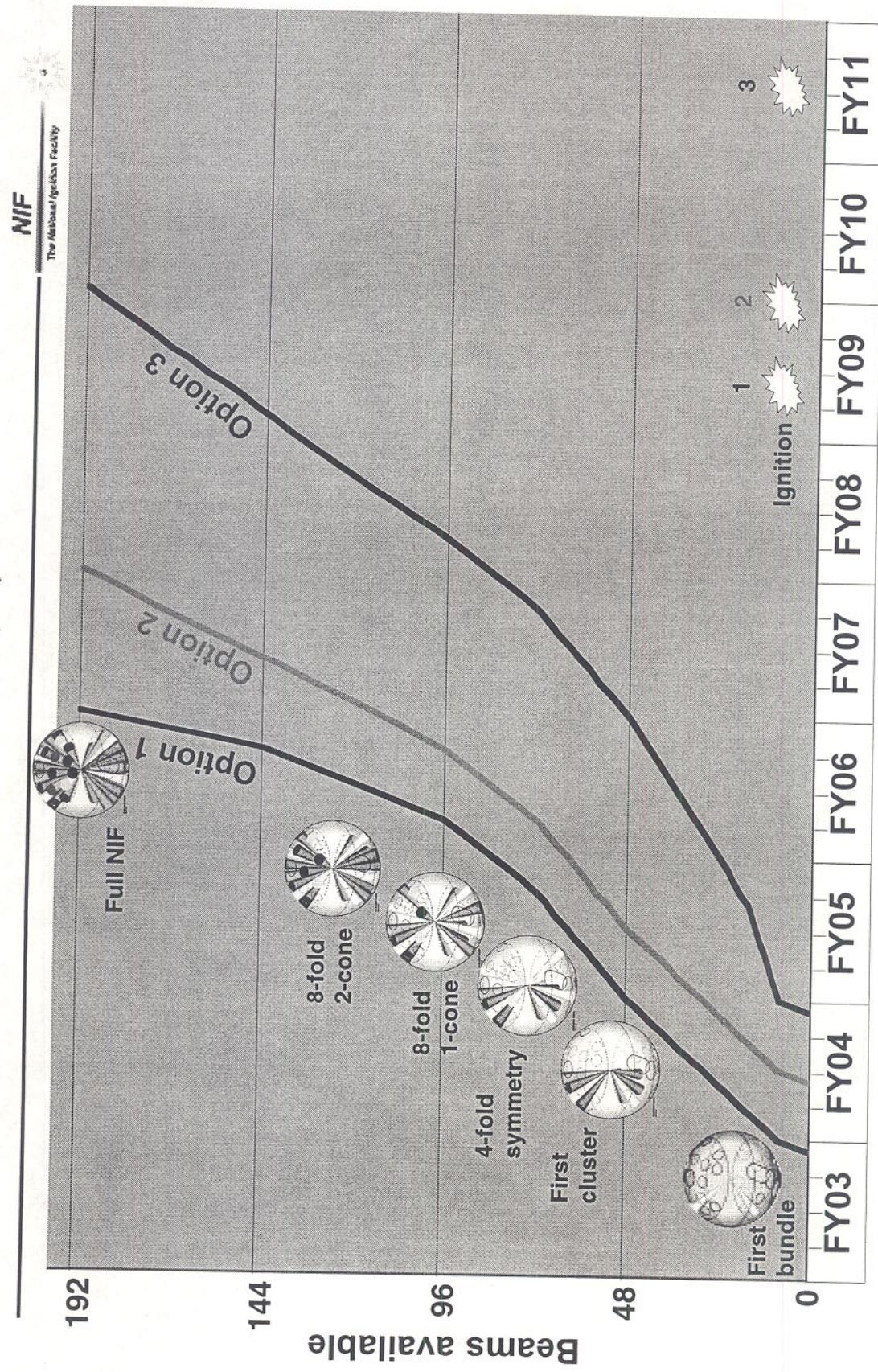
Summary of Options

NIF

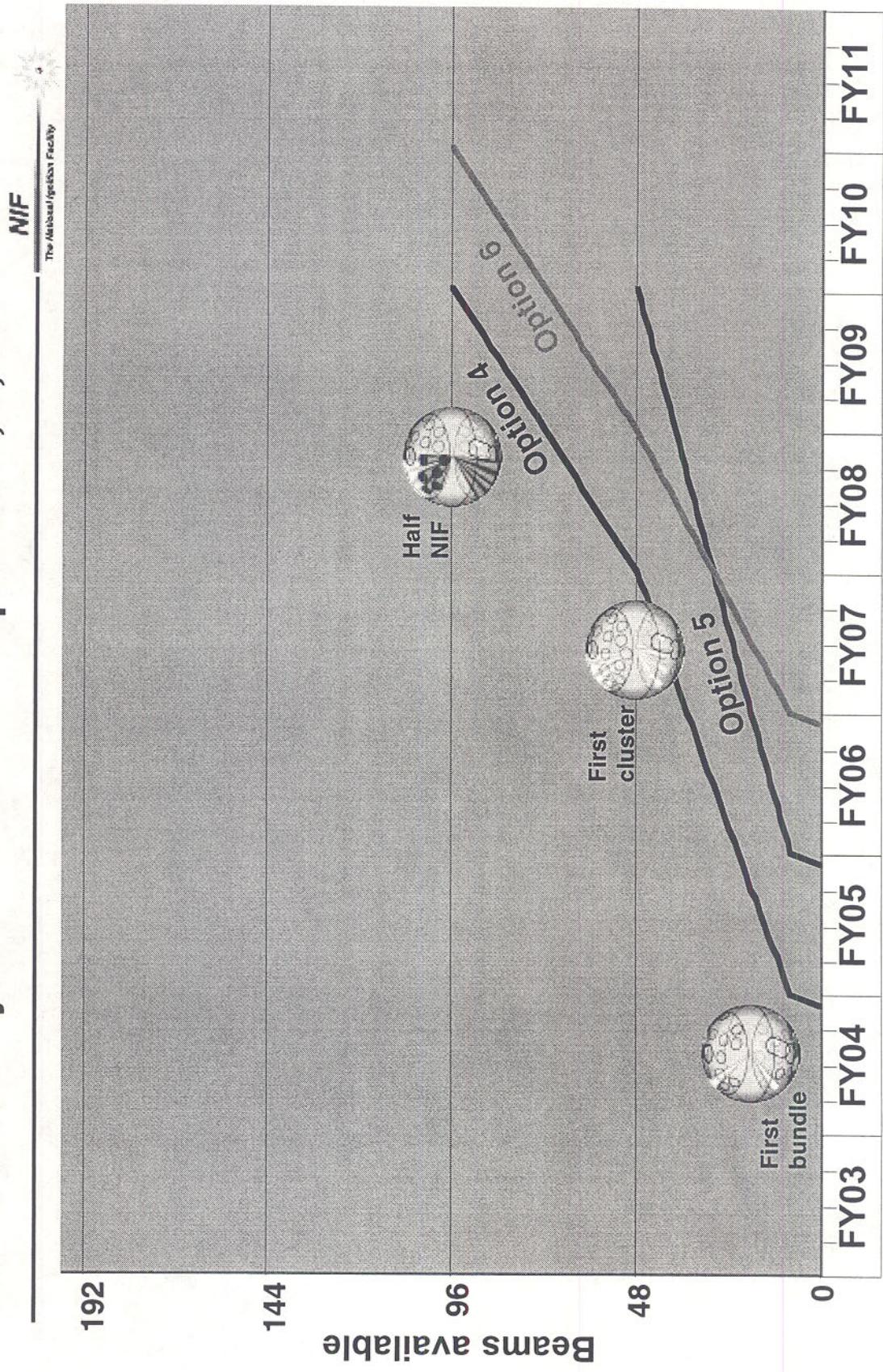
The National Ignition Facility

- Full symmetrical NIF Options 1, 2 and 3 enable full SSP campaign support and allow balancing of Program need/budget pressures as appropriate to DOE needs. For Options 1, 2 and 3:
 - TPC increases from \$1.95B to \$2.150B
 - Full facility availability moves from FY06 — FY09
 - Staff reductions can be handled by LLNL
- Non-symmetrical NIF Options 4, 5 and 6 support a limited number of SSP campaign needs with significant schedule delays at nearly the same cost

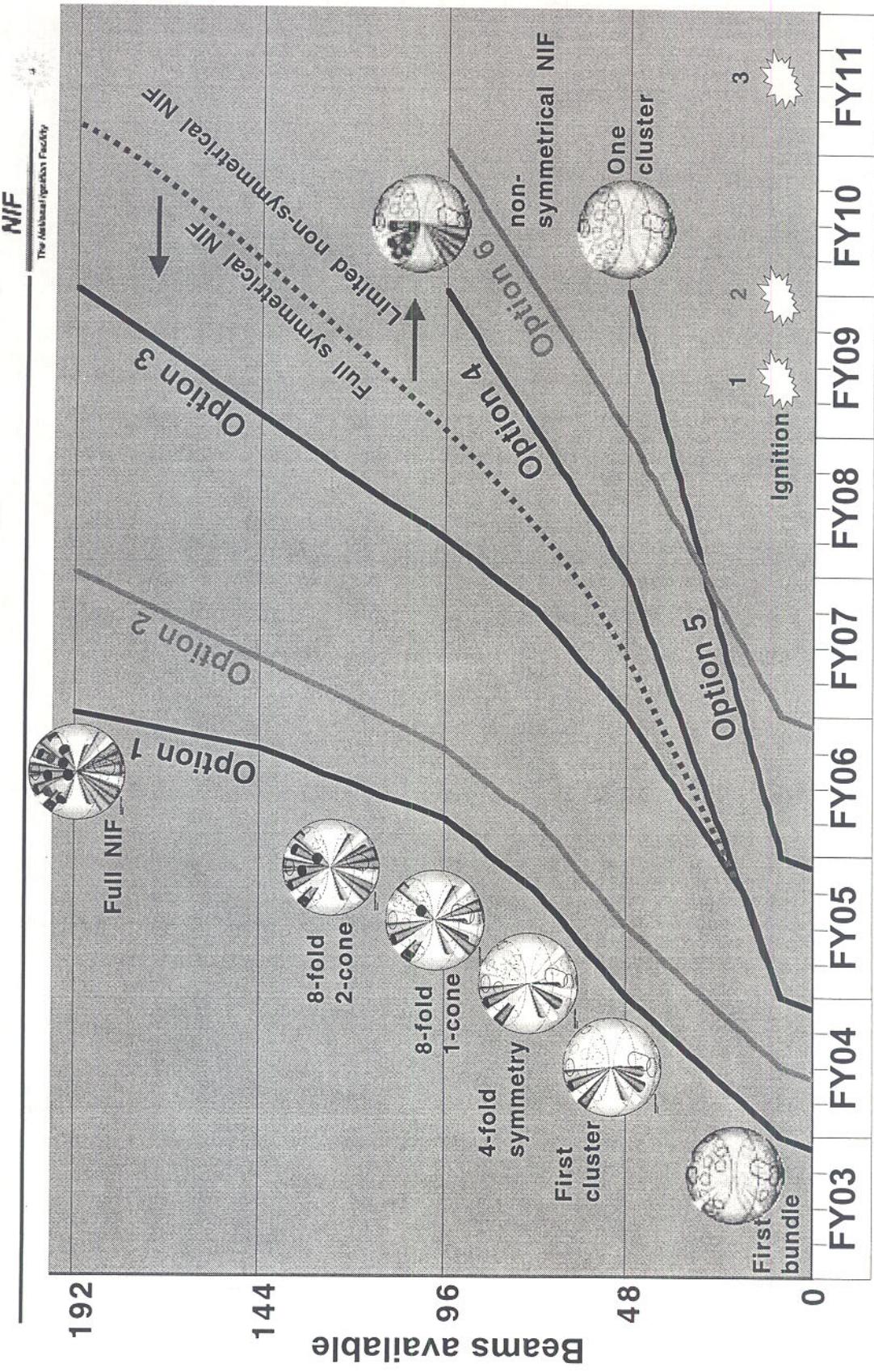
Full symmetrical NIF: Options 1, 2, 3



Limited non-symmetrical NIF: Options 4, 5, 6



Deployment consistent with six budget scenarios

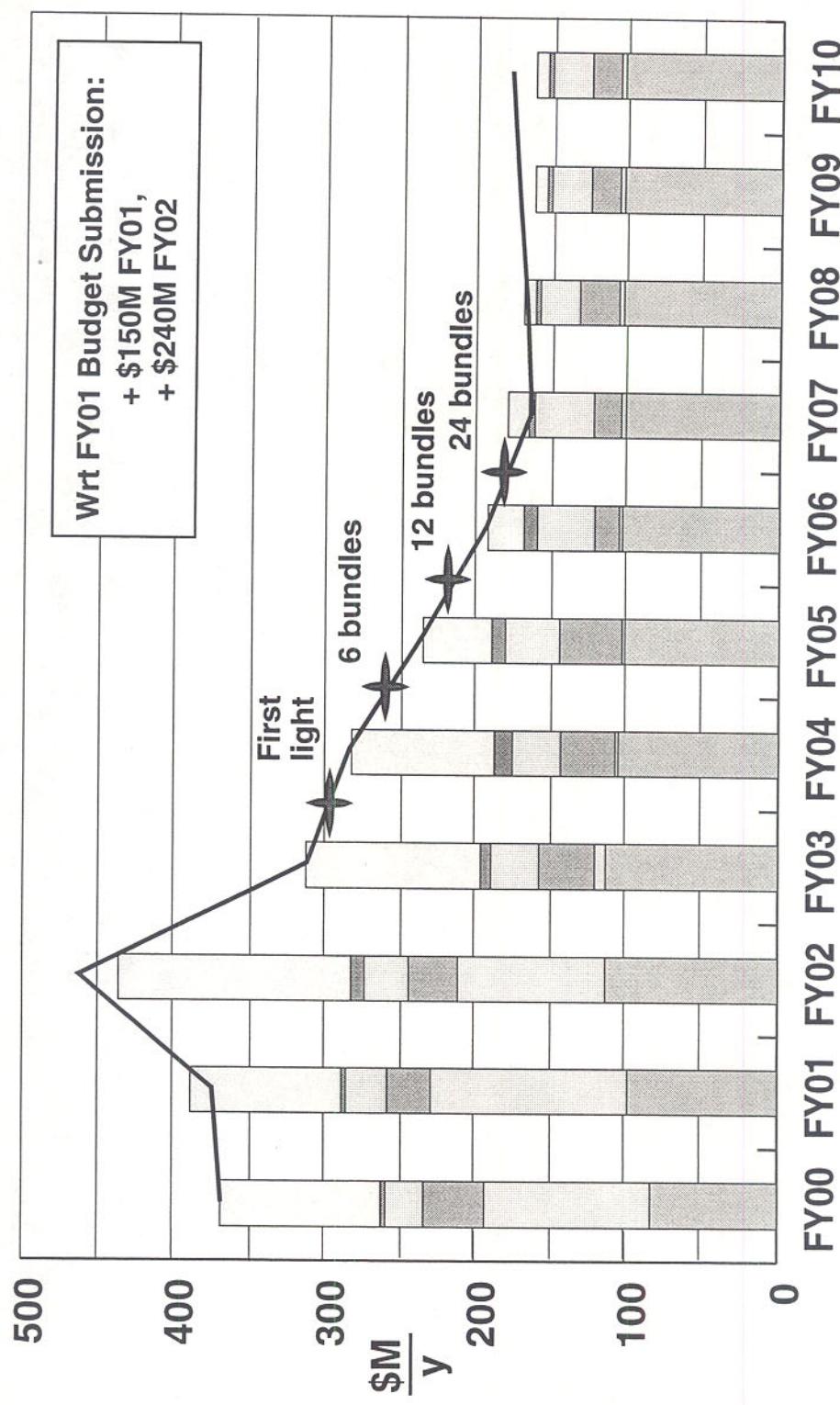


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16MLS

Full symmetrical NIF: Option 1 (TPC = \$1.95B)

NIF

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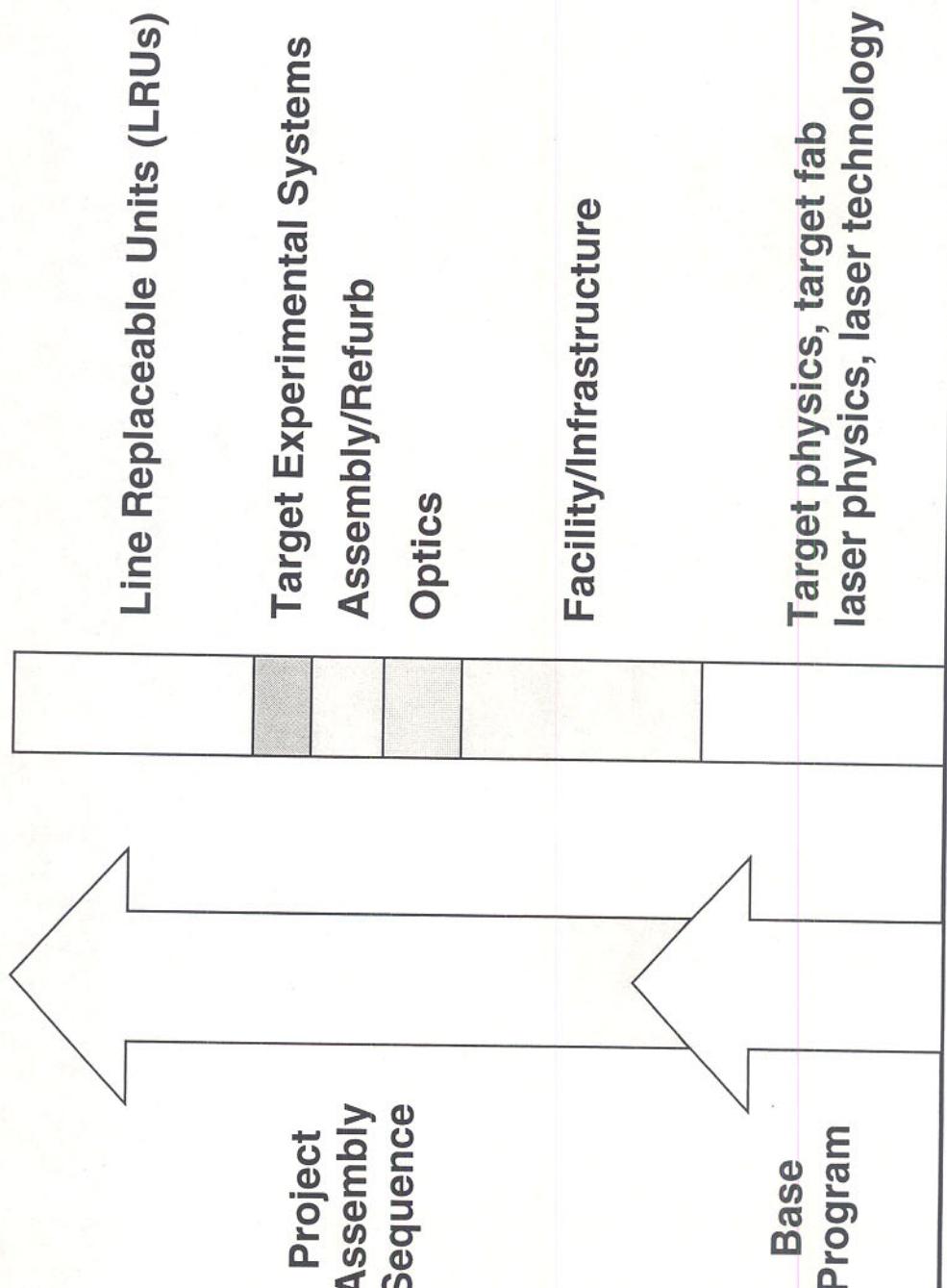


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MLS 4 DC

Cost centers for NIF

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MLS/mls

Option 1 has been planned in great detail



- Detailed PRIMAVERA schedule
 - > 24,000 individual activities
 - > 6,000 identified milestones
- Detailed costs
 - > 25,000 individual tasks
- All costs included
 - NIF Project
 - NIF support program (RTBF)
 - ICF Target Physics & Diagnostic Program

Contingency analysis

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- Original NIF project had 12.4% contingency on the TPC (\$132 M)
- Current projected costs include:
 - An increase in the base program cost of \$535M
 - Go-forward contingency of \$215M (~22% on the TPC)
 - Risk mitigation activities of \$150M, to be supported by NIF Support Program funding
- Risk is allocated appropriately to 4 elements of the Project
 - Facilities
 - Beampath Infrastructure System
 - Optics
 - Line Replaceable Units

Impacts of the Option 1 funding profile

NIF

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Option 1 has a budget profile that gets NIF back on track as quickly as possible

Impact on Stockpile Stewardship	Campaign milestones are slipped 18 months to 2 years compared to their originally planned schedule
Impact on the LLNL Institution	Provides a full-scope NIF consistent with the Lab's responsibility for Stockpile Stewardship
Impact on the long-term NIF Project	None
Impact on NIF staffing	Provides for a healthy staff

**All other options have been planned by adjusting
high level summary data bases of manpower and
procurements to match cost and schedule**

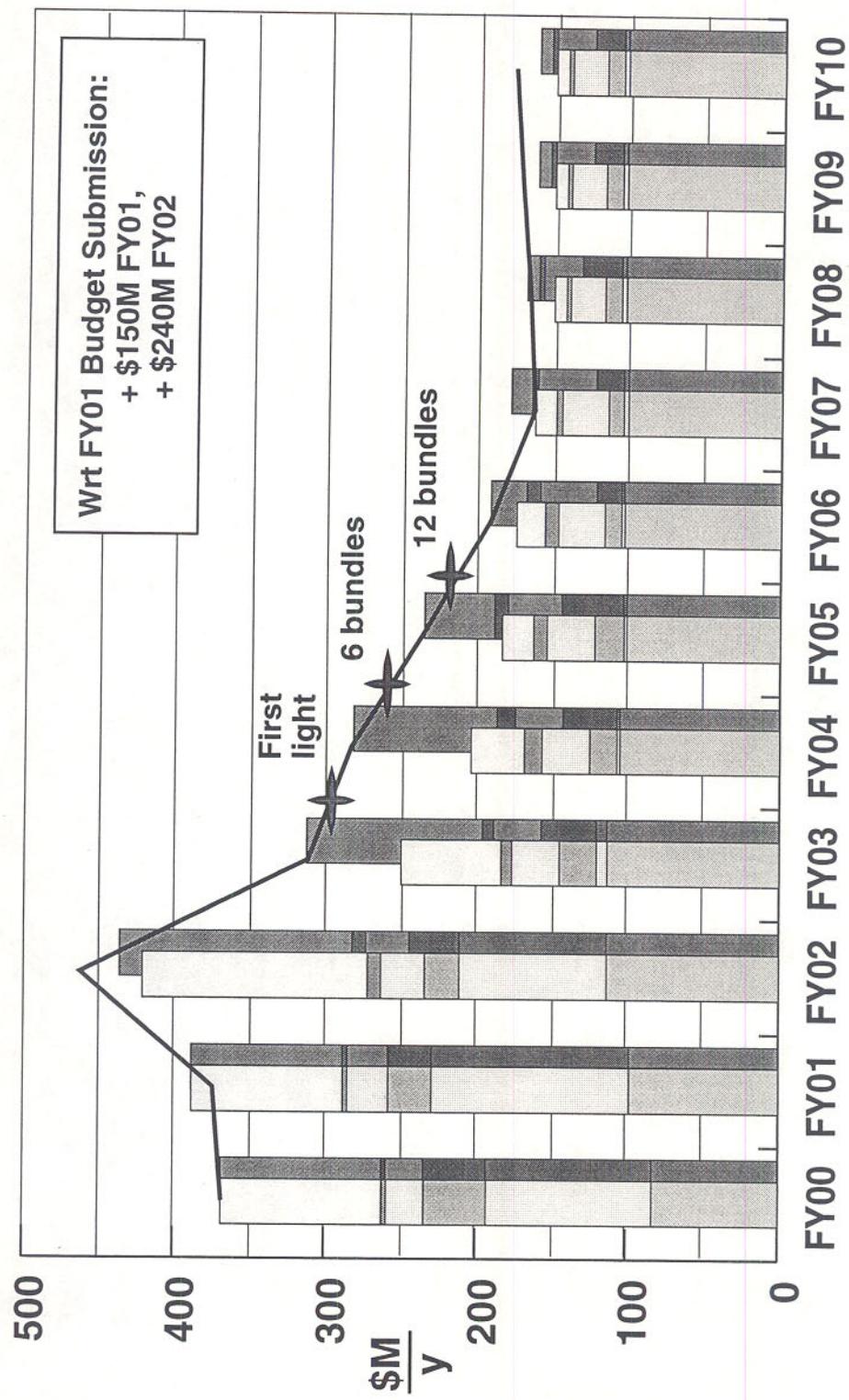
NIF

- The National Ignition Facility
- Base Program
 - Program office includes facility maintenance and operation
 - System engineering includes laser system expertise
 - Production Management
 - ICF Target Physics & Diagnostics
 - Facility/Infrastructure
 - Contract for Beampath Infrastructure procurement
 - Optics purchase from vendors
 - Assembly & refurbishment of optics
 - Line replaceable units
 - Design
 - Procurement

Costs associated with Options 2 - 6 are less certain

Option 1, 96 beams (TPC = \$1.65B)

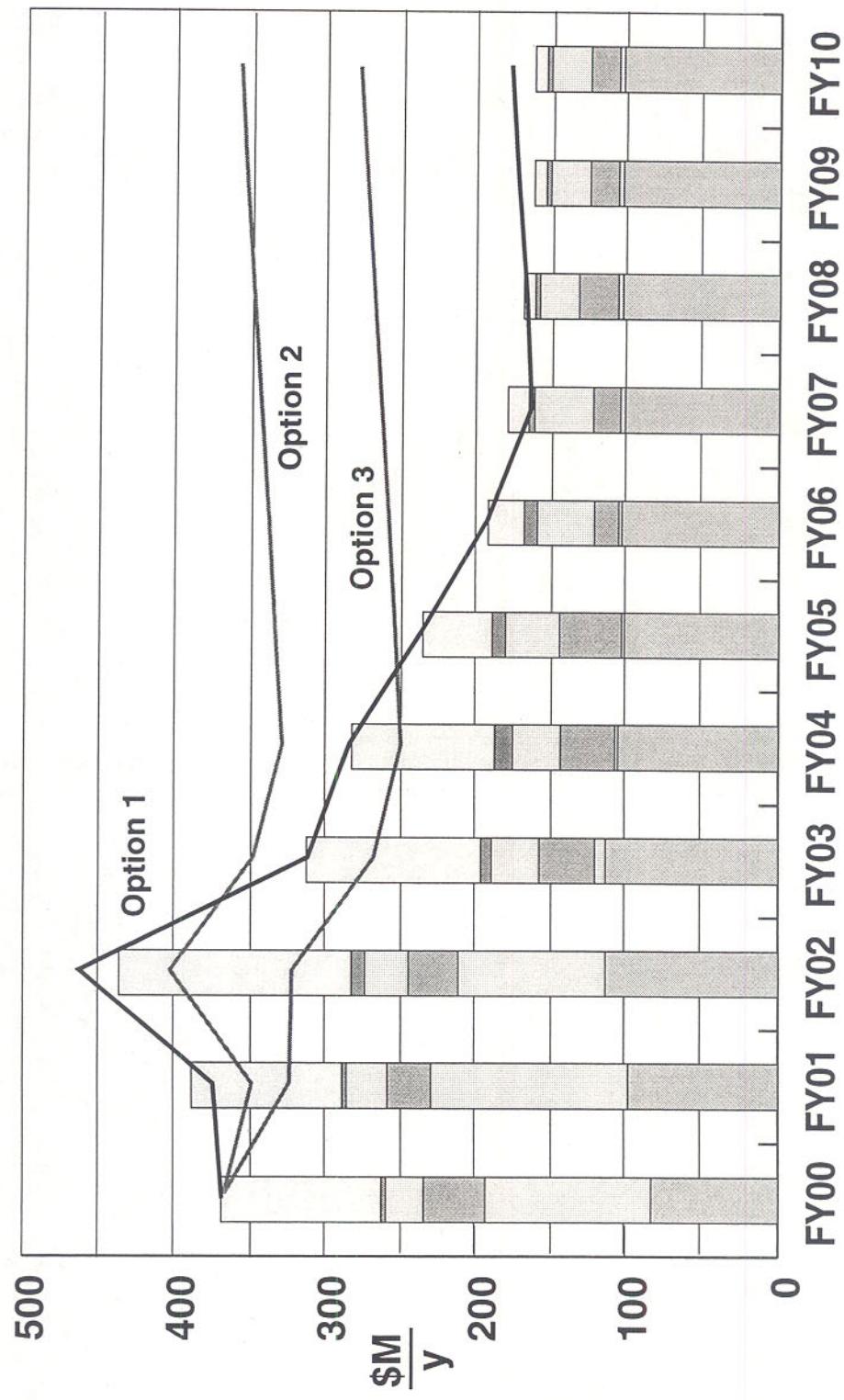
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Option 1 plan vs full symmetrical NIF funding options

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MLS 4 DC

Planning for Options 2 and 3

NIF

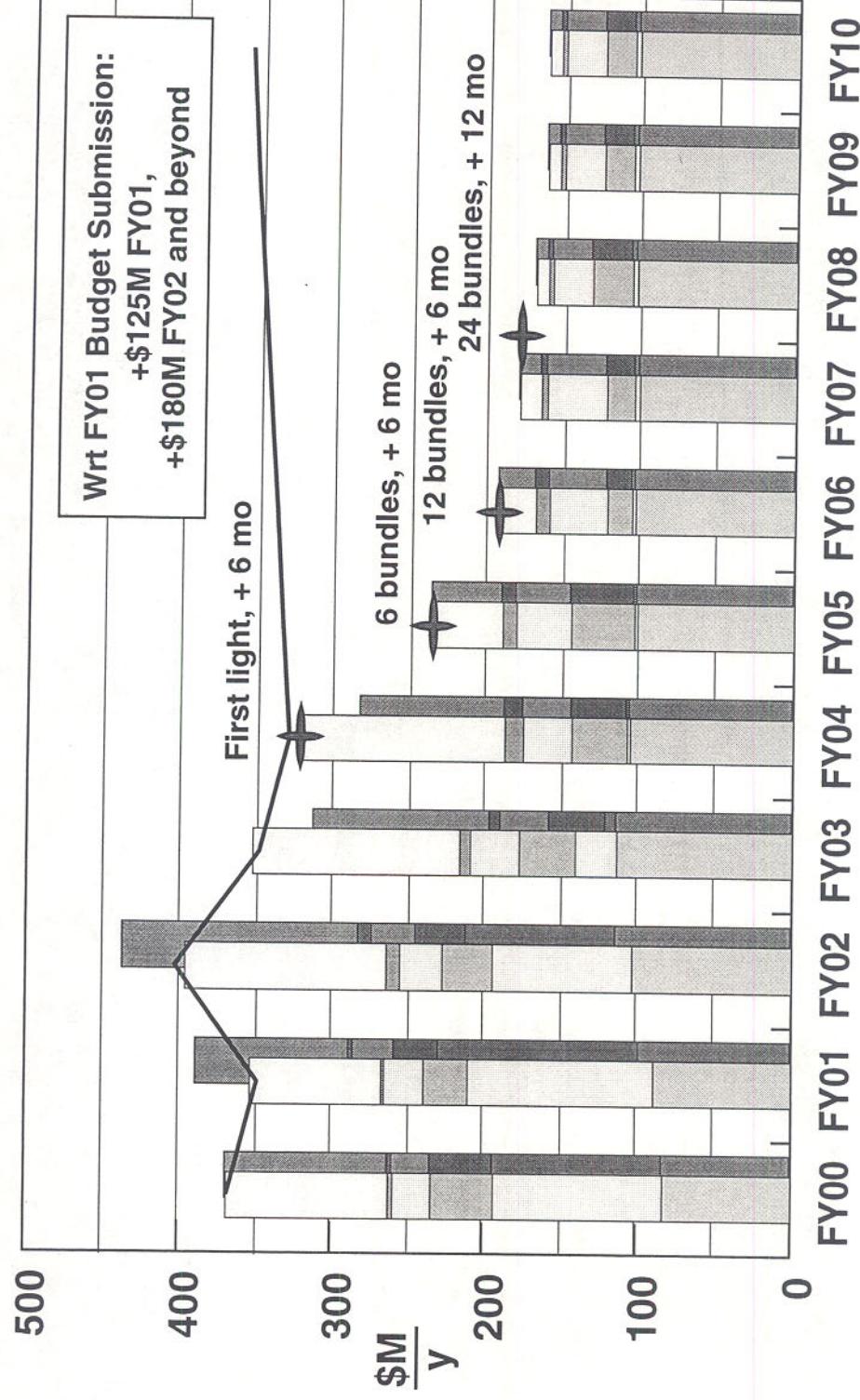
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- Loss of funds in FY01 and FY02 defers scope and slips schedule
- The entire infrastructure is completed, thus enabling symmetric illumination
- Loss of manpower from NIF due to reduced funding in FY01 would not require layoffs at LLNL

Full symmetrical NIF: Option 2 (TPC = \$2.00B)

NIF

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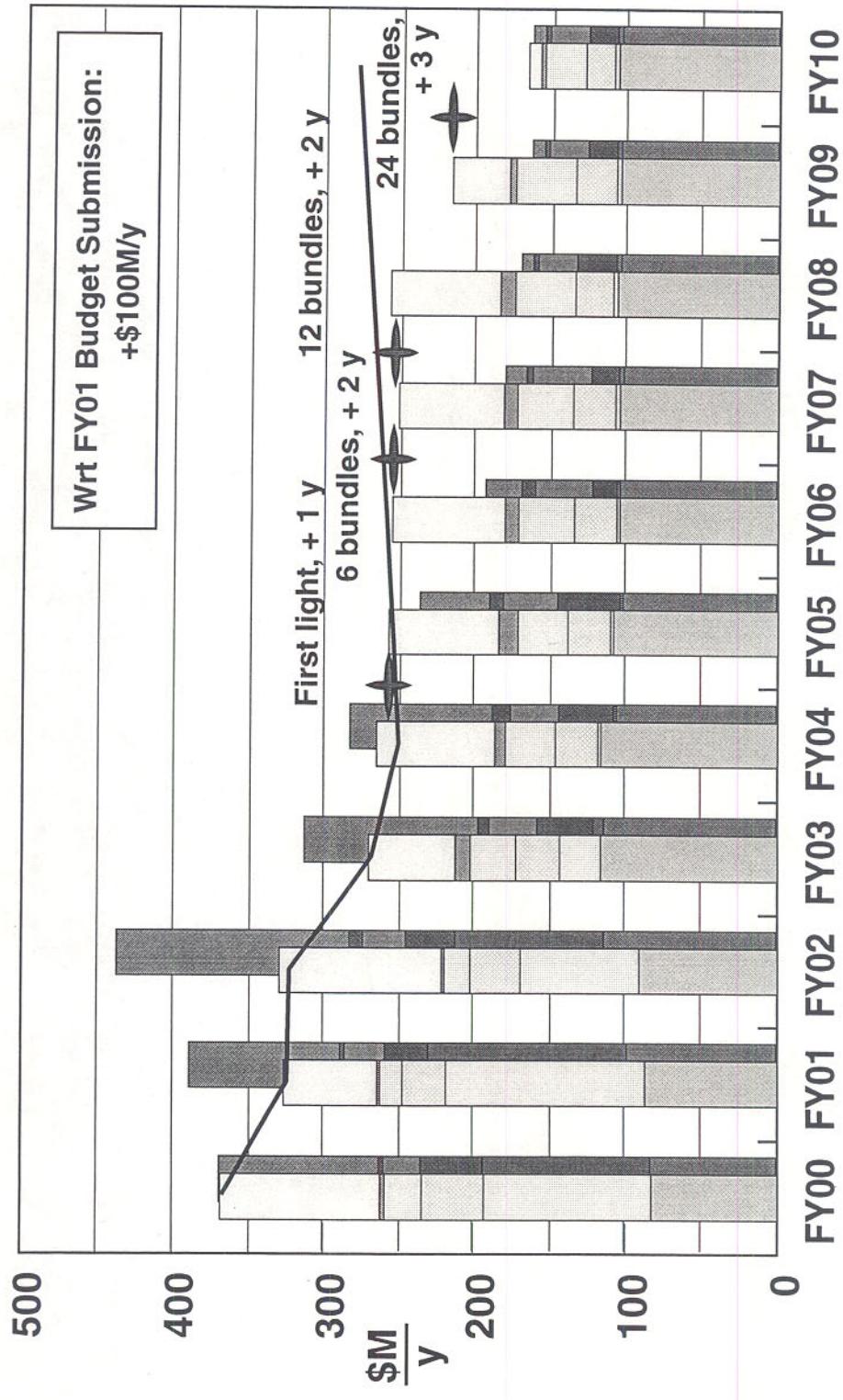


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MLS 4 DC

Full symmetrical NIF: Option 3 (TPC = \$2.15B)

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MLS 4 DC

Impacts of the Option 3 funding profile

NIF

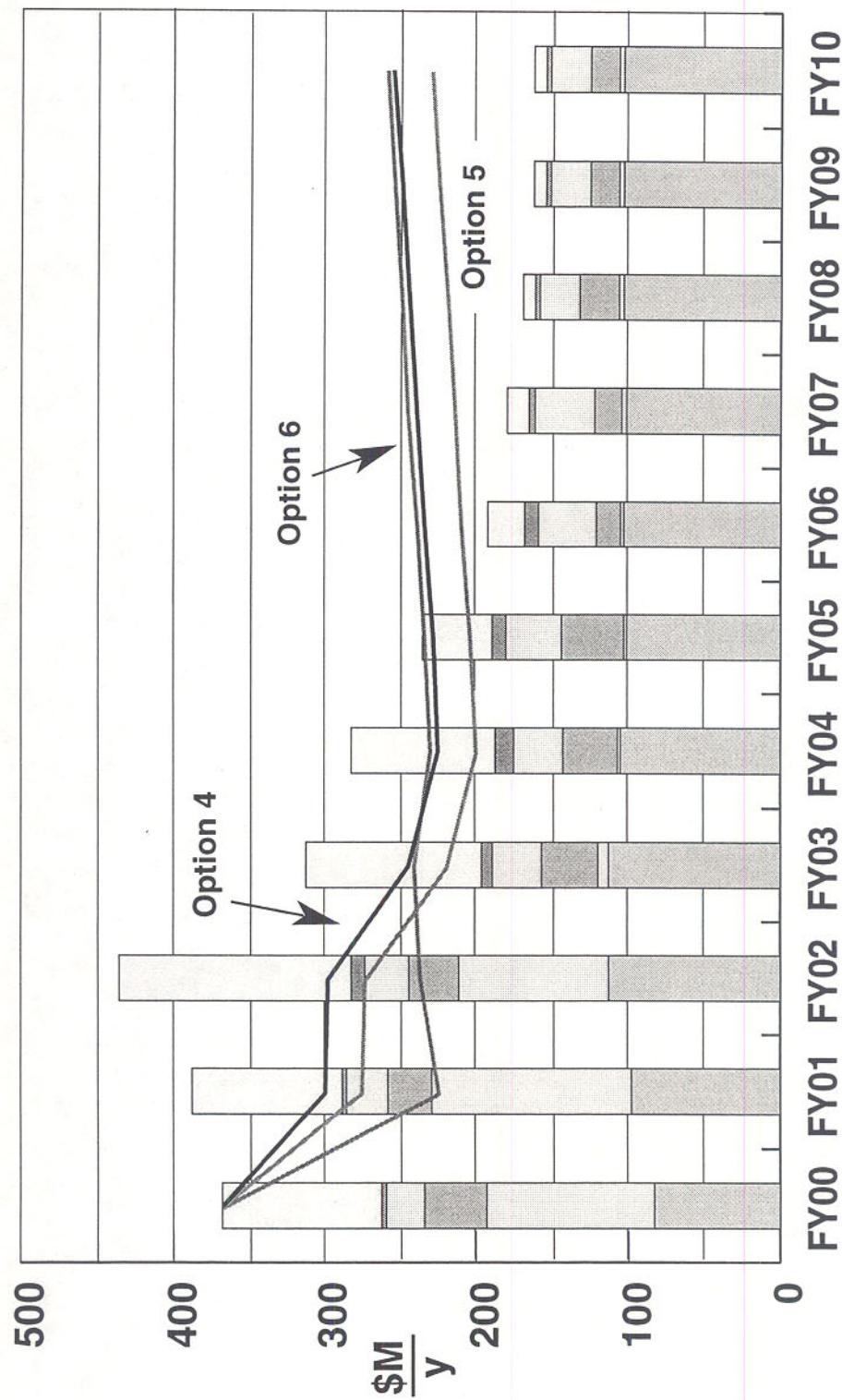
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Option 3 has a budget profile that just maintains the full symmetrical NIF option	
Impact on Stockpile Stewardship	Campaign milestones are slipped as much as three years
Impact on the LLNL Institution	Provides a full-scope NIF consistent with the Lab's responsibility for Stockpile Stewardship
Impact on the long-term NIF Project	None
Impact on NIF staffing	15% reduction (150 FTE) in staff managed within LLNL

Limited non-symmetrical NIF funding options

NIF

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Planning for Options 4, 5 and 6

NIF

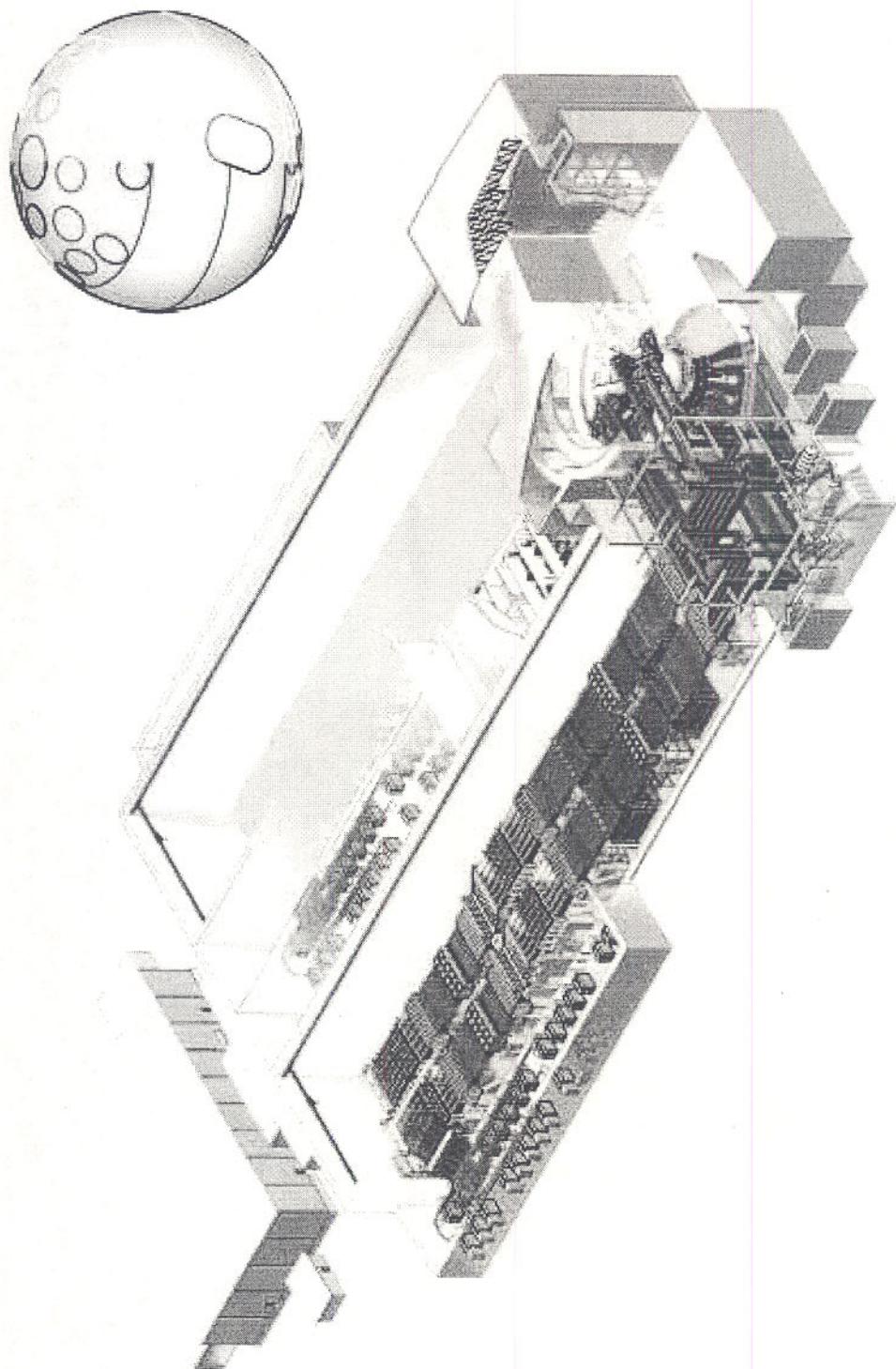
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- Yearly funding profile limits NIF to one Laser Bay and precludes symmetrical illumination at this time
- Availability of single cluster illumination is delayed by greater than 3 years
- Loss of staff because of reduced funding would result in layoffs at LLNL

Limited Non-symmetrical NIF Beampath Infrastructure System (BIS)



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88EMcld

3/14/00
cld

Projected total estimate reduction for partial build-out of Infrastructure

NIF

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Description	Estimated Total	Projected Reduction (\$K)
Installation/Assembly	151,850	47,950
Field Pool	16,296	4,700
Engineering/Construction Management	60,000	10,000
Total	228,146	62,650

Savings represent de-scoping of the Laser Bay 1
and Switchyard 1 Beampath and utility installation/assembly

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16MLSm/s

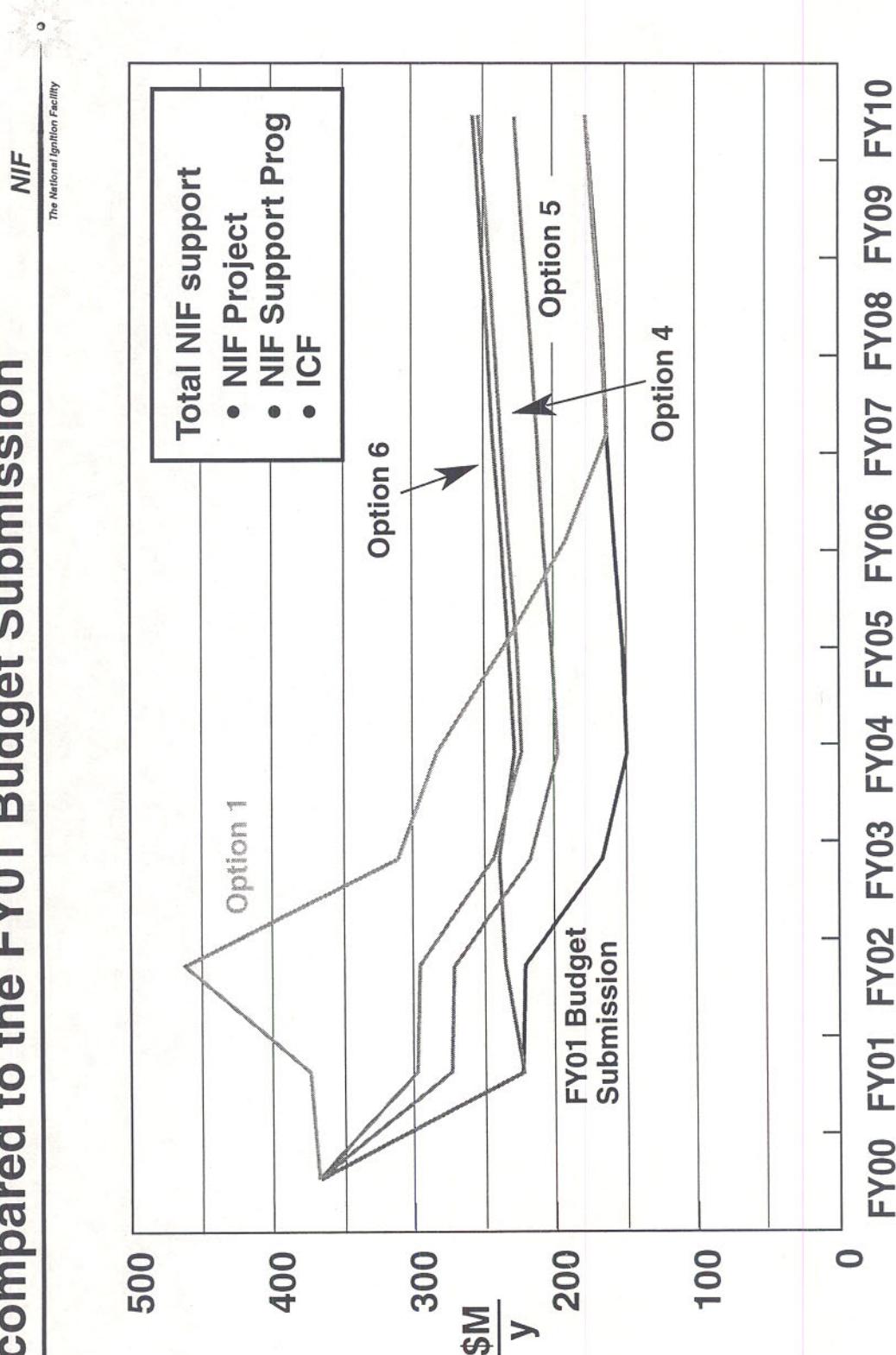
Partial build-out of Infrastructure would reduce current Installation/Assembly estimate

NIF

The National Ignition Facility

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Total	151,850	103,900	47,950

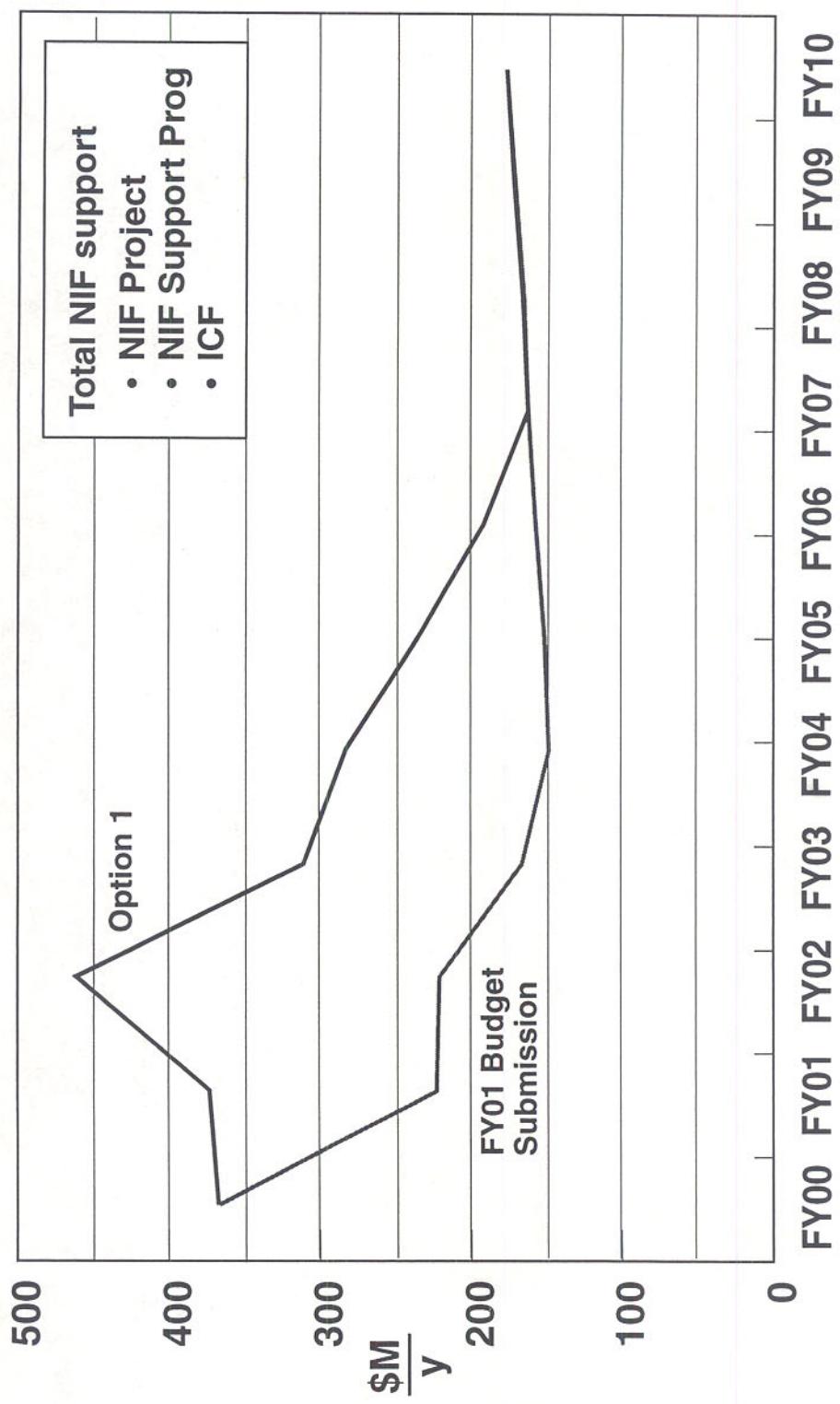
Limited non-symmetrical NIF funding options compared to the FY01 Budget Submission



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MLS 4 DC

Funding Option 1 compared to the FY01 Budget Submission

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40-00-0300-0884
MLSmis

Decomposition of indirect rate avoidance (FY00 – FY06)

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Category	Amount (M\$)
General and Administrative (G&A)	119
Organizational Personal Charge (OPC)	41
Program Management Charge (PMC)	18
Special Institutional Security Charge (SISC)	20
Institutional General Plant and Equipment (IGPE)	12
Total	209

This is revenue neutral to LLNL institution

Impact of not getting causal beneficial rates

NIF

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- Increase of approximately \$20M to \$40M per year in labor dollars
- Project milestones would slip
 - Reduced staff
 - Delayed procurements
- Net effect would be to push out Project completion date by about 2 years for each option

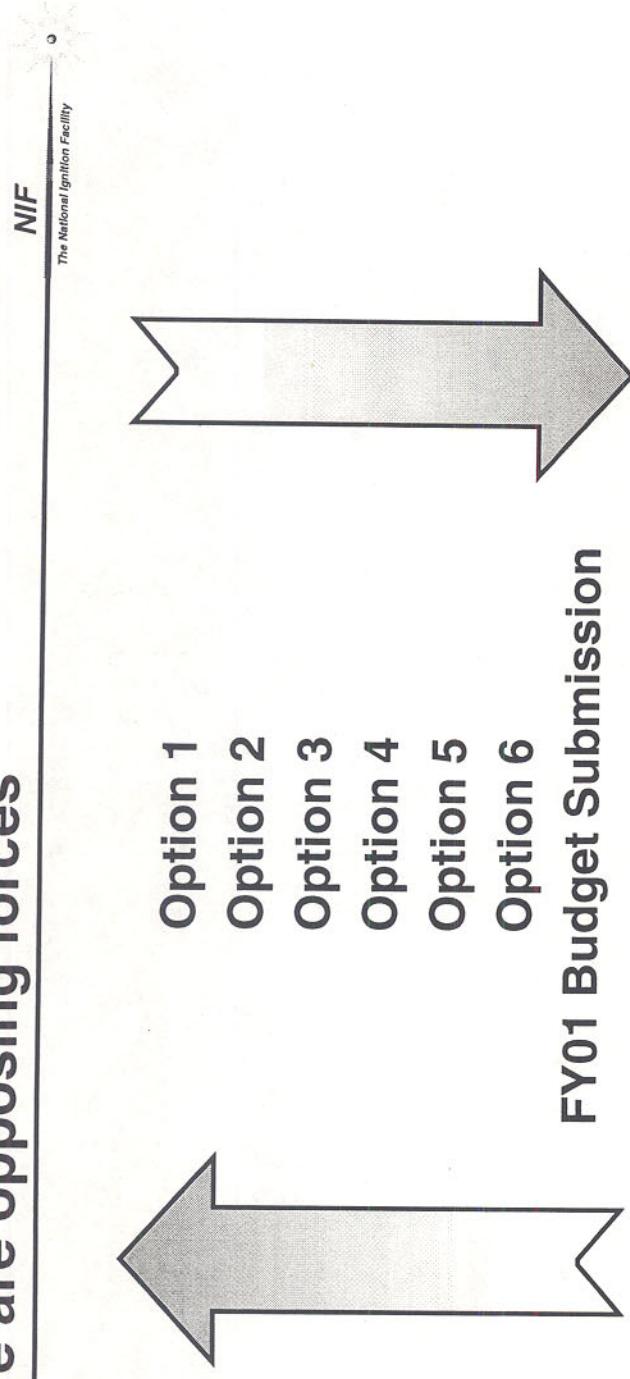
Impact of not getting causal beneficial rates

NIF

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- Increase of approximately \$20M to \$40M per year in labor dollars
- Project milestones would slip
 - Reduced staff
 - Delayed procurements
- Net effect would be approximately
 - Option 1 → Option 2
 - Option 2 → Option 3
 - Option 3 → Option 4

Program needs and budget pressure are opposing forces



FY01 Budget Submission

**More responsive
to program needs**

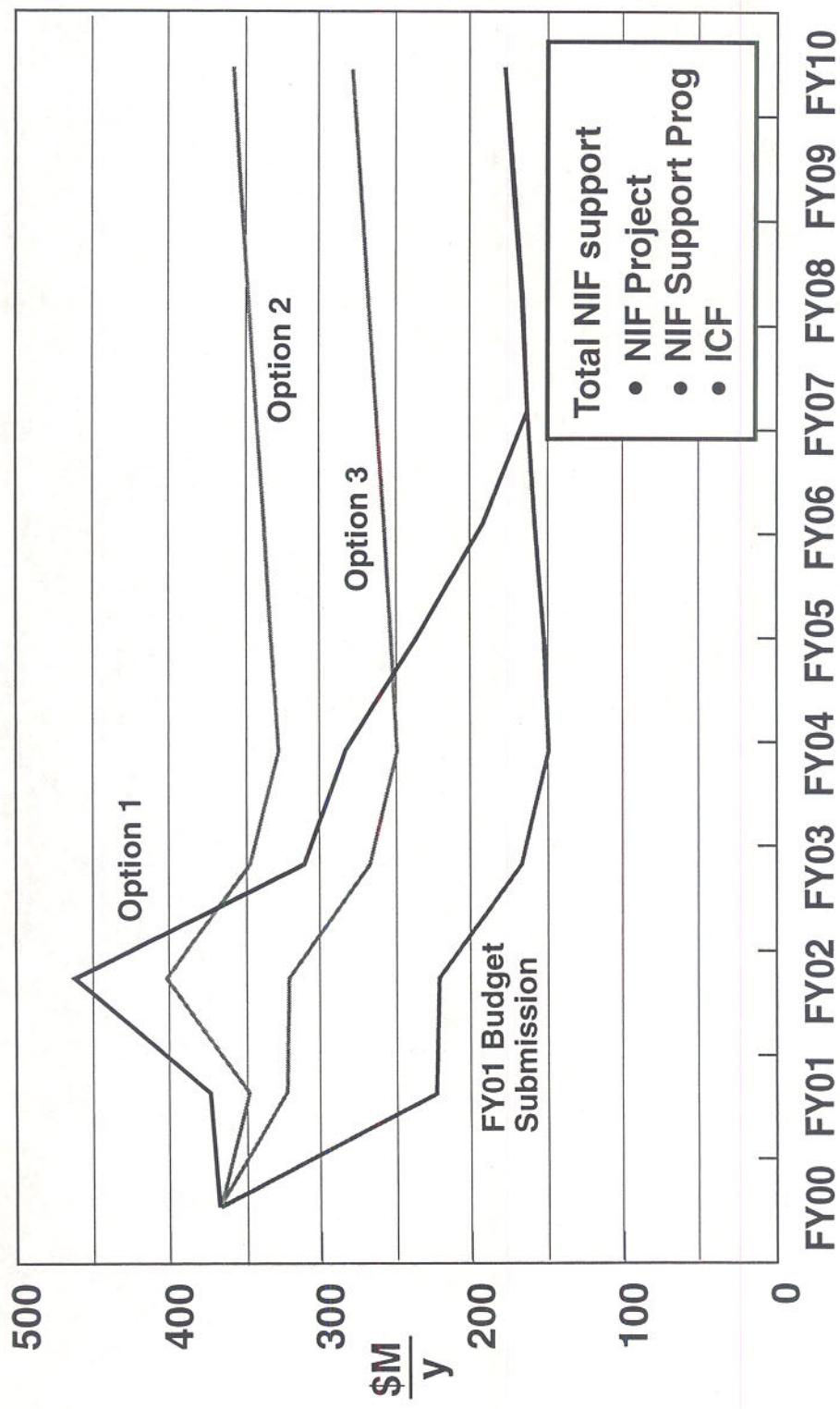
**More responsive
to funding pressures**

**Each of the options responds to a varying
degree to Program and Budget pressures**

Full symmetrical NIF funding options compared to the FY01 Budget Submission

NIF

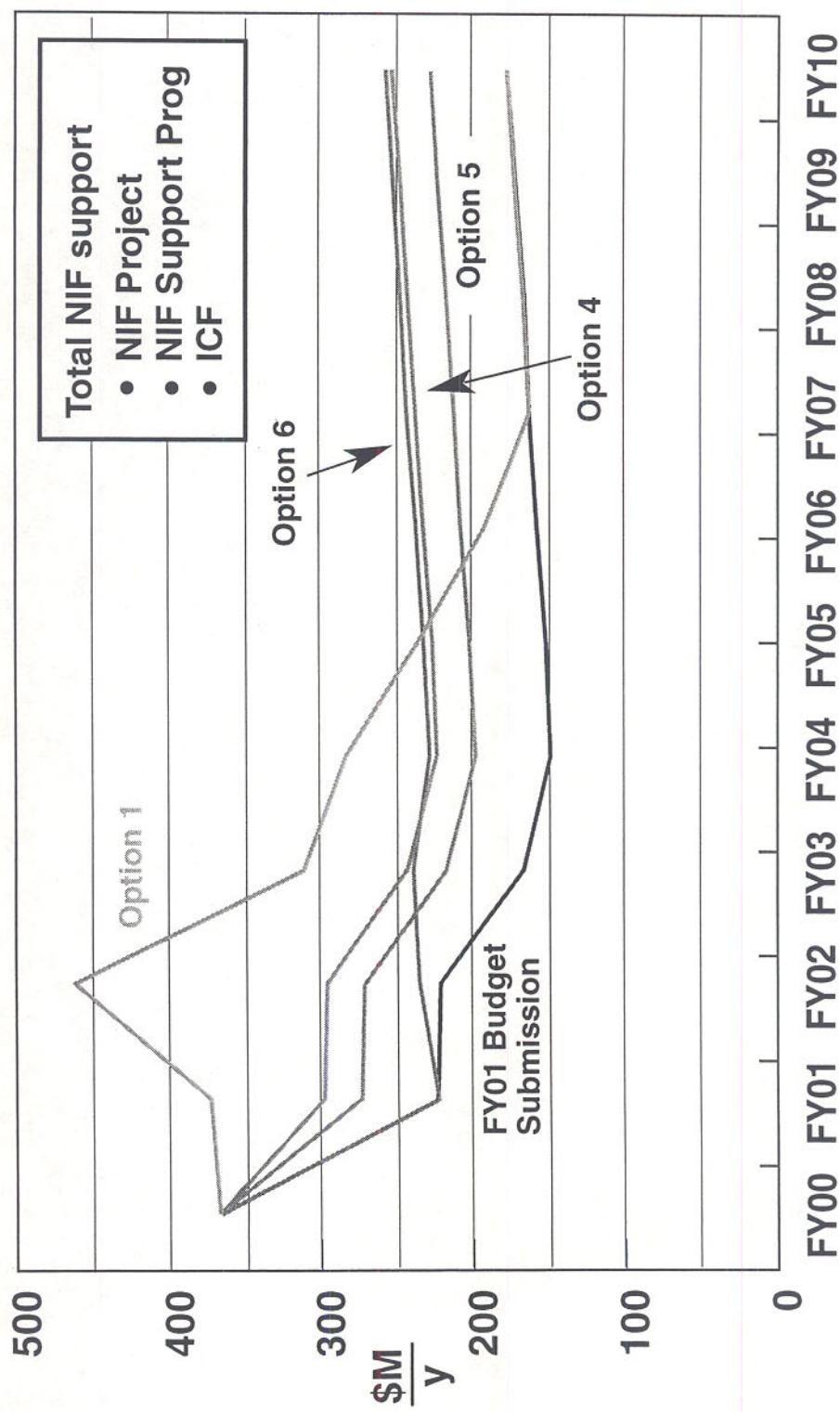
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Limited non-symmetrical NIF funding options compared to the FY01 Budget Submission

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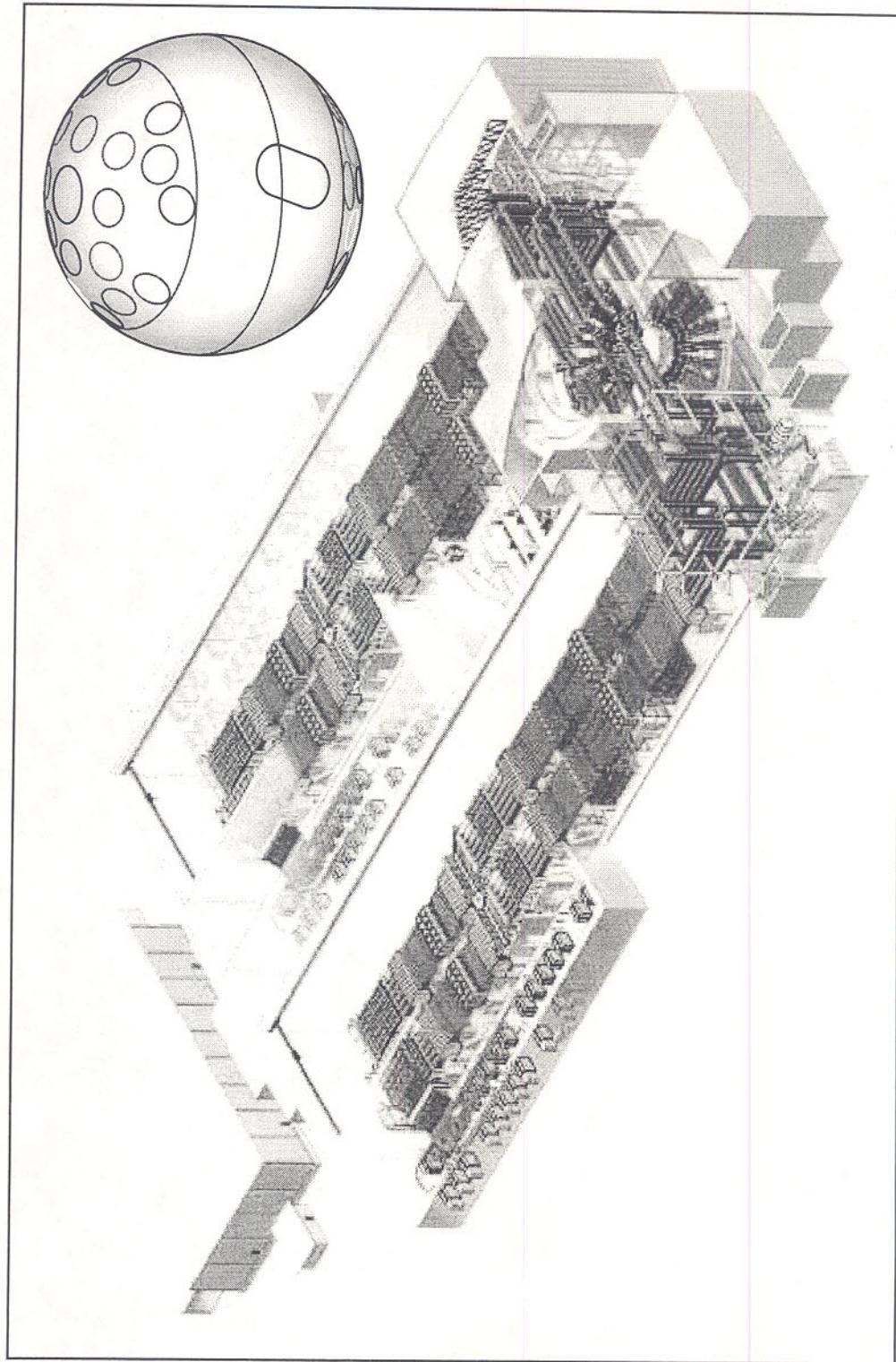


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NIF conventional facility and system infrastructure

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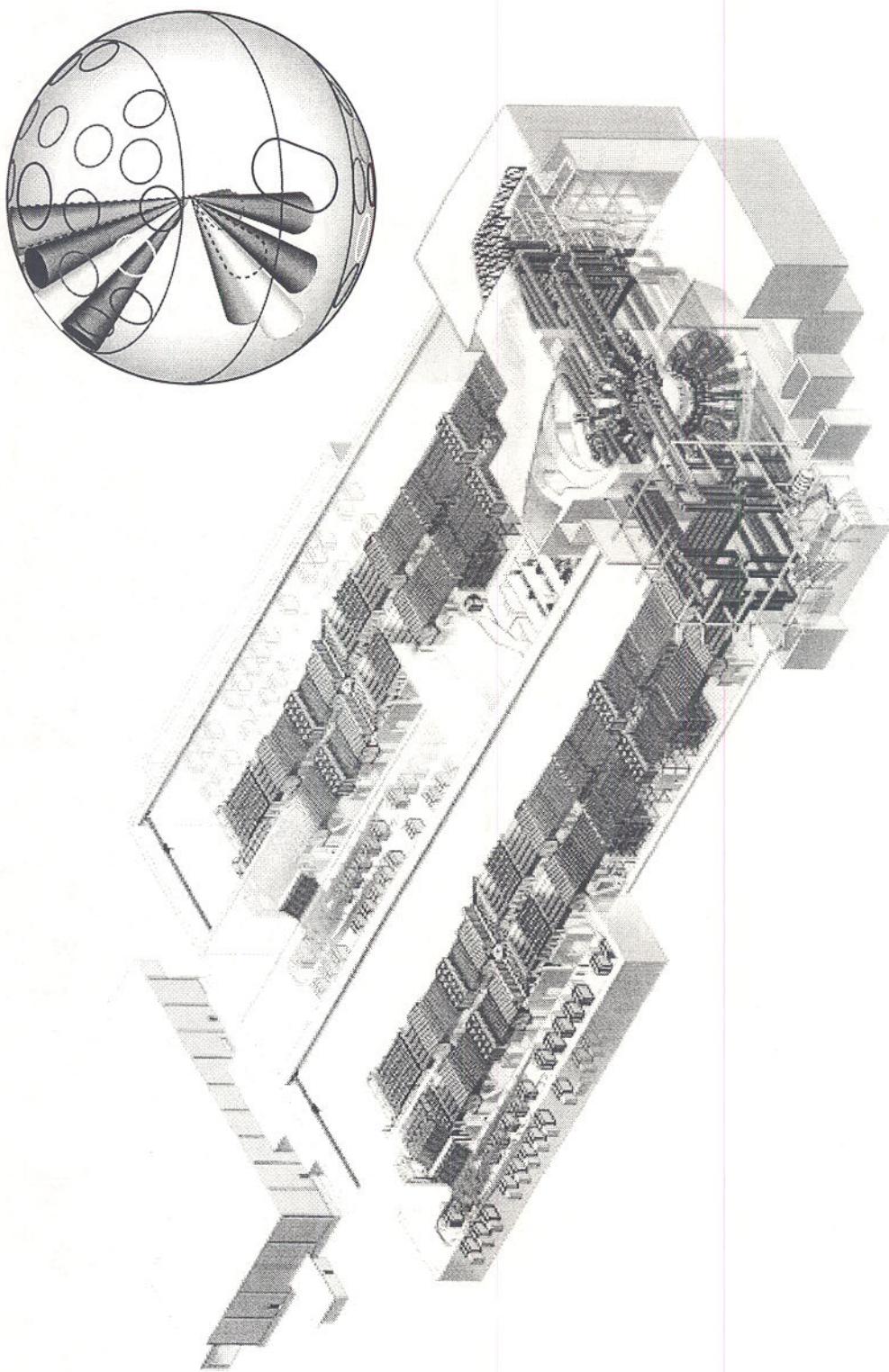
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86EMM/cld

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BJM/mcm

Phase 1: First cluster operational

NIF

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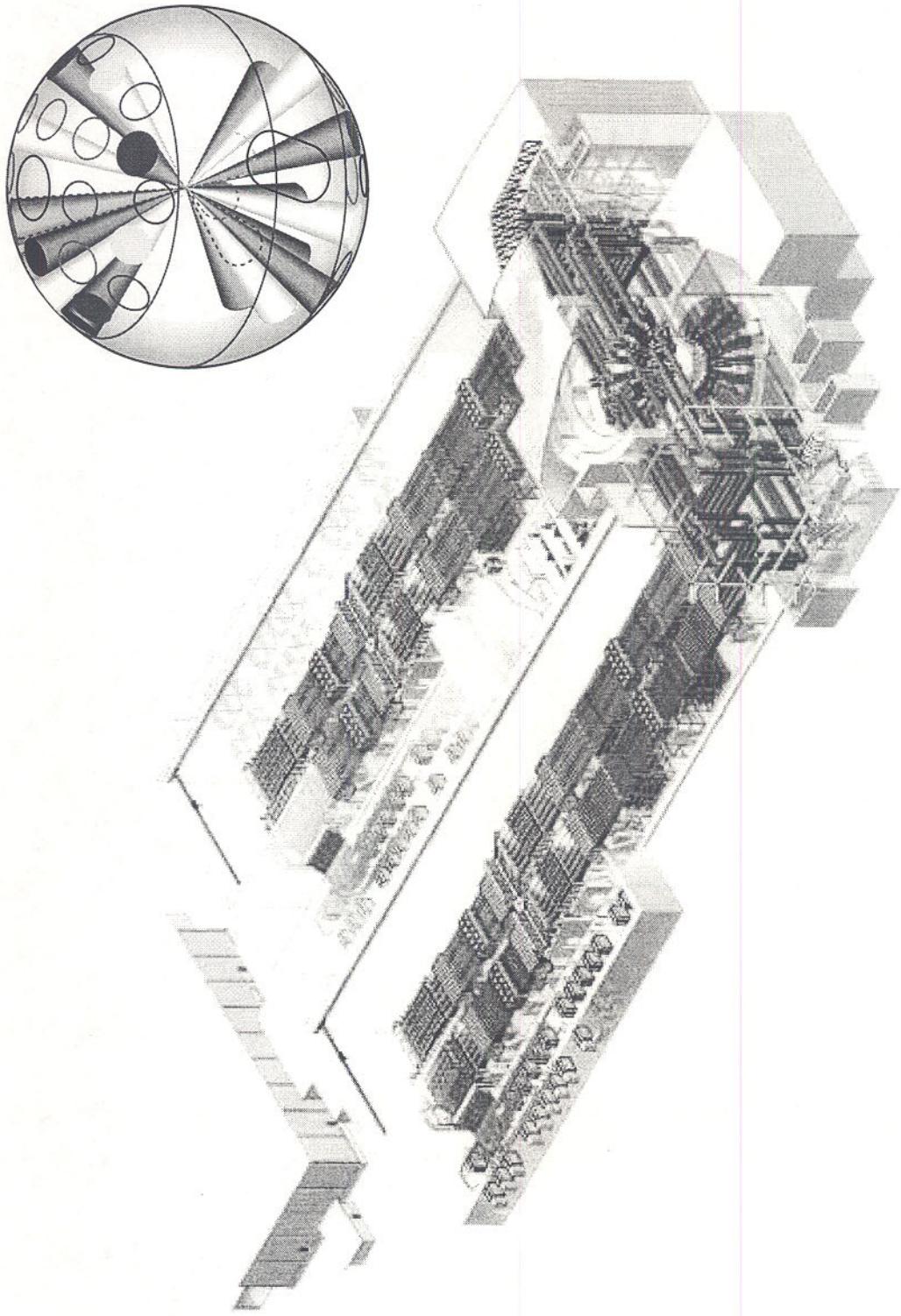


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Phase 1: Symmetric NIF



NIF
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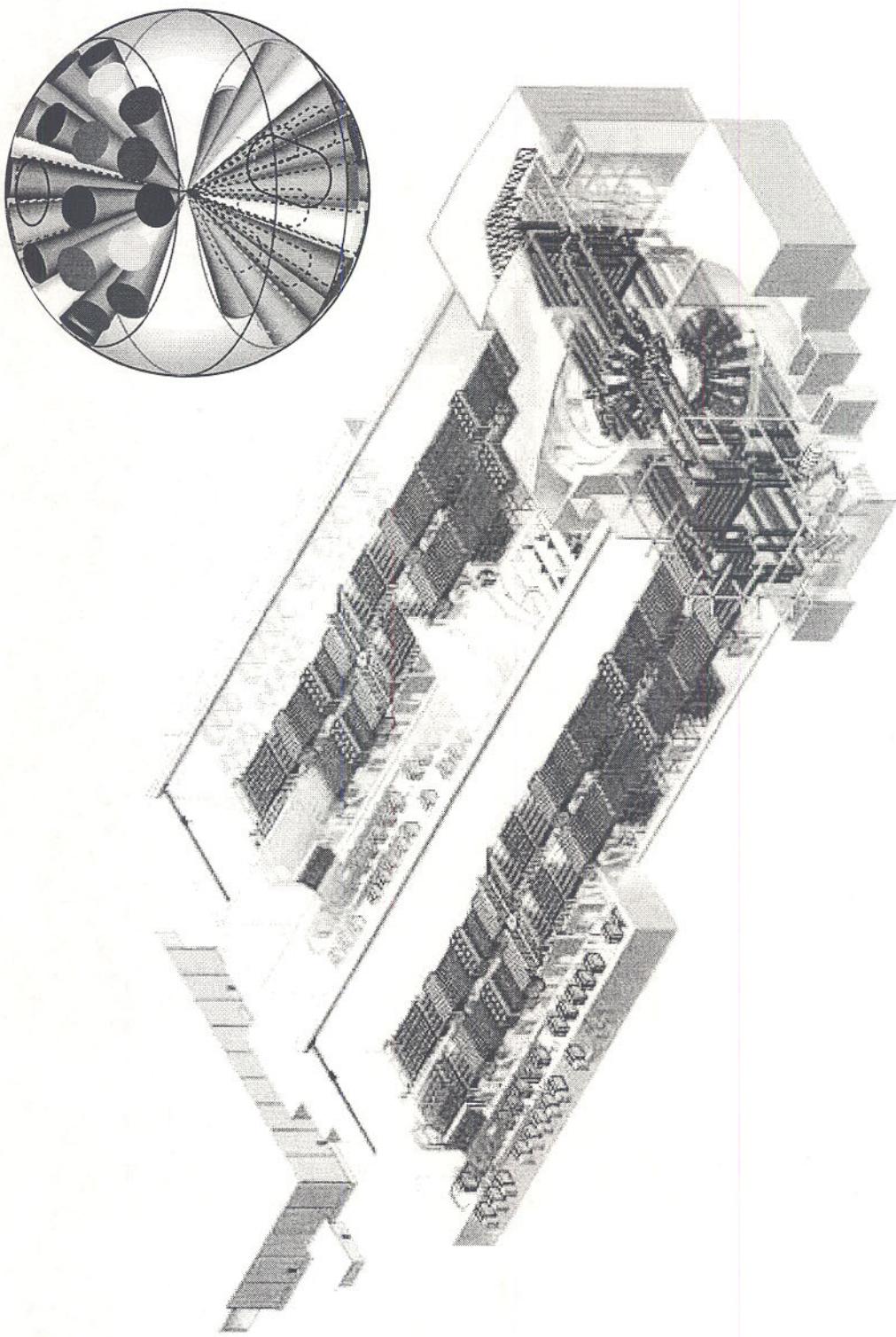


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88EM/cld

8/30/99

Phase 2: Full deployment

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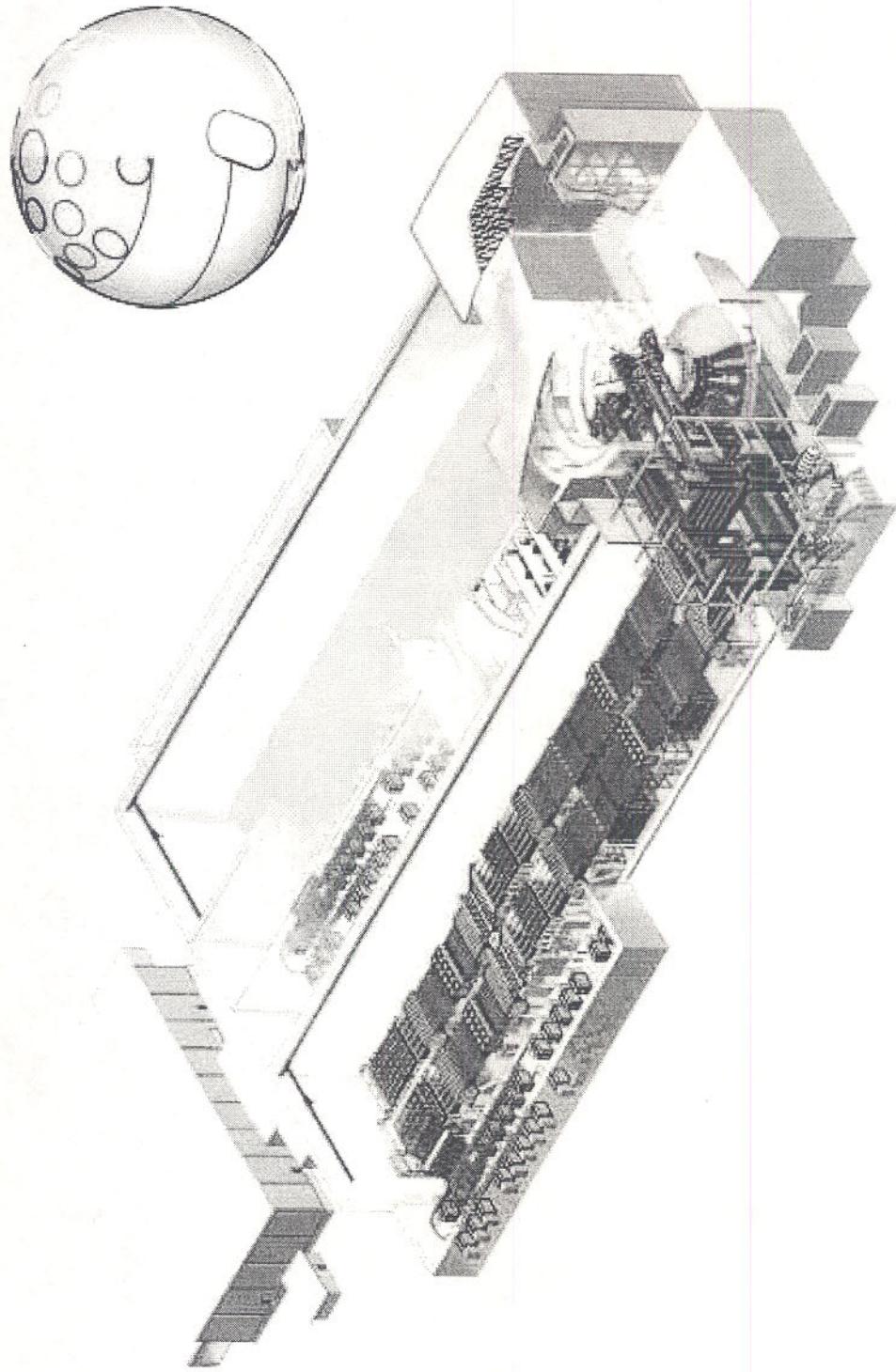
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Limited Non-symmetrical NIF Beampath Infrastructure System (BIS)

NIF

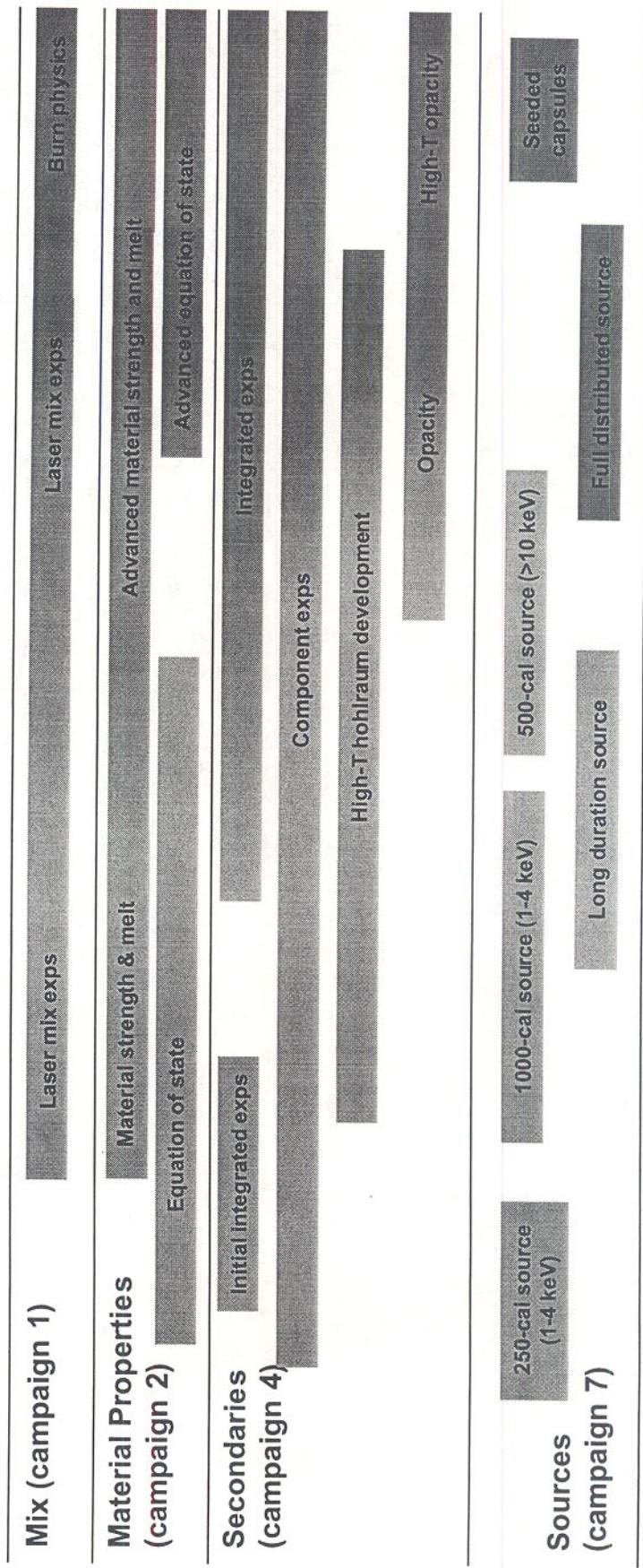
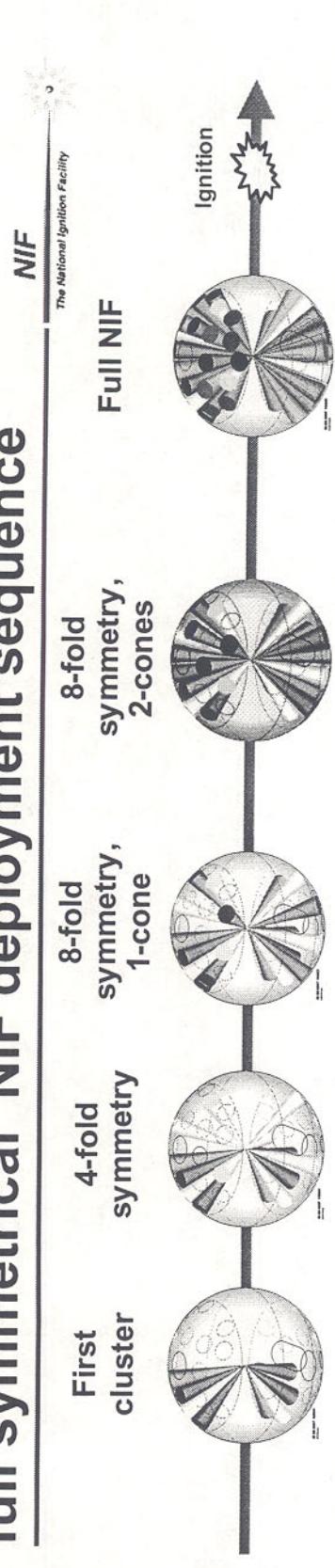
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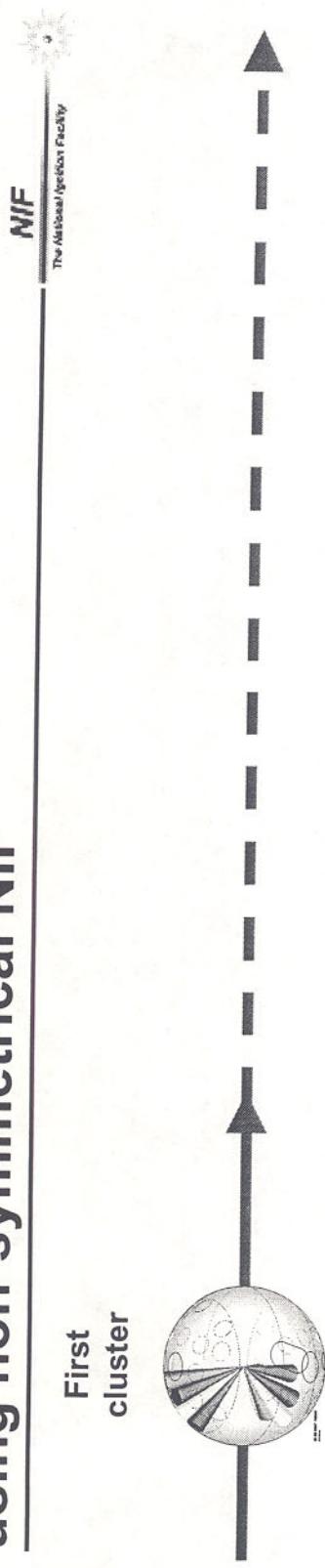
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Campaigns 1,2,4,7, weapons physics, use full symmetrical NIF deployment sequence



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11BJM/mcm

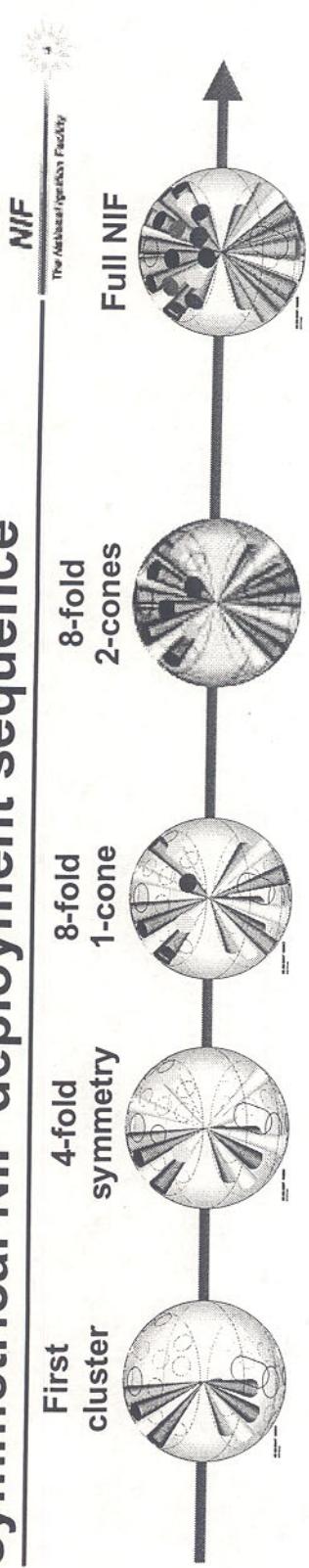
Campaigns 1,2,4,7, weapons physics, using non-symmetrical NIF



Mix (campaign 1)	Laser mix exps
Material Properties (campaign 2)	Material strength & melt Equation of state
Secondaries (campaign 4)	Initial integrated exps Component exps
Sources (campaign 7)	250-cal source (1-4 keV)

40-00-1299-2805B
11BJM/mcm

Campaign 10, ignition physics uses full symmetrical NIF deployment sequence



Energetics & LPI		Optimize beam smoothing	Integrated 96 beam tests	Integrated 192 beam tests
Symmetry		Symmetry diagnostic techniques, initial tuning	96 beam tests, 2-cone tuning	Final symmetry tuning
Capsule Physics		Shock timing diagnostic techniques	Ablator tests	Final shock timing
Ignition Capsules		D ₂ EOS	Shock timing	Implosion test ignition
Direct Drive		Target design and fabrication	Sub-scale implosions	Ignition

Planar direct drive exps (EOS,imprint,shock timing,LPI)

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11BJM/mcm

Where are we now?

NIF

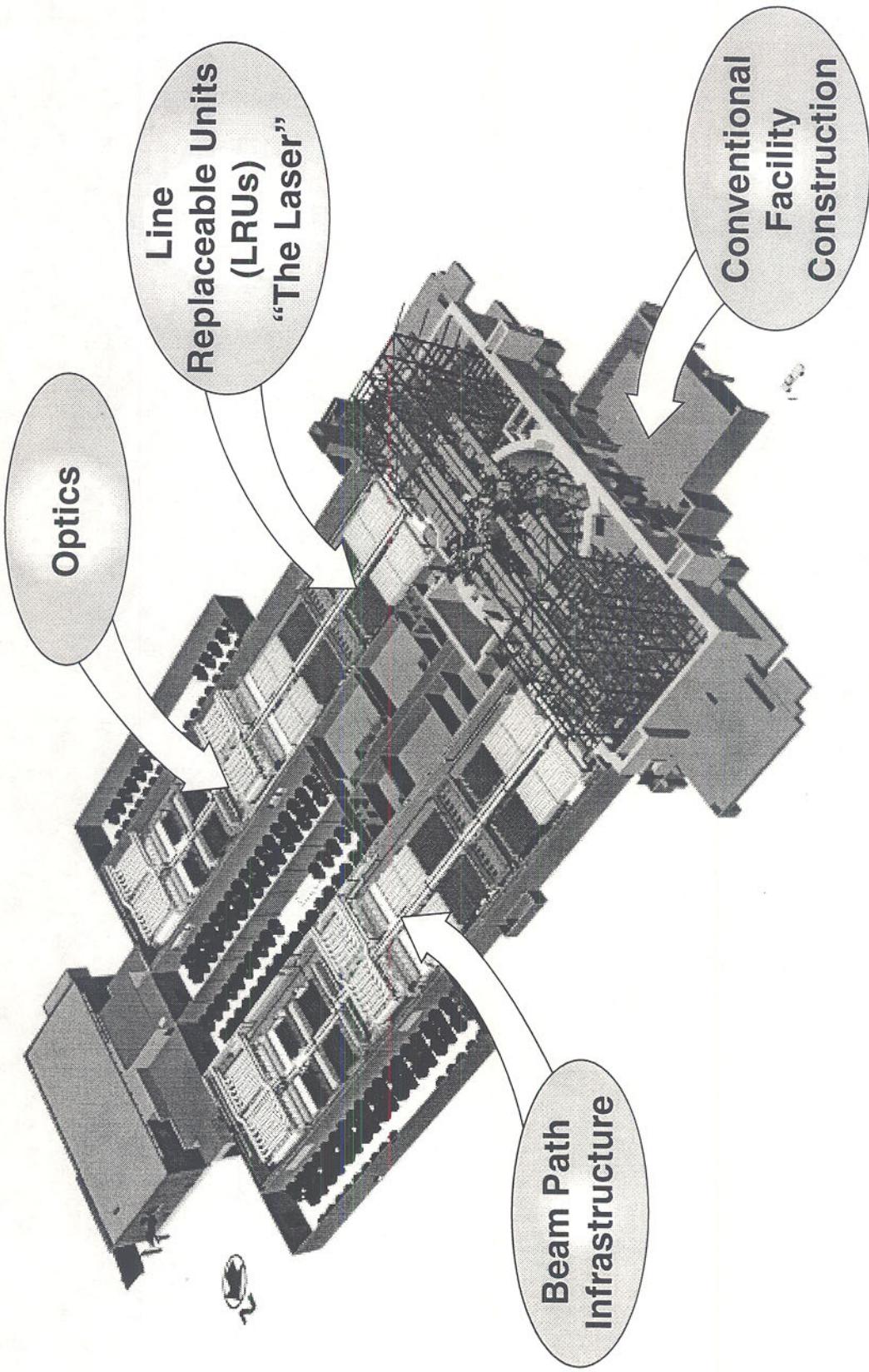
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- The conventional facility is ~87% complete
- The Beampath Infrastructure System is being transferred to industry
- Nearing completion of Title II design of the LRUs
- Most technology development has been completed
- A new management organization is in place
- Multiple in-depth reviews by experts of all aspects of project technology, acquisition strategy, and management structure

NIF procurement strategies



NIF
The National Ignition Facility



40-00-1199-22268G
24EIM

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EIM

Current NIF status by area and activity type — % complete

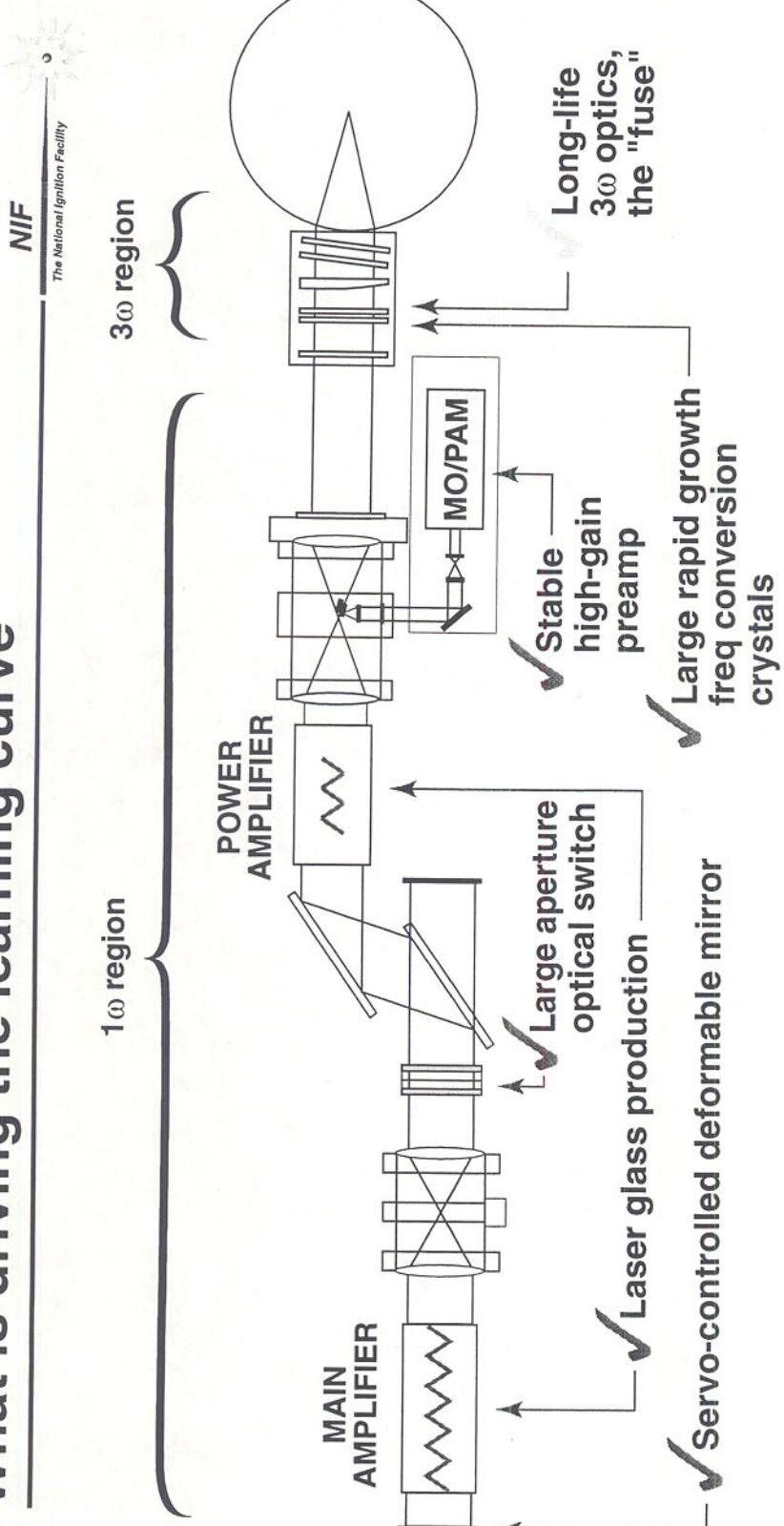
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	Design	Procurement	Construction/Assembly Installation
Conventional Construction	100	99	85
Beampath Infrastructure	70	80	2
Line Replaceable Units	85	15	2
Optics	90	45	3

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16MLS/ms

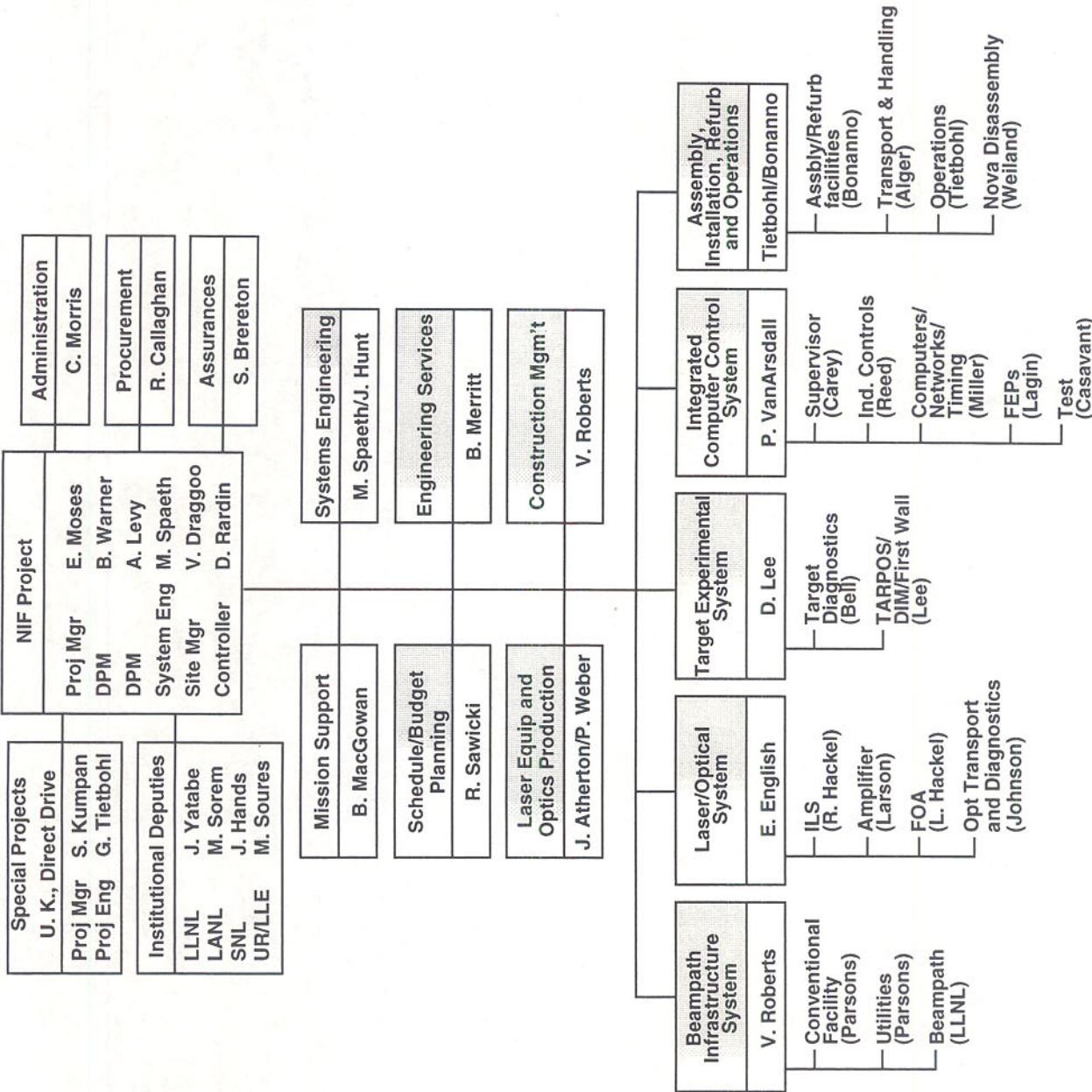
What is driving the learning curve



Additional issues:

- ✓ • High packing density of the laser components
- ✓ • Clean assembly of the beampath
- ✓ • Clean fabrication and installation of the LRUs

Reports to LLNL Director



The new management organization has addressed the outstanding issues

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- Overlaps and gaps have been eliminated
 - A Functional System Description (FSD) has been developed to describe the full set of NIF work packages
 - The discipline organization has been replaced by a Project Line Organization
 - Systems Engineering and Mission Support organizations now integrate user and project requirements and activities
 - Outside expertise in Project Management has been injected into NIF at all levels

The NIF Project has been extensively reviewed

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- SEAB
 - Three 2-day sessions for review of management and technology
- UC President's Council
- NIF Council
 - Technology Review Group
 - Project Management Group
- Beampath Infrastructure System Acquisition Strategy Review Group
- Special Equipment Acquisition Strategy Review Group

NIF cost growth



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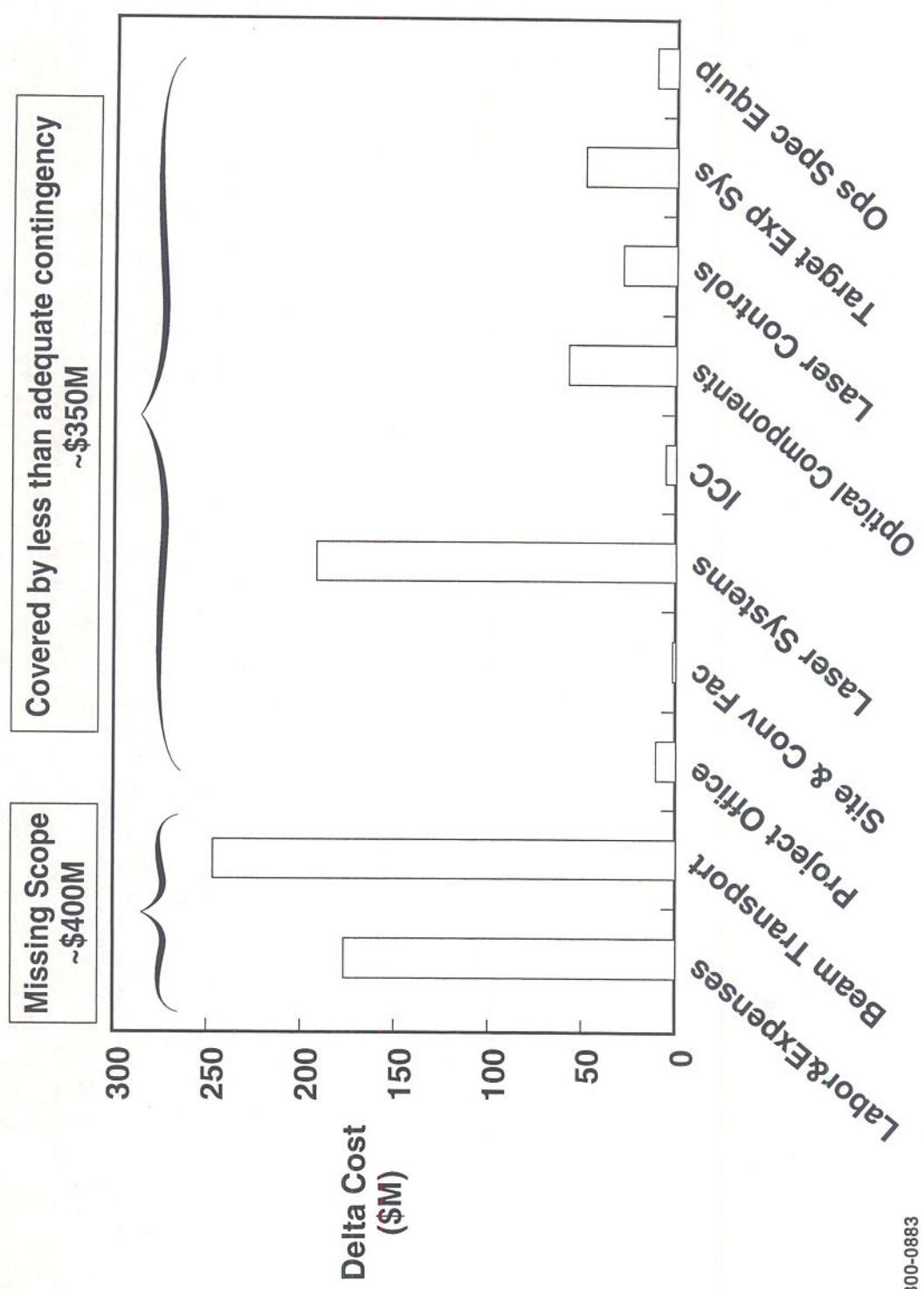
Two sources

- Inadequate contingency for a typical high-tech project
- Misunderstanding of scope

NIF cost changes from Title 1

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NIF funding options per March 9 DOE request*

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DOE leadership would like to see the following options explored with detailed analysis of the impacts on the NIF program and summary analysis of the ability of NIF to support the Defense Programs campaigns under these options:

- OPTION 1: \$150M increases in Fiscal Year 2001 (current baseline \$80M) and \$240M Fiscal Year 2002 funding increase (current baseline is \$66M)
- OPTION 2: Increases of \$125M Fiscal Year 2001 and \$180M in future years
- OPTION 3: Increases of \$100M Fiscal Year 2001 and in future years
- OPTION 4: Increases of \$75M Fiscal Year 2001 and in future years
- OPTION 5: Increases of \$50M Fiscal Year 2001 and in future years
- OPTION 6: No increase (straight-line Fiscal Year 2001 funding)

OPTION 7: Presidents Budget

*BGen Gioconda Letter to C.B. Tarter, 3/9/00

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12EW/nccz

Funding options planning assumptions*

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"In your presentation of options, please use the following assumptions:

- 1) Fiscal Year 2001 President's Budget Request funding appropriated
 - 2) Sole Source Integrating Contract approved
 - 3) Authorization for LLNL application of the same indirect rates to the NIF R&D/prototype/operations components as were applied to the NIF construction
 - 4) Starting point for each option's impact is the proposed Fiscal Year 2001 funding
 - 5) Previous transition plan guidelines that determine project/program activity division remains unchanged"
- 6) U.K. SREP funding as presently scheduled (D. Crandall)

*BGen Gioconda Letter to C.B. Tarter, 3/9/00

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12EM/nccz

Decomposition of indirect rate avoidance (FY00 – FY06)

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Category	Amount (M\$)
General and Administrative (G&A)	119
Organizational Personal Charge (OPC)	41
Program Management Charge (PMC)	18
Special Institutional Security Charge (SISC)	20
Institutional General Plant and Equipment (IGPE)	12
Total	209

This is revenue neutral to LLNL institution

Impact of not getting causal beneficial rates



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- Increase of approximately \$20M to \$40M per year in labor dollars
- Project milestones would slip
 - Reduced staff
 - Delayed procurements
- Net effect would be to push out Project completion date by about 2 years for each option

Impact of not getting causal beneficial rates

NIF

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- Increase of approximately \$20M to \$40M per year in labor dollars
- Project milestones would slip
 - Reduced staff
 - Delayed procurements
- Net effect would be approximately
 - Option 1 → Option 2
 - Option 2 → Option 3
 - Option 3 → Option 4

NIF Options

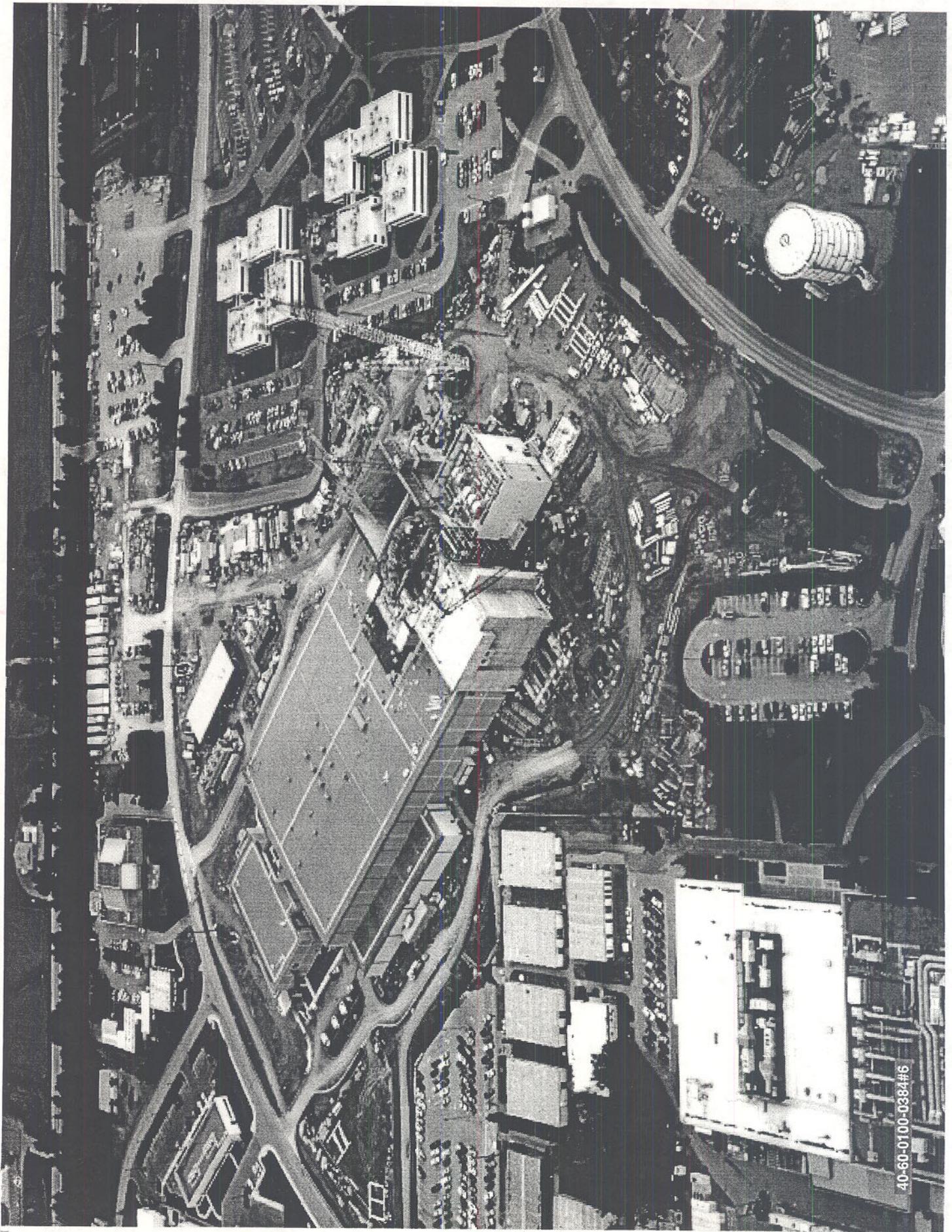
Presentation to The Department of Energy



C. Bruce Tarter
George H. Miller
Edward I. Moses

Lawrence Livermore National Laboratory

March 15, 2000



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DOE Review of NIF Program funding profiles

NIF

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“DOE leadership would like to see...

- The impact of NIF Program and summary analysis of NIF to support Defense Programs campaigns under [several] options...
- Where in the Project/Program the major cost growth has occurred and what led to this growth.”

*BGen Gioconda Letter to C.B. Tarter, 3/9/00

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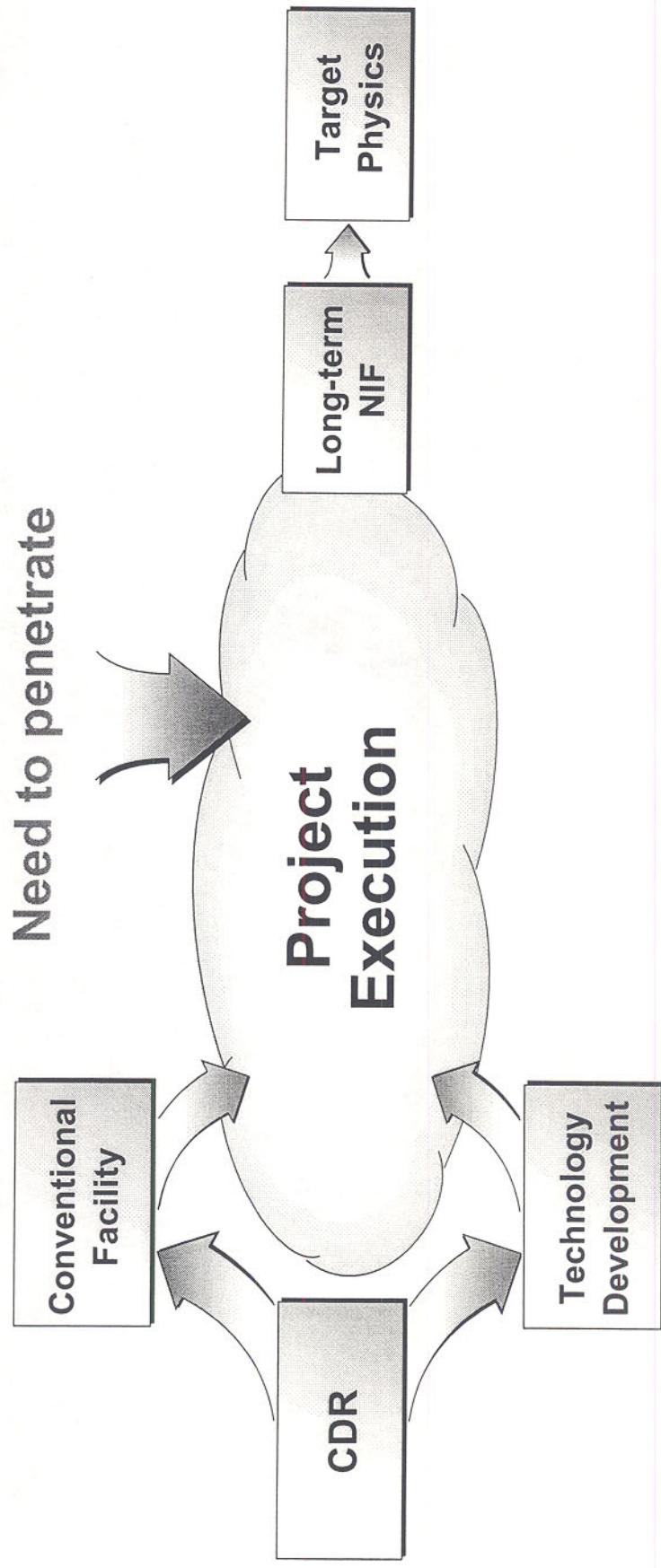
Today's agenda

- Status
- Funding options
- Impacts on:
 - Stockpile Stewardship Program
 - LLNL Institution
 - The long-term NIF Project
 - NIF staffing
- Cost growth

NIF Project planning

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NIF Project planning: LLNL / Industrial Partners NIF

