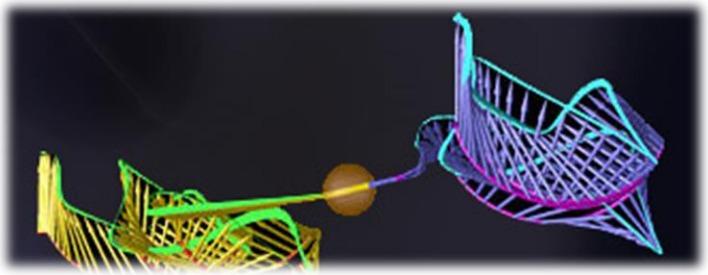


LQCD-ext III Project Report

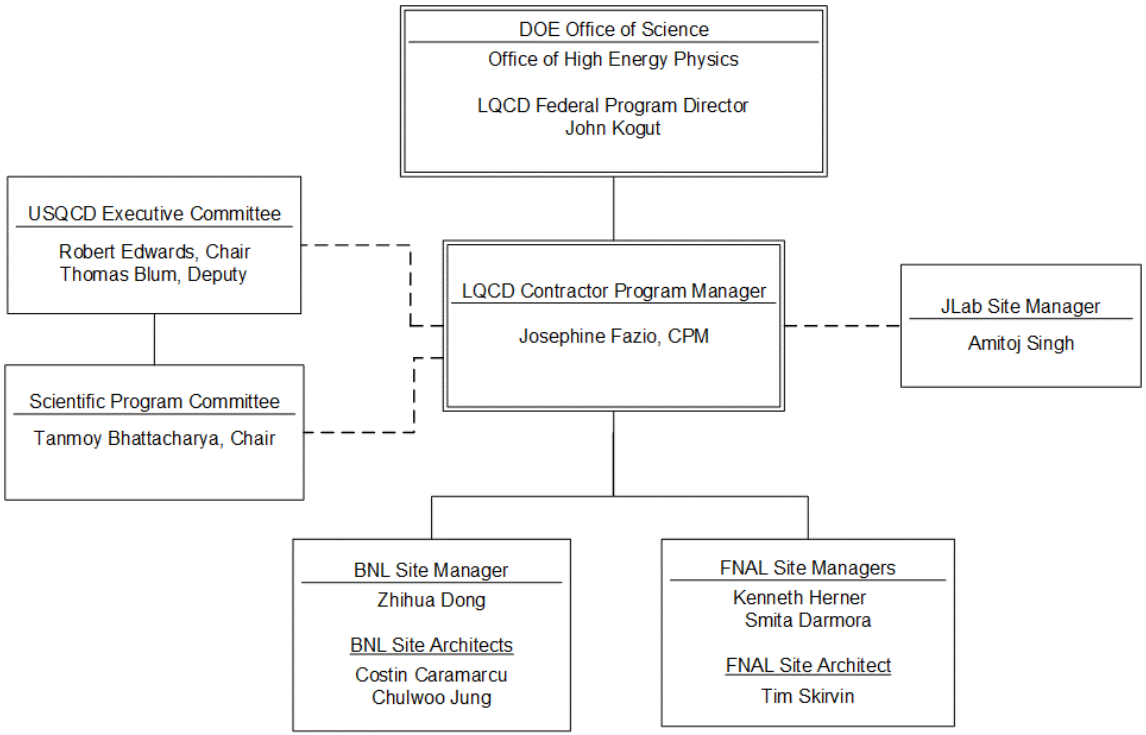
Jo Fazio
LQCD-ext III Project Manager
JFazio@fnal.gov

USQCD All-Hands Meeting
Apr 20-21, 2023

Outline

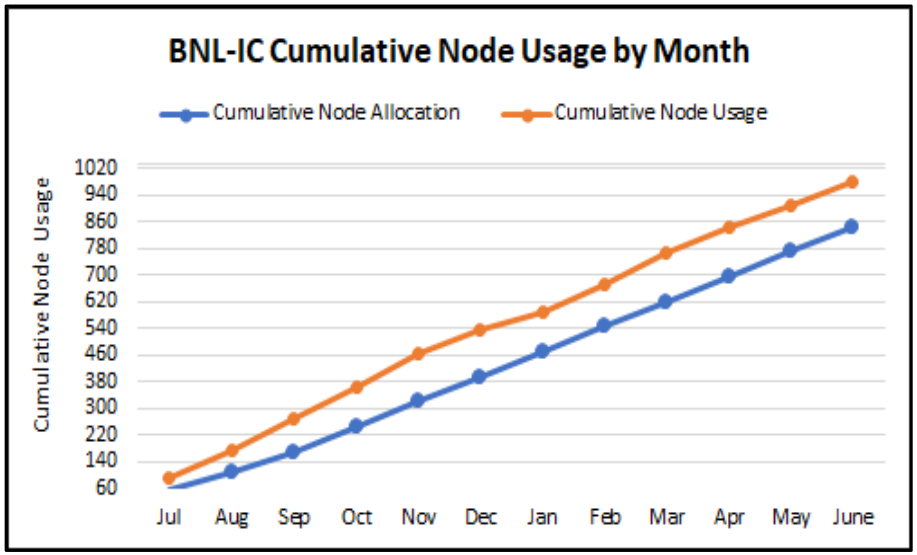
- Organizational update
- Highlights over the past 12 months
- User survey results and feedback

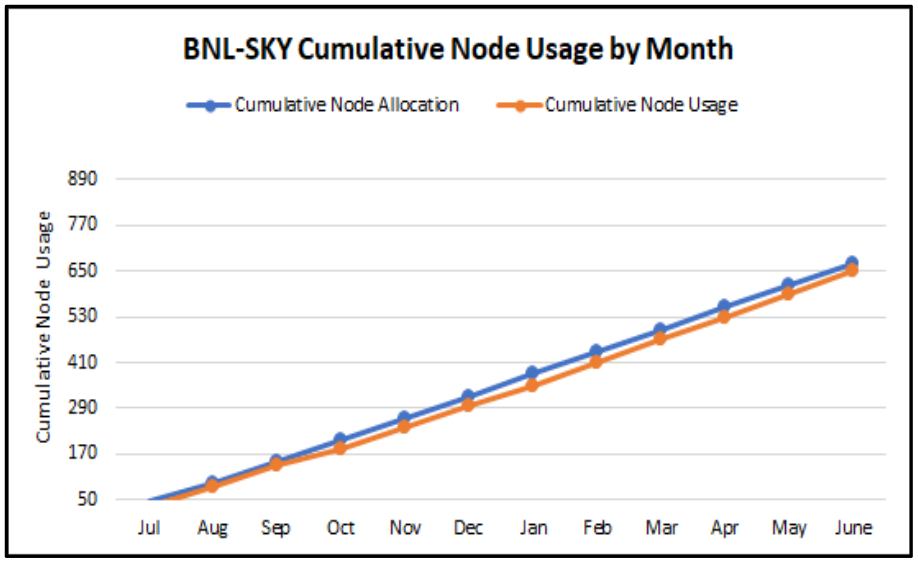
LQCD-ext III Integrated Project Team (IPT)

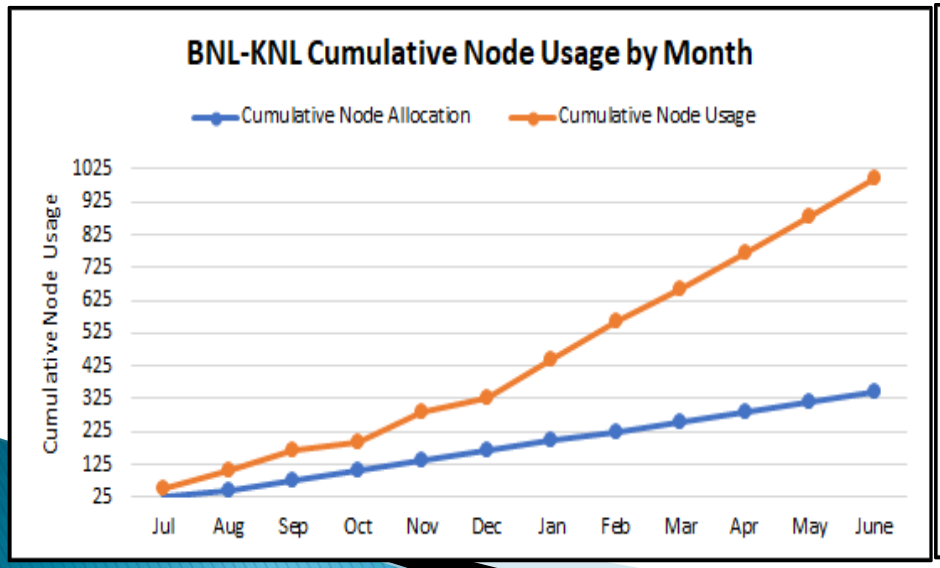


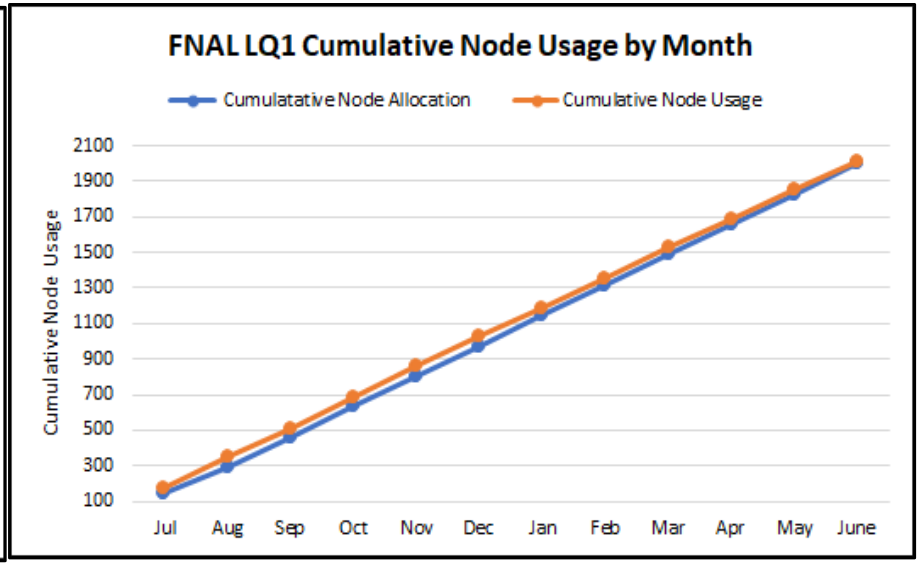
Organizational changes since last year:
- Kenneth Herner and Smita Darmora

BNL and FNAL FY22 Allocation Usage

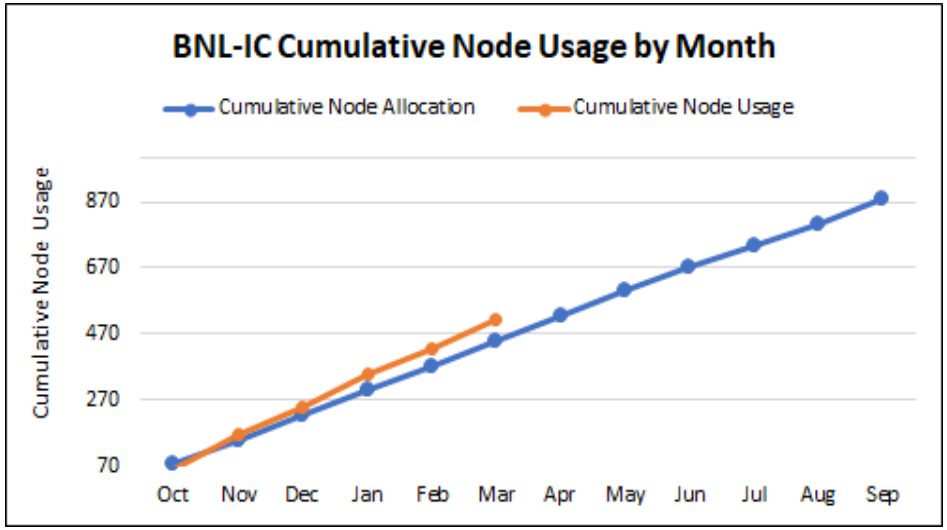


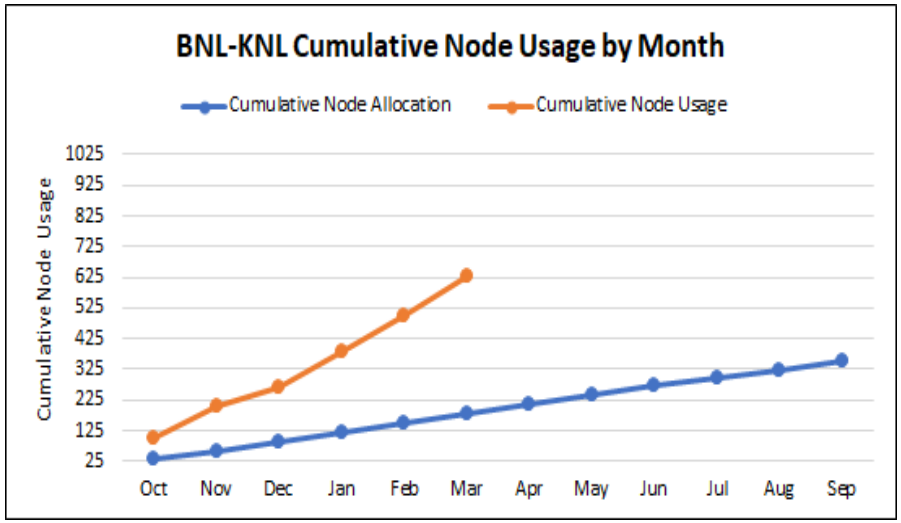


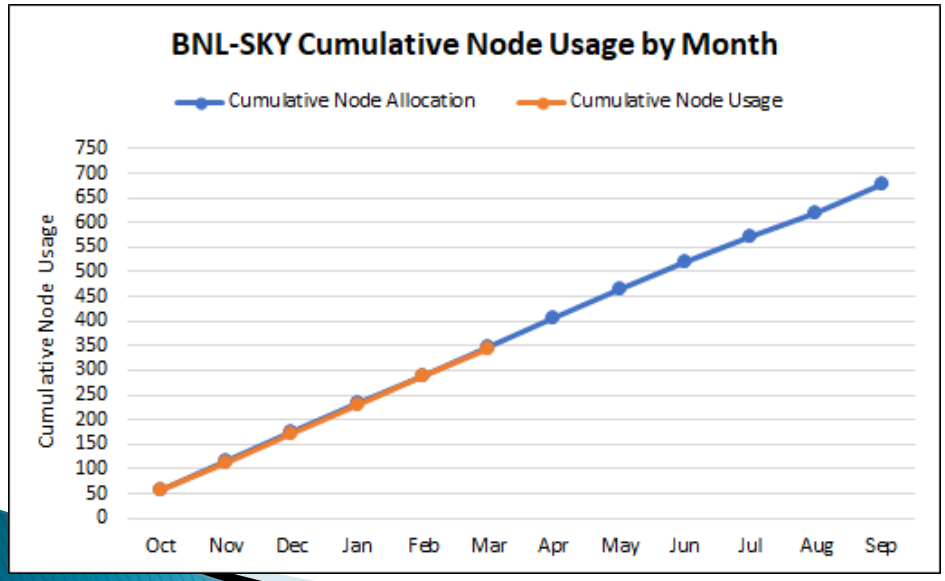


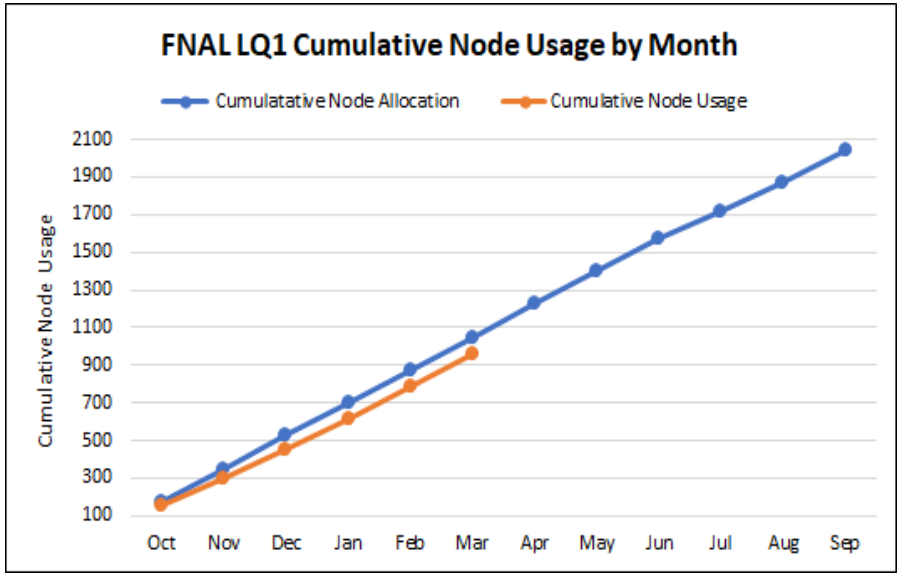


BNL & FNAL Current Utilization For FY23 Allocations









Project Usage through March: BNL-IC, Sky, and KNL

BNL SDCC LQCD Projects Usage Sumary

Institutional Cluster

(Sky Core Hours)

*1 K80 GPU Hour = 33.25 SkyCore Hours
updated: 2023-04-01 05:02:43 2023-04-01

	Cluster	Account	Start Date	End Date	Allocation	Allocation Usage	Allocation Usage(%)	Scavenger Usage
	Annie-IC	lqcd-22-23	2022-07-01	2023-06-30	37,240,000	25,968,182	69.73%	9,775,871

	Project	Original SPC Allocation	Adjustment	Adjusted SPC Allocation	Usage	Progress(%)	Remain	30Day Usage	30Day BurnRate
1	nucstructclover-22-23	6,317,500	(2,271,121)	4,046,379	1,768,536	43.71%	2,277,843	834,161	20.62%
2	nplqcd-22-23	8,977,500	2,343,737	11,321,237	9,142,614	80.76%	2,178,623	1,534,648	13.56%
3	stagmug-2-22-23	11,571,000	(4,981,960)	6,589,040	803,540	12.20%	5,785,500	0	0.00%
4	qcdalpha-22-23	3,391,500	482,059	3,873,559	2,703,029	69.78%	1,170,529	555,657	14.34%
5	formfactors-22-23	2,992,500	3,326,336	6,318,836	17,123,724	270.99%	0	1,222,259	19.34%
6	qgpd-22-23	3,990,000	1,100,950	5,090,950	4,201,162	82.52%	889,788	96,292	1.89%
7	UnAllocated:	0	0	0	0	0.00%	0	0	0.00%

Skylake Cluster

(Sky Core Hours)

updated: 2023-04-01 05:02:43 2023-04-01

	Cluster	Account	Start Date	End Date	Allocation	Allocation Usage	Allocation Usage(%)	Scavenger Usage
	Skylake	lqcd-sky-22-23	2022-07-01	2023-06-30	15,750,000	13,016,797	82.65%	0

	Project	Original SPC Allocation	Adjustment	Adjusted SPC Allocation	Usage	Progress(%)	Remain	30Day Usage	30Day BurnRate
1	qgpd-sky-22-23	3,000,000	0	3,000,000	2,204,483	73.48%	795,517	0	0.00%
2	4plus8-sky-22-23	7,250,000	0	7,250,000	7,094,997	97.86%	155,003	740,779	10.22%
3	tworep-sky-22-23	5,500,000	0	5,500,000	3,717,317	67.59%	1,782,683	709,792	12.91%
4	class-c-etap-sky-22-23	20,000	0	20,000	0	0.00%	20,000	0	0.00%
5	UnAllocated:	-20,000	0	-20,000	0	0.00%	0	0	0.00%

KNL Cluster

(Sky Core Hours)

*1 KNL CoreHour = 0.563 SkyCore Hours
updated: 2023-04-01 00:03:07 2023-04-01

	Cluster	Account	Start Date	End Date	Allocation	Allocation Usage	Allocation Usage(%)	Scavenger Usage
	Frances-KNL	lqcd-knl-22-23	2022-07-01	2023-06-30	7,910,150	23,005,293	290.83%	0

	Project	Original SPC Allocation	Adjustment	Adjusted SPC Allocation	Usage	Progress(%)	Remain	30Day Usage	30Day BurnRate
1	stagscale-knl-22-23	4,363,250	0	4,363,250	16,509,670	378.38%	0	949,744	21.77%
2	qcdqedta-knl-22-23	3,546,900	0	3,546,900	6,168,530	173.91%	0	2,284,062	64.40%
3	class-c-ft-hmc-knl-22-23	19,705	0	19,705	0	0.00%	19,705	0	0.00%
4	class-c-stagnucff-knl-22-23	0	0	0	327,094	0.00%	0	53,574	0.00%
5	UnAllocated:	-19,705	0	-19,705	0	0.00%	0	0	0.00%

https://monitoring.sdcc.bnl.gov/pub/allocation/lqcd.html

Project Usage through March: FNAL – LQ1

Project Name	Cluster	SPC Original Allocation (Sky-Core-Hours)	Adjustments (Sky-Core-Hours)	SPC Adjusted Allocation (Sky-Core-Hours)	Project Used as of Jul 1, 2022 (Sky-Core-Hours)	Progress against Adjusted Allocation	Remaining Allocation (Sky-Core-Hours)	30-day usage as of 04/01/2023	30-day burn rate as of 04/01/2023 (% of Alloc.)	Annual Pace YYYY-MM-DD
qfenpct	FNAL-LQ1	500,000	-	500,000	367,829	74%	132,171	36,324	7.3%	2023-07-08
nptmd	FNAL-LQ1	5,500,000	1,012,208	6,512,208	6,919,087	106%	0	1,387,890	21.3%	2023-03-15
heavylight	FNAL-LQ1	6,000,000	-	6,000,000	2,965,207	49%	3,034,793	241,249	4.0%	2024-01-06
chiqcd	FNAL-LQ1	11,300,000	-2,651,191	8,648,809	4,157,553	48%	4,491,256	885,671	10.2%	2024-01-21
hadtensor	FNAL-LQ1	2,400,000	486,607	2,886,607	3,068,431	106%	0	519,404	18.0%	2023-03-15
lgncqcd	FNAL-LQ1	375,000	-	375,000	70,018	19%	304,982	-	0.0%	2026-07-07
lp3	FNAL-LQ1	13,700,000	-	13,700,000	8,280,699	60%	5,419,301	294,271	2.1%	2023-09-27
gluonpdf	FNAL-LQ1	500,000	-	500,000	132,853	27%	367,147	63,220	12.6%	2025-04-27
axial	FNAL-LQ1	6,000,000	108,801	6,108,801	3,105,675	51%	3,003,126	61,421	1.0%	2023-12-21
mslight	FNAL-LQ1	7,550,000	331,977	7,881,977	4,826,453	61%	3,055,524	922,926	11.7%	2023-09-21
hotqcdhisq	FNAL-LQ1	20,000	-	20,000	-	-	20,000	-	-	-
stgmugm2	FNAL-LQ1	-	-	-	-	-	-	-	-	-
betafn	FNAL-LQ1	500,000	-	500,000	884,899	177%	0	166,607	33.3%	2022-12-02
ahisq	FNAL-LQ1	2,800,000	711,598	3,511,598	2,524,529	72%	987,069	200,382	5.7%	2023-07-17
rhqbbar	FNAL-LQ1	-	-	-	405,884		-	-	-	-
safe	FNAL-LQ1	-	-	-	2,663,626	-	-	-	-	-
nplqcd	FNAL-LQ1	-	-	-	262	-	-	26	-	-
hisqvec	FNAL-LQ1	-	-	-	25,484	-	-	-	-	-
fourpluseight	FNAL-LQ1	-	-	-	3,181,299	-	-	440,458	-	-
TOTAL	**FNAL-LQ1**	**57,145,000**	**-**	**57,145,000**	**43,579,788**	**63.6%**	**20,815,369**	**5,219,849**	**-**	**-**

https://computing.fnal.gov/lqcd/cluster-status/

https://www.usqcd.org/fnal/clusterstatus/lq1/accounting.html

2021 DOE Annual Review Recommendations

- Responses to FY21 DOE Recommendations

1. USQCD should conduct an anonymous survey to evaluate the Diversity, Equity, and Inclusion climate within the LQCD-ext III research program.
   - Status: Surveys have been conducted. Will Detmold (CDEI Chair) will provide updates.

2. Questions should be added to the user survey that would allow users to comment on the SPC allocation process, fairness, and scientific impact.
   - Status: 5 additional questions were added to the Call for proposal/Resource allocation sections of the survey

2022 User Survey Summary for 2021 Performance

- Performance; 129 surveys sent; 56 responses received= 43% response rate
  - Our response rate remains around 43%

- The FY2022 Annual User Survey opened from October 3 and remained open until November 11, 2022.
  - Additional two weeks were added to allow for more participation
  - Amazon gift cards were offered to those that completed the survey

- The online survey consisted of 44 questions designed to measure the level of satisfaction with:

  (a) the Compute Facilities operated and managed by the LQCD-ext. III project team

  (b) the annual Resource Allocation and Call for Proposal process conducted and managed by the USQCD Scientific Program Committee

2022 User Survey Updates

- Listed below are the five additional questions that allowed users to comment on the SPC allocation process, fairness, and scientific impact.
  - Adding additional questions was a recommendation from the DOE review.
    - Effectiveness with which the resource allocation process awarded time among projects of similar scientific value
    - Were you satisfied with the clarity and completeness of the CFP
    - Were you given enough time to prepare your proposal
    - Was the SPC report fair and constructive
    - In your opinion do the resource allocations reflect the scientific priorities of the DOE Offices of High Energy Physics and Nuclear Physics

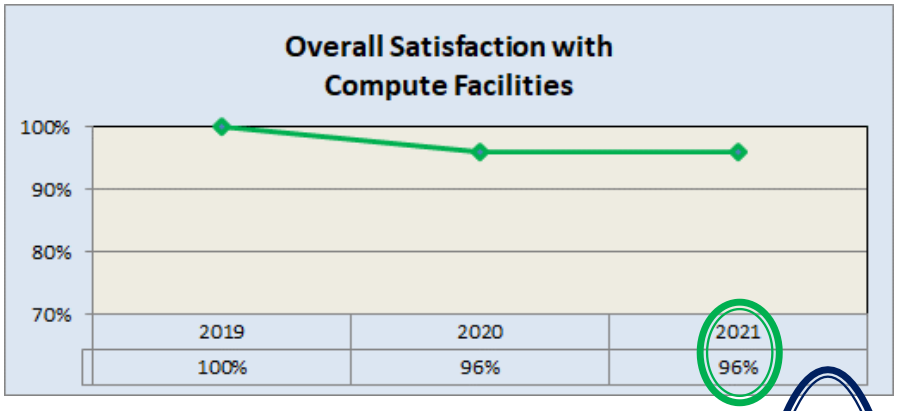
- Overall comments provided positive feedback that reassured the project team and USQCD leadership that we are providing valuable services

- Areas that were below the KPI of 92%:
  - BNL; User documentation
  - FNAL; System reliability
  - JLAB; User documentation and System reliability

2022 User Survey Results

➢ Compute Facilities Performance

- All sites combined scores met the 92%> KPI

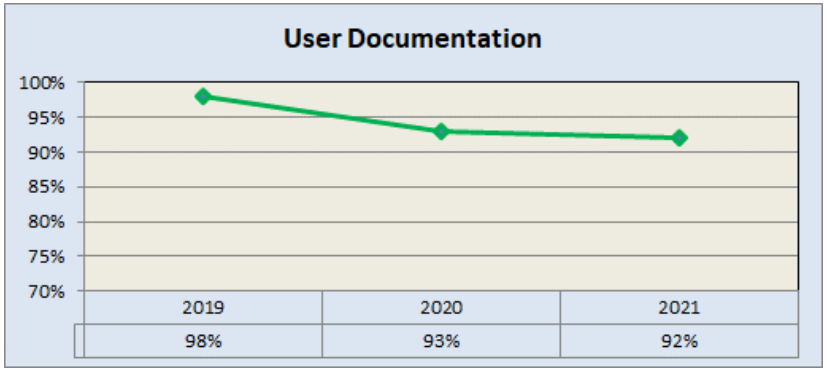


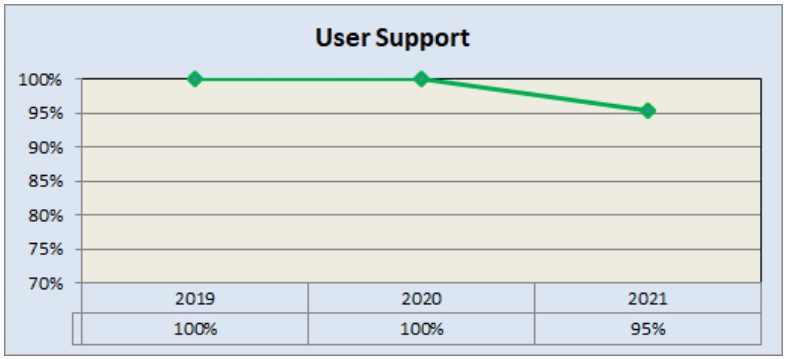
FY21 Compute Facility Performance	BNL	# of Satisfied responses	Total responses	FNAL	# of Satisfied responses	Total responses	JLAB	# of Satisfied responses	Total responses	All Sites Combined
Overall Level of Service Satisfaction	100%	14	14	93%	14	15	95%	20	21	96%
User Documentation	86%	12	14	100%	15	15	90%	19	21	92%
User Support	93%	13	14	93%	14	15	100%	21	21	96%
Responsiveness of Site Staff	100%	14	14	93%	14	15	95%	20	21	96%
System Reliability	100%	14	14	87%	13	15	90%	19	21	92%
Ease of Access	100%	14	14	100%	15	15	95%	20	21	98%
Effectiveness of other Tools	93%	13	14	100%	15	15	100%	21	21	98%

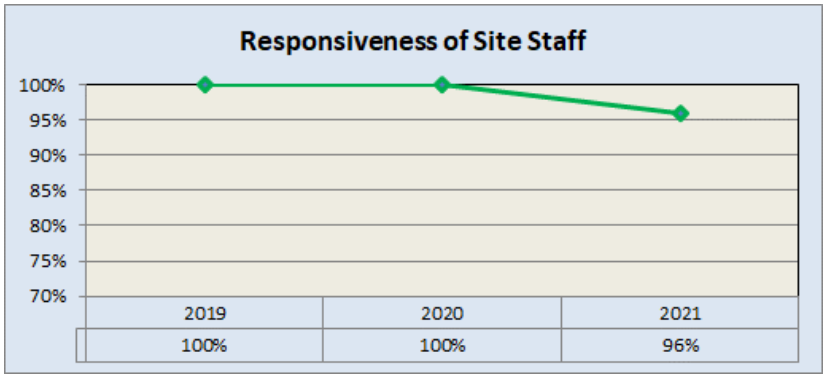
FY20 Compute Facility Performance	BNL	# of Satisfied responses	Total responses	FNAL	# of Satisfied responses	Total responses	JLAB	# of Satisfied responses	Total responses	All Sites Combined
Overall Level of Service Satisfaction	90%	19	21	100%	18	18	100%	17	17	96%
User Documentation	100%	21	21	100%	18	18	76%	13	17	93%
User Support	100%	21	21	100%	18	18	100%	17	17	100%
Responsiveness of Site Staff	100%	21	21	100%	18	18	100%	17	17	100%
System Reliability	100%	21	21	100%	18	18	94%	16	17	98%
Ease of Access	100%	21	21	100%	18	18	94%	16	17	98%
Effectiveness of other Tools	100%	21	21	100%	18	18	100%	17	17	100%

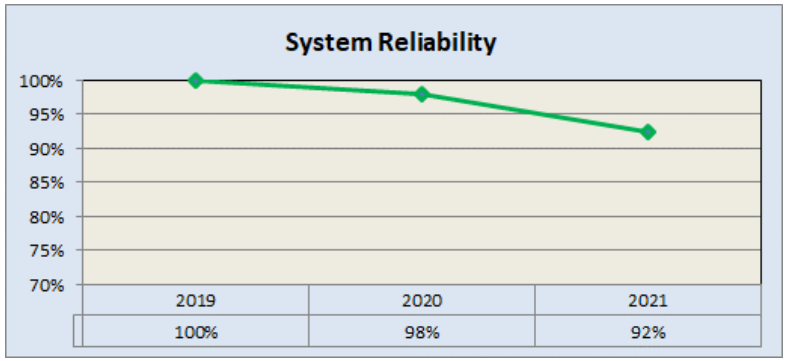
2022 User Survey Results: Compute Facilities

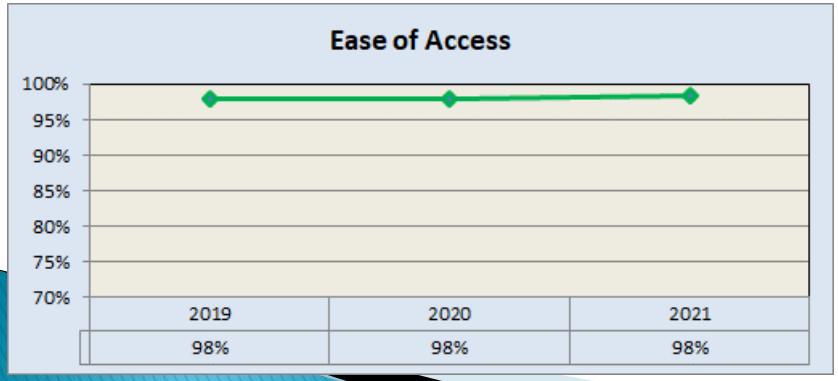
- Compute Facilities Performance Categories

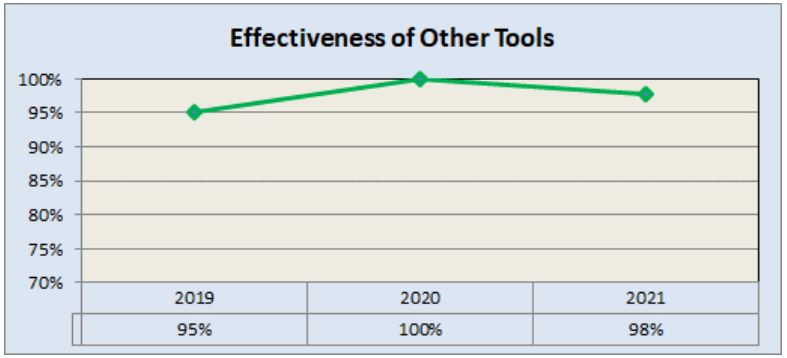






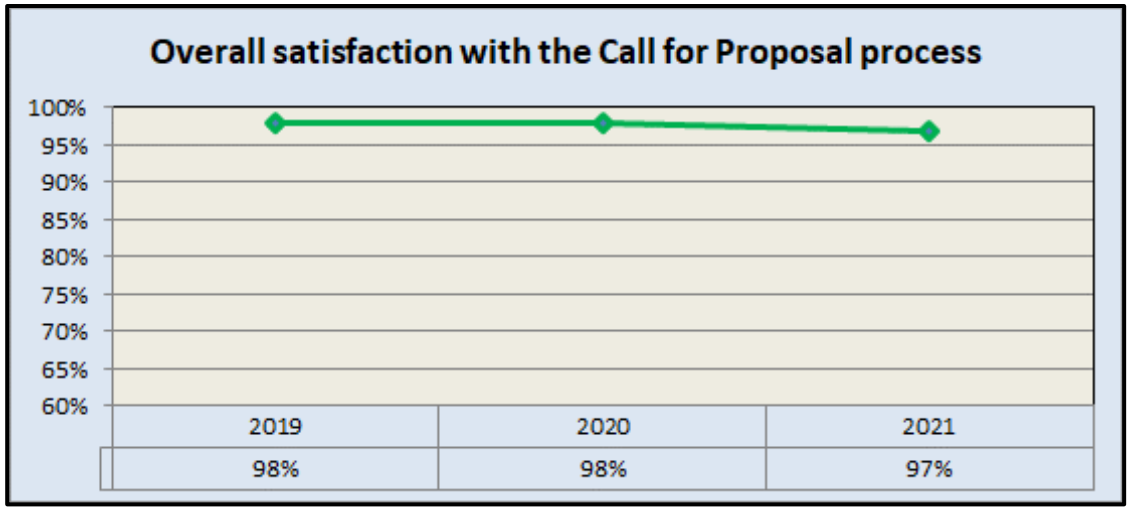


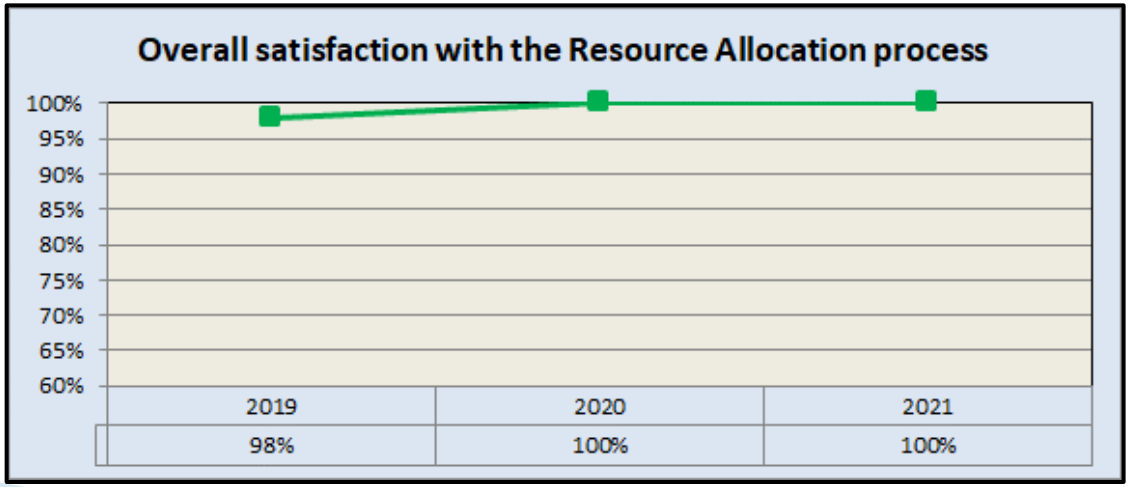




2022 User Survey Results: CFP and Resource Allocation Processes

- Overall satisfaction with the CFP and Resource Allocation processes have maintained
- No KPI





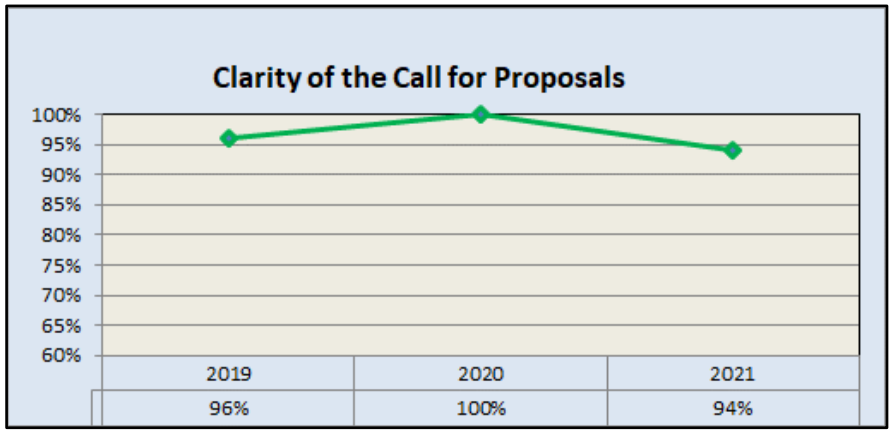
2022 User Survey Results: CFP and Resource Allocation Processes

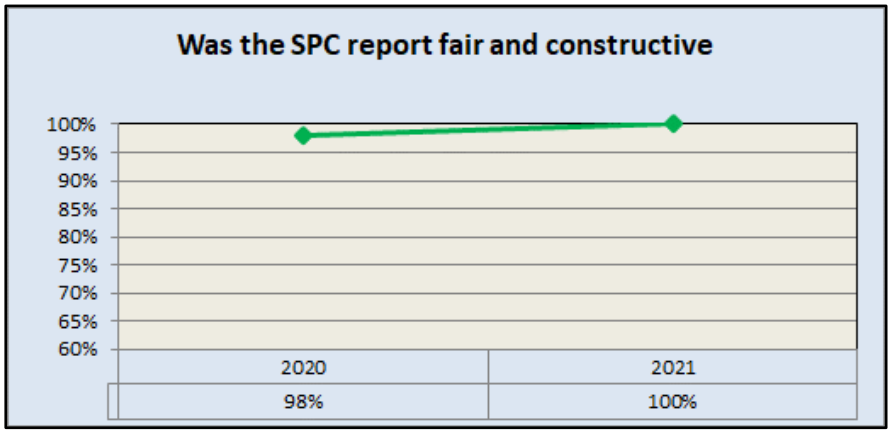
FY21 Allocation and CFP Processes	General Population	# of Satisfied responses	Total responses
Overall satisfaction with Call for Proposal process	97%	33	34
Overall satisfaction with the Resource Allocation process	100%	14	14
Effectiveness with which the resource allocation process awarded time among projects of similar scientific value	92%	11	12
Transparency of Resource allocation process	100%	14	14
Fairness of the Resource Allocation process	93%	13	14
Were you satisfied with the clarity & completeness of the CFP	94%	32	34
Were you given enough time to prepare your proposal	94%	32	34
Was the SPC report fair and constructive	100%	34	34
In your opinion do the Resource Allocations reflect the scientific priorities of the DOE Offices of High Energy Physics and Nuclear Physics	100%	14	14

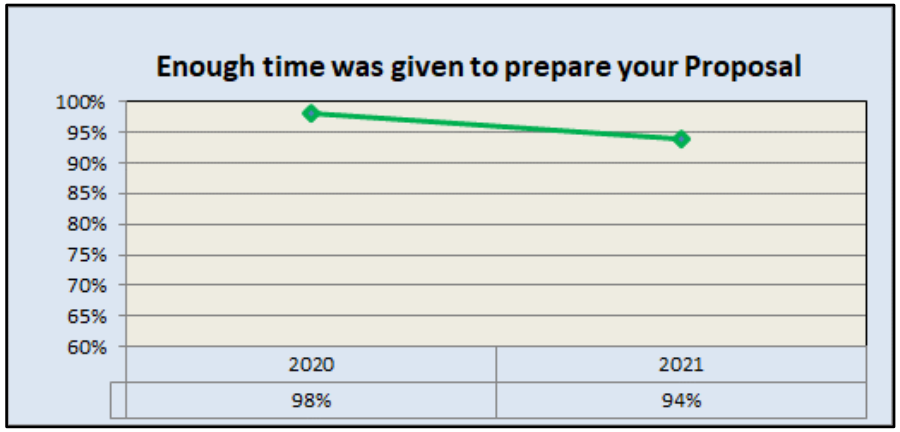
FY20 Allocation and CFP Processes	General Population	# of Satisfied responses	Total responses	Comments
Overall satisfaction with Call for Proposal process	98%	43	44	
Overall satisfaction with the Resource Allocation process	100%	21	21	
Effectiveness with which the resource allocation process awarded time among projects of similar scientific value	100%	21	21	New
Transparency of Resource allocation process	95%	20	21	
Fairness of the Resource Allocation process	95%	20	21	
Were you satisfied with the clarity & completeness of the CFP	100%	44	44	New
Were you given enough time to prepare your proposal	98%	43	44	New
Was the SPC report fair and constructive	98%	43	44	New
In your opinion do the Resource Allocations reflect the scientific priorities of the DOE Offices of High Energy Physics and Nuclear Physics	100%	21	21	New

2022 User Survey Results: Call for Proposal Processes

- Call for Proposal Categories

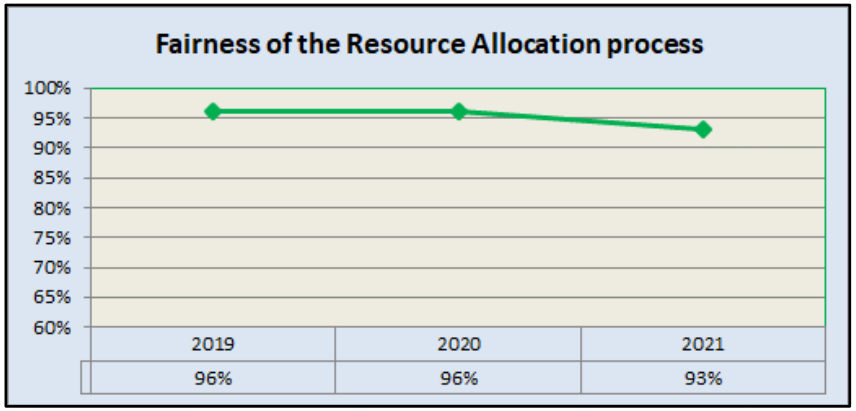


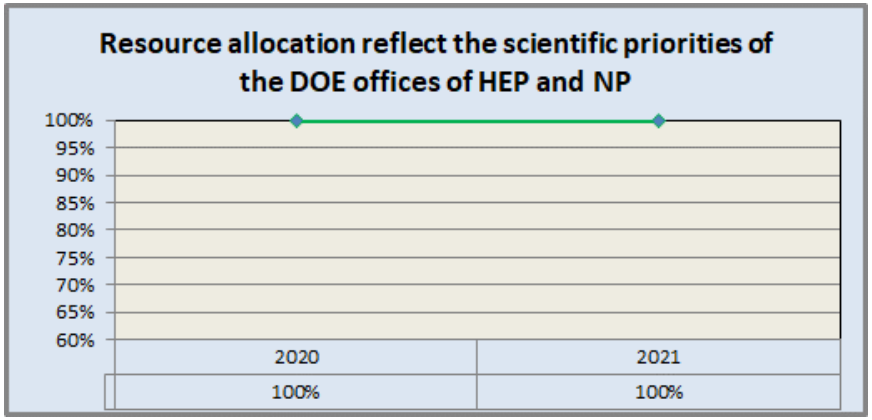


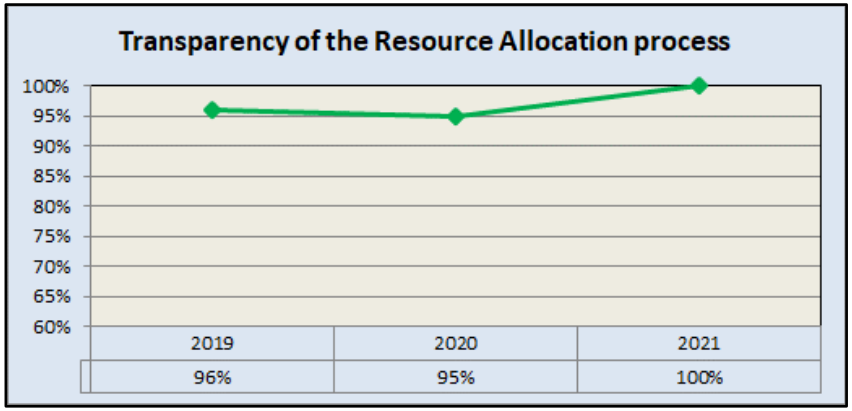


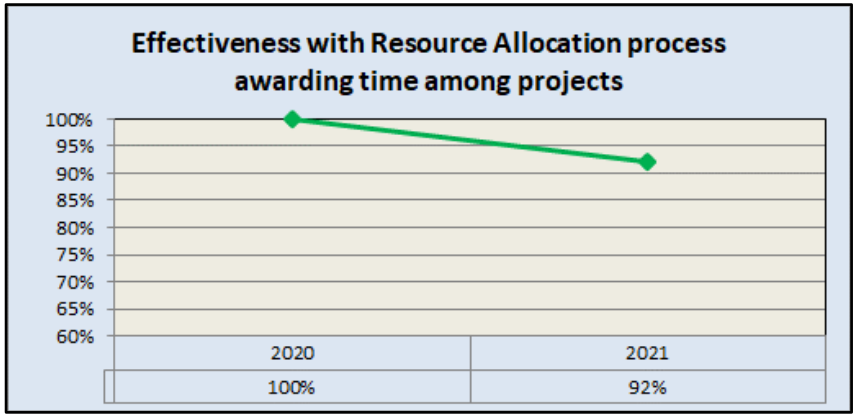
2022 User Survey Results: Resource Allocation Processes

- Resource Allocation Categories









2022 User Survey Results: Help Desk

- Help Desk
  - KPI is 3 days or 95% of tickets responded to within 3 business days

FY21 Helpdesk: KPI is 3 days or 95% of tickets responded to within 3 business days	BNL	# of Responses	FNAL	# of Responses	JLAB	# of Responses
What was the response time after you entered your ticket? (in working days)?						
<= 1 day		5		7		8
1 day		2		2		2
2 days		0		1		0
3 or more days		1		1		1
Total	8		11		11	

FY20 Helpdesk: KPI is 3 days or 95% of tickets responded to within 3 business days	BNL	# of Responses	FNAL	# of Responses	JLAB	# of Responses
What was the response time after you entered your ticket? (in working days)?						
<= 1 day		1		3		8
1 day		2		3		1
2 days		0		0		0
3 or more days		1		0		1
Total	4		6		10	

User Feedback (Sampling)

- **BNL**
  - It would be nice to have Web access to see the job queue
    - People do have web access and can log in to see all information. Please reach out to the site managers for assistance.

- **FNAL**
  - Module paths aren't very clear without digging about, especially when it comes to linking for the sake of compiling code base for running
    - Documentation for the above issue does exist. Please reach out to the site managers for assistance.

- **JLAB**
  - Please improve documentation on alternatives to globus for transferring data in and out of Jlab. Not all computing centers support globus.
    - We do have alternatives to Globus and have added that to the current LQCD documentation

- **Call For Proposal**
  - It would be helpful to get access to machines during the call for proposal time in order to get realistic timings, especially GPUs where performance varies widely between architectures, and also to start compiling codes before the start of allocation running time
    - Anyone can ask for a type c allocation for this purpose

Summary

- Operations continue to run smoothly JLAB, BNL and FNAL
  - We continue to receive excellent service and support from all labs
- Site Managers and their support teams strive to provide the best service and support possible
- Please submit jobs and use your allocations according to the run plans submitted with your proposals.
- We appreciate your participation in our Annual User Survey and have made improvements based on your input – keep the feedback coming

Thank you for keeping our systems busy!

Questions?