Results of the FY2012 Scientist Survey

compiled November 2011

presented by Peter H. Garbincius

February 6, 2012

for the rest of the team:

Dean Hoffer, Bridgette Fricks, Randy Herber, Panagiaotis Spentzouris, Jim Kowalkowski, Gennadiy Lukhanin, Marc Paterno, et al.

5 year Scientist Surveys

Include:

Applications Physicists

Applied Scientists

Joint Appointees

Associate Scientists

Scientists

Division Heads/Deputies

Members of Directorate

not-Include:

Research Associates

Guest Scientists

Visitors

Engineering Physicists

Thank you for 100% participation!

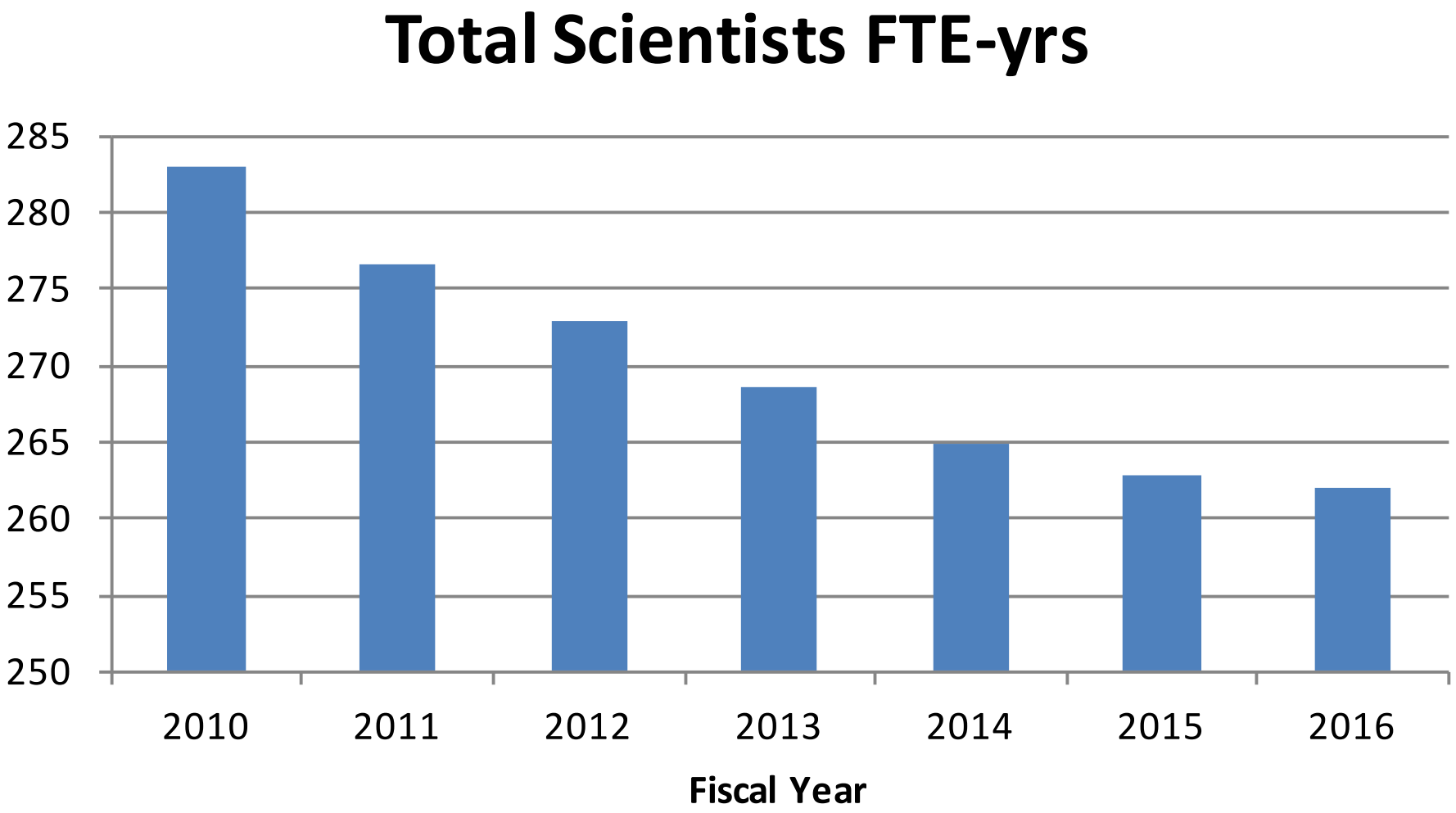
- Corrections for
  - Headcount => FTE-yrs
  - Missing Data, Missing People (VSP, resignations)
  - Start/Ending Dates
  - Name Differences between FYs
  - Specify popular “other” categories
  - WDRS defines “scientists” by a List-Serv!
- Projected assignments were self-proposed by individual scientists
  - instructed to get agreement with supervisor before submitting – was this done? – show of hands, please!

- This is the third 5 year Survey

survey FY	FY2010	FY2011	FY2012	Head	FTE -
date	Dec-09	Feb-11	Nov-11	Count	FTE-yrs
FY 2009	history				
FY 2010	projection	history		296	283.0
FY 2011	projection	projection	history	301	276.6
FY 2012	projection	projection	projection	279	272.8
FY 2013	projection	projection	projection	274	268.5
FY 2014	projection	projection	projection	270	264.9
FY 2015		projection	projection	268	262.9
FY 2016			projection	267	261.9

  - FY 2009 historical data is incomplete and not checkable
  - FY2011 survey delayed to decision on Tevatron operations
- This report & EXCEL summary (without names) @ ***http://www.fnal.gov/directorate/OIP/OHAP/SciS/index.htm***
- D/S/C Heads can request information ***with*** names

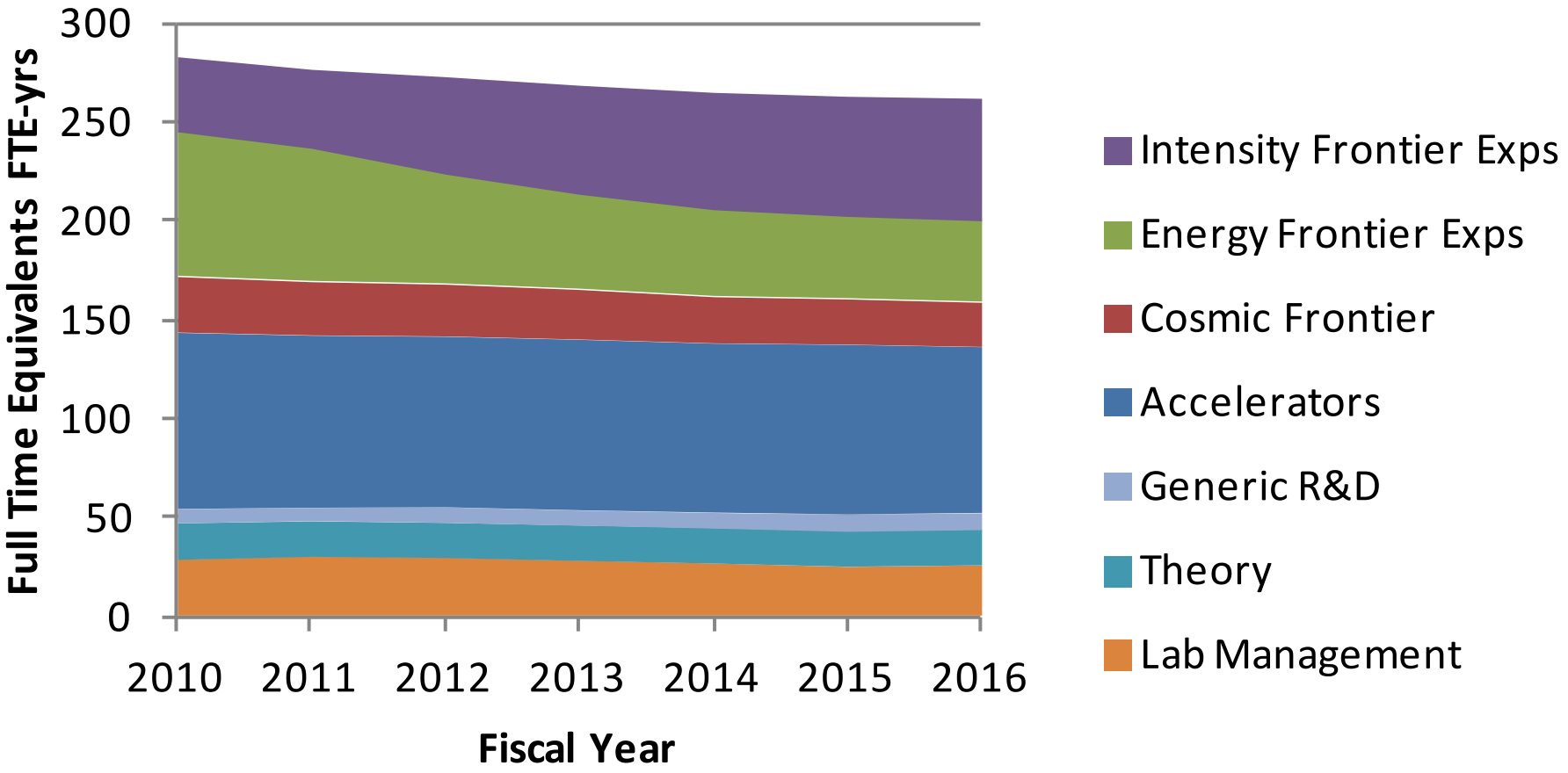
Doesn't include anticipated new hires for FY 2012-2016

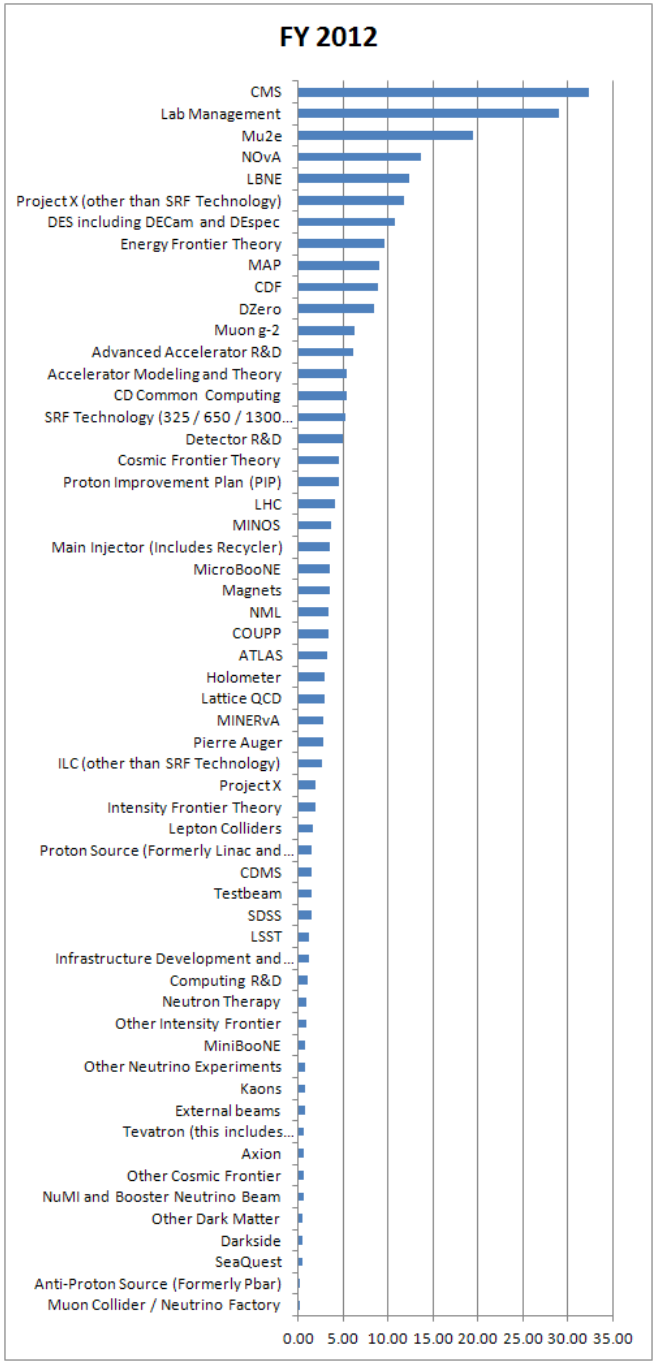


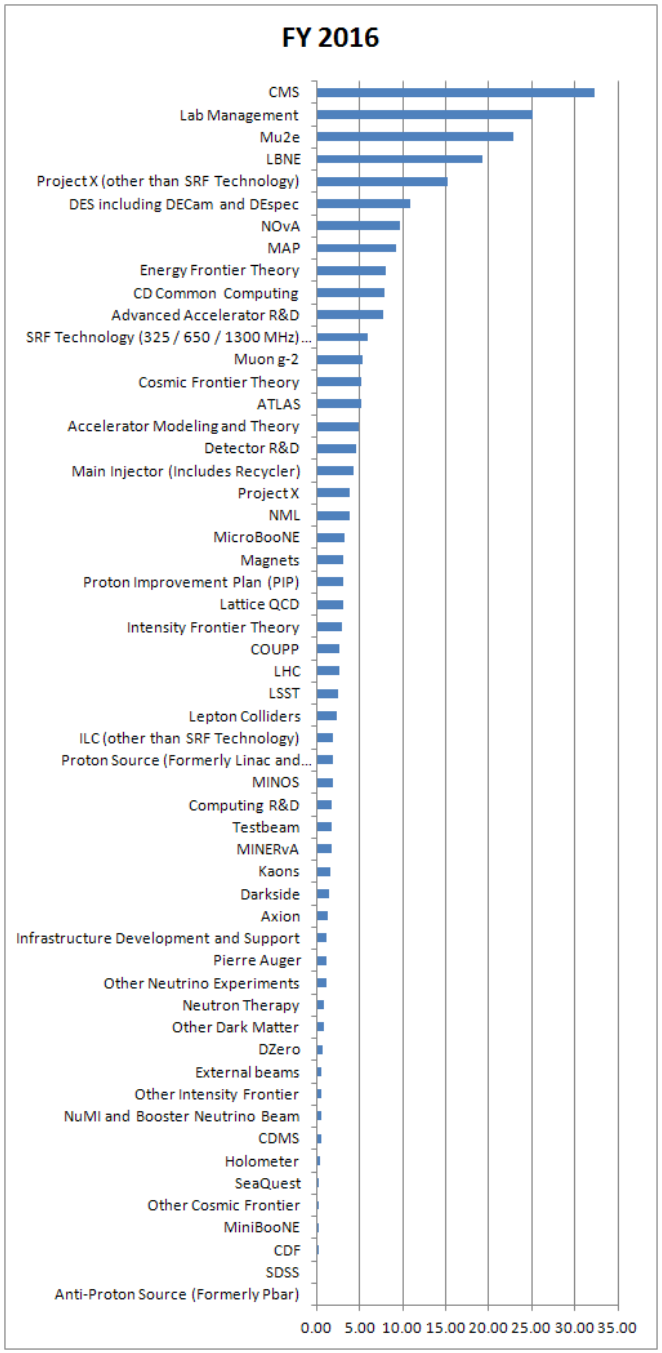
Numbers are nice, but…

- Maybe we should also look back at the ***names*** of the individuals who took the FY 2010 survey but who are no longer with us.
- What can we learn from the ***reasons*** that they left Fermilab?

FY 2012 Scientist Survey - Nov 2011




FY 2012
CMS
Lab Management
Mu2e
NOvA
LBNE
Project X (other than SRF Technology)
DES including DECam and DEspec
Energy Frontier Theory
MAP
CDF
DZero
Muon g-2
Advanced Accelerator R&D
Accelerator Modeling and Theory
CD Common Computing
SRF Technology (325 / 650 / 1300...
Detector R&D
Cosmic Frontier Theory
Proton Improvement Plan (PIP)
LHC
MINOS
Main Injector (Includes Recycler)
MicroBooNE
Magnets
NML
COUPP
ATLAS
Holometer
Lattice QCD
MINERvA
Pierre Auger
ILC (other than SRF Technology)
Project X
Intensity Frontier Theory
Lepton Colliders
Proton Source (Formerly Linac and...
CDMS
Testbeam
SDSS
LSST
Infrastructure Development and...
Computing R&D
Neutron Therapy
Other Intensity Frontier
MiniBooNE
Other Neutrino Experiments
Kaons
External beams
Tevatron (this includes...
Axion
Other Cosmic Frontier
NuMI and Booster Neutrino Beam
Other Dark Matter
Darkside
SeaQuest
Anti-Proton Source (Formerly Pbar)
Muon Collider / Neutrino Factory
0.00 5.00 10.00 15.00 20.00 25.00 30.00 35.00


FY 2016
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Lab Management
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LBNE
Project X (other than SRF Technology)
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SRF Technology (325 / 650 / 1300 MHz)...
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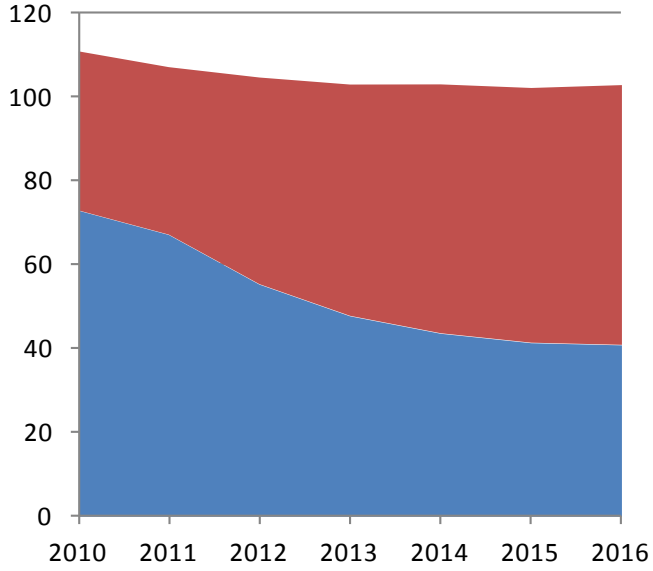
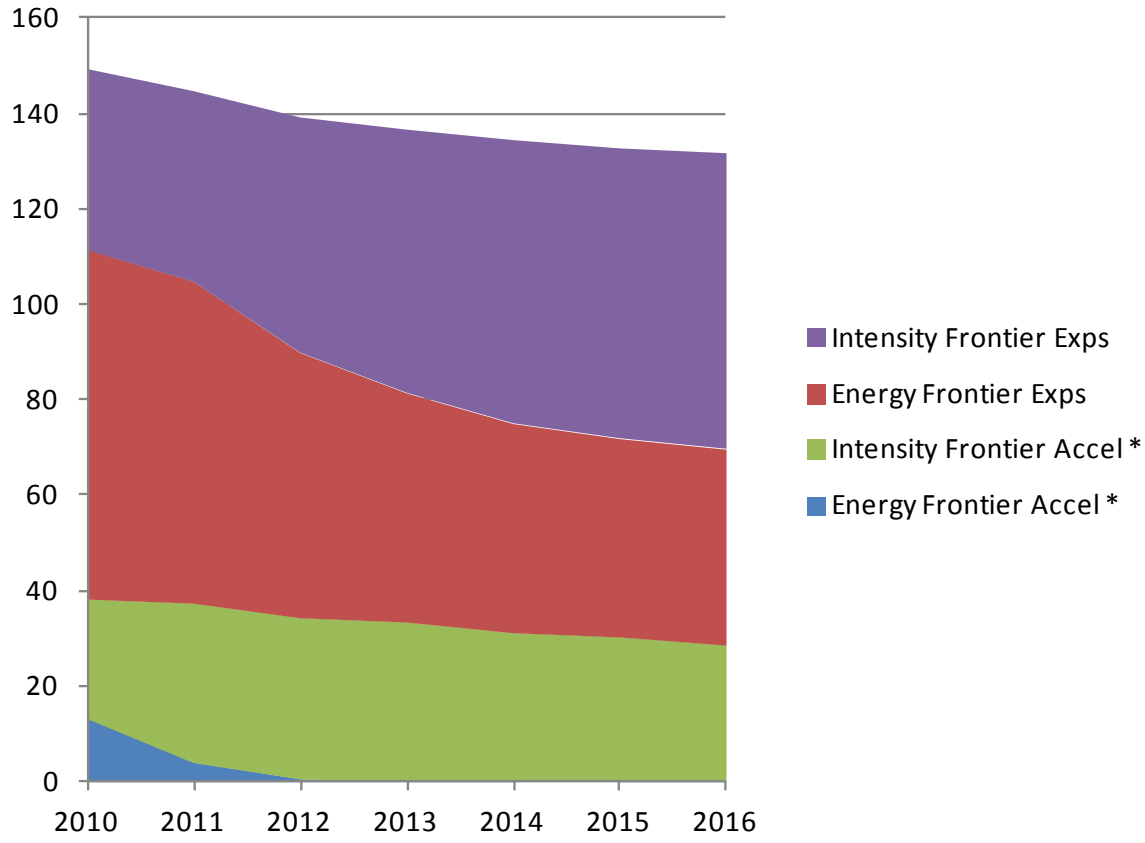
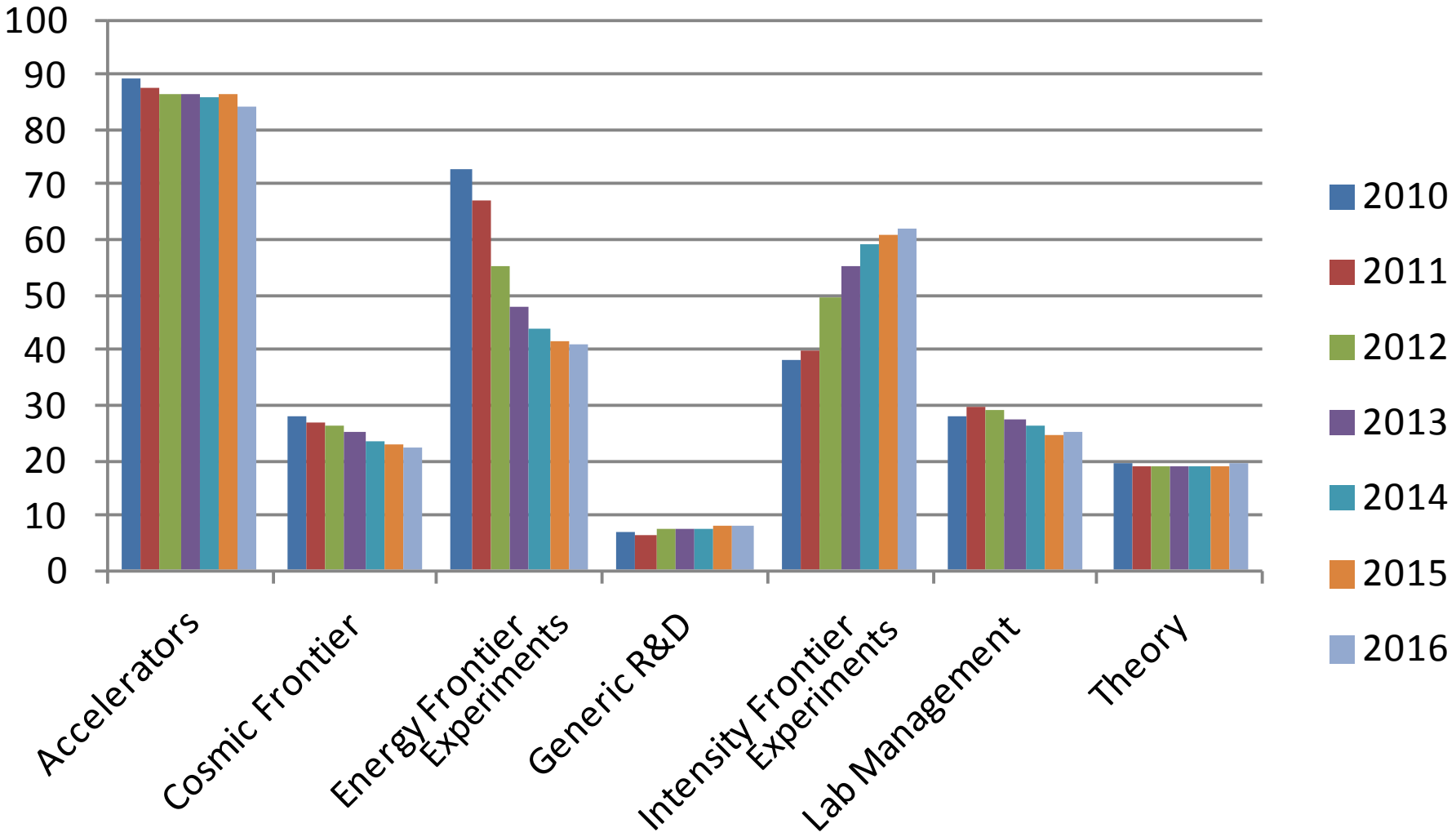
Migration Energy Frontier => Intensity Frontier

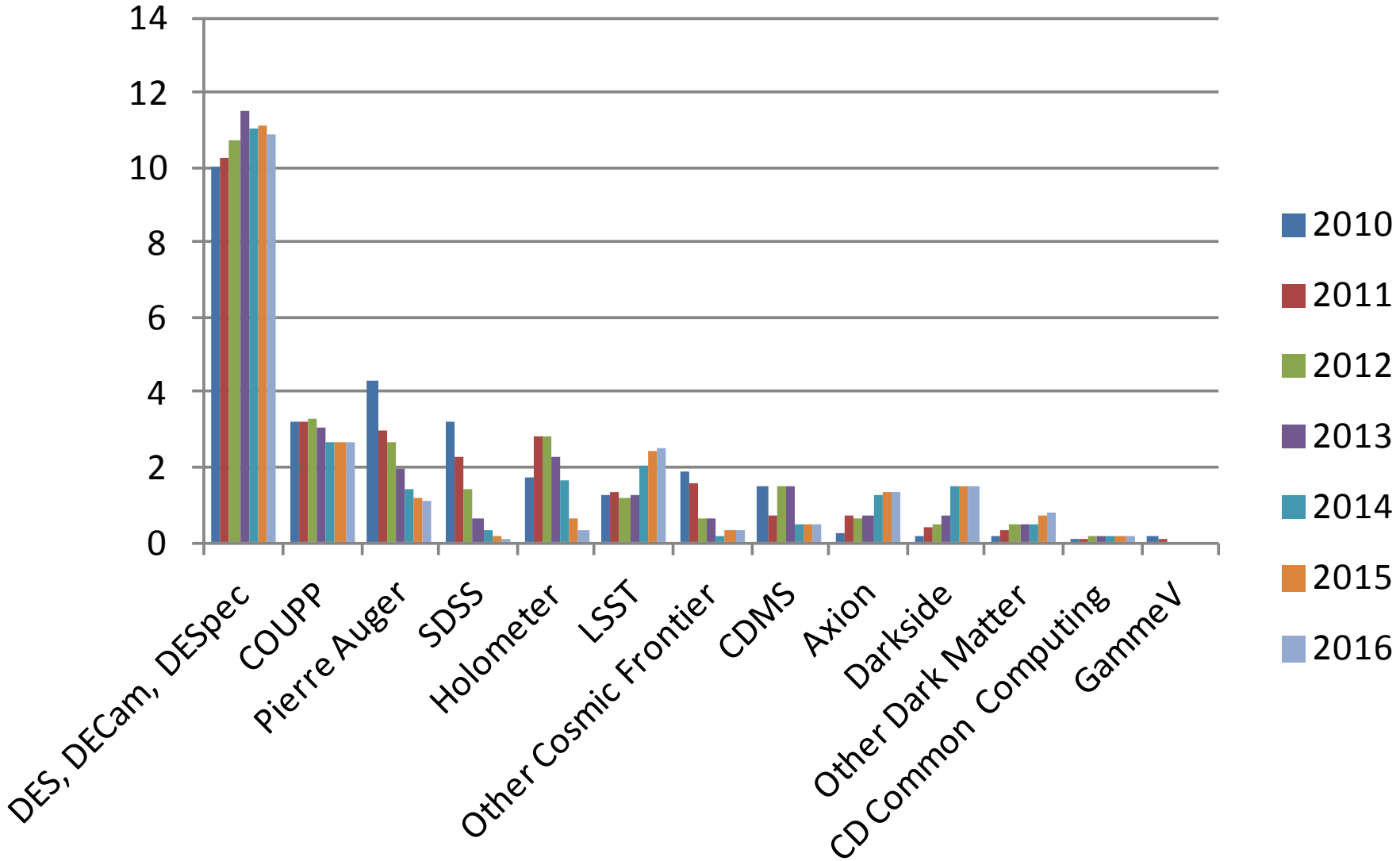




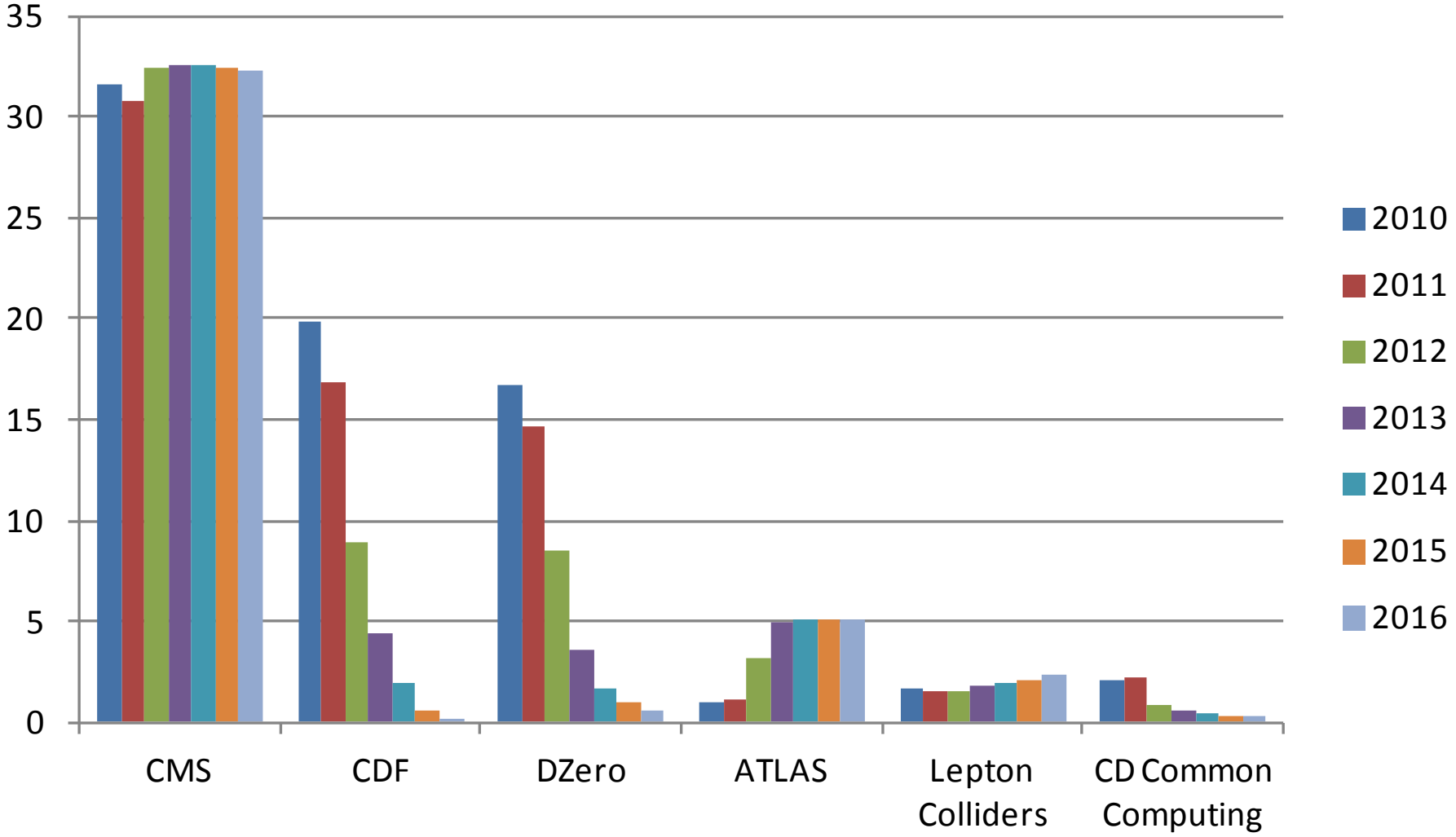
all activities



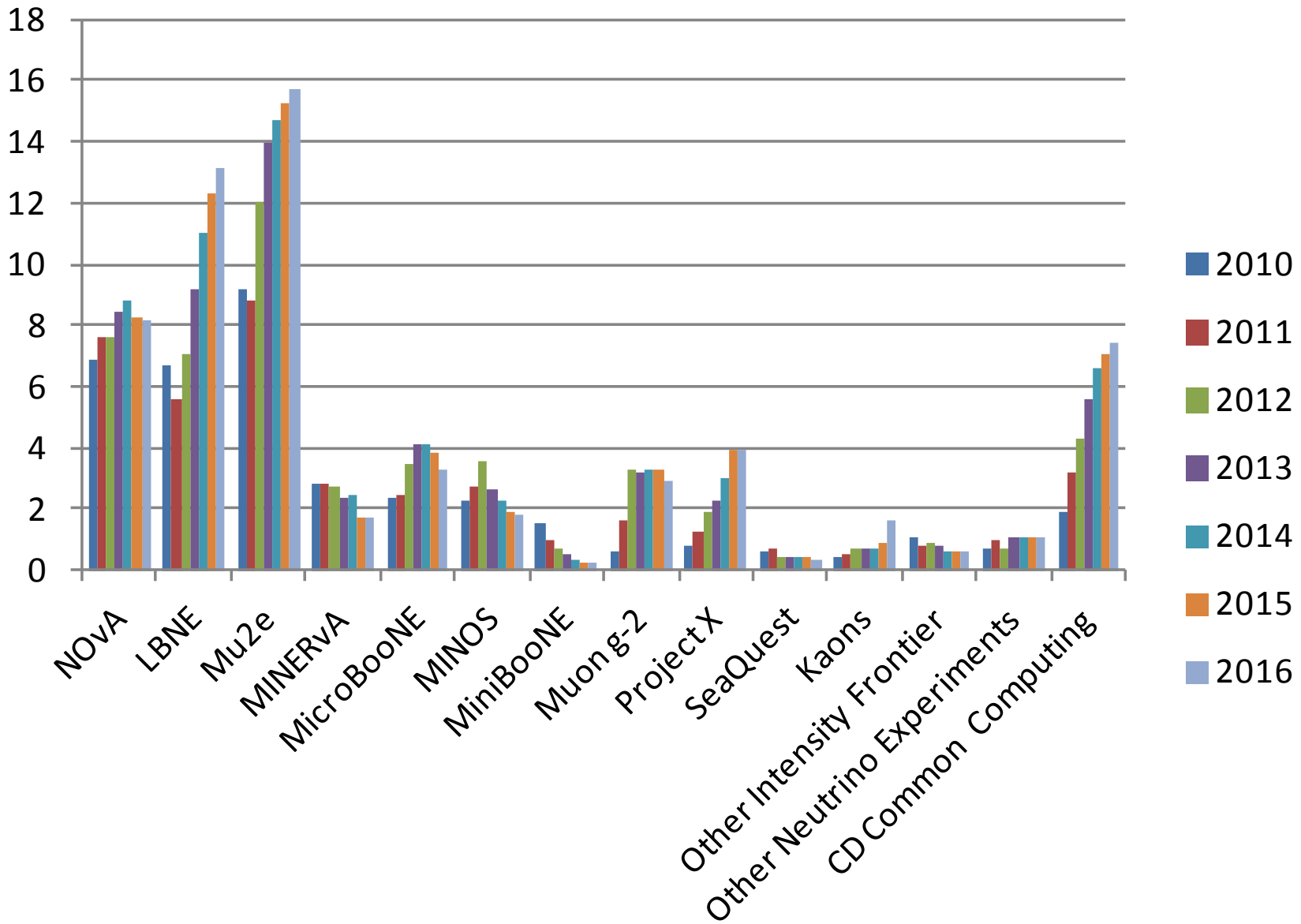
Cosmic Frontier



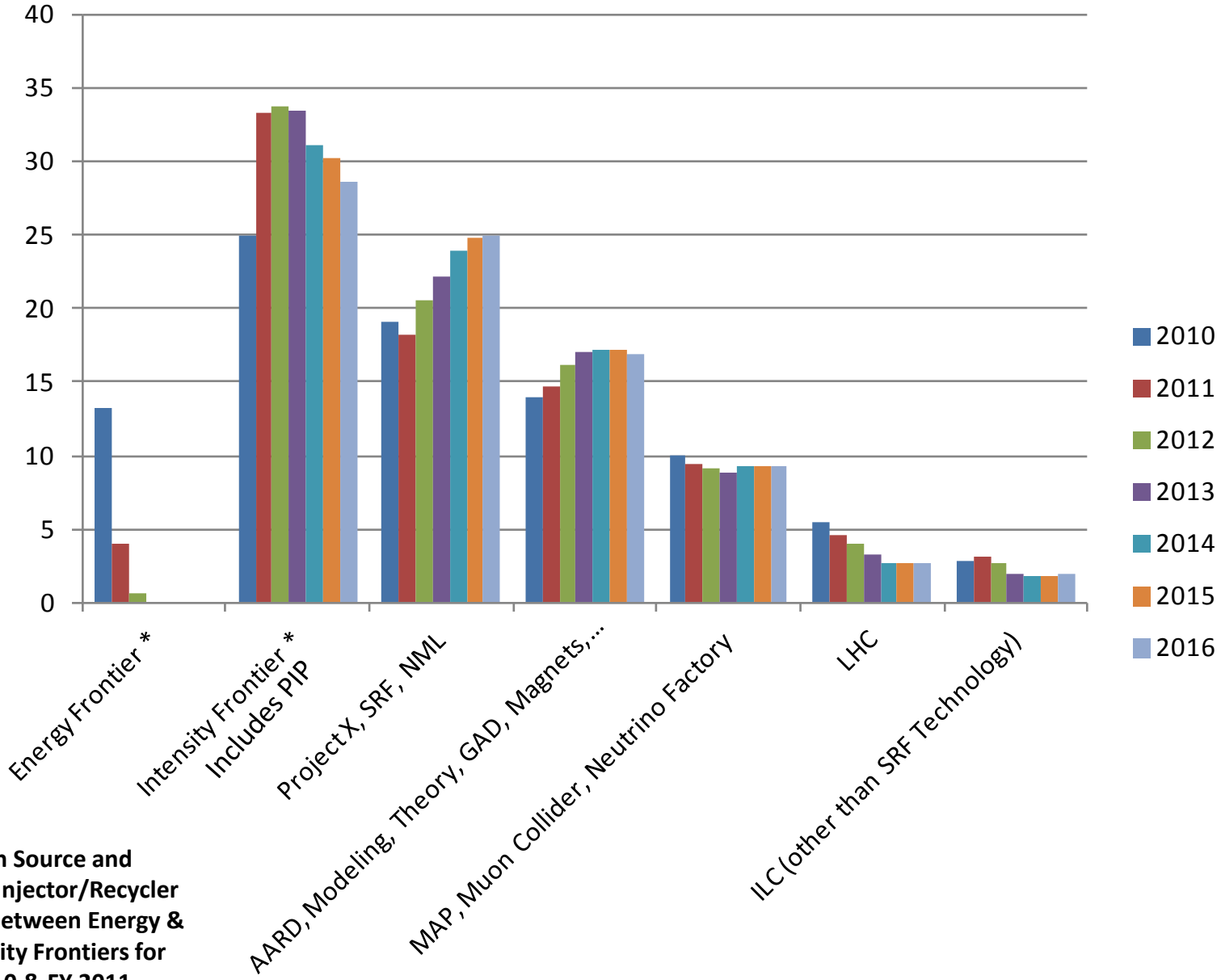
Energy Frontier Experiments



Intensity Frontier Experiments



Accelerators

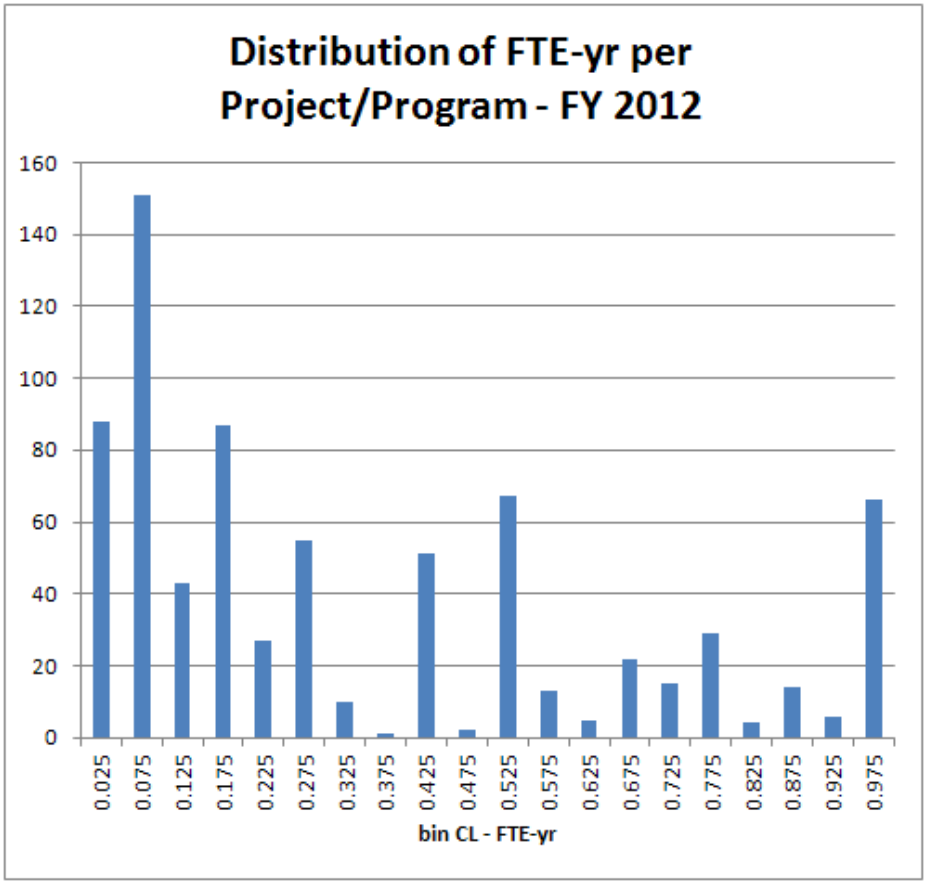


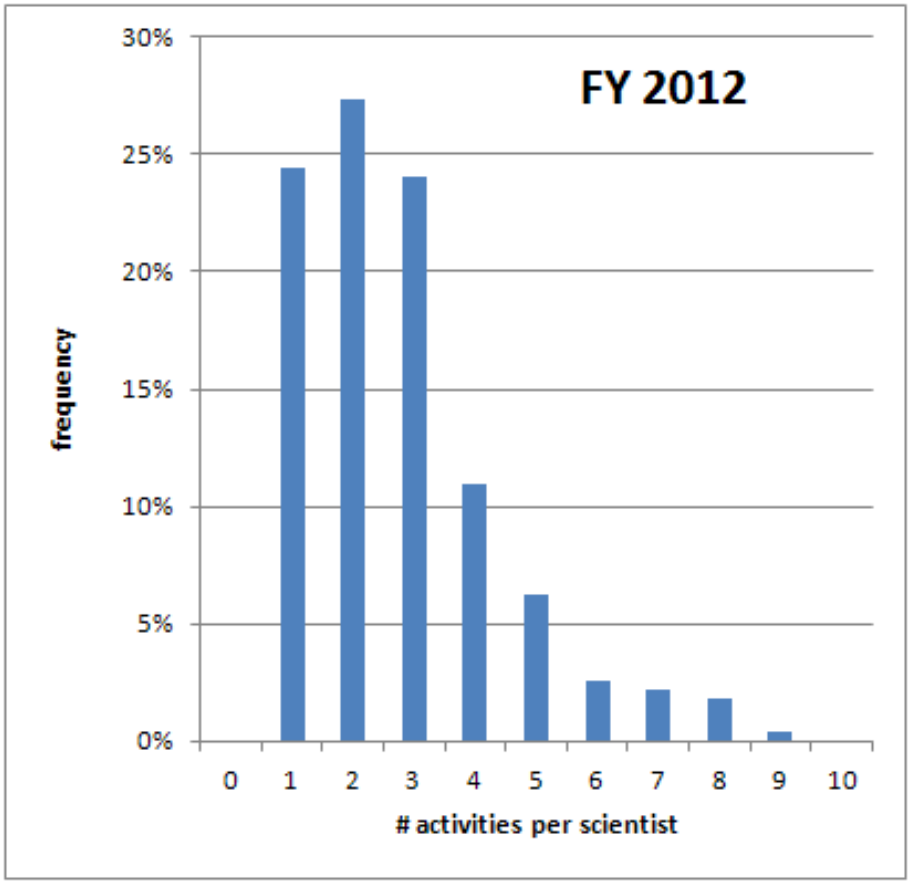
* **Proton Source and Main Injector/Recycler Split between Energy & Intensity Frontiers for FY 2010 & FY 2011**

So how can we use this to plan…?

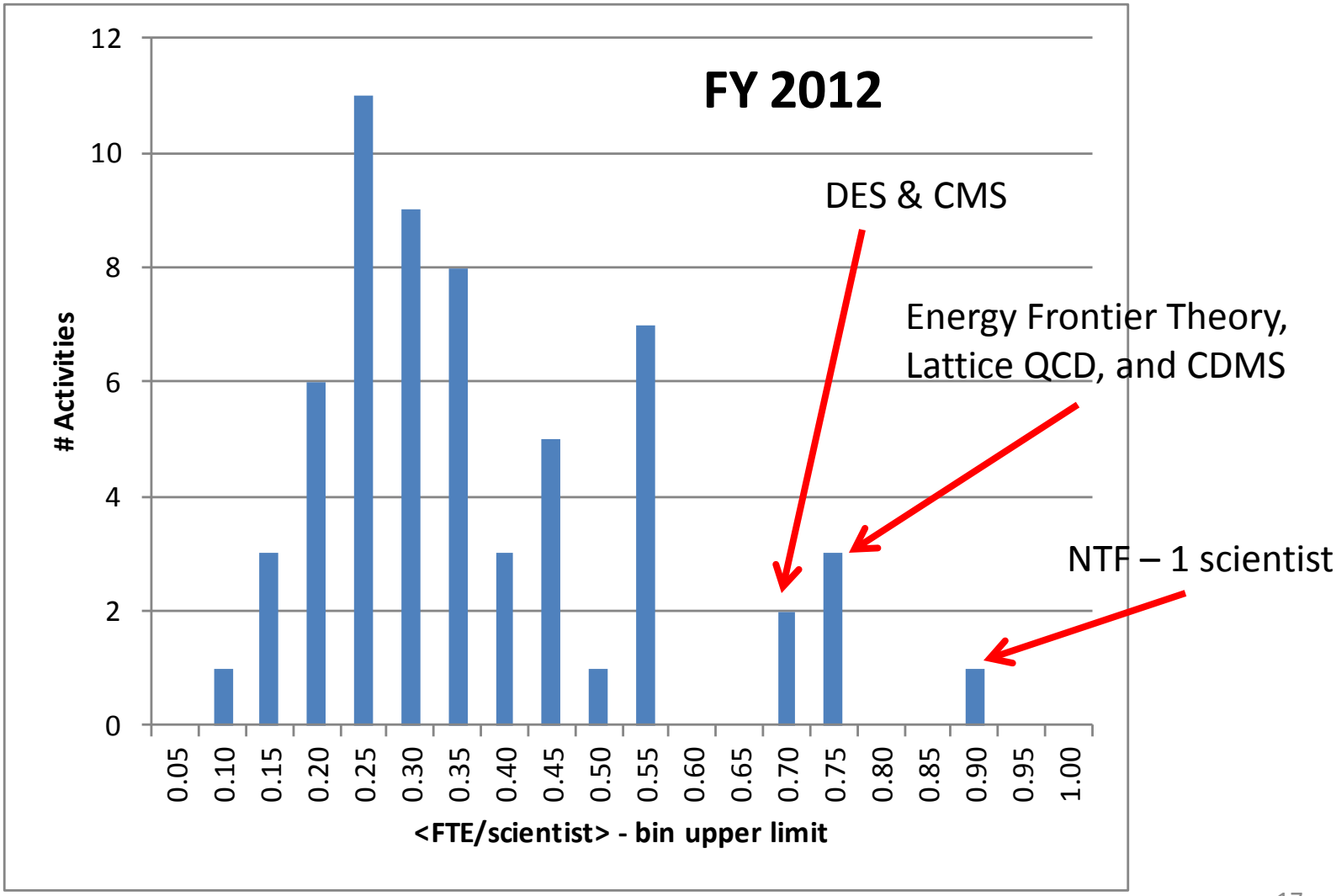
- What about those scientists working on 5 or more activities? Are they overly fragmented? Do their activities get a fair share?
- Health of activities: FTE Sum, # Participants, average FTE per participant, σ (FTE/participant) look at top 10
- Both Accel + Exp for NOvA, Mu2e, g-2, and LBNE also CD Common Computing has: Cosmic, Energy, Intensity Frontiers sections
- Is our scientist deployment appropriate? Effective?
- …
- Need "Lessons Learned" from executing this survey. Was it cost-effective? Does the usefulness of the information offset the cost of performing the survey? - Also applies to OHAP survey.

fragmentation
how to diagnose health of an activity?



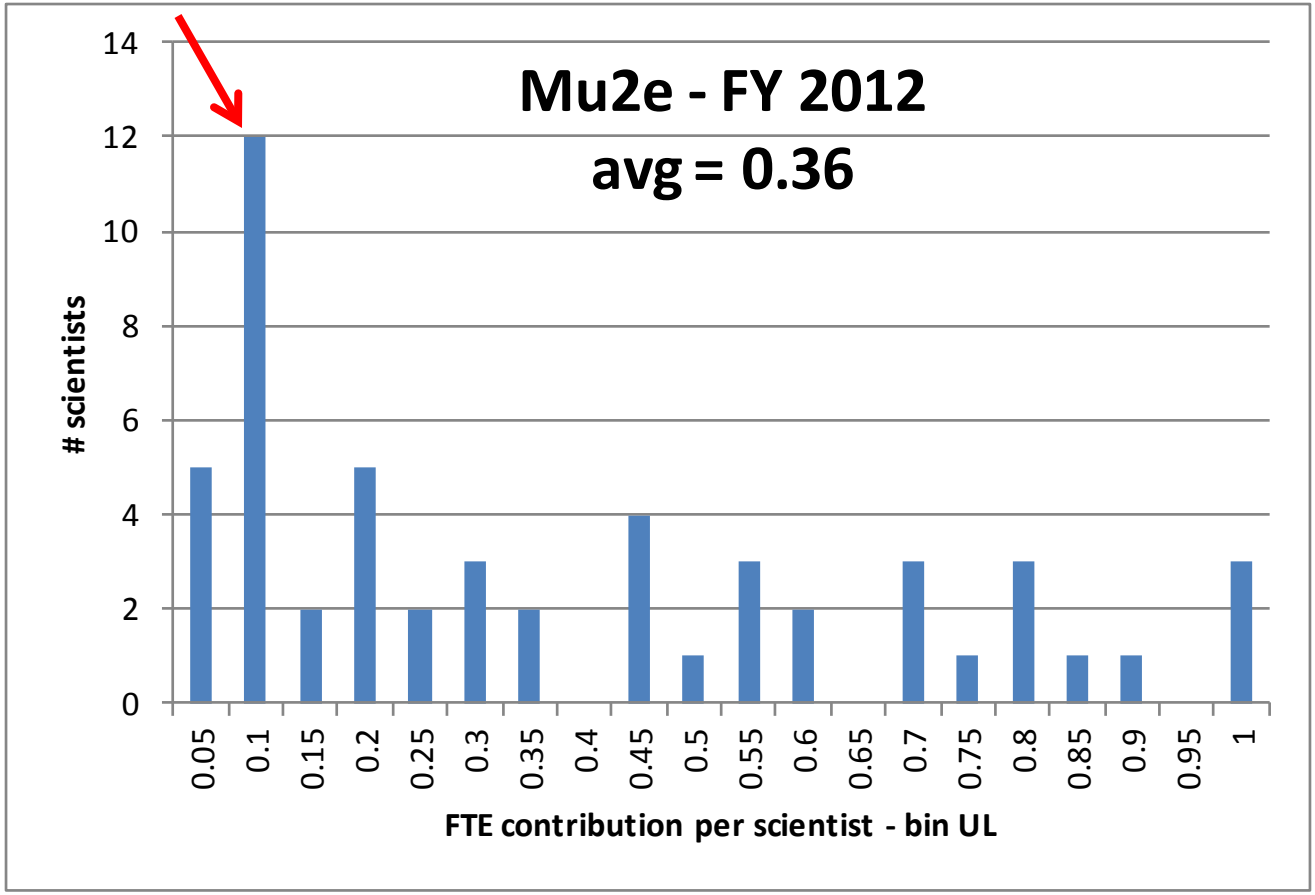


What is optimal? 1@100% - 2@50% - 3@33% … 10@10%



Example of a "top-10" scientist effort for FY2012 with a middlin' <fte/scientist>

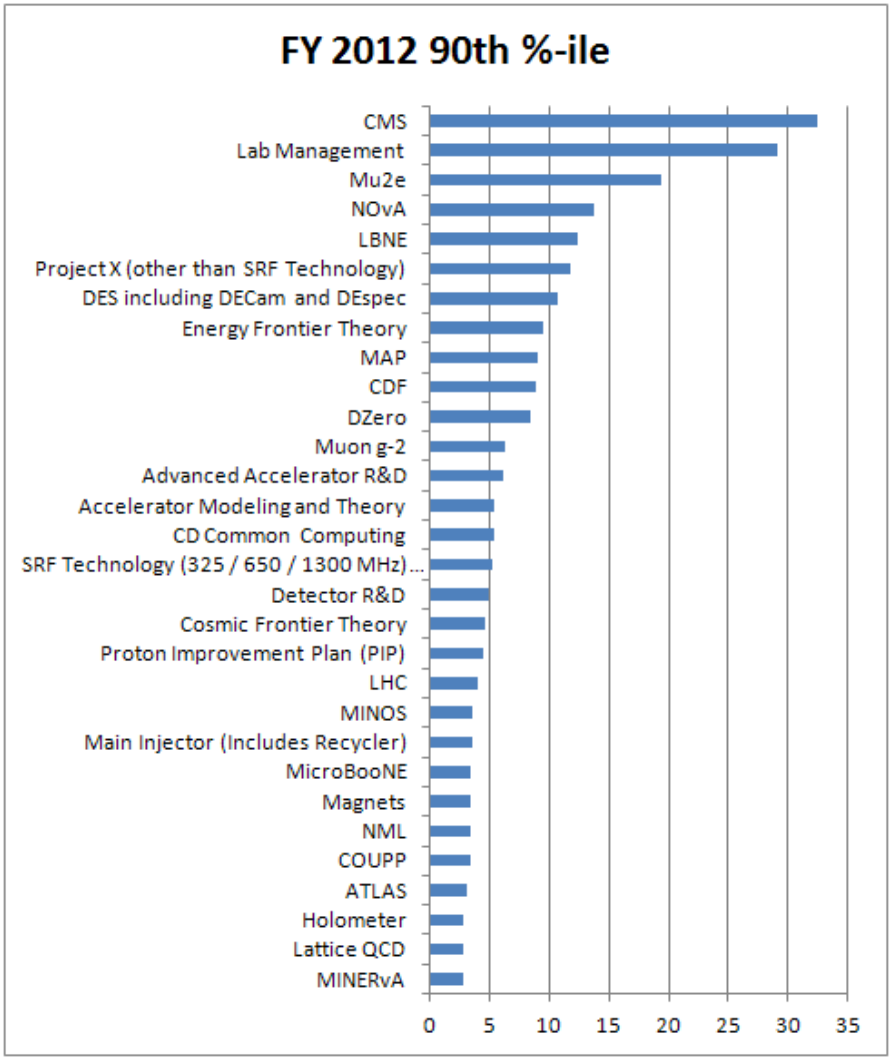
Are these low FTEs effective? maybe… depends on individuals & tasks



Sum of Effort	Year							
Project/Program	2010	2011	2012	2013	2014	2015	2016	Grand Total
Accelerator Modeling and Theory	3.65	4.9	5.4	5.3	5.45	5.45	4.85	35
Advanced Accelerator R&D	5.9	5.27885	6.15	7.05	7.4	7.68	7.68	47.1388
Anti-Proton Source (Formerly Pbar)	1.45	0.76	0.2	0.2	0.1	0.1	0.1	2.91
ATLAS	1	1.2	3.15	4.9	5.15	5.15	5.15	25.7
Axion	0.25	0.7	0.6	0.75	1.25	1.35	1.35	6.25
CD Common Computing	4.15808	5.46654	5.35	6.3	7.15	7.5	7.85	43.7746
CDF	19.8269	16.8103	8.86	4.35	1.94	0.53	0.22	52.5373
CDMS	1.5	0.7	1.5	1.5	0.5	0.5	0.5	6.7
CMS	31.576	30.7785	32.4	32.6	32.5	32.4	32.3	224.554
Computing R&D	0.98	1.05	1.05	1.4	1.3	1.8	1.8	9.38
Cosmic Frontier Theory	5.4	4.65	4.55	4.65	4.65	5	5.15	34.05
COUPP	3.2	3.255	3.31	3.05	2.7	2.7	2.7	20.915
Darkside	0.2	0.4	0.5	0.75	1.5	1.5	1.5	6.35
DES including DECam and DEspec	10.01	10.25	10.75	11.5	11.05	11.1	10.85	75.51
Detector R&D	5.01	4.5	4.93	4.4	4.6	4.7	4.6	32.74
DZero	16.7633	14.6816	8.45	3.6	1.65	0.95	0.65	46.7449
Energy Frontier Theory	9.07808	9.8679	9.53	8.83	8.68	8.28	8.08	62.346
External beams	1.03	1.79308	0.69	0.92	1.02	0.92	0.62	6.99308
GammeV	0.2	0.0416						0.2416
Generic Accelerator R&D / Research	0.25	0.00825						0.25825
Holometer	1.7	2.8	2.85	2.25	1.65	0.65	0.35	12.25
ILC (other than SRF Technology)	2.81	3.13	2.62	2.02	1.77	1.87	1.97	16.19
Infrastructure Development and Support	1.9186	1.35	1.2	1.15	1.3	1.2	1.2	9.3186
Intensity Frontier Theory	2.49808	1.6491	1.89	2.64	2.74	2.89	2.94	17.2472
Kaons	0.4	0.5	0.7	0.7	0.7	0.9	1.65	5.55
Lab Management	28.0918	29.74	29.1	27.52	26.13	24.41	25.17	190.162
Lattice QCD	2.6	2.85	2.85	2.9	2.95	3	3.05	20.2
LBNE	11.0684	10.7512	12.35	14.71	16.71	18.51	19.26	103.36
Lepton Colliders	1.68	1.55	1.6	1.8	2	2.05	2.3	12.98

LBNE	11.0684	10.7512	12.35	14.71	16.71	18.51	19.26	103.36
Lepton Colliders	1.68	1.55	1.6	1.8	2	2.05	2.3	12.98
LHC	5.4877	4.62	4.01	3.31	2.7	2.7	2.65	25.4777
LSST	1.25	1.32	1.2	1.3	2.05	2.4	2.5	12.02
Magnets	2.26962	3.18923	3.43666	3.52	3.02	2.87	3.12	21.4255
Main Injector (Includes Recycler)	8.66	5.157	3.56	4.11	4.01	4.31	4.31	34.117
MAP	8.81731	9.17692	8.97666	8.67	9.07	9.32	9.27	63.3009
MicroBooNE	2.39135	2.43846	3.45	4.1	4.1	3.85	3.3	23.6298
MINERvA	2.85	2.84775	2.7	2.4	2.45	1.7	1.7	16.6478
MiniBooNE	1.52808	0.94	0.75	0.48	0.33	0.28	0.23	4.53808
MINOS	2.31	2.72308	3.57	2.65	2.25	1.95	1.85	17.3031
Mu2e	15.5267	16.9125	19.4	21.12	21.98	22.35	22.8	140.089
Muon Collider / Neutrino Factory	1.1716	0.2288	0.15	0.15	0.2			1.9004
Muon g-2	0.99215	3.5	6.28	6.28	6.08	6.03	5.33	34.4922
Neutron Therapy	0.9	0.9	0.9	0.9	0.9	0.9	0.9	6.3
NML	2.75	2.5	3.4	3.4	3.7	3.8	3.8	23.35
NOvA	11.4507	12.1653	13.69	13.69	12.19	10.64	9.74	83.566
NuMI and Booster Neutrino Beam	1.25215	0.75	0.59	0.53	0.63	0.53	0.53	4.81215
Other	-5E-16							-5E-16
Other Cosmic Frontier	1.85	1.60385	0.6	0.6	0.2	0.3	0.3	5.45385
Other Dark Matter	0.2	0.3	0.5	0.5	0.5	0.7	0.8	3.5
Other Intensity Frontier	1.1	0.82885	0.85	0.8	0.6	0.6	0.6	5.37885
Other Neutrino Experiments	0.7375	0.95	0.7	1.1	1.1	1.1	1.1	6.7875
Pierre Auger	4.28	3.0164	2.7	2	1.4	1.2	1.1	15.6964
Project X	0.89707	1.3	1.95	2.25	3.05	3.9	3.9	17.2471
Project X (other than SRF Technology)	8.6	9.85	11.82	12.98	14.2	15.08	15.23	87.76
Proton Improvement Plan (PIP)		4.21154	4.45	3.75	3.55	3.2	3.1	22.2615
Proton Source (Formerly Linac and Booster)	4.85	1.61	1.51	1.95	1.85	1.9	1.85	15.52
SDSS	3.2	2.3	1.4	0.6	0.3	0.2	0.1	8.1
SeaQuest	0.6513	0.75	0.45	0.4	0.4	0.4	0.3	3.3513
SRF Technology (325 / 650 / 1300 MHz) including SRF Materials	7.60308	5.91825	5.26	5.72	5.95	5.95	5.95	42.3513
Testbeam	1.0513	0.8	1.45	1.5	1.6	1.65	1.7	9.7513
Tevatron (this includes decommissioning and analysis)	4.11855	2.35	0.6					7.06855
Grand Total	282.945	276.57	272.833	268.5	264.9	262.9	261.9	1890.55
					Lab Management/total =			0.10059

same "Top 9"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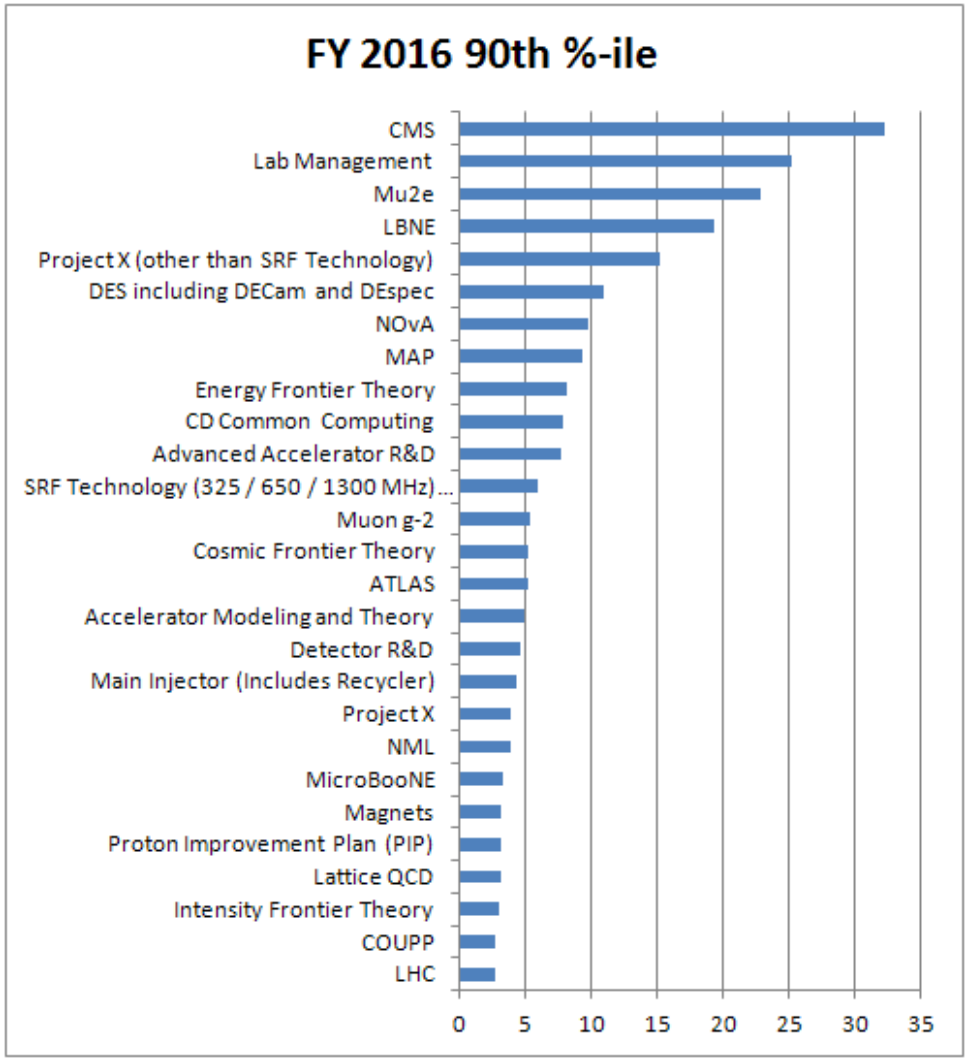
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COUPP
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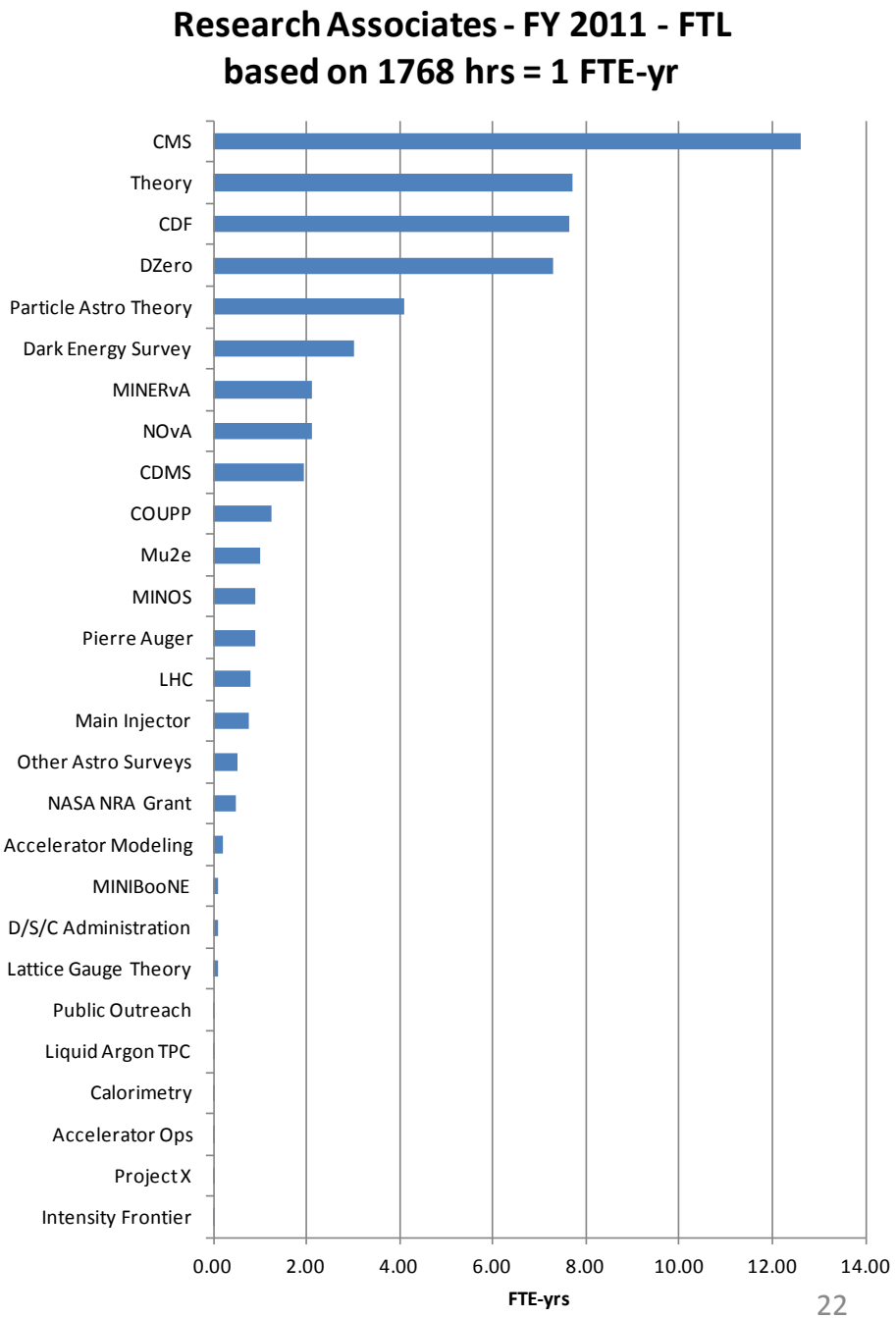
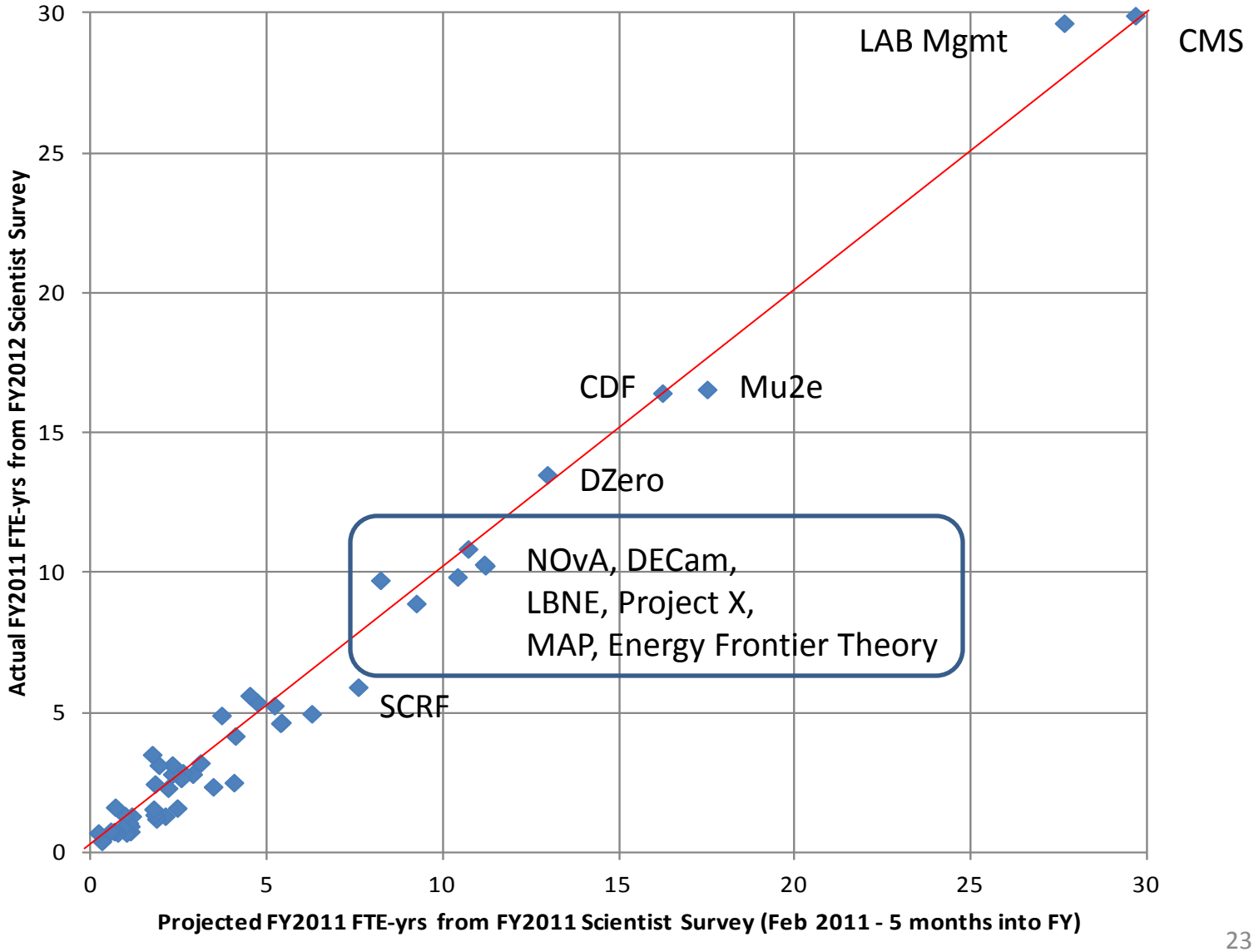
35

Addendum after presentation:

At my talk, it was noted that Research Associates augment Fermilab Scientists on experiments. As a sample, here is a quick study, based on actual labor charges for only one year, FY 2011, of activities on which RAs worked.

In FY 2011 there were ***57*** RAs (headcount) corresponding to ***55.8*** FTE-yrs distributed as shown =>



28feb2012: How well do projections compare to actuals? Look at FY2011 (use only scientists on staff for entire FY)