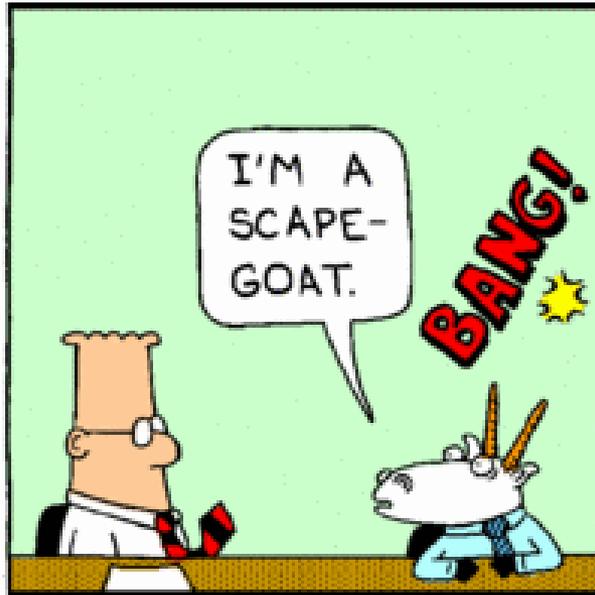


Budget and Workforce

2014 Fundamental Symmetries and Neutrinos
Town Meeting

Vince Cianciolo, Susan Seestrom, Brad Filippone

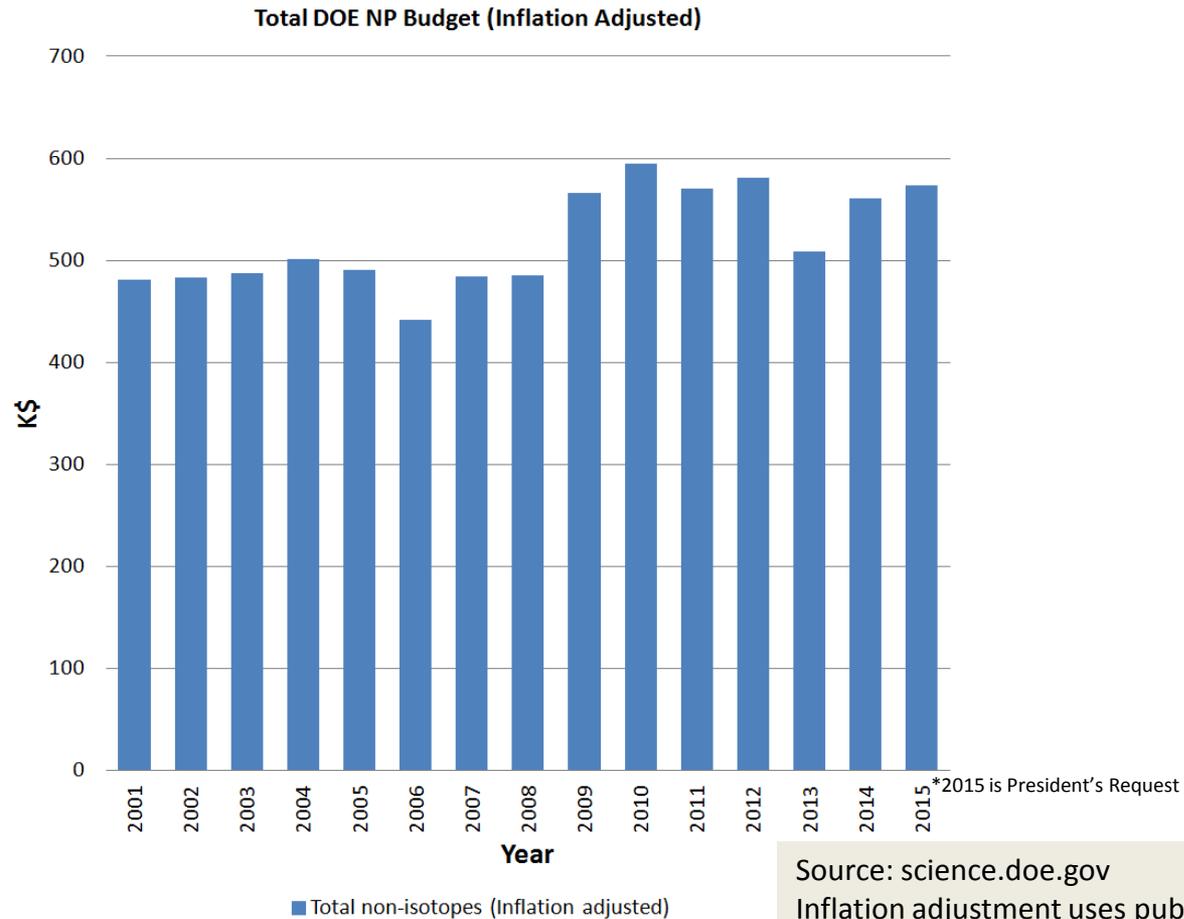


FSv – Community Size, Funding

Research Effort	Funding (\$M)	Faculty & Res Scientist FTE	Postdoc FTE	Grad Student FTE
Experimental Neutrino	14.1	28	22	21
Experimental Neutron	5.2	16	7	8
Experimental Other	3.4	12	8	11
TOTAL EXP	22.7	55	37	40
TOTAL Theory	2	11.4	2.5	15

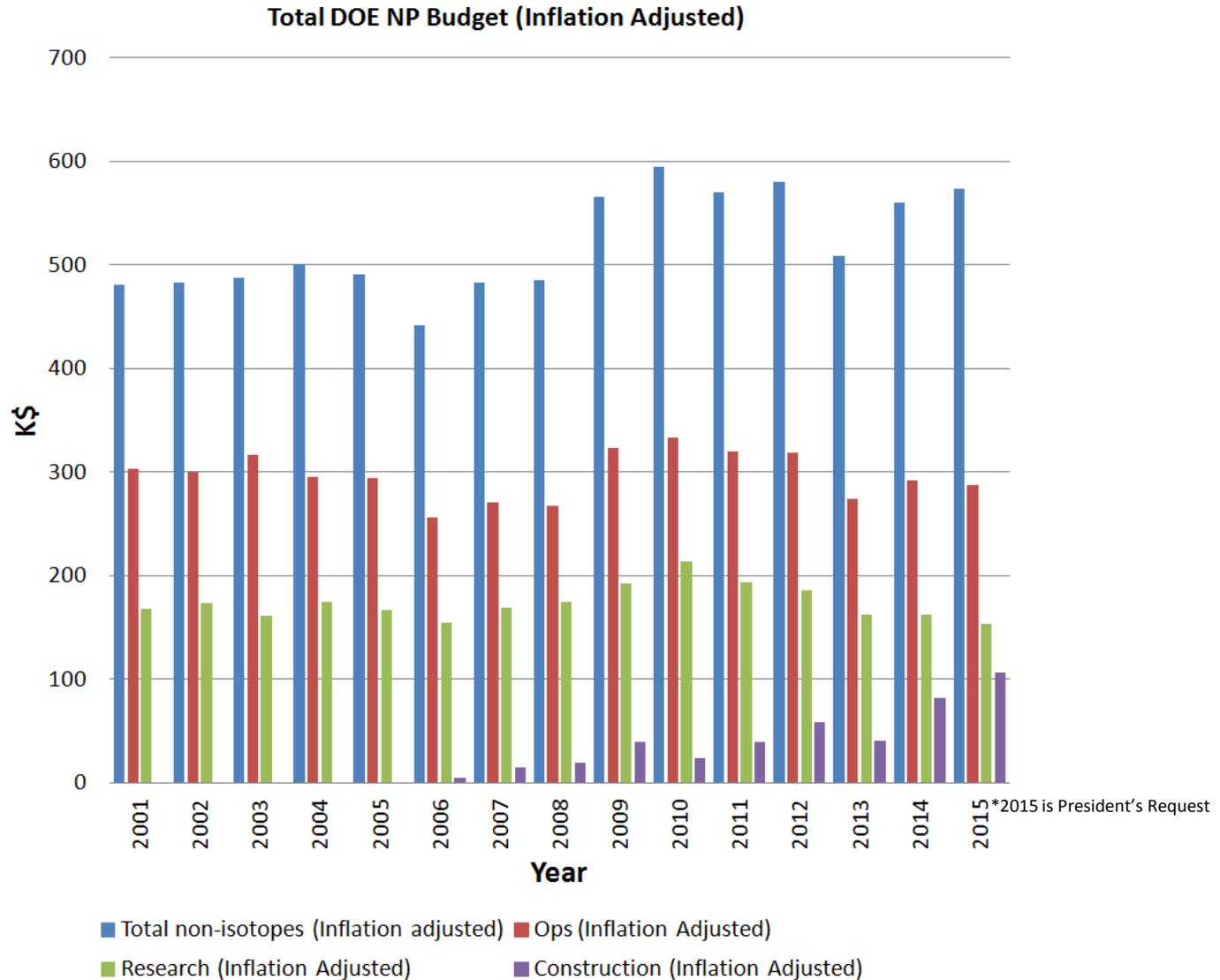
- Includes both DOE LE + ME
- Does not include NSF
- Total DOE/NP research budget (not including isotopes) is \$156M
 - FSv >15% of current DOE/NP research budget

DOE/NP Budget From 35,000 Feet

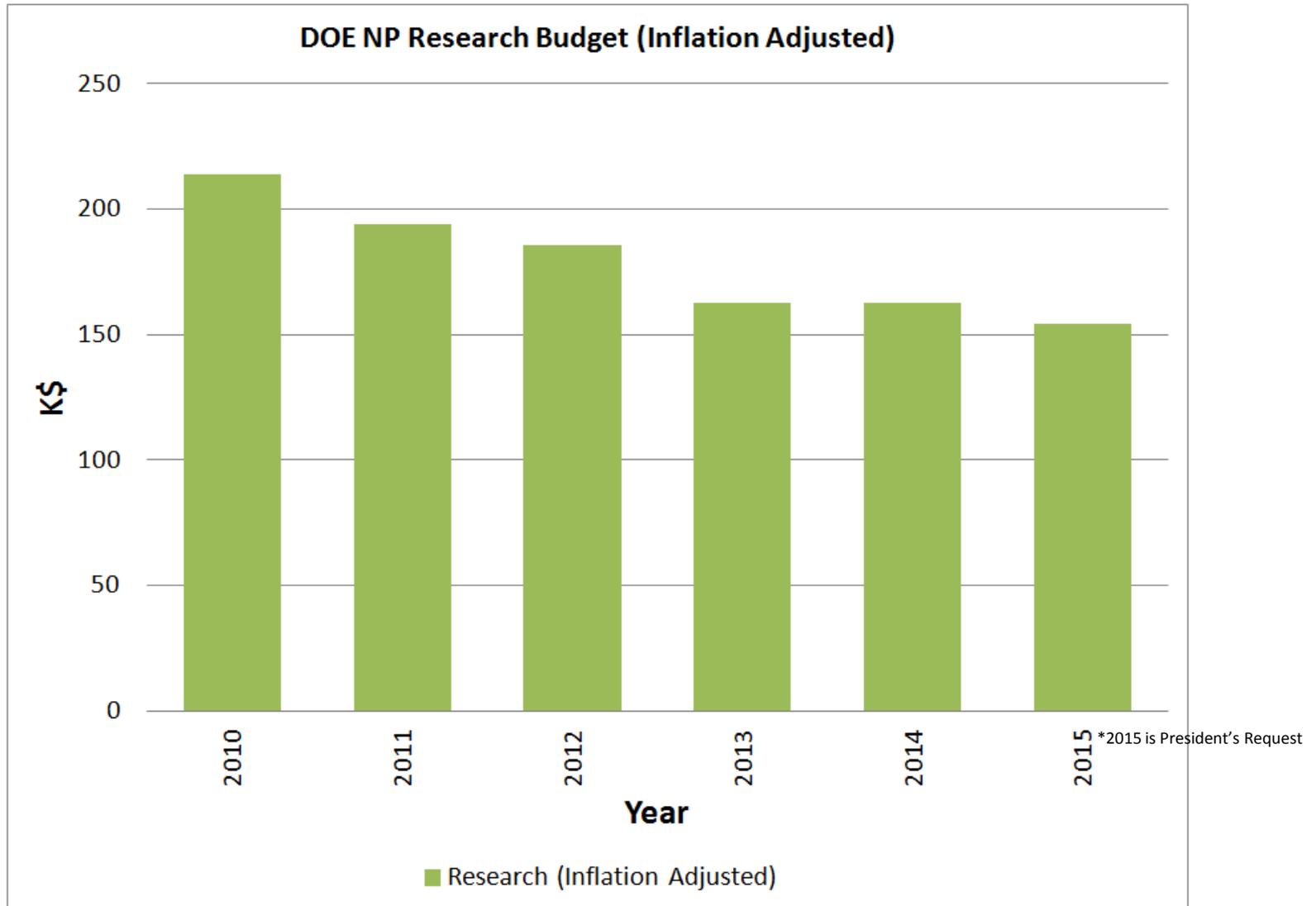


- Taking the long view, the overall NP budget is up a bit.
- So why doesn't it feel that way?

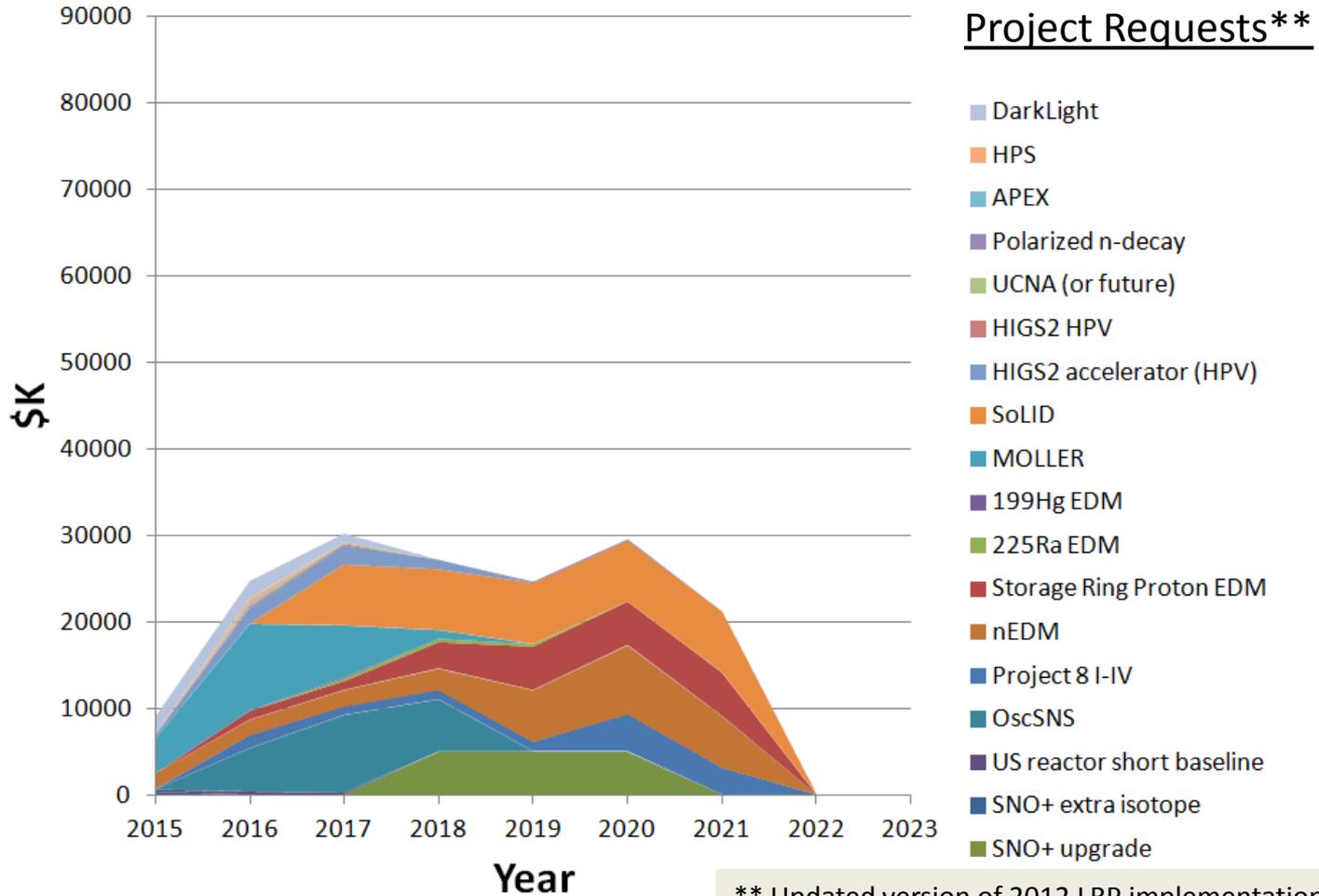
Research Budget Down Recently



Research Budget Down Recently

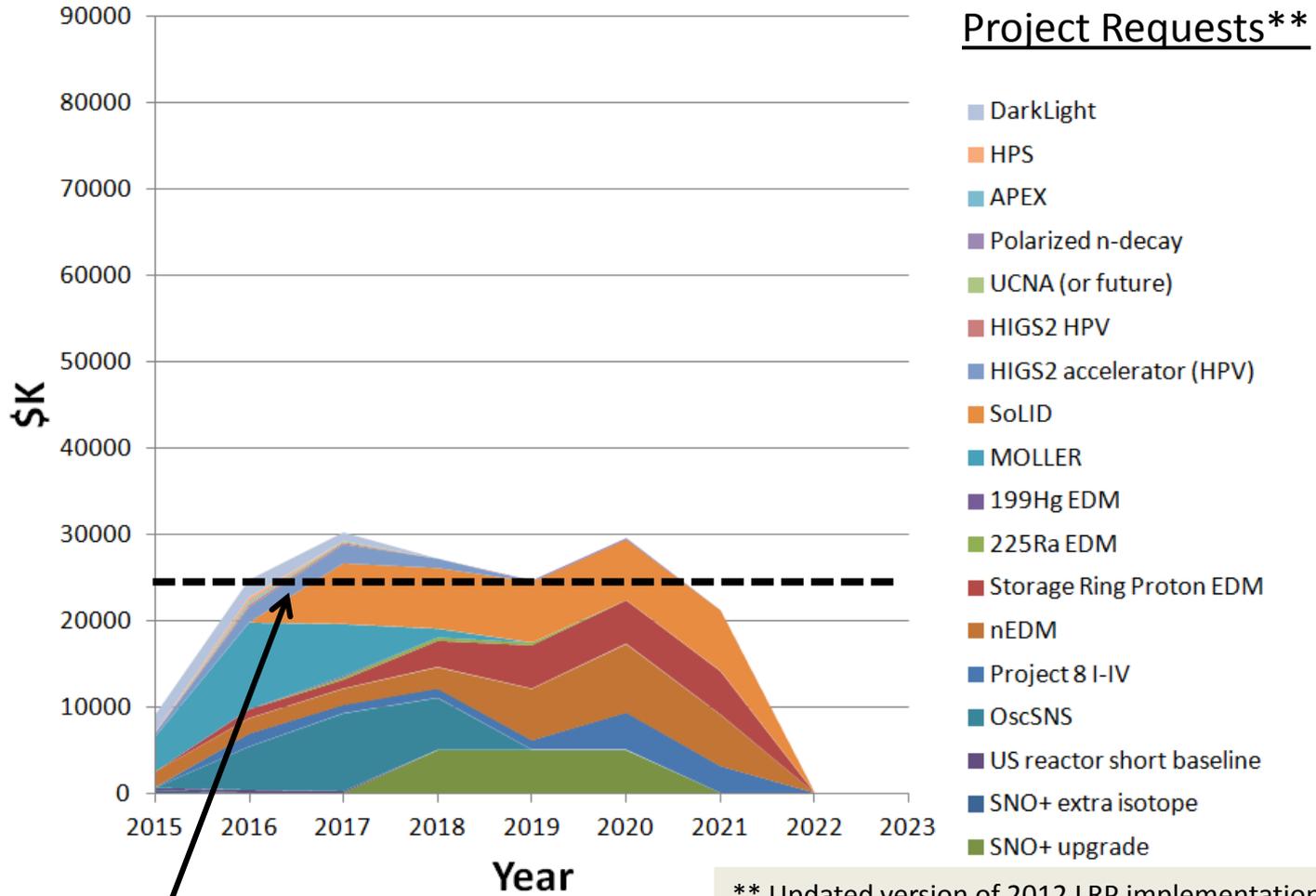


There Are Lots of Great Ideas



** Updated version of 2012 LRP implementation summary chart; some new ideas known to be missing.

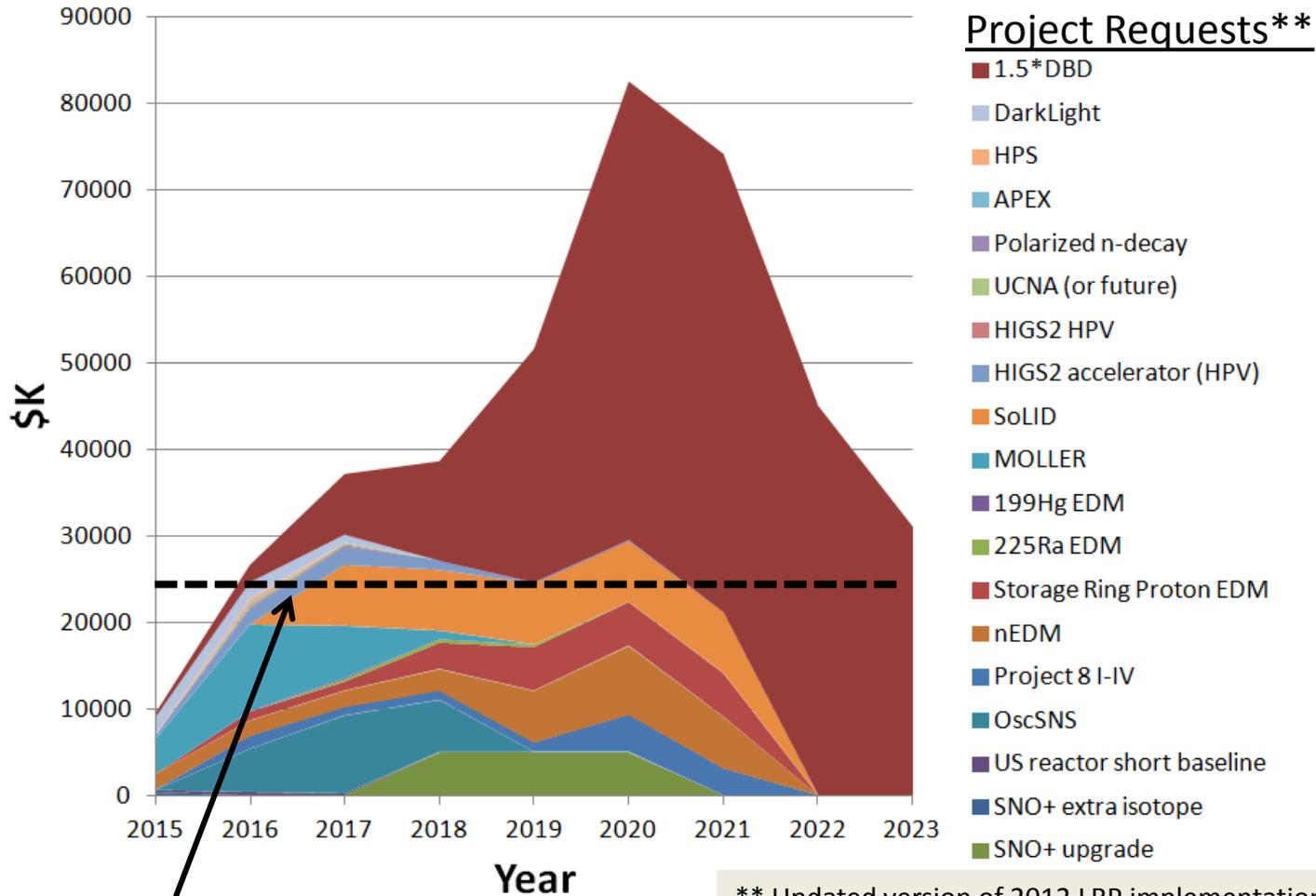
There Are Lots of Great Ideas



Current FSv research+MIE funding level

** Updated version of 2012 LRP implementation summary chart; some new ideas known to be missing.

There Are Lots of Great Ideas



Current FSv research+MIE funding level

** Updated version of 2012 LRP implementation summary chart; some new ideas known to be missing.

What Does Constant Effort Mean?

From DOE update at April NSAC meeting:

TPC \$000s	PYs	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	TOTAL
12 GeV	230,928	43,072	30,000	21,000	12,000	1,000	-	-	-	-	338,000
FRIB	51,000	22,000	55,000	90,000	100,000	100,000	97,200	75,000	40,000	5,300	635,500

- If all research and ops budgets remain at constant effort, free energy in the budget won't exist until FRIB construction ramp-down (FY19 or so).
- FRIB requires at least \$80M to operate...
 - Free energy would be ~\$20-30M/year
- There are many good ideas being presented at other town meetings.

There's No FSv Facility

- Facility may not be an appropriate model because the science is broad.
- However:
 - No champion to secure ops/construction budget
 - 15% of NP ops/construction budget = \$55M/yr
 - Commensurate w/ research size
 - Scale needed by tonne-scale 0vBB
 - No natural mechanism to prioritize across the field
 - Increases the challenge of formulating a crisp request

Conclusions

- Research budgets are important for everybody, but especially for this subfield.
- Doubling research+MIE budget for this subfield would significantly enhance the non-0vBB program.
 - 5% of total DOE/NP budget
 - Need a mechanism to prioritize “projects” across the subfield so we can make a focused request.
- 0vBB is on a different scale
- Any desired increases will require strong and broad support to succeed.