

Hydroelectric Design Center

“Leaders in Hydropower Engineering”



Presentation for
**2016 Southeastern Federal Power
Alliance Meeting
Atlanta, GA**

12 April 2016



®

US Army Corps of Engineers
BUILDING STRONG_®



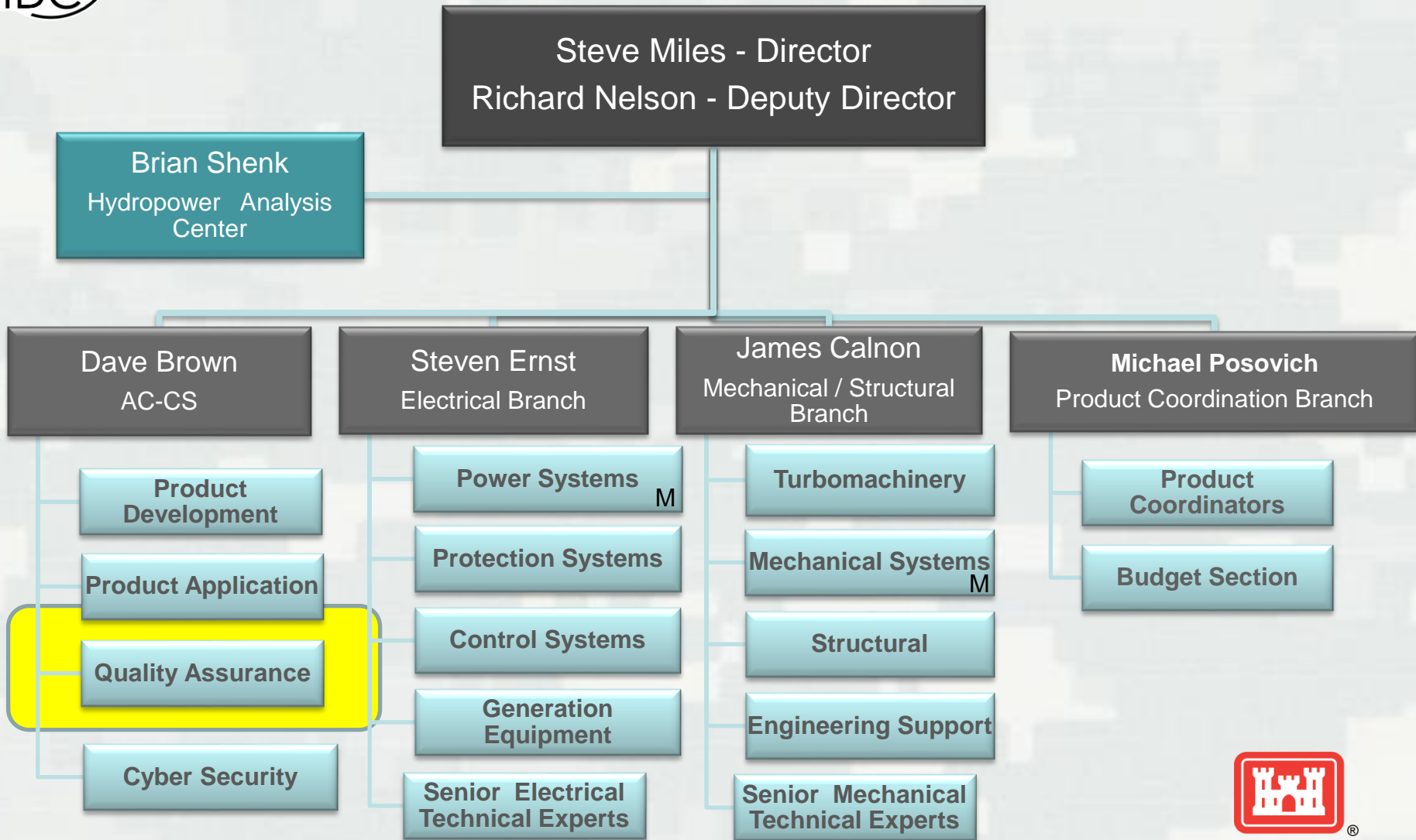


Items for Discussion

- Hydroelectric Design Center Updates
- HDC Trends & Actions
- Challenges
- Planning



The Team





The Hydropower Environment Next 30-50 years

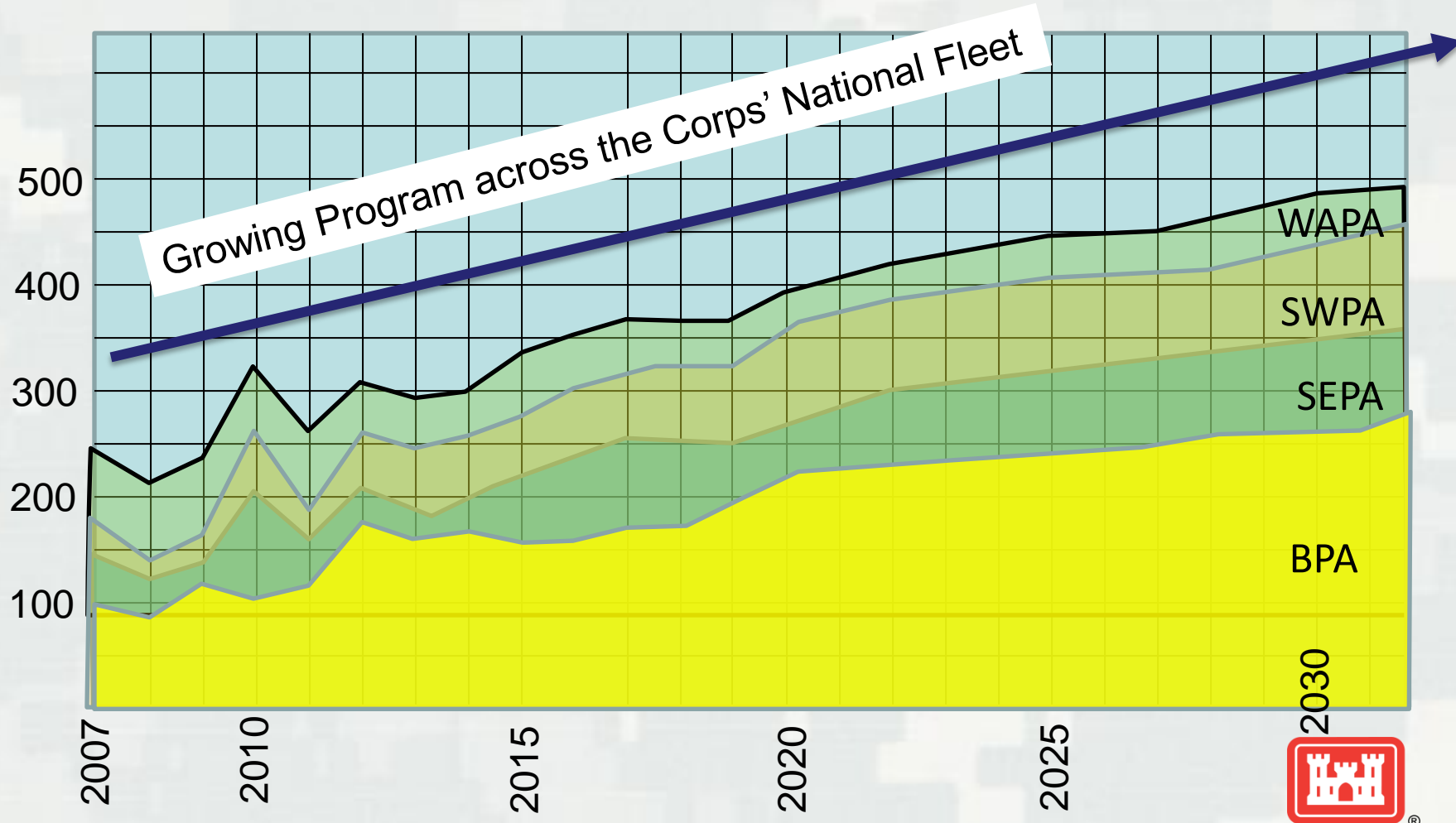
- High Certainty of increasing Large Capital Investment to Remodernize Corps' hydropower fleet (\$300M/yr now -> going to \$500M/yr by 2025)
- High value energy resource; Base, Peak, Voltage Support, Frequency Response/Regulation, major integrator of other renewables
- 10 Major Rehabs on-going (Gen rewind +/- or Turbine runner) 15 new Rehabs to start in next 10 years.
- Increased Emergency Response, Aging Fleet, Forced Outages Trouble shooting, Emerg Repairs, Forensics
- SCADA & ICS Emerging Requirements, Compliance and Reliability burden, cyber security assurance, navigation and flood BLs



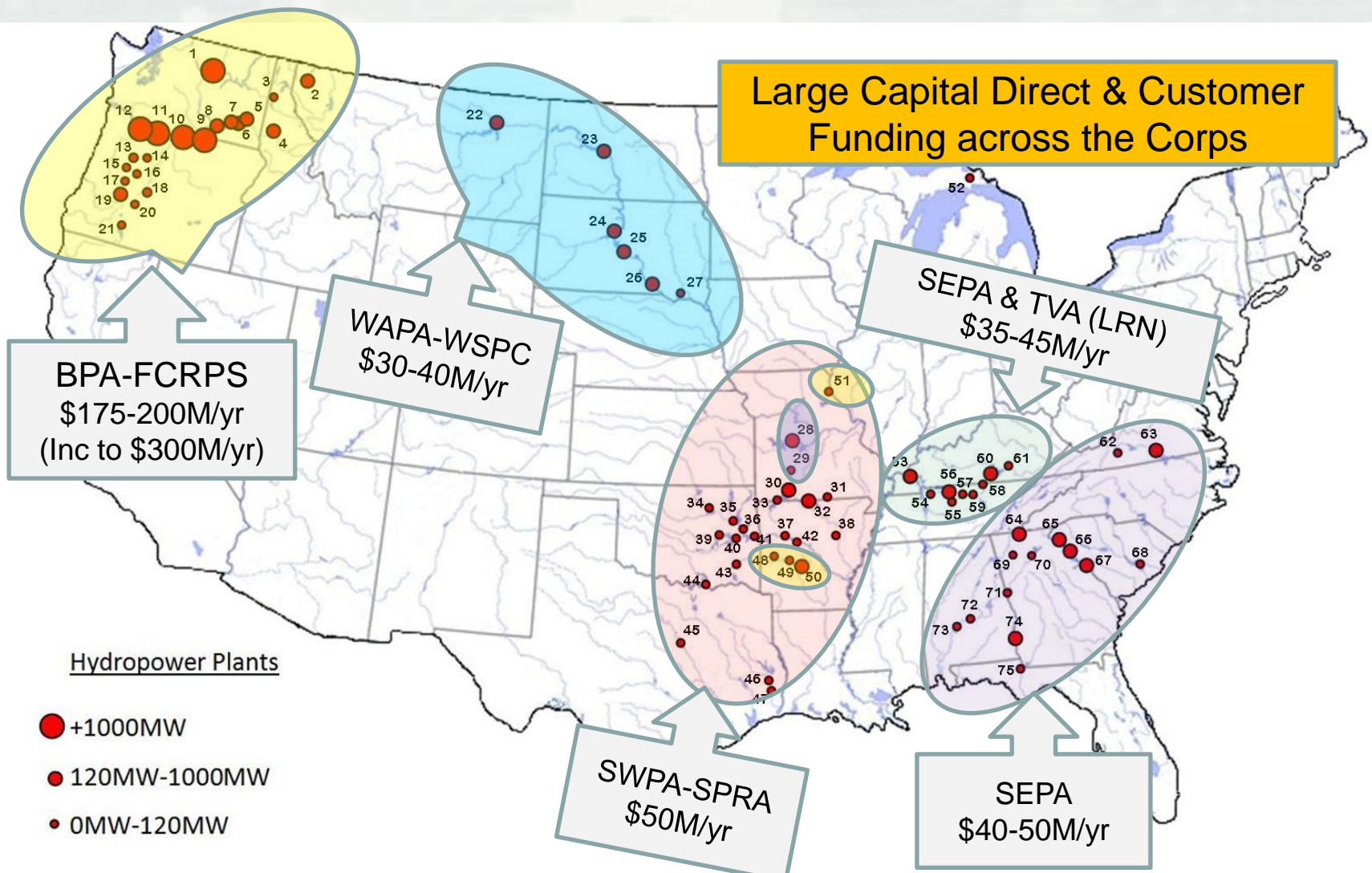


Power Customer “Direct Funding”

- Increasing Reinvestment to Rehabilitate Corps Plants
- Plants are aging, Demands are growing, Hydro is Green



Large Capital Direct & Customer Funding across the Corps



Hydropower Plants

- +1000MW
- 120MW-1000MW
- 0MW-120MW

NWD:

- 1- Chief Joseph (WA)
- 2- Libby (MT)
- 3- Albeni Falls (ID)
- 4- Dworshak (ID)
- 5- Lower Granite (WA)
- 6- Little Goose (WA)
- 7- Lower Monumental (WA)
- 8- Ice Harbor (WA)
- 9- McNary (OR/WA)
- 10- John Day (OR/WA)
- 11- The Dalles (OR/WA)

- 12- Bonneville (OR/WA)
- 13- Big Cliff (OR)
- 14- Detroit (OR)
- 15- Foster (OR)
- 16- Green Peter (OR)
- 17- Dexter (OR)
- 18- Cougar (OR)
- 19- Lookout Point (OR)
- 20- Hills Creek (OR)
- 21- Lost Creek (OR)
- 22- Fort Peck (MT)
- 23- Garrison (ND)

- 24- Oahe (SD)
- 25- Big Bend (SD)
- 26- Fort Randall (SD)
- 27- Gavins Point (SD)
- 28- Harry S. Truman (MO)
- 29- Stockton (MO)
- SWD:**
- 30- Table Rock (MO)
- 31- Norfolk (AR)
- 32- Bull Shoals (AR)
- 33- Beaver (AR)
- 34- Keystone (OK)

- 35- Fort Gibson (OK)
- 36- Tenkiller Ferry (OK)
- 37- Ozark (AR)
- 38- Greers Ferry (AR)
- 39- Eufala (OK)
- 40- Webbers Falls (OK)
- 41- Robert S. Kerr (OK)
- 42- Dardanelle (AR)
- 43- Broken Bow (OK)
- 44- Denison (TX)
- 45- Whitney (TX)
- 46- Sam Rayburn (TX)

- 47- R.D. Willis/Town Bluff (TX)
- MVD:**
- 48- Narrows (AR)
- 49- Blakely Mountain (AR)
- 50- DeGray (AR)
- 51- Clarence Cannon (MO)
- LRD:**
- 52- Saint Mary's Falls (MI)
- 53- Barkley (KY)
- 54- Cheatham (TN)
- 55- J. Percy Priest (TN)
- 56- Old Hickory (TN)

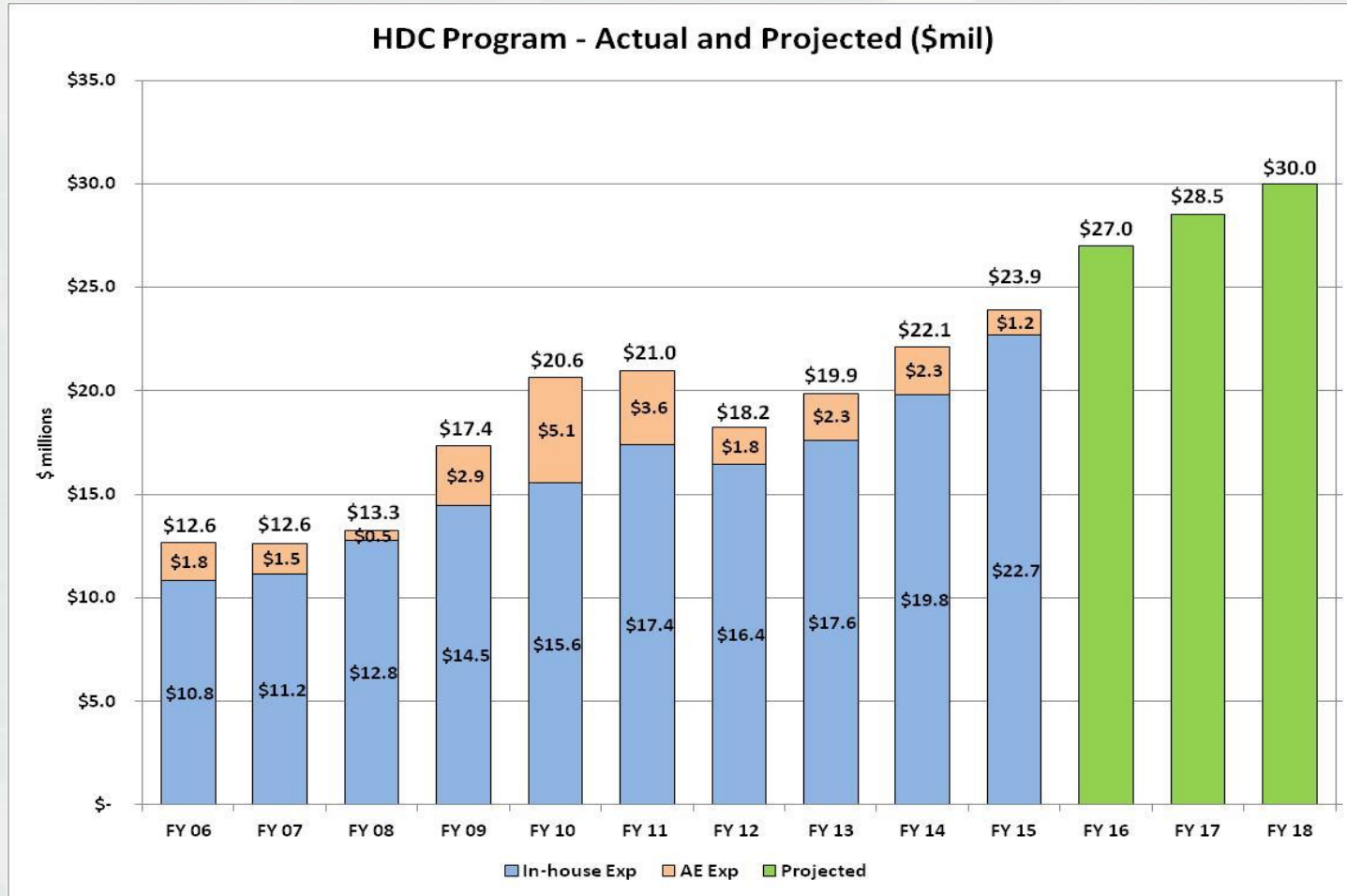
- 57- Cordell Hull (TN)
- 58- Dale Hollow (TN)
- 59- Center Hill (TN)
- 60- Wolf Creek (KY)
- 61- Laurel (KY)
- SAD:**
- 62- Philpott (VA)
- 63- John H. Kerr (VA)
- 64- Carters (GA)
- 65- Hartwell (SC/GA)
- 66- Richard B. Russell (SC/GA)
- 67- J. Strom Thurmond (SC/GA)

- 68- St. Stephens (SC)
- 69- Allatoona (GA)
- 70- Buford (GA)
- 71- West Point (AL/GA)
- 72- Jones Bluff (AL)
- 73- Millers Ferry (AL)
- 74- Walter F. George (AL/GA)
- 75- Jim Woodruff (FL)





HDC Program-Actual and Projected (\$mil)





Positioning HDC to meet the Demand Looking to 2020 and 2025



- 144 FTE now assigned to HDC, 11' – 96, 12' - 110, 13' – 115, 14' – 127, 15' - 135
- \$10M AE Capacity nearly in place
HDR and BV
- “Right-sizing” HDC, program growth beyond on our forecast
- Add'l Needs: 20 FTE in ACCS, 10 FTE in both Elec and Mech Branch
- GDACS Expansion
New Deployments to SAD, SWD, NWO
BOR Grand Coulee/Hungary Horse





Challenges in Design

- Outside of HDC
 - Contracting
 - Project Staffing Levels
 - Unforeseen Issues
 - As-Built Drawings

- HDC
 - Personnel Constraints
 - Program Growth
 - New Staff





Phased Approach with Funding and Planning

- Phases of Design
 - Initial investigation/Detailed Scoping (Phase 1a)
 - Plans and Specifications (Phase 1)
 - Contract award and Construction (Phase 2)

- Separating Phase 1a, 1 and 2

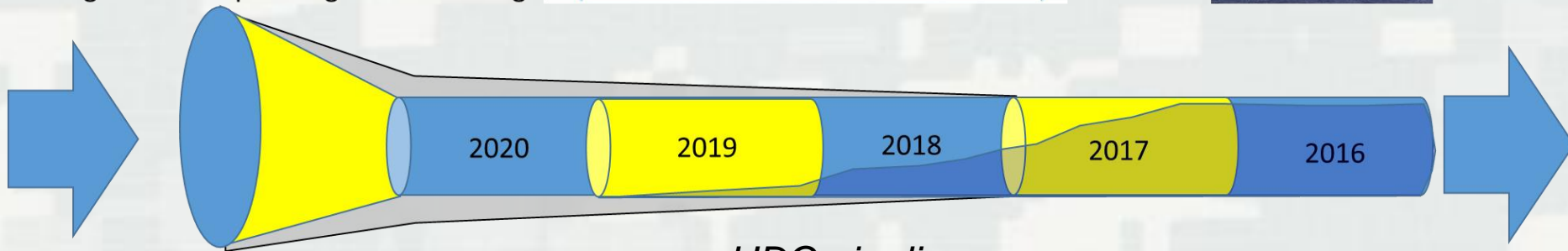
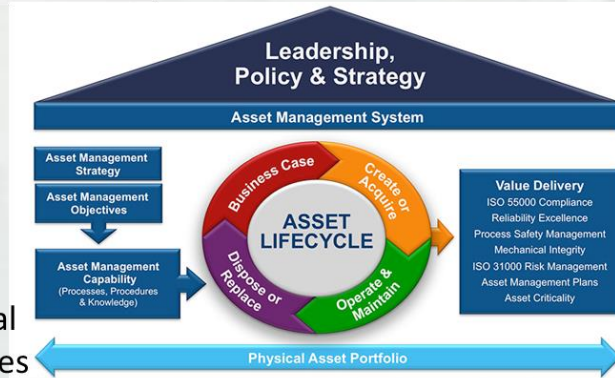
- Enhance Short- and Long-term Planning



Benefits of Long-term Planning



- Long-term AM Planning will help inform future design needs
- Remodernization Programs are major Investments and commitments
- HDC is in the “rehab business” – remodernizing our plants for the digital age and incorporating new technologies



HDC pipeline





Questions

