

ORNL Management and Staffing Overview

J. F. Lyon, NCSX Deputy Project Manager

Office of Science NCSX Project Review

Aug. 15, 2007



**DevTech, MK Technology
Alexander & Associates**



ORNL FED partners with PPPL on NCSX

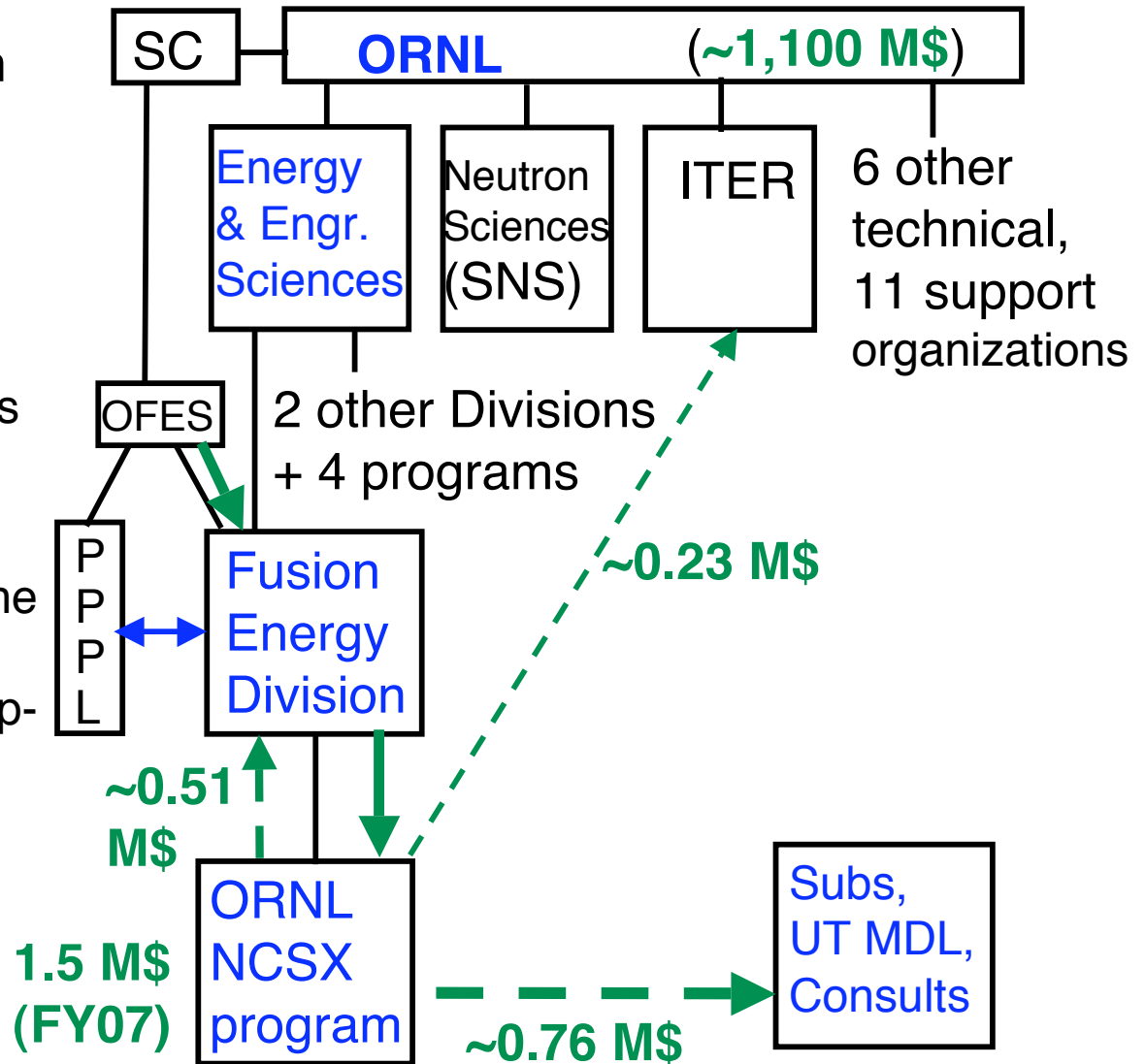


- Roles & areas of responsibility specified in FED-PPPL MoU
 - signed by PPPL director, ORNL Fusion Energy Division director
- ORNL is funded through OFES for NCSX work
 - have both NCSX Project milestones and FEA (award fee) milestones
- Main contact point is Deputy Project Manager: responsible for execution of project scope work assigned to ORNL
 - provides necessary engineering resources to support critical design activities: uses most effective mixture of
 - ORNL staff
 - subcontract engineers; consultants
 - Univ. Tenn. Magnet Development Lab.
 - works with NCSX Project Manager to resolve issues

ORNL Is Committed to Meeting NCSX Responsibilities



- Fusion Energy Division is part of ORNL
- NCSX Deputy Project Manager in FED
 - provides necessary engineering resources to support critical design activities
 - will report status on the Monthly Performance Tracking System (stop-light chart) to ORNL Leadership Team
 - works with ORNL management for support as needed



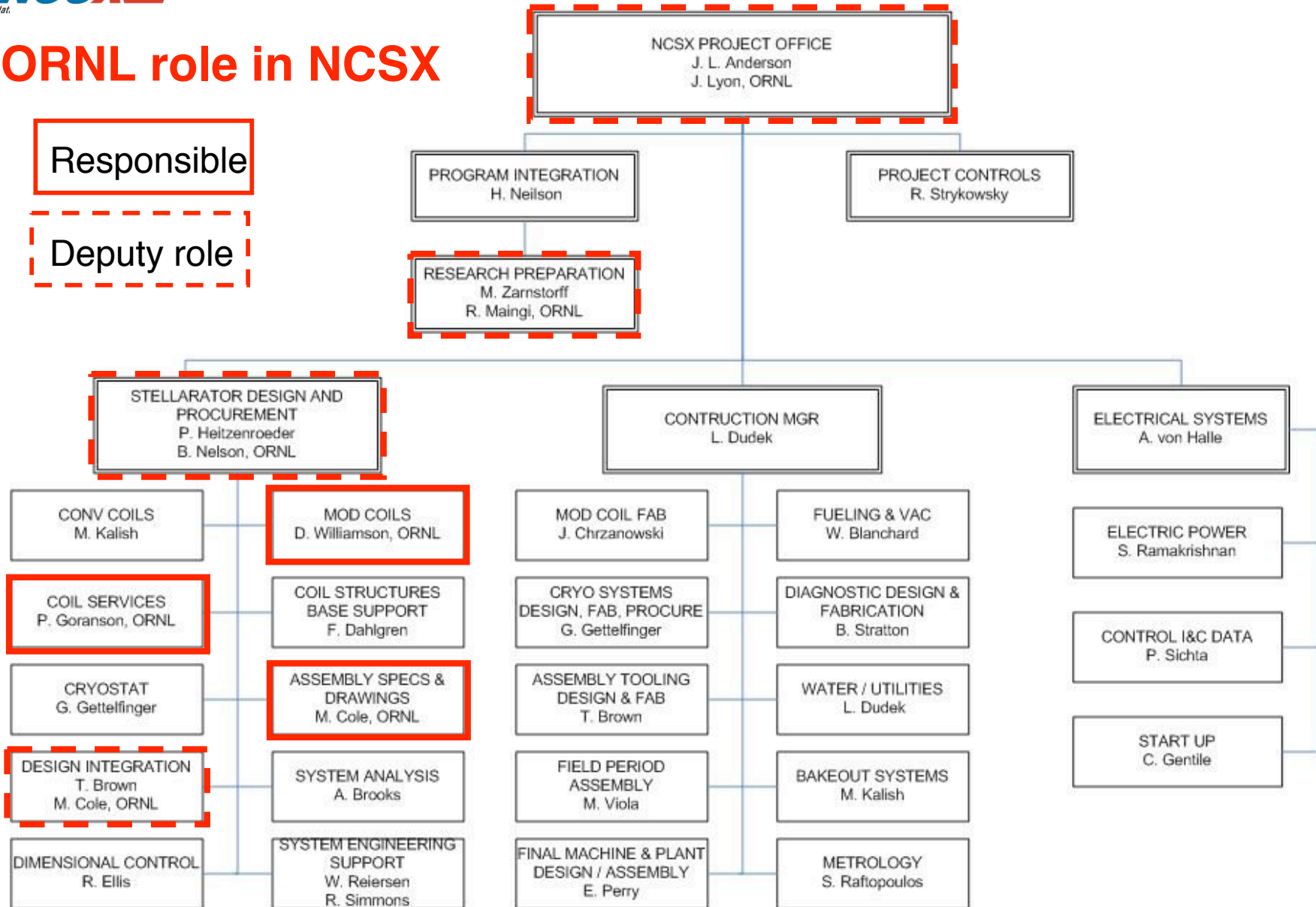
NCSX Organization



ORNL role in NCSX

Responsible

Deputy role





ORNL's Main Area of Responsibility

Stellarator Core Design/ Procurement at ORNL

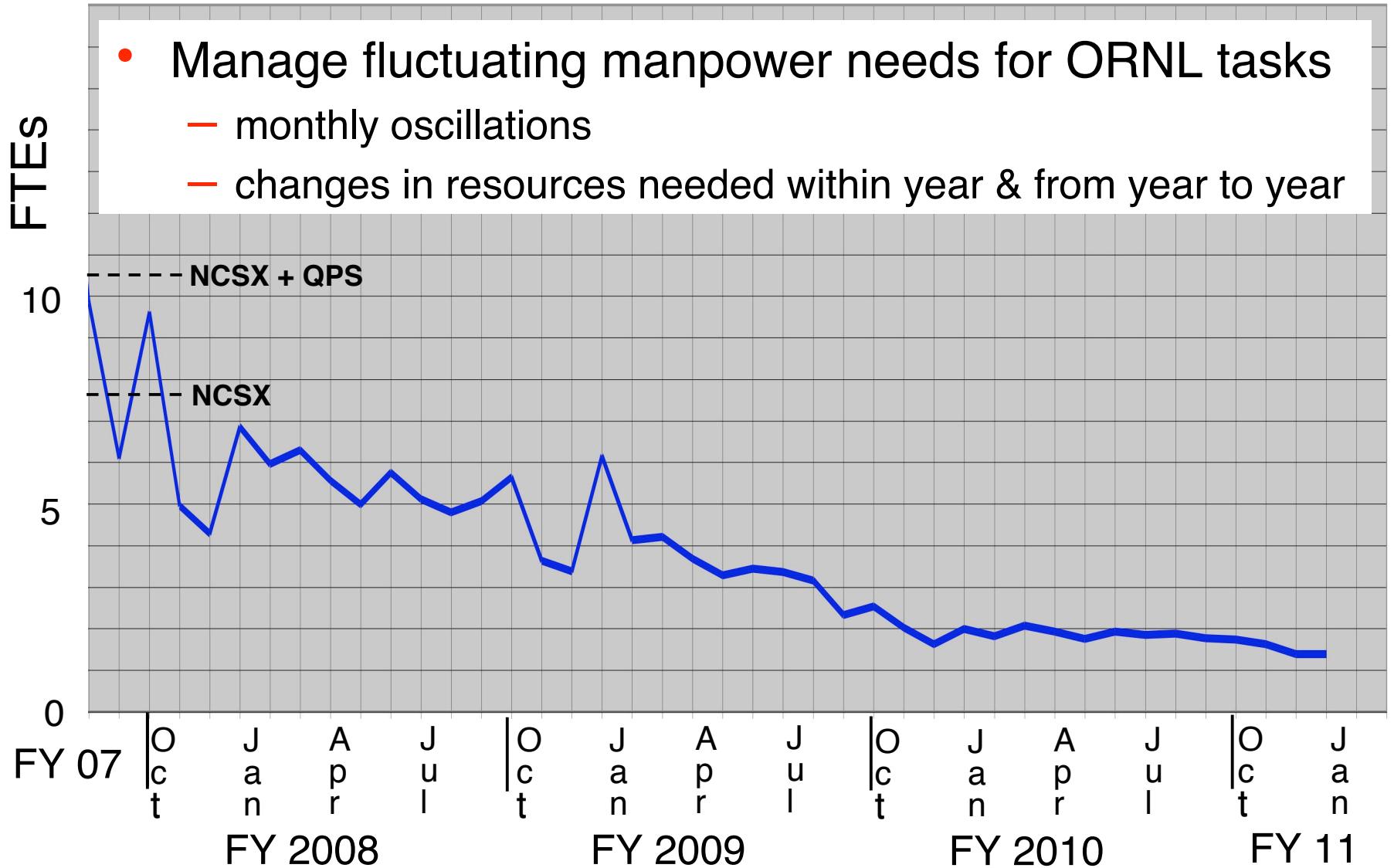
- Vacuum vessel systems -- design complete, Title III support (WBS12)
- **Modular coils: design of modular coil winding forms, modular coil design, modular coil interfaces (WBS14)**
- Coil services: LN2 distribution system, coil electrical leads, coil protection system interfaces (WBS16, in FY 08 – 09)
- Field period assembly: preparation of assembly specs & drawings for assembly of NCSX field periods in TFTR cell and NCSX cell (WBS18)
- Stellarator core management and integration (WBS19)
- Design integration interface support on other elements: conventional coil systems, coil support structures, cryostat and base support, structure, machine assembly planning and oversight (WBS13, 15, 17 and 74)
- Title III support on other WBS elements: field period assembly operations (in 2008)

ORNL WBS 1 Milestones



WBS	ACTIVITY ID	DESCRIPTION	Date
1421		FDR of the modular coil strain gauge -- completed	24-Jan-07
1421		PDR of the modular coil interface hardware -- completed	22-Feb-07
1421		Welded inboard shim peer review -- completed	18-May-07
1421	INTRF-045	FDR of the outboard bolted joint shims -- completed	29-Jun-07
1421		FDR of the modular coil assembly -- completed	26-Jul-07
1421		FDR of the modular coil bolted joint -- completed	30-Jul-07
1421	1421-3132	PDR of the modular coil A-A, A-B, B-C interface -- completed	2-Aug-07
1421		PDR of the modular coil C-C inboard interface -- completed	7-Aug-07
1421	INTRF-054	FDR Mod coil assembly hardware inboard welded joints AA, AB, BC	4-Sep-07
1806	1803-201	Issue field period assy specs for comment	11-Sep-07
1806	1803-205	Issue field period assembly drawings for comment	11-Sep-07
1416	1416-601	Prepare structural analysis of leads and issue report for comment	6-Nov-07
1416	1416-506	Check and issue top level assembly drawings for comment	21-Nov-07
1421	1421-3144	FDR of the C-C assembly hardware	7-Jan-08
1421	1416-605	Issue final mod coil assembly analysis document for comment	14-Jan-08
1601	191-002	Issue coil LN2 coil service drawings for comment	19-Sep-08
1806	1803-609	Issue vacuum vessel spool piece assembly drawings for comment	30-Sep-08

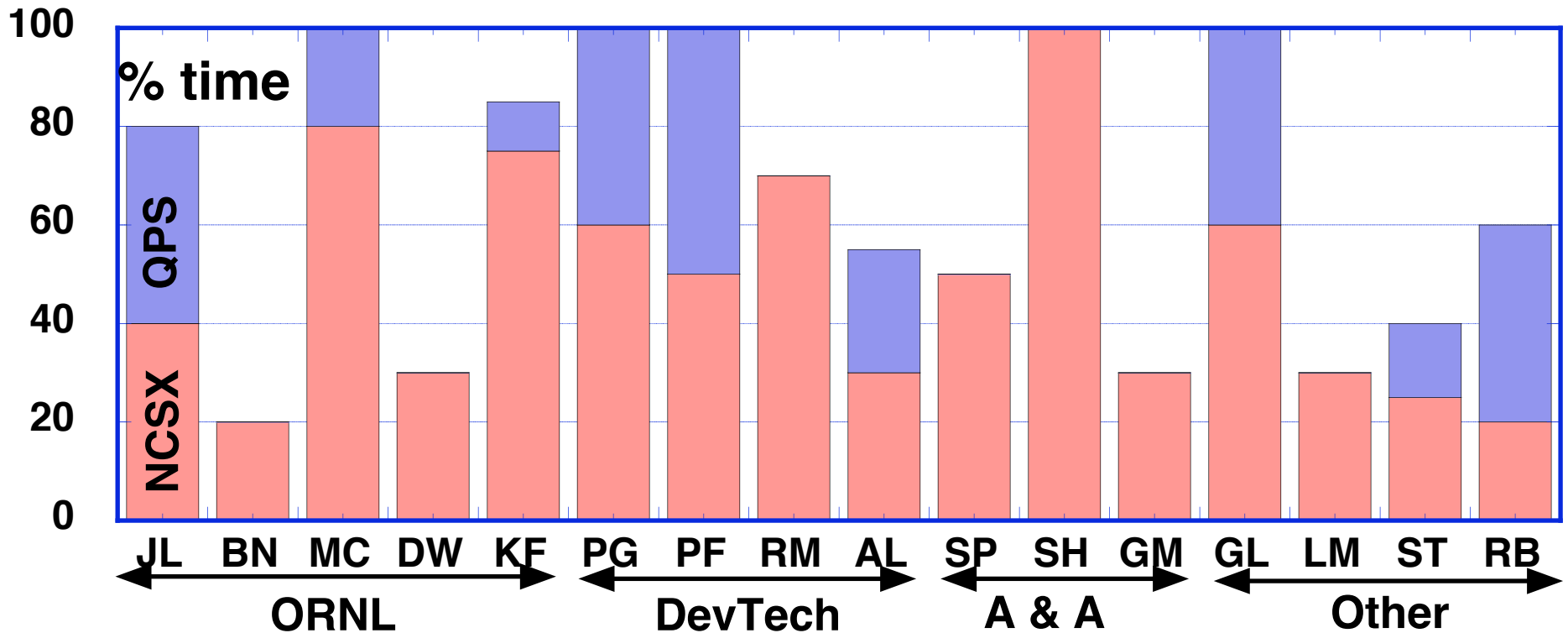
Staff Available to Meet NCSX Commitments



Resources for ORNL NCSX Tasks



- Approach: time share people with other tasks
 - not possible to do by changing full-time staff, use FTEs instead
 - use ORNL staff, subcontract engineers, consultants & Univ. Tenn. staff
 - can move people between NCSX and QPS tasks as needed
 - more time possible for some contractors



Oak Ridge Resources on NCSX



- ORNL -- Jim Lyon, Brad Nelson, Mike Cole, Dave Williamson, Kevin Freudenberg, Jerry Martin, (Stan Milora)
- DevTech -- Paul Goranson, P. J. Fogarty, Roger Moon, Arnold Lumsdaine
- MK Technologies -- Gary Lovett
- Alexander & Associates -- Gary McGinnis, Sorin Homescu, Steve Parson
- Univ. Tenn. Magnet Development Lab. -- Bob Benson, Jim Holder, Joe Campbell, Darryl Stair
- Myatt Consulting -- Len Myatt
- Concentric Management Group (project control experts)

Oak Ridge Resources on NCSX (1): ORNL



Stan Milora

- director, ORNL Fusion Energy Division and Fusion Energy Program
- PhD physicist, 32 years experience in fusion research



Jim Lyon

- PhD physicist, NCSX deputy project mgr.
- 43 years experience on large number of fusion experiments
- project management experience on ATF, TJ-II, FED, NCSX, QPS, stell. collabs.



Brad Nelson

- MS mech. engineer
- 31 years experience on LCP, ISX, ATF, BPX, TPX, ITER, NSTX, NCSX, QPS
- experience using ProE, Mechanical, NASTRAN, project management tools

Oak Ridge Resources on NCSX (2): ORNL



Mike Cole

- BS mech. engineer
- 33 years experience, 25 years on fusion experiments including ATF, TPX, NCSX, QPS, ICRF antennas
- >10 years experience using ProE



Dave Williamson

- BS mech. engineer
- 25 years on fusion experiments including ATF, ITER, NCSX, QPS, AVLIS
- experience using Pro-E, CATIA, ANSYS, E-M analysis



Kevin Freudenberg

- MS mech. engineer
- 5 years experience on NCSX, QPS, ITER
- experience using Pro-E, CATIA, ANSYS E-M & thermal analysis

Oak Ridge Resources on NCSX (3): DevTech



P. J. Fogarty

- BS engineer, graphics designer
- 34 years experience on NCSX, QPS, ITER, NSTX, PBX, APEX, ATF, ISX, etc.
- Pro-E, CATIA, AutoCAD, Computervision



Paul Goranson

- BS engineer, 31 years experience in design of fusion projects
- vacuum vessels, vacuum systems, thermal analysis, antennas, etc.



A. Lumsdaine

- PhD mech. engr., 11 years assoc. prof. teaching mech. engr.
- 3 years Ford motor co
- experienced in design optimization, finite-element analysis (ANSYS, NASTRAN, ABAQUS)

Oak Ridge Resources on NCSX (4): A&A



Gary McGinnis

- mech. design, > 30 years experience
- 3 years on NCSX, QPS, >15 years Pro-E experience



Sorin Homescu

- MS engineer, 8 years experience
- experience with Pro-E (>6 years), heat transfer, PLCs, electronics



Steve Parson

- BS engineer, 16 years experience, last 10 years on Y-12 and ORNL projects
- 9 years experience on ProE, ALGOR finite-element analysis, Inventor

Oak Ridge Resources on NCSX (5): Other



Gary Lovett

- BS designer, 30 years in product design and development, last 6 years on NCSX, QPS
- 15 years experience on ProE, CATIA, Computervision



Roger Moon

- BS engineer, 16 years experience on tool design, product design, sheet metal work
- 7 years SNS, 13 years ProE, 3 years CATIA experience



Len Myatt

- MS engineer, 26 years experience, 13 years at MIT
- finite-element modeling, 26 years using ANSYS and 10 years teaching it

Oak Ridge NCSX Resources (6): Other



R. D. Benson

- MS, 25 years in Fusion Energy Division, engineering, project supervision, financial analysis
- oversaw fabrication of ATF stellarator coils
- manager of Univ. Tenn Magnet Develop. Lab.



Name withheld

- from Concentric Management Group
- excellent reputation, high-level experience on a number of large projects
- contract under discussion



New Hire

- MS engineer, 5-15 years experience on complex projects
- experienced on Pro-E, finite-element analysis
- SOW being prepared

ORNL Will Meet NCSX Needs



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