



Hydroelectric Design Center

“Leaders in Hydropower Engineering”



US Army Corps
of Engineers
Nashville District

Presentation for
Team Cumberland
Nashville, Tennessee

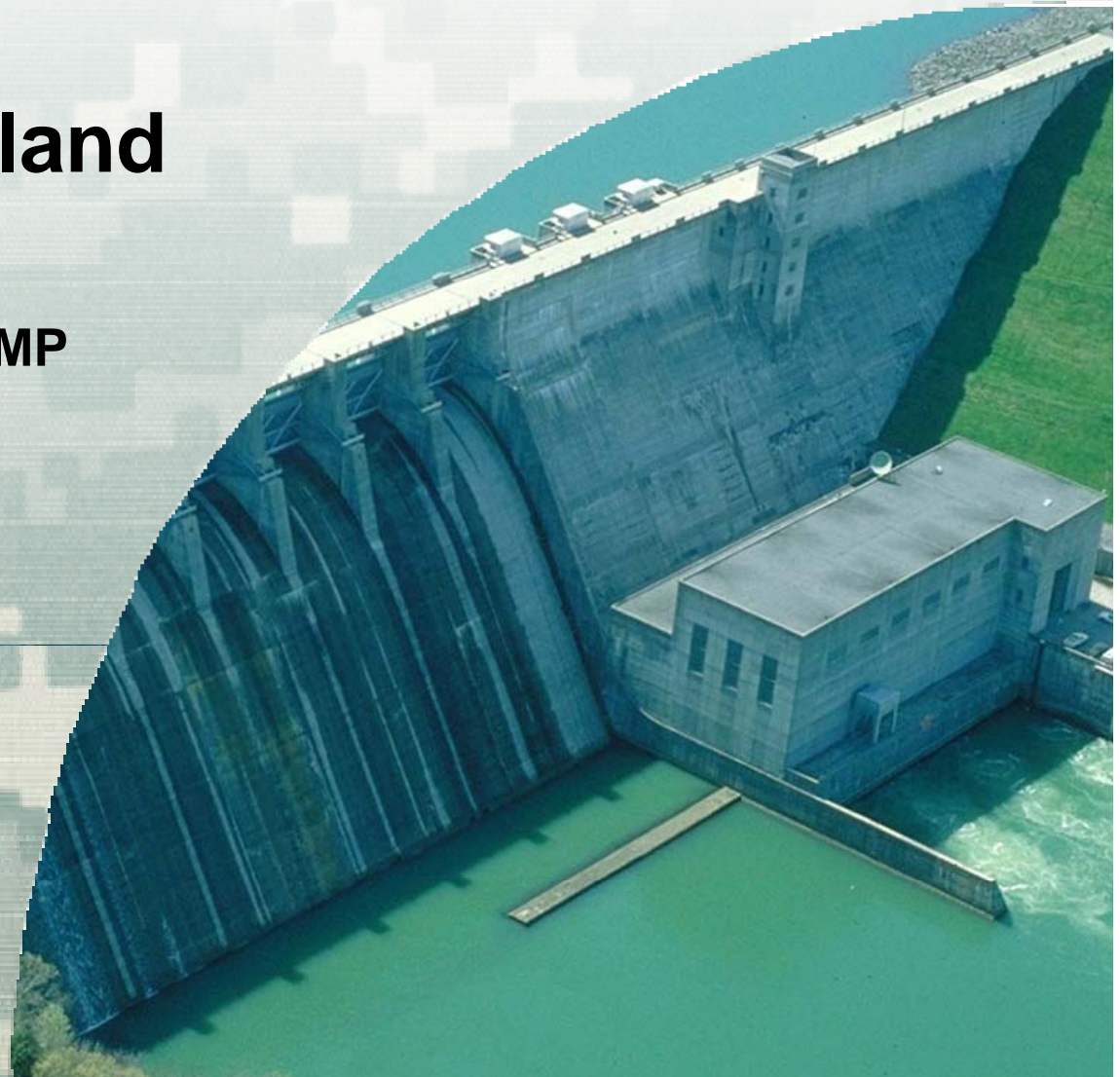
Steven R. Miles, PE, PMP
Director, HDC

13 November 2013



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US Army Corps of Engineers
BUILDING STRONG





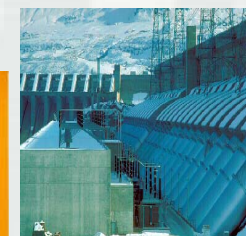
Hydroelectric Design Center



**US Army Corps
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Nashville District



HDC performs planning, engineering and design, maintains expertise, and develops standards for the US Army Corps of Engineers hydroelectric power facilities and large pumping plants.

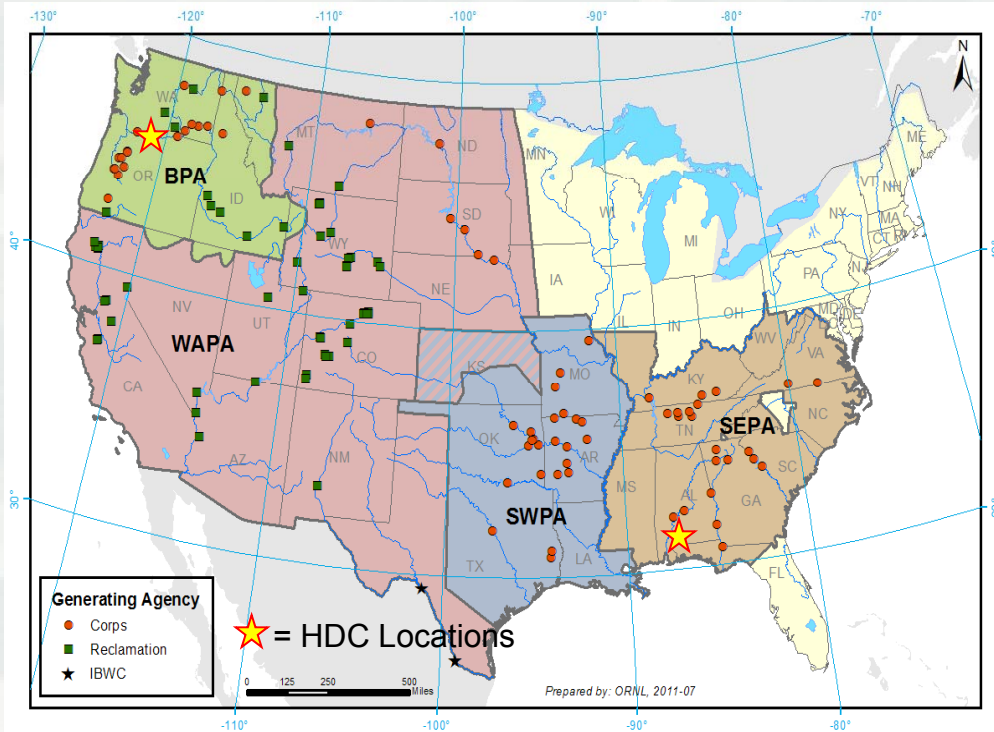




USACE Hydropower Locations



US Army Corps of Engineers
Nashville District



WHERE WE ARE — U.S. ARMY CORPS OF ENGINEERS



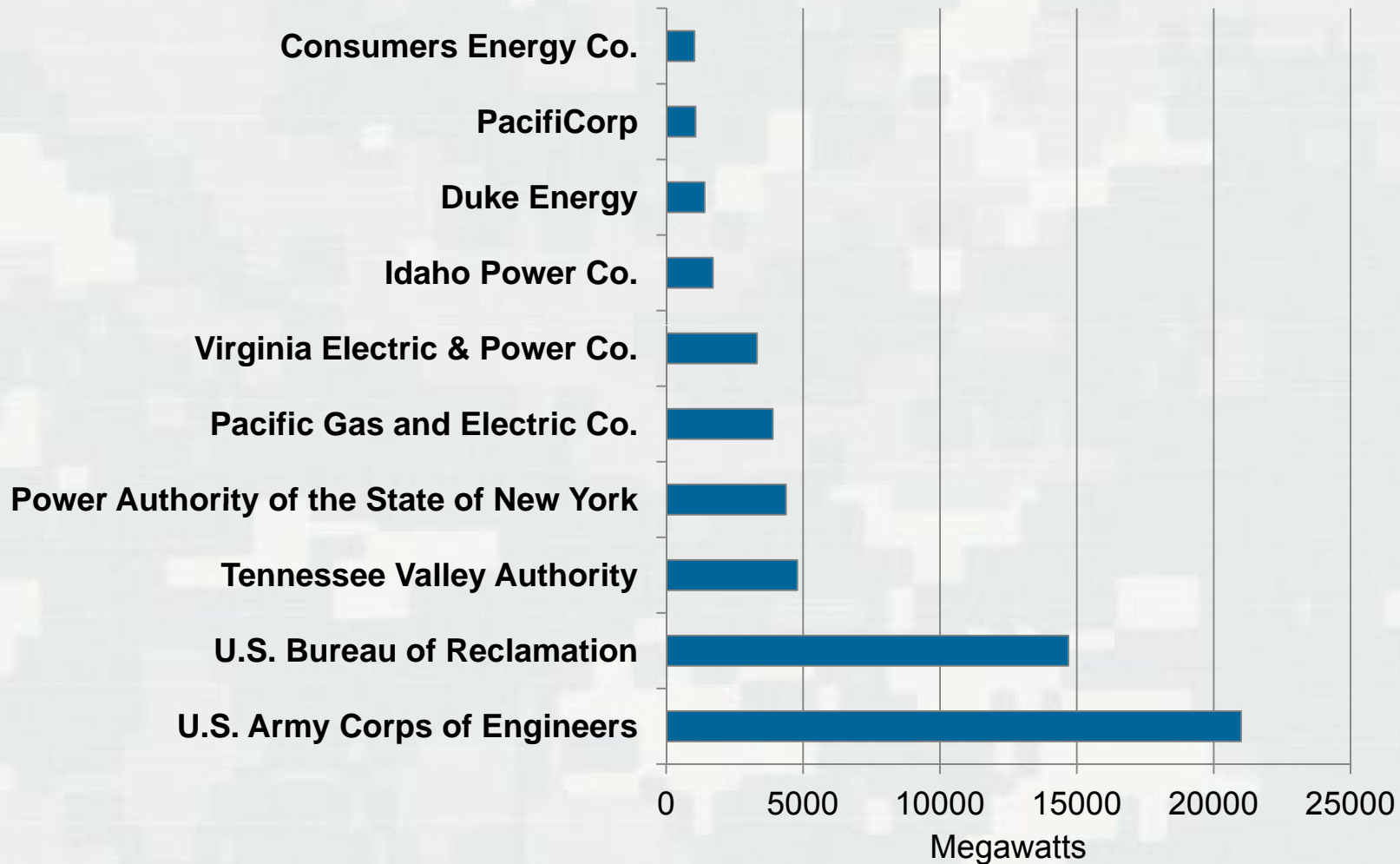


Major Producers of Hydropower in the U.S.

Hydroelectric Generation Capacity in Megawatts (includes Pumped Storage)

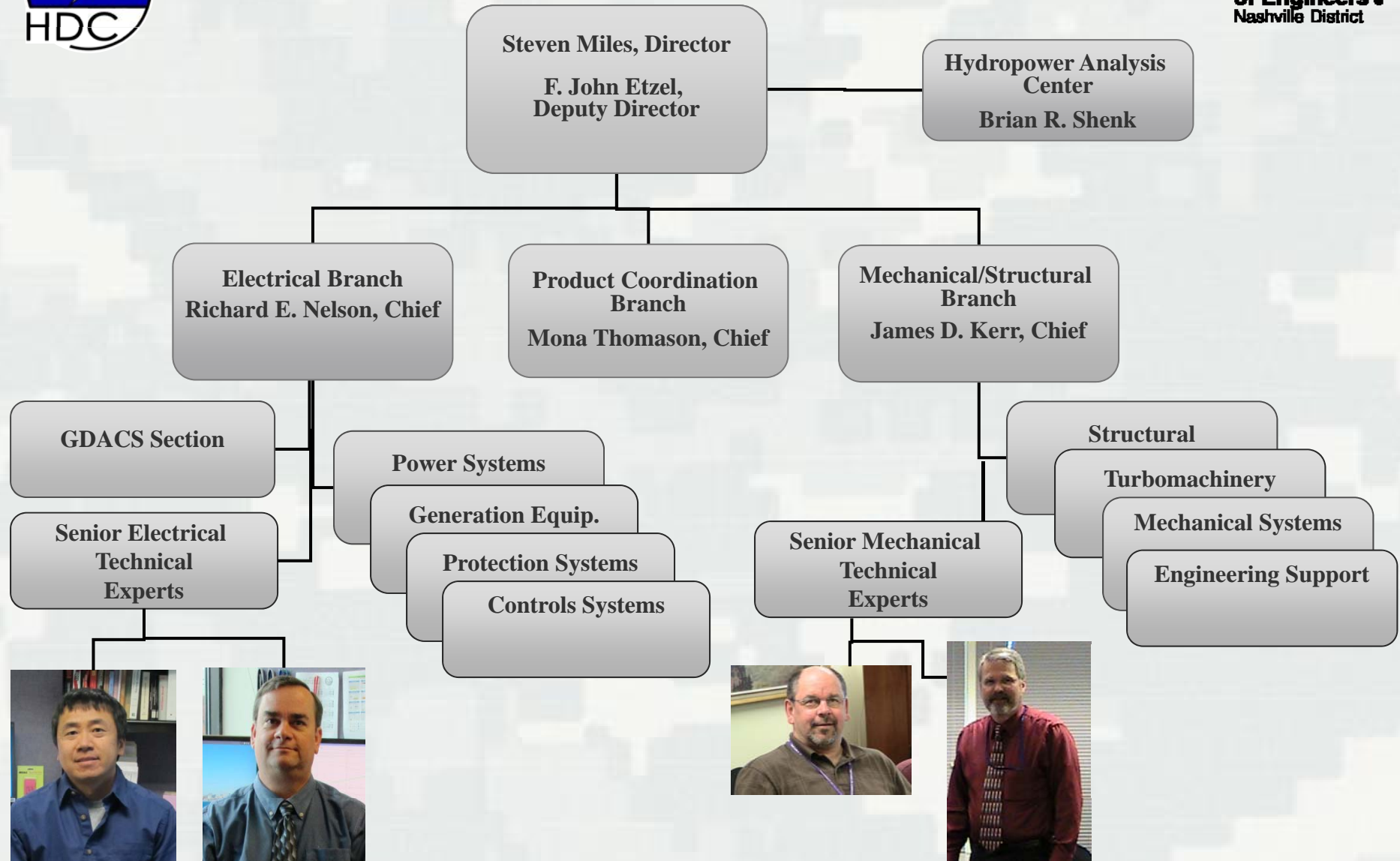


US Army Corps
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Nashville District





HDC Organizational Structure





Resources



**US Army Corps
of Engineers**
Nashville District

Headquarters: Portland, OR
Forward Office: Mobile, AL

HDC Staff: (127)

Electrical Engineers
Mechanical Engineers
General Engineers
Computer Engineers
Civil/Structural Engineers
Architect

Economists
Mathematicians
Technicians
Support Staff
Students

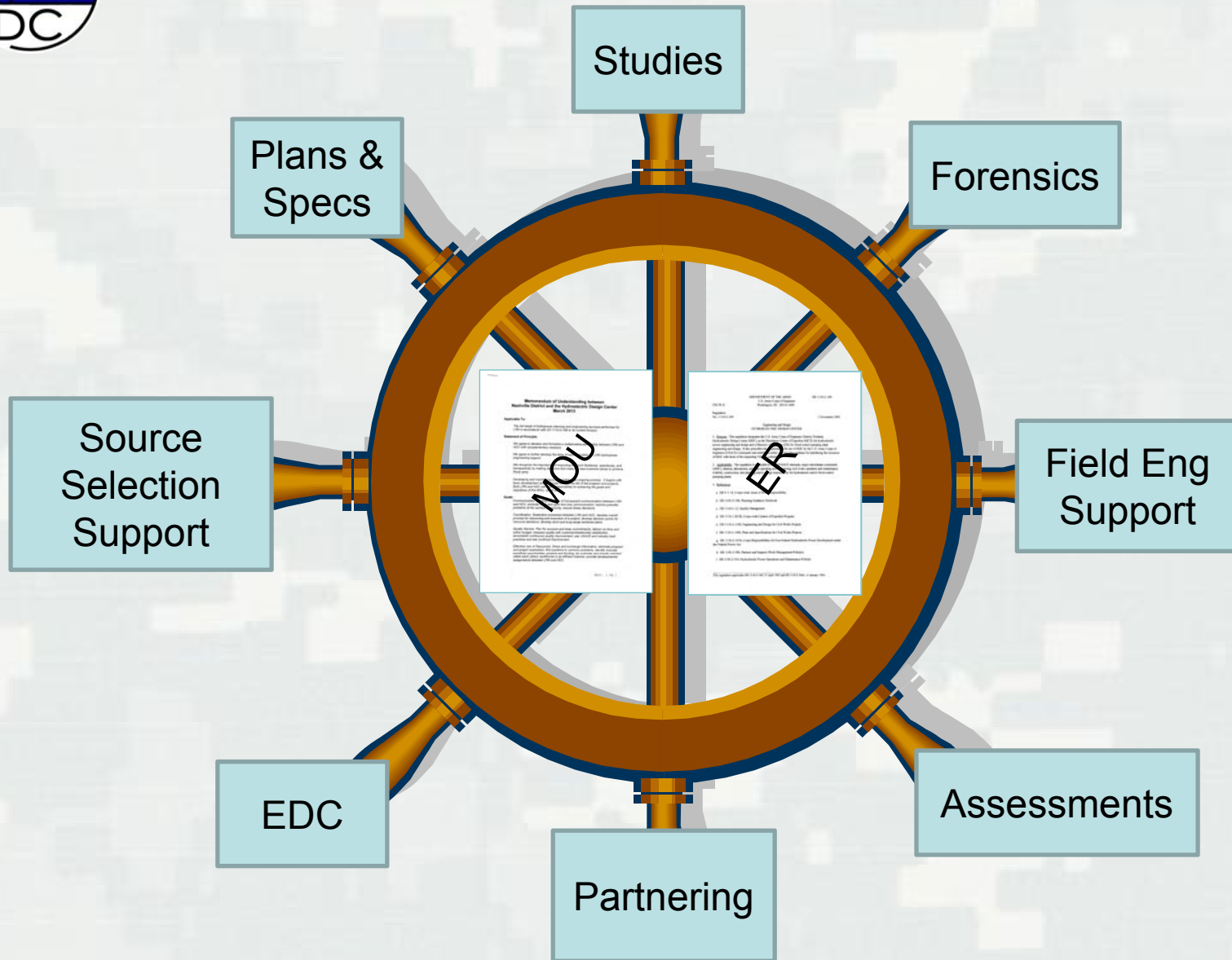
Additionally, we team with:

- HQUSACE and Other Districts
- Other Agencies
- Private Architect/Engineering Firms
- Universities





HDC – Member of the District Team





HDC Products and Services



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Engineering Studies

- Testing
- Forensics
- Arc flash studies
- Research and development
- Uprate studies

Plans and Specifications

- Hydropower equipment
- Large pump plants

Engineering During Construction

- Support during manufacture, installation, and commissioning

HAC Studies

- Recon and feasibility studies
- Rehab studies
- Re-allocations
- Hydropower Modernization Initiative
- FCRPS asset management
- Benchmarking

Other

- Scoping
- Contract award support
- Field engineering support
- Training
- GDACS maintenance
- Equipment purchases
- Software development
- HydroAMP support



Professional Activities & Relationships



Knowledge

Relationships





Professional Activities Participation



Leaders in the Hydropower Industry

- ▶ Center for Energy Advancement through Technological Innovation - Hydraulic Plant Life Interest Group (CEATI-HPLIG) (Chair/membership)



- ▶ HydroVision International (Steering, Planning, Chairs, Moderators)



- ▶ Electric Utility Cost Group (EUCG) (Officer)



Support in Developing Hydropower Industry Standards

- ▶ International Electrotechnical Commission (IEC-TC4)



- ▶ American Society of Mechanical Engineers (5 comm.)



- ▶ DOBLE Engineering (3 comm.)



- ▶ Society of Tribologists and Lubrication Engineers



- ▶ American Society for Testing and Materials



- ▶ Institute of Electrical and Electronic Engineers (3 comm.)



- ▶ National Electric Code



- ▶ Western Electricity Coordinating Counsel (4 comm.)



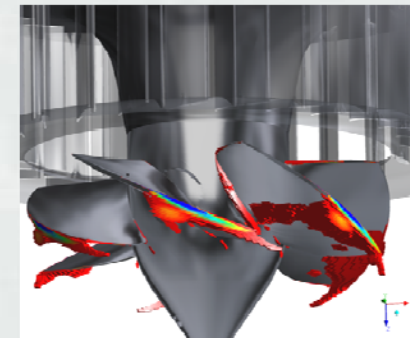


Examples of Recent Experience



Completed Projects

- ▶ Bonneville 1st Powerhouse Turb/Generator – Portland District
- ▶ Garrison Turbine/Generator – Omaha District
- ▶ J.S. Thurmond Turbine/Generator – Savannah District
- ▶ Buford Turbine/Generator – Mobile District
- ▶ J.H. Kerr Turbine/Generator – Wilmington District
- ▶ Walter F. George Turbine/Generator – Mobile District
- ▶ Cougar Turbine/Generator – Portland District





Examples of Recent Experience



■ On-going Projects

- ▶ Chief Joseph Turbine Replacement – Seattle District
- ▶ Hills Creek Turbine/Generator – Portland District
- ▶ Stockton Turbine/Generator – Kansas City District
- ▶ Whitney Turbine/Generator – Ft Worth District
- ▶ Ozark Turbine/Generator – Little Rock District
- ▶ Webbers Falls Turbine/Generator – Tulsa District
- ▶ McNary Turbine Replacement – Walla Walla District
- ▶ Lookout Point Turbine Replacement – Portland District
- ▶ Dennison Turbine/Generator – Tulsa District
- ▶ Ice Harbor Fish Friendly Turbines – Walla Walla District
- ▶ Center Hill Turbine/Generator – Nashville District





Unique Hydropower Work



US Army Corps
of Engineers
Nashville District

- Fish Friendly/Aerating Turbines
- Asian Carp Electric Barrier
- National Water Demands/Allocations
- Small Hydro inquiries from Army, Energy, private
- New Orleans Hurricane System Restoration
- Overseas Contingency Operations





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Questions & Comments?



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