Hole through

Construction Panel

A way forward

- Ed Cording — UIUC
- Peter Dickson — MWH Global
- Wes Myers — Los Alamos
- Craig Smith — DMJM

Develop tunnel technology for supergrid

- 1. Concept development
  - Workshop - Expert panel - Conceptual design team
  - Prepare plan for implementing demonstrations
  - Set criteria for tunneling system capabilities
  - Identify potential tunnel projects for demonstrations
  - Prepare RFQ/RFP: For design of tunnel system, build machine and construct tunnel segment
    - Large tunnel (12-ft-dia), and small HDD (2- to 4-ft-dia)
    - Required rate of advance for tunneling
    - Machine capabilities, sensing, automation
    - Crew size goals
    - Ground conditions to be handled, face support
    - Require participation by contractors, engineers and machine manufacturers.
    - To be implemented on tunnel project: prototype demonstration, and other tunnel project: Coordination.

- 2. Select team
- 3. Review and approve design
- 4. Construct machine and utilize on demonstration tunnel project
  - A. Supergrid prototype demonstration, utility project: small diameter (less than 2 ft, 10 to 20 km, high probability of success
  - B. Demonstration of larger diameter (12-ft) on a tunnel project: provide funding to supplement tunnel project costs.

Tunnel Industry Participants

- Machine manufacturers
  - Lovat, Herrenknecht, Robbins, Japanese
- Contractors
  - Traylor Bros, JD, Kiewit, McNally, Mole
  - Kenny, Shea, Frontier Kemper, Michels
- Construction consultants, tunneling
- Engineering consultants, tunneling
- Organizations and conferences: AUA, NAT
- No-Dig - Micro-tunneling
  - Centers - Consultants, contractors

Implementation of Supergrid

- Bench test: 500 m, Oak Ridge
  - Science panel.
- Component tests and demonstrations
- Generic design
  - full scale prototype project
  - National supergrid scale
- Siting: utility owner participation and sponsorship
- Site specific design
- First Prototype project
  - High probability of success
  - Small diameter: < 2 ft.
  - Develop directional drilling for extended lengths.
  - Nitrogen coolant?
  - Length: 10 to 40 km

Other facilities: underground?

- Shafts and laterals
- Hydrogen generation facilities
- Substations
- Coolant
- Ventilation/mechanical support
- Nuclear park

Construction Panel: A way forward

- Wishes:
  - Craig: program manager for demonstration project.
  - Peter: Process for early decision on prototype, that can be expedited w/o debilitating delays
  - Ed: Proceed with development, from concept to design-manufacture-construction of next generation of tunneling, suitable for Supergrid
  - Wes: Workshop on nuclear park.