

Water–Related Regulatory Advisory Panel

Summary of Research
September 27, 2011

Code of Virginia

§10.1-1197.6 A

. . . the Department shall develop . . . a permit by rule or permits by rule if it is determined by the Department that one or more such permits by rule are necessary for the construction and operation of small renewable energy projects

Questions:

Is a permit by rule necessary at the present time for . . .

- Falling water?
- Wave motion?
- Tides?
- Geothermal?

Hydroelectric

- Presentation by Frank Simms of AEP
- Communications from Ann Miles of FERC
- Research memorandum by Connor Kain
- Ruling by the U.S. Supreme Court

For your consideration . . .

- Is a PBR “necessary” for hydroelectric projects?
- Is DEQ pre-empted by FERC from promulgating a permit regulation for hydroelectric projects?
- RAP Members’ Discussion

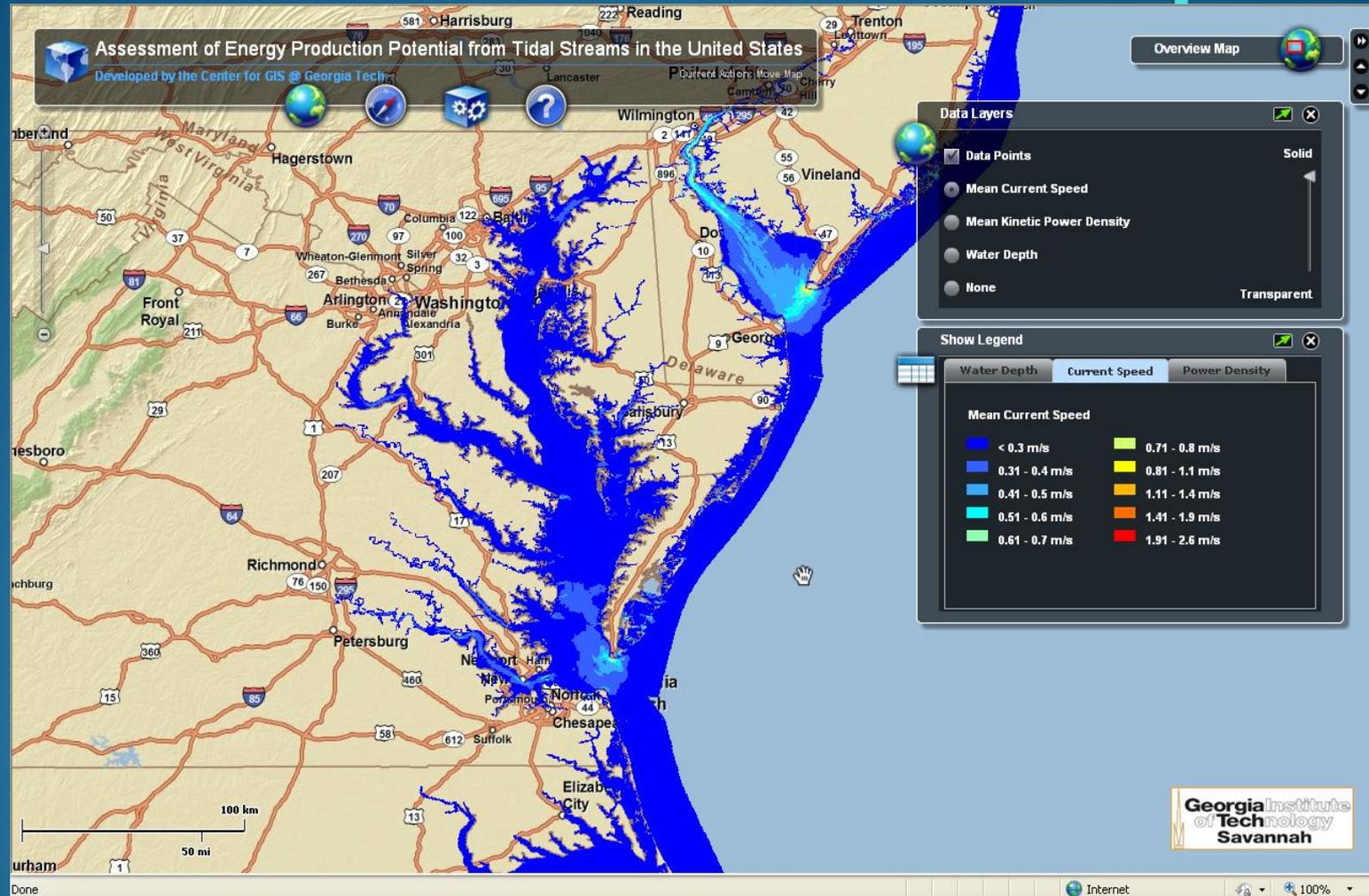
Wave Motion

- Dr. Larry Atkinson, Old Dominion University
- Dr. George Hagerman, VCERC, Virginia Tech
- Connor Kain Memorandum

Tides

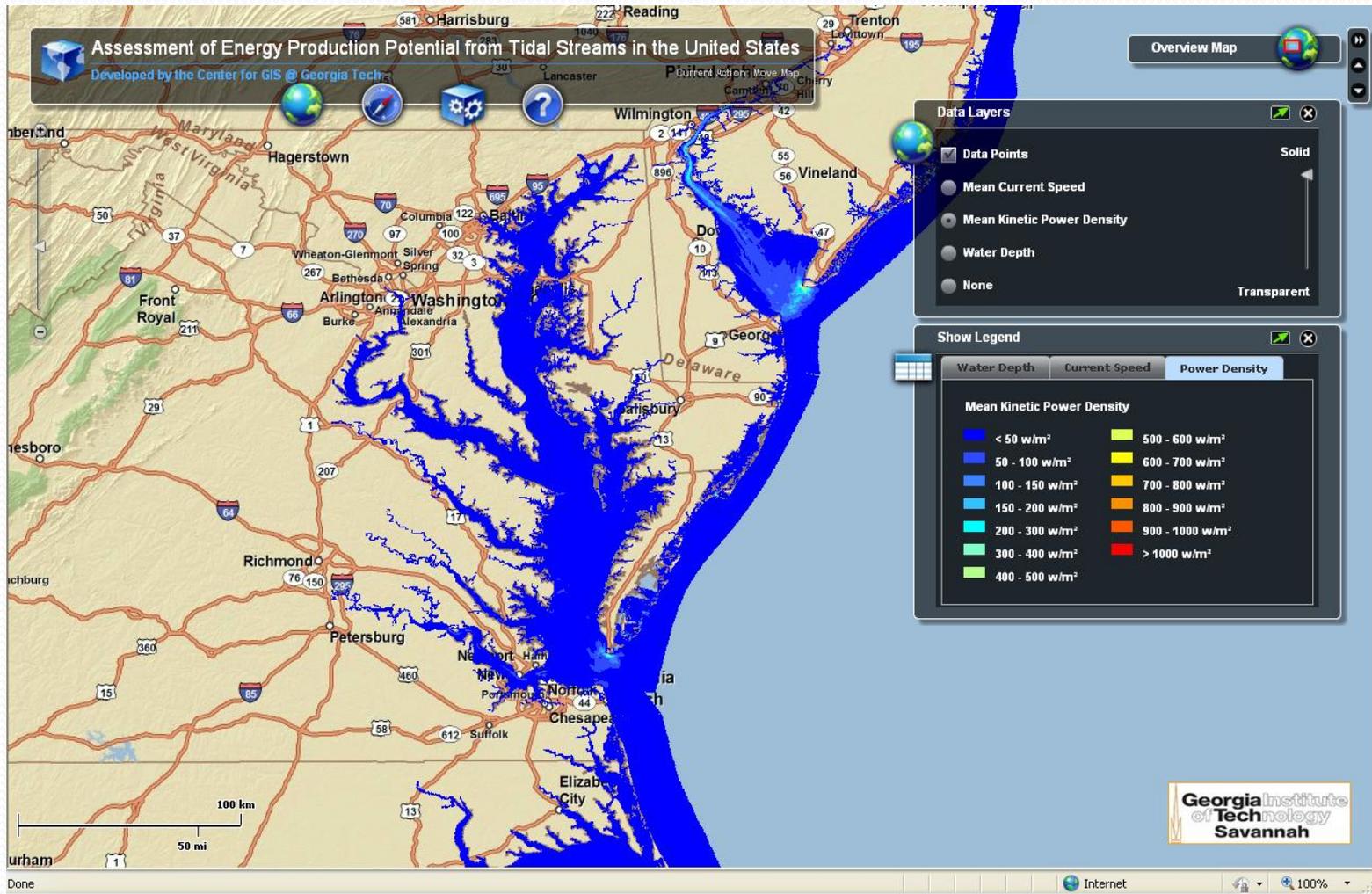
- Dr. Larry Atkinson, ODU
- Dr. George Hagerman, VCERC, VT
- Connor Kain Memorandum
- GIS Maps

Mean Current Speed



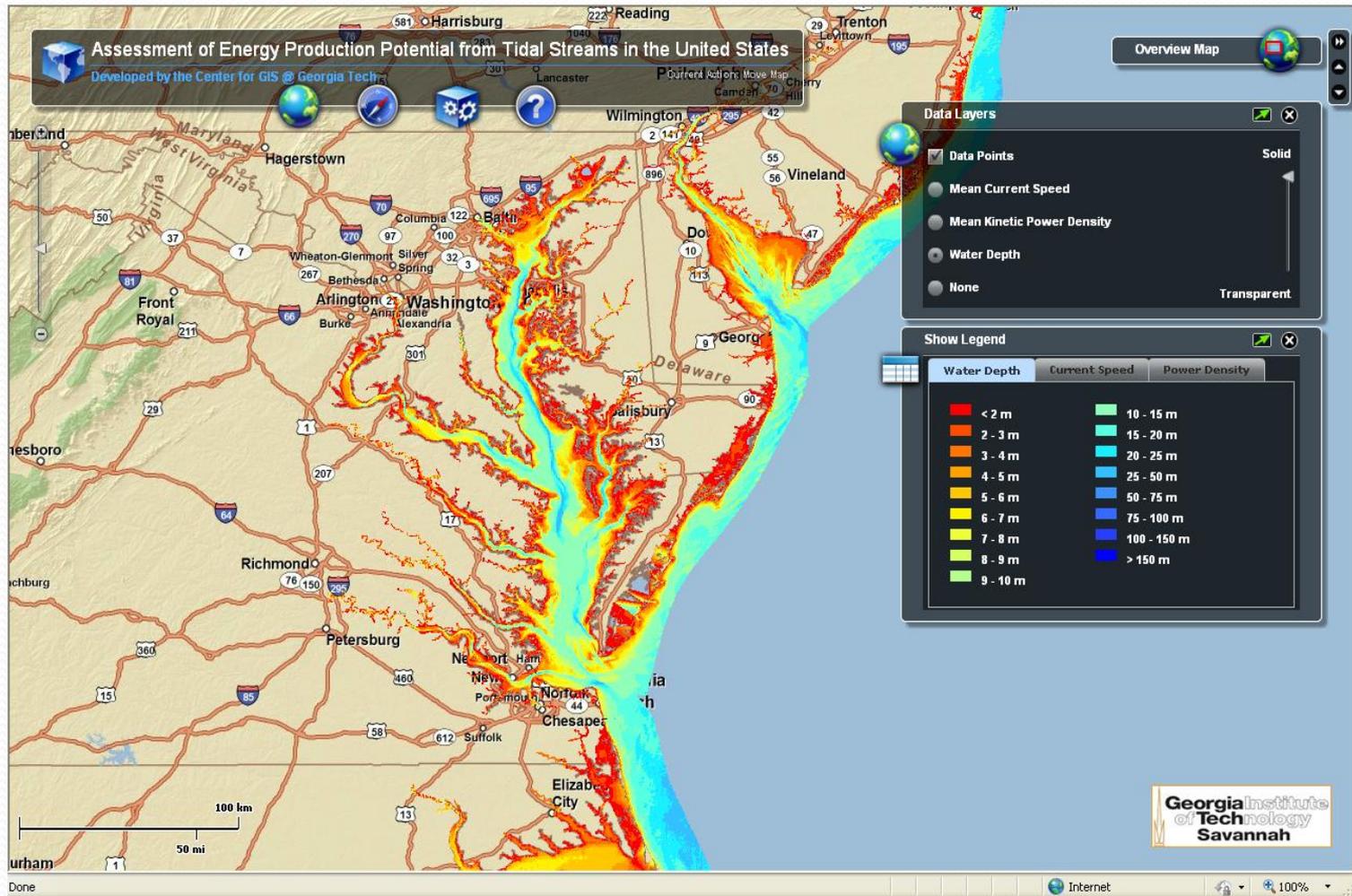
Georgia Tech Center for GIS: Assessment of Energy Production Potential from Tidal Streams in the US (<http://www.tidalstreampower.gatech.edu/>)

Mean Kinetic Power Density



Georgia Tech Center for GIS: Assessment of Energy Production Potential from Tidal Streams in the US (<http://www.tidalstreampower.gatech.edu/>)

Water Depth



Georgia Tech Center for GIS: Assessment of Energy Production Potential from Tidal Streams in the US (<http://www.tidalstreampower.gatech.edu/>)



For your consideration . . .

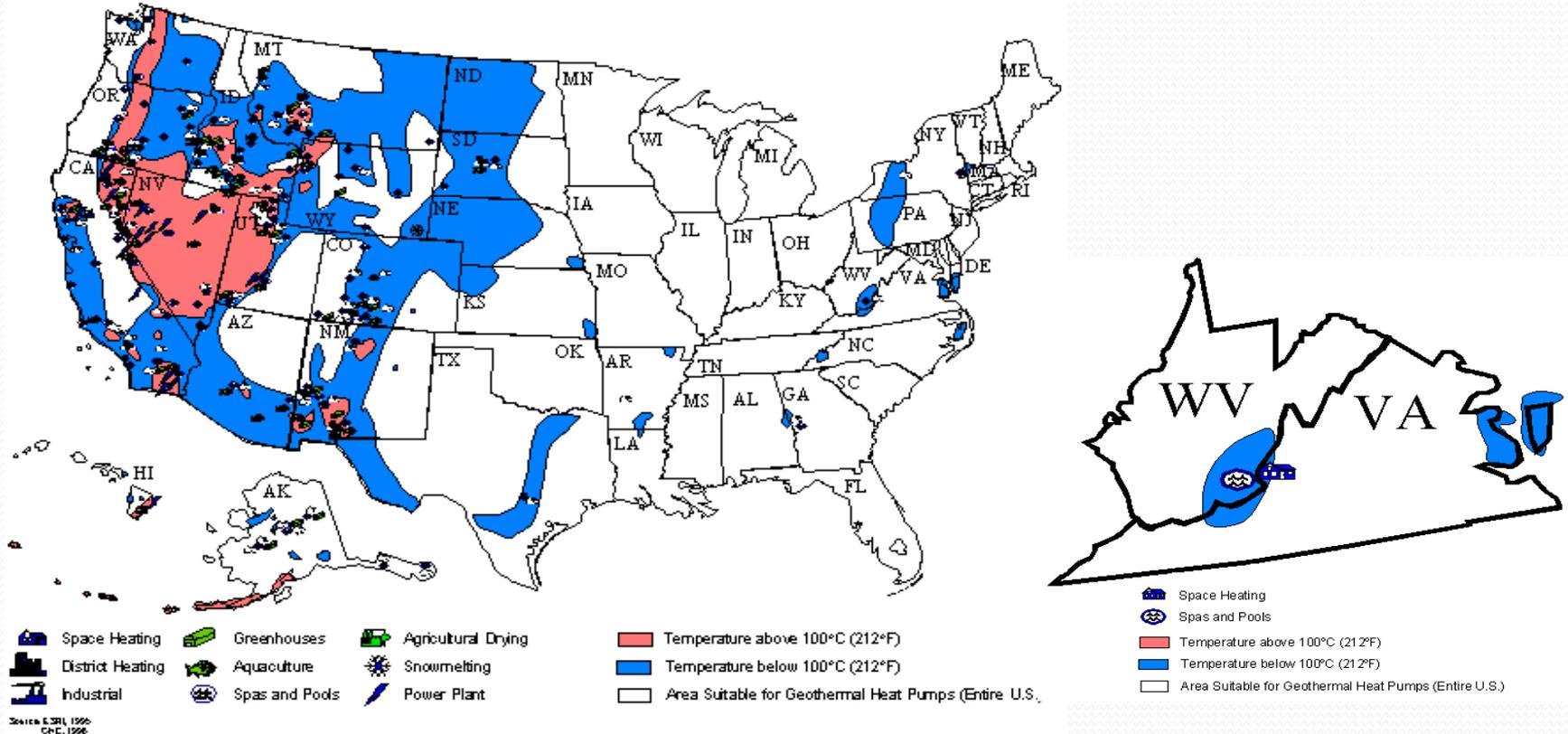
Is a PBR “necessary” at the present time for projects generating electricity from wave motion and/or tides?

Geothermal

- Connor Kain Memorandum
- Dr. George Hagerman, VCERC, Virginia Tech
- Dr. John Costain, Virginia Tech
- Existing Regulations: DMME, VDH (proposed)
- Maps

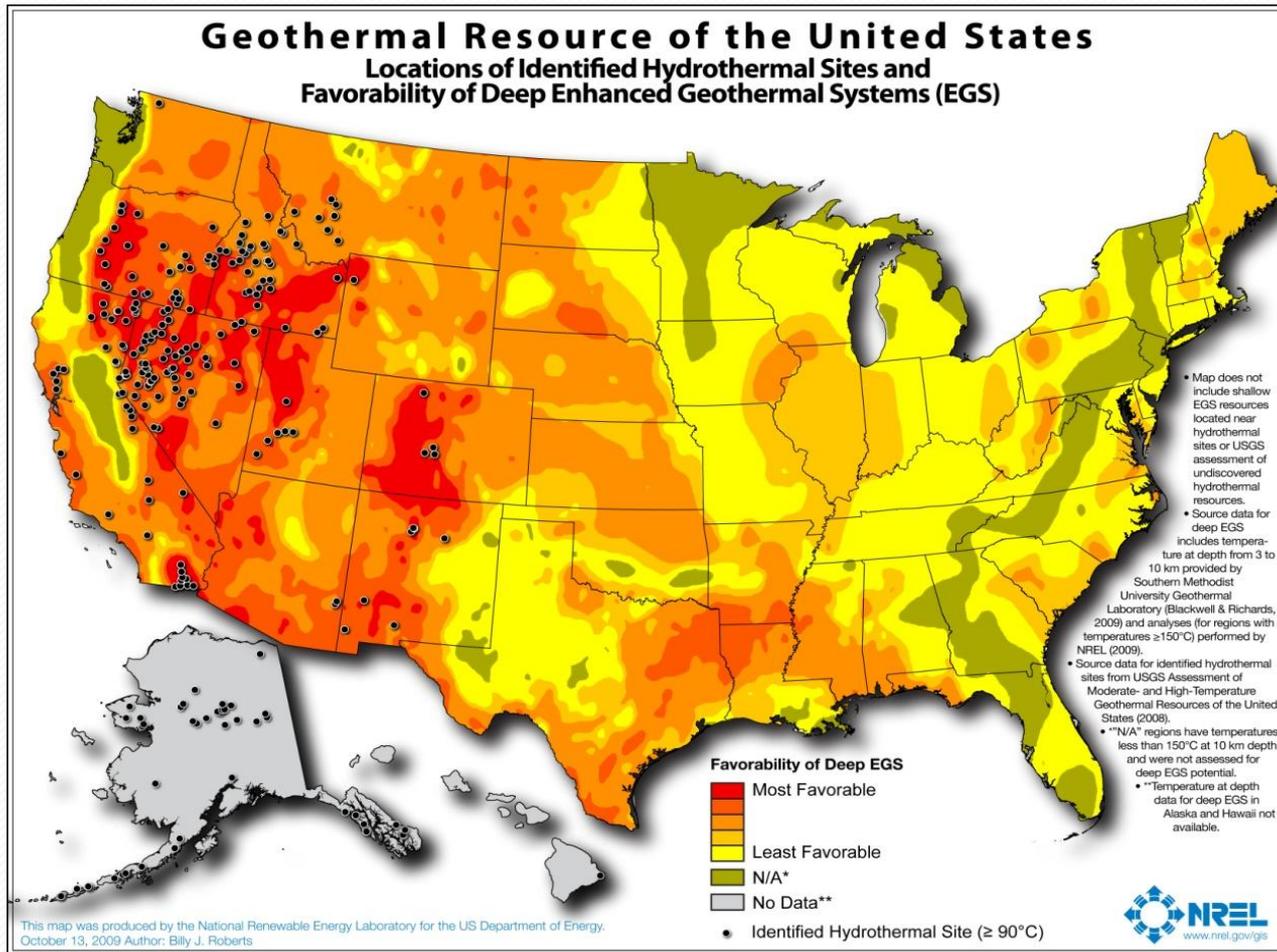
US Geothermal Projects and Resource Areas

U.S. GEOTHERMAL PROJECTS AND RESOURCE AREAS



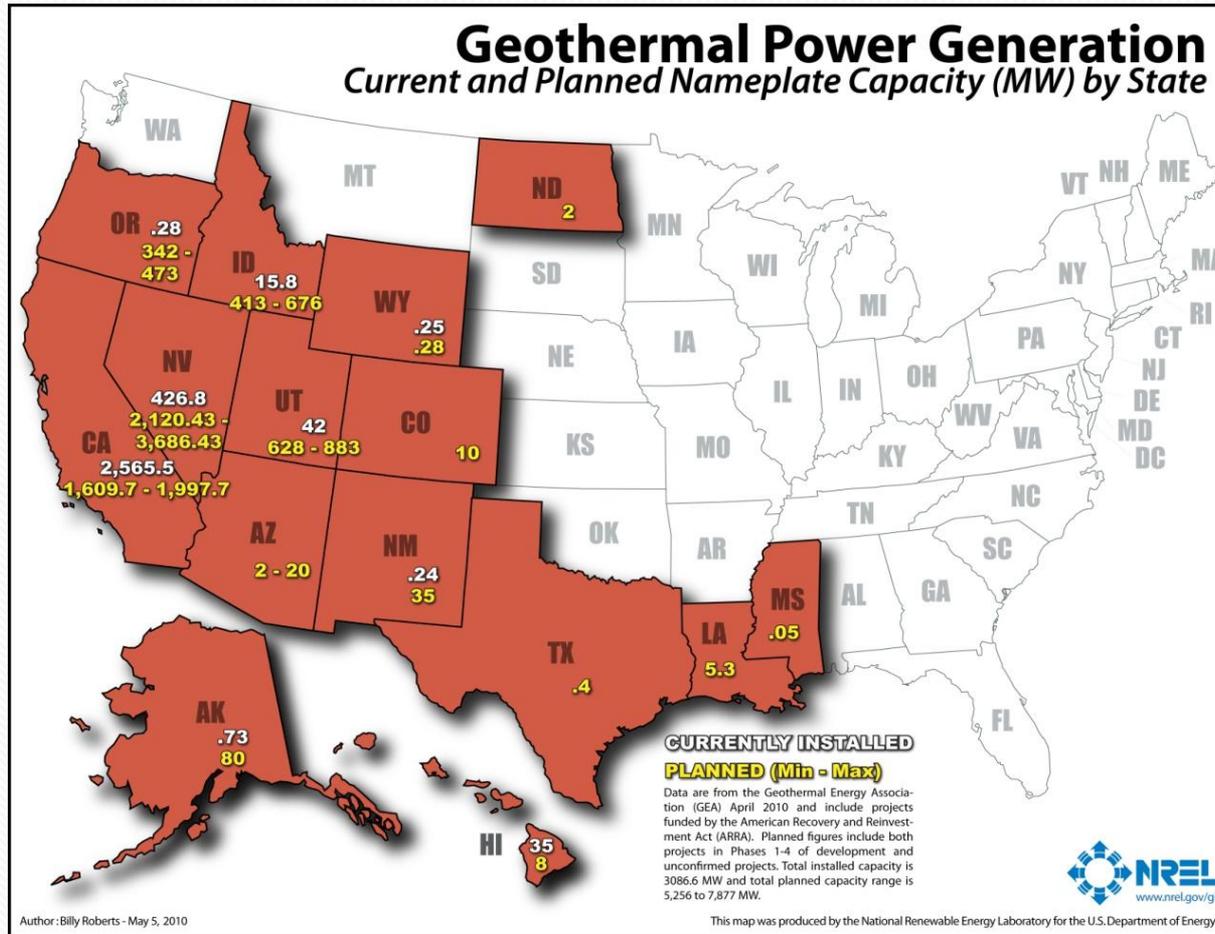
The above maps were created by the Geo-Heat Center at the Oregon Institute of Technology, Klamath Falls, OR. <http://geoheat.oit.edu/index.htm>, 2005

US Geothermal Resources



Source: National Renewable Energy Laboratory for the US Dept. of Energy 10/13/09

Geothermal Power Generation



Source: National Renewable Energy Laboratory for the US DOE 5/5/10

For your consideration . . .

- Is a PBR “necessary” at the present time for geothermal projects?
- RAP Members’ Discussion

Next Steps

- What are RAP members' initial inclinations?
- Topics & resources for discussion at next RAP meeting?
- Date of next RAP meeting?



*Thank you
for
your participation
and support*