

Wednesday, July 15, 2009 (file cac226)

To: Dan Breedon

Fr: Ed Miller

Subj: Electrical energy from wave energy, polar ice effects, unconventional farming, water quality and mapping tools

Ref A: E. Rusch, Catching a wave, Smithsonian July 2009, pp 66-71

Ref B: National Science Foundation celebration of the International polar year, Research channel 9400, 7/15/09, 8-9 PM

Ref C: L. Hamilton, Deeply rooted, Unconventional farmers in the age of agribusiness, Publishers Group West/Counterpoint Berkeley, 2009

Ref D: R. Saykally, the pure water predicament, better water requires better understanding of water, Catalyst, U.C. Berkeley College of chemistry, Spring/Summer 2009 Vol 4 #1

Ref E: K. Goering, High-def mapping, Sustainable land development June/July 2009, Vol 5 #6, pp22-24

Highlights and comments:

1. Per Ref A, the west coast of California provides a unique opportunity for converting wave action to electrical energy. The Wallace Energy systems and renewable facility (WESRF) at Oregon State's Hatfield marine science center is a lead agency. George Boehlert and lead Annette Von Jouanne are key persons involved in development of a wave-energy converter and minimizing the impact on the environment. From the electrical engineering point of view, the persistent but short term variable nature of the energy may require short term storage such as mega-capacitors. From the Butte County point of view, we need to consider the need for right of ways for west to east transmission line expansion by 2030. The TANC fiasco that was officially terminated is an example of conflicts that may arise from marginal planning. It is estimate by DOE that up to 6% of renewable energy of the U.S. could be obtained from wave-energy converters.
2. Per Ref B, the sea level rise with increased GHG has not been resolved. The key uncertainty is the effect of melting ice. The national Science Foundation (NSF) is the lead agency examining this problem under Bement and Kileen. Satellite imaging with .36 km resolution and undersea/ice measurement tools are key tools in understanding the mechanism of action and predicting future effects under the program named NABOS.
3. Ref C points up the fallout of scaling of agriculture on the farmer, environment and consumer. The potential for revolution in the commodity field may involve Butte County control and encouragement of ideal scale developments.
4. Ref D describes work on understanding water with a strong emphasis on filtration efficiency that may drive future Butte County water contamination control.

5. Ref E describes improved digital elevation models based on interferometric synthetic aperture radars and lidars. Processing to achieve rectified terrain/surface mapping at a variety of high resolutions in X, Y & Z can be fitted to the needs of studies on large scale infrastructure. Techniques of these types are well fitted to studies of terrain in the forested regions and transmission line corridors in Butte County.