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Subj: Wind Power, Tomographic radar imaging, transition to solid state lighting and projected increase in corridors width for Ultra high voltage transmission lines

Ref A: C. Smith, Wind Power: Present Realities and Future Possibilities, Proc IEEE Vol 97 #2 Feb 2009, pp195-197

Ref B: L Jofre et-al, UWB Tomographic Radar Imaging of Penetrable and Impenetrable Objects, Proc IEEE Vol 97 #2, Feb 09, pp451-463

Ref C: I. Azavedo et-al, the Transition to Solid-State Lighting, Proc IEEE Vol 97 #3, Mar 09.481-510

Ref D: R. O'Donnell, Ultra High voltage Transmission in China: Developments, Current Status and Future Prospects, Proc IEEE Vol 97 #3, Mar 09, pp 553-583

Highlights and summary of literature that can potentially affect Butte County General Plan

1. Wind Power: Per Ref A, by the fall of 2008, the U.S. installed wind power capacity surpassed 20 Gw. This contrasts with a world wind capacity of more than 100 Gw. The DOE in the spring of 08 put out a report "20% wind energy by 2030." Developments have been limited by on and off funding of a subsidy of a 1.5 cent/Kwh.
2. Tomographic Imaging of objects: Ref B examines the potential for imaging objects in a manner analogous to X-Ray CAT scans. This approach may be of utility in the study of forests and subsurface structures in addition to security surveillance of containers.
3. Solid state lighting: Worldwide lighting is responsible for 1900 Mt of CO2 per year. Ref C documents the history, current status and future for various types of lighting sources with an emphasis on solid state.
4. Ultra high voltage transmission: Ref D summarizes the status of work throughout the world on ultra high voltage transmission in the 800 to 1500 Kv range for both AC and DC systems. Transmission line towers heights are typically 100 m/328 ft.

Potential effect on the General Plan:

1. We may want to survey possible wind sites within Butte County.
2. We may want to get a feel for high voltage distribution system growth into, within and out of Butte County. Based on previous discussions, we may need to start thinking about corridor widths of the order of 700-1000 feet in the zoning ordinances per the implications of Ref D that go well beyond the BLM 200 foot requirement.

3. Recognition of the critical nature of lighting system efficiency needs to find a place in the general plan if only in support of LEED certification. Title 24 needs to be examined under enforcement issues.
4. Tomographic radar imaging in the 3-10 GHz range may become a useful tool in maximizing timber production, water stress measurement and historic dendrology studies using non-ionizing radiation. Industrial and government forestry managers need to be made aware of the potential of this methodology and county status reporting associated with wildland fire risk management.