

New Paradigm for Power Production



Matthew Steiner

www.hybridgreenenergy.org

Efficiency

Overburdened Grid



Free Standing Power





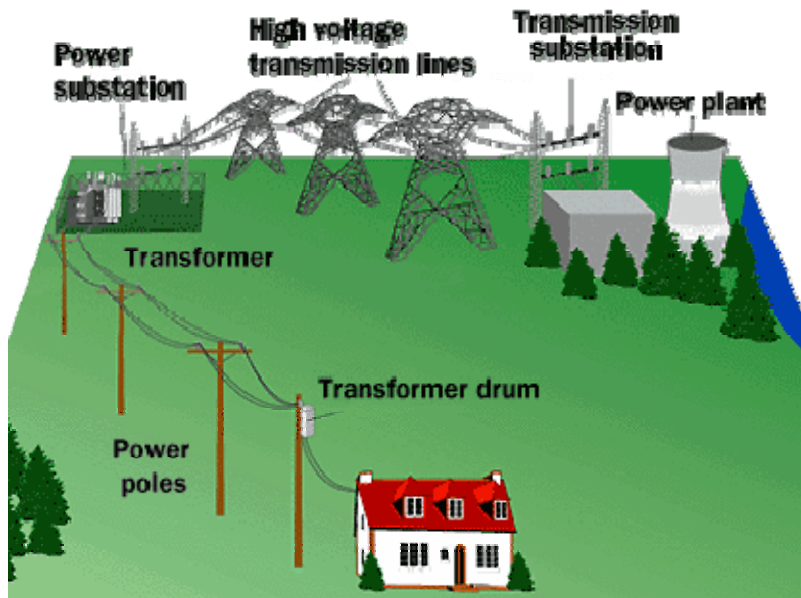
Security

“The centralized Grid is the Achilles heel of our society today”

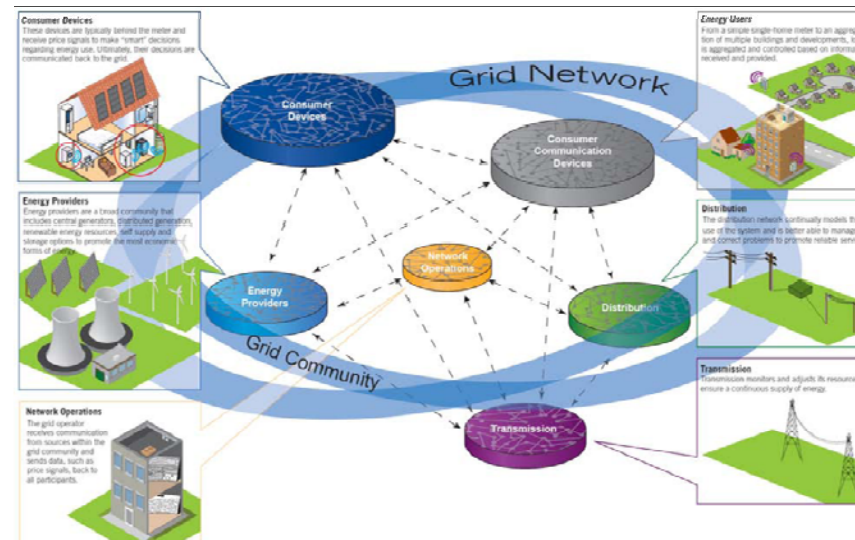
- Power interruptions and disturbances cost the U.S. electricity consumer at least *\$79 billion* per year
- A recent rolling blackout caused an estimated *\$75 million* in losses in Silicon Valley alone
- When the Chicago Board of Trade lost power for an hour during the summer of 2000, trades worth *\$20 trillion* could not be executed

Central Vs. Smart Grid

Uni-directional power flow



Integrated power flow



Remote Generation Projects

Often these sites are far away from point of use in urban areas.

Site selection restricted to areas with high voltage power transmission lines in proximity to facility.

Prohibitive costs of extending high voltage transmission lines to viable open space sites.



Small/Medium scale local power



- **What is bio-char, how is different from charcoal?**
 - Bio-char is bio-mass (wood, plants, plant waste) that has been converted to charcoal, but ...
 - Volatile fluids and gasses are captured and used, whereas with traditional charcoal production these "go up in smoke"
 - Bio-char is produced by pyrolysis: heating in the absence of oxygen, which prevents burning of the biomass (which happens in open fires)
- **What use is it?**
 - Bio-char, and its byproducts, has multiple uses
 - When added to the soil it can significantly improve soil fertility (especially if some volatiles are left or re-cycled back in)
 - The volatile fluids and gasses produce usable bio-fuels, that can be produced on a sustainable basis
 - The carbon, when recycled into the soil, provides a stable long term removal of carbon (dioxide) from the atmosphere. Removing carbon from the atmosphere is called sequestration

Bio-Gas & Agrichar



Diverse inputs

