**EAS 375**

**Lecture Questions**

**The Grid**

**1. Describe the general grid system in North American grid.**

3 independent networks of transmission which incorporate international connections with Canada. Texas Interconnection, Western Interconnection and Eastern interconnection.

It is old and fragile. Subdivision in those networks.

**2. What are the major components of the grid from the generation to your house?**

* Transmission line
* Local distribution

**3. What is the basic vulnerability of the grid?**

Easy target for terrorists: destroying several substations could be catastrophic. Today: computer virus.

Widespread power outage if not maintained because it is old.

**4. What is distributed generation?**

Different number of sources, multiple energy sources. It is less vulnerable, home and company generate their own electricity. (solar, fuel cell, wind, micro-turbine generator…).

**5. What is are the advantages of High Voltage Direct Current?**

* Reduce loss of electricity (Doesn’t lose as much AC), can be transmitted greater distance.
* Reduce number of power plants.
* Reduce pollution.
* Mine site itself (power station at coal mine).

**6. What some of the problems with establishing the smart grid?**

Compromising the smart meter itself

Compromising what controls the smart grid

Privacy concerns around the power usage by individuals

**7.When was the technology runs the modern grid first developed ?**