

# Physics134 week7

[Science](#), [Physics](#)



Power Grid North American Electric Reliability Corporation The NERC is a non-profit international regulatory body that seeks to assure the reliability of the bulk systems of power in North America. NERC establishes and enforces standards of reliability, monitors the bulk power systems via awareness of the system, annually assesses long-term and seasonal reliability, and trains, educates and certifies industry personnel. The members of NERC include the entire United States continent, Mexico, the northern portion of Baja California, and Canada. It is the North America's electric reliability corporation and is subjected to oversight by the Canadian government authorities and the Federal Energy Regulatory Commission.

The functions of the NERC include working with the stakeholders to establish reliability standards for power systems, enforcing and monitors those standards, providing training and educational resources as part of an accreditation program, and assessing adequacy of the resources to ensure operators of the power system are proficient and efficient. NERC analyzes causes of power disturbances to help avoid future disruptions.

#### Long distance power transmission

Long distance power transmission is sent on high voltage wires because power is roughly the product of current and voltage. It means that when sending a lot of power, high voltage and high current must be used. High voltage wires are used because high current leads to the loss of power due to the wire resistance. With high voltage wires, the current is small and, therefore, much power reaches the destination.

#### Comparison of transmission lines

When using high voltage transmission line where one is twice the voltage of

another, each of them has advantages and disadvantages. Very high voltage transmission lines are beneficial in that they can transmit power underground and above the ground from power companies to households and individual businesses. The high voltage lines can also run long distances and maintain the electric power. They are more advantageous to utility companies because they fetch more power. They are also more efficient due to minimal loss of energy. However, they have an increase danger because of high voltage. Low voltage transmission lines are less dangerous but fetch minimal power due to energy loss.

#### Works Cited

DOE Office of Electricity Delivery and Energy Reliability. <http://energy.gov/oe/office-electricity-delivery-and-energy-reliability>

EIA page on Electricity Data. <http://www.eia.doe.gov/fuelelectric.html>

The Grid, DOE Office of Electricity Delivery and Energy Reliability.

<http://www.oe.energy.gov/SmartGridIntroduction.htm> [http://www1.eere.energy.gov/tribalenergy/guide/electricity\\_grid\\_basics.html](http://www1.eere.energy.gov/tribalenergy/guide/electricity_grid_basics.html) [http://en.wikipedia.org/wiki/Electrical\\_grid](http://en.wikipedia.org/wiki/Electrical_grid)