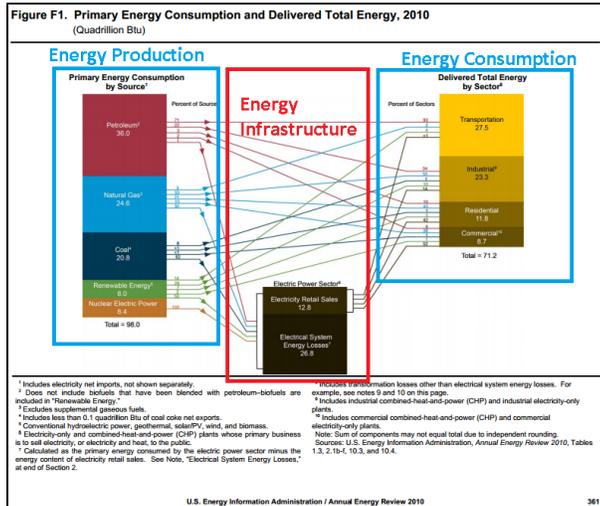


Energy Infrastructure

For the purposes of this wiki, Energy Infrastructure is defined as the large-scale enabling technologies to

1. Transport energy from producer to consumer
2. Direct and manage energy flow

As such, Energy Infrastructure naturally includes the traditional utilities associated with energy transport and management (coal transport trains, natural gas pipelines, electric transmission lines, etc.). However, the field also covers large-scale energy management technology such as advanced electricity metering and distribution systems, smart building technologies, and modern power plant control systems. The figure below illustrates that the energy infrastructure is effectively the interconnect between energy production and energy consumption.



Original Chart Source: <http://eia.gov/totalenergy/data/annual/pdf/aer.pdf>

There are three primary consumption-ready energy sources: Refined petroleum (used primarily as a transportation fuel), Natural gas (used primarily for heating), and Electricity (used for versatile energy conversion). While it is impossible to categorize the entire energy infrastructure in this manner, this organization yields fruitful insights into the current state-of-the-art in energy transport and management.

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Petroleum Infrastructure

The following are interesting links on the petroleum infrastructure:

Wikid Funhouse: [Petroleum](#)

<http://www.ferc.gov/industries/oil.asp>

http://en.wikipedia.org/wiki/Category:Petroleum_infrastructure

Natural Gas Infrastructure

The following are interesting links on the natural gas infrastructure:

<http://www.ferc.gov/industries/gas.asp>

Electricity Infrastructure

The electricity infrastructure consists of production and distribution technologies, and consumption management methodologies. This site also contains a description of the primary problems and solution mechanisms that have been proposed and implemented with respect to the electricity infrastructure.

Production Side Technologies

The electricity production and distribution infrastructure is colloquially known as "The grid." The grid consists of transmission lines, power transformers, metering equipment, and electric generation control systems.

See main article: [Electricity Production and Distribution Infrastructure](#)

Consumption Side Infrastructure

One of the primary consumers of electricity is buildings. The energy needs of these large electricity users can be reduced through smart buildings.

See main article: [Smart Buildings](#)

Problems and Solutions

The current problems with the grid, including lack of extra-high voltage transmission lines, inefficient grid operation features, and lack of customizability are addressed with the concept of a "smart grid."

See main article: [Solutions For The Future](#)

Authors

[McClurg, Josiah C](#) (3060 days ago), [McKibbin, William J](#) (4186 days ago), [Boies, Courtney N](#) (4201 days ago)