Pre oil

* Ancient energy demands
* Wood as fuel
* Shifts of power
* Asia
* 13th century population increase
* Invation of Mongols
* Shortage of wood for energy
* England and Europe
* Abundant forests
* Shortage in the 17th century
* Import from Baltic states and Scandinavia
* Mid 18th century Europe faced shortage of wood
* Results in energy crisis
* Increase use of “inferion coal”
* Iron industry
* Starting using coal
* Invention: steam engine
* Keeping miner water free
* Transport by rail
* Steam engines improvement
* 1800: equivalent of 200 men
* 1900: equivalent of 6000 men

Before

* Hunter gatherer
* Until 11000 BC
* Nomadic
* Start with domestication of animals

Energy availability

* Low quantity
* Intermittent continuity (irregular)
* Various quality
* Animal and plant
* Sedentary lifestyle
* Need to be efficient
* Growth of domestication
* Start of agriculture

Energy availability

* Higher quantity
* Intermittent continuity
* More stable quality
* Plant and animal

England: Industrial Revolution

The enclosure

* Canals: Britain’s earliest transportation infrastructure
* Coal → Water
* Iron → Wood
* Innovations:
* ‘Hot blast’ – cheaper purer steal, 1829
* Bessemer process – strong and flexible steal, 1856
* Child labour
* Concentrates factory production in one place (material and labour)
* Located neon sources of power
* Capital investment – skilled labour

Inventions

* The power loom
* James Watt’s steam engine
* Steam tractor
* Steam ship
* Early steam locomotive

Social effects

* Shorter travelling times
* Bourgeois life thrived on the luxuries of the industrial revolution
* The industrial nouveau riche
* Criticism of the new bourgeoisie
* Upstairs/downstairs life
* Private charities: soup kitchens

Utilizations:

The goal of society is the greatest good for the greatest number.

Socialists: Utopians and Marxists

* People as a society would operate and own the means of the productions, not the individuals.
* Society that benefitted everyone
* Tried to build perfect communities

Index

Energy geopolitics:

* Pre-oil ere
* Detrol ere
* Post-oil ere

Energy policies:

* Economy
* Security of supplies
* Environment

Oil ere

* Energy politics
* Long term and uninterrupted availability
* Preferably market orientated
* Least possible harm to the environment
* Transition
* Price
* Security of supplies
* Environment cost
* Trias Energetica approach
* Reduction of demand
* Sustainable production
* Effective use of fossil
* Environment
* There will be significant changes

Price

* Energy demands
* Energy reserves
* Processing capacity
* Price is being determined by price, supply and scarcity

Oil demand

* Currently, 85 m6pd
* 2030, 120 m6pd

Emergency stocks

120 days

Human history

* Growth & discoveries
* Inventions
* Revolutions

 Agricultural revolution

* Surplus of food – surplus of energy
* Rivers – possibility of transports

Ancient middle east

* 3000 BC – 2000 BC
* Region covered with massive forests
* Wood as energy source of civilization

Greek period

* 1500 BC – 200 BC
* Plenty of timber
* Alexander the great
* Macedonia
* Conquered half of the Mediterranean and middle east.

Roman empire

* Expansion for energy
* Mounting costs of energy supply

Energy and society

Collapse of complex societies

* Resource depletion
* Mismanagement
* New resources

Energy politics

* Security of supply
* Price
* Sustainability

All of the are risks to the energy security

Basic terms:

* Energy availability
* Quantity
* Continuity
* Quality
* Energy source