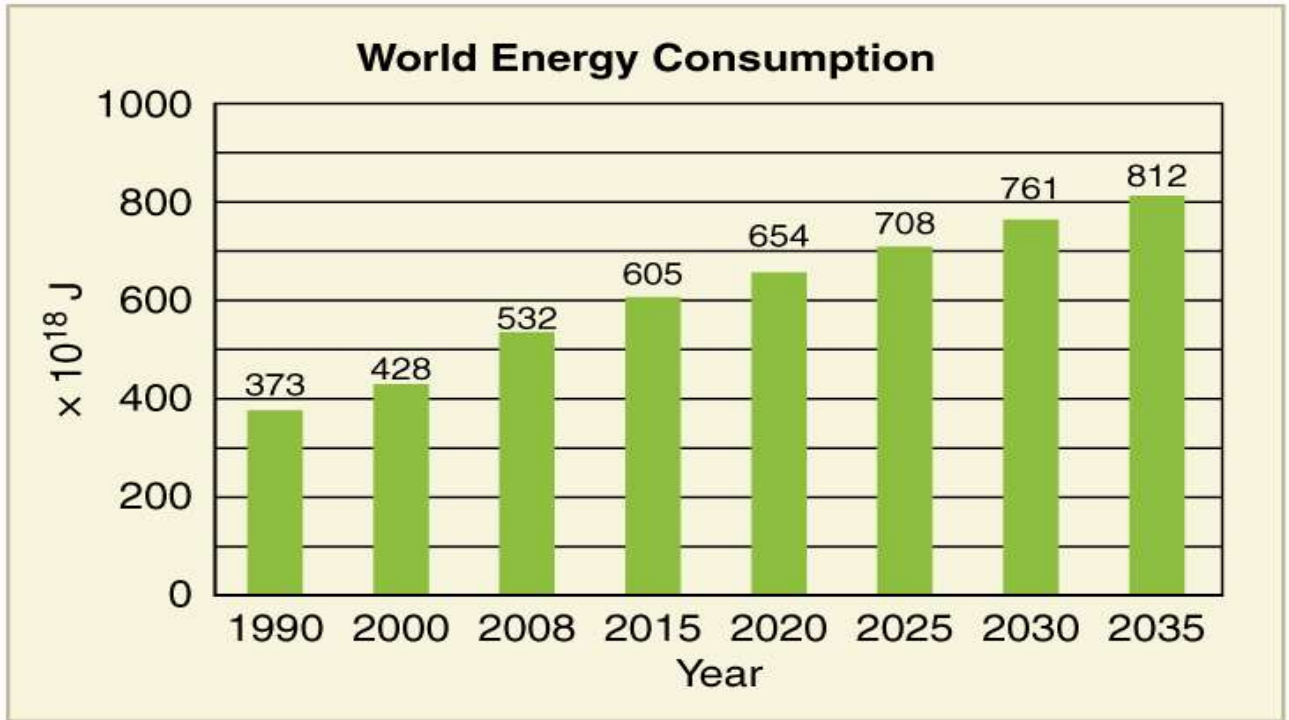


COLUMN GRAPHS

SKILLS QUESTIONS

ENERGY GRAPHS



The line graph shows the actual world energy consumption from 1990 to 2008 and the predicted consumption from 2015 to 2035.

Q1. State the world energy production (in $\times 10^{18}$ Joules) for the year:

- (a) 1990
- (b) 2008.

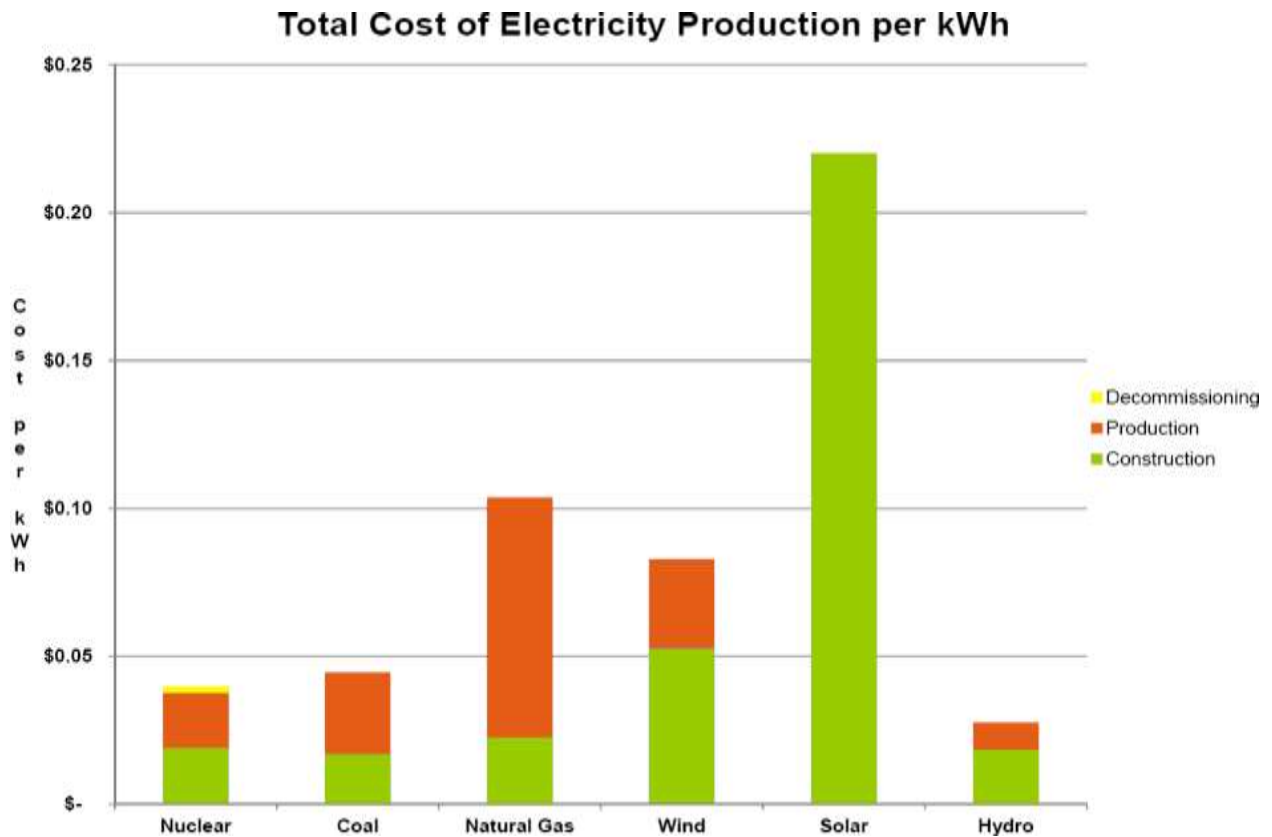
Q2. (a) Calculate the increase in energy consumption between 1990 and 2008.

(b) The time difference is 18 years. Divide your answer to Q2(a) by 18 to find the actual average annual increase.

Q3. (a) Calculate the increase in energy consumption between 2008 and 2035.

(b) The time difference is 27 years. Divide your answer to Q3(a) by 27 to find the predicted average annual increase.

- Q4. (a) How do your answers to Q2(b) and Q3(b) compare?
 (b) What assumptions has the statistician who created the graph made?
 (c) What do you think the world energy consumption will be in 2035? Explain.



The graph shows the cost of electricity generation using non-renewable (nuclear, coal, natural gas) and renewable (wind, solar, hydro-electric) energy sources.

- Q5. State the combined construction and production cost (in cents per kWh) from:
- nuclear
 - coal
 - wind
 - solar.

- Q6. Compare the cost of constructing the power generators (green) to the cost of the energy they produce (orange). State the non-renewable source where:
- the construction cost is more than the production cost
 - the construction cost and production cost are the same
 - the production cost is more than the construction cost.

- Q7. Compare the cost of constructing the power generators (green) to the cost of the energy they produce (orange). State the non-renewable source where:
- the construction cost is more than the production cost
 - the production cost is more than the construction cost.

Q8. Is this graph most likely to have been produced by a person who supports non-renewable or renewable energy?

ANSWERS

Q1. (a) 373
(b) 532

Q2. (a) 159
(b) 8.8

Q3. (a) 280
(b) 10.4

Q4. (a) Predicted consumption rate higher than current rate.
(b) As the world population increases, the annual consumption rate will decrease possibly due to a reduction in energy consumption or the invention of more efficient electrical and transportation devices.

Q5. (a) 4
(b) 4.5
(c) 8
(d) 22

Q6. (a) none
(b) nuclear
(c) coal, natural gas

Q7. (a) all
(b) none

Q8. Non-renewable