

Self Test

Chapter 16 Modeling Energy Demand

Click on True or False to test your knowledge of the chapter.

1. **True False** Coking coal has the highest global consumption of the common coal types.

2. **True False** You live in a three good world with income (Y) of 1000, the price of food (P_F) is 10, the price of energy (P_E) is 20 and the price of appliance and equipment services (P_S) using energy is 25 per hour. Your budget constraint is

$$Y = P_F F + P_E E + P_S S = 1000 = 10F + 20E + 25S.$$

This budget constraint is homogenous of degree zero in Y, P_F, P_E, P_S .

3. **True False** The basic rule for consumer utility optimization is to consume where:

$$U_E U_N = P_E P_N$$

4. **True False** One way to test functional forms is to use the Box Cox function:

$$\frac{y^\lambda - 1}{\lambda}$$

This function is linear, an inverse, quadratic and log when $\lambda=1, -1, 2, 0$.

5. **True False**. Given that the price of electricity is \$87.35/MWh or \$0.087/kWh, the price of gas is \$4.53/MMBtu, the efficiency of your gas turbine is 30% and the marginal revenue product is \$.0537. It makes sense to continue purchasing gas to produce electricity. (Contributed by Clayton Doke)

6. **True False** The slope of a consumer's indifference curve is the negative marginal rate of substitution. (Contributed by Tyson Cook)

7. **True False** Given a set price and budget constraint all consumers will have an identical optimal consumption bundle between energy goods and other goods. (Contributed by Tyson Cook)

8. **True False** If world oil production is 3994.5, imports are 2249.4, exports are 2146.2, and the change in stocks is 2.1 then the total primary energy supply for world oil is 4095.6. (Contributed by Tyson Cook)

9. **True False** Suppose that your income is 100, the price of energy products (P_E) is 10 and the price of all other goods (P_N) is 5, which gives you a budget constraint of:

$N = 20 - 2E$. Now suppose your income increases from 100 to 150 and the price of energy increases to 20. Your new budget constraint would be $N = 30 - 4E$. (Contributed by Tyson Cook)

10. **True False** In the above problem, the changes in income and energy price only affect the slope of the budget constraint. (Contributed by Tyson Cook)

11. **True False** Each individual consumer has one indifference curve. (Contributed by Tyson Cook)