

# Environmental Economics SS 2015

## 1. Part - Udalov

1. Decompose CO<sub>2</sub> emissions using the formula from the lecture. Describe possible developments of respective components. According to the formula, what are the possible measures to decrease CO<sub>2</sub> emissions? (5 Points)
2. Electricity production causes environmental damages of which the associated costs are not borne by the producer or consumer of that electricity. These damages are represented by the following marginal external costs:  $MEC(x) = x/30$ . It is assumed that the electricity producer has no fix costs and faces only marginal costs of  $1/15$  Euro for producing one MWh of electricity. The demand function for electricity is equal to  $D(x) = 50 - x/15$ .
  - a) Calculate the uncorrected electricity market equilibrium.
  - b) What is the corrected market equilibrium?
  - c) In order to internalize the negative external effect, the regulator decides to introduce the Pigou tax. What are the optimal amount of the tax and the corresponding tax revenue?(15 Points)
3. Discuss the criticism of the Pigou tax. Evaluate the Pigou tax using criterions for the assessment of standard-orientated instruments and compare this instrument with other standard-orientated instruments. (10 Points)

## 2. Part - Wilts

1. Explain the key drivers for resource efficiency. How do they relate to observable changes in environmental problems? (10 Points)
2. What are relevant strengths and weaknesses of market-based instruments for resource efficiency? (10 Points)
3. Taking the example of either natural resource extraction taxes or waste incineration taxes: How could these instruments increase resource efficiency and what are relevant barriers for their implementation? (10 Points)

## 3. Part - Erdem

1. Please answer the following questions.
  - a. Please describe shortly 3 specifics setting energy markets apart from regular markets. (3 Points)
  - b. Please explain the 3 main objectives of energy policy and describe the trade-offs between those. (5 Points)
2. Why are the energy networks in Germany regulated? Please explain the regulatory objectives and options of the national regulatory agencies (10 Points).

3. Please explain the 3 of 5 concepts you choose: (4 Points each)

- a. Components of energy prices
- b. Eco-economic decoupling
- c. Merit-order effect
- d. Dutch disease
- e. Carbon lock-in effect