

**ENRG3310: Introduction to Energy and Sustainability**  
Prof. Ognjen Š. Miljanić

**Midterm III**  
December 1, 2016

Name: \_\_\_\_\_  
Last First

Student ID Number: \_\_\_\_\_

Read directions very carefully. Write your answer legibly in the designated spaces. *Total number of points is 200.*

1. Compare and contrast environmental and societal negative consequences of using solar, wind, and hydroelectric energy. *40 points*

2. What is president-elect Donald Trump's position on climate change? What does he plan to do about it and how. Also, describe if his attitude on the topic remained constant with time, or has it somehow evolved. Be very specific, cite your sources, and be objective (i.e. use non-partisan language). *50 points*

3. Using Houston Metro's daily ridership numbers for an average weekday in August 2016, estimate savings in the number of gallons of gasoline that this public transportation effort resulted in. You will need to make a series of assumptions in the process: state those very clearly. *50 points*

4. Estimate annual savings in electricity costs if a suburban Houston home (state your assumptions in each case):

*5×12=60 points*

(a) had windows in both of its bathrooms

(b) switched all lightbulbs from old-fashioned incandescent to modern LED (without decreasing the amount of light)

(c) installed two 100 W solar panels on its roof (make sure to subtract the cost of panels)

(d) replaced its 2000 refrigerator with a most energy efficient model available in 2016 (without loss of refrigeration space)

(e) supplemented its electric water heater with a roof solar water-heater system (assume it can provide hot water from April to November)