Class: \_\_\_\_\_\_\_\_\_\_ Time:15minutes

Name of the group members:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Work sheet: Should we replace gas boilers with heat pump?**

1. Energy costs for electricity is 0 .26 euro/kwh and gas is 0 1.23 euro/cubic meter. Commercial gas HR boiler REMEHa Quinta ACE has an efficiency of 98%. Commercial heat pump NIBE F2040 has a COP up to 4.7. 150 sq meter house requires 72630 BTU for maintaining desired temperature for 1 hour, Compare the costs when using a HR boiler (gas) and a Heat Pump. ( Given that
   * 1. Energy content of natural gas = 36046 BTU per cubic meter.
     2. 1 kWh = 3412 BTUs )

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1. In both Germany and Netherlands, gas boilers are replaced by heat pump in a residential home. In which country does this help more against climate change and why?

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