

Environmental Economics

Prof. Philippe Thalmann

EPFL ENAC LEUrE

ENV-471

Master semester 2 or 4

Exercises

OPTIMAL ABATEMENT

Optimal abatement with fixed cost

A company emits 100 units of pollution noted E_0 . The damage caused by E emissions is $D = 5E$ and the cost of avoiding them is $C = 80 + 0.1\Delta^2$, where Δ is the abatement effort ($\Delta = E_0 - E$).

- 1) How can it be explained that the damage is simply proportional to the emissions of this company?
- 2) Calculate the optimal level of abatement Δ^* and emissions E^* .
- 3) Should the company be required to make this effort? To answer, calculate the net gain to society if the company reduces its emissions to E^* . Explain your result.