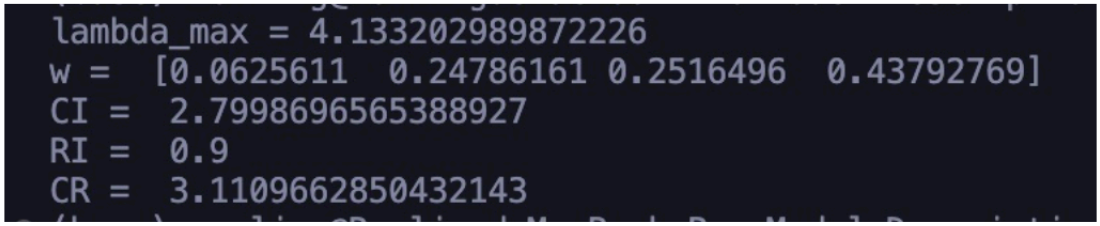
Model 1

Variables:

- n_e: number of e-buses in a certain city or area
- n_b: number of ICE buses in a certain city or area
- L_e: the mileage of an e-bus (in a specific time period)
- L_b: the mileage of an ICE bus (in a specific time period)
- ω_i: weight of the ith gas emission assessing its harmfulness
- g_i: emission of the ith harmful gas
- η_e: energy efficiency coefficient of e-buses
- η_b: energy efficiency coefficient of ICE buses
- P: pollution index produced by e-buses or ICE buses
- E: measurement of ecological consequence in the short run

第一题参数说明：

- $n_e = 4200$ $n_b = 5800$ 已经计算得出
- CO, CxHy, NOx, PM 的对应系数为图中 w 中的数字



- 四种气体在两种车的排放如下：

①	ICE	E-bus
CO	1.5	/
CxHy	0.46	/
NOx	2	0.9%
PM	0.02	0.0%

- $P = \omega_i g_i$
- $E = \sum_{i \in \{e,b\}} (1 - \eta_i) n_i P_i$

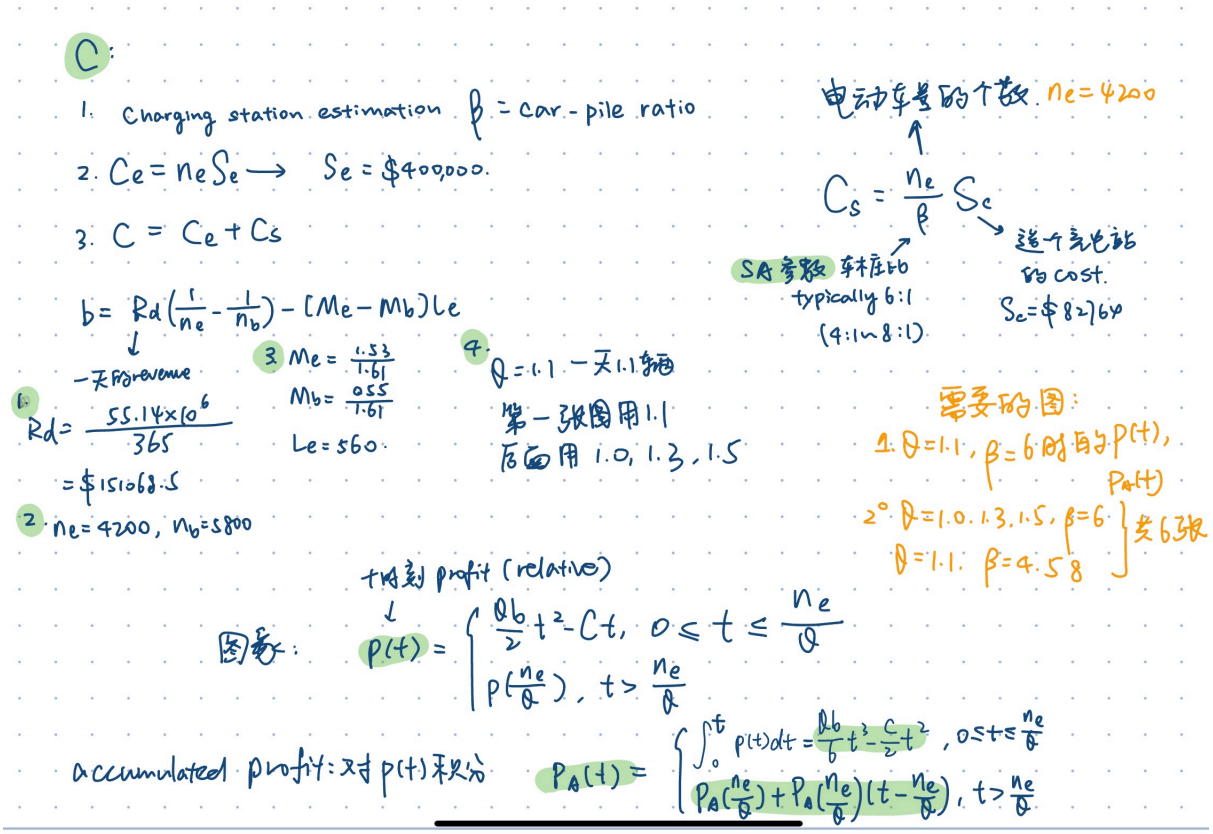
- $\eta_e = 0.92, \eta_b = 0.55$
- $n_e + n_b = 4200$ 简单的来说就是一个一次函数图像, 横轴是 ebus 占 4200 的百分比, 纵轴是 Ecological Index E
- 第一题还要做长期的, 也是一个一次的东西, 我马上修改完几个参数发

Model 2
Measuring Financial Implication B

- $\frac{dp}{dt} = -C + \theta bt$
- p 是 profit (我们通过 profit 来 measure financial consequences), C 是 initial input cost, θ: utilization rate of resources(平均一天生产多少量 ebus), b: financial benefit brought by the use of a single ebus

$$C = C_e + C_s$$
$$C_e = n_e S_e,\ S_e = \$400,000\ n_e = 4200$$
$$C_s = \frac{n_e}{\beta} S_c$$
$$b = R_d(\frac{1}{n_e} - \frac{1}{n_b}) - (M_e - M_b)L_e$$
$$\theta = 1.1$$

- 具体要求在下面的图里



Model C
Technology Diffusion

前面我们假设电动汽车 diffuse 的效率是一个常数 θ, 现在引入政府的恶两种决策来加速它的 implementation, 两种 policy 分别为 awareness creation and carbon tax

具体要求我重新在图里面写了

$N_{total} = 5800$　$A(t)$一达到了$\frac{1}{6}N_{total}$不再上涨, $Ne = \frac{1}{6}N_{total}$

总结 1. $A(t) = \frac{Ne}{1+(\frac{Ne}{N_0}-1)e^{-\lambda t}}$ (education阶段)

进行 0.5年, (0.5, 1, 2, 3 年 SA 测试)

定义域 $t \in [0, te]$, te → $\alpha = \frac{A(te)}{N_{total}}$

λ在 0.0001 ~ 0.0001 左右.

2. $N(t) = A(te)R(t)I(t)$

$R(t) = (1+\omega)^t$　ω上面没过了-

$I(t) = -\frac{1+\alpha}{\lambda}\ln(e^{-\lambda t+\frac{\lambda}{\alpha}}+1)+C_1$　入自己调, 应该不大于0.01

(taxation effect)

$I(0) = 1$, 算 C_1

控制在10年左右到达5800辆.

入, ω越大越快向

te 设 0.5年, 1年, 2, 3 分别画.

(365天)

要的图: