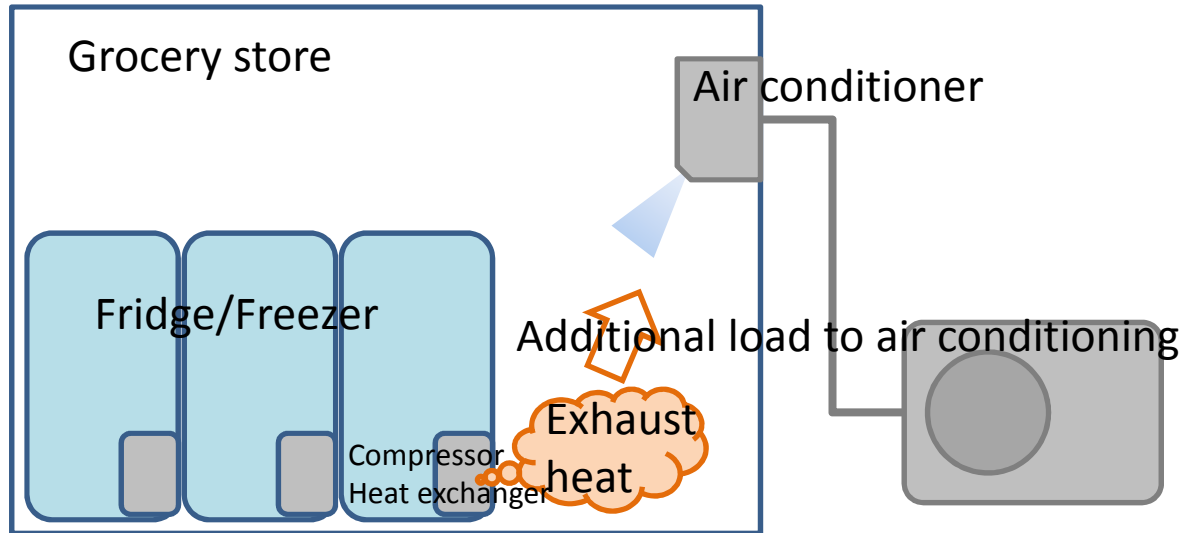
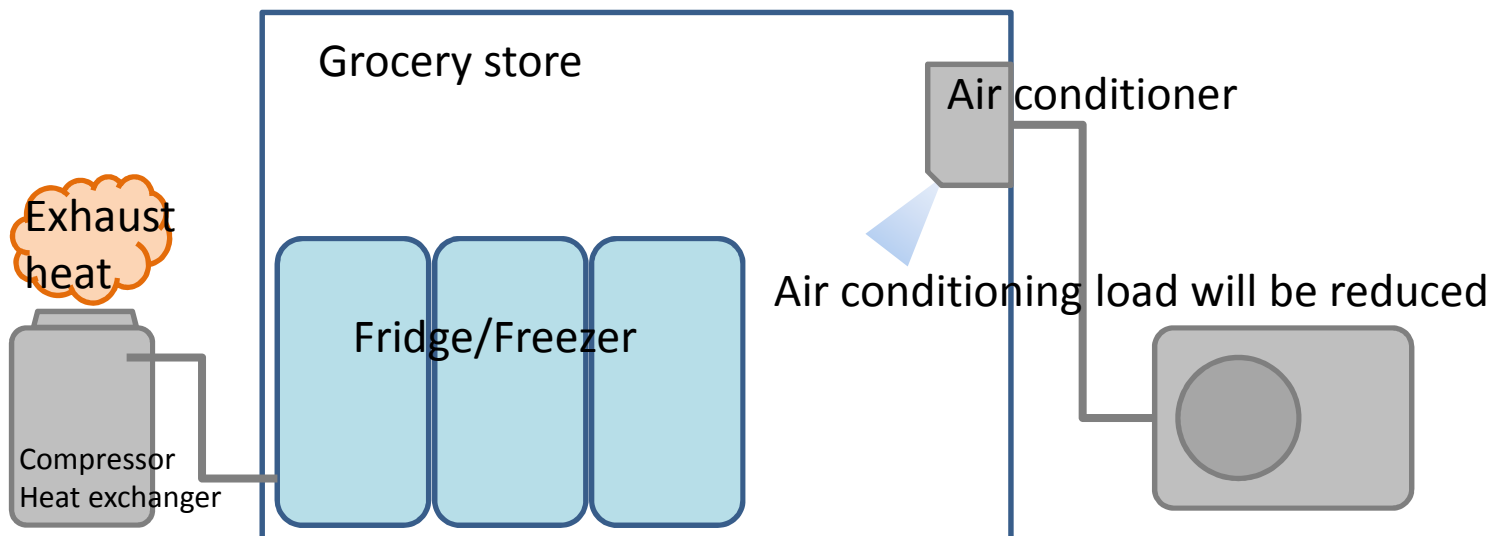


# Concept

< Reference > Built-in type fridge-freezer showcase with air conditioner

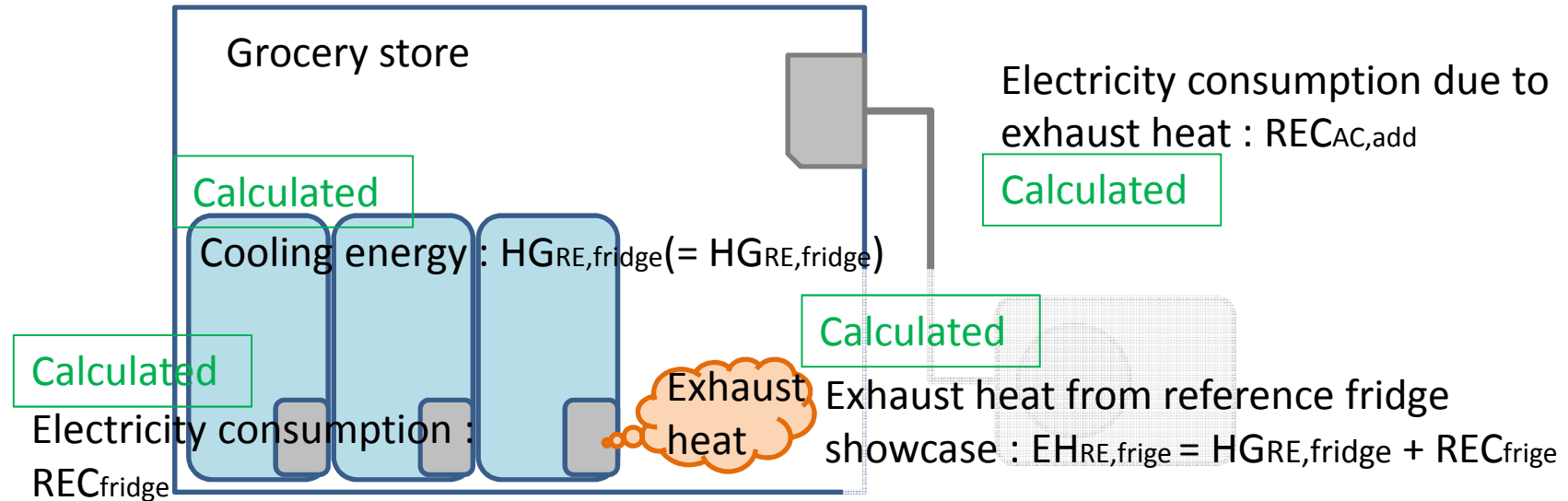


< Project > Separate type fridge-freezer showcase with air conditioner

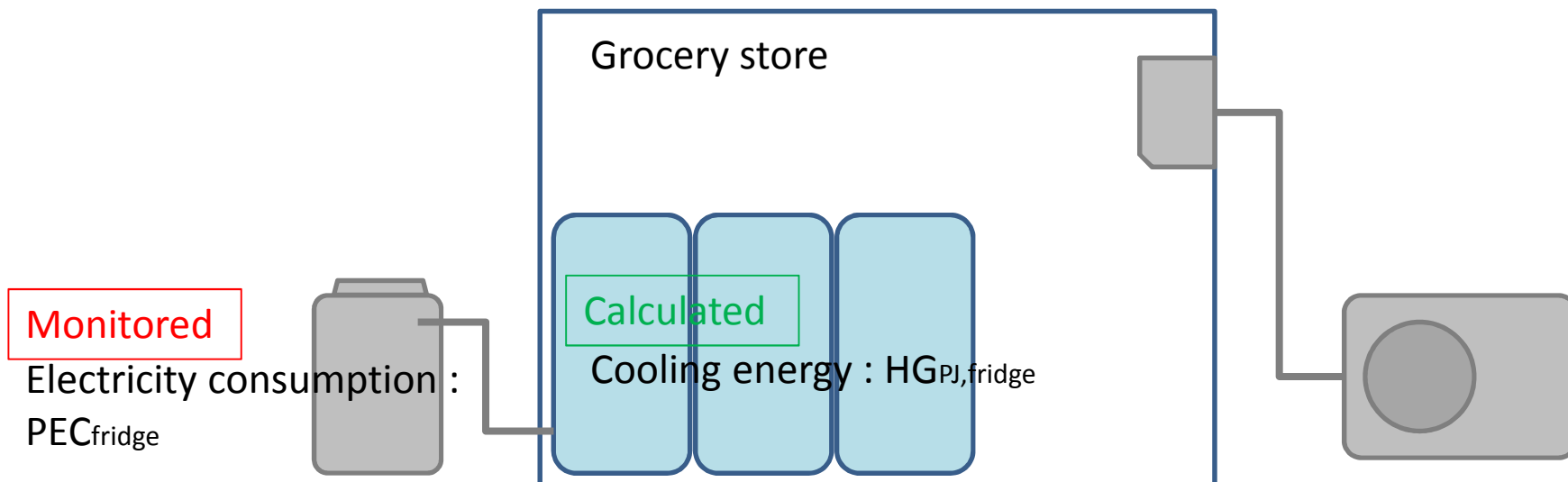


# Parameters

< Reference > Built-in type fridge-freezer showcase with air conditioner



< Project > Separate type fridge-freezer showcase with air conditioner



# Calculation of reference emissions

Fridge/Freezer

Reference

$$HG_{RE,fridge,i,p} = HG_{PJ,fridge,i,p}$$

Cooling energy :  $HG_{RE,fridge}$

$REC_{fridge}$

$$REC_{fridge,i,p} = PEC_{fridge,i,p} \times \frac{\eta_{PJ,fridge,i}}{\eta_{RE,fridge,i}}$$

Exhaust heat :  $EH_{RE,fridge} = HG_{RE,fridge} + REC_{fridge}$

$$EH_{RE,fridge,i,p} = HG_{RE,fridge,i,p} + REC_{fridge,i,p}$$

Project

Cooling energy :  $HG_{PJ,fridge}$

$PEC_{fridge}$

$$HG_{PJ,fridge,i,p} = PEC_{fridge,i,p} \times \eta_{PJ,fridge,cap,i}$$

Air conditioner

Reference

Additional load due to exhaust heat by fridge

$REC_{AC,add,fridge}$

$$= \sum_i EH_{RE,fridge,i,p}$$

$$REC_{AC,add,fridge,p} = \sum_i EH_{RE,fridge,i,p} \times \frac{1}{\eta_{RE,AC}}$$



$$RE_{AC,add,fridge,p} = REC_{AC,add,fridge,p} \times EF_{elec}$$