source('CD\_LINKS/ReadTimerData\_indicators.R')

source('CD\_LINKS/Settings\_indicators.R')

# Create data for sector indicators graph

d\_REN\_electricity <- mutate(NoPolicy\_ind$RenElecShare, scenario="No policy")

d\_REN\_electricity <- mutate(NPi\_ind$RenElecShare, scenario="National policies") %>% rbind(d\_REN\_electricity)

d\_REN\_electricity <- mutate(INDCi\_ind$RenElecShare, scenario="NDC") %>% rbind(d\_REN\_electricity)

d\_REN\_electricity <- mutate(NPi2020\_1000\_ind$RenElecShare, scenario="2C") %>% rbind(d\_REN\_electricity)

d\_REN\_electricity <- mutate(INDCi2030\_1000\_ind$RenElecShare, scenario="2C delay") %>% rbind(d\_REN\_electricity)

d\_REN\_electricity <- mutate(NPi2020\_400\_ind$RenElecShare, scenario="1.5C") %>% rbind(d\_REN\_electricity)

d\_REN\_electricity$scenario <- factor(d\_REN\_electricity$scenario, levels=Scenarios\_fig)

DataIndicators\_PBL <- mutate(d\_REN\_electricity, variable="Share of Renewable Electricity")

d\_CO2\_intensity\_cars <- mutate(NoPolicy\_ind$CO2\_km\_cars, scenario="No policy")

d\_CO2\_intensity\_cars <- mutate(NPi\_ind$CO2\_km\_cars, scenario="National policies") %>% rbind(d\_CO2\_intensity\_cars)

d\_CO2\_intensity\_cars <- mutate(INDCi\_ind$CO2\_km\_cars, scenario="NDC") %>% rbind(d\_CO2\_intensity\_cars)

d\_CO2\_intensity\_cars <- mutate(NPi2020\_1000\_ind$CO2\_km\_cars, scenario="2C") %>% rbind(d\_CO2\_intensity\_cars)

d\_CO2\_intensity\_cars <- mutate(INDCi2030\_1000\_ind$CO2\_km\_cars, scenario="2C delay") %>% rbind(d\_CO2\_intensity\_cars)

d\_CO2\_intensity\_cars <- mutate(NPi2020\_400\_ind$CO2\_km\_cars, scenario="1.5C") %>% rbind(d\_CO2\_intensity\_cars)

d\_CO2\_intensity\_cars$scenario <- factor(d\_CO2\_intensity\_cars$scenario, levels=Scenarios\_fig)

DataIndicators\_PBL <- mutate(d\_CO2\_intensity\_cars, variable="CO2 intensity cars") %>% rbind(DataIndicators\_PBL)

d\_Energy\_intensity\_residential\_buildings <- mutate(NoPolicy\_ind$Residential\_FinalEnergy\_m2, scenario="No policy")

d\_Energy\_intensity\_residential\_buildings <- mutate(NPi\_ind$Residential\_FinalEnergy\_m2, scenario="National policies") %>% rbind(d\_Energy\_intensity\_residential\_buildings)

d\_Energy\_intensity\_residential\_buildings <- mutate(INDCi\_ind$Residential\_FinalEnergy\_m2, scenario="NDC") %>% rbind(d\_Energy\_intensity\_residential\_buildings)

d\_Energy\_intensity\_residential\_buildings <- mutate(NPi2020\_1000\_ind$Residential\_FinalEnergy\_m2, scenario="2C") %>% rbind(d\_Energy\_intensity\_residential\_buildings)

d\_Energy\_intensity\_residential\_buildings <- mutate(INDCi2030\_1000\_ind$Residential\_FinalEnergy\_m2, scenario="2C delay") %>% rbind(d\_Energy\_intensity\_residential\_buildings)

d\_Energy\_intensity\_residential\_buildings <- mutate(NPi2020\_400\_ind$Residential\_FinalEnergy\_m2, scenario="1.5C") %>% rbind(d\_Energy\_intensity\_residential\_buildings)

d\_Energy\_intensity\_residential\_buildings$scenario <- factor(d\_Energy\_intensity\_residential\_buildings$scenario, levels=Scenarios\_fig)

DataIndicators\_PBL <- mutate(d\_Energy\_intensity\_residential\_buildings, variable="Energy intensity residential buildings") %>% rbind(DataIndicators\_PBL)

d\_Energy\_intensity\_industry <- mutate(NoPolicy\_ind$Industry\_Energy\_IVA, scenario="No policy")

d\_Energy\_intensity\_industry <- mutate(NPi\_ind$Industry\_Energy\_IVA, scenario="National policies") %>% rbind(d\_Energy\_intensity\_industry)

d\_Energy\_intensity\_industry <- mutate(INDCi\_ind$Industry\_Energy\_IVA, scenario="NDC") %>% rbind(d\_Energy\_intensity\_industry)

d\_Energy\_intensity\_industry <- mutate(NPi2020\_1000\_ind$Industry\_Energy\_IVA, scenario="2C") %>% rbind(d\_Energy\_intensity\_industry)

d\_Energy\_intensity\_industry <- mutate(INDCi2030\_1000\_ind$Industry\_Energy\_IVA, scenario="2C delay") %>% rbind(d\_Energy\_intensity\_industry)

d\_Energy\_intensity\_industry <- mutate(NPi2020\_400\_ind$Industry\_Energy\_IVA, scenario="1.5C") %>% rbind(d\_Energy\_intensity\_industry)

d\_Energy\_intensity\_industry$scenario <- factor(d\_Energy\_intensity\_industry$scenario, levels=Scenarios\_fig)

DataIndicators\_PBL <- mutate(d\_Energy\_intensity\_industry, variable="Energy intensity industry") %>% rbind(DataIndicators\_PBL)

DI\_PBL <- spread(DataIndicators\_PBL, key=year, value=value)

DI\_PBL <- select(DI\_PBL, variable, scenario, region, unit, everything())

write.table(DI\_PBL, file="Indicators\_PBL.csv", sep=";", row.names = FALSE)

# Create sector indicators graphs

figure\_d\_Energy\_intensity\_residential\_buildings <- ggplot(data=filter(d\_Energy\_intensity\_residential\_buildings, region=="World", year>=2010, year<=2050)) +

geom\_line(aes(x=year, y=value, color=scenario)) +

labs(title="Buildings sector", subtitle="residential energy use per m2") +

labs(x = "year", y = "GJ/m2") +

theme(panel.background = element\_rect(fill = 'white', colour = 'black')) +

scale\_color\_manual(values = rhg\_cols)

figure\_d\_REN\_electricity <- ggplot(data=filter(d\_REN\_electricity, region=="World", year>=2010, year<=2050)) +

geom\_line(aes(x=year, y=value, color=scenario)) +

labs(title="Electricity sector", subtitle="share of renewable electricity") +

labs(x = "year", y = "%") +

theme(panel.background = element\_rect(fill = 'white', colour = 'black')) +

scale\_color\_manual(values = rhg\_cols)

figure\_d\_CO2\_intensity\_cars <- ggplot(data=filter(d\_CO2\_intensity\_cars, region=="World", year>=2010, year<=2050)) +

geom\_line(aes(x=year, y=value, color=scenario)) +

labs(title="Transport sector", subtitle="CO2-intensity cars") +

labs(x = "year", y = "gCO2/km") +

theme(panel.background = element\_rect(fill = 'white', colour = 'black')) +

scale\_color\_manual(values = rhg\_cols)

figure\_d\_Energy\_intensity\_industry <- ggplot(data=filter(d\_Energy\_intensity\_industry, region=="World", year>=2010, year<=2050)) +

geom\_line(aes(x=year, y=value, color=scenario)) +

labs(title="Industry sector", subtitle="energy use per industry value added") +

labs(x = "year", y = "PJ/million US$(2005)") +

theme(panel.background = element\_rect(fill = 'white', colour = 'black')) +

scale\_color\_manual(values = rhg\_cols)

g1 <- grid.arrange(figure\_d\_REN\_electricity, figure\_d\_CO2\_intensity\_cars, figure\_d\_Energy\_intensity\_residential\_buildings, figure\_d\_Energy\_intensity\_industry, ncol=2, nrow=2)

g2 <- grid\_arrange\_shared\_legend(figure\_d\_REN\_electricity, figure\_d\_CO2\_intensity\_cars, figure\_d\_Energy\_intensity\_residential\_buildings, figure\_d\_Energy\_intensity\_industry)