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# == NESM_Load_Shape_Analysis(PJM+ECAR)-step2.scc ==#
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# == Read Data ==#
options(object.size=50000000000)
name.nload <- paste("c:/my stuffs/my research/epa/capacityexpansion/data/PJM_ECAR_load_90_55_05
_NEMS1201.txt", sep="")
data.nload <- read.table(name.nload, sep="\t", header=T)[, -c(1)]
name.winter <- paste("c:/my stuffs/my research/epa/capacityexpansion/data/winterblock.txt", sep="")
#block ratio
data.winter <- read.table(name.winter, sep="\t", header=T)
data.winter$load <- data.winter$load*2 # Assuming ECAR's load is 2 times of MAAC
#ratio <- mean(data.nload$TotLoad/data.nload$PJM)

year <- c(1991:1998, 2050:2055)
#year <- c(2050:2055)
load.yr.final <- NULL
#par(mfrow=c(3,4))

series90 <- c(1)
series50 <- c(9:14)
series <- c(1:14)
load.summer <- NULL
maxload <- rep(0,14)
for (y in 1:14) #1:length(year))
{
  print(year[y])
  data.nload.yr <- data.nload[data.nload$year==year[y], ]
  data.nload.yr <- sort.col(data.nload.yr, c(1:21), c("TotLoad"), ascending=F)
  data.block1 <- data.nload.yr[data.nload.yr$group==7 & data.nload.yr$segment==1, ]
  avg.block1 <- mean(data.block1$TotLoad)
  data.winter.yr <- data.winter
  block.new <- NULL
  for (b in 1:dim(data.winter.yr)[1])
  {
    block.new.temp <- rep(data.winter.yr$load[b], data.winter.yr$hours[b])
    block.new <- append(block.new, block.new.temp)
  }

  load.yr <- append(data.nload.yr$TotLoad, block.new)
  ozone <- append(data.nload.yr$ozone, rep(0, length(block.new)))
  load.yr <- cbind(load.yr, as.data.frame(ozone))
  load.yr <- sort.col(load.yr, c(1:2), c(1), ascending=F)
  names(load.yr) <- c("Load", "Ozone")
  maxload[y] <- max(load.yr$Load)
  if(y==1|y==9)
  {
    matplot(c(1:8760), load.yr$Load, type="l", ylim=c(0,219500), xlab=paste("Hours"), ylab=paste
("Load [MW]"))
  }
}

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else
  lines(c(1:8760), load.yr$Load, type="l",col=y, lty=y)

load.yr.final <- cbind(load.yr.final, load.yr)
#load.summer <- cbind(load.summer, data.nload.yr$TotLoad)
}
#legend(1000,40000, lty=series, col=series, legend=paste(year[series], "series"), lwd=2.5)

# == Output ==#
name.new <- paste("c:/my stuffs/my research/epa/capacityexpansion/data/PJM_ECAR_load_90_55_05
_NEMS_allyear1201.txt", sep="")
write.table(load.yr.final, name.new, sep="\t", dimnames.write = F)
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