```
# == NESM_Load_Shape_Analysis(PJM+ECAR)-step4.scc ==#
# Author: Yihsu Chen, yschen@jhu.edu

options(object.size=50000000000)
#== Read Data ==#
name.load <- paste("c:/my stuffs/my research/epa/capacityexpansion/data/PJM_ECAR_load_90_55_05
      _NEMS1201.txt", sep="")
data.load <- read.table(name.load, sep="\t", header=T)[, -c(1:6, 23)]

name.quantile <- paste("c:/my stuffs/my
      research/epa/capacityexpansion/data/summer_block_quantile.txt", sep="") #block ratio
data.quantile <- read.table(name.quantile, sep="\t", header=T)


year <- c(1991:1998, 2050:2055)
lse <- c("ME1",
      "ME2","PPL1","BGEPEP","PPL2","DPL","PE","PS","AE","PPL3","JC1","JC2","BGE2","PN","EC
      AR")


for (y in 1:14)
{
      print(year[y])
      data.load.yr <- data.load[data.load$year==year[y], ]
      data.load.yr$INDEX <- c(1:dim(data.load.yr)[1])
      data.load.yr <- sort.col(data.load.yr, c(1:dim(data.load.yr)[2]), c("TotLoad"), ascending=F)
      data.mem <- NULL
      data.mem$HR <- c(data.load.yr$INDEX)
      data.mem$INDEX <- c(1:3600)
      data.mem <- as.data.frame(data.mem)
      #== Split load ==#
      data.load.yr$PL.1 <- data.load.yr$PL*0.2
      data.load.yr$PL.2 <- data.load.yr$PL*0.1
      data.load.yr$PL.3 <- data.load.yr$PL*0.7
      data.load.yr$BCPEP <- data.load.yr$BC*0.5 + data.load.yr$PEP
      data.load.yr$BC.2 <- data.load.yr$BC*0.5
      data.load.yr$ME.1 <- data.load.yr$ME*0.25
      data.load.yr$ME.2 <- data.load.yr$ME*0.75
      data.load.yr$JC.1 <- data.load.yr$JC*0.4
      data.load.yr$JC.2 <- data.load.yr$JC*0.6
      data.load.yr$ECAR <- data.load.yr$AEP+data.load.yr$DECO+data.load.yr$IPL
      data.load.yr <- data.load.yr[, c
      ("AE","DPL","PE","PS","PN","PL.1","PL.2","PL.3","BCPEP","BC.2","ME.1","ME.2","JC.1","JC.2
      ","ECAR")]
      lse.mean <- apply(data.load.yr, 2, mean)
      lse.ratio <- lse.mean/sum(lse.mean[c(1:14)])
      block <- NULL
      for (l in 1:15)
      {
            block.temp <- quantile(data.load.yr[, l], data.quantile$quantile) # 10 periods hr=c(50, 350 and
      400 apiece)
```

```
            block <- cbind(block, block.temp)
        }
block <- round(as.matrix((block)),0)
block <- t(rbind(lse, block))
block <- rbind(c("", 1:20), block) #20=number of periods

#== Hourly Membership ==#
final.block.hour <- data.quantile$block
mem.period <- NULL
for ( b in 1:length(final.block.hour))
{
        mem.period <- append(mem.period, rep(b, final.block.hour[b]))
}
data.mem$PERIOD <- mem.period
data.mem <- sort.col(data.mem, c(1:3), c("HR"))[, c(1, 3)]
data.mem <- rbind(c("INDEX","LOCATION"), data.mem)

# == Write Output #
output.name <- paste("c:/my stuffs/my
        research/epa/capacityexpansion/model/PJM_ECAR_load_block_NEMS_byLSE_summer_", year[y],
        "1201.txt",sep="")
write.table(block, output.name, sep = "\t", dimnames.write = F, na = NA)
output.name <- paste("c:/my stuffs/my
        research/epa/capacityexpansion/model/PJM_ECAR_period_member_NEMS_byLSE_summer_",
        year[y], "1201.txt",sep="")
write.table(data.mem, output.name, sep = "\t", dimnames.write = F, na = NA)
}
```