Package 'USgas'

May 26, 2021

Type Package

Title The Demand for Natural Gas in the US

Version 0.1.1

Maintainer Rami Krispin <rami.krispin@gmail.com>

Description Provides an overview of the demand for natural gas in the US by state and country level. Data source: US Energy Information Administration <https://www.eia.gov/>.

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Encoding UTF-8

LazyData true

Depends R (>= 2.10)

RoxygenNote 7.1.1

URL https://github.com/RamiKrispin/USgas

BugReports https://github.com/RamiKrispin/USgas/issues

Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

Author Rami Krispin [aut, cre]

Repository CRAN

Date/Publication 2021-05-26 13:10:09 UTC

R topics documented:

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us_monthly   *US Monthly Total Natural Gas Consumption*

Description

The dataset provides information about the total monthly natural gas consumption in the US between 2001 and 2020

Units: Million Cubic Feet

Usage

```
us_monthly
```

Format

A data.frame with 2 variables.

date A Date, the month and year of the observation (the day set by default to 1st of the month)

y A numeric, the US monthly total natural gas consumption in a million cubic feet

Details

The dataset contains monthly summary of the total demand for natural gas in the US between 2001 and 2020.

Source

US Energy Information Administration (EIA) website.

Examples

```
data("us_monthly")

head(us_monthly)

at_x <- seq.Date(from = as.Date("2000-01-01"),
                 to = as.Date("2020-01-01"),
                 by = "5 years")

at_y <- pretty(us_monthly$y)[c(2, 4, 6)]

plot(us_monthly$date, us_monthly$y,
     col = "#1f77b4",
     type = "l",
     frame.plot = FALSE,
     axes = FALSE,
     panel.first = abline(h = at_y, col = "grey80"),
     main = "US Total Natural Gas Consumption",
```

us_residential 3

us_residential   3

```
      xlab = "Source: https://www.eia.gov/",
      ylab = "Million Cubic Feet")



  mtext(side =1, text = format(at_x, format = "%Y"), at = at_x,
        col = "grey20", line = 1, cex = 0.8)

  mtext(side =2, text = format(at_y, scientific = FALSE), at = at_y,
        col = "grey20", line = 1, cex = 0.8)
```

us_residential — *US Monthly Natural Gas Residential Consumption*

Description

The US monthly consumption of natural gas by residential consumers by state and aggregate level between 1989 and 2020

Units: Million Cubic Feet

Usage

```
us_residential
```

Format

A data.frame with 3 variables.

date A Date, the month and year of the observation (the day set by default to 1st of the month)

state A character, the US state indicator

y A numeric, the monthly natural gas residential consumption in a million cubic feet

Details

The dataset contains monthly summary of the demand for natural gas by residential consumers in the US by state and total aggregate level. The data is available for the state level between January 1989 and September 2020, and for the US level between January 1973 and September 2020.

Source

US Energy Information Administration (EIA) website.

Examples

```
data("us_residential")

# Subsetting the total consumption in the US

us_res_total <- us_residential[which(us_residential$state == "U.S."),]

us_res_total <- us_res_total[order(us_res_total$date), ]

head(us_res_total)

at_x <- seq.Date(from = as.Date("1980-01-01"),
                 to = as.Date("2020-01-01"),
                 length.out = 5)

at_y <- pretty(us_res_total$y)[c(2, 4, 6)]

plot(us_res_total$date, us_res_total$y,
     col = "#1f77b4",
     type = "l",
     frame.plot = FALSE,
     axes = FALSE,
     panel.first = abline(h = at_y, col = "grey80"),
     main = "US Natural Gas Residential Consumption",
     xlab = "Source: https://www.eia.gov/",
     ylab = "Million Cubic Feet")


mtext(side =1, text = format(at_x, format = "%Y %b"), at = at_x,
      col = "grey20", line = 1, cex = 0.8)

mtext(side =2, text = format(at_y, scientific = FALSE), at = at_y,
      col = "grey20", line = 1, cex = 0.8)

### Plotting the west cost consumption
# Subsetting the west cost states
wc_gas <- us_residential[which(us_residential$state %in%
                              c("Alaska", "California",
                                "Oregon", "Washington")),]

# Reshape to wide
wc_wide <- reshape(wc_gas, v.names = "y", idvar = "date",
                   timevar = "state", direction = "wide")

names(wc_wide) <- c("date","Alaska", "California",
                    "Oregon", "Washington")
# Reorder the data
wc_wide <- wc_wide[order(wc_wide$date), ]

# Set the plot y and x axis ticks
at_x <- seq.Date(from = as.Date("1990-01-01"),
```

```r
                      to = as.Date("2020-01-01"),
                      length.out = 4)

at_y <- pretty(wc_gas$y)[c(2, 4, 6)]

# plot the first series
plot(wc_wide$date, wc_wide$Alaska,
     type = "l",
     frame.plot = FALSE,
     axes = FALSE,
     panel.first = abline(h = c(at_y), col = "grey80"),
     main = "West Cost Natural Gas Residential Consumption",
     cex.main = 1, font.main = 1, col.main = "black",
     xlab = "Source: https://www.eia.gov/",
     font.axis = 1, cex.lab= 0.7,
     ylab = "Million Cubic Feet",
     ylim = c(min(wc_gas$y, na.rm = TRUE), max(wc_gas$y, na.rm = TRUE)))

# Add the 3 other series
lines(wc_wide$date, wc_wide$California, col = "#1f77b4")
lines(wc_wide$date, wc_wide$Oregon, col = "#457b9d")
lines(wc_wide$date, wc_wide$Washington, col = "#ef476f")

# Add the y and x axis ticks
mtext(side =1, text = format(at_x, format = "%Y %b"), at = at_x,
      col = "grey20", line = 1, cex = 0.8)

mtext(side =2, text = format(at_y, scientific = FALSE), at = at_y,
      col = "grey20", line = 1, cex = 0.8)

text(tail(wc_wide$date, 10)[1],
     max(wc_gas$y, na.rm = TRUE),
     "California",
     col = "#1f77b4",
     cex = 0.6)

text(tail(wc_wide$date, 10)[1],
     max(wc_gas$y, na.rm = TRUE) - 5000,
     "Washington",
     col = "#ef476f",
     cex = 0.6)

text(tail(wc_wide$date, 10)[1],
     max(wc_gas$y, na.rm = TRUE) - 10000,
     "Oregon",
     col = "#457b9d",
     cex = 0.6)

text(tail(wc_wide$date, 10)[1],
     max(wc_gas$y, na.rm = TRUE) - 15000,
     "Alaska",
     col = "black",
     cex = 0.6)
```

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us_total   *US Annual Total Natural Gas Consumption*

Description

The dataset provides information on the US annual natural gas consumption by state level between 1997 and 2019, and aggregate level between 1949 and 2019

Units: Million Cubic Feet

Usage

```
us_total
```

Format

A data.frame with 3 variables.

year An integer, the year of the observation

state A character, the US state indicator

y A numeric, the yearly total natural gas consumption in a million cubic feet by state or US aggregate

Details

The dataset contains a summary of the total annual demand for natural gas in the US by state and total aggregate level. The data is available for the state level between 1997 and 2019, and for the US level between 1949 and 2019.

Source

US Energy Information Administration (EIA) website.

Examples

```
data("us_total")

# Subsetting the total consumption in the US
us_agg <- us_total[which(us_total$state == "U.S."),]

us_agg <- us_agg[order(us_agg$year), ]

head(us_agg)

at_x <- seq(from = 1950,
            to = 2020,
            by = 10)

at_y <- pretty(us_agg$y)[c(3, 5, 7)]
```

```r
plot(us_agg$year, us_agg$y,
     col = "#1f77b4",
     type = "l",
     frame.plot = FALSE,
     axes = FALSE,
     panel.first = abline(h = at_y, col = "grey80"),
     main = "US Total Natural Gas Consumption",
     xlab = "Source: https://www.eia.gov/",
     ylab = "Million Cubic Feet")




mtext(side =1, text = format(at_x,  nsmall=0), at = at_x,
      col = "grey20", line = 1, cex = 0.8)

mtext(side =2, text = format(at_y, scientific = FALSE), at = at_y,
      col = "grey20", line = 1, cex = 0.8)

### Plotting the annual consumption in New England states
# Subsetting the New England states
ne <- c("Connecticut", "Maine", "Massachusetts",
        "New Hampshire", "Rhode Island", "Vermont")
ne_gas <-  us_total[which(us_total$state %in% ne),]

# Reshape to wide
ne_wide <- reshape(ne_gas, v.names = "y", idvar = "year",
                    timevar = "state", direction = "wide")

names(ne_wide) <- c("year",ne)
# Reorder the data
ne_wide <- ne_wide[order(ne_wide$year), ]

# Set the plot y and x axis ticks
at_x <- seq(from = 2000,
            to = 2020,
            by = 5)

at_y <- pretty(ne_gas$y)[c(2, 4, 6)]

# plot the first series
plot(ne_wide$year, ne_wide$Connecticut,
     type = "l",
     col = "#073b4c",
     frame.plot = FALSE,
     axes = FALSE,
     panel.first = abline(h = c(at_y), col = "grey80"),
     main = "New England Annual Natural Gas Consumption by State",
     cex.main = 1, font.main = 1, col.main = "black",
     xlab = "Source: https://www.eia.gov/",
     font.axis = 1, cex.lab= 0.7,
     ylab = "Million Cubic Feet",
     ylim = c(min(ne_gas$y, na.rm = TRUE), max(ne_gas$y, na.rm = TRUE)),
```

```
        xlim = c(min(ne_gas$year), max(ne_gas$year) + 3))

# Add the 5 other series
lines(ne_wide$year, ne_wide$Maine, col = "#1f77b4")
lines(ne_wide$year, ne_wide$Massachusetts, col = "#118ab2")
lines(ne_wide$year, ne_wide$`New Hampshire`, col = "#06d6a0")
lines(ne_wide$year, ne_wide$`Rhode Island`, col = "#ffd166")
lines(ne_wide$year, ne_wide$Vermont, col = "#ef476f")

# Add the y and x axis ticks
mtext(side =1, text = format(at_x, nsmall=0), at = at_x,
      col = "grey20", line = 1, cex = 0.8)

mtext(side =2, text = format(at_y, scientific = FALSE), at = at_y,
      col = "grey20", line = 1, cex = 0.8)


text(max(ne_wide$year) + 2,
     tail(ne_wide$Connecticut,1),
     "Connecticut",
     col = "#073b4c",
     cex = 0.7)

text(max(ne_wide$year) + 2,
     tail(ne_wide$Maine,1) * 0.95,
     "Maine",
     col = "#1f77b4",
     cex = 0.7)

text(max(ne_wide$year) + 2,
     tail(ne_wide$Massachusetts,1),
     "Massachusetts",
     col = "#118ab2",
     cex = 0.7)

text(max(ne_wide$year) + 2,
     tail(ne_wide$`New Hampshire`,1) * 1.1,
     "New Hampshire",
     col = "#06d6a0",
     cex = 0.7)

text(max(ne_wide$year) + 2,
     tail(ne_wide$`Rhode Island`,1) * 1.05,
     "Rhode Island",
     col = "#ffd166",
     cex = 0.7)

text(max(ne_wide$year) + 2,
     tail(ne_wide$Vermont,1),
     "Vermont",
     col = "#ef476f",
     cex = 0.7)
```

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