

Package ‘standardlastprofile’

July 23, 2025

Title Data Package for BDEW Standard Load Profiles in Electricity

Description Data on standard load profiles from the German Association of Energy and Water Industries (BDEW Bundesverband der Energie- und Wasserwirtschaft e.V.) in a tidy format. The data and methodology are described in VDEW (1999), ‘‘Repräsentative VDEW-Lastprofile”, https://www.bdew.de/media/documents/1999_Repraesentative-VDEW-Lastprofile.pdf. The package also offers an interface for generating a standard load profile over a user-defined period. For the algorithm, see VDEW (2000), ‘‘Anwendung der Repräsentativen VDEW-Lastprofile step-by-step”, https://www.bdew.de/media/documents/2000131_Anwendung-repraesentativen-Lastprofile-Step-by-step.pdf.

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Encoding UTF-8

RoxygenNote 7.2.3

Suggests covr, ggplot2, knitr, rmarkdown, testthat (>= 3.0.0), vdiff

Config/testthat/edition 3

URL <https://github.com/flrd/standardlastprofile>,
<https://flrd.github.io/standardlastprofile/>

BugReports <https://github.com/flrd/standardlastprofile/issues>

Depends R (>= 2.10)

LazyData true

VignetteBuilder knitr

NeedsCompilation no

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slp	<i>Standard Load Profile Data for Electricity from BDEW</i>
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Description

Data about representative, standard load profiles for electricity from the German Association of Energy and Water Industries (BDEW Bundesverband der Energie- und Wasserwirtschaft e.V.) in a tidy format.

Usage

slp

Format

A data.frame with 9,504 observations and 5 variables:

profile_id character, identifier for load profile, see 'Details'

period character, one of 'summer', 'winter', 'transition'

day character, one of 'saturday', 'sunday', 'workday'

timestamp character, format: %H:%M

watt numeric, electric power

Details

There are 96 x 1/4h measurements of electrical power for each combination of profile_id, period and day, which we refer to as the "standard load profile". This dataset results from an analysis of 1,209 load profiles of low-voltage electricity consumers in Germany, published in 1999.

In total there are 11 profile_id for three different customer groups:

- Households: H0
- Commercial: G0, G1, G2, G3, G4, G5, G6
- Agriculture: L0, L1, L2

Call `slp_info()` to for more information and examples.

Period definitions:

- summer: May 15 to September 14
- winter: November 1 to March 20

- transition: March 21 to May 14, and September 15 to October 31

Day definitions:

- workday: Monday to Friday
- saturday: Saturdays; Dec 24th and Dec 31th are considered a Saturdays too if they are not a Sunday
- sunday: Sundays and all public holidays

Source

<https://www.bdew.de/energie/standardlastprofile-strom/>

<https://www.bdew.de/media/documents/Profile.zip>

https://www.bdew.de/media/documents/1999_Repraesentative-VDEW-Lastprofile.pdf

Examples

```
head(slp)
```

slp_generate

Generate a Standard Load Profile

Description

Generate a standard load profile, normalized to an annual consumption of 1,000 kWh.

Usage

```
slp_generate(profile_id, start_date, end_date, state_code = NULL)
```

Arguments

profile_id	load profile identifier, required
start_date	start date in ISO 8601 format, required
end_date	end date in ISO 8601 format, required
state_code	identifier for one of 16 German states, optional

Details

In regards to the electricity market in Germany, the term "Standard Load Profile" refers to a representative pattern of electricity consumption over a specific period. These profiles can be used to depict the expected electricity consumption for various customer groups, such as households or businesses.

For each distinct combination of `profile_id`, `period`, and `day`, there are 96 x 1/4 hour measurements of electrical power. Values are normalized so that they correspond to an annual consumption of 1,000 kWh. That is, summing up all the quarter-hourly consumption values for one year yields an approximate total of 1,000 kWh/a; for more information, refer to the 'Examples' section, or call `vignette("algorithm-step-by-step")`.

In total there are 11 `profile_id` for three different customer groups:

- Households: H0
- Commercial: G0, G1, G2, G3, G4, G5, G6
- Agriculture: L0, L1, L2

For more information and examples, call `slp_info()`.

Period definitions:

- summer: May 15 to September 14
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Day definitions:

- workday: Monday to Friday
- saturday: Saturdays; Dec 24th and Dec 31th are considered a Saturdays too if they are not a Sunday
- sunday: Sundays and all public holidays

Note: The package supports public holidays for Germany, retrieved from the [nager.Date API](#). Use the optional argument `state_code` to consider public holidays on a state level too. Allowed values are listed below:

- DE-BB: Brandenburg
- DE-BE: Berlin
- DE-BW: Baden-Württemberg
- DE-BY: Bavaria
- DE-HB: Bremen
- DE-HE: Hesse
- DE-HH: Hamburg
- DE-MV: Mecklenburg-Vorpommern
- DE-NI: Lower-Saxony
- DE-NW: North Rhine-Westphalia

- DE-RP: Rhineland-Palatinate
- DE-SH: Schleswig-Holstein
- DE-SL: Saarland
- DE-SN: Saxony
- DE-ST: Saxony-Anhalt
- DE-TH: Thuringia

start_date must be greater or equal to "1990-01-01". This is because public holidays in Germany would be ambitious before the reunification in 1990 (think of the state of Berlin in 1989 and earlier).

end_date must be smaller or equal to "2073-12-31" because this is last year supported by the [nager.Date API](#).

Value

A data.frame with four variables:

- profile_id, character, load profile identifier
- start_time, POSIXct / POSIXlt, start time
- end_time, POSIXct / POSIXlt, end time
- watts, numeric, electric power

Source

<https://www.bdew.de/energie/standardlastprofile-strom/>

https://www.bdew.de/media/documents/1999_Repraesentative-VDEW-Lastprofile.pdf

https://www.bdew.de/media/documents/2000131_Anwendung-repraesentativen_Lastprofile-Step-by-step.pdf

Examples

```
start <- "2024-01-01"
end <- "2024-12-31"

# multiple profile IDs are supported
L <- slp_generate(c("L0", "L1", "L2"), start, end)
head(L)

# you can specify one of the 16 ISO 3166-2:DE codes to take into
# account holidays determined at the level of the federal states
berlin <- slp_generate("H0", start, end, state_code = "DE-BE")

# for convenience, the codes can be specified without the prefix "DE-"
identical(berlin, slp_generate("H0", start, end, state_code = "BE"))

# state codes are not case-sensitive
identical(berlin, slp_generate("H0", start, end, state_code = "de-be"))

# consider only nationwide public holidays
```

```
H0_2024 <- slp_generate("H0", start, end)

# electric power values are normalized to consumption of ~1,000 kWh/a
sum(H0_2024$watts / 4 / 1000)
```

slp_info

Retrieve information on standard load profiles

Description

Information and examples on standard load profiles from the German Association of Energy and Water Industries (BDEW Bundesverband der Energie- und Wasserwirtschaft e.V.)

Usage

```
slp_info(profile_id, language = c("EN", "DE"))
```

Arguments

profile_id	load profile identifier, required
language	one of 'EN' (English), 'DE' (German)

Value

A list

Source

<https://www.bdew.de/energie/standardlastprofile-strom/>

https://www.bdew.de/media/documents/2000131_Anwendung-repraesentativen_Lastprofile-Step-by-step.pdf

https://www.bdew.de/media/documents/Zuordnung_der_VDEW-Lastprofile_zum_Kundengruppenschlüssel.pdf

Examples

```
slp_info("G5", language = "DE")
```

```
# multiple profile IDs are supported
slp_info(c("G0", "G5"))
```

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