

# Package ‘standardlastprofile’

December 11, 2023

**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](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](https://www.bdew.de/media/documents/2000131_Anwendung-repraesentativen-Lastprofile-Step-by-step.pdf).

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**License** CC0

**Encoding** UTF-8

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**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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**Repository** CRAN

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## R topics documented:

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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](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
- 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

**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/1999_Repraesentative-VDEW-Lastprofile.pdf)

[https://www.bdew.de/media/documents/2000131\\_Anwendung-repraesentativen\\_Lastprofile-Step-by-step.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)
```

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slp\_info

*Retrieve information on standard load profiles*

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### 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/2000131_Anwendung-repraesentativen_Lastprofile-Step-by-step.pdf)  
[https://www.bdew.de/media/documents/Zuordnung\\_der\\_VDEW-Lastprofile\\_zum\\_Kundengruppenschlüssel.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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