

# Package ‘standardlastprofile’

March 16, 2026

**Title** BDEW Standard Load Profiles for Electricity

**Description** Provides representative standard load profiles (SLPs) for electricity published by the German Association of Energy and Water Industries (BDEW Bundesverband der Energie- und Wasserwirtschaft e.V.) in a tidy format. Covers the 1999 profiles — households (H0), commerce (G0–G6), and agriculture (L0–L2) — and the updated 2025 profiles (H25, G25, L25, P25, S25), which additionally represent households with photovoltaic systems and battery storage. Also provides an interface for generating a standard load profile over a user-defined date range. The 1999 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 generation algorithm is described in 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). The 2025 profiles are described in BDEW (2025), ‘‘Standardlastprofile Strom”, <https://www.bdew.de/energie/standardlastprofile-strom/>.

**Version** 1.1.0

**License** CC0

**Encoding** UTF-8

**RoxygenNote** 7.3.3

**Suggests** covr, httr2, knitr, rmarkdown, testthat (>= 3.0.0), vdiffr, withr

**Config/testthat/edition** 3

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

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

**Imports** ggplot2, lifecycle

**Depends** R (>= 4.1)

**LazyData** true

**VignetteBuilder** knitr**Language** en-GB**NeedsCompilation** no**Author** Markus Döring [aut, cre, cph]**Maintainer** Markus Döring <m4rkus.doering@gmail.com>**Repository** CRAN**Date/Publication** 2026-03-16 08:20:02 UTC

## Contents

slp . . . . .	2
slp_generate . . . . .	4
slp_info . . . . .	7
<b>Index</b>	<b>9</b>

slp

*Standard Load Profile Data for Electricity from BDEW*

## 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 26,784 observations and 5 variables:

**profile\_id** character, identifier for load profile, see 'Details'

**period** character, one of 'summer', 'winter', 'transition' for 1999 profiles; one of 'january' through 'december' for 2025 profiles

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

**timestamp** character, format: %H:%M

**watts** numeric, electric power in watts, normalised to 1,000 kWh/a

## 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".

In total there are 16 `profile_id` across two generations of profiles:

**1999 profiles** (based on analysis of 1,209 load profiles of low-voltage electricity consumers in Germany):

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

**2025 profiles** (updated profiles published by BDEW in 2025):

- Households: H25
- Commercial: G25
- Agriculture: L25
- Combination profile PV: P25
- Combination profile storage and PV: S25

The 2025 profiles use calendar months rather than seasons for the `period` column ('january' through 'december').

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

**Period definitions (1999 profiles):**

- 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 31st are also treated as Saturdays unless they fall on a Sunday
- sunday: Sundays and all public holidays

**Units and normalisation:**

The source Excel file for the 1999 profiles stores values in watts (W), normalised to an annual consumption of 1,000 kWh/a. The source Excel file for the 2025 profiles stores values in kilowatt-hours (kWh) per 15-minute interval, normalised to 1,000,000 kWh/a. To keep the internal representation consistent and backwards compatible, all 2025 values have been converted to watts normalised to 1,000 kWh/a.

As a result, the `watts` column in both this dataset and the output of `slp_generate()` always represents average electric power in watts, normalised to 1,000 kWh/a. To convert to energy consumed per 15-minute interval in kWh, divide by 4 and by 1,000:

```
watts_to_kwh <- \(x) x / 4 / 1000
```

**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	<i>Generate a Standard Load Profile for Electricity</i>
--------------	---

---

**Description**

Generate a standard load profile in watts, normalised to an annual consumption of 1,000 kWh.

**Usage**

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

**Arguments**

profile_id	load profile identifier, required
start_date	start date in ISO 8601 format, greater than or equal to "1990-01-01", required
end_date	end date in ISO 8601 format, no later than "2073-12-31", required
holidays	an optional character or Date vector of dates in ISO 8601 format ("YYYY-MM-DD") that are treated as public holidays (and therefore mapped to "sunday" in the algorithm). When supplied, the built-in holiday data are ignored entirely and only the dates in holidays are used.
state_code	<b>[Deprecated]</b> Use holidays instead.

**Details**

In the German electricity market, a standard load profile is a representative pattern of electricity consumption used to forecast demand for customer groups that are not continuously metered. For each distinct combination of profile\_id, period, and day there are 96 quarter-hourly measurements of electrical power, normalised to an annual consumption of 1,000 kWh. This function supports data from 1990 to 2073.

See vignette("standardlastprofile") for more details about the algorithm.

**Profile IDs:**

There are 16 profile IDs across two generations:

**1999 profiles:**

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

**2025 profiles**

In 2025, BDEW published an updated set of standard load profiles reflecting changes in electricity consumption patterns since the original 1999 study. Five new profiles are included:

- H25: households — updated version of H0
- G25: commerce (general) — updated version of G0
- L25: agriculture — updated version of L0
- P25: combination profile for households with a photovoltaic (PV) system
- S25: combination profile for households with a PV system and battery storage

For descriptions of each profile, call `slp_info()`.

**Periods and day types:**

**1999 profiles** use three seasonal periods:

- summer: May 15 to September 14
- winter: November 1 to March 20
- transition: March 21 to May 14, and September 15 to October 31

**2025 profiles** use calendar months (january ... december) instead of seasons.

Within each period, days are classified as:

- workday: Monday to Friday
- saturday: Saturdays; Dec 24th and Dec 31st are also treated as Saturdays unless they fall on a Sunday
- sunday: Sundays and all public holidays

**Public holidays:**

By default, the following nine public holidays observed nationwide across all German states are treated as Sundays:

- New Year's Day (1 January)
- Good Friday
- Easter Monday
- Labour Day (1 May)
- Ascension Day
- Whit Monday
- German Unity Day (3 October)
- Christmas Day (25 December)
- Boxing Day (26 December)

State-level holidays are **not** included by default. These vary by state and can change — for example, Berlin observed a one-time holiday on 8 May 2025 (end of World War II anniversary). Use the `holidays` argument to supply your own dates instead; the built-in data are then ignored entirely.

**Units and conversion:**

The 1999 source file stores values in watts (W), normalised to 1,000 kWh/a. The 2025 source file stores values in kWh per 15-minute interval, normalised to 1,000,000 kWh/a. To keep all profiles consistent, the 2025 values are converted to watts normalised to 1,000 kWh/a.

To convert to energy consumed per interval in kWh:

```
kwh <- out$watts / 4 / 1000
```

**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, average electric power in watts per 15-minute interval, normalised to an annual consumption of 1,000 kWh

**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 <- "2026-01-01"
end <- "2026-12-31"

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

# supply custom holiday dates (e.g. only treat New Year's Day as a holiday)
H0_custom <- slp_generate("H0", start, end, holidays = "2026-01-01")

# Fetch state-level holidays from the nager.Date API and pass them in.
# Each entry in the API response contains two relevant fields:
# $global - logical; TRUE = nationwide holiday, FALSE = state-specific
# $counties - list of ISO 3166-2 state codes (e.g. "DE-BE" for Berlin)
#           when global is FALSE; NULL otherwise
#
# Berlin (DE-BE) observes International Women's Day (March 8) in addition
# to all nationwide holidays. The example below fetches 2027 holidays,
# keeps entries where global is TRUE or "DE-BE" appears in counties, and
# passes the resulting dates to slp_generate().
## Not run:
resp <- httr2::request("https://date.nager.at/api/v3") |>
  httr2::req_url_path_append("PublicHolidays", "2027", "DE") |>
```

```

httr2::req_perform() |>
httr2::resp_body_json()

is_berlin <- \(x) isTRUE(x$global) || "DE-BE" %in% unlist(x$counties)
holidays_berlin_2027 <- as.Date(
  vapply(Filter(is_berlin, resp), \(x) x$date, character(1))
)

H0_berlin_2027 <- slp_generate(
  "H0", "2027-01-01", "2027-12-31",
  holidays = holidays_berlin_2027
)

## End(Not run)

# consider only nationwide public holidays (default)
H0_2026 <- slp_generate("H0", start, end)

# when the deprecated state_code and holidays are both supplied, both sets
# of dates are treated as Sundays: user-provided dates from holidays and
# state-specific built-in holidays from state_code are merged
suppressWarnings(
  slp_generate("G0", "2026-04-01", "2026-04-01",
    state_code = "SL", holidays = "2026-04-01") |>
  head()
)

# electric power values are normalised to consumption of ~1,000 kWh/a
sum(H0_2026$watts / 4 / 1000)

# convert watts to kWh per interval using a wrapper
slp_generate_kwh <- \(...) {
  out <- slp_generate(...)
  out$kwh <- out$watts / 4 / 1000
  out
}
H0_kwh <- slp_generate_kwh("H0", start, end)
head(H0_kwh)

```

---

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" (default) or "DE"

**Value**

A named list with one element per profile\_id. Each element is itself a list with three character components: profile (the identifier), description (a short label), and details (a longer explanation).

**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\\_Kundengruppenschluessel.pdf](https://www.bdew.de/media/documents/Zuordnung_der_VDEW-Lastprofile_zum_Kundengruppenschluessel.pdf)

**Examples**

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

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

# Index

## \* datasets

slp, 2

slp, 2

slp\_generate, 4

slp\_generate(), 3

slp\_info, 7

slp\_info(), 3, 5