

Package: mrcommonsenergy (via r-universe)

October 22, 2026

Type Package

Title Preprocessing functions for REMIND and other energy models (no landuse data)

Version 0.5.1

Date 2026-07-30

Description Preprocessing functions for REMIND and other energy models (buildings, transport, industry) not using landuse data.

License LGPL-3

URL <https://github.com/pik-piam/mrcommonsenergy>

BugReports <https://github.com/pik-piam/mrcommonsenergy/issues>

Depends GDPuc (>= 1.3.0), madrat (>= 3.10.0), magclass (>= 3.17), mrdriers (>= 7.1.1), R (>= 2.10.0)

Imports data.table, dplyr, glue, magrittr, openxlsx, purrr, quitte, tibble, tidyr, readxl, rlang

Suggests testthat

Encoding UTF-8

LazyData no

Roxygen list(markdown = TRUE)

Config/Needs/website tidyverse/tidytemplate

Config/roxygen2/version 8.0.0

Config/pak/sysreqs cmake libglib-dev make libicu-dev libuv1-dev libxml2-dev libx11-dev zlib1g-dev

Repository <https://pik-piam.r-universe.dev>

Date/Publication 2026-07-30 08:11:09 UTC

RemoteUrl <https://github.com/pik-piam/mrcommonsenergy>

RemoteRef HEAD

RemoteSha 26d76536e0ab460005d6ef5277e0b87106fb1718

Contents

mrcommonsenergy-package	2
calcFloorspace	3
calcIOEdgeBuildings	3
convertEdgeBuildings	4
convertEEA_EuropeanEnvironmentAgency	5
convertEU_ReferenceScenario	5
convertEurostat	6
convertIEA	7
convertJRC_IDEES	7
convertUNFCCC	8
readEdgeBuildings	9
readEEA_EuropeanEnvironmentAgency	9
readEU_ReferenceScenario	10
readEurostat	11
readIEA	11
readJRC_IDEES	12
readUNFCCC	13
toolAggregateCustomRegs	13
toolGetIEAYear	14
toolSplitBiomass	15
Index	16

mrcommonsenergy-package

mrcommonsenergy: Preprocessing functions for REMIND and other energy models (no landuse data)

Description

Preprocessing functions for REMIND and other energy models (buildings, transport, industry) not using landuse data.

Author(s)

Maintainer: Falk Benke <benke@pik-potsdam.de>

Authors:

- Falk Benke <benke@pik-potsdam.de>
- Robin Hasse
- Simon Krogmann
- Renato Rodrigues
- Felix Schreyer

See Also

Useful links:

- <https://github.com/pik-piam/mrcommonsenergy>
- Report bugs at <https://github.com/pik-piam/mrcommonsenergy/issues>

calcFloorspace	<i>Floor space in buildings</i>
----------------	---------------------------------

Description

Residential, commercial and total floor space from EDGE-B. Set

Usage

```
calcFloorspace(scenario, onlyTotal = FALSE)
```

Arguments

scenario	A string (or vector of strings) designating the scenario(s) to be returned.
onlyTotal	boolean, only give total instead of sub-sectoral floor space

Value

MAgPIE object with buildings floor space

Author(s)

Antoine Levesque, Robin Hasse

calcIOEdgeBuildings	<i>calcIOEdgeBuildings</i>
---------------------	----------------------------

Description

Calculates buildings-related energy flows from the IEA energy balances. 'output_EDGE_buildings' is a key input to EDGE-Buildings providing the historic final energy demand from buildings. 'output_EDGE' does the same for buildings and industry together.

Usage

```
calcIOEdgeBuildings(
  subtype = c("output_EDGE", "output_EDGE_buildings"),
  ieaVersion = c("default", "latest")
)
```

Arguments

subtype	Data subtype. See default argument for possible values.
ieaVersion	Release version of IEA data, either 'default' (vetted and used in REMIND) or 'latest'.

Value

IEA data as MAgPIE object aggregated to country level

Author(s)

Pascal Sauer, Anastasis Giannousakis, Robin Hasse

Examples

```
## Not run:
a <- calcOutput("IOEdgeBuildings", subtype = "output_EDGE_buildings")

## End(Not run)
```

convertEdgeBuildings *Convert EDGE Buildings data to data on ISO country level.*

Description

Convert EDGE Buildings data to data on ISO country level.

Usage

```
convertEdgeBuildings(x, subtype, subset)
```

Arguments

x	MAgPIE object containing EDGE values at ISO country resolution
subtype	either FE or Floorspace
subset	A string (or vector of strings) designating the scenario(s) to be returned.

Value

EDGE data as MAgPIE object aggregated to country level

Author(s)

Antoine Levesque, Robin Hasse

`convertEEA_EuropeanEnvironmentAgency`*Convert European Environment Agency (EEA) data*

Description

Read-in European Environment Agency (EEA) data on ETS emissions as magclass object

Usage

```
convertEEA_EuropeanEnvironmentAgency(x, subtype)
```

Arguments

x	MAGPIE object to be converted
subtype	data subtype. Either "ETS", "historical", "projections", or "projections-detailed"

Value

magpie object of European Environment Agency (EEA) ETS emissions (GtCO2)

Author(s)

Renato Rodrigues, Robin Hasse

Examples

```
## Not run:  
a <- readSource(type = "EEA_EuropeanEnvironmentAgency", subtype = "ETS")  
  
## End(Not run)
```

`convertEU_ReferenceScenario`*Convert EU Reference Scenario*

Description

Converts EU Reference Scenario magpie object into appropriate form for the REMIND model

Usage

```
convertEU_ReferenceScenario(x, subtype)
```

Arguments

x	EU Reference Scenario magpie object derived from readEU_ReferenceScenario function
subtype	data subtype. Either "techAssump.*", "2016" or "2020"

Value

converted EU Reference Scenario magpie object

Author(s)

Renato Rodrigues, Falk Benke, Robin Hasse

Examples

```
## Not run:
test <- readSource("EU_ReferenceScenario", subtype = "2020", convert = TRUE)

## End(Not run)
```

convertEurostat	<i>Read Eurostat historical emissions (env_air_gge)</i>
-----------------	---

Description

Read Eurostat historical emissions (env_air_gge)

Usage

```
convertEurostat(x, subtype)
```

Arguments

x	MAGPIE object to be converted
subtype	'emissions' for original Eurostat emissions split, 'MACCemi' for MACC historical emissions, or 'sectorEmi' for sector specific emissions, or 'latest' for most up-to-date data

Value

A MAGPIE object containing the Eurostat historical emissions (MtCO2)

Author(s)

Renato Rodrigues

Examples

```
## Not run:
a <- convertEurostat(x, subtype = "emissions")

## End(Not run)
```

convertIEA	<i>Convert IEA</i>
------------	--------------------

Description

Convert IEA energy data to data on ISO country level.

Usage

```
convertIEA(x, subtype)
```

Arguments

x	MAGPIE object containing IEA values at IEA mixed country-region resolution
subtype	data subtype. Either "EnergyBalances", "EnergyBalances-latest", or "Emissions"

Value

IEA data as MAGPIE object aggregated to country level

Author(s)

Anastasis Giannousakis, Renato Rodrigues, Falk Benke

convertJRC_IDEES	<i>Convert JRC IDEES data</i>
------------------	-------------------------------

Description

Missing data for EU-28 countries is added, by distributing the difference of EU28 and the sum of country-values based on countries share in EU-28 GDP.

Usage

```
convertJRC_IDEES(x, subtype)
```

Arguments

x a magpie object
subtype character, subtype of `readJRC_IDEES()`

Value

A `magpie` object.

Author(s)

Michaja Pehl, Robin Hasse

convertUNFCCC	<i>Convert UNFCCC data</i>
---------------	----------------------------

Description

Convert UNFCCC data

Usage

```
convertUNFCCC(x, subtype = "annex-1")
```

Arguments

x A `magpie` object returned from `readUNFCCC()`.
subtype Can be either "annex-1" (default) or "non-annex-1"

Value

A `magpie` object.

Author(s)

Falk Benke, Simon Krogmann

readEdgeBuildings	<i>Load an EDGE Buildings file as magclass object.</i>
-------------------	--

Description

Load an EDGE Buildings file as magclass object.

Usage

```
readEdgeBuildings(subtype = c("FE", "Floorspace"), subset)
```

Arguments

subtype	One of the possible subtypes, see default argument.
subset	A string (or vector of strings) designating the scenario(s) to be returned (needed in 'convertEdgeBuildings').

Value

magclass object

Author(s)

Antoine Levesque, Robin Hasse

readEEA_EuropeanEnvironmentAgency	<i>Read European Environment Agency (EEA) data</i>
-----------------------------------	--

Description

Read-in European Environment Agency (EEA) data on ETS emissions as magclass object

Usage

```
readEEA_EuropeanEnvironmentAgency(subtype)
```

Arguments

subtype	data subtype. Either "ETS", "ESR", "total", "sectoral", "projections", or "projections-detailed"
---------	--

Value

magpie object of European Environment Agency (EEA) ETS emissions (GtCO2)

Author(s)

Renato Rodrigues, Falk Benke, Robin Hasse

Examples

```
## Not run:  
a <- readSource(type = "EEA_EuropeanEnvironmentAgency", subtype = "ETS")  
  
## End(Not run)
```

readEU_ReferenceScenario

Read EU Reference Scenario

Description

Read EU Reference Scenario .xlsx file as magpie object

Usage

```
readEU_ReferenceScenario(subtype)
```

Arguments

subtype data subtype. Either "techAssump.*", "2016" or "2020"

Value

magpie object of EU reference scenario data by country. Units follow REMIND report conventions and conversion factor is defined in EU_ReferenceScenario2REMIND.xlsx file.

Author(s)

Renato Rodrigues, Falk Benke, Robin Hasse

Examples

```
## Not run:  
test <- readSource("EU_ReferenceScenario", subtype = "2020", convert = FALSE)  
  
## End(Not run)
```

readEurostat	<i>Read Eurostat historical emissions (env_air_gge)</i>
--------------	---

Description

Read-in Eurostat historical emissions csv files as magclass object

Usage

```
readEurostat(subtype = "emissions")
```

Arguments

subtype	'emissions' for original Eurostat emissions split, 'MACCemi' for MACC historical emissions, or 'sectorEmi' for sector specific emissions, or 'latest' for most up-to-date data
---------	--

Value

magpie object of Eurostat historical emissions (MtCO2)

Author(s)

Renato Rodrigues

Examples

```
## Not run:  
a <- readSource(type = "Eurostat", subtype = "emissions")  
  
## End(Not run)
```

readIEA	<i>Read IEA</i>
---------	-----------------

Description

Read-in an IEA csv file as magpie object

Usage

```
readIEA(subtype)
```

Arguments

subtype data subtype. Either "EnergyBalances", "EnergyBalances-latest", or "Emissions".

- "EnergyBalances": IEA energy balances until 2022 (2023 incomplete), data updated in Sep 2024, the current default for REMIND input data
- "EnergyBalances-latest": IEA energy balances until 2023 (2024 incomplete), data updated in Aug 2025,
- "EnergyBalances-2026": incomplete IEA energy balances update from Apr 2026,

Value

magpie object of the IEA

Author(s)

Anastasis Giannousakis, Lavinia Baumstark, Renato Rodrigues, Falk Benke

readJRC_IDEES	<i>Read JRC IDEES</i>
---------------	-----------------------

Description

Read the **IDEES data base from JRC** #nolint

Usage

readJRC_IDEES(subtype)

Arguments

subtype one of

- 'Emission': read worksheets from the Emission Balance files
- 'Energy': read worksheets from the Energy Balance files
- 'Industry': read worksheets from the Industry files
- 'Transport': read worksheets from the Transport files
- 'MBunkers': read worksheets from the Bunkers files
- 'Residential': read worksheets from the Residential files
- 'Tertiary': read worksheets from the Tertiary (Services and Agriculture) files append '_2021' to get the updated data from 2021 (only available for some sectors)

Value

A **magpie** object.

Author(s)

Michaja Pehl, Falk Benke, Robin Hasse

readUNFCCC

Read UNFCCC data

Description

Read UNFCCC data

Usage

```
readUNFCCC(subtype = "annex-1")
```

Arguments

subtype	Can be either "annex-1" (default) or "non-annex-1"
	filter temporary lock files finds out if a string is a 4-digit year finds out if a string is only capital letters A-Z

Author(s)

Falk Benke, Simon Krogmann

toolAggregateCustomRegs

Aggregate regions without regional aggregations such as global sum

Description

Aggregate regional data, but if regional aggregations exist, discard the automatically aggregated values and replace them with source data.

Usage

```
toolAggregateCustomRegs(
  x,
  agg,
  rel,
  to = NULL,
  removeAllAgg = TRUE,
  regs = "GLO"
)
```

Arguments

x	a magclass object in country resolution
agg	magclass object supplying explicit regional aggregates
rel	aggregation mapping for toolAggregate
to	aggregation target for toolAggregate
removeAllAgg	decide whether to exclude all aggregated data or keep those (variables/periods) that are not overwritten by data from agg object
regs	one or multiple names of aggregated regions to be removed/overwritten

Value

magclass object

Author(s)

Falk Benke, Pascal Weigmann

toolGetIEAYear	<i>Returns the year associated with a given ieVersion</i>
----------------	---

Description

Returns the year associated with a given ieVersion

Usage

```
toolGetIEAYear(ieVersion)
```

Arguments

ieVersion	Release version of IEA data, either 'default' (vetted and used in REMIND) or 'latest'.
-----------	--

Author(s)

Falk Benke

toolSplitBiomass	<i>Split Biomass into modern and traditional</i>
------------------	--

Description

We assume that below a given GDP/cap level, all biomass is traditional and above a higher limit, all biomass is modern with a linear transition between the limits.

Usage

```
toolSplitBiomass(  
  x,  
  gdppop,  
  split = "biomass",  
  into = c("biotrad", "biomod"),  
  dim = 3.1,  
  limits = c(12300, 18500)  
)
```

Arguments

x	MagPIE object including biomass data
gdppop	MagPIE object with GDP/cap data
split	character, name of item to split
into	character vector of length two with the names of the split items
dim	dimension of x with the item to split
limits	numeric vector of length two with the corresponding GDP/cap limits. The default values used to be 10k and 15k USD/cap converted from 2005 to 2017 dollars.

Value

MagPIE object including split biomass data

Author(s)

Robin Hasse

Index

calcFloorspace, [3](#)
calcIOEdgeBuildings, [3](#)
convertEdgeBuildings, [4](#)
convertEEA_EuropeanEnvironmentAgency,
 [5](#)
convertEU_ReferenceScenario, [5](#)
convertEurostat, [6](#)
convertIEA, [7](#)
convertJRC_IDEES, [7](#)
convertUNFCCC, [8](#)

magpie, [8](#), [12](#)
mrcommonsenergy
 (mrcommonsenergy-package), [2](#)
mrcommonsenergy-package, [2](#)

readEdgeBuildings, [9](#)
readEEA_EuropeanEnvironmentAgency, [9](#)
readEU_ReferenceScenario, [10](#)
readEurostat, [11](#)
readIEA, [11](#)
readJRC_IDEES, [12](#)
readJRC_IDEES(), [8](#)
readUNFCCC, [13](#)
readUNFCCC(), [8](#)

toolAggregateCustomRegs, [13](#)
toolGetIEAYear, [14](#)
toolSplitBiomass, [15](#)