

# Package ‘r2dii.plot’

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**Title** Visualize the Climate Scenario Alignment of a Financial Portfolio

**Version** 0.5.1

**Description** Create plots to visualize the alignment of a corporate lending financial portfolio to climate change scenarios based on climate indicators (production and emission intensities) across key climate relevant sectors of the 'PACTA' methodology (Paris Agreement Capital Transition Assessment; <<https://www.transitionmonitor.com/>>). Financial institutions use 'PACTA' to study how their capital allocation decisions align with climate change mitigation goals.

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**URL** <https://rmi-pacta.github.io/r2dii.plot/>,  
<https://github.com/RMI-PACTA/r2dii.plot>

**BugReports** <https://github.com/RMI-PACTA/r2dii.plot/issues>

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---

data_dictionary	<i>Data Dictionary</i>
-----------------	------------------------

---

## Description

A table of column names and descriptions of data frames used or exported by the functions in this package.

## Usage

data\_dictionary

## Format

data\_dictionary:

**dataset** Name of the dataset

**column** Name of the column

**typeof** Type of the column

**definition** Definition of the column

**Examples**

```
data_dictionary
```

---

```
market_share
```

*An example of a market\_share-like dataset*

---

**Description**

Dataset imitating the output of `r2dii.analysis::target_market_share()`.

**Usage**

```
market_share
```

**Format**

An object of class `spec_tbl_df` (inherits from `tbl_df`, `tbl`, `data.frame`) with 802 rows and 10 columns.

**See Also**

`r2dii.analysis::target_market_share()`.

Other datasets: `r2dii_colours`, `sda`

**Examples**

```
market_share
```

---

```
plot_emission_intensity
```

*Create an emission intensity plot*

---

**Description**

Create an emission intensity plot

**Usage**

```
plot_emission_intensity(data)
```

**Arguments**

`data` A data frame like the output of `prep_emission_intensity()`.

**Value**

An object of class "ggplot".

**See Also**

[sda](#).

**Examples**

```
# plot with `qplot_emission_intensity()` parameters
data <- subset(sda, sector == "cement" & region == "global") %>%
  prep_emission_intensity(span_5yr = TRUE, convert_label = to_title)

plot_emission_intensity(data)
```

---

plot\_techmix

*Create a techmix plot*

---

**Description**

Create a techmix plot

**Usage**

```
plot_techmix(data)
```

**Arguments**

data                    A data frame like the output of prep\_techmix().

**Value**

An object of class "ggplot".

**See Also**

[market\\_share](#).

**Examples**

```
# plot with `qplot_techmix()` parameters
data <- subset(
  market_share,
  scenario_source == "demo_2020" &
  sector == "power" &
  region == "global" &
  metric %in% c("projected", "corporate_economy", "target_sds")
) %>%
  prep_techmix(
```

```

    span_5yr = TRUE,
    convert_label = recode_metric_techmix,
    convert_tech_label = spell_out_technology
  )

plot_techmix(data)

```

---

plot\_trajectory      *Create a trajectory plot*

---

### Description

Create a trajectory plot

### Usage

```
plot_trajectory(data, center_y = FALSE, perc_y_scale = FALSE)
```

### Arguments

data	A data frame like the outputs of <code>prep_trajectory()</code> . <ul style="list-style-type: none"> <li>(Optional) If present, the column <code>label</code> is used for data labels.</li> </ul>
center_y	Logical. Use <code>TRUE</code> to center the y-axis around start value (the default behavior of <code>qplot_trajectory()</code> ), or use <code>FALSE</code> to not center.
perc_y_scale	Logical. <code>FALSE</code> defaults to using no label conversion. Use <code>TRUE</code> to convert labels on y-axis to percentage using <code>scales::percent</code> (the default behavior of <code>qplot_trajectory()</code> ).

### Value

An object of class "ggplot".

### See Also

[market\\_share](#).

### Examples

```

# plot with `qplot_trajectory()` parameters
data <- subset(
  market_share,
  sector == "power" &
  technology == "renewables" &
  region == "global" &
  scenario_source == "demo_2020"
) %>%
  prep_trajectory()

```

```
plot_trajectory(
  data,
  center_y = TRUE,
  perc_y_scale = TRUE
)
```

---

```
prep_emission_intensity
```

*Prepare data for a emission intensity plot*

---

### Description

Prepare data for a emission intensity plot

### Usage

```
prep_emission_intensity(data, convert_label = identity, span_5yr = FALSE)
```

### Arguments

data	A data frame. Requirements: <ul style="list-style-type: none"> <li>• The structure must be like <a href="#">sda</a>.</li> <li>• The column sector must have a single value (e.g. "cement").</li> <li>• (Optional) If present, the column label is used for data labels.</li> </ul>
convert_label	A symbol. The unquoted name of a function to apply to y-axis labels. For example: <ul style="list-style-type: none"> <li>• To convert labels to uppercase use <code>convert_label = toupper</code>.</li> <li>• To get the default behavior of <code>qplot_emission_intensity()</code> use <code>convert_label = to_title</code>.</li> </ul>
span_5yr	Logical. Use TRUE to restrict the time span to 5 years from the start year (the default behavior of <code>qplot_emission_intensity()</code> ), or use FALSE to impose no restriction.

### Value

A data-frame ready to be plotted using `plot_emission_intensity()`.

### See Also

[sda](#).

### Examples

```
# `data` must meet documented "Requirements"
data <- subset(sda, sector == "cement" & region == "global")
prep_emission_intensity(data)
```

---

```
prep_techmix          Prepare data for plotting technology mix
```

---

## Description

Prepare data for plotting technology mix

## Usage

```
prep_techmix(
  data,
  convert_label = identity,
  span_5yr = FALSE,
  convert_tech_label = identity
)
```

## Arguments

data	A data frame. Requirements: <ul style="list-style-type: none"> <li>• The structure must be like <a href="#">market_share</a>.</li> <li>• The following columns must have a single value: sector, region, scenario_source.</li> <li>• The column metric must have a portfolio (e.g. "projected"), a benchmark (e.g. "corporate_economy"), and a single scenario (e.g. "target_sds").</li> <li>• (Optional) If present, the column label is used for data labels.</li> <li>• (Optional) If present, the column label_tech is used for technology labels.</li> </ul>
convert_label	A symbol. The unquoted name of a function to apply to y-axis labels. For example: <ul style="list-style-type: none"> <li>• To convert labels to uppercase use convert_label = toupper.</li> <li>• To get the default behavior of qplot_techmix() use convert_label = recode_metric_techmix.</li> </ul>
span_5yr	Logical. Use TRUE to restrict the time span to 5 years from the start year (the default behavior of qplot_techmix()), or use FALSE to impose no restriction.
convert_tech_label	A symbol. The unquoted name of a function to apply to technology legend labels. For example, to convert labels to uppercase use convert_tech_label = toupper. To get the default behavior of qplot_techmix() use convert_tech_label = spell_out_technology.

## Value

A data-frame ready to be plotted using plot\_techmix().

## See Also

[market\\_share](#).

**Examples**

```
# `data` must meet documented "Requirements"
data <- subset(
  market_share,
  scenario_source == "demo_2020" &
  sector == "power" &
  region == "global" &
  metric %in% c("projected", "corporate_economy", "target_sds")
)

prep_techmix(data)
```

---

```
prep_trajectory      Prepare data for a trajectory plot
```

---

**Description**

Prepare data for a trajectory plot

**Usage**

```
prep_trajectory(
  data,
  convert_label = identity,
  span_5yr = FALSE,
  value_col = "percentage_of_initial_production_by_scope"
)
```

**Arguments**

data	A data frame. Requirements: <ul style="list-style-type: none"> <li>• The structure must be like <a href="#">market_share</a>.</li> <li>• The following columns must have a single value: sector, technology, region, scenario_source.</li> <li>• (Optional) If present, the column label is used for data labels.</li> </ul>
convert_label	A symbol. The unquoted name of a function to apply to y-axis labels. For example: <ul style="list-style-type: none"> <li>• To convert labels to uppercase use <code>convert_label = toupper</code>.</li> <li>• To get the default behavior of <code>qplot_trajectory()</code> use <code>convert_label = recode_metric_trajectory</code>.</li> </ul>
span_5yr	Logical. Use TRUE to restrict the time span to 5 years from the start year (the default behavior of <code>qplot_trajectory()</code> ), or use FALSE to impose no restriction.
value_col	Character. Name of the column to be used as a value to be plotted.

**Value**

A data-frame ready to be plotted using `plot_trajectory()`.



**See Also**

[market\\_share](#).

**Examples**

```
# `data` must meet documented "Requirements"
data <- subset(
  market_share,
  sector == "power" &
  technology == "renewablescap" &
  region == "global" &
  scenario_source == "demo_2020"
)

prep_trajectory(data)
```

---

qplot\_emission\_intensity

*Create a quick emission intensity plot*

---

**Description**

Compared to [plot\\_emission\\_intensity\(\)](#) this function:

- is restricted to plotting future as 5 years from the start year,
- outputs formatted labels, based on emission metric column,
- outputs a title,
- outputs formatted axis labels.

**Usage**

```
qplot_emission_intensity(data)
```

**Arguments**

`data` A data frame like the output of [prep\\_emission\\_intensity\(\)](#).

**Value**

An object of class "ggplot".

**See Also**

[plot\\_emission\\_intensity](#)

## Examples

```
# `data` must meet documented "Requirements"
data <- subset(sda, sector == "cement" & region == "global")

qplot_emission_intensity(data)
```

---

qplot\_techmix

*Create a quick techmix plot*

---

## Description

Compared to `plot_techmix()` this function:

- is restricted to plotting future as 5 years from the start year,
- outputs pretty bar labels, based on metric column,
- outputs pretty legend labels, based on technology column,
- outputs a title.

## Usage

```
qplot_techmix(data)
```

## Arguments

`data` A data frame like the output of `prep_techmix()`.

## Value

An object of class "ggplot".

## See Also

`plot_techmix`

## Examples

```
# `data` must meet documented "Requirements"
data <- subset(
  market_share,
  sector == "power" &
  region == "global" &
  scenario_source == "demo_2020" &
  metric %in% c("projected", "corporate_economy", "target_sds")
)

qplot_techmix(data)
```

---

qplot\_trajectory      *Create a quick trajectory plot*

---

## Description

Compared to `plot_trajectory()` this function:

- is restricted to plotting only 5 years from the start year,
- outputs pretty legend labels, based on the column holding metrics,
- outputs a title,
- outputs a subtitle,
- outputs informative axis labels in sentence case.

## Usage

```
qplot_trajectory(data)
```

## Arguments

`data`                    A data frame like the outputs of `prep_trajectory()`.

- (Optional) If present, the column label is used for data labels.

## Value

An object of class "ggplot".

## See Also

`plot_trajectory`

## Examples

```
# `data` must meet documented "Requirements"
data <- subset(
  market_share,
  sector == "power" &
  technology == "renewables" &
  region == "global" &
  scenario_source == "demo_2020"
)

qplot_trajectory(data)
```

---

`r2dii_colours`*Colour datasets*

---

**Description**

All datasets have at least two columns:

- `label`: Text label of the colour.
- `hex`: Hex code of the colour.

**Usage**`palette_colours``scenario_colours``sector_colours``technology_colours`**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 9 rows and 2 columns.

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 5 rows and 2 columns.

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 8 rows and 2 columns.

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 18 rows and 3 columns.

**Details**

In `scenario_colours`, colours are ordered from red to green to be used in trajectory charts.

**See Also**

Other datasets: [market\\_share](#), [sda](#)

**Examples**`palette_colours``scenario_colours``sector_colours``technology_colours`

---

scale\_colour\_r2dii      *Custom 2DII colour and fill scales*

---

### Description

A custom discrete colour and fill scales with colours from 2DII palette.

### Usage

```
scale_colour_r2dii(colour_labels = NULL, ...)
```

```
scale_fill_r2dii(colour_labels = NULL, ...)
```

### Arguments

`colour_labels` A character vector. Specifies colour labels to use and their order. Run `unique(r2dii.plot::palette_c)` to see available colours. Similar to value parameter in `ggplot2::scale_colour_manual()`.

`...` Other parameters passed on to `ggplot2::discrete_scale()`.

### Value

An object of class "ScaleDiscrete".

### See Also

Other r2dii scales: [scale\\_colour\\_r2dii\\_sector\(\)](#), [scale\\_colour\\_r2dii\\_tech\(\)](#)

### Examples

```
library(ggplot2, warn.conflicts = FALSE)

ggplot(mpg) +
  geom_point(aes(displ, hwy, color = class)) +
  scale_colour_r2dii()

ggplot(mpg) +
  geom_histogram(aes(cyl, fill = class), position = "dodge", bins = 5) +
  scale_fill_r2dii()
```

---

`scale_colour_r2dii_sector`*Custom 2DII sector colour and fill scales*

---

### Description

A custom discrete colour and fill scales with colours from 2DII sector palette.

### Usage

```
scale_colour_r2dii_sector(sectors = NULL, ...)
```

```
scale_fill_r2dii_sector(sectors = NULL, ...)
```

### Arguments

`sectors` A character vector. Specifies sector colours to use and their order. Run `unique(r2dii.plot:::sector_c)` to see available labels. Similar to `value` parameter in `ggplot2::scale_colour_manual()`.

`...` Other parameters passed on to `ggplot2::discrete_scale()`.

### Value

An object of class "ScaleDiscrete".

### See Also

Other r2dii scales: `scale_colour_r2dii()`, `scale_colour_r2dii_tech()`

### Examples

```
library(ggplot2, warn.conflicts = FALSE)
```

```
ggplot(mpg) +  
  geom_point(aes(displ, hwy, color = class)) +  
  scale_colour_r2dii_sector()
```

```
ggplot(mpg) +  
  geom_histogram(aes(cyl, fill = class), position = "dodge", bins = 5) +  
  scale_fill_r2dii_sector()
```

---

`scale_colour_r2dii_tech`*Custom 2DII technology colour and fill scales*

---

## Description

A custom discrete colour and fill scales with colours from 2DII technology palette.

## Usage

```
scale_colour_r2dii_tech(sector, technologies = NULL, ...)
```

```
scale_fill_r2dii_tech(sector, technologies = NULL, ...)
```

## Arguments

<code>sector</code>	A string. Sector name specifying a colour palette. Run <code>unique(r2dii.plot::technology_colours\$sector)</code> to see available sectors.
<code>technologies</code>	A character vector. Specifies technologies to use as colours and their order. Run <code>unique(r2dii.plot::technology_colours\$technology)</code> to see available technologies (pay attention if they match the sector). Similar to value parameter in <code>ggplot2::scale_colour_manual()</code> .
<code>...</code>	Other parameters passed on to <code>ggplot2::discrete_scale()</code> .

## Value

An object of class "ScaleDiscrete".

## See Also

Other r2dii scales: [scale\\_colour\\_r2dii\(\)](#), [scale\\_colour\\_r2dii\\_sector\(\)](#)

## Examples

```
library(ggplot2, warn.conflicts = FALSE)

ggplot(mpg) +
  geom_point(aes(displ, hwy, color = class)) +
  scale_colour_r2dii_tech("automotive")

ggplot(mpg) +
  geom_histogram(aes(cyl, fill = class), position = "dodge", bins = 5) +
  scale_fill_r2dii_tech("automotive")
```

---

sda	<i>An example of an sda-like dataset</i>
-----	--

---

**Description**

Dataset imitating the output of `r2dii.analysis::target_sda()`.

**Usage**

```
sda
```

**Format**

An object of class `spec_tbl_df` (inherits from `tbl_df`, `tbl`, `data.frame`) with 110 rows and 6 columns.

**Source**

<https://github.com/RMI-PACTA/r2dii.plot/issues/55>.

**See Also**

`r2dii.analysis::target_sda()`.

Other datasets: `market_share`, `r2dii_colours`

**Examples**

```
sda
```

---

theme_2dii	<i>Complete theme</i>
------------	-----------------------

---

**Description**

A ggplot theme which can be applied to all graphs to appear according to 2DII plotting aesthetics.

**Usage**

```
theme_2dii(  
  base_size = 12,  
  base_family = "Helvetica",  
  base_line_size = base_size/22,  
  base_rect_size = base_size/22  
)
```



**Arguments**

base\_size        base font size, given in pts.  
 base\_family     base font family  
 base\_line\_size  base size for line elements  
 base\_rect\_size  base size for rect elements

**Value**

An object of class "theme", "gg".

**See Also**

[ggplot2::theme\\_classic](#).

**Examples**

```
library(ggplot2, warn.conflicts = FALSE)

ggplot(mtcars) +
  geom_histogram(aes(mpg), bins = 10) +
  theme_2dii()
```

---

 to\_title

---

*Replicate labels produced with qplot\_\*() functions*


---

**Description**

- to\_title() converts labels like [qplot\\_emission\\_intensity\(\)](#).
- recode\_metric\_trajectory() converts labels like [qplot\\_trajectory\(\)](#).
- recode\_metric\_techmix() converts labels like [qplot\\_techmix\(\)](#).
- spell\_out\_technology() converts technology labels like [qplot\\_techmix\(\)](#).

**Usage**

```
to_title(x)

recode_metric_techmix(x)

recode_metric_trajectory(x)

spell_out_technology(x)
```

**Arguments**

x                    A character vector.

**Value**

A character vector.

**Examples**

```
to_title(c("a.string", "another_STRING"))
```

```
metric <- c("projected", "corporate_economy", "target_xyz", "else")  
recode_metric_trajectory(metric)
```

```
recode_metric_techmix(metric)
```

```
spell_out_technology(c("gas", "ice", "coalcap", "hdv"))
```

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