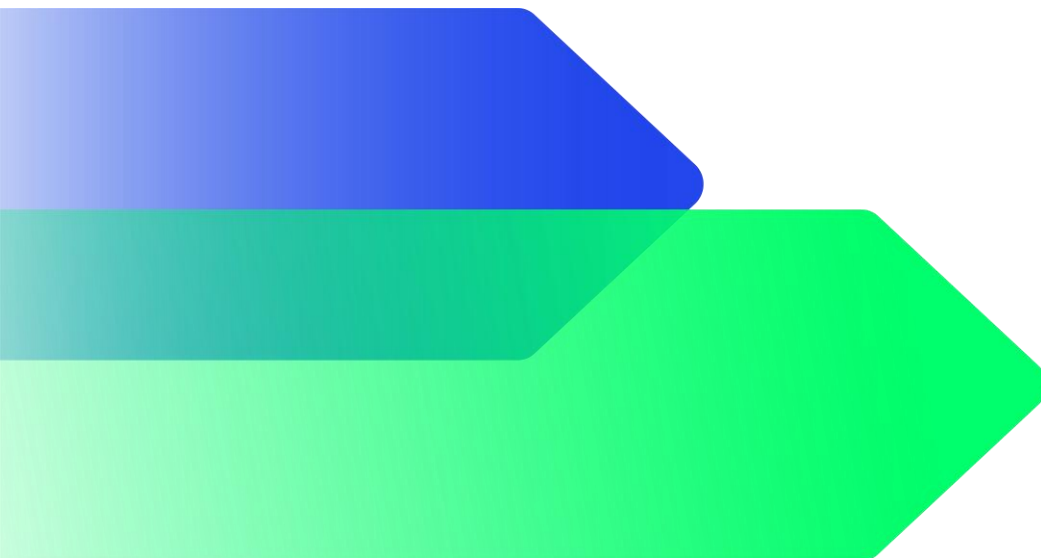


DNB BANK ASA

Green Bond Impact Assessment

For eligible renewable energy assets under the DNB Green Finance Framework.

March 2025





**The Carbon Trust's mission is to
accelerate the move to a decarbonised future.**

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Abbreviations

BESS	Battery Energy Storage Systems
GBP	Green Bond Principles
GHG	Greenhouse Gas Emissions
GLP	Green Loan Principles
ICMA	International Capital Markets Association
IFI	International Financial Institutions Working Group on Greenhouse Gas Accounting
PCAF	Partnership for Carbon Accounting Financials
RE	Renewable Energy
SDG	Sustainable Development Goals
WBCSD	World Business Council for Sustainable Development

Introduction

DNB Green Bond Overview

DNB Bank ASA is Norway's largest financial services group and one of the largest in the Nordic region in terms of market capitalisation. As Norway's largest financial services group, DNB plays an important role in the sustainable transition in Norway, and internationally in certain sectors.

In alignment with DNB's sustainable ambitions, they have established a Green Finance Framework¹ ("**Framework**") to be able to issue Green Finance Instruments to finance and refinance assets and projects that contribute to the transition to a low-carbon economy. The objective of the Framework is to promote further investments into assets that will assist in reaching the targets set forth by the Paris Climate Agreement, the EU Environmental Objectives and the UN SDGs that conform to the sustainable finance principles listed below:

- ICMA Green Bond Principles ("**GBP**") of June 2021 (with June 2022 Appendix 1)²

The GBP are a set of voluntary guidelines that recommend transparency and disclosure, and promote integrity in the development of the sustainable finance market by clarifying the approach for issuing sustainable instruments. The Framework therefore has four key components for each sustainable issuance, which DNB asserts that it will adopt:

1. Use of Proceeds,
2. Process for Project Evaluation and Selection,
3. Management of Proceeds, and,
4. Reporting.

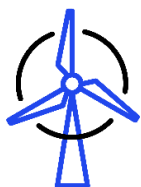
DNB, at its discretion but in accordance with the Principles, will allocate an amount equal to the net proceeds from Green Finance Instruments issued by DNB will be used to finance and/or refinance a portfolio of "Eligible Green Loans" as defined by the eligibility criteria.

¹ DNB Green Finance Framework, (October 2023)

² ICMA Green Bond Principles, (June 2021)

The Eligible Green Loan Categories include:

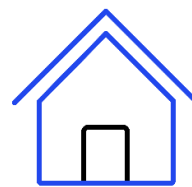
Eligible Green Loan Categories



Renewable Energy



Clean Transportation



Green Buildings

Figure 1: Eligible Green Project Categories

For clarity, the Carbon Trust has been engaged to support the development of the impact assessment calculations for Eligible Green Loans under the Renewable Energy category, only. This impact assessment report therefore covers only the Renewable Energy asset category of DNB's green portfolio.

Reporting Principles

Reporting of the environmental impacts of green bonds is evolving and is still a relatively new concept. However, the Carbon Trust is committed to reporting on the method used to calculate the avoided GHG emissions based on:

- PCAF's The Global GHG Accounting and Reporting Standard for the Financial Industry (November 2020), Chapter 5.3 Project Finance³,
- Climate Bonds Standard V3.0⁴,
- WBCSD Guidance on Avoided Emissions⁵,
- IFI GHG Accounting for Grid Connected Renewable Energy Projects (July 2019)⁶,
- Green Loan Principles (Feb 2023),⁷
- Green Bond Principles, Voluntary Process Guidelines for Issuing Green Bonds (2021)⁸, and,

³ The Global GHG Accounting and Reporting Standard for the Financial Industry (Dec 2022)

⁴ Climate Bonds Standard V3.0 | Climate Bonds Initiative

⁵ WBCSD Guidance on Avoided Emissions (Mar 2023)

⁶ IFI GHG Accounting for Grid Connected Renewable Energy Projects (July 2019)

⁷ Green Loan Principles (Feb 2023),

⁸ Green Bond Principles, Voluntary Process Guidelines for Issuing Green Bonds (2021)

- ICMA Harmonised Framework for Impact Reporting (2023)⁹

Scope of Calculations and Reporting

DNB undertakes to report the environmental impact of projects it finances through its Green Finance Instruments, where possible, based on the actual environmental performance of the asset. Where this is not possible, expected performance is used. For each Green Eligible Category, the impact report may provide:

- A description of relevant green projects;
- The breakdown of green projects by nature of what is being financed (financial assets); and
- Impact metrics regarding projects' environmental impact as outlined in DNB's Framework.

The year of assessment for this report is 2024.

The reporting is undertaken on an annual basis, covering the previous 12-month period¹⁰ and considers any dynamic changes in the assets financed that occur from one reporting period to another. In accordance with the principles of reporting described above, DNB has and continues to commit to transparent disclosure of any assumptions and estimations used in the calculation of its reporting framework.

Avoided Emissions

Avoided emissions form a core component of the impact assessment. Measuring them provides insight into the wider positive impact in the form of GHG emissions avoided as a result of the solutions deployed in comparison to a baseline reference scenario. Existing as a subsection of avoided emissions, this assessment will also consider the enablement from a solution (product/service) and whether that allows for the same or similar function to be performed with significantly less GHG emissions. By providing these solutions, companies enable avoided emissions in the wider system, outside of their value chain. Avoided emissions, along with the entire impact assessment will be calculated on a year-by-year basis.

⁹ Handbook Harmonised framework for impact reporting (June 2023)

¹⁰ For certain projects, the most recent available data on project/company value is from year-end 2023.

At the core of the avoided emissions assessment, is the reference scenario. The reference scenario looks to establish the context of the deployed proceeds and what is directly being replaced/reduced as a result of financing activities. The reference scenario must be a credible counterfactual to reflect the reality of the region. Where avoided emissions are calculated, the reference scenario will be described in each of the relevant sector methodology sections. This is summarised in the graph and equation below:

$$\text{Avoided emissions} = \sum \text{Reference Scenario Emissions} - \text{Solution Emissions}$$

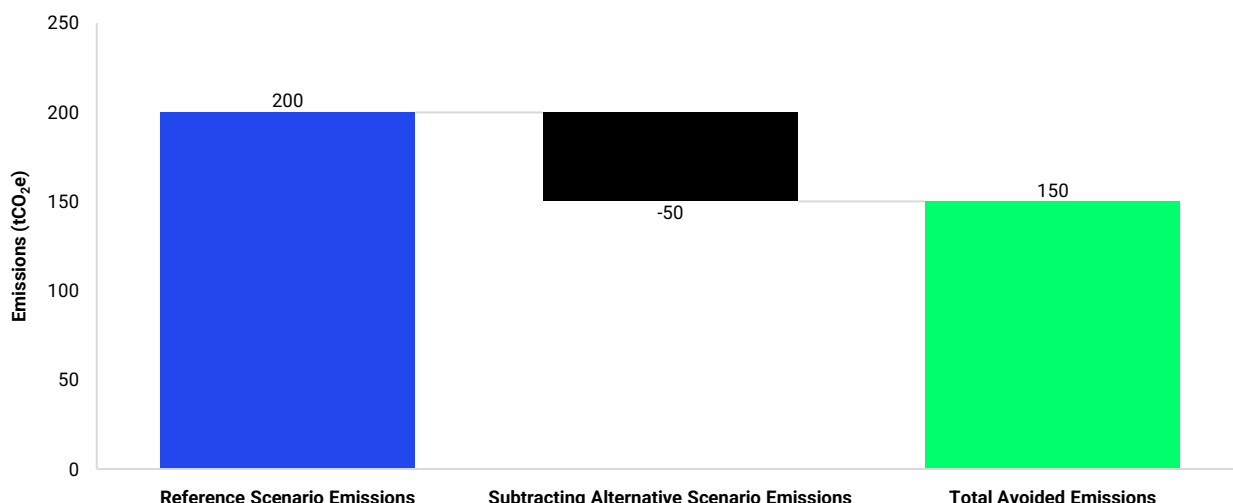


Figure 2: Example of Avoided Emissions Calculation

DNB Avoided Emissions and Attribution

When carrying out the impact assessment, an attribution factor is applied to all assets in line with the Partnership for Carbon Accounting Financials (“PCAF”) methodologies. This helps understand the share of DNB’s exposure relative to the impact of the project.

This is summarised in the equation below:

$$\text{Project Avoided Emissions} = \text{Attribution Factor} \times \text{Project Emissions}$$

In the process of considering capital for allocation under the green financing instruments, DNB will discount the portion of the Eligible Green Projects that have been deployed by one or several other issuers.

The calculation of the attribution of emissions and avoidance takes the outstanding investment amount and divides it against the total project value. This is summarised in the equation below:

$$\text{Attribution Factor} = \frac{\text{DNB Outstanding Investment Amount}}{\text{Total Project Value}}$$

DNB Green Bond Impact Highlights

Of the **31 billion** NOK outstanding loan balance, **61 of the 98** projects are currently **operational** and the remaining **37** are still **under construction**.



10 mixed renewables projects have received financing with an attributed avoided emissions of 230,849 tCO₂e.



7 run-of-river hydro projects have received financing with a total of 143,882 tCO₂e of attributed avoided emissions.



34 wind (onshore and offshore) projects have received financing, generating 841,949 tCO₂e of attributed avoided emissions.



36 solar PV projects have received financing with an attributed avoided emissions of 785,831 tCO₂e.



11 BESS projects have received financing, of which 6 standalone and 5 co-located with solar PVs with attributed avoided emissions of 28,722 and 24,627 tCO₂e respectively.

Total outstanding loan balance (NOK)

31 billion

Operational avoided emissions per Norwegian Krone invested in (kgCO₂e/NOK)

0.07

Number of Eligible Projects

98

Operational Attributed Avoided Emissions (tCO₂e)

1.3 million

Under Construction Estimated Attributed Avoided Emissions (tCO₂e)

0.8 million

Total Attributed Avoided Emissions (tCO₂e)

2.1 million

Total RE Attributed Capacity (MW)

1,831

Total BESS Attributed Capacity (MW)

217

Sector Breakdown of Eligible Green Asset Register

The following section will present the results of the impact assessment on a category-by-category basis, covering all projects included in the 31 billion NOK outstanding loan amount. All results are provided as the attributed value, along with a qualitative description of the impact. All results presented below include the actual and/or expected scope 1 and 2 emissions for both operational and under-construction projects.

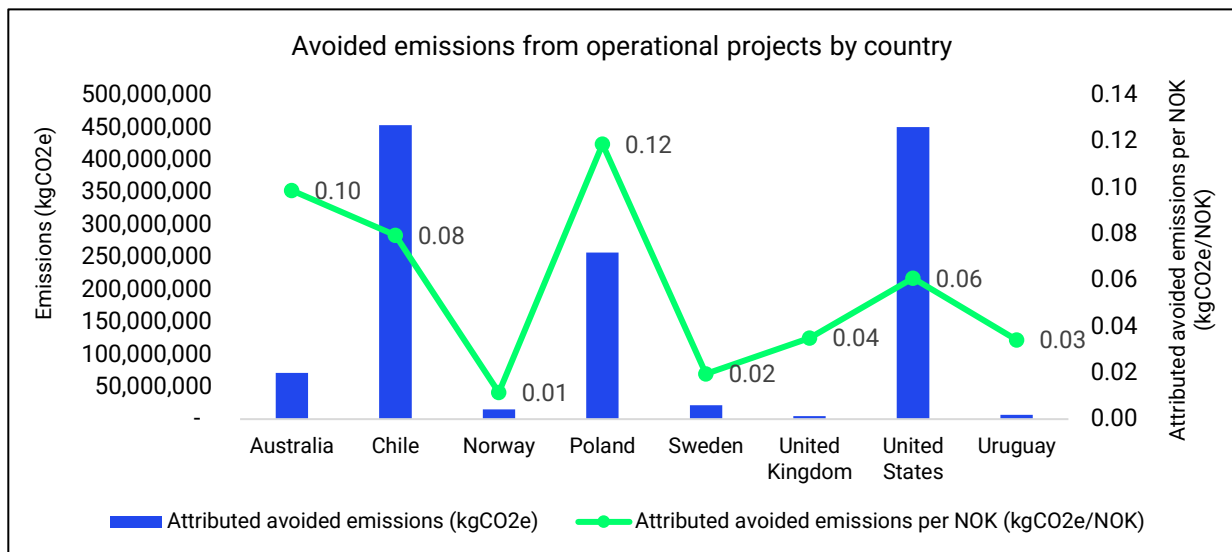
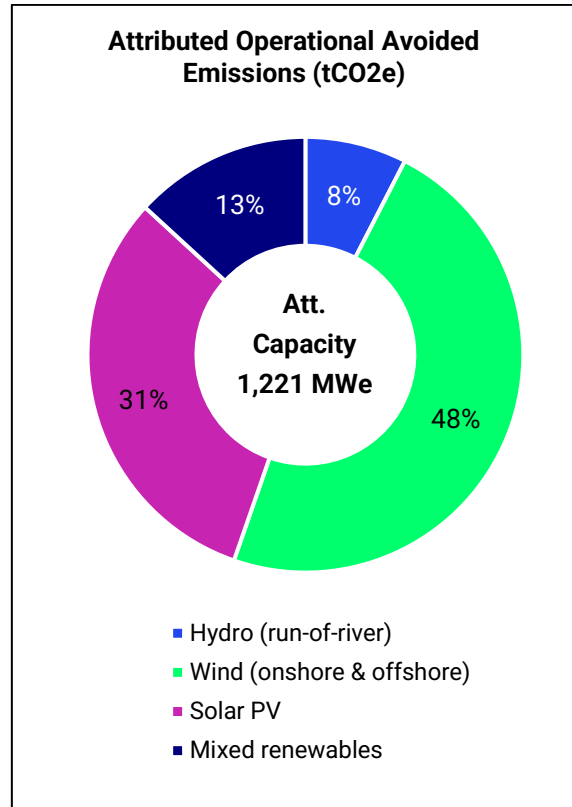
In line with the Framework, the Sector Breakdown will focus on the environmental impact of the projects.

Given current policies and market conditions, it is projected that global renewable capacity additions will climb from 666 GW in 2024 to 935 GW by 2030. This growth trend would result in a global capacity increase of 2.6 times compared to the previous six year period (2017-2023).¹²

Renewable Energy



In 2024, renewable energy accounted for almost 75% of total additional power generation.¹¹



¹¹ Global Energy Review 2025 – Analysis – IEA

¹² Renewables 2024 – Analysis and forecast to 2030 – IEA

Solar PV Impact

As of 2024, solar PV alone accounted for 75% of renewable capacity additions worldwide.¹³ DNB has contributed to this global figure by raising finance for 36 solar PV projects located in four countries, with a combined capacity of 6,570 MWe.

Just above 50% of these projects are operational, with the total RE capacity of these solar PV projects being 3,951 MWe. DNB has also provided financing to 17 Solar PV projects under construction. Once these projects are operational they will increase RE generation by 2,619 MWe.

Number of Projects:	36
Relevant Project Locations:	Chile, Poland, US, Norway
Total Capacity of Renewable Energy Plants (MWe):	6,570
Attributed Annual Renewable Energy Generation (MWh):	1,363,115
Attributed Annual Avoided Emissions (tCO₂e):	785,831

Wind (Onshore & Offshore) Impact

In 2023, an additional 117 GW of wind power was installed globally, representing a 50% increase from last year.¹⁴

DNB has financed a total of 34 onshore and offshore wind projects globally, of which two countries are in the top five markets for new wind installations – Sweden and the United States.¹⁵ These projects are both operational

and under construction, generating 4,184 MWe and 9,399 MWe of electricity, respectively.

Number of Projects:	34
Relevant Project Locations:	Chile, Sweden, Norway, Poland, United Kingdom, United States, Uruguay
Total Capacity of Renewable Energy Plants (MWe):	13,583
Attributed Annual Renewable Energy Generation (MWh):	2,049,280
Attributed Annual Avoided Emissions (tCO₂e):	841,949

Mixed Renewable Impact

To accompany the single RE projects, DNB has also funded 10 mixed RE projects of which 6 are operational and 4 are under construction. The impact of these projects is substantial, generating a combined total energy capacity of 7,058 MWe, 75% of which is coming from operational plants.

Number of Projects:	10
Relevant Project Locations:	Australia, Chile, United States

¹³ Global Energy Review 2025 – Analysis – IEA

¹⁴ GWEC – Global Wind Report 2023

¹⁵ GWEC – Global Wind Report 2023

Total Capacity of Renewable Energy Plants (MWe):	7,058
Attributed Annual Renewable Energy Generation (MWh):	442,669
Attributed Annual Avoided Emissions (tCO₂e)¹⁶:	230,849

Hydropower Impact

Hydropower is a key pillar of decarbonising the global energy system and accelerating the transition to achieve climate ambitions globally. This is not only due to its ability to generate substantial amounts of low-carbon electricity but also because of its unparalleled flexibility and storage compared to other sources of energy.¹⁷

DNB has provided financing to 7 hydropower plants located across three countries – Chile, Norway, and the United States. The operational plants are currently generating 1,730 MWe of RE, with the potential to increase to 2,261MWe once the projects under construction become operational.

Number of Projects:	10
Relevant Project Locations:	Chile, Norway, United States
Total Capacity of Renewable Energy Plants (MWe):	2,261

¹⁶ This figure only includes the avoided emissions associated with renewable energy sources and excludes the impact of co-located batteries. The avoided emissions associated with co-located batteries is included within the Energy Efficiency section of the report.

Attributed Annual Renewable Energy Generation (MWh):	450,526
Attributed Annual Avoided Emissions (tCO₂e):	143,882

Energy Efficiency

Battery Energy Storage (Standalone) Impact



The extensive utilisation and projected increases in RE generation, in addition to increased electricity demand, will pose challenges for power grids. Grid-scale

storage, such as battery energy storage systems (BESS), will be crucial for effectively managing grid stability and reliability amidst fluctuations in renewable energy output and electricity demand.¹⁸

The avoided emissions associated with BESS are the sum of direct avoided asset emissions and indirect avoided emissions from the provision of ancillary services (e.g. grid frequency management).

Direct asset emissions are calculated based on the net import minus net export stored within BESS, multiplied by the grid average carbon intensity in the battery's regional location. For standalone batteries, net export represents efficiency losses and does not contribute to avoided emissions. Overall avoided emissions

¹⁷ IEA – Hydropower

¹⁸ IEA – Energy Storage 2023

will result from the provision of ancillary services.

DNB currently finances 6 standalone BESS plants, of which 4 are operational. The operational BESS plants possess an electrical storage capacity of 3,403 MWh and a total export of 1,239,916 MWh¹⁹.

When the remaining BESS projects become operational, these figures will increase to 4,229 MWe and 1,445,909 MWh, respectively.

Number of Projects:	6
Relevant Project Locations:	Australia, United States
Electric Capacity (MWe):	1,224
Net Export (MWh):²⁰	255,160
Attributed Annual Avoided Emissions (tCO₂e):	28,722

battery's regional location. Direct emissions for BESS co-located with PVs contribute to avoided emissions. Indirect emissions from the provision of ancillary services further contributes to overall avoided emissions.

DNB currently finances 5 BESS co-located with solar PVs. Of these 5 projects, only 2 BESS plants are currently operational with an electrical storage capacity of 2,108 MWh²¹. This will increase to 5,660 MWh as the other plants under construction become operational.

Number of Projects:	5
Relevant Project Locations:	United States, Chile
Electric Capacity (MWe):	1,415
Net Export (MWh):²²	199,765
Attributed Annual Avoided Emissions (tCO₂e):²³	24,627

Battery Energy Storage (Co-located) Impact

For BESS that are co-located with solar PVs, the imported electricity will be estimated to have no emissions associated with it. As a result, direct emissions will be the product of the BESS electricity export and grid carbon intensity in the

¹⁹ These estimates were calculated based on electric capacity (MWe), and proxies for roundtrip efficiency and on-grid expected power storage capacity (hours).

²⁰ Considering an assumed round trip efficiency of 85%

²¹ These estimates were calculated based on electric capacity (MWe), and proxies for roundtrip efficiency and on-grid expected power storage capacity (hours).

²² Considering an assumed round trip efficiency of 85%

²³ This figure only includes the avoided emissions associated with BESS. The avoided emissions associated with co-located renewable energy sources is included within the Renewable Energy section of the report.

Appendix 1: Detailed Results

1.1. Summary of the Impact of DNB's Eligible Pipeline Portfolio – Total Amount of Operational and Under Construction Projects

Category	No. of Eligible Projects	Total outstanding balance (million NOK)	Attributed Capacity (MWe)	Attributed Production (MWh)	Total project avoided emissions (tCO ₂ e)	Attributed Avoided Emissions (tCO ₂ e)	Attributed Avoided Emissions (%)
Renewable Energy	87	28,239	1,831	4,305,589	43,253,353	2,002,511	97%
Hydro (run-of-river)	7	3,152	164	450,526	2,455,491	143,882	7%
Wind (onshore & offshore)	34	9,673	607	2,049,280	25,730,868	841,949	41%
Solar PV	36	12,638	840	1,363,115	6,043,332	785,831	38%
Mixed renewables	10	2,775	220	442,669	9,023,662	230,849	11%
Battery Storage	11	2,594	217	n.a.	745,594	53,350	3%
Assets 1-11	11	2,594	217	n.a.	745,594	53,350	3%
Total	98	30,833	2,048	4,305,589	43,998,947	2,055,861	100%

1.2. Summary of the Impact of DNB's Eligible Pipeline Portfolio – Total Amount of Operational Projects

Category	No. of Eligible Projects	Total outstanding balance (million NOK)	Attributed Capacity (MWe)	Attributed Production (MWh)	Total project avoided emissions (tCO ₂ e)	Attributed Avoided Emissions (tCO ₂ e)	Attributed Avoided Emissions (%)
Renewable Energy	57	18,700	1,221	2,852,415	18,696,473	1,276,250	99%
Hydro (run-of-river)	6	2,403	145	378,535	1,177,079	96,612	7%
Wind (onshore & offshore)	26	7,454	486	1,522,740	6,667,229	610,776	47%
Solar PV	19	7,209	463	662,628	3,396,992	402,924	31%
Mixed renewables	6	1,633	128	288,513	7,455,173	165,938	13%
Battery Storage	6	1,540	94	n.a.	319,863	13,142	1%
Assets 1, 2, 5-8	6	1,540	94	n.a.	319,863	13,142	1%
Total	63	20,240	1,316	2,852,415	19,016,335	1,289,392	100%

1.3. Summary of the Impact of DNB's Eligible Pipeline Portfolio – Total Amount of Under Construction Projects

Category	No. of Eligible Projects	Total outstanding balance (million NOK)	Attributed Capacity (MWe)	Attributed Production (MWh)	Total project avoided emissions (tCO ₂ e)	Attributed Avoided Emissions (tCO ₂ e)	Attributed Avoided Emissions (%)
Renewable Energy	30	9,539	609	1,453,174	24,556,880	726,261	95%
Hydro (run-of-river)	1	749	20	71,991	1,278,412	47,270	6%
Wind (onshore & offshore)	8	2,219	121	526,539	19,063,639	231,173	30%
Solar PV	17	5,429	377	700,487	2,646,341	382,907	50%
Mixed renewables	4	1,143	92	154,157	1,568,489	64,912	8%
Battery Storage	5	1,054	123	n.a.	425,732	40,208	5%
Assets 3, 4, 9-11	5	1,054	123	n.a.	425,732	40,208	5%
Total	35	10,593	732	1,453,174	24,982,612	766,469	100%

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