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## STATISTICAL RELEASE P4141

# Electricity generated and available for distribution (Preliminary)

January 2023

This release provides an analysis of revisions. If you have any questions or comments, please send these to Nicolai Claassen, nicolaic@statssa.gov.za.

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## **Contents**

| Electricity generated (produced) in South Africa: results for January 2023                                        | 2  |
|-------------------------------------------------------------------------------------------------------------------|----|
| Table A – Key growth rates in the volume of electricity generated                                                 | 2  |
| Figure 1 – Electricity generated in South Africa                                                                  | 2  |
| Electricity distributed (consumed) in South Africa: results for January 20232023                                  | 3  |
| Table B – Key growth rates in the volume of electricity distributed                                               | 3  |
| Figure 2 – Electricity distributed in South Africa: year-on-year percentage change                                | 3  |
| Tables                                                                                                            | 4  |
| Table 1 – Index of the volume of electricity generated (Base: 2019=100)                                           | 4  |
| Table 2 – Year-on-year percentage change in the volume of electricity generated                                   | 4  |
| Table 3 – Seasonally adjusted index of the volume of electricity generated                                        | 4  |
| Table 4 – Volume of electricity distributed in South Africa (gigawatt-hours)                                      | 5  |
| Table 5 – Year-on-year percentage change in electricity distributed in South Africa                               | 5  |
| Table 6 – Seasonally adjusted volume of electricity distributed in South Africa                                   | 5  |
| Table 7 – Volume of electricity by category (gigawatt-hours)                                                      | 6  |
| Table 8 – Volume of electricity delivered to provinces (gigawatt-hours)                                           | 6  |
| Analysis of revisions                                                                                             | 7  |
| Figure 3 – Electricity available for distribution year-on-year growth rates: preliminary and revised              | 8  |
| Table 9 – Electricity available for distribution: preliminary and revised                                         | 8  |
| Figure 4 – Electricity available for distribution year-on-year growth rates: histogram of revisions (2017–2022) . | 10 |
| Survey information                                                                                                | 11 |
| Technical notes                                                                                                   | 12 |
| Glossary                                                                                                          | 13 |
| Technical enquiries                                                                                               | 13 |
| General information                                                                                               | 14 |

### Electricity generated (produced) in South Africa: results for January 2023

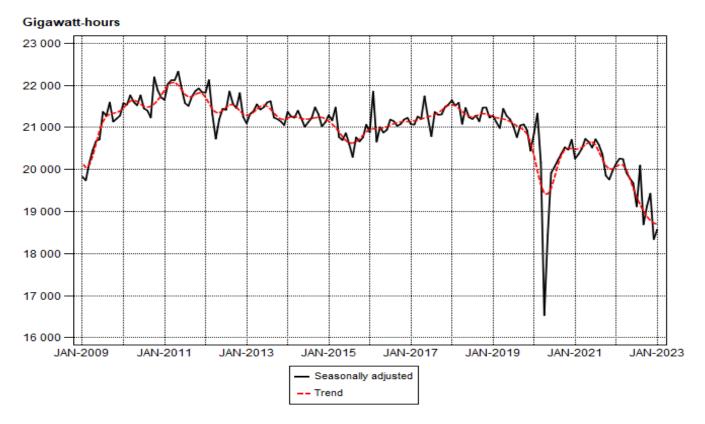
Table A - Key growth rates in the volume of electricity generated

|                                                    | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | Jan-23 |
|----------------------------------------------------|--------|--------|--------|--------|--------|--------|
| Year-on-year % change, unadjusted                  | -2,2   | -8,2   | -3,8   | -1,8   | -8,3   | -8,0   |
| Month-on-month % change, seasonally adjusted       | 5,2    | -7,0   | 2,4    | 1,5    | -5,6   | 1,3    |
| 3-month % change, seasonally adjusted <sup>1</sup> | -1,8   | -2,5   | -1,1   | -2,8   | -1,7   | -2,8   |

<sup>&</sup>lt;sup>1</sup> Percentage change between the previous 3 months and the 3 months ending in the month indicated.

Electricity generation (production) decreased by 8,0% year-on-year in January 2023. Seasonally adjusted electricity generation increased by 1,3% in January 2023 compared with December 2022. This followed month-on-month changes of -5,6% in December 2022 and 1,5% in November 2022. Seasonally adjusted electricity generation decreased by 2,8% in the three months ended January 2023 compared with the previous three months.

Figure 1 - Electricity generated in South Africa



### Electricity distributed (consumed) in South Africa: results for January 2023

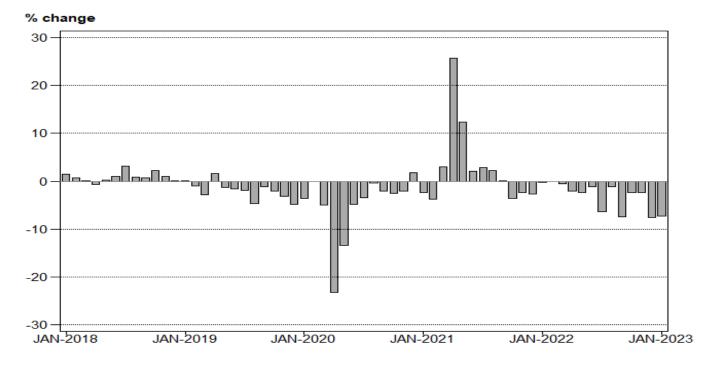
Table B - Key growth rates in the volume of electricity distributed

|                                                    | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | Jan-23 |
|----------------------------------------------------|--------|--------|--------|--------|--------|--------|
| Year-on-year % change, unadjusted                  | -1,2   | -7,5   | -2,3   | -2,4   | -7,6   | -7,3   |
| Month-on-month % change, seasonally adjusted       | 5,6    | -7,8   | 2,9    | 0,6    | -4,2   | 1,4    |
| 3-month % change, seasonally adjusted <sup>1</sup> | -1,1   | -2,5   | -1,2   | -3,4   | -1,8   | -2,7   |

<sup>&</sup>lt;sup>1</sup> Percentage change between the previous 3 months and the 3 months ending in the month indicated.

Electricity distribution (consumption) decreased by 7,3% year-on-year in January 2023. Seasonally adjusted electricity distribution increased by 1,4% month-on-month in January 2023, following month-on-month changes of -4,2% in December 2022 and 0,6% in November 2022. Seasonally adjusted electricity distribution decreased by 2,7% in the three months ended January 2023 compared with the previous three months.

Figure 2 - Electricity distributed in South Africa: year-on-year percentage change



Risenga Maluleke Statistician-General

### **Tables**

Table 1 - Index of the volume of electricity generated (Base: 2019=100)

| Month | 2017  | 2018  | 2019  | 2020  | 2021  | 2022   | 2023 ¹ |
|-------|-------|-------|-------|-------|-------|--------|--------|
| Jan   | 99,2  | 101,5 | 99,5  | 97,1  | 93,9  | 93,0   | 85,6   |
| Feb   | 91,4  | 93,1  | 91,3  | 92,2  | 88,2  | 87,9   |        |
| Mar   | 101,3 | 102,5 | 99,5  | 95,5  | 97,2  | 96,2   |        |
| Apr   | 97,3  | 96,8  | 98,5  | 76,1  | 95,5  | 91,9   |        |
| May   | 106,4 | 105,5 | 104,9 | 91,1  | 102,2 | 97,9   |        |
| Jun   | 103,9 | 104,2 | 104,3 | 98,3  | 101,4 | 97,3   |        |
| Jul   | 105,6 | 107,9 | 107,1 | 102,3 | 105,7 | 97,6   |        |
| Aug   | 105,0 | 104,6 | 102,1 | 99,7  | 101,7 | 99,5   |        |
| Sep   | 100,0 | 99,2  | 98,7  | 95,7  | 95,7  | 87,9   |        |
| Oct   | 103,7 | 104,5 | 102,5 | 99,7  | 96,2  | 92,5   |        |
| Nov   | 101,0 | 100,9 | 98,2  | 95,7  | 92,2  | * 90,5 |        |
| Dec   | 98,8  | 97,1  | 93,3  | 94,3  | 90,8  | 83,3   |        |
| Total | 101,1 | 101,5 | 100,0 | 94,8  | 96,7  | 93,0   |        |

<sup>&</sup>lt;sup>1</sup> Latest month is preliminary.

Table 2 – Year-on-year percentage change in the volume of electricity generated

| Month | 2018 | 2019 | 2020  | 2021 | 2022 | 2023 | 2023<br>year-to-date |
|-------|------|------|-------|------|------|------|----------------------|
| Jan   | 2,3  | -2,0 | -2,4  | -3,3 | -1,0 | -8,0 | -8,0                 |
| Feb   | 1,9  | -1,9 | 1,0   | -4,3 | -0,3 |      |                      |
| Mar   | 1,2  | -2,9 | -4,0  | 1,8  | -1,0 |      |                      |
| Apr   | -0,5 | 1,8  | -22,7 | 25,5 | -3,8 |      |                      |
| May   | -0,8 | -0,6 | -13,2 | 12,2 | -4,2 |      |                      |
| Jun   | 0,3  | 0,1  | -5,8  | 3,2  | -4,0 |      |                      |
| Jul   | 2,2  | -0,7 | -4,5  | 3,3  | -7,7 |      |                      |
| Aug   | -0,4 | -2,4 | -2,4  | 2,0  | -2,2 |      |                      |
| Sep   | -0,8 | -0,5 | -3,0  | 0,0  | -8,2 |      |                      |
| Oct   | 0,8  | -1,9 | -2,7  | -3,5 | -3,8 |      |                      |
| Nov   | -0,1 | -2,7 | -2,5  | -3,7 | -1,8 |      |                      |
| Dec   | -1,7 | -3,9 | 1,1   | -3,7 | -8,3 |      |                      |
| Total | 0,4  | -1,5 | -5,2  | 2,0  | -3,8 |      |                      |

Table 3 – Seasonally adjusted index of the volume of electricity generated

| BA (I) |       | Base: 2 | 019=100 |      |       | Month-on-month % change |      |      |  |
|--------|-------|---------|---------|------|-------|-------------------------|------|------|--|
| Month  | 2020  | 2021    | 2022    | 2023 | 2020  | 2021                    | 2022 | 2023 |  |
| Jan    | 99,1  | 96,2    | 95,7    | 88,2 | 2,1   | -2,2                    | 0,8  | 1,3  |  |
| Feb    | 101,4 | 96,7    | 96,3    |      | 2,3   | 0,5                     | 0,6  |      |  |
| Mar    | 95,8  | 97,4    | 96,2    |      | -5,5  | 0,7                     | -0,1 |      |  |
| Apr    | 78,6  | 98,5    | 94,7    |      | -18,0 | 1,1                     | -1,6 |      |  |
| May    | 87,6  | 98,1    | 94,0    |      | 11,5  | -0,4                    | -0,7 |      |  |
| Jun    | 94,6  | 97,5    | 93,5    |      | 8,0   | -0,6                    | -0,5 |      |  |
| Jul    | 95,3  | 98,4    | 90,8    |      | 0,7   | 0,9                     | -2,9 |      |  |
| Aug    | 96,1  | 97,8    | 95,5    |      | 0,8   | -0,6                    | 5,2  |      |  |
| Sep    | 96,8  | 96,7    | 88,8    |      | 0,7   | -1,1                    | -7,0 |      |  |
| Oct    | 97,5  | 94,3    | 90,9    |      | 0,7   | -2,5                    | 2,4  |      |  |
| Nov    | 97,2  | 93,9    | 92,3    |      | -0,3  | -0,4                    | 1,5  |      |  |
| Dec    | 98,4  | 94,9    | 87,1    |      | 1,2   | 1,1                     | -5,6 |      |  |

<sup>\*</sup> Revised.

Table 4 – Volume of electricity distributed in South Africa (gigawatt-hours)

| Month | 2018    | 2019    | 2020    | 2021    | 2022     | 2023 ¹ |
|-------|---------|---------|---------|---------|----------|--------|
| Jan   | 19 106  | 19 132  | 18 444  | 18 002  | 17 974   | 16 658 |
| Feb   | 17 667  | 17 493  | 17 491  | 16 825  | 16 815   |        |
| Mar   | 19 470  | 18 930  | 17 976  | 18 522  | 18 408   |        |
| Apr   | 18 421  | 18 711  | 14 379  | 18 078  | 17 709   |        |
| May   | 20 207  | 19 943  | 17 254  | 19 371  | 18 897   |        |
| Jun   | 19 926  | 19 609  | 18 664  | 19 049  | 18 838   |        |
| Jul   | 20 626  | 20 224  | 19 533  | 20 082  | 18 814   |        |
| Aug   | 20 053  | 19 105  | 19 038  | 19 459  | 19 220   |        |
| Sep   | 18 839  | 18 605  | 18 216  | 18 230  | 16 857   |        |
| Oct   | 19 785  | 19 367  | 18 883  | 18 203  | * 17 784 |        |
| Nov   | 19 123  | 18 539  | 18 153  | 17 713  | * 17 281 |        |
| Dec   | 18 582  | 17 678  | 17 979  | 17 496  | 16 169   |        |
| Total | 231 805 | 227 336 | 216 010 | 221 030 | 214 766  |        |

<sup>&</sup>lt;sup>1</sup> Latest month is preliminary.

Table 5 - Year-on-year percentage change in electricity distributed in South Africa

| Month | 2019 | 2020  | 2021 | 2022 | 2023 | 2023<br>year-to-date |
|-------|------|-------|------|------|------|----------------------|
| Jan   | 0,1  | -3,6  | -2,4 | -0,2 | -7,3 | -7,3                 |
| Feb   | -1,0 | 0,0   | -3,8 | -0,1 |      |                      |
| Mar   | -2,8 | -5,0  | 3,0  | -0,6 |      |                      |
| Apr   | 1,6  | -23,2 | 25,7 | -2,0 |      |                      |
| May   | -1,3 | -13,5 | 12,3 | -2,4 |      |                      |
| Jun   | -1,6 | -4,8  | 2,1  | -1,1 |      |                      |
| Jul   | -1,9 | -3,4  | 2,8  | -6,3 |      |                      |
| Aug   | -4,7 | -0,4  | 2,2  | -1,2 |      |                      |
| Sep   | -1,2 | -2,1  | 0,1  | -7,5 |      |                      |
| Oct   | -2,1 | -2,5  | -3,6 | -2,3 |      |                      |
| Nov   | -3,1 | -2,1  | -2,4 | -2,4 |      |                      |
| Dec   | -4,9 | 1,7   | -2,7 | -7,6 |      |                      |
| Total | -1,9 | -5,0  | 2,3  | -2,8 |      |                      |

Table 6 – Seasonally adjusted volume of electricity distributed in South Africa

| Manth |        | Gigawa | tt-hours |        | Month-on-month % change |      |      |      |  |
|-------|--------|--------|----------|--------|-------------------------|------|------|------|--|
| Month | 2020   | 2021   | 2022     | 2023   | 2020                    | 2021 | 2022 | 2023 |  |
| Jan   | 18 814 | 18 429 | 18 472   | 17 141 | 2,1                     | -1,9 | 1,0  | 1,4  |  |
| Feb   | 19 139 | 18 367 | 18 334   |        | 1,7                     | -0,3 | -0,7 |      |  |
| Mar   | 17 985 | 18 526 | 18 392   |        | -6,0                    | 0,9  | 0,3  |      |  |
| Apr   | 14 793 | 18 613 | 18 210   |        | -17,7                   | 0,5  | -1,0 |      |  |
| May   | 16 540 | 18 557 | 18 125   |        | 11,8                    | -0,3 | -0,5 |      |  |
| Jun   | 17 964 | 18 282 | 18 086   |        | 8,6                     | -1,5 | -0,2 |      |  |
| Jul   | 18 202 | 18 687 | 17 522   |        | 1,3                     | 2,2  | -3,1 |      |  |
| Aug   | 18 406 | 18 765 | 18 495   |        | 1,1                     | 0,4  | 5,6  |      |  |
| Sep   | 18 456 | 18 456 | 17 058   |        | 0,3                     | -1,6 | -7,8 |      |  |
| Oct   | 18 574 | 17 930 | 17 555   |        | 0,6                     | -2,9 | 2,9  |      |  |
| Nov   | 18 478 | 18 066 | 17 652   |        | -0,5                    | 0,8  | 0,6  |      |  |
| Dec   | 18 780 | 18 284 | 16 905   |        | 1,6                     | 1,2  | -4,2 |      |  |

<sup>\*</sup> Revised.

Table 7 – Volume of electricity by category (gigawatt-hours)

|                                                  | Sep-22 | Oct-22   | Nov-22   | Dec-22 | Jan-23 <sup>1</sup> | Jan-23<br>year-on-<br>year<br>% change |
|--------------------------------------------------|--------|----------|----------|--------|---------------------|----------------------------------------|
| Total - all producers                            |        |          |          |        |                     |                                        |
| Generated                                        | 18 496 | * 19 470 | * 19 053 | 17 524 | 18 024              | -8,0                                   |
| Inflow into South Africa                         | 852    | 884      | 771      | 988    | 1 003               | -8,7                                   |
| Consumed in power stations and auxiliary systems | 1 501  | 1 543    | 1 509    | 1 378  | 1 370               | -9,4                                   |
| Outflow from South Africa                        | 990    | 1 026    | 1 034    | 965    | 999                 | -16,3                                  |
| Distributed in South Africa                      | 16 857 | * 17 784 | * 17 281 | 16 169 | 16 658              | -7,3                                   |
| Eskom                                            |        |          |          |        |                     |                                        |
| Generated                                        | 16 243 | 17 146   | 16 608   | 14 935 | 15 422              | -11,8                                  |
| Inflow into South Africa                         | 852    | 884      | 771      | 988    | 1 003               | -8,7                                   |
| Consumed in power stations and auxiliary systems | 1 395  | 1 440    | 1 407    | 1 282  | 1 274               | -12,0                                  |
| Outflow from South Africa                        | 990    | 1 026    | 1 034    | 965    | 999                 | -16,3                                  |
| Distributed in South Africa                      | 14 711 | 15 563   | 14 938   | 13 675 | 14 152              | -11,2                                  |

<sup>&</sup>lt;sup>1</sup> Preliminary.

Table 8 – Volume of electricity delivered to provinces (gigawatt-hours)

| Province      | Sep-22 | Oct-22   | Nov-22   | Dec-22 | Jan-23 <sup>1</sup> | Jan-23<br>year-on-year<br>% change |
|---------------|--------|----------|----------|--------|---------------------|------------------------------------|
| Western Cape  | 1 489  | 1 545    | 1 530    | 1 392  | 1 448               | -15,0                              |
| Eastern Cape  | 709    | 712      | 696      | 613    | 634                 | -16,5                              |
| Northern Cape | 477    | 517      | 476      | 480    | 514                 | 3,8                                |
| Free State    | 838    | 866      | 825      | 805    | 839                 | -2,4                               |
| KwaZulu-Natal | 3 189  | * 3 269  | * 3 157  | 3 049  | 3 068               | -5,5                               |
| North West    | 1 805  | 1 945    | 1 853    | 1 745  | 1 818               | -2,8                               |
| Gauteng       | 4 232  | 4 378    | 4 310    | 3 741  | 3 890               | -11,3                              |
| Mpumalanga    | 2 244  | 2 525    | 2 401    | 2 449  | 2 536               | -1,4                               |
| Limpopo       | 1 579  | 1 684    | 1 649    | 1 598  | 1 634               | -6,9                               |
| Total         | 16 562 | * 17 442 | * 16 897 | 15 871 | 16 381              | -7,2                               |

<sup>&</sup>lt;sup>1</sup> Preliminary.

<sup>\*</sup> Revised.

<sup>\*</sup> Revised.

#### **Analysis of revisions**

#### Introduction

Preliminary monthly indices for electricity generated and available for distribution are published approximately five weeks after the reference month, e.g. preliminary electricity available for distribution for January are published around the first week of March. The preliminary values are revised the following month, using additional information received from respondents. This and other reasons for revising electricity generated and available for distribution values from time to time are shown in the following revisions schedule.

#### Revisions schedule for electricity generated and available for distribution

| Reason for revision                     | Schedule                                             |
|-----------------------------------------|------------------------------------------------------|
| Additional information from respondents | Monthly (revision of the previous months)            |
| New base year                           | Periodic, approximately four- to five-year intervals |

Note that seasonally adjusted values are revised monthly.

#### **Analysis**

Revisions may be analysed in terms of several dimensions, namely production indices and/or volumes, growth rates (e.g. month-on-month percentage changes, year-on-year percentage changes); seasonally adjusted and/or unadjusted data; totals and/or components; preliminary estimate compared with first revision and/or latest available revision; and various combinations of these options.

This analysis is confined to the following:

- Total electricity available for distribution in gigawatt-hours, year-on-year growth rate, unadjusted.
- Preliminary growth rates are compared with the latest available revised growth rates, where the preliminary growth rate refers to the first year-on-year growth rate published for the month in question.
- Time period: January 2012 to December 2022.

Figure 3 shows the preliminary and revised growth rates (line chart, left vertical axis) and the difference between them (bar chart, right vertical axis, where difference = revised - preliminary).

Table 9 provides key results relating to revisions.

Figure 3 - Electricity available for distribution year-on-year growth rates: preliminary and revised

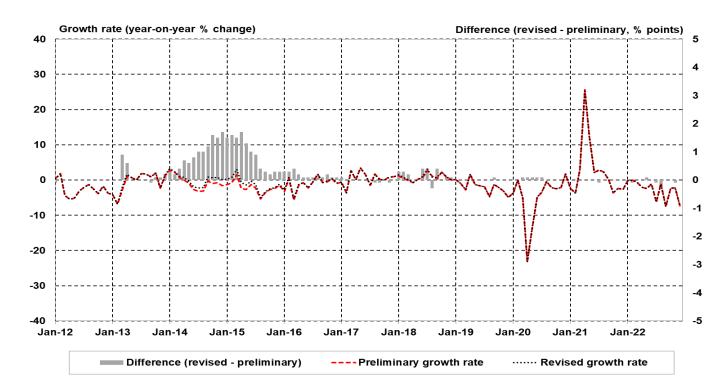


Table 9 - Electricity available for distribution: preliminary and revised

| Description                                            | Value / outcome                         | Comment                                                                                                                                                                                                                      |  |
|--------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Average year-on-year growth rate over the whole period | Preliminary: -1,16%<br>Revised: -0,95%  | The average of revised growth rates is higher than the average of preliminary growth rates                                                                                                                                   |  |
| Mean revision                                          | 0,21 of a percentage point              | This is the average of the revisions                                                                                                                                                                                         |  |
| Mean absolute revision                                 | 0,23 of a percentage point              | Average of the revisions, but based on the absolute value of each revision (positives and negatives do not cancel each other)                                                                                                |  |
| Largest upward revision                                | 1,7 percentage points                   | Preliminary -1,6% was revised up to 0,1% (December 2014)  Preliminary -2,4% was revised up to -0,7% (April 2015)                                                                                                             |  |
| Largest downward revision                              | -0,3 of a percentage point              | Preliminary 1,2% was revised down to 0,9% (August 2018)                                                                                                                                                                      |  |
| Range for all revisions                                | -0,3 to 1,7 percentage points           |                                                                                                                                                                                                                              |  |
| Range within which 90% of the revisions lie            | -0,1 to 1,5 percentage points           | This may be regarded as the normal range for revisions, with revisions outside this range being outliers; however, for the more recent period 2017–2022, 90% of the revisions lay between -0,1 and 0,3 of a percentage point |  |
| Number of upward revisions                             | 57 (or 43,2% of the total observations) |                                                                                                                                                                                                                              |  |

| Description                                                                                   | Value / outcome                         | Comment                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of downward revisions                                                                  | 11 (or 8,3% of the total observations)  |                                                                                                                                                                  |
| Number of zero revisions                                                                      | 64 (or 48,5% of the total observations) |                                                                                                                                                                  |
| Is the mean revision (0,21) significantly different from zero?                                | Yes                                     | This indicates that there is a bias in the preliminary estimate; see Note 1 below                                                                                |
| Standard deviation of the revisions                                                           | 0,43 of a percentage point              | Standard deviation is a measure of dispersion about the mean – see the row below                                                                                 |
| Standard deviation of the revisions, based on 2017–2022                                       | 0,22 of a percentage point              |                                                                                                                                                                  |
| Percentage of revisions that lie within one standard deviation of the mean based on 2017–2022 | 90,3%                                   | This is the percentage of revisions that lie between -0,19 and 0,24 of a percentage point; the higher the percentage, the lower is the dispersion about the mean |

Note 1: Is the mean revision significantly different from zero?

The formula for the test statistic is as follows:

$$test \; statistic = \frac{\bar{R}}{\sqrt{\left(\frac{1}{n(n-1)}\right)\left(\sum_{t=1}^{n} \hat{\varepsilon}_{t}^{2} + \frac{3}{4}\sum_{t=2}^{n} \hat{\varepsilon}_{t} \; \hat{\varepsilon}_{t-1} + \frac{2}{3}\sum_{t=3}^{n} \hat{\varepsilon}_{t} \; \hat{\varepsilon}_{t-2}\right)}}$$

where

n = number of observations

 $\bar{R} = mean \ revision$ 

$$\hat{\varepsilon}_t = R_t - \bar{R}, with \ R_t = revision \ in \ period \ t$$

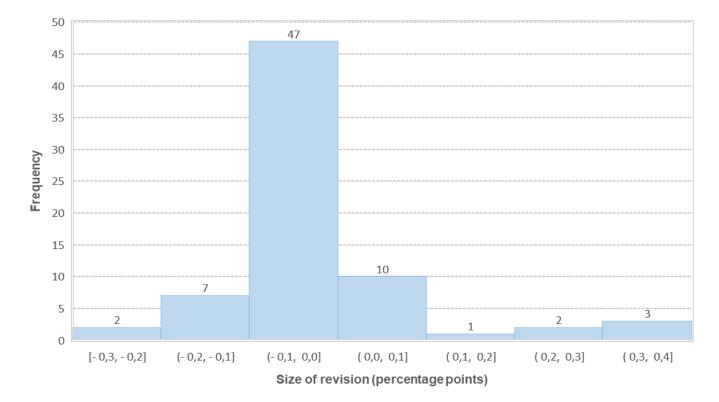
Note that if the test statistic shows that the mean revision (MR) is significantly different from zero, then there is bias in the preliminary estimates. Bias in a series suggests there is scope to enhance the compilation of that series in an attempt to remove or minimise the bias. MR > 0 (statistically significant) implies under-estimation of the preliminary estimates. MR < 0 (statistically significant) implies overestimation of the preliminary estimates.

From 2012 to 2022 the test statistic is 3,77, which lies above the critical value of 1,98, indicating that the MR is significantly different from zero at a 5% significance level. Accordingly, there is under-estimation of the annual growth rates detected in the preliminary estimates. However, this finding is heavily influenced by a change in coverage which had a substantial impact on revised growth rates in 2014 and 2015.

For the period from 2017 to date the test statistic is 0,68, which lies below the critical value of 1,99, indicating that the MR (0,03 for this more recent period) is not significantly different from zero at a 5% significance level (no bias detected for this period).

Figure 4 shows the revisions in terms of a histogram for the period 2017–2022. There were 47 revisions between -0,1 and 0,0 (-0,1 < revision  $\leq$  0,0) and 10 revisions between 0,0 and 0,1 (0,0 < revision  $\leq$  0,1). 79,2% of revisions lay between -0,1 and 0,1 of a percentage point.

Figure 4 – Electricity available for distribution year-on-year growth rates: histogram of revisions (2017–2022)



#### **Survey information**

#### Introduction

- Statistics South Africa (Stats SA) conducts a monthly survey covering electricity undertakings and establishments (branches) in the electricity industry. This statistical release contains monthly information regarding the volume of electricity units:
  - generated and distributed in South Africa;
  - flowing into and out from South Africa as measured by the metering systems at the South African borders; and
  - delivered to provinces.

Both unadjusted and seasonally adjusted figures are published.

- In accordance with international practice, the indices are usually re-based every five years to a new base year. The current base period of the index is 2019.
- 3 Some information for the current month may have been estimated due to late submission by respondents. These estimates will be revised in the next statistical release(s) as soon as actual information is available.

#### Purpose of the survey

The results of the monthly electricity survey are used to compile estimates of the gross domestic product (GDP) and its components, which are used in monitoring the state of the economy and formulation of economic policy.

#### Scope of the survey

This survey covers electricity undertakings and establishments conducting activities concerned with the generation and/or distribution of electricity (excluding the distribution of purchased electric energy). It includes electrical power installations, which, as subsidiary divisions of undertakings, produce electricity for regular use by these undertakings.

#### Classification

The 1993 edition of the Standard Industrial Classification of All Economic Activities (SIC), Fifth Edition, Report No. 09-90-02, was used to classify the statistical units in the survey. The SIC is based on the 1990 International Standard Industrial Classification of All Economic Activities (ISIC) with suitable adaptations for local conditions. Each statistical unit is classified to an industry which reflects the predominant activity of the electricity undertaking or establishment.

### Collection rate

7 The collection rate for the survey on electricity generated and available for distribution for January 2023 was 100%. The improved collection rate for December 2022 was 92%.

#### Statistical unit

The statistical unit for the collection of information is the electricity undertaking or establishment. The electricity undertaking or establishment is the smallest economic unit that functions as a separate entity (see point 5).

### **Revised figures**

- **9** Normally revised figures are due to:
  - late submission of data to Stats SA; and
  - revisions or corrections by respondents to previous reported data.

Data are edited at enterprise level.

## Rounding-off of figures

Where figures have been rounded off, discrepancies may occur between sums of the component items and the totals.

#### **Historical data**

Historical electricity data are available on the Stats SA webpage. Click on the following link (Time series data) to access the data electronically.

#### Past publications

Past electricity releases are available on the Stats SA webpage. Click on the following link (Past publications) to access the releases electronically.

#### **Technical notes**

## Survey methodology and design

1

- All statistical units are stratified by type of economic activity according to the Standard Industrial Classification of All Economic Activities (SIC) and measure of size, where measure of size is the volume of electricity generated by the electricity undertaking or establishment. All large undertakings or establishments (size group one) are completely enumerated. A sample is drawn from medium and small size undertakings and establishments by systematically selecting undertakings or establishments within each size category. An electricity undertaking or establishment with a total generating capacity of less than 500 kilowatts is excluded from the sample.
- The survey is conducted by email and telephone. Information is collected from a sample of 24 electricity undertakings or establishments. As from September 2013, Eskom supplied additional data for independent power producers (IPPs) that were not in the original sample of 24 establishments.

## Monthly index of electricity generated

The calculation of the monthly index of electricity generated is based on the volume of electricity units produced.

#### **Benchmarking**

The index of the volume of electricity generated should provide an accurate reflection of the trend of activities of the relevant industry. The level of activities, as measured by the monthly electricity survey, is based on information received from a sample of electricity undertakings and establishments. These levels are weighted according to the original sample and designed to represent the population of electricity undertakings and establishments.

The results of the 1995 Census of electricity, gas and steam served as a benchmark to verify or adjust the level of the monthly index of the volume of electricity generated collected through the monthly survey. The level adjustments were done on the volume index for July of the relevant census year (the 1995 census year covered the period 1 January to 31 December 1995 and therefore, the benchmarking was done using the index of July 1995 as reference point).

#### Seasonal adjustment

Seasonally adjusted estimates are generated each month using the X-12 Seasonal Adjustment Program developed by the United States Census Bureau. Seasonal adjustment is a means of removing the estimated effects of normal seasonal variation from the series so that the effects of other influences on the series can be more clearly recognized. Seasonal adjustment does not aim to remove irregular or non-seasonal influences, which may be present in any particular month. Influences that are volatile or unsystematic can still make it difficult to interpret the movement of the series even after adjustment for seasonal variations. This means the month-to-month movements of seasonally adjusted estimates may not be reliable indicators of trend behaviour. The X12-ARIMA procedure for electricity generated and available for distribution is described in more detail on the Stats SA website:

Click to download Electricity seasonal adjustment February 2022

#### **Trend cycle**

The trend is the long-term pattern or movement of a time series. The X-12-ARIMA Seasonal Adjustment Program is used for smoothing seasonally adjusted estimates to estimate the underlying trend cycle.

## Month-on-month percentage change

7 The month-on-month percentage change in a variable for any given month is the change between that month and the previous month, expressed as a percentage of the latter.

## Year-on-year percentage change

The year-on-year percentage change in a variable for any given period is the change between that period and the corresponding period of the previous year, expressed as a percentage of the latter.

#### **Glossary**

**Electricity undertaking** 

An undertaking concerned with the generation and distribution of electricity, including electrical power installations, which, as subsidiary divisions of undertakings, produce electricity for regular use by these undertakings.

Index of the volume of electricity generated

A statistical measure of the change in the volume of electricity generated in a given period and the volume of electricity generated in the base period. The base period is 2019. The production in the base period is set at 100.

Industry

An industry is made up of enterprises engaged in the same or similar kinds of economic activity. Industries are defined in the System of National Accounts (SNA) in the same way as in the *Standard Industrial Classification of All Economic Activities* (SIC), Fifth Edition, Report No. 09-90-02 of January 1993.

Inflow into SA

Electricity flowing into South Africa as measured by the metering systems at the South African borders.

**Outflow from SA** 

Electricity flowing from South Africa as measured by the metering systems at the South African borders.

Unit of electricity

One gigawatt-hour of electricity is equal to one million kilowatt-hours. A kilowatt-hour is the basic unit of electrical energy equal to one kilowatt of power supplied to or taken from an electric circuit steadily for one hour. One kilowatt-hour equals one thousand watt-hours.

Symbols and abbreviations

GDP Gross domestic product

GWh Gigawatt-hour

ISIC International Standard Industrial Classification

SIC Standard Industrial Classification of All Economic Activities

SA South Africa

Stats SA Statistics South Africa
\* Revised figures

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#### **General information**

Stats SA publishes approximately 300 different statistical releases each year. It is not economically viable to produce them in more than one of South Africa's eleven official languages. Since the releases are used extensively, not only locally but also by international economic and social-scientific communities, Stats SA releases are published in English only.

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#### **Electronic services**

A large range of data is available via online services. For more details about our electronic data services, contact Stats SA's user information service.

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