



# Energy Cost Monitoring (ECM)

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## 1 Recent Estimates

### 1.1 Growth Rates

|  | Quarter-over-quarter growth rate |        |        | Monthly index |              |                 |
|--|----------------------------------|--------|--------|---------------|--------------|-----------------|
|  | 2022Q1                           | 2022Q2 | 2022Q3 | July, 2022    | August, 2022 | September, 2022 |
| a. RUEC (Real Unit Energy Cost) (=b-c=e-d) | 10.9%                            | 2.3%   | 6.3%   | 1.0%          | 1.6%         | 1.6%            |
| b. Real Energy Price (=b1-b2)              | 8.2%                             | 7.1%   | 6.9%   | 2.9%          | 1.3%         | 2.9%            |
| b1. Energy Price                           | 8.6%                             | 6.9%   | 7.2%   | 2.7%          | 1.9%         | 2.8%            |
| b2. GDP Price                              | 0.4%                             | -0.2%  | 0.3%   | -0.1%         | 0.6%         | -0.1%           |
| c. Energy Productivity (=c1-c2)            | -2.7%                            | 4.8%   | 0.5%   | 1.9%          | -0.2%        | 1.3%            |
| c1. Real GDP                               | 0.1%                             | 0.9%   | 0.9%   | 0.0%          | 0.9%         | -0.1%           |
| c2. Energy Consumption                     | 2.8%                             | -3.9%  | 0.4%   | -1.9%         | 1.1%         | -1.4%           |
| d. Nominal GDP (=b2+c1)                    | 0.4%                             | 0.6%   | 1.2%   | -0.1%         | 1.4%         | -0.2%           |
| e. Energy Cost (=b1+c2)                    | 11.3%                            | 3.0%   | 7.5%   | 0.9%          | 3.0%         | 1.4%            |

Unit: %. Note: Growth rates are defined as log differences. Notes: The most recent month is the forecasts, the previous month is the preliminary estimates, and the last two months or earlier are the final estimates. The aggregate volume indices of real GDP and energy consumption are measured using the Chained-Laspeyres index, based on the prices and volumes measured at 32 industries and 21 types of energy, respectively. The aggregate price indices of real GDP and energy consumption are defined implicitly.

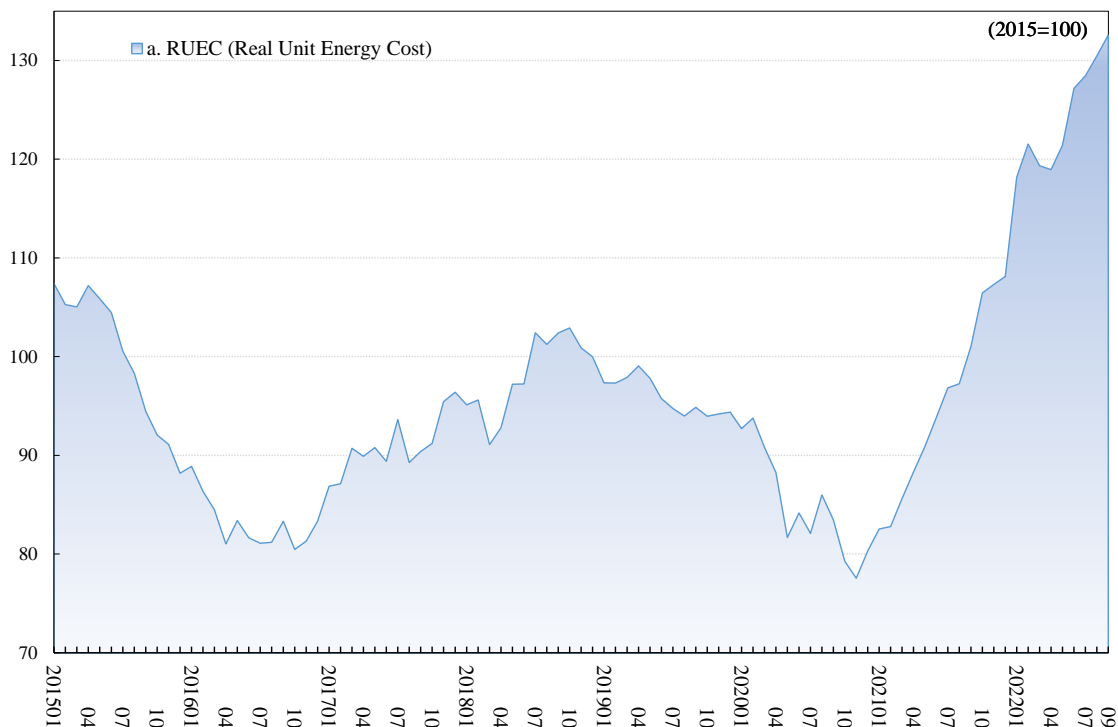
### 1.2 Indices

|  | Quarterly index |        |        | Monthly index |              |                 |
|--|-----------------|--------|--------|---------------|--------------|-----------------|
|  | 2022Q1          | 2022Q2 | 2022Q3 | July, 2022    | August, 2022 | September, 2022 |
| a. RUEC (Real Unit Energy Cost) (=b/c=e/d) | 119.7           | 122.5  | 130.5  | 128.5         | 130.5        | 132.6           |
| b. Real Energy Price (=b1/b2)              | 123.3           | 132.4  | 141.7  | 139.1         | 141.0        | 145.1           |
| b1. Energy Price                           | 124.4           | 133.2  | 143.1  | 140.0         | 142.7        | 146.7           |
| b2. GDP Price                              | 100.9           | 100.6  | 100.9  | 100.6         | 101.2        | 101.1           |
| c. Energy Productivity (=c1/c2)            | 102.9           | 107.9  | 108.5  | 108.2         | 108.0        | 109.4           |
| c1. Real GDP                               | 100.2           | 101.1  | 102.0  | 101.5         | 102.3        | 102.2           |
| c2. Energy Consumption                     | 97.4            | 93.7   | 94.0   | 93.7          | 94.8         | 93.4            |
| d. Nominal GDP (=b2*c1)                    | 101.1           | 101.8  | 103.0  | 102.1         | 103.5        | 103.3           |
| e. Energy Cost (=b1*c2)                    | 121.1           | 124.7  | 134.4  | 131.1         | 135.1        | 137.0           |

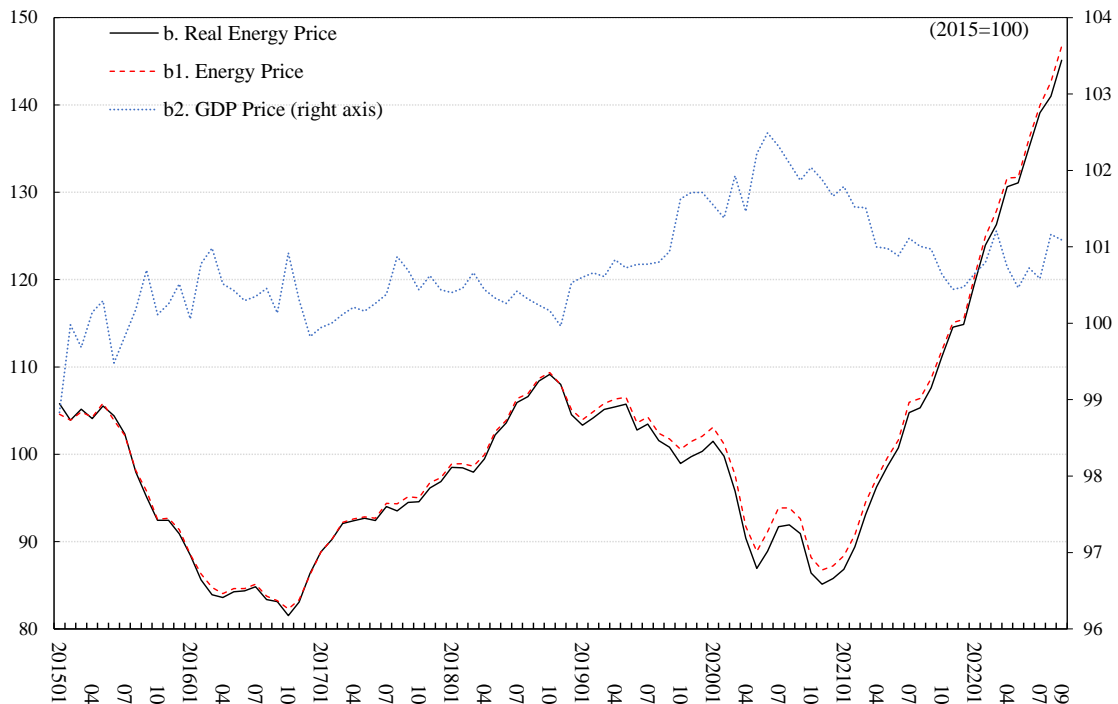
Unit: 2015 average=100.

2 Time-series Estimates

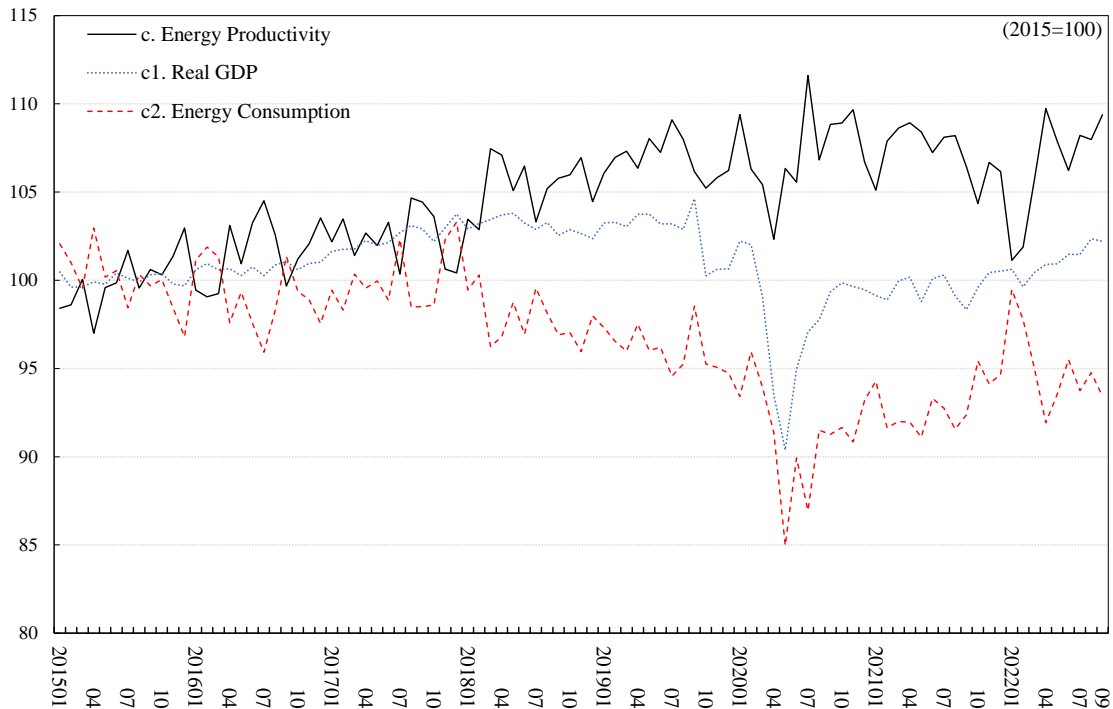
2.1 Monthly RUEC (Real Unit Energy Cost)



2.2 Monthly Real Energy Price

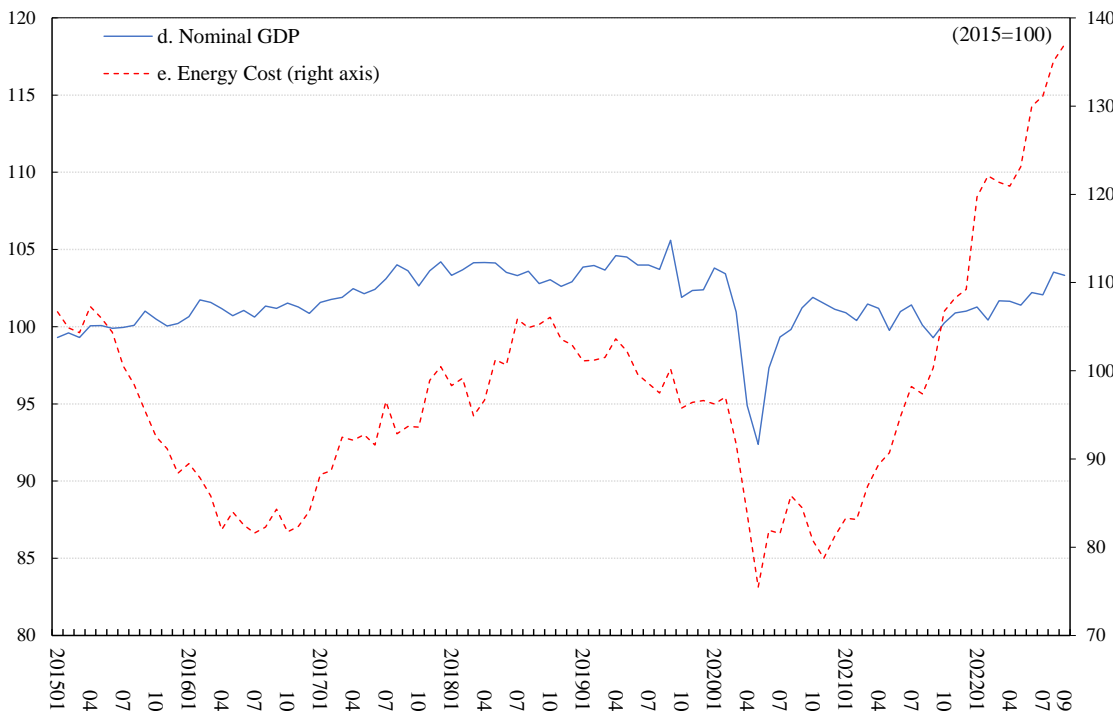


### 2.3 Monthly Real GDP and Energy Productivity



Unit: 2015 average=100. Note: Observation period is from January 2015 to September 2022.

### 2.4 Monthly Nominal GDP and Energy Cost



Unit: 2015 average=100. Note: Observation period is from January 2015 to September 2022.

## 3 Time-series Data

|         | a. RUEC (Real Unit Energy Cost) |                  |               |                        |              |                        |       | d. Nominal GDP | e. Energy Cost |
|---------|---------------------------------|------------------|---------------|------------------------|--------------|------------------------|-------|----------------|----------------|
|         | b. Real Energy Price            |                  |               | c. Energy Productivity |              |                        |       |                |                |
|         |                                 | b1. Energy Price | b2. GDP Price |                        | cl. Real GDP | c2. Energy Consumption |       |                |                |
| 2015    | 100.0 (.073)                    | 100.0            | 100.0         | 100.0                  | 100.0        | 100.0                  | 100.0 | 100.0          | 100.0          |
| 2016    | 83.1 (.060)                     | 84.3             | 84.7          | 100.4                  | 101.5        | 100.7                  | 99.2  | 101.1          | 84.0           |
| 2017    | 91.0 (.060)                     | 93.2             | 93.5          | 100.3                  | 102.4        | 102.4                  | 100.0 | 102.8          | 93.5           |
| 2018    | 98.2 (.071)                     | 103.5            | 103.9         | 100.3                  | 105.4        | 103.1                  | 97.8  | 103.4          | 101.6          |
| 2019    | 96.0 (.070)                     | 102.6            | 103.6         | 101.0                  | 106.9        | 102.7                  | 96.1  | 103.7          | 99.5           |
| 2020    | 85.1 (.062)                     | 91.3             | 93.1          | 101.9                  | 107.3        | 97.9                   | 91.2  | 99.8           | 84.9           |
| 2021    | 95.1 (.069)                     | 101.9            | 103.0         | 101.0                  | 107.2        | 99.6                   | 92.9  | 100.6          | 95.7           |
| 2020 Q1 | 92.4 (.067)                     | 99.0             | 100.6         | 101.6                  | 107.0        | 101.1                  | 94.4  | 102.7          | 95.0           |
| Q2      | 84.7 (.062)                     | 88.8             | 90.7          | 102.1                  | 104.7        | 92.9                   | 88.7  | 94.9           | 80.4           |
| Q3      | 83.9 (.061)                     | 91.5             | 93.5          | 102.1                  | 109.1        | 98.1                   | 89.9  | 100.1          | 84.0           |
| Q4      | 79.0 (.057)                     | 85.8             | 87.4          | 101.9                  | 108.4        | 99.7                   | 91.9  | 101.5          | 80.3           |
| 2021 Q1 | 83.7 (.061)                     | 89.7             | 91.2          | 101.6                  | 107.2        | 99.3                   | 92.6  | 100.9          | 84.4           |
| Q2      | 91.0 (.060)                     | 98.5             | 99.5          | 101.0                  | 108.2        | 99.7                   | 92.1  | 100.6          | 91.6           |
| Q3      | 98.4 (.072)                     | 105.9            | 107.0         | 101.0                  | 107.6        | 99.2                   | 92.2  | 100.3          | 98.6           |
| Q4      | 107.3 (.078)                    | 113.5            | 114.1         | 100.5                  | 105.7        | 100.2                  | 94.7  | 100.7          | 108.1          |
| 2022 Q1 | 119.7 (.087)                    | 123.3            | 124.4         | 100.9                  | 102.9        | 100.2                  | 97.4  | 101.1          | 121.1          |
| Q2      | 122.5 (.089)                    | 132.4            | 133.2         | 100.6                  | 107.9        | 101.1                  | 93.7  | 101.8          | 124.7          |
| Q3      | 130.5 (.095)                    | 141.7            | 143.1         | 100.9                  | 108.5        | 102.0                  | 94.0  | 103.0          | 134.4          |
| 2018 01 | 95.1 (.069)                     | 98.5             | 98.9          | 100.4                  | 103.5        | 102.9                  | 99.5  | 103.3          | 98.3           |
| 02      | 95.6 (.070)                     | 98.4             | 98.9          | 100.5                  | 102.9        | 103.2                  | 100.3 | 103.7          | 99.2           |
| 03      | 91.1 (.066)                     | 98.0             | 98.6          | 100.7                  | 107.5        | 103.5                  | 96.3  | 104.1          | 94.9           |
| 04      | 92.8 (.067)                     | 99.5             | 99.9          | 100.4                  | 107.1        | 103.7                  | 96.8  | 104.2          | 96.7           |
| 05      | 97.2 (.071)                     | 102.2            | 102.6         | 100.3                  | 105.1        | 103.8                  | 98.7  | 104.1          | 101.2          |
| 06      | 97.2 (.071)                     | 103.6            | 103.9         | 100.3                  | 106.5        | 103.2                  | 96.9  | 103.5          | 100.7          |
| 07      | 102.4 (.074)                    | 105.9            | 106.4         | 100.4                  | 103.3        | 102.9                  | 99.6  | 103.3          | 105.8          |
| 08      | 101.2 (.074)                    | 106.6            | 106.9         | 100.3                  | 105.2        | 103.3                  | 98.1  | 103.6          | 104.9          |
| 09      | 102.4 (.074)                    | 108.4            | 108.7         | 100.2                  | 105.8        | 102.5                  | 96.9  | 102.8          | 105.3          |
| 10      | 102.9 (.075)                    | 109.1            | 109.3         | 100.2                  | 106.0        | 102.9                  | 97.0  | 103.0          | 106.1          |
| 11      | 100.9 (.073)                    | 108.0            | 108.0         | 100.0                  | 107.0        | 102.7                  | 96.0  | 102.6          | 103.6          |
| 12      | 100.0 (.073)                    | 104.5            | 105.1         | 100.5                  | 104.5        | 102.4                  | 98.0  | 102.9          | 102.9          |
| 2019 01 | 97.3 (.071)                     | 103.3            | 104.0         | 100.6                  | 106.1        | 103.2                  | 97.3  | 103.9          | 101.1          |
| 02      | 97.3 (.071)                     | 104.2            | 104.9         | 100.7                  | 107.0        | 103.3                  | 96.5  | 104.0          | 101.2          |
| 03      | 97.9 (.071)                     | 105.1            | 105.8         | 100.6                  | 107.3        | 103.0                  | 96.0  | 103.7          | 101.5          |
| 04      | 99.1 (.072)                     | 105.4            | 106.3         | 100.8                  | 106.3        | 103.7                  | 97.5  | 104.6          | 103.6          |
| 05      | 97.8 (.071)                     | 105.8            | 106.5         | 100.7                  | 108.0        | 103.8                  | 96.0  | 104.5          | 102.2          |
| 06      | 95.8 (.070)                     | 102.8            | 103.6         | 100.8                  | 107.2        | 103.2                  | 96.2  | 104.0          | 99.6           |
| 07      | 94.7 (.069)                     | 103.4            | 104.3         | 100.8                  | 109.1        | 103.2                  | 94.6  | 104.0          | 98.5           |
| 08      | 94.0 (.068)                     | 101.6            | 102.4         | 100.8                  | 108.0        | 102.9                  | 95.3  | 103.7          | 97.5           |
| 09      | 94.9 (.069)                     | 100.8            | 101.8         | 100.9                  | 106.2        | 104.6                  | 98.5  | 105.6          | 100.2          |
| 10      | 94.0 (.068)                     | 98.9             | 100.6         | 101.6                  | 105.2        | 100.3                  | 95.3  | 101.9          | 95.8           |
| 11      | 94.2 (.068)                     | 99.7             | 101.5         | 101.7                  | 105.8        | 100.6                  | 95.1  | 102.3          | 96.4           |
| 12      | 94.4 (.069)                     | 100.3            | 102.1         | 101.7                  | 106.2        | 100.7                  | 94.7  | 102.4          | 96.6           |
| 2020 01 | 92.7 (.067)                     | 101.5            | 103.1         | 101.5                  | 109.4        | 102.2                  | 93.4  | 103.8          | 96.2           |
| 02      | 93.8 (.068)                     | 99.8             | 101.2         | 101.4                  | 106.3        | 102.0                  | 95.9  | 103.4          | 97.0           |
| 03      | 90.8 (.066)                     | 95.8             | 97.7          | 101.9                  | 105.4        | 99.0                   | 93.9  | 100.9          | 91.7           |
| 04      | 88.3 (.064)                     | 90.4             | 91.7          | 101.5                  | 102.3        | 93.5                   | 91.4  | 94.9           | 83.8           |
| 05      | 81.7 (.059)                     | 86.9             | 88.9          | 102.2                  | 106.3        | 90.4                   | 85.0  | 92.4           | 75.5           |
| 06      | 84.1 (.061)                     | 88.9             | 91.1          | 102.5                  | 105.6        | 95.0                   | 89.9  | 97.3           | 81.9           |
| 07      | 82.1 (.060)                     | 91.7             | 93.8          | 102.3                  | 111.6        | 97.1                   | 87.0  | 99.3           | 81.6           |
| 08      | 86.0 (.063)                     | 91.9             | 93.9          | 102.1                  | 106.8        | 97.8                   | 91.5  | 99.8           | 85.8           |
| 09      | 83.5 (.061)                     | 90.9             | 92.6          | 101.9                  | 108.8        | 99.4                   | 91.3  | 101.2          | 84.5           |
| 10      | 79.3 (.058)                     | 86.4             | 88.2          | 102.0                  | 108.9        | 99.9                   | 91.7  | 101.9          | 80.8           |
| 11      | 77.6 (.056)                     | 85.1             | 86.7          | 101.9                  | 109.7        | 99.6                   | 90.8  | 101.5          | 78.8           |
| 12      | 80.3 (.058)                     | 85.8             | 87.2          | 101.7                  | 106.7        | 99.5                   | 93.2  | 101.1          | 81.2           |
| 2021 01 | 82.5 (.060)                     | 86.8             | 88.4          | 101.8                  | 105.1        | 99.1                   | 94.3  | 100.9          | 83.3           |
| 02      | 82.8 (.060)                     | 89.4             | 90.8          | 101.5                  | 107.9        | 98.9                   | 91.6  | 100.4          | 83.1           |
| 03      | 85.6 (.062)                     | 93.1             | 94.5          | 101.5                  | 108.6        | 100.0                  | 92.0  | 101.5          | 86.9           |
| 04      | 88.3 (.064)                     | 96.3             | 97.2          | 101.0                  | 108.9        | 100.2                  | 92.0  | 101.2          | 89.4           |
| 05      | 90.9 (.066)                     | 98.6             | 99.6          | 101.0                  | 108.4        | 98.8                   | 91.1  | 99.8           | 90.7           |
| 06      | 93.8 (.068)                     | 100.7            | 101.6         | 100.9                  | 107.2        | 100.1                  | 93.3  | 101.0          | 94.8           |
| 07      | 96.8 (.070)                     | 104.8            | 105.9         | 101.1                  | 108.1        | 100.3                  | 92.8  | 101.4          | 98.2           |
| 08      | 97.3 (.071)                     | 105.3            | 106.4         | 101.0                  | 108.2        | 99.1                   | 91.6  | 100.1          | 97.4           |
| 09      | 101.0 (.073)                    | 107.6            | 108.7         | 101.0                  | 106.4        | 98.3                   | 92.4  | 99.3           | 100.3          |
| 10      | 106.5 (.077)                    | 111.2            | 111.9         | 100.6                  | 104.3        | 99.6                   | 95.4  | 100.2          | 106.7          |
| 11      | 107.3 (.078)                    | 114.6            | 115.1         | 100.4                  | 106.7        | 100.4                  | 94.1  | 100.9          | 108.3          |
| 12      | 108.1 (.079)                    | 114.9            | 115.4         | 100.5                  | 106.2        | 100.5                  | 94.7  | 101.0          | 109.2          |
| 2022 01 | 118.2 (.086)                    | 119.6            | 120.4         | 100.7                  | 101.1        | 100.6                  | 99.5  | 101.3          | 119.7          |
| 02      | 121.5 (.088)                    | 123.9            | 124.9         | 100.8                  | 101.9        | 99.6                   | 97.8  | 100.4          | 122.1          |
| 03      | 119.3 (.087)                    | 126.3            | 127.9         | 101.2                  | 105.8        | 100.5                  | 95.0  | 101.7          | 121.4          |
| 04      | 119.0 (.086)                    | 130.6            | 131.6         | 100.7                  | 109.7        | 100.9                  | 91.9  | 101.6          | 120.9          |
| 05      | 121.4 (.088)                    | 131.1            | 131.7         | 100.5                  | 107.9        | 100.9                  | 93.5  | 101.4          | 123.1          |
| 06      | 127.2 (.092)                    | 135.2            | 136.2         | 100.7                  | 106.2        | 101.5                  | 95.5  | 102.2          | 130.0          |
| 07      | 128.5 (.093)                    | 139.1            | 140.0         | 100.6                  | 108.2        | 101.5                  | 93.8  | 102.1          | 131.1          |
| 08      | 130.5 (.095)                    | 141.0            | 142.7         | 101.2                  | 108.0        | 102.3                  | 94.8  | 103.5          | 135.1          |
| 09      | 132.6 (.096)                    | 145.1            | 146.7         | 101.1                  | 109.4        | 102.2                  | 93.4  | 103.3          | 137.0          |

Unit: 2015 average=100. Note: The numbers in parentheses are the ratio of final energy consumption cost to GDP at current prices.