



# Energy Cost Monitoring (ECM)

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(This report was prepared by Koji Nomura, Sho Inaba, and Mansaku Yoshida.)

## 1 Recent Estimates

### 1.1 Growth Rates

	Quarter-over-quarter growth rate			Month-over-month growth rate		
	2021Q4	2022Q1	2022Q2	May, 2022	June, 2022	July, 2022
a. RUEC (Real Unit Energy Cost) (=b-c=e-d)	8.6%	11.2%	3.0%	2.1%	5.0%	0.9%
b. Real Energy Price (=b1-b2)	6.9%	8.3%	7.9%	0.4%	3.6%	2.4%
b1. Energy Price	6.3%	8.6%	7.0%	0.1%	3.1%	2.6%
b2. GDP Price	-0.6%	0.3%	-0.8%	-0.3%	-0.5%	0.2%
c. Energy Productivity (=c1-c2)	-1.7%	-2.9%	4.9%	-1.7%	-1.4%	1.5%
c1. Real GDP	1.0%	-0.1%	0.9%	0.0%	0.5%	0.5%
c2. Energy Consumption	2.7%	2.8%	-4.0%	1.7%	1.9%	-1.0%
d. Nominal GDP (=b2+c1)	0.3%	0.2%	0.1%	-0.3%	0.0%	0.7%
e. Energy Cost (=b1+c2)	9.0%	11.3%	3.0%	1.8%	5.0%	1.6%

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.

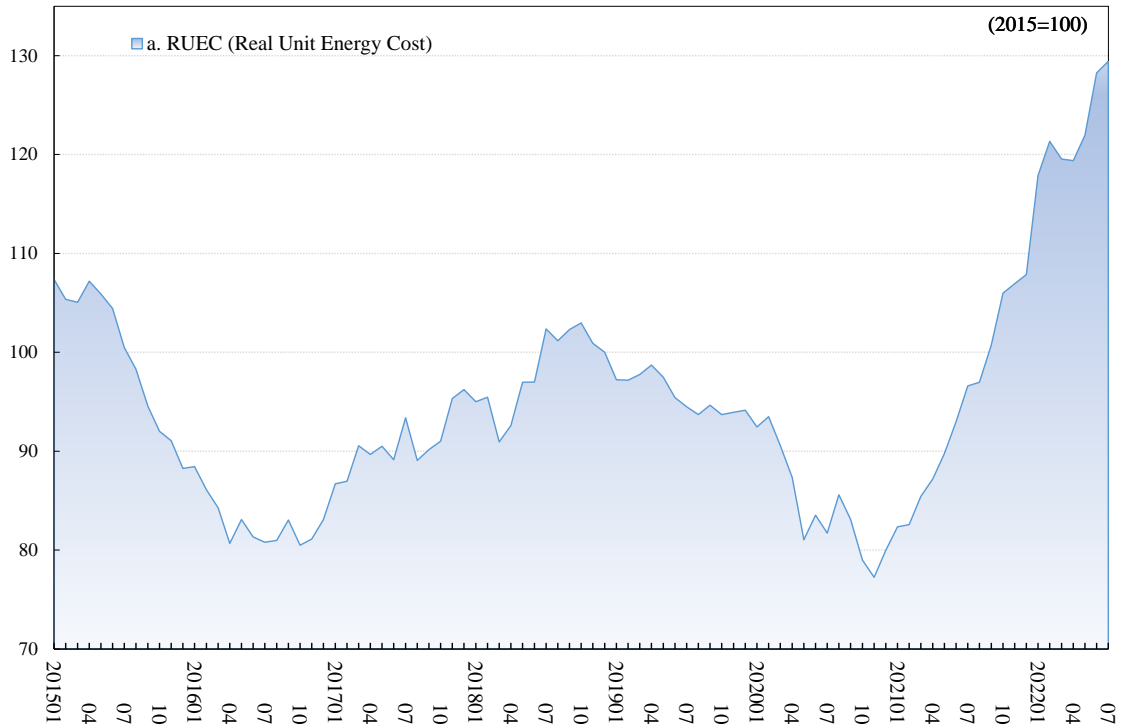
### 1.2 Indices

	Quarterly index			Monthly index		
	2021Q4	2022Q1	2022Q2	May, 2022	June, 2022	July, 2022
a. RUEC (Real Unit Energy Cost) (=b/c=e/d)	106.9	119.6	123.2	122.0	128.3	129.4
b. Real Energy Price (=b1/b2)	113.2	123.0	133.1	131.6	136.5	139.8
b1. Energy Price	113.6	123.8	132.8	131.4	135.6	139.1
b2. GDP Price	100.3	100.6	99.8	99.8	99.3	99.5
c. Energy Productivity (=c1/c2)	105.8	102.8	108.0	107.8	106.3	107.9
c1. Real GDP	100.3	100.1	101.0	100.9	101.4	101.9
c2. Energy Consumption	94.7	97.4	93.6	93.5	95.3	94.4
d. Nominal GDP (=b2*c1)	100.6	100.7	100.8	100.7	100.7	101.4
e. Energy Cost (=b1*c2)	107.6	120.5	124.2	122.8	129.1	131.2

Unit: 2015 average=100.

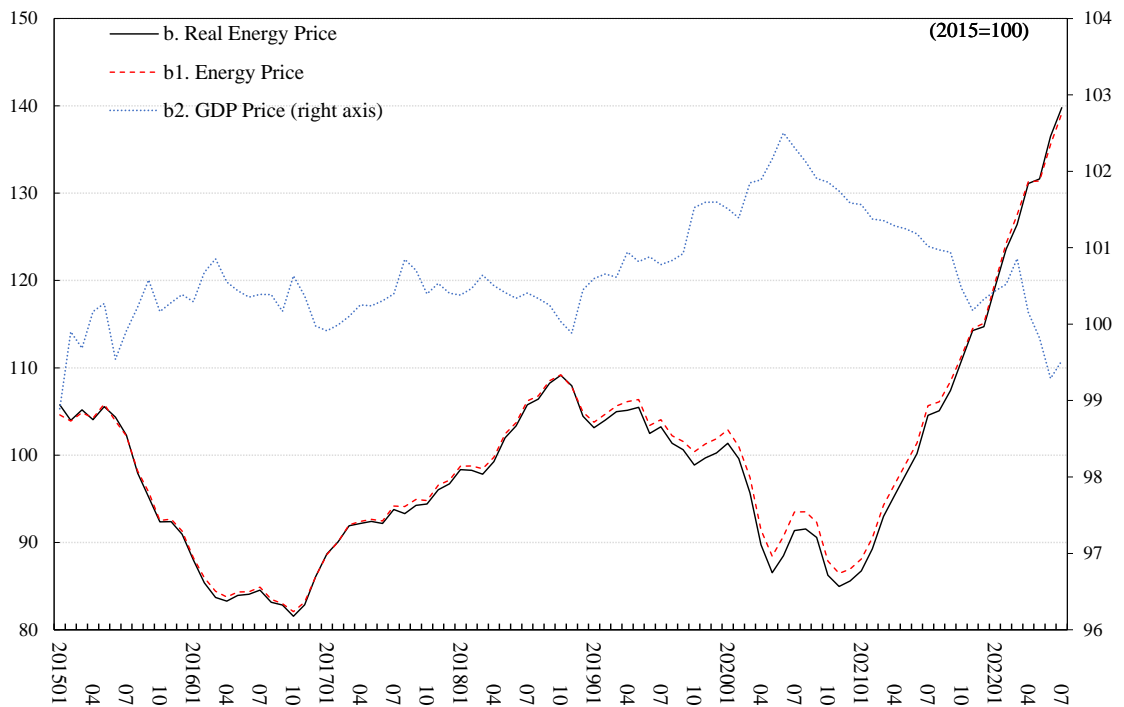
2 Time-series Estimates

2.1 Monthly RUEC (Real Unit Energy Cost)



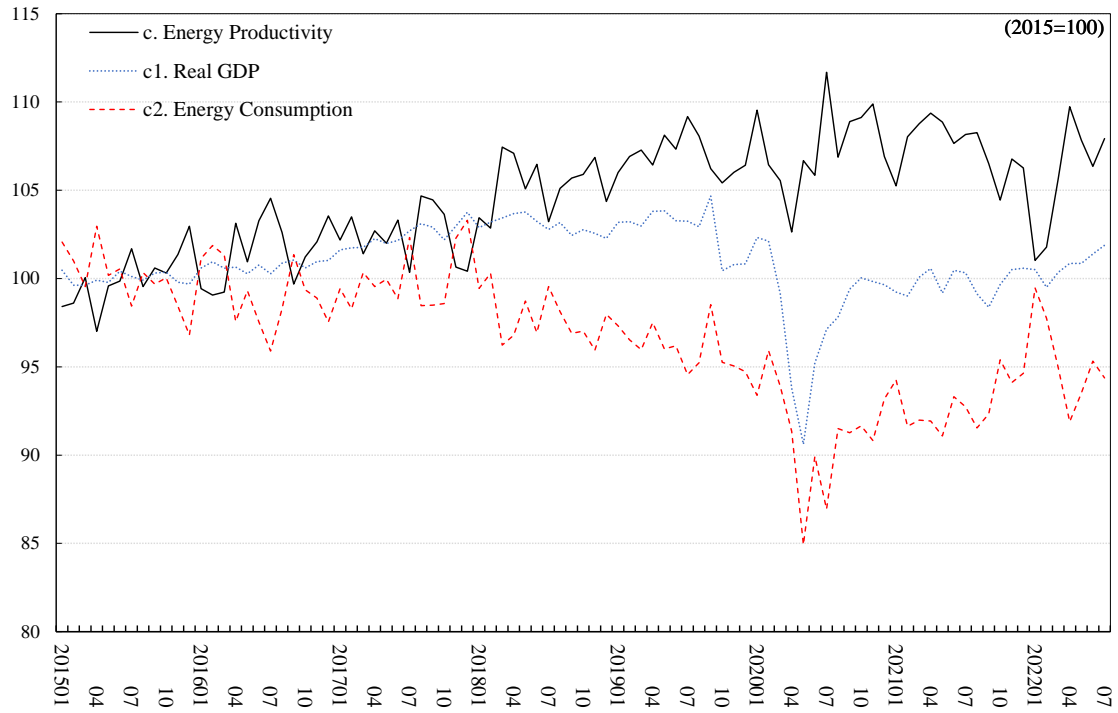
Unit: 2015 average=100. Note: Observation period is from January 2015 to July 2022.

2.2 Monthly Real Energy Price



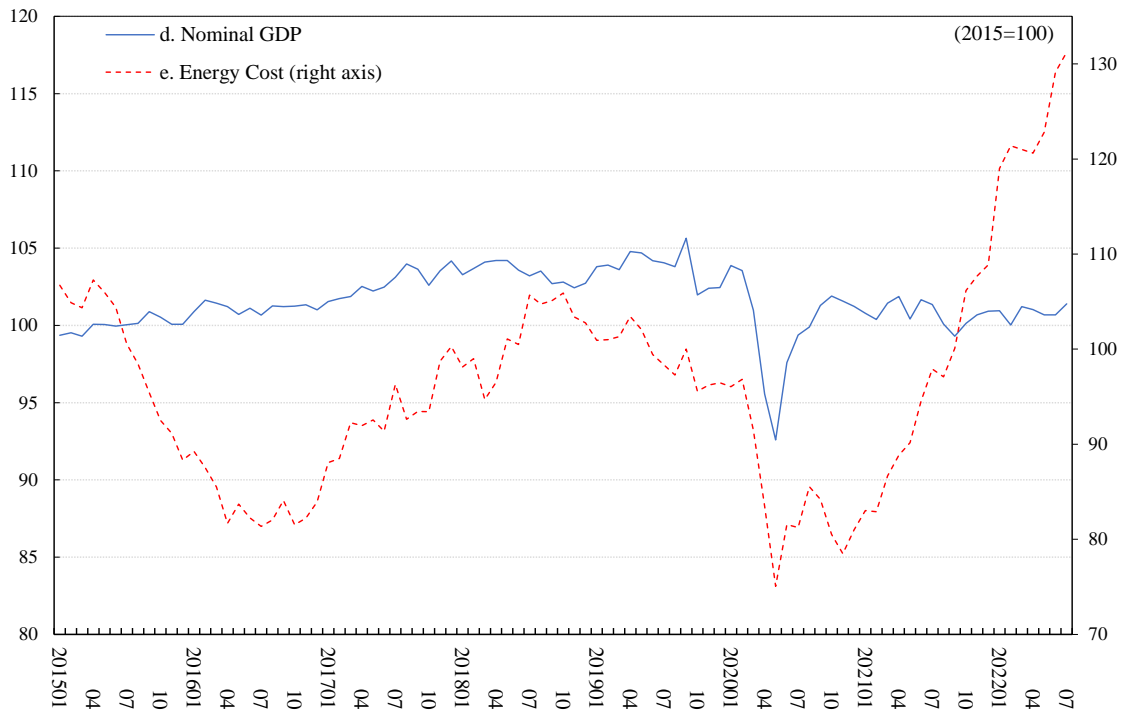
Unit: 2015 average=100. Note: Observation period is from January 2015 to July 2022.

2.3 Monthly Real GDP and Energy Productivity



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

2.4 Monthly Nominal GDP and Energy Cost



Unit: 2015 average=100. Note: Observation period is from January 2015 to July 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		c1. Real GDP	c2. Energy Consumption			
2015	100.0 (.073)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
2016	82.8 (.060)	84.1	84.4	100.4	101.6	100.7	99.2	101.1	
2017	90.8 (.066)	93.0	93.3	100.3	102.4	102.4	100.0	102.8	
2018	98.1 (.071)	103.4	103.7	100.3	105.3	103.0	97.8	103.4	
2019	95.7 (.070)	102.4	103.4	101.0	107.0	102.8	96.1	103.8	
2020	84.7 (.062)	91.0	92.8	101.9	107.5	98.1	91.2	99.9	
2021	94.6 (.069)	101.6	102.6	101.0	107.4	99.8	92.9	100.8	
2020 Q1	92.2 (.067)	98.9	100.5	101.6	107.2	101.2	94.4	102.8	
2020 Q2	84.0 (.061)	88.3	90.3	102.2	105.0	93.2	88.7	95.2	
2020 Q3	83.5 (.061)	91.2	93.1	102.1	109.1	98.1	89.9	100.2	
2020 Q4	78.7 (.057)	85.6	87.1	101.7	108.6	99.8	91.9	101.6	
2021 Q1	83.5 (.061)	89.7	91.0	101.4	107.3	99.4	92.6	100.9	
2021 Q2	90.0 (.065)	97.8	99.0	101.2	108.6	100.1	92.1	101.3	
2021 Q3	98.1 (.071)	105.7	106.7	101.0	107.6	99.3	92.2	100.2	
2021 Q4	106.9 (.078)	113.2	113.6	100.3	105.8	100.3	94.7	100.6	
2022 Q1	119.6 (.087)	123.0	123.8	100.6	102.8	100.1	97.4	100.7	
2022 Q2	123.2 (.090)	133.1	132.8	99.8	108.0	101.0	93.6	100.8	
2018 01	95.0 (.069)	98.3	98.7	100.4	103.4	102.9	99.4	103.3	
2018 02	95.5 (.069)	98.3	98.7	100.5	102.9	103.2	100.3	103.7	
2018 03	91.0 (.066)	97.8	98.5	100.6	107.5	103.4	96.2	104.1	
2018 04	92.6 (.067)	99.2	99.8	100.5	107.1	103.7	96.8	104.2	
2018 05	97.0 (.071)	102.0	102.4	100.4	105.1	103.8	98.7	104.2	
2018 06	97.0 (.071)	103.4	103.7	100.3	106.5	103.2	96.9	103.6	
2018 07	102.4 (.074)	105.8	106.2	100.4	103.2	102.8	99.5	103.2	
2018 08	101.2 (.074)	106.4	106.8	100.3	105.1	103.2	98.1	103.5	
2018 09	102.3 (.074)	108.2	108.5	100.3	105.7	102.4	96.9	102.7	
2018 10	103.0 (.075)	109.1	109.2	100.0	105.9	102.8	97.0	102.8	
2018 11	100.9 (.073)	107.9	107.8	99.9	106.9	102.6	95.9	102.4	
2018 12	100.0 (.073)	104.4	104.9	100.5	104.4	102.3	98.0	102.7	
2019 01	97.2 (.071)	103.1	103.8	100.6	106.0	103.2	97.3	103.8	
2019 02	97.2 (.071)	104.0	104.7	100.7	106.9	103.2	96.5	103.9	
2019 03	97.8 (.071)	105.0	105.6	100.6	107.3	103.0	96.0	103.6	
2019 04	98.7 (.072)	105.1	106.1	100.9	106.4	103.8	97.5	104.8	
2019 05	97.5 (.071)	105.5	106.4	100.8	108.1	103.8	96.0	104.7	
2019 06	95.4 (.069)	102.5	103.4	100.9	107.3	103.3	96.2	104.2	
2019 07	94.5 (.069)	103.2	104.1	100.8	109.2	103.3	94.6	104.1	
2019 08	93.7 (.068)	101.3	102.2	100.8	108.1	102.9	95.2	103.8	
2019 09	94.7 (.069)	100.6	101.6	100.9	106.2	104.7	98.5	105.6	
2019 10	93.7 (.068)	98.9	100.4	101.5	105.4	100.4	95.3	102.0	
2019 11	93.9 (.068)	99.7	101.3	101.6	106.0	100.8	95.1	102.4	
2019 12	94.1 (.068)	100.3	101.9	101.6	106.4	100.8	94.7	102.4	
2020 01	92.5 (.067)	101.4	102.9	101.5	109.5	102.3	93.4	103.9	
2020 02	93.5 (.068)	99.6	101.0	101.4	106.4	102.1	95.9	103.5	
2020 03	90.6 (.066)	95.7	97.5	101.8	105.5	99.1	93.9	101.0	
2020 04	87.4 (.064)	89.7	91.4	101.9	102.6	93.8	91.4	95.6	
2020 05	81.1 (.059)	86.5	88.4	102.2	106.7	90.6	84.9	92.6	
2020 06	83.5 (.061)	88.5	90.7	102.5	105.8	95.2	89.9	97.6	
2020 07	81.7 (.059)	91.4	93.5	102.3	111.7	97.1	86.9	99.4	
2020 08	85.6 (.062)	91.6	93.5	102.1	106.9	97.8	91.5	99.9	
2020 09	83.1 (.060)	90.6	92.3	101.9	108.9	99.4	91.3	101.3	
2020 10	79.0 (.057)	86.3	87.9	101.9	109.1	100.0	91.7	101.9	
2020 11	77.3 (.056)	85.0	86.5	101.7	109.9	99.8	90.8	101.6	
2020 12	80.0 (.058)	85.6	87.0	101.6	106.9	99.6	93.2	101.2	
2021 01	82.4 (.060)	86.8	88.1	101.6	105.2	99.2	94.3	100.8	
2021 02	82.6 (.060)	89.3	90.5	101.4	108.0	99.0	91.6	100.4	
2021 03	85.4 (.062)	93.0	94.3	101.4	108.8	100.1	92.0	101.4	
2021 04	87.2 (.063)	95.4	96.7	101.3	109.4	100.6	91.9	101.9	
2021 05	89.8 (.065)	97.8	99.0	101.2	108.9	99.2	91.1	100.4	
2021 06	93.0 (.068)	100.2	101.4	101.2	107.7	100.5	93.3	101.7	
2021 07	96.6 (.070)	104.6	105.7	101.0	108.2	100.3	92.7	101.4	
2021 08	97.0 (.071)	105.1	106.1	101.0	108.3	99.1	91.5	100.1	
2021 09	100.8 (.073)	107.4	108.4	100.9	106.5	98.4	92.3	99.3	
2021 10	106.0 (.077)	110.8	111.3	100.5	104.4	99.7	95.4	100.1	
2021 11	106.9 (.078)	114.3	114.5	100.2	106.8	100.5	94.1	100.7	
2021 12	107.9 (.078)	114.7	115.1	100.3	106.3	100.6	94.6	100.9	
2022 01	117.9 (.086)	119.2	119.7	100.4	101.0	100.5	99.5	100.9	
2022 02	121.3 (.088)	123.6	124.2	100.5	101.8	99.5	97.8	100.0	
2022 03	119.5 (.087)	126.4	127.5	100.9	105.7	100.3	95.0	101.2	
2022 04	119.4 (.087)	131.1	131.3	100.2	109.7	100.9	91.9	101.0	
2022 05	122.0 (.089)	131.6	131.4	99.8	107.8	100.9	93.5	100.7	
2022 06	128.3 (.093)	136.5	135.6	99.3	106.3	101.4	95.3	100.7	
2022 07	129.4 (.094)	139.8	139.1	99.5	107.9	101.9	94.4	101.4	

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