



Energy Cost Monitoring (ECM)

Nomura Lab at Keio Economic Observatory (KEO), Keio University, Tokyo

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1 Recent Estimates

1.1 Growth Rates

	Quarter-over-quarter growth rate			Month-over-month growth rate		
	2024Q2	2024Q3	2024Q4	November, 2024	December, 2024	January, 2025
a. RUEC (Real Unit Energy Cost) ($=b-c=e-d$)	3.4%	3.0%	-2.5%	1.2%	1.4%	0.4%
b. Real Energy Price ($=b1-b2$)	1.8%	2.5%	-2.7%	0.5%	1.3%	0.7%
b1. Energy Price	3.1%	2.6%	-1.7%	0.9%	1.6%	0.6%
b2. GDP Price	1.4%	0.1%	1.1%	0.5%	0.3%	0.0%
c. Energy Productivity ($=c1-c2$)	-1.6%	-0.5%	-0.2%	-0.8%	0.0%	0.3%
c1. Real GDP	0.5%	0.3%	0.0%	-0.8%	0.1%	0.3%
c2. Energy Consumption	2.2%	0.8%	0.2%	0.0%	0.1%	0.0%
d. Nominal GDP ($=b2+c1$)	1.9%	0.5%	1.1%	-0.3%	0.4%	0.2%
e. Energy Cost ($=b1+c2$)	5.4%	3.5%	-1.5%	0.9%	1.8%	0.6%

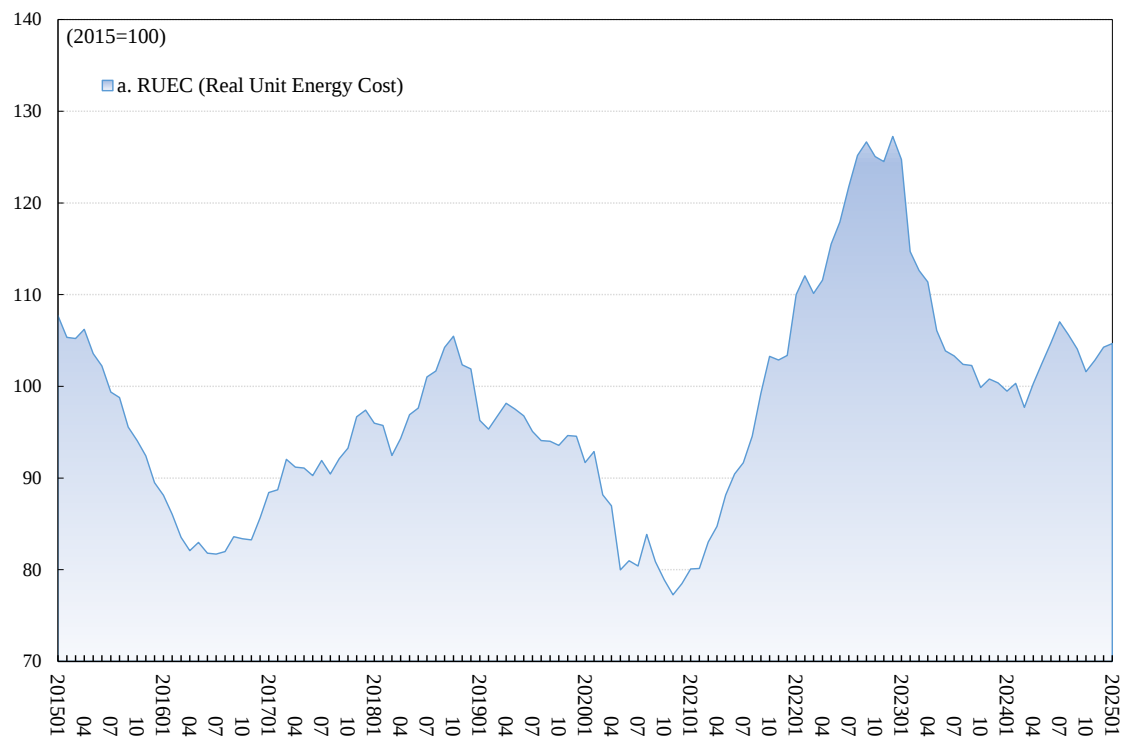
Unit: %. Notes: The most recent month is the forecasts, the previous month is the preliminary estimates, and the last two months or earlier are the final estimates. The aggregate volume indices of real GDP and energy consumption are measured using the translog index, based on the prices and volumes measured at 36 industries and 29 types of energy, respectively. The aggregate price indices of real GDP and energy consumption are defined implicitly.

1.2 Indices

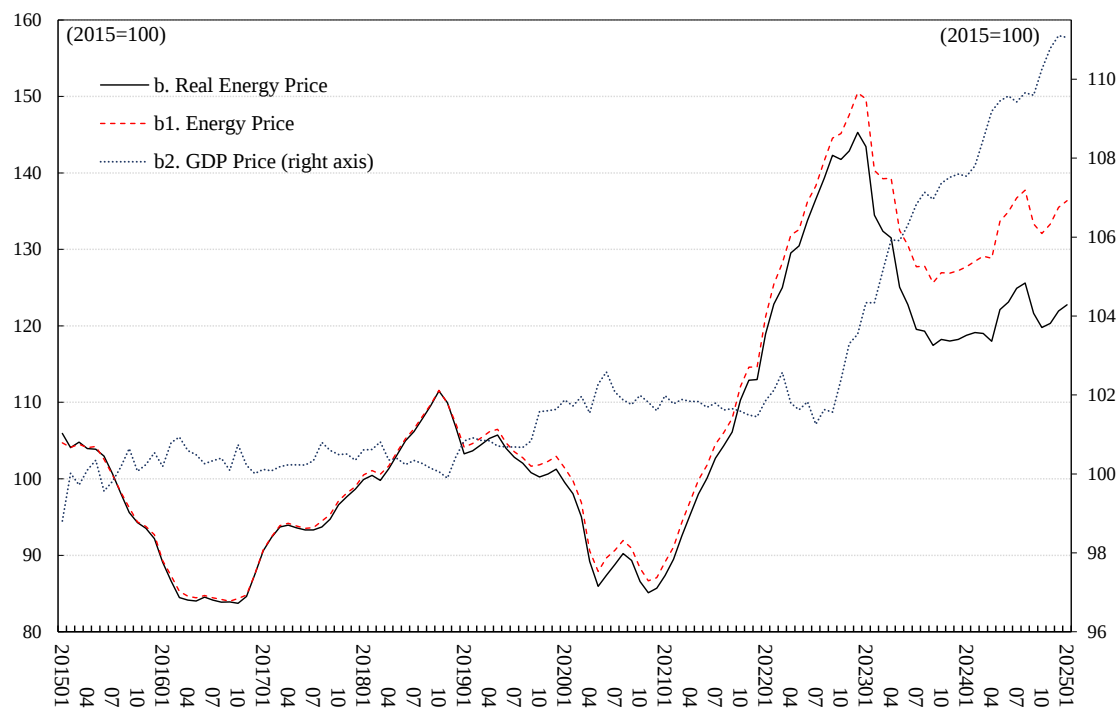
	Quarterly index			Monthly index		
	2024Q2	2024Q3	2024Q4	November, 2024	December, 2024	January, 2025
a. RUEC (Real Unit Energy Cost) ($=b/c=e/d$)	102.5	105.6	102.9	102.9	104.3	104.7
b. Real Energy Price ($=b1/b2$)	121.1	124.1	120.7	120.3	121.9	122.8
b1. Energy Price	132.5	135.9	133.6	133.3	135.5	136.4
b2. GDP Price	109.4	109.6	110.7	110.8	111.1	111.1
c. Energy Productivity ($=c1/c2$)	118.0	117.4	117.2	116.9	116.9	117.2
c1. Real GDP	103.2	103.5	103.6	103.2	103.4	103.6
c2. Energy Consumption	87.4	88.2	88.3	88.3	88.4	88.4
d. Nominal GDP ($=b2*c1$)	112.9	113.4	114.7	114.4	114.8	115.1
e. Energy Cost ($=b1*c2$)	115.8	119.8	118.0	117.7	119.8	120.5

Unit: 2015 average=100.

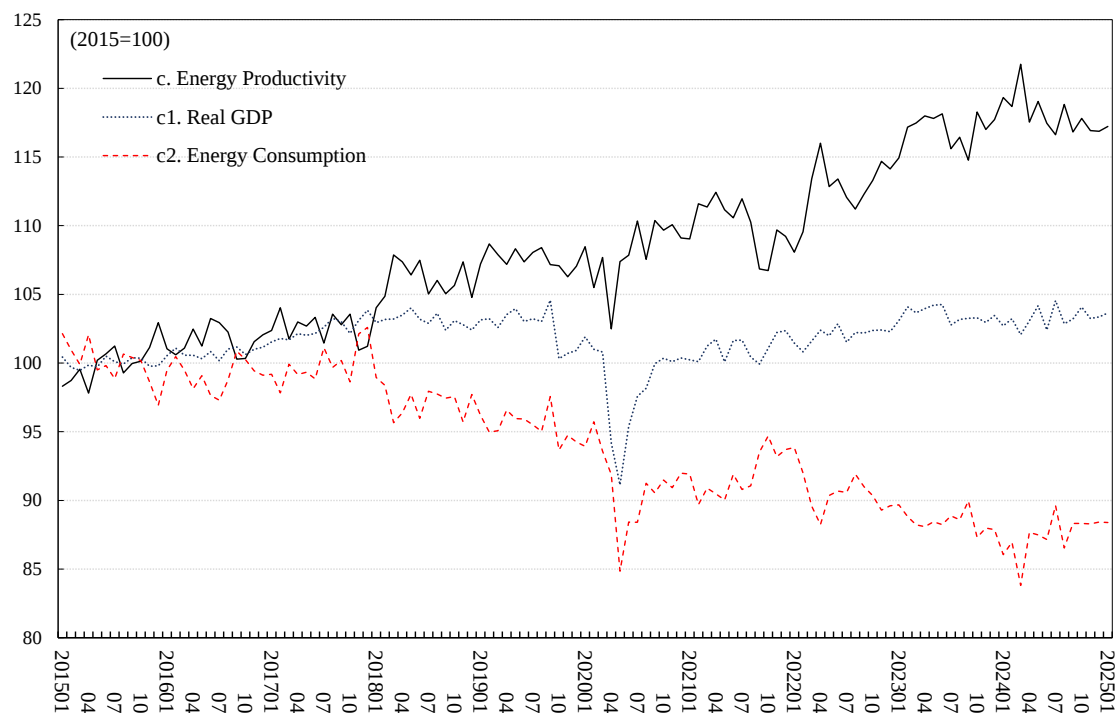
2 Monthly RUEC (Real Unit Energy Cost)



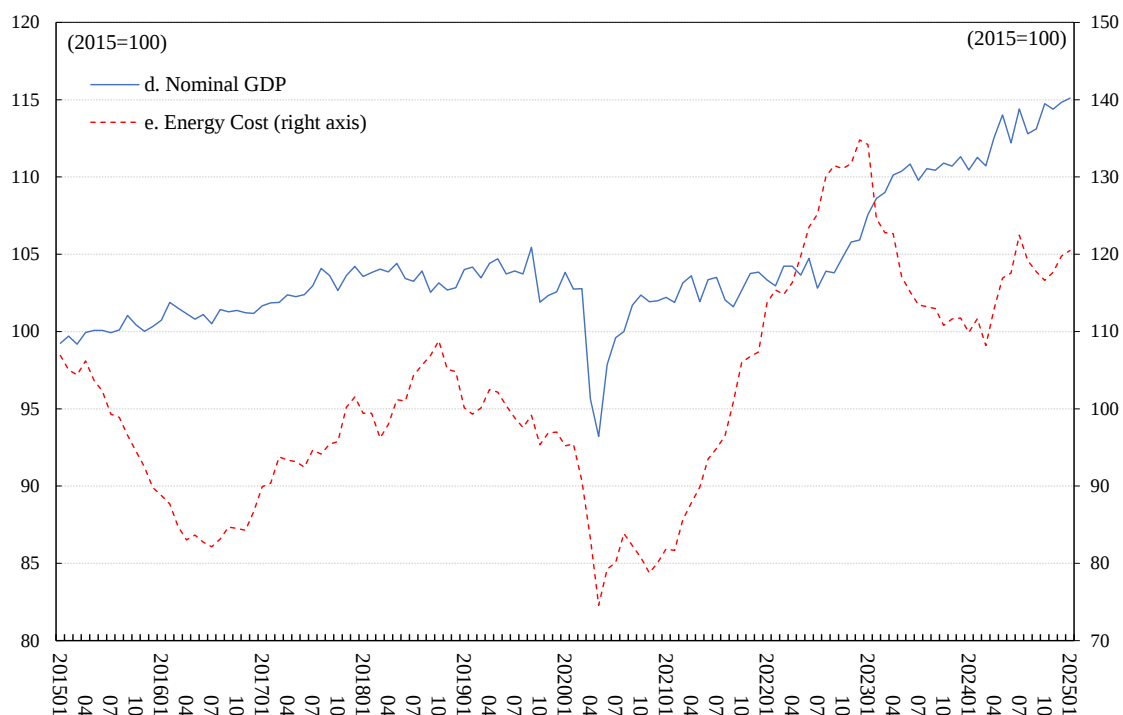
3 Monthly Real Energy Price



4 Monthly Real GDP and Energy Productivity



5 Monthly Nominal GDP and Energy Cost



6 Data Table

		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 (.072)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2016		83.7 (.060)	85.0	85.4	100.4	101.6	100.8	99.2	84.7
2017		92.0 (.066)	94.3	94.7	100.3	102.6	102.4	99.9	94.6
2018		99.1 (.071)	105.1	105.4	100.3	106.0	103.1	97.3	103.5
2019		95.6 (.069)	102.8	103.8	101.0	107.6	102.7	95.5	103.7
2020		83.4 (.060)	90.1	91.9	101.9	108.1	98.4	91.1	100.3
2021		91.8 (.066)	101.1	102.8	101.7	110.1	101.1	91.8	102.8
2022		119.0 (.085)	134.0	136.8	102.1	126.6	102.0	90.6	124.0
2023		106.8 (.077)	124.9	132.8	106.3	117.0	103.5	88.5	110.0
2024		102.6 (.074)	121.2	132.6	109.4	118.1	103.2	87.4	113.0
2020	Q1	90.9 (.065)	97.5	99.4	101.9	107.2	101.2	94.4	103.1
	Q2	82.7 (.059)	87.6	89.5	102.2	105.9	93.6	88.3	95.6
	Q3	81.7 (.059)	89.5	91.2	101.9	109.4	98.6	90.1	100.4
	Q4	78.2 (.056)	85.8	87.3	101.8	109.6	100.3	91.5	102.1
2021	Q1	81.1 (.058)	89.8	91.5	101.9	110.7	100.5	90.8	102.4
	Q2	87.8 (.063)	97.8	99.6	101.8	111.4	101.2	90.8	103.0
	Q3	95.1 (.068)	104.4	106.2	101.7	109.7	100.7	91.8	102.4
	Q4	103.2 (.074)	112.0	113.7	101.5	108.5	101.9	93.9	103.4
2022	Q1	110.7 (.080)	122.2	124.9	102.2	110.3	101.3	91.8	105.5
	Q2	115.0 (.083)	131.3	133.6	101.7	114.1	102.4	89.8	104.2
	Q3	124.5 (.089)	139.4	141.5	101.5	111.9	102.0	91.2	103.5
	Q4	125.6 (.090)	143.3	147.7	103.1	114.0	102.4	89.8	105.5
2023	Q1	117.3 (.084)	136.8	143.1	104.6	116.5	103.6	88.9	108.4
	Q2	107.1 (.077)	126.4	134.1	106.0	118.0	104.1	88.3	110.4
	Q3	102.7 (.074)	118.8	127.0	107.0	115.6	103.1	89.1	110.3
	Q4	100.4 (.072)	118.2	127.0	107.5	117.7	103.2	87.7	111.0
2024	Q1	99.2 (.071)	119.0	128.4	107.9	119.9	102.7	85.6	110.8
	Q2	102.5 (.074)	121.1	132.5	109.4	118.0	103.2	87.4	112.9
	Q3	105.6 (.076)	124.1	135.9	109.6	117.4	103.5	88.2	113.4
	Q4	102.9 (.074)	120.7	133.6	110.7	117.2	103.6	88.3	114.7
2020	01	91.7 (.066)	99.5	101.4	101.9	108.5	101.9	93.9	103.8
	02	92.9 (.067)	98.1	99.8	101.7	105.5	101.0	95.7	102.7
	03	88.2 (.063)	95.0	96.9	102.0	107.7	100.8	93.6	102.8
	04	87.0 (.062)	89.2	90.6	101.5	102.5	94.2	91.9	95.6
	05	80.0 (.057)	85.9	87.9	102.3	107.4	91.1	84.9	93.2
	06	81.0 (.058)	87.4	89.7	102.6	107.9	95.4	88.4	97.9
	07	80.4 (.058)	88.8	90.6	102.1	110.3	97.6	88.4	99.6
	08	83.9 (.060)	90.2	91.9	101.9	107.6	98.2	91.2	100.0
	09	80.9 (.058)	89.3	90.9	101.8	110.4	100.0	90.5	101.7
	10	78.9 (.057)	86.6	88.3	102.0	109.7	100.4	91.5	102.4
	11	77.3 (.056)	85.1	86.7	101.8	110.1	100.1	90.9	101.9
	12	78.5 (.056)	85.7	87.1	101.6	109.1	100.4	92.0	102.0
2021	01	80.1 (.058)	87.4	89.1	102.0	109.0	100.2	91.9	102.2
	02	80.1 (.058)	89.5	91.1	101.8	111.6	100.1	89.7	101.9
	03	83.0 (.060)	92.5	94.3	101.9	111.4	101.2	90.9	103.1
	04	84.7 (.061)	95.3	97.1	101.8	112.4	101.7	90.5	103.6
	05	88.1 (.063)	98.0	99.8	101.8	111.2	100.1	90.0	101.9
	06	90.4 (.065)	100.1	101.8	101.7	110.6	101.6	91.9	103.4
	07	91.7 (.066)	102.7	104.5	101.8	112.0	101.7	90.8	103.5
	08	94.6 (.068)	104.3	106.0	101.6	110.3	100.4	91.1	102.1
	09	99.3 (.071)	106.1	107.9	101.7	106.8	99.9	93.5	101.6
	10	103.3 (.074)	110.3	112.0	101.6	106.7	101.1	94.7	102.7
	11	102.9 (.074)	112.9	114.6	101.5	109.7	102.2	93.2	103.8
	12	103.4 (.074)	113.0	114.6	101.4	109.2	102.4	93.7	103.8
2022	01	110.0 (.079)	119.0	121.2	101.9	108.1	101.4	93.9	103.3
	02	112.1 (.081)	122.8	125.5	102.1	109.6	100.8	92.0	103.0
	03	110.1 (.079)	125.0	128.2	102.6	113.4	101.6	89.6	104.2
	04	111.6 (.080)	129.5	131.9	101.8	116.0	102.4	88.2	104.2
	05	115.5 (.083)	130.5	132.6	101.6	112.8	102.0	90.4	103.6
	06	117.9 (.085)	133.8	136.2	101.8	113.4	102.9	90.7	104.7
	07	121.8 (.087)	136.6	138.3	101.3	112.1	101.5	90.6	102.8
	08	125.2 (.090)	139.3	141.6	101.6	111.2	102.2	91.9	103.9
	09	126.6 (.091)	142.3	144.5	101.6	112.3	102.2	91.0	103.8
	10	125.1 (.090)	141.8	145.2	102.4	113.3	102.4	90.3	104.8
	11	124.5 (.089)	142.9	147.6	103.3	114.7	102.4	89.3	105.8
	12	127.2 (.091)	145.3	150.5	103.5	114.1	102.3	89.6	105.9
2023	01	124.7 (.090)	143.4	149.7	104.3	114.9	103.1	89.7	107.6
	02	114.7 (.082)	134.5	140.3	104.3	117.2	104.1	88.8	108.6
	03	112.6 (.081)	132.4	139.2	105.2	117.5	103.7	88.2	109.0
	04	111.4 (.080)	131.5	139.3	105.9	118.0	104.0	88.1	110.1
	05	106.1 (.076)	125.1	132.5	105.9	117.8	104.2	88.4	110.4
	06	103.9 (.075)	122.8	130.5	106.3	118.2	104.3	88.2	110.8
	07	103.3 (.074)	119.5	127.7	106.8	115.6	102.8	88.9	109.8
	08	102.4 (.074)	119.3	127.8	107.1	116.4	103.2	88.6	110.5
	09	102.3 (.073)	117.4	125.6	107.0	114.8	103.3	90.0	110.4
	10	99.9 (.072)	118.2	126.9	107.4	118.3	103.3	87.3	110.9
	11	100.8 (.072)	118.0	126.9	107.5	117.0	103.0	88.0	110.7
	12	100.4 (.072)	118.2	127.2	107.6	117.7	103.5	87.9	111.3
2024	01	99.5 (.071)	118.8	127.7	107.5	119.3	102.7	86.1	110.5
	02	100.3 (.072)	119.1	128.5	107.8	118.7	103.2	87.0	111.3
	03	97.7 (.070)	119.0	129.1	108.5	121.8	102.1	83.8	110.7
	04	100.3 (.072)	118.0	128.8	109.2	117.5	103.1	87.7	112.5
	05	102.5 (.074)	122.1	133.7	109.4	119.0	104.2	87.5	114.0
	06	104.7 (.075)	123.1	134.9	109.6	117.5	102.4	87.2	112.2
	07	107.0 (.077)	124.9	136.7	109.4	116.6	104.5	89.6	114.4
	08	105.6 (.076)	125.6	137.8	109.7	118.8	102.9	86.5	112.8
	09	104.1 (.075)	121.7	133.4	109.6	116.8	103.2	88.3	113.1
	10	101.6 (.073)	119.8	132.1	110.3	117.8	104.1	88.3	114.7
	11	102.9 (.074)	120.3	133.3	110.8	116.9	103.2	88.3	114.4
	12	104.3 (.075)	121.9	135.5	111.1	116.9	103.4	88.4	114.8
2025	01	104.7 (.075)	122.8	136.4	111.1	117.2	103.6	88.4	115.1

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