

The Role of Nuclear Power under Carbon Emission Regulation

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Abstract

The role of nuclear power under the carbon emission regulation was analyzed in a national economy. In order to see how much influences does the carbon emission regulation has on the national economy, scenarios on the carbon emission regulations were established. Additional scenarios on the nuclear power option(with or without) was also established to capture the role of nuclear power generation under the carbon emission regulations. The study shows that the most favorable case is, as expected, weak regulation with nuclear option, the next is strong regulation with nuclear option, followed by weak regulation without nuclear option, and the most serious case is strong regulation without nuclear option. The results from this study implies that the national economy impacts depends more on nuclear scenarios than on carbon emission regulation scenarios. The results place special emphasis on the importance of the role of nuclear power under the carbon emission regulation.

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2.

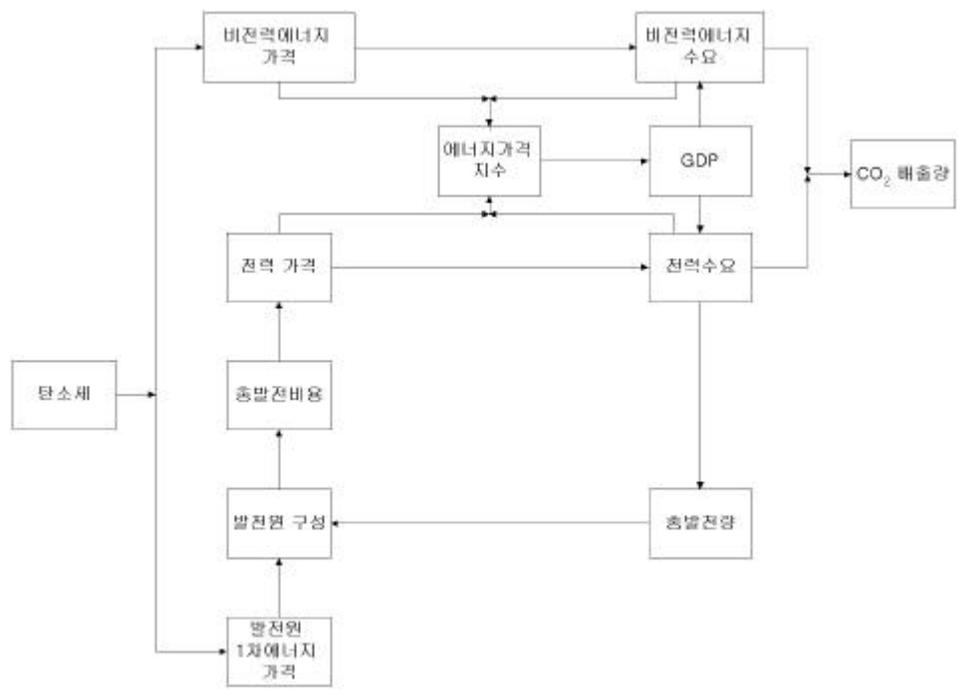
33

21

54

가

1



[1]

가

가

가

가

가

GDP

()

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가

가

3.3.

가

가

[1]

가

가 [2] [6]

[1]

	가
	- 2010 , 2010 10% 2011 2010 -
	- 2010 , 2010 10% 2011 2010 -
	- 2010 , 2010 20% 2011 2010 -
	- 2010 , 2010 20% 2011 2010 -

(1)

가 가
가

1999 2020 2.3 가 가
2001 2005 6.7%, 2006 2010 4.1%, 2011
2015 3.7%, 2016 2020 1.9% 가
. 2000 2020 가 4.1%
2000 2020 3.3%
GDP 0.81
가 GDP deflator, 가 , 가 2000
2020 가 , GDP deflator 1.7%
, 가 3.2% GDP deflator 가
1%
2000 2020 3% 가
가 가
가

(2)

가
2010 10% 2010
. 2010 10%
2006
가
가 가
, 2020 2.1% 가
2020 25% 가 가
3.3% 1.9%
가 가 가
2010 가 2010 가 2000 4.3
2010 2020
90%

(3)

가
가
가

6.1%가
 36%가
 2010
 가
 가
 2010
 가
 2000
 48
 가

2010
 2010
 2020
 90%
 (4)

가
 2010
 20%
 2010
 20%
 2003
 2020
 GDP
 GDP
 3.7%가
 6.1%
 가 GDP
 2020
 32%가
 가
 3.3% 1.4%
 가
 가
 2010
 가
 2000 10.9
 가
 2010 2020
 80%

(5)
 가
 가
 가
 8.4%가
 4.7%가
 GDP
 2020
 GDP
 4.7%

[2]

		1999	2000	2005	2010	2015	2020
(1990년 = 100) (GDP)		306,218	322,525	446,115	545,124	652,645	716,011
GDP Deflator (1990 = 1.000)		1.539	1.578	1.813	1.966	2.112	2.200
(TOE)		65,372	66,178	80,233	91,823	100,609	111,630
	가 .	26,761	26,486	33,275	43,125	53,397	57,614
		28,949	27,771	41,809	52,933	64,916	68,001
		121,082	120,435	155,317	187,881	218,922	237,245
		242,164	240,870	310,634	375,762	437,844	474,490
가 (1990 = 1.00)		1.821	1.832	2.238	2.627	3.106	3.511
가 (/kWh)		67.59	67.78	70.87	74.30	78.43	83.18
(C-)		43,088	43,232	50,047	54,889	58,151	62,116
	가 .	21,424	21,205	26,561	34,320	42,410	45,728
		23,410	22,468	33,725	42,626	52,194	54,646
		30,756	32,781	42,741	44,814	51,473	56,411
		118,678	119,686	153,074	176,649	204,228	218,901

[3]

		1999	2000	2005	2010	2015	2020
(10 (GDP))		306,218	322,525	446,109	541,635	643,706	700,859
GDP Deflator (1990 = 1.000)		1.539	1.578	1.813	2.032	2.257	2.364
(TOE)		65,372	66,178	80,211	82,009	76,741	81,490
	가 .	26,761	26,486	33,274	39,508	40,250	38,823
		28,949	27,771	41,808	50,112	57,625	58,389
		121,082	120,435	155,294	171,629	174,616	178,702
		242,164	240,870	310,587	343,258	349,232	357,404
가 (1990 = 1.00)		1.821	1.832	2.241	4.923	6.252	8.236
가 (/kWh)		67.59	67.78	70.87	294.07	362.21	508.19
(C-)		43,088	43,232	50,028	46,057	37,321	36,396
	가 .	21,424	21,205	26,560	31,457	32,044	30,917
		23,410	22,468	33,724	40,331	46,239	46,811
		30,755	32,781	42,741	41,136	43,344	44,825
		118,677	119,686	153,053	158,981	158,948	158,949

[4]

		1999	2000	2005	2010	2015	2020
(10 ⁹ (GDP))		306,018	322,274	445,477	524,250	623,225	672,471
GDP Deflator (1990 = 1.000)		1.549	1.591	1.825	2.474	2.576	2.684
(T O E)		65,387	66,202	80,196	68,971	65,247	69,676
	가 .	26,753	26,477	33,246	32,941	31,310	29,505
		28,934	27,760	41,756	43,483	51,445	51,724
		121,074	120,439	155,198	145,395	148,002	150,905
		242,148	240,878	310,396	290,790	296,004	301,810
가 (1990 = 1.00)		1.924	1.938	2.371	40.186	21.007	28.213
가 (/kWh)		78.69	78.83	84.03	3821.54	1832.49	2501.77
(C -)		43,109	43,265	50,057	34,893	28,595	28,365
	가 .	21,417	21,196	26,538	26,270	24,996	23,572
		23,399	22,459	33,684	34,975	41,259	41,465
		48,719	51,709	68,255	62,789	64,121	65,548
		136,644	138,629	178,534	158,927	158,971	158,950

[5]

		1999	2000	2005	2010	2015	2020
(10 ¹⁰ (GDP))		306,218	322,525	446,109	535,642	635,569	689,523
GDP Deflator (1990 = 1.000)		1.539	1.578	1.813	2.185	2.374	2.483
(T O E)		65,372	66,178	80,211	72,667	69,115	74,022
	가 .	26,761	26,486	33,274	35,117	34,258	32,571
		28,949	27,771	41,808	46,648	54,100	54,815
		121,082	120,435	155,294	154,433	157,473	161,408
		242,164	240,870	310,587	308,865	314,946	322,816
가 (1990 = 1.00)		1.821	1.832	2.241	9.602	10.251	13.718
가 (/kWh)		67.59	67.78	70.87	741.42	737.80	1025.63
(C-)		43,088	43,232	50,028	37,871	31,102	30,728
	가 .	21,424	21,205	26,560	27,992	27,320	25,989
		23,410	22,468	33,724	37,515	43,388	43,938
		30,756	32,781	42,741	37,979	39,498	40,649
		118,678	119,686	153,053	141,357	141,308	141,304

[6]

		1999	2000	2005	2010	2015	2020
(10 (GDP))		306,017	322,274	445,477	510,103	610,038	655,515
GDP Deflator (1990 = 1.000)		1.549	1.591	1.825	3.004	2.804	2.9057
(T OE)		65,387	66,202	80,196	62,248	59,063	63,298
	가 .	26,753	26,477	33,246	28,788	26,265	24,469
		28,934	27,760	41,756	39,156	47,859	47,985
		121,074	120,439	155,198	130,192	133,187	135,753
		242,148	240,878	310,396	260,384	266,374	271,505
가 (1990 = 1.00)		1.924	1.938	2.371	154.637	42.056	54.771
	(GWh)	220,316	230,587	304,121	266,162	268,148	274,387
	가 (/kWh)	78.690	78.835	84.031	15084.1 3	3928.65	5143.02
(C-)		43,109	43,265	50,057	29,342	24,106	24,195
	가 .	21,417	21,198	26,538	22,991	21,018	19,602
		23,399	22,459	33,684	31,490	38,382	38,474
		48,719	51,709	68,255	57,486	57,840	59,090
		136,644	138,631	178,534	141,309	141,346	141,361

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 4 1 , 1995.
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