

Energy Market and Economic Impacts of the American Power Act of 2010

Table 1. Summary results

	2008	2020							2035						
		Refer- ence	APA Cases						Refer- ence	APA Cases					
			Basic	Zero Bank	High Natural Gas	High cost	No Int'l	Limited / No Int'l		Basic	Zero Bank	High Natural Gas	High cost	No Int'l	Limited / No Int'l
Greenhouse gas emissions (mmt)															
Covered emissions															
Energy-related carbon dioxide	4520	5788	5241	5321	5266	5220	4836	4563	6256	4516	4987	4428	4697	3642	4089
Other covered emissions	167	173	152	153	153	152	151	149	179	154	155	155	154	153	150
Total covered emissions	4687	5962	5393	5474	5419	5372	4987	4713	6435	4670	5142	4583	4851	3795	4239
Noncovered emissions	2448	1492	1382	1391	1383	1378	1474	1396	1481	1427	1433	1428	1413	1400	1273
Total greenhouse gas emissions	7135	7454	6776	6865	6802	6750	6460	6108	7895	6097	6575	6010	6263	5194	5512
Compliance offset credits (mmt)															
Noncovered gases	0	0	126	116	126	130	34	97	0	151	145	151	166	178	187
Biosequestration	0	0	246	190	246	272	98	297	0	385	304	385	434	604	718
Total domestic offset credits	0	0	371	306	371	402	133	394	0	536	449	536	599	782	905
International offset credits	0	0	1000	422	1000	1000	0	0	0	1000	1000	1000	1000	0	0
Total domestic and international	0	0	1371	728	1371	1402	133	394	0	1536	1449	1536	1599	782	905
Cost containment reserve (mmt)															
Replenishment offset purchases	0	0	0	0	0	28	0	0	0	0	0	0	0	0	0
International offsets(discounted)	0	0	0	0	0	0	430	287	0	0	0	0	0	2	0
Domestic offsets	0	0	4000	4000	4000	3966	1882	1141	0	4000	4000	4000	4000	2	0
Reserve balance, before sales	0	0	1038	314	1012	1112	954	1448	0	0	0	0	0	2	0
Allowance sales	0	0	7464	3147	7331	8978	9257	12990	0	9869	-131	10200	11828	11927	15241
Total emissions, less bio-sequestration and international reductions (mmt)	7135	7454	5280	6148	5306	5228	6362	5811	7895	4462	5021	4375	4580	4591	4794
Allowance accounting summary (mmt)															
Allowances, excluding reserve	n.a.	5060	5060	5060	5060	5060	5060	5060	2808	2808	2808	2808	2808	2808	2808
Allowances, including reserve sales	n.a.	5060	5060	5060	5060	5082	5808	5767	2808	2808	2808	2808	2808	2809	2808
Covered emissions, less offset credits	4687	5962	4022	4746	4048	3970	4854	4319	6435	3134	3693	3047	3251	3013	3334
Net allowance bank change	0	0	1038	314	1012	1112	954	1448	0	-326	-885	-239	-444	-204	-526
Allowance bank balance	0	0	7464	3147	7331	8978	9257	12990	0	9869	-131	10200	11828	11927	15241
Allowance and offset prices (2008 dollars per metric ton CO2 equivalent)															
Emission allowance	0.0	0.0	31.7	24.7	31.7	35.4	58.9	88.9	0.0	66.0	51.3	66.0	74.8	122.4	184.8
Domestic offset	0.0	0.0	31.7	24.7	31.7	35.4	58.9	88.9	0.0	66.0	51.3	66.0	74.8	122.4	184.8
International offset	0.0	0.0	24.6	19.8	24.6	24.8	n.a.	n.a.	0.0	35.7	35.7	35.7	35.7	n.a.	n.a.
Cost containment reserve price	0.0	0.0	35.4	35.4	35.4	35.4	35.3	35.3	0.0	75.9	75.8	75.8	76.0	78.2	77.0
Delivered energy prices (including net allowance costs) (2008 dollars per unit)															
Motor gasoline, transport (per gallon)	3.27	3.35	3.61	3.55	3.61	3.63	3.86	4.08	3.91	4.29	4.16	4.30	4.36	4.70	5.33
Jet fuel (per gallon)	3.07	2.93	3.21	3.15	3.21	3.24	3.47	3.71	3.58	3.96	3.85	3.96	4.06	4.50	5.22
Diesel (per gallon)	3.79	3.51	3.80	3.74	3.81	3.83	4.08	4.34	4.11	4.52	4.38	4.51	4.62	5.07	5.83
Natural gas (per thousand cubic feet)															
Residential	13.87	12.26	12.73	12.87	12.15	12.88	13.51	14.78	14.83	17.83	16.91	16.81	18.82	21.79	26.18
Electric power	9.34	6.56	8.22	8.15	7.81	8.57	10.16	13.08	8.70	11.38	10.41	10.61	12.45	15.49	20.03
Coal, electric power (per million Btu)	2.05	1.98	4.91	4.25	4.88	5.25	7.38	10.18	2.09	8.08	6.79	8.05	8.98	13.32	18.95
Electricity (cents per kilowatthour)	9.83	9.01	9.41	9.57	9.34	9.52	9.81	10.89	10.19	12.81	12.07	12.63	13.53	14.46	18.83
Fuel Market Indicators															
Liquid fuels (million barrels per day)															
Consumption	19.5	20.7	20.6	20.6	20.6	20.5	20.4	20.2	22.2	21.8	22.0	21.9	21.7	21.4	20.8
Production	8.3	10.6	10.8	10.8	10.9	10.8	10.9	11.0	12.0	13.9	13.8	14.2	13.8	13.7	12.6
Net Imports	11.2	9.9	9.7	9.7	9.6	9.6	9.4	9.2	10.2	8.0	8.2	7.7	8.0	7.7	8.3
Natural gas (trillion cubic feet)															
Consumption	23.2	22.5	23.1	23.0	24.6	23.3	23.9	26.8	24.8	23.7	23.4	26.0	24.5	25.1	28.2
Production	20.6	19.9	20.6	20.3	22.3	20.7	21.2	22.5	23.3	22.4	22.2	25.3	23.1	23.4	24.8
Net Imports	3.0	2.5	2.5	2.7	2.2	2.6	2.7	4.3	1.5	1.2	1.1	0.6	1.4	1.7	3.3
Coal consumption (quadrillion Btu)	22.4	23.0	19.7	20.2	18.6	19.0	14.9	9.5	25.1	14.5	18.0	13.8	15.7	9.7	4.0
Electricity generation (billion kilowatthours)															
Petroleum	45	62	61	61	61	61	58	57	64	58	61	58	50	52	57
Natural gas	879	755	840	853	1004	865	976	1409	1090	1000	943	1285	1161	1257	1774
Coal	1995	2095	1738	1794	1656	1694	1321	842	2305	1249	1611	1110	1340	669	311
Nuclear power	806	883	901	894	894	887	929	883	802	1392	1234	1316	1067	1463	891
Renewable/Other	391	736	930	861	880	949	1109	1077	912	1325	1262	1286	1325	1410	1505
Total	4116	4530	4470	4462	4494	4455	4392	4287	5263	5024	5112	5054	4952	4853	4540

mmt: million metric tons of carbon dioxide equivalent

Source: National Energy Modeling System, runs KGL_REFERENCE.D062909A, KGL_BASIC.D062909A, KGL_0BANK.D062909A, KGL_HISHALE.D062909A, KGL_HICOST.D062909A, KGL_NOINT.D062909A, and KGL_LTDNOI.D062909A.

Note: The cost containment reserve price, expressed in constant 2008 dollars, varies slightly across cases because it is established in nominal dollars (to increase at 5% a year plus the percentage growth in the CPI-All Urban index) and deflated to constant dollars using the GDP chain-weighted deflator, as are other prices in NEMS. The CPI-All Urban index is endogenous and varies slightly across cases in response to different energy price changes.