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CO₂ Emissions Mitigation and Technological Advance: An Updated Analysis of Advanced Technology Scenarios (Scenarios Updated January 2009)

Appendices

L. Clarke	P. Kyle
M. Wise	K. Calvin
J. Edmonds	S. Kim
M. Placet	S. Smith

December, 2008



Pacific Northwest
NATIONAL LABORATORY

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Advance: An Analysis of Advanced Technology
Scenarios
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Richland, Washington 99352

Contents

Appendix A: 450 ppmv Scenarios: Global Results	A.1
Appendix B: 550 ppmv Scenarios: Global Results.....	B.1

Appendix A: 450 ppmv Scenarios: Global Results

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.9	24.7	26.8	30.6	32.4	31.0	EJ/yr
building	gas	18.7	26.7	29.3	31.2	31.5	29.6	29.2	28.3	EJ/yr
building	coal	10.1	5.1	8.0	8.3	7.7	7.1	6.2	5.3	EJ/yr
building	biomass	4.5	5.5	7.9	9.0	9.3	9.8	9.4	8.6	EJ/yr
building	electricity	16.9	29.0	44.7	65.7	89.2	114.3	145.2	174.8	EJ/yr
building	trad biomass	23.5	29.9	32.1	27.9	22.9	17.9	12.2	8.0	EJ/yr
building	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	total: w/o reduction	88.9	112.7	142.9	166.6	187.4	209.2	234.7	256.0	EJ/yr
industry	liquids	22.4	21.2	20.3	23.9	27.3	35.3	37.9	33.5	EJ/yr
industry	gas	26.6	30.5	34.0	39.6	39.4	32.9	33.3	34.1	EJ/yr
industry	coal	31.4	35.8	59.0	77.7	88.6	94.5	91.4	88.0	EJ/yr
industry	biomass	7.3	11.2	17.1	23.4	31.1	43.3	50.0	57.7	EJ/yr
industry	electricity	18.1	24.8	34.7	49.0	66.3	80.1	94.4	109.8	EJ/yr
industry	hydrogen	0.0	0.0	2.7	3.1	3.7	4.4	5.0	5.8	EJ/yr
industry	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
industry	feedstocks	15.2	23.7	27.9	33.6	38.7	43.4	46.3	48.2	EJ/yr
	total: w/o reduction	105.8	123.6	167.9	216.7	256.3	290.6	312.0	328.9	EJ/yr
transportation	liquids	62.7	87.7	101.1	120.9	136.7	154.4	171.9	177.0	EJ/yr
transportation	gas	2.2	3.0	6.5	12.2	17.8	21.1	26.8	32.9	EJ/yr
transportation	coal	0.5	0.2	0.4	0.5	0.6	0.5	0.3	0.2	EJ/yr
transportation	electricity	1.0	1.0	2.2	4.8	11.0	16.0	21.3	27.3	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.7	9.8	15.0	21.9	EJ/yr
transportation	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	total: w/o reduction	66.4	91.8	110.7	140.4	171.7	201.7	235.2	259.3	EJ/yr
total final energy	buildings	88.9	112.7	142.9	166.6	187.4	209.2	234.7	256.0	EJ/yr
total final energy	industry	105.8	123.6	167.9	216.7	256.3	290.6	312.0	328.9	EJ/yr
total final energy	transportation	66.4	91.8	110.7	140.4	171.7	201.7	235.2	259.3	EJ/yr
total final energy	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	total: w/o reduction	261.1	328.1	421.5	523.7	615.4	701.5	781.9	844.2	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	183.8	203.9	211.9	235.1	252.4	207.8	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	130.4	179.6	224.3	233.1	256.2	290.0	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	176.8	242.2	317.2	402.3	480.2	597.1	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	32.1	43.8	60.3	83.6	101.3	130.1	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	23.3	21.6	19.3	18.7	18.3	18.1	EJ/yr
hydro	23.6	29.2	29.0	30.5	31.1	33.5	36.1	38.9	EJ/yr
wind	0.0	0.9	14.7	31.3	39.1	46.9	53.9	64.2	EJ/yr
solar	0.0	0.1	1.3	3.5	5.9	9.0	12.9	19.0	EJ/yr
geothermal	0.4	0.5	1.3	5.2	7.9	8.0	7.8	7.7	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
total: w/o reduction	356	463	593	762	917	1070	1219	1373	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.26	3.80	4.44	6.23	8.00	6.13	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	24.71	40.05	58.99	69.35	81.78	95.52	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	37.89	53.64	76.37	102.24	133.45	164.44	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.24	2.48	5.18	7.98	11.07	14.05	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.90	10.50	13.65	16.64	19.28	22.91	EJ/yr
wind w/storage	0.00	0.00	1.22	3.66	5.95	8.05	10.00	12.69	EJ/yr
CSP w/backup	0.00	0.00	0.35	0.59	0.60	0.85	1.18	1.78	EJ/yr
CSP w/storage	0.00	0.00	0.12	0.85	1.91	2.78	3.82	5.73	EJ/yr
PV w/backup	0.00	0.04	0.05	0.05	0.20	0.56	1.05	1.54	EJ/yr
PV w/storage	0.00	0.00	0.00	0.03	0.10	0.26	0.47	0.68	EJ/yr
rooftop PV w/backup	0.00	0.00	0.29	0.80	1.68	3.32	4.25	5.00	EJ/yr
geothermal	0.13	0.21	0.57	2.44	4.14	4.32	4.32	4.35	EJ/yr
energy reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
total: w/o reduction	42.7	65.2	97.7	142.8	199.0	250.2	308.2	366.2	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	95.3	102.7	97.9	99.2	99.8	61.5	EJ/yr
unconventional oil	0.0	0.0	1.6	6.7	15.8	24.0	34.6	54.5	EJ/yr
coal liquids	0.0	0.0	1.6	5.2	12.3	20.0	25.7	42.6	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.2	1.7	2.5	3.9	5.6	11.2	EJ/yr
gas liquids	0.0	0.0	1.4	4.7	8.2	7.3	6.1	7.2	EJ/yr
gas	2.2	3.0	6.5	12.2	17.8	21.1	26.8	32.9	EJ/yr
coal	0.5	0.2	0.4	0.5	0.6	0.5	0.3	0.2	EJ/yr
electricity	1.0	1.0	2.2	4.8	11.0	16.0	21.3	27.3	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.7	9.8	15.0	21.9	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
total: w/o reduction	66.4	91.8	110.7	140.4	171.7	201.7	235.2	259.3	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	45.94	51.18	51.64	57.44	56.80	32.92	EJ/yr
unconventional oil	0.00	0.00	0.42	2.16	5.98	9.74	14.06	24.53	EJ/yr
coal liquids	0.00	0.00	0.39	1.53	4.35	7.65	9.63	18.42	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.13	0.25	0.48	0.88	1.27	3.09	EJ/yr
gas liquids	0.00	0.00	0.36	1.43	2.56	2.17	1.64	1.98	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
total: w/o reduction	36.6	43.9	47.2	56.5	65.0	77.9	83.4	80.9	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.36	3.85	6.72	9.42	12.66	16.68	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.54	0.86	1.67	3.15	4.76	7.19	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.16	0.24	0.45	0.81	1.22	1.84	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.08	0.15	0.31	0.51	0.74	1.04	EJ/yr
wind	0.00	0.00	0.06	0.06	0.08	0.13	0.21	0.31	EJ/yr
solar	0.00	0.00	0.06	0.08	0.14	0.23	0.39	0.66	EJ/yr
energy reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
total: w/o reduction	0.00	0.00	3.24	5.24	9.37	14.25	19.98	27.72	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	7.9	9.0	9.3	9.8	9.4	8.6	EJ/yr
	Industry	7.4	11.3	17.4	23.9	32.0	45.0	52.4	63.2	EJ/yr
	electricity	2.1	2.5	3.5	6.4	12.2	18.2	24.7	30.9	EJ/yr
	refined liquids: tran & bldg	0.5	2.2	2.9	4.0	5.8	8.9	12.3	23.7	EJ/yr
	hydrogen	0.0	0.0	0.4	0.5	0.9	1.7	2.4	3.6	EJ/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	total: w/o reduction	14.4	21.6	32.1	43.8	60.3	83.6	101.3	130.1	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	31.7	37.9	41.7	45.4	47.1	49.4	EJ
dedicated biomass crops	0.0	0.0	0.0	4.9	16.7	34.8	48.7	70.4	EJ
municipal solid waste	0.0	0.1	0.4	1.0	1.8	3.4	5.5	10.3	EJ
waste biomass	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ
reduction in biomass crops	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ
reduction in municipal solid waste	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ
total: w/o reduction	14.4	21.6	32.1	43.8	60.3	83.6	101.3	130.1	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.8	\$85.2	\$121.7	\$172.4	\$241.5	\$328.8	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.43	1.96	1.54	1.21	0.97	0.78	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.85	2.54	2.11	1.69	1.29	1.00	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.88	1.65	1.41	1.17	0.97	0.79	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.16	6.15	5.06	4.07	3.24	2.57	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	19.0	20.0	21.3	23.1	26.1	29.3	GJ/capita
Final Energy per Capita	industry	20.2	19.2	22.3	26.0	29.1	32.1	34.6	37.6	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.7	16.8	19.5	22.3	26.1	29.6	GJ/capita
Final Energy per Capita	total	49.7	51.0	56.0	62.8	69.8	77.4	86.8	96.5	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.8	\$42.2	\$45.1	\$46.9	\$48.3	\$62.1	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$39.8	\$42.2	\$45.1	\$46.9	\$48.3	\$62.1	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.6	\$5.7	\$5.9	\$6.1	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.6	\$5.7	\$5.9	\$6.1	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.8	\$1.9	\$2.0	\$2.1	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.8	\$1.9	\$2.0	\$2.1	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.76	5.52	5.37	5.50	5.35	5.30	cents/kWh (2005\$)
	carbon price	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$/tC (2005\$)

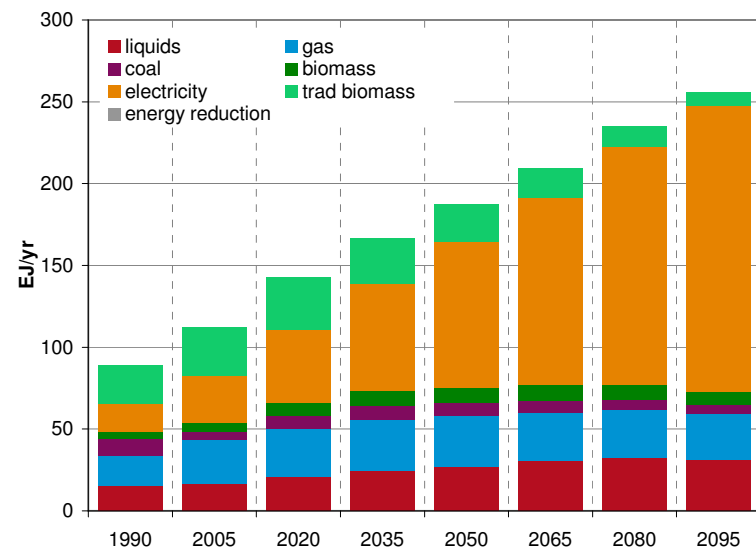
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	33	33	33	33	33	33	\$/Gcal (2005\$)
	global rice	32	32	32	32	32	32	32	32	\$/Gcal (2005\$)
	global wheat	27	27	27	26	26	26	26	26	\$/Gcal (2005\$)

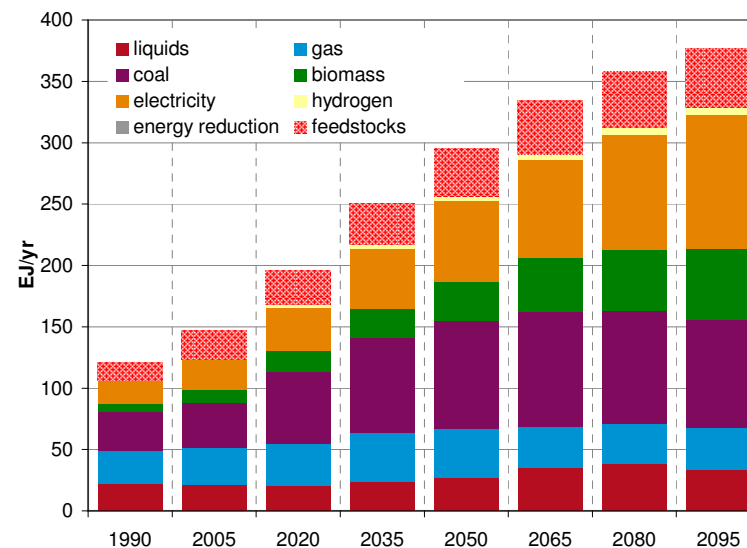
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.081	1.223	1.303	1.382	1.410	1.411	GtC/yr
	industry	1.623	1.706	2.271	2.844	3.240	3.599	3.681	3.839	GtC/yr
	transportation	1.354	1.863	2.272	2.935	3.673	4.399	5.088	5.871	GtC/yr
	electricity	1.909	2.848	3.749	4.992	6.435	8.085	10.070	11.951	GtC/yr
	cement	0.261	0.483	0.893	1.271	1.474	1.472	1.365	1.226	GtC/yr
	emissions reduction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	GtC/yr
	total: w/o reduction	6.006	7.760	10.266	13.264	16.125	18.936	21.615	24.298	GtC/yr

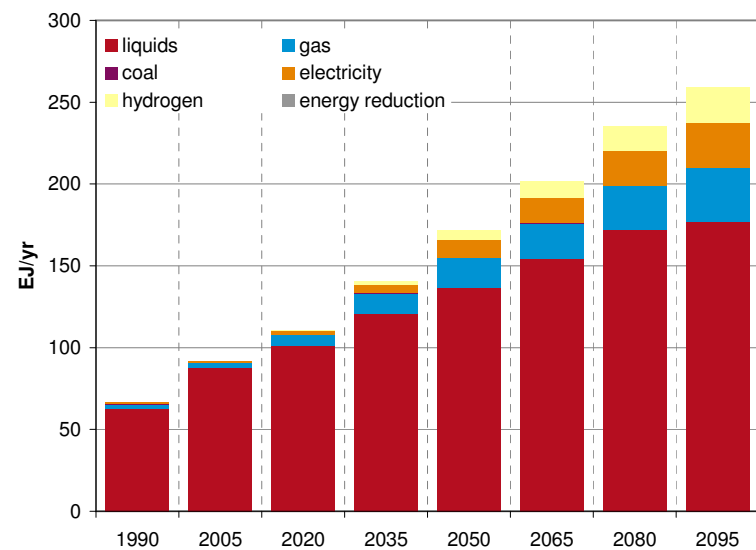
Final Energy Consumption: Buildings



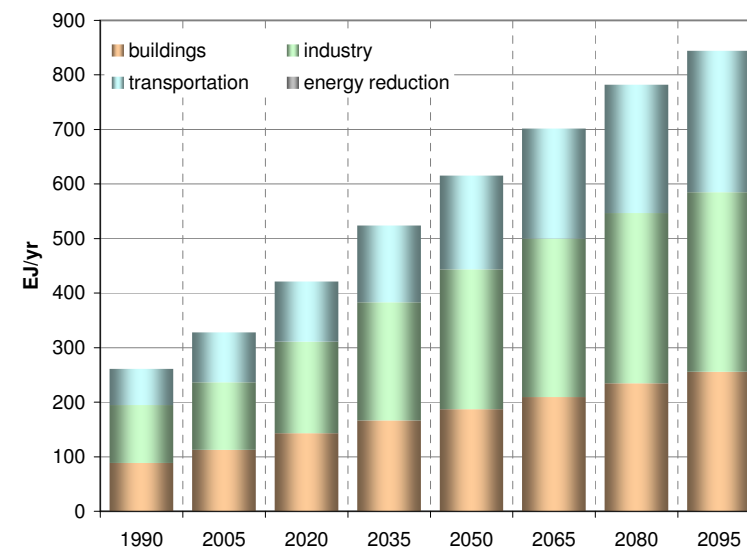
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

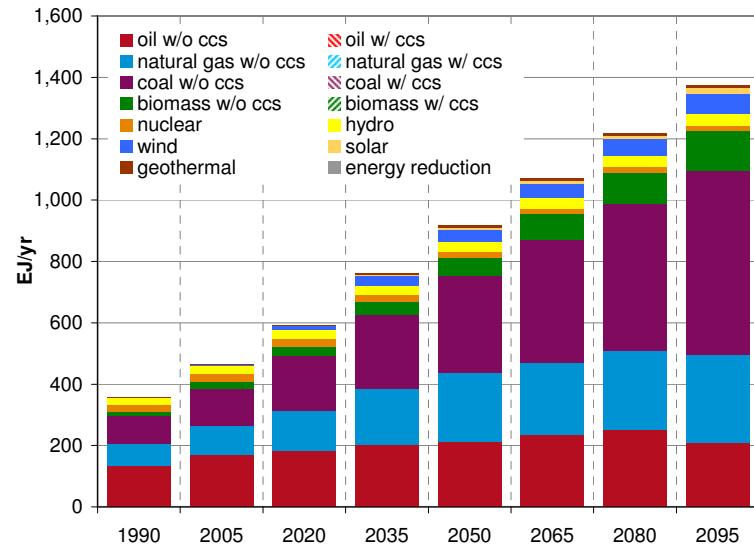


Final Energy Consumption by Sector

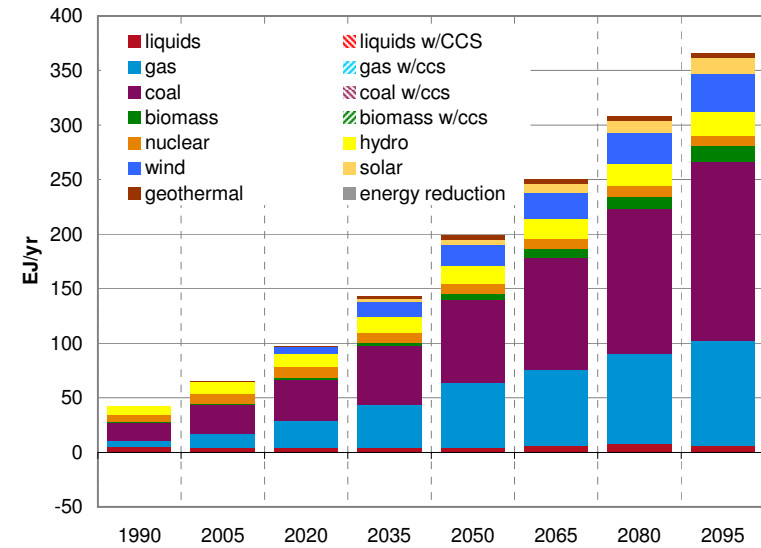


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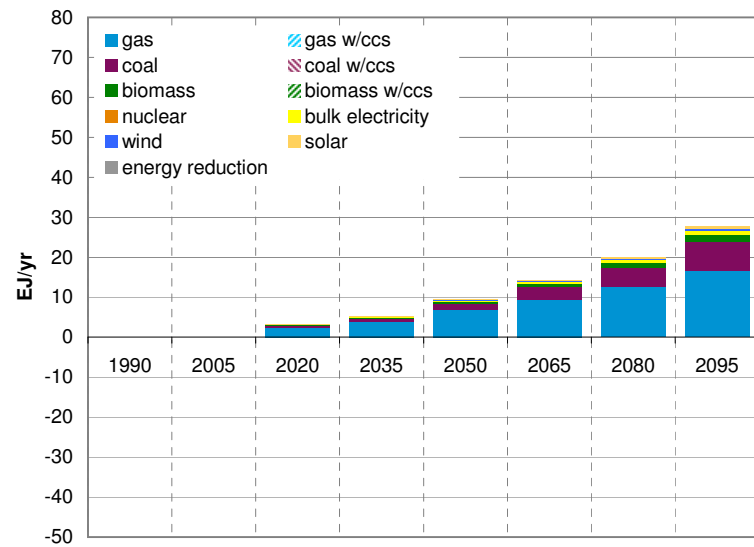
Primary Energy Consumption



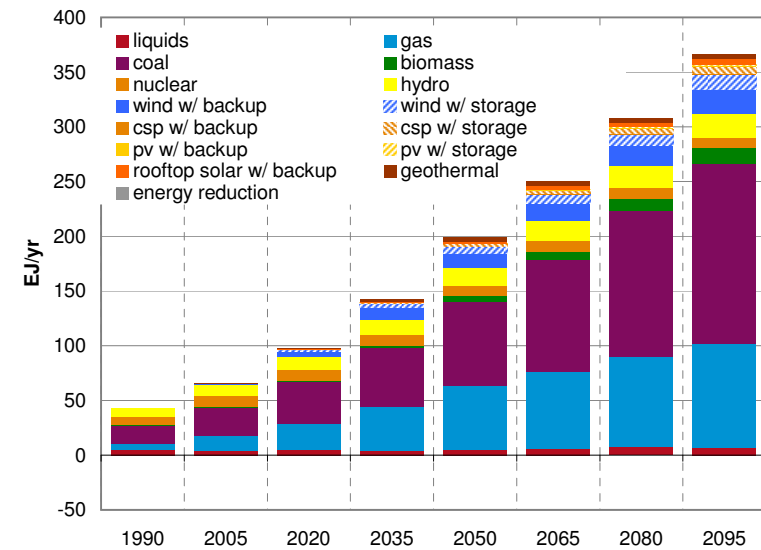
Electricity Production by Fuel: CCS Focus



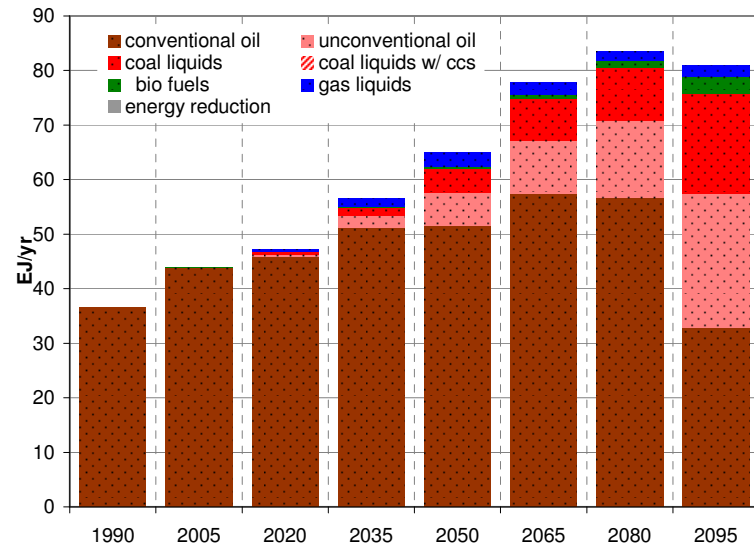
Hydrogen Production by Fuel



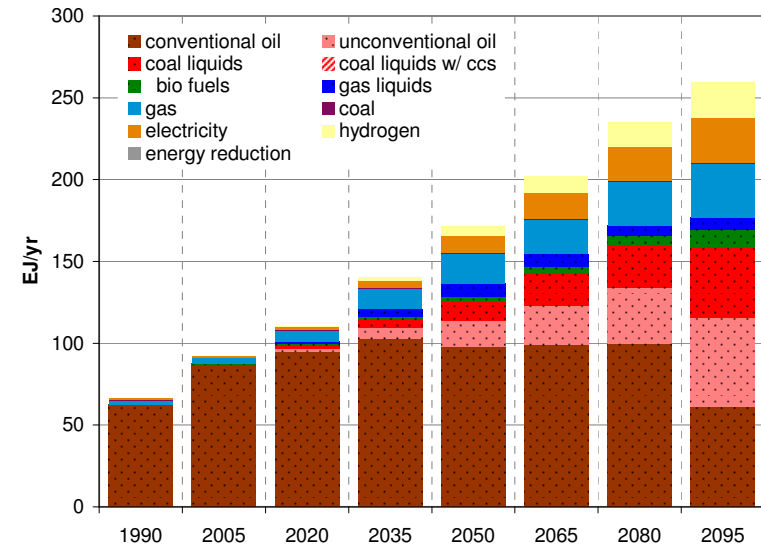
Electricity Production by Fuel: Renewable Focus



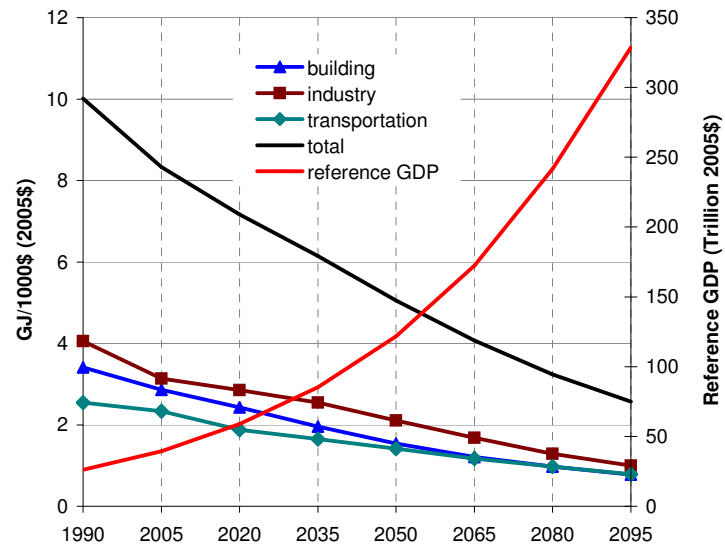
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



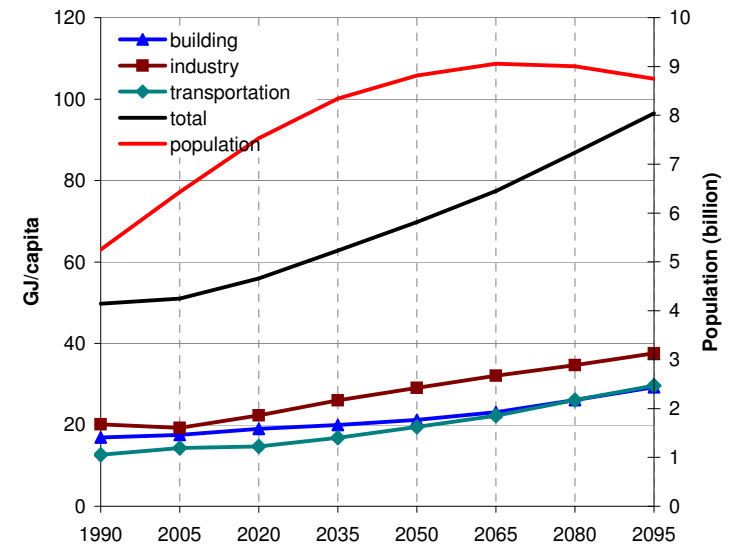
Transportation Fuels Composition



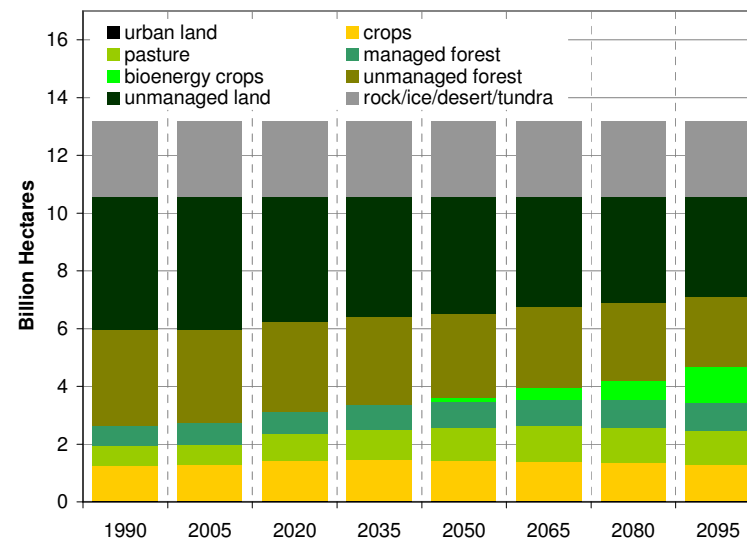
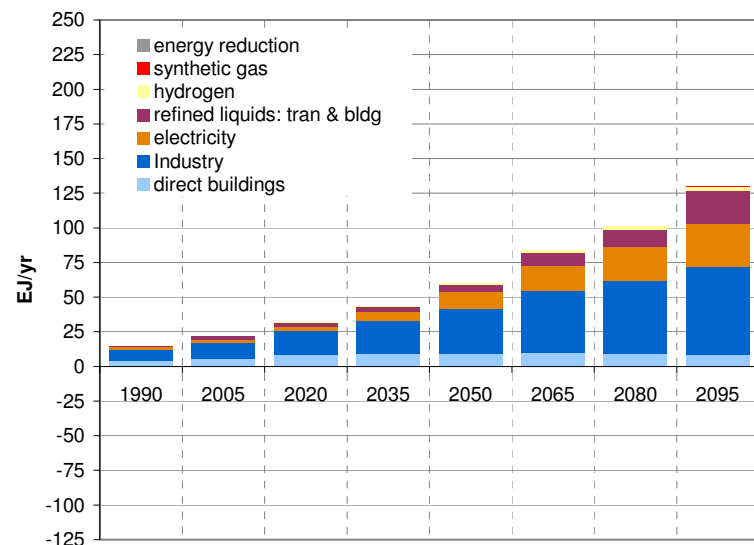
Final Energy Intensity



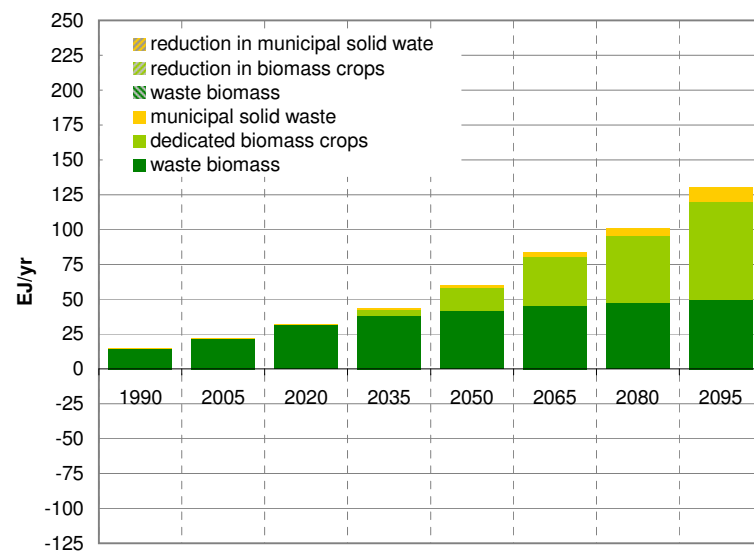
Final Energy per Capita



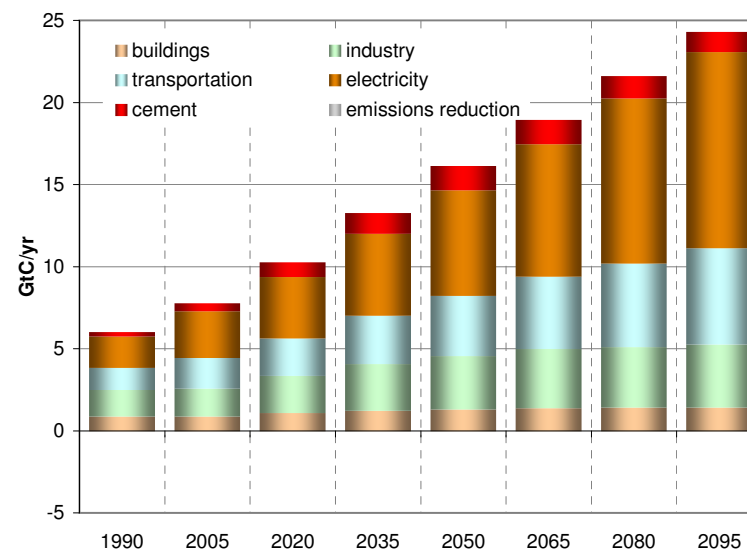
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.8	24.7	27.0	30.7	32.6	31.6	EJ/yr
building	gas	18.7	26.7	29.2	31.4	31.9	30.2	30.1	29.0	EJ/yr
building	coal	10.1	5.1	8.0	8.3	7.8	7.2	6.4	5.5	EJ/yr
building	biomass	4.5	5.5	7.9	9.0	9.3	9.8	9.5	8.7	EJ/yr
building	electricity	16.9	29.0	44.9	65.6	88.7	113.8	144.4	173.5	EJ/yr
building	trad biomass	23.5	29.9	32.1	27.8	22.9	17.9	12.2	8.0	EJ/yr
building	energy reduction	0.0	0.0	0.0	-0.1	-0.2	-0.4	-0.6	-0.4	EJ/yr
	total: w/o reduction	88.9	112.7	142.9	166.7	187.5	209.6	235.2	256.4	EJ/yr
industry	liquids	22.4	21.2	20.3	23.9	27.4	35.3	37.9	34.4	EJ/yr
industry	gas	26.6	30.5	34.2	40.3	40.5	34.4	35.8	36.5	EJ/yr
industry	coal	31.4	35.8	59.0	77.7	89.7	96.2	94.5	91.9	EJ/yr
industry	biomass	7.3	11.2	17.1	23.4	31.2	43.4	50.1	58.5	EJ/yr
industry	electricity	18.1	24.8	34.9	48.7	65.0	78.6	91.8	105.9	EJ/yr
industry	hydrogen	0.0	0.0	2.5	3.0	3.6	4.4	5.0	5.8	EJ/yr
industry	energy reduction	0.0	0.0	-0.1	-0.4	-1.1	-1.8	-3.2	-4.2	EJ/yr
industry	feedstocks	15.2	23.7	28.0	33.7	38.8	43.6	46.6	48.6	EJ/yr
	total: w/o reduction	105.8	123.6	168.0	217.0	257.4	292.3	315.2	333.1	EJ/yr
transportation	liquids	62.7	87.7	101.1	120.9	137.0	154.6	172.1	178.2	EJ/yr
transportation	gas	2.2	3.0	6.5	12.3	18.1	21.6	27.9	34.0	EJ/yr
transportation	coal	0.5	0.2	0.4	0.5	0.6	0.5	0.3	0.2	EJ/yr
transportation	electricity	1.0	1.0	2.2	4.7	10.8	15.8	20.9	26.6	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.6	9.8	15.0	21.8	EJ/yr
transportation	energy reduction	0.0	0.0	-0.1	-0.1	-0.3	-0.5	-0.9	-1.5	EJ/yr
	total: w/o reduction	66.4	91.8	110.7	140.6	172.0	202.2	236.1	260.8	EJ/yr
total final energy	buildings	88.9	112.7	142.9	166.7	187.5	209.6	235.2	256.4	EJ/yr
total final energy	industry	105.8	123.6	168.0	217.0	257.4	292.3	315.2	333.1	EJ/yr
total final energy	transportation	66.4	91.8	110.7	140.6	172.0	202.2	236.1	260.8	EJ/yr
total final energy	energy reduction	0.0	0.0	-0.1	-0.6	-1.6	-2.6	-4.6	-6.1	EJ/yr
	total: w/o reduction	261.1	328.1	421.6	524.3	617.0	704.2	786.6	850.3	EJ/yr

Scenario: nucref

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	183.6	203.2	210.2	231.3	246.4	209.3	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	129.6	177.4	218.6	221.5	242.0	267.1	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	175.9	235.1	295.1	355.7	414.0	505.0	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	32.1	43.3	58.6	79.5	94.8	119.7	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	25.8	35.4	54.6	91.7	120.8	149.6	EJ/yr
hydro	23.6	29.2	29.1	30.8	31.1	33.5	36.0	38.8	EJ/yr
wind	0.0	0.9	14.6	29.6	35.2	40.5	45.4	54.2	EJ/yr
solar	0.0	0.1	1.4	3.4	5.0	6.9	9.4	13.6	EJ/yr
geothermal	0.4	0.5	1.3	5.0	7.8	7.9	7.7	7.6	EJ/yr
energy reduction	0.0	0.0	-0.7	-1.4	0.7	1.8	2.5	7.9	EJ/yr
total: w/o reduction	356	463	593	763	916	1068	1217	1365	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.24	3.56	3.81	4.83	6.11	5.10	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	24.30	38.10	53.95	59.60	68.33	76.59	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	37.60	50.68	65.95	80.45	100.87	121.09	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.26	2.30	4.42	6.27	8.33	10.20	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	11.00	15.88	26.89	46.35	62.41	78.25	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.88	9.95	12.47	14.72	16.79	19.99	EJ/yr
wind w/storage	0.00	0.00	1.21	3.36	5.19	6.60	7.93	10.05	EJ/yr
CSP w/backup	0.00	0.00	0.39	0.61	0.51	0.65	0.86	1.28	EJ/yr
CSP w/storage	0.00	0.00	0.13	0.79	1.61	2.15	2.81	4.10	EJ/yr
PV w/backup	0.00	0.04	0.05	0.05	0.17	0.42	0.77	1.11	EJ/yr
PV w/storage	0.00	0.00	0.01	0.03	0.09	0.20	0.35	0.49	EJ/yr
rooftop PV w/backup	0.00	0.00	0.28	0.80	1.70	3.35	4.31	5.13	EJ/yr
geothermal	0.13	0.21	0.57	2.33	4.07	4.29	4.29	4.32	EJ/yr
energy reduction	0.00	0.00	-0.33	0.25	1.95	1.84	3.08	4.95	EJ/yr
total: w/o reduction	42.7	65.2	98.0	142.4	196.7	247.6	303.7	359.1	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	95.3	102.6	97.7	98.7	98.7	65.2	EJ/yr
unconventional oil	0.0	0.0	1.7	6.7	15.8	23.9	34.2	52.5	EJ/yr
coal liquids	0.0	0.0	1.6	5.2	12.5	20.3	26.7	42.3	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.2	1.7	2.5	3.9	5.5	10.4	EJ/yr
gas liquids	0.0	0.0	1.4	4.8	8.6	7.8	6.9	7.9	EJ/yr
gas	2.2	3.0	6.5	12.3	18.1	21.6	27.9	34.0	EJ/yr
coal	0.5	0.2	0.4	0.5	0.6	0.5	0.3	0.2	EJ/yr
electricity	1.0	1.0	2.2	4.7	10.8	15.8	20.9	26.6	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.6	9.8	15.0	21.8	EJ/yr
energy reduction	0.0	0.0	-0.1	-0.1	-0.3	-0.5	-0.9	-1.5	EJ/yr
total: w/o reduction	66.4	91.8	110.7	140.6	172.0	202.2	236.1	260.8	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	45.89	51.15	51.65	57.30	56.45	34.94	EJ/yr
unconventional oil	0.00	0.00	0.42	2.15	5.96	9.71	14.00	23.80	EJ/yr
coal liquids	0.00	0.00	0.39	1.53	4.45	7.84	10.14	18.47	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.13	0.25	0.48	0.87	1.27	2.83	EJ/yr
gas liquids	0.00	0.00	0.37	1.48	2.70	2.35	1.89	2.20	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.3	-1.3	EJ/yr
total: w/o reduction	36.6	43.9	47.2	56.6	65.2	78.1	83.7	82.2	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.21	3.72	6.65	9.20	12.52	16.28	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.48	0.78	1.53	2.62	3.95	5.98	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.14	0.22	0.41	0.67	1.00	1.49	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.08	0.11	0.17	0.85	1.30	2.06	EJ/yr
bulk electricity	0.00	0.00	0.08	0.15	0.31	0.51	0.73	1.02	EJ/yr
wind	0.00	0.00	0.05	0.05	0.08	0.12	0.18	0.27	EJ/yr
solar	0.00	0.00	0.05	0.07	0.13	0.19	0.31	0.53	EJ/yr
energy reduction	0.00	0.00	0.15	0.12	0.09	0.10	-0.01	0.09	EJ/yr
total: w/o reduction	0.00	0.00	3.09	5.12	9.28	14.15	19.99	27.63	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	7.9	9.0	9.3	9.8	9.5	8.7	Ej/yr
	Industry	7.4	11.3	17.4	23.9	32.1	45.1	52.5	63.6	Ej/yr
	electricity	2.1	2.5	3.6	6.0	10.4	14.3	18.6	22.4	Ej/yr
	refined liquids: tran & bldg	0.5	2.2	2.9	4.0	5.8	8.9	12.2	22.0	Ej/yr
	hydrogen	0.0	0.0	0.3	0.5	0.9	1.4	2.0	2.9	Ej/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	Ej/yr
	energy reduction	0.0	0.0	0.1	0.5	1.7	4.1	6.5	10.4	Ej/yr
	total: w/o reduction	14.4	21.6	32.1	43.3	58.6	79.5	94.8	119.7	Ej/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	31.6	37.8	41.6	44.8	46.2	47.9	EJ
dedicated biomass crops	0.0	0.0	0.0	4.5	15.3	31.6	43.8	63.4	EJ
municipal solid waste	0.0	0.1	0.4	1.0	1.7	3.1	4.8	8.4	EJ
waste biomass	0.0	0.0	0.0	0.1	0.2	0.5	0.9	1.4	EJ
reduction in biomass crops	0.0	0.0	0.0	0.4	1.4	3.2	4.9	7.0	EJ
reduction in municipal solid waste	0.0	0.0	0.0	0.0	0.1	0.3	0.7	1.9	EJ
total: w/o reduction	14.4	21.6	32.1	43.8	60.2	83.3	100.6	128.1	EJ

Arable Land Use by Type

[illegible]

Scenario: nucoref

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.8	\$85.2	\$121.7	\$172.4	\$241.5	\$328.9	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.43	1.96	1.54	1.22	0.97	0.78	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.86	2.55	2.11	1.70	1.31	1.01	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.88	1.65	1.41	1.17	0.98	0.79	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.17	6.15	5.07	4.08	3.26	2.59	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	19.0	20.0	21.3	23.1	26.1	29.3	GJ/capita
Final Energy per Capita	industry	20.2	19.2	22.3	26.0	29.2	32.3	35.0	38.1	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.7	16.8	19.5	22.3	26.2	29.8	GJ/capita
Final Energy per Capita	total	49.7	51.0	56.0	62.9	70.0	77.7	87.3	97.2	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.8	\$42.2	\$45.1	\$46.8	\$48.1	\$59.1	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$39.8	\$42.2	\$45.1	\$46.8	\$48.1	\$59.1	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.5	\$5.6	\$5.7	\$5.9	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.5	\$5.6	\$5.7	\$5.9	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.8	\$1.9	\$1.9	\$2.0	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.8	\$1.9	\$1.9	\$2.0	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.78	5.58	5.47	5.58	5.43	5.41	cents/kWh (2005\$)
	carbon price	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$/tC (2005\$)

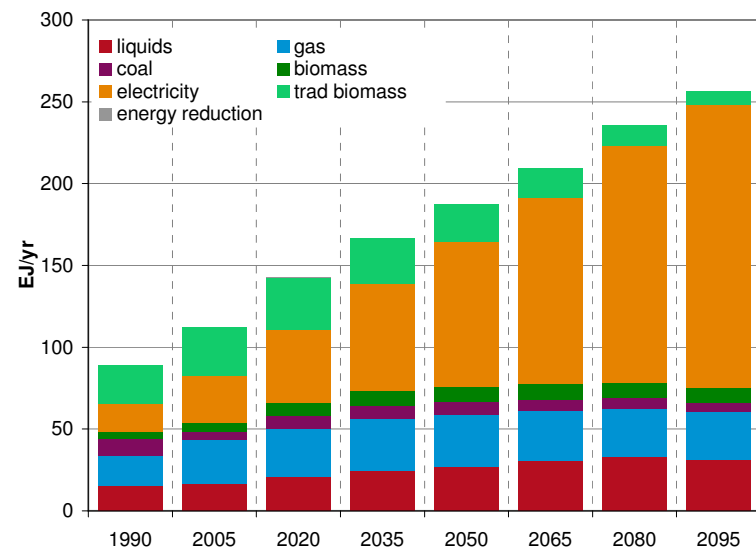
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	33	33	33	33	33	33	\$/Gcal (2005\$)
	global rice	32	32	32	32	32	32	32	31	\$/Gcal (2005\$)
	global wheat	27	27	27	26	26	26	26	26	\$/Gcal (2005\$)

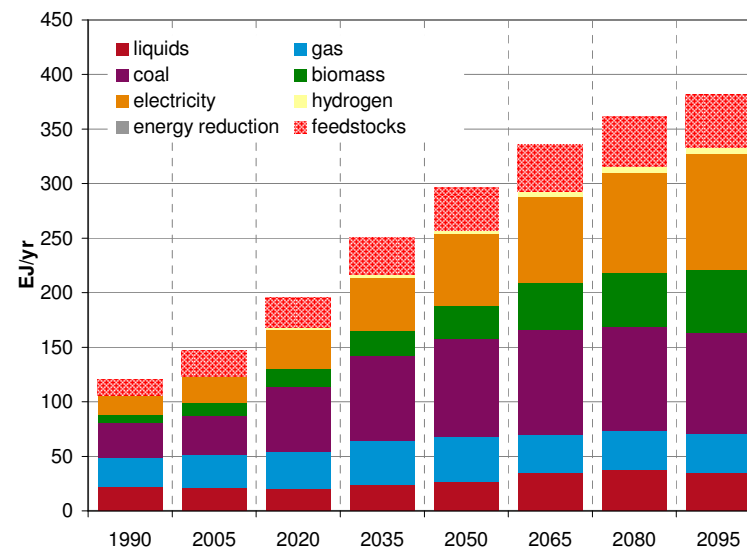
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.079	1.226	1.315	1.398	1.438	1.441	GtC/yr
	industry	1.623	1.706	2.266	2.851	3.289	3.663	3.808	3.991	GtC/yr
	transportation	1.354	1.863	2.272	2.937	3.684	4.403	5.111	5.864	GtC/yr
	electricity	1.909	2.848	3.717	4.740	5.643	6.483	7.759	8.956	GtC/yr
	cement	0.261	0.483	0.893	1.271	1.474	1.473	1.367	1.228	GtC/yr
	emissions reduction	0.000	0.000	0.039	0.239	0.720	1.517	2.132	2.818	GtC/yr
	total: w/o reduction	6.006	7.760	10.227	13.025	15.405	17.419	19.483	21.480	GtC/yr

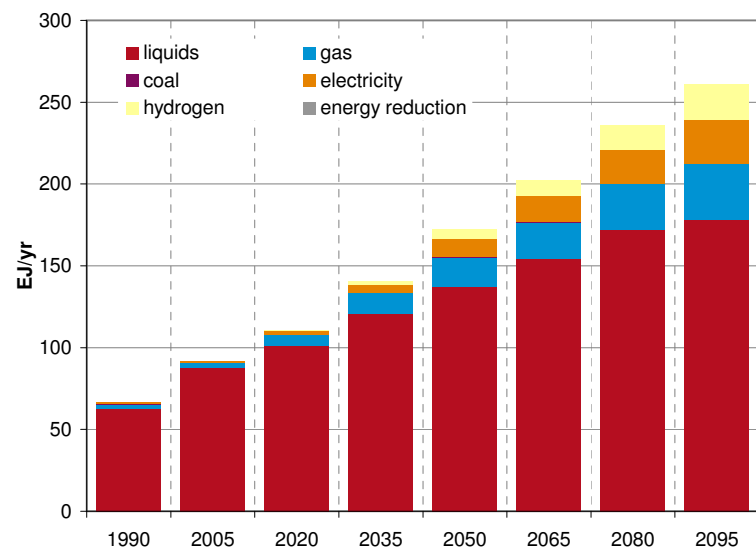
Final Energy Consumption: Buildings



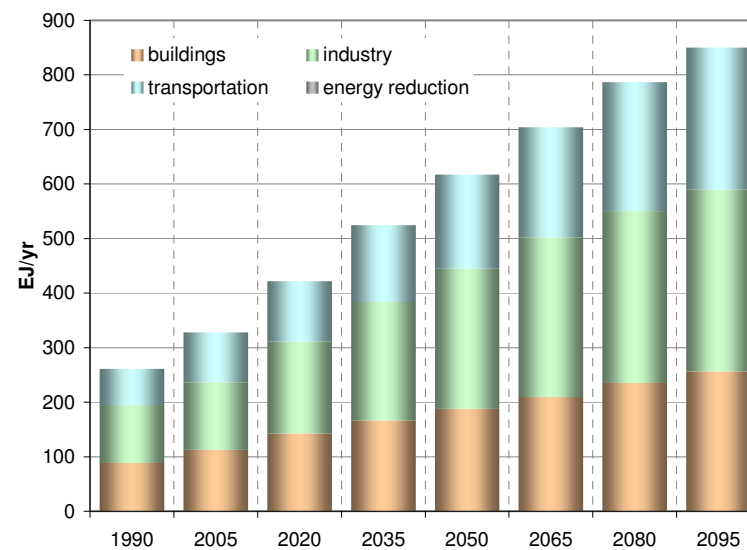
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

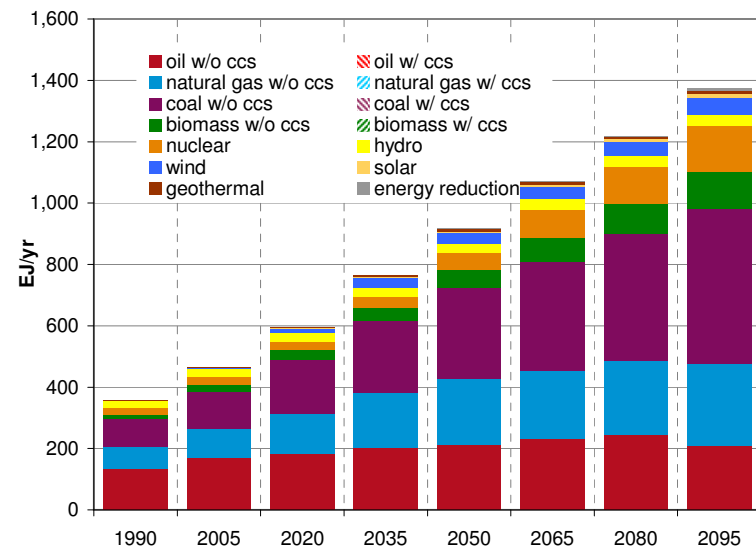


Final Energy Consumption by Sector

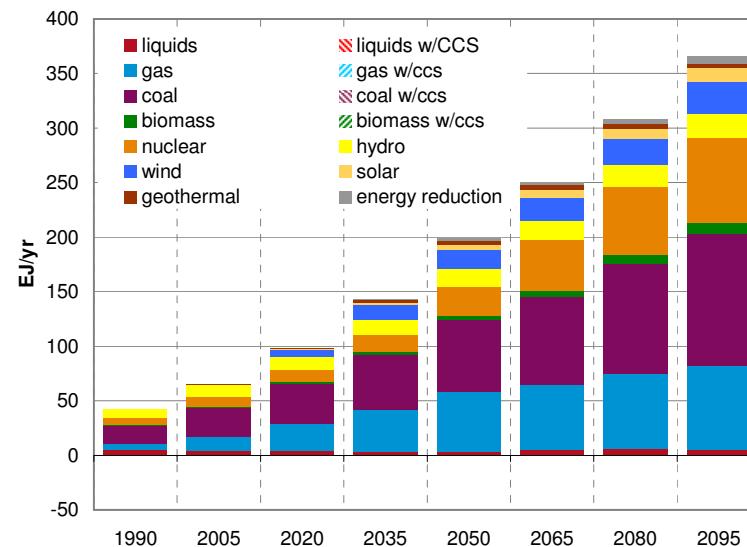


Scenario: nucref

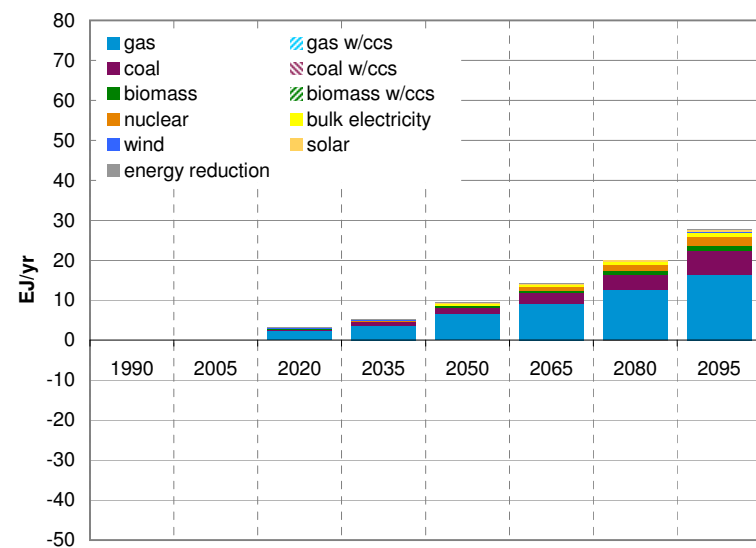
Primary Energy Consumption



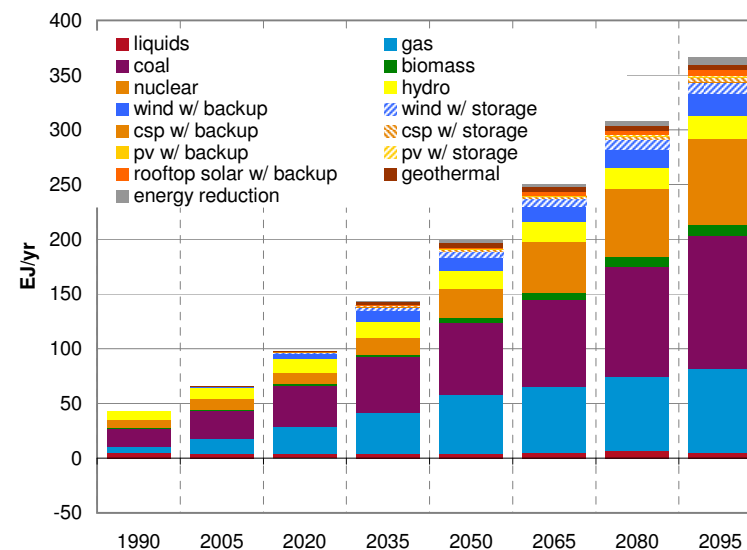
Electricity Production by Fuel: CCS Focus



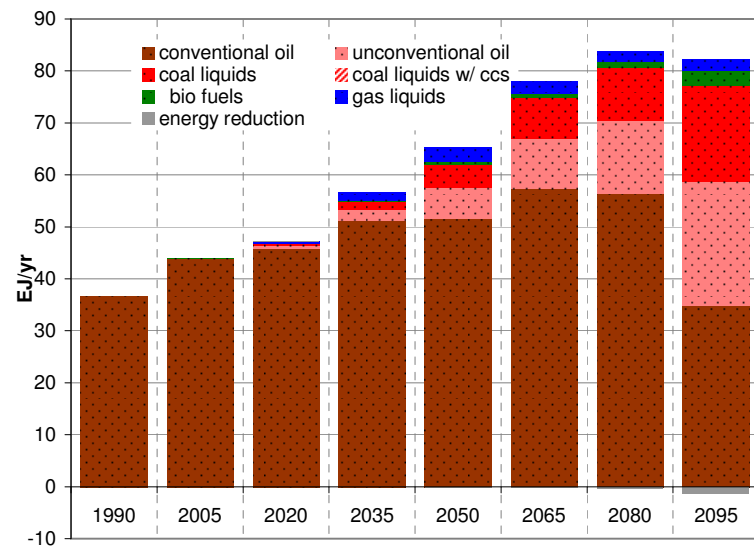
Hydrogen Production by Fuel



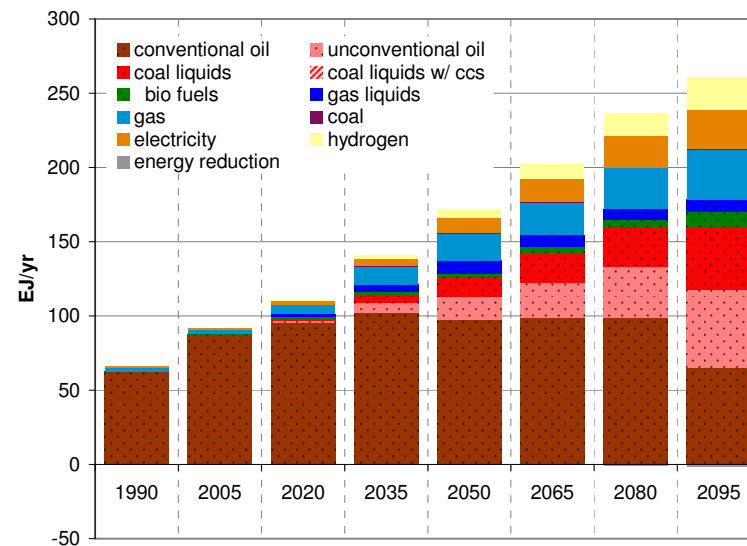
Electricity Production by Fuel: Renewable Focus



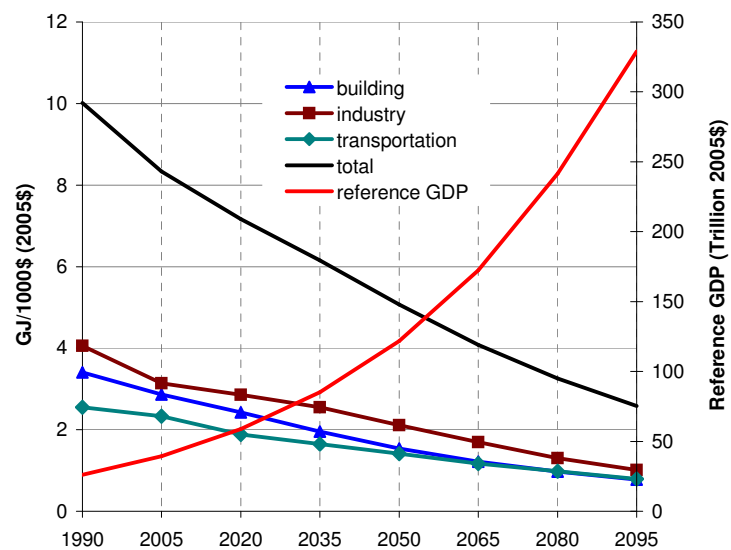
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



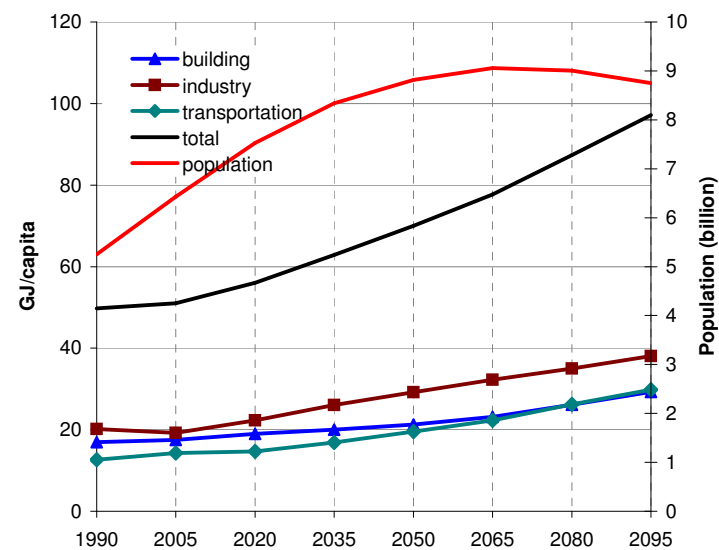
Transportation Fuels Composition



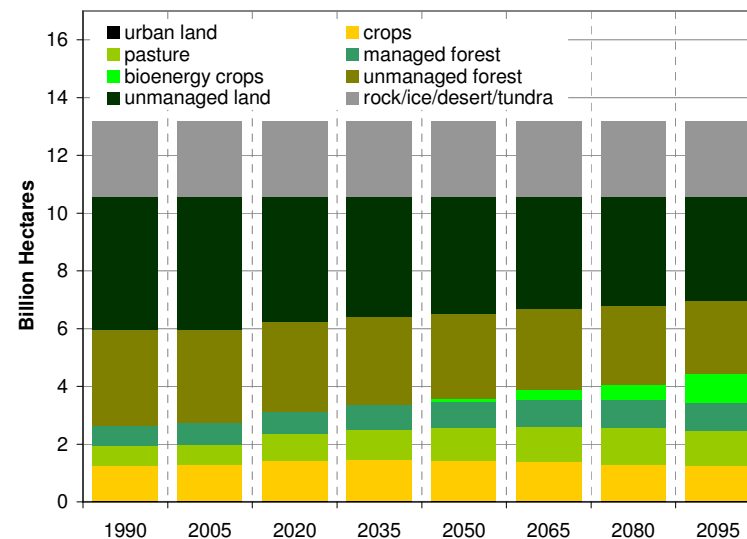
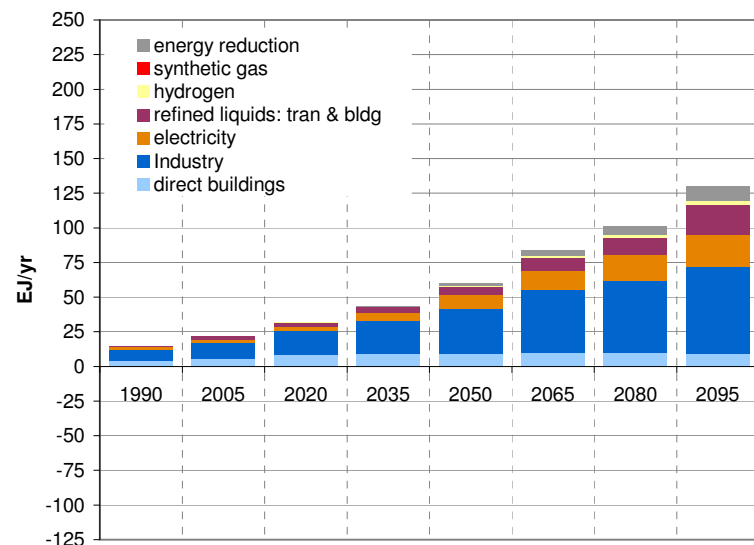
Final Energy Intensity



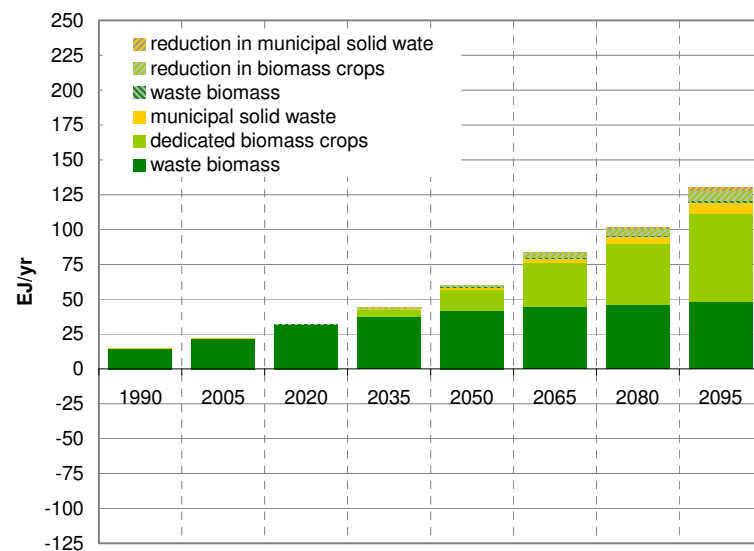
Final Energy per Capita



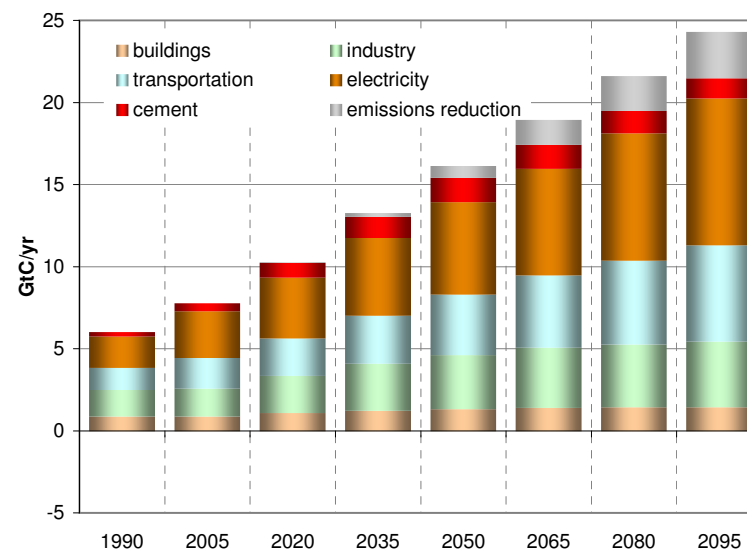
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	18.1	19.7	18.2	13.3	12.0	11.9	EJ/yr
building	gas	18.7	26.7	26.5	25.5	21.4	14.0	12.0	10.6	EJ/yr
building	coal	10.1	5.1	3.7	2.1	0.8	0.2	0.1	0.1	EJ/yr
building	biomass	4.5	5.5	8.7	8.9	6.2	3.0	2.1	1.7	EJ/yr
building	electricity	16.9	29.0	39.4	53.8	64.6	78.1	98.9	120.2	EJ/yr
building	trad biomass	23.5	29.9	33.4	31.7	29.1	25.3	19.2	12.6	EJ/yr
building	energy reduction	0.0	0.0	13.2	24.9	47.1	75.3	90.3	99.0	EJ/yr
	total: w/o reduction	88.9	112.7	129.7	141.7	140.3	133.9	144.3	157.0	EJ/yr
industry	liquids	22.4	21.2	20.0	21.7	20.9	15.1	12.7	11.0	EJ/yr
industry	gas	26.6	30.5	27.9	25.8	19.2	11.4	9.8	9.1	EJ/yr
industry	coal	31.4	35.8	22.7	15.1	7.2	2.2	1.5	1.2	EJ/yr
industry	biomass	7.3	11.2	29.8	42.4	41.6	29.6	24.8	24.2	EJ/yr
industry	electricity	18.1	24.8	34.2	47.4	60.0	79.3	94.1	108.5	EJ/yr
industry	hydrogen	0.0	0.0	3.1	3.8	5.0	5.4	6.0	7.0	EJ/yr
industry	energy reduction	0.0	0.0	30.2	60.4	102.3	147.6	163.1	168.0	EJ/yr
industry	feedstocks	15.2	23.7	24.1	26.2	26.1	25.2	26.2	28.0	EJ/yr
	total: w/o reduction	105.8	123.6	137.7	156.2	154.0	143.0	148.9	161.0	EJ/yr
transportation	liquids	62.7	87.7	95.5	107.7	107.9	91.6	91.8	94.7	EJ/yr
transportation	gas	2.2	3.0	5.8	10.6	14.9	16.6	19.3	21.4	EJ/yr
transportation	coal	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.2	5.0	12.0	23.0	31.3	37.2	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.2	6.4	12.3	19.3	27.4	EJ/yr
transportation	energy reduction	0.0	0.0	6.6	14.8	30.5	58.2	73.6	78.6	EJ/yr
	total: w/o reduction	66.4	91.8	104.1	125.6	141.3	143.6	161.6	180.7	EJ/yr
total final energy	buildings	88.9	112.7	129.7	141.7	140.3	133.9	144.3	157.0	EJ/yr
total final energy	industry	105.8	123.6	137.7	156.2	154.0	143.0	148.9	161.0	EJ/yr
total final energy	transportation	66.4	91.8	104.1	125.6	141.3	143.6	161.6	180.7	EJ/yr
total final energy	energy reduction	0.0	0.0	50.0	100.2	179.9	281.1	327.1	345.6	EJ/yr
	total: w/o reduction	261.1	328.1	371.5	423.5	435.5	420.4	454.9	498.7	EJ/yr

Scenario: ref stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	168.2	168.0	145.1	101.8	84.6	75.1	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	115.1	143.7	156.4	125.2	118.0	115.3	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	108.8	92.4	38.5	12.8	10.5	10.4	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	56.3	100.6	147.0	168.8	185.4	202.3	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	23.3	21.3	17.1	16.0	15.4	15.0	EJ/yr
hydro	23.6	29.2	29.2	29.6	28.6	29.7	31.7	34.4	EJ/yr
wind	0.0	0.9	19.9	48.4	75.7	120.4	144.4	159.3	EJ/yr
solar	0.0	0.1	1.7	7.4	24.0	70.3	127.9	191.1	EJ/yr
geothermal	0.4	0.5	1.6	6.8	7.7	7.4	7.1	7.0	EJ/yr
energy reduction	0.0	0.0	68.5	143.4	276.9	417.8	494.1	562.8	EJ/yr
total: w/o reduction	356	463	524	618	640	652	725	810	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.20	3.68	4.09	4.51	4.43	5.40	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	22.62	34.43	44.55	36.43	34.45	34.51	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	29.51	28.88	13.27	4.50	3.81	3.90	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.73	4.59	11.85	15.94	14.92	12.44	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	6.24	14.91	23.78	35.70	40.89	44.13	EJ/yr
wind w/storage	0.00	0.00	2.07	7.31	17.10	35.69	47.35	53.79	EJ/yr
CSP w/backup	0.00	0.00	0.44	1.05	2.51	7.30	13.04	19.17	EJ/yr
CSP w/storage	0.00	0.00	0.16	2.00	8.10	24.06	43.52	66.07	EJ/yr
PV w/backup	0.00	0.04	0.05	0.12	0.85	4.10	8.03	10.75	EJ/yr
PV w/storage	0.00	0.00	0.01	0.07	0.43	2.51	5.98	9.05	EJ/yr
rooftop PV w/backup	0.00	0.00	0.38	1.35	3.95	7.91	10.23	12.02	EJ/yr
geothermal	0.13	0.21	0.70	3.30	4.41	4.50	4.51	4.50	EJ/yr
energy reduction	0.00	0.00	7.78	19.88	48.02	71.27	105.85	144.19	EJ/yr
total: w/o reduction	42.7	65.2	90.2	125.6	160.7	210.8	260.7	307.1	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	89.0	89.7	76.9	53.8	45.3	39.3	EJ/yr
unconventional oil	0.0	0.0	0.8	2.1	2.9	1.2	0.7	0.7	EJ/yr
coal liquids	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	4.3	12.4	23.4	33.3	43.5	53.4	EJ/yr
gas liquids	0.0	0.0	1.2	3.5	4.8	3.4	2.2	1.3	EJ/yr
gas	2.2	3.0	5.8	10.6	14.9	16.6	19.3	21.4	EJ/yr
coal	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.2	5.0	12.0	23.0	31.3	37.2	EJ/yr
hydrogen	0.0	0.0	0.6	2.2	6.4	12.3	19.3	27.4	EJ/yr
energy reduction	0.0	0.0	6.6	14.8	30.5	58.2	73.6	78.6	EJ/yr
total: w/o reduction	66.4	91.8	104.1	125.6	141.3	143.6	161.6	180.7	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	41.79	42.10	36.49	25.68	20.88	17.48	EJ/yr
unconventional oil	0.00	0.00	0.17	0.35	0.35	0.07	0.09	0.08	EJ/yr
coal liquids	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.83	3.47	7.95	12.78	16.66	20.47	EJ/yr
gas liquids	0.00	0.00	0.29	0.95	1.24	0.85	0.47	0.17	EJ/yr
energy reduction	0.0	0.0	4.1	9.7	19.0	38.5	45.3	42.7	EJ/yr
total: w/o reduction	36.6	43.9	43.1	46.9	46.0	39.4	38.1	38.2	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.69	4.49	8.35	10.75	12.30	13.13	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.34	0.36	0.38	0.31	0.39	0.49	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.31	0.61	1.08	1.45	1.89	2.45	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.09	0.20	0.44	0.91	1.31	1.69	EJ/yr
wind	0.00	0.00	0.11	0.14	0.31	0.90	1.59	2.45	EJ/yr
solar	0.00	0.00	0.11	0.24	0.85	3.39	7.83	14.12	EJ/yr
energy reduction	0.00	0.00	-0.41	-0.80	-2.04	-3.46	-5.32	-6.61	EJ/yr
total: w/o reduction	0.00	0.00	3.66	6.03	11.41	17.71	25.30	34.33	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	8.7	8.9	6.2	3.0	2.1	1.7	Ej/yr
	Industry	7.4	11.3	31.6	49.4	57.2	54.0	55.8	61.2	Ej/yr
	electricity	2.1	2.5	4.8	11.6	27.6	36.1	32.3	26.3	Ej/yr
	refined liquids: tran & bldg	0.5	2.2	10.6	29.4	53.7	72.9	91.4	108.3	Ej/yr
	hydrogen	0.0	0.0	0.7	1.3	2.3	3.0	3.8	4.8	Ej/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Ej/yr
	energy reduction	0.0	0.0	-24.2	-56.7	-86.7	-85.2	-84.1	-72.3	Ej/yr
	total: w/o reduction	14.4	21.6	56.3	100.6	147.0	168.8	185.4	202.3	Ej/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	26.7	53.7	78.7	82.8	82.7	80.6	EJ
dedicated biomass crops	0.0	0.0	29.4	39.1	52.1	64.2	73.8	84.1	EJ
municipal solid waste	0.0	0.1	0.2	7.8	16.2	21.9	29.0	37.5	EJ
waste biomass	0.0	0.0	4.9	-15.9	-36.9	-37.4	-35.6	-31.3	EJ
reduction in biomass crops	0.0	0.0	-29.4	-34.1	-35.4	-29.4	-25.0	-13.7	EJ
reduction in municipal solid waste	0.0	0.0	0.3	-6.7	-14.4	-18.5	-23.4	-27.2	EJ
total: w/o reduction	14.4	21.6	31.8	50.6	74.7	102.1	124.8	157.3	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$56.7	\$80.5	\$112.7	\$156.2	\$218.8	\$299.7	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.29	1.76	1.25	0.86	0.66	0.52	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.43	1.94	1.37	0.92	0.68	0.54	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.84	1.56	1.25	0.92	0.74	0.60	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	6.55	5.26	3.87	2.69	2.08	1.66	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.2	17.0	15.9	14.8	16.0	17.9	GJ/capita
Final Energy per Capita	industry	20.2	19.2	18.3	18.7	17.5	15.8	16.5	18.4	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	13.8	15.1	16.0	15.8	17.9	20.7	GJ/capita
Final Energy per Capita	total	49.7	51.0	49.3	50.8	49.4	46.4	50.5	57.0	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.5	\$40.7	\$42.6	\$42.2	\$41.2	\$39.9	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$52.3	\$67.3	\$98.1	\$156.9	\$178.7	\$188.2	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.2	\$3.9	\$4.1	\$4.3	\$4.3	\$4.4	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.8	\$7.2	\$11.0	\$18.6	\$21.4	\$22.8	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.6	\$1.5	\$1.4	\$1.3	\$1.2	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$4.6	\$7.6	\$14.0	\$27.3	\$32.4	\$34.8	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	7.09	7.54	9.73	11.74	11.79	12.01	cents/kWh (2005\$)
	carbon price	0.0	0.0	105.6	219.4	456.2	948.6	1138.1	1228.1	\$/tC (2005\$)

Crop Prices

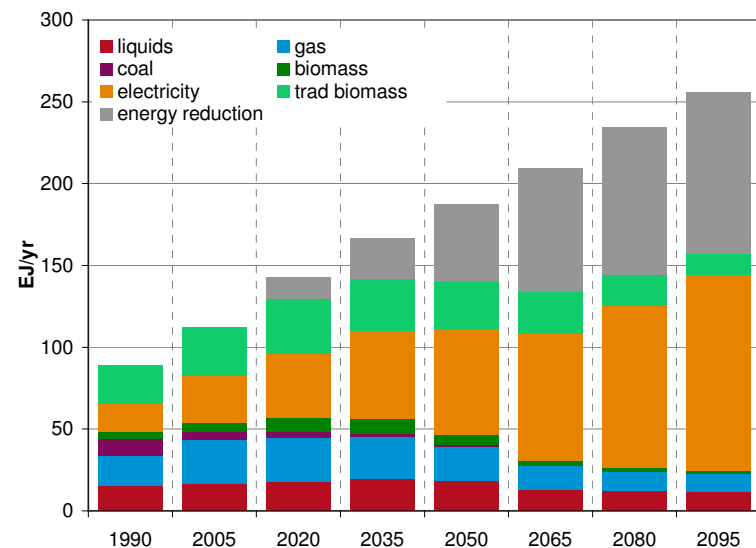
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	54	68	89	122	124	115	\$/Gcal (2005\$)
	global rice	32	32	66	87	129	193	183	150	\$/Gcal (2005\$)
	global wheat	27	27	65	91	134	204	198	168	\$/Gcal (2005\$)

Emissions by Sectors

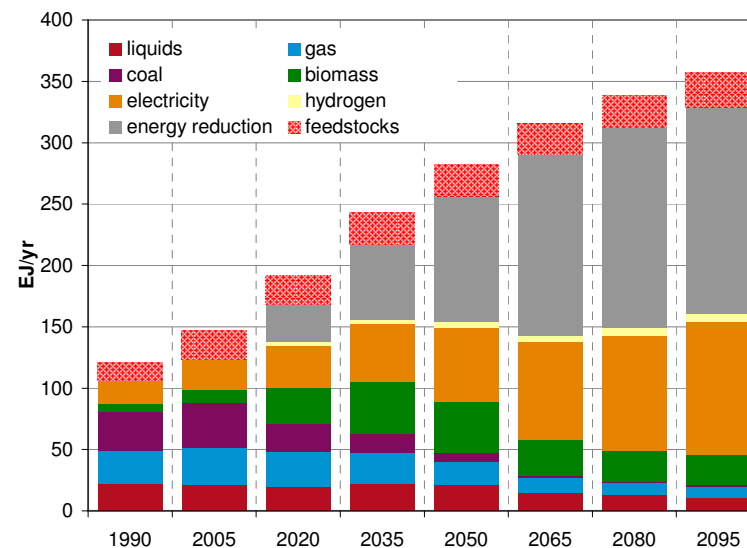
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.839	0.785	0.623	0.380	0.304	0.258	GtC/yr
	industry	1.623	1.706	1.396	1.194	0.801	0.333	0.159	0.021	GtC/yr
	transportation	1.354	1.863	2.013	2.199	2.082	1.592	1.443	1.342	GtC/yr
	electricity	1.909	2.848	3.068	3.100	2.055	1.299	1.184	1.211	GtC/yr
	cement	0.261	0.483	0.533	0.594	0.553	0.439	0.381	0.341	GtC/yr
	emissions reduction	0.000	0.000	2.416	5.391	10.011	14.893	18.145	21.127	GtC/yr
	total: w/o reduction	6.006	7.760	7.849	7.872	6.114	4.043	3.470	3.171	GtC/yr

Scenario: ref stab

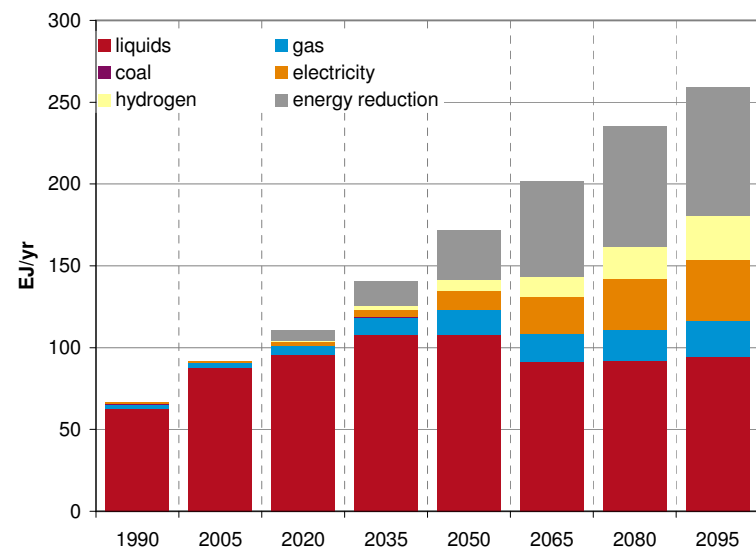
Final Energy Consumption: Buildings



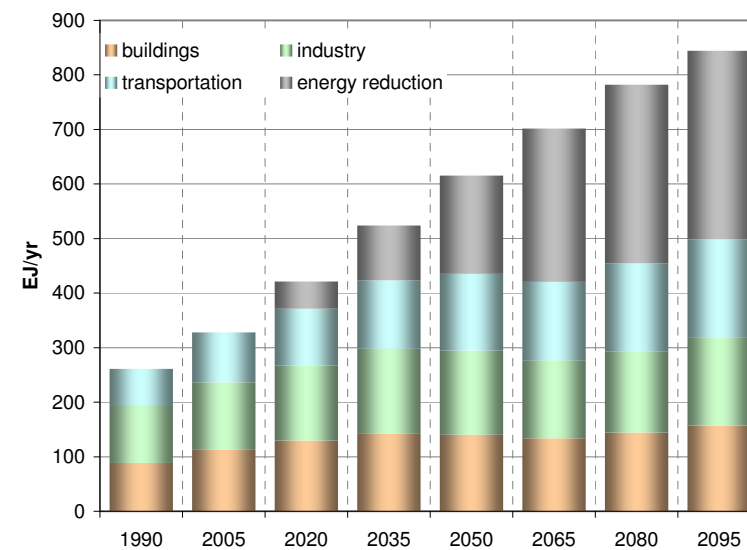
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

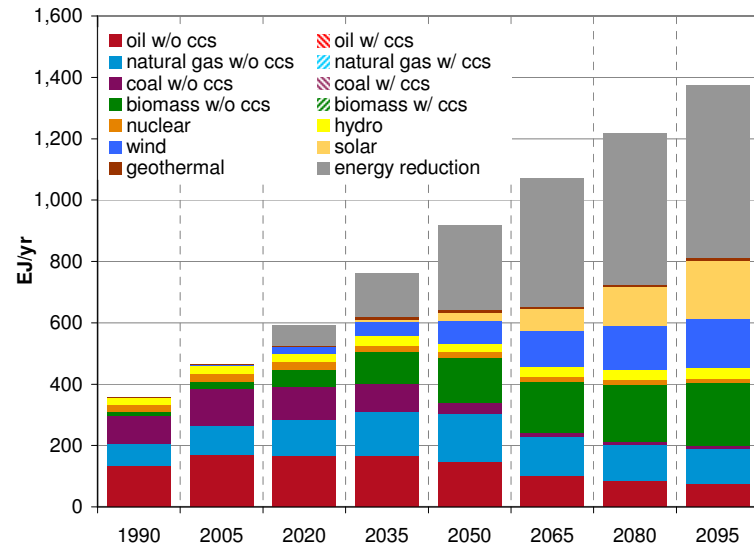


Final Energy Consumption by Sector

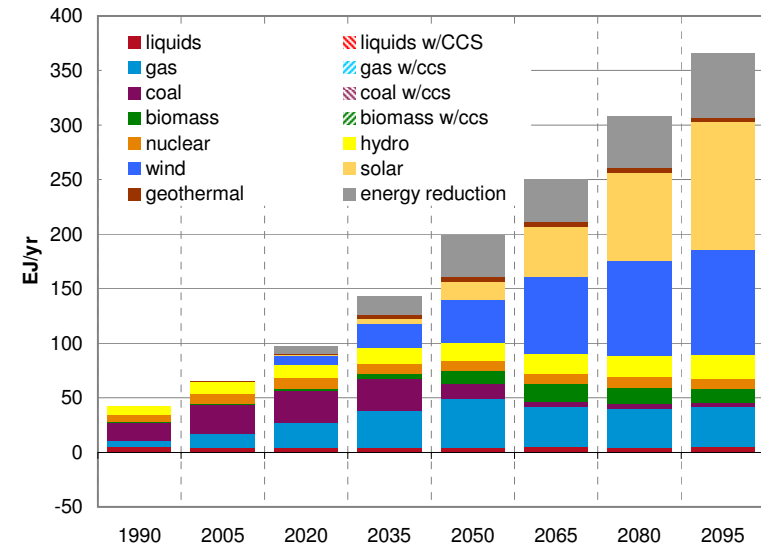


Scenario: ref stab

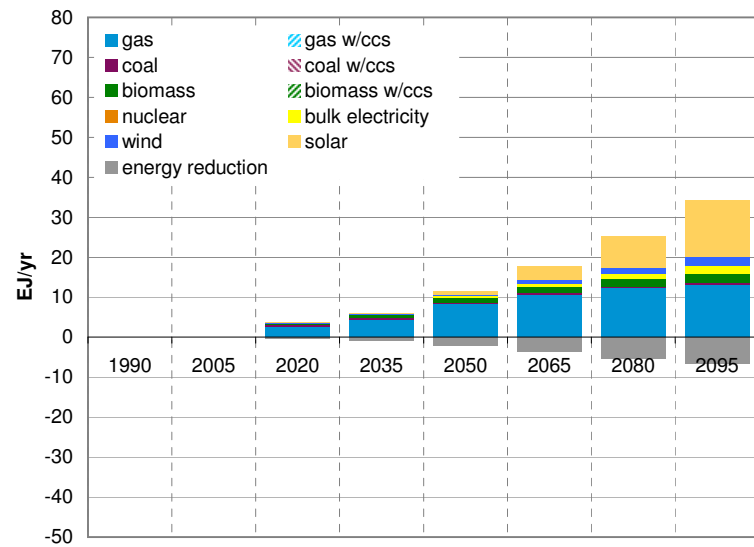
Primary Energy Consumption



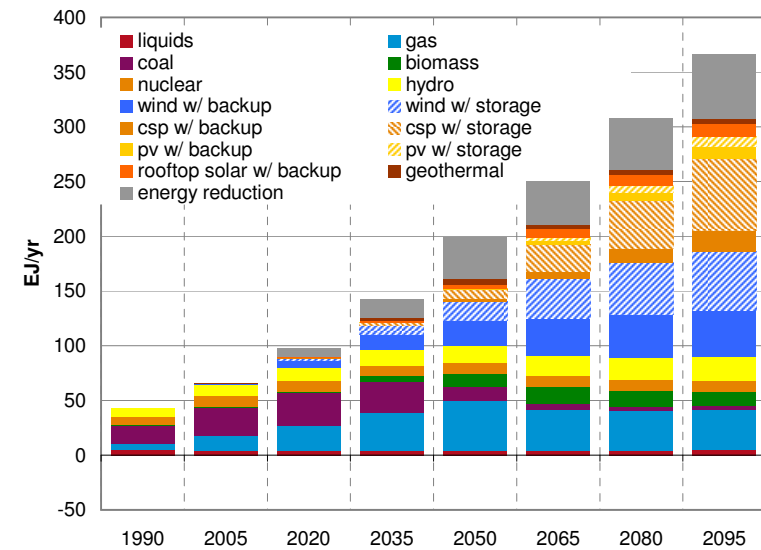
Electricity Production by Fuel: CCS Focus



Hydrogen Production by Fuel

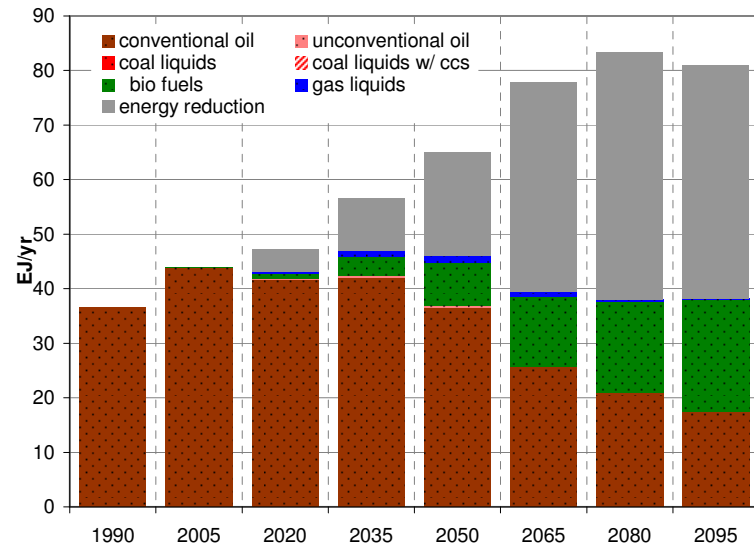


Electricity Production by Fuel: Renewable Focus

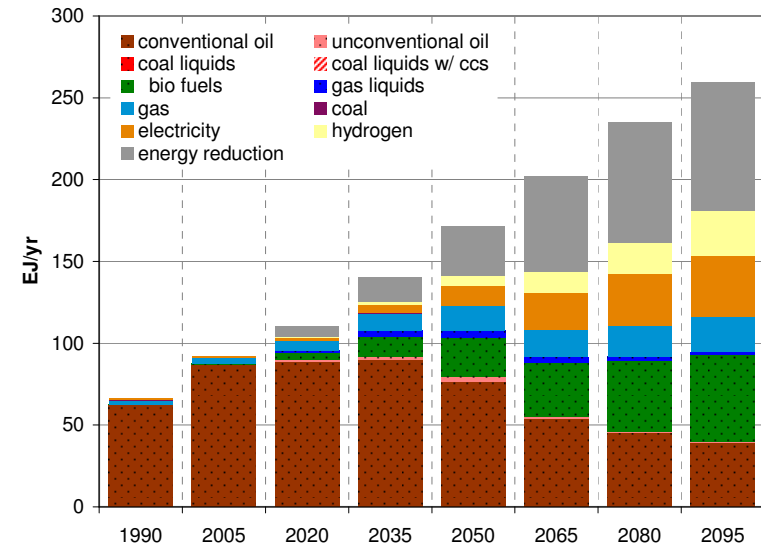


Scenario: ref stab

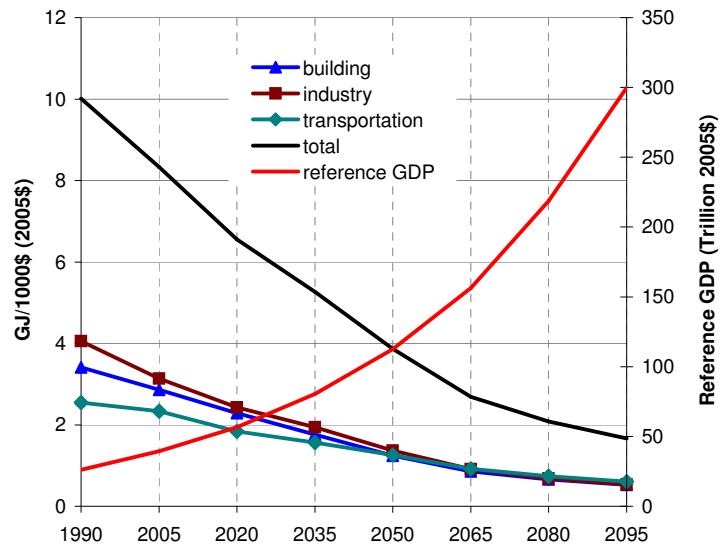
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



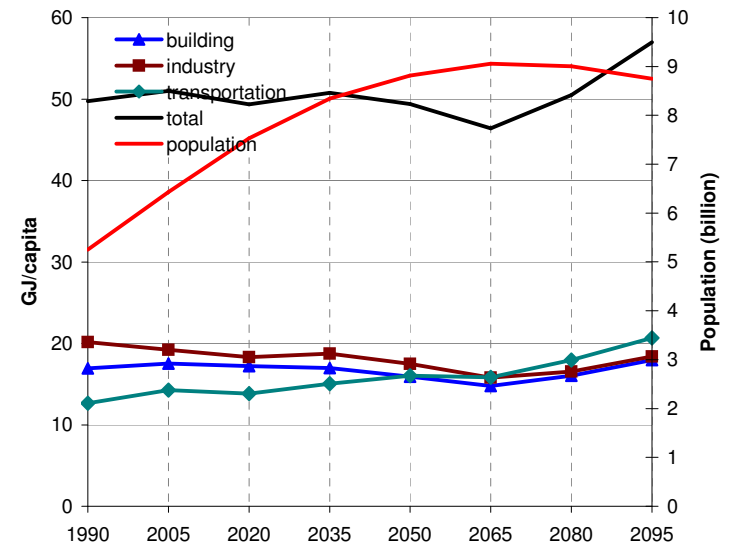
Transportation Fuels Composition



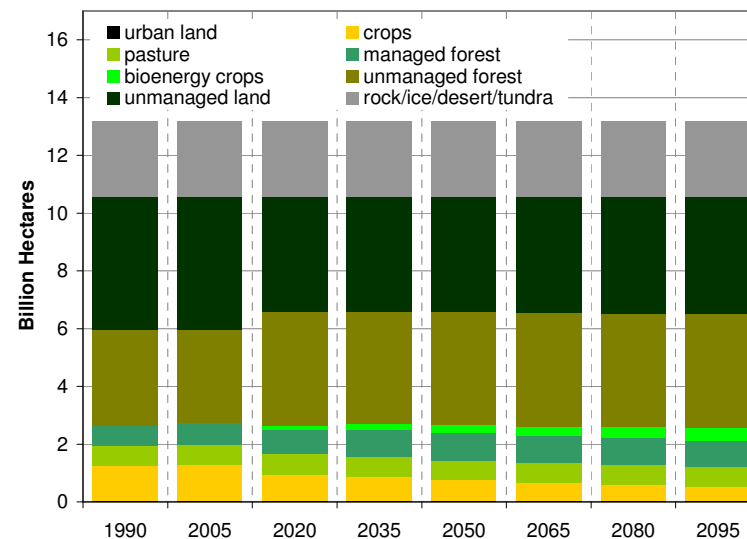
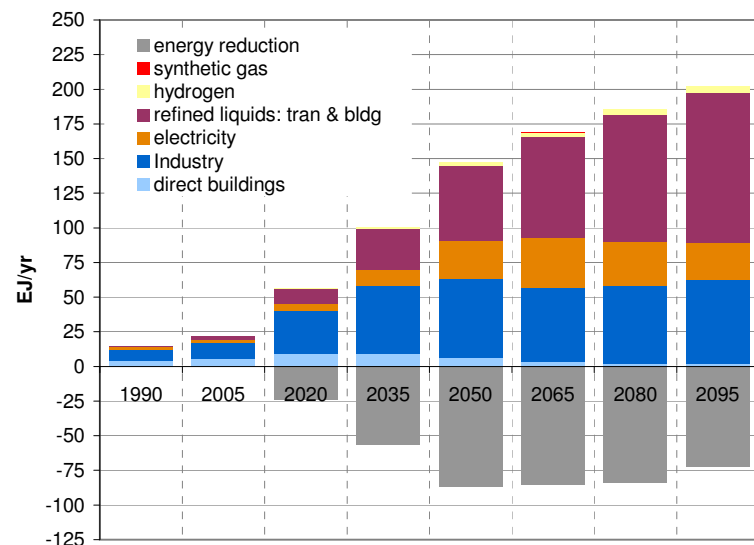
Final Energy Intensity



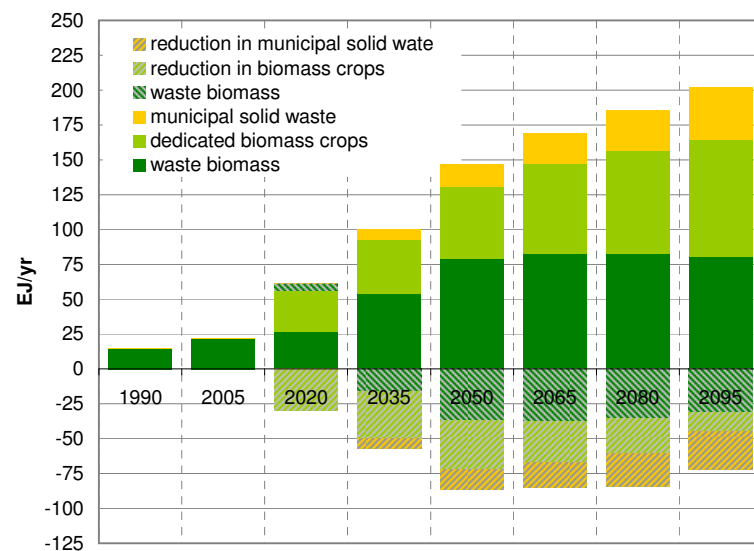
Final Energy per Capita



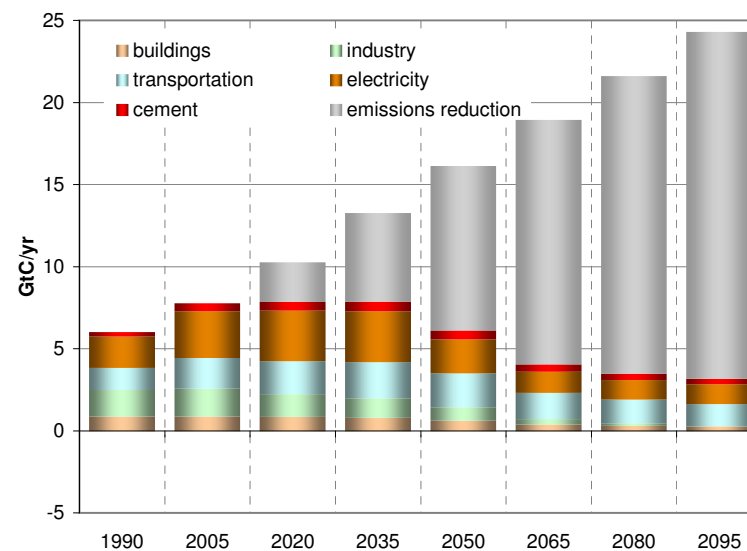
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: nucref stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	18.5	20.1	18.2	13.9	14.9	14.9	EJ/yr
building	gas	18.7	26.7	26.8	26.4	22.2	15.3	15.5	13.9	EJ/yr
building	coal	10.1	5.1	4.4	2.7	1.1	0.3	0.3	0.2	EJ/yr
building	biomass	4.5	5.5	8.7	9.1	7.3	4.0	3.4	2.8	EJ/yr
building	electricity	16.9	29.0	40.9	57.6	74.8	96.5	119.8	141.9	EJ/yr
building	trad biomass	23.5	29.9	33.0	30.4	26.1	21.4	15.7	10.5	EJ/yr
building	energy reduction	0.0	0.0	10.6	20.4	37.6	57.8	65.0	71.8	EJ/yr
	total: w/o reduction	88.9	112.7	132.3	146.2	149.7	151.5	169.6	184.1	EJ/yr
industry	liquids	22.4	21.2	20.1	21.8	19.1	13.2	14.0	12.9	EJ/yr
industry	gas	26.6	30.5	29.2	28.7	20.2	11.2	12.3	11.4	EJ/yr
industry	coal	31.4	35.8	28.1	18.8	7.7	1.9	2.1	1.7	EJ/yr
industry	biomass	7.3	11.2	27.5	40.6	45.2	32.2	31.9	32.2	EJ/yr
industry	electricity	18.1	24.8	35.4	51.7	73.7	104.2	114.4	126.7	EJ/yr
industry	hydrogen	0.0	0.0	2.7	3.3	3.9	4.6	5.5	6.8	EJ/yr
industry	energy reduction	0.0	0.0	24.8	51.7	86.5	123.3	131.7	137.2	EJ/yr
industry	feedstocks	15.2	23.7	24.9	27.5	28.5	29.3	31.1	32.6	EJ/yr
	total: w/o reduction	105.8	123.6	143.2	165.0	169.8	167.3	180.3	191.7	EJ/yr
transportation	liquids	62.7	87.7	96.6	110.0	111.3	97.3	108.6	112.7	EJ/yr
transportation	gas	2.2	3.0	5.9	10.9	14.6	15.7	20.5	23.4	EJ/yr
transportation	coal	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.2	5.1	13.4	25.6	30.7	36.1	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.8	12.0	18.4	26.5	EJ/yr
transportation	energy reduction	0.0	0.0	5.2	12.3	26.6	51.1	57.0	60.6	EJ/yr
	total: w/o reduction	66.4	91.8	105.4	128.1	145.2	150.6	178.2	198.7	EJ/yr
total final energy	buildings	88.9	112.7	132.3	146.2	149.7	151.5	169.6	184.1	EJ/yr
total final energy	industry	105.8	123.6	143.2	165.0	169.8	167.3	180.3	191.7	EJ/yr
total final energy	transportation	66.4	91.8	105.4	128.1	145.2	150.6	178.2	198.7	EJ/yr
total final energy	energy reduction	0.0	0.0	40.6	84.4	150.7	232.1	253.8	269.7	EJ/yr
	total: w/o reduction	261.1	328.1	380.9	439.3	464.7	469.4	528.1	574.5	EJ/yr

Scenario: nucref stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	171.8	176.3	148.4	98.5	99.1	91.0	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	117.8	145.6	153.5	92.8	105.9	102.1	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	121.1	110.4	28.8	8.5	7.4	7.2	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	50.7	84.9	139.6	167.0	183.8	201.4	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	29.3	53.5	129.9	266.0	309.1	372.2	EJ/yr
hydro	23.6	29.2	29.3	30.6	28.5	30.2	31.8	34.8	EJ/yr
wind	0.0	0.9	18.5	41.2	55.9	77.5	78.3	86.4	EJ/yr
solar	0.0	0.1	1.9	5.8	13.1	26.2	30.8	40.2	EJ/yr
geothermal	0.4	0.5	1.6	6.1	7.6	7.3	6.9	6.9	EJ/yr
energy reduction	0.0	0.0	50.8	107.2	211.7	296.2	366.0	430.7	EJ/yr
total: w/o reduction	356	463	542	654	705	774	853	942	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.10	3.38	3.32	2.94	2.33	2.99	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	22.46	32.56	41.63	18.39	22.23	20.57	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	31.42	33.34	8.61	2.60	1.97	2.09	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.65	3.68	8.71	8.08	6.55	4.56	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	12.45	23.75	69.20	147.19	179.60	213.53	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.86	13.00	19.18	26.21	26.68	28.88	EJ/yr
wind w/storage	0.00	0.00	1.76	5.53	11.11	18.89	21.05	23.28	EJ/yr
CSP w/backup	0.00	0.00	0.50	0.92	1.40	2.62	3.06	3.88	EJ/yr
CSP w/storage	0.00	0.00	0.18	1.45	4.49	8.59	9.93	12.45	EJ/yr
PV w/backup	0.00	0.04	0.05	0.08	0.49	1.83	2.71	3.35	EJ/yr
PV w/storage	0.00	0.00	0.01	0.04	0.26	0.87	1.23	1.49	EJ/yr
rooftop PV w/backup	0.00	0.00	0.34	1.11	2.77	5.39	7.36	9.08	EJ/yr
geothermal	0.13	0.21	0.66	2.88	4.35	4.43	4.40	4.39	EJ/yr
energy reduction	0.00	0.00	4.34	8.53	11.97	-5.63	11.24	27.69	EJ/yr
total: w/o reduction	42.7	65.2	93.6	135.7	191.4	265.8	308.7	352.0	EJ/yr

Scenario: nucref stab

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	90.8	93.9	78.8	52.1	54.0	49.6	EJ/yr
unconventional oil	0.0	0.0	1.0	3.1	4.8	3.7	4.2	3.7	EJ/yr
coal liquids	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	3.4	8.7	22.1	37.2	46.5	56.2	EJ/yr
gas liquids	0.0	0.0	1.3	4.1	5.7	4.3	3.9	3.2	EJ/yr
gas	2.2	3.0	5.9	10.9	14.6	15.7	20.5	23.4	EJ/yr
coal	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.2	5.1	13.4	25.6	30.7	36.1	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.8	12.0	18.4	26.5	EJ/yr
energy reduction	0.0	0.0	5.2	12.3	26.6	51.1	57.0	60.6	EJ/yr
total: w/o reduction	66.4	91.8	105.4	128.1	145.2	150.6	178.2	198.7	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	42.81	44.36	36.90	24.70	24.97	22.53	EJ/yr
unconventional oil	0.00	0.00	0.23	0.59	0.73	0.19	0.52	0.34	EJ/yr
coal liquids	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.59	2.14	7.45	15.63	17.84	21.22	EJ/yr
gas liquids	0.00	0.00	0.31	1.18	1.51	1.09	0.85	0.63	EJ/yr
energy reduction	0.0	0.0	3.3	8.2	18.4	36.3	39.2	36.2	EJ/yr
total: w/o reduction	36.6	43.9	44.0	48.3	46.6	41.6	44.2	44.7	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.37	3.96	6.80	7.08	9.61	10.64	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.32	0.35	0.35	0.26	0.37	0.43	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.24	0.44	0.82	1.07	1.33	1.74	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.13	0.23	0.59	5.56	8.35	13.45	EJ/yr
bulk electricity	0.00	0.00	0.10	0.20	0.47	0.83	1.12	1.40	EJ/yr
wind	0.00	0.00	0.07	0.10	0.20	0.53	0.89	1.47	EJ/yr
solar	0.00	0.00	0.08	0.15	0.44	1.32	2.26	4.10	EJ/yr
energy reduction	0.00	0.00	-0.06	-0.19	-0.30	-2.40	-3.95	-5.51	EJ/yr
total: w/o reduction	0.00	0.00	3.30	5.43	9.66	16.65	23.93	33.23	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.7	9.1	7.3	4.0	3.4	2.8	EJ/yr
Industry	7.4	11.3	28.7	44.9	59.8	61.9	65.1	70.5	EJ/yr
electricity	2.1	2.5	4.6	9.4	20.4	17.9	14.1	9.7	EJ/yr
refined liquids: tran & bldg	0.5	2.2	8.2	20.6	50.3	81.0	98.4	114.9	EJ/yr
hydrogen	0.0	0.0	0.5	0.9	1.7	2.2	2.7	3.4	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
energy reduction	0.0	0.0	-18.6	-41.1	-79.3	-83.4	-82.5	-71.3	EJ/yr
total: w/o reduction	14.4	21.6	50.7	84.9	139.6	167.0	183.8	201.4	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	24.0	45.3	74.1	83.0	83.7	82.0	EJ
dedicated biomass crops	0.0	0.0	26.6	36.5	49.2	61.9	70.9	81.3	EJ
municipal solid waste	0.0	0.1	0.1	3.0	16.2	22.0	29.2	38.1	EJ
waste biomass	0.0	0.0	7.6	-7.5	-32.4	-37.7	-36.6	-32.6	EJ
reduction in biomass crops	0.0	0.0	-26.6	-31.6	-32.5	-27.1	-22.2	-11.0	EJ
reduction in municipal solid waste	0.0	0.0	0.4	-2.0	-14.4	-18.6	-23.7	-27.7	EJ
total: w/o reduction	14.4	21.6	31.8	45.8	74.7	102.2	125.0	157.8	EJ

Arable Land Use by Type

[illegible]

Scenario: nucref stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.1	\$81.1	\$113.9	\$158.3	\$222.7	\$304.5	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.32	1.80	1.31	0.96	0.76	0.60	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.51	2.03	1.49	1.06	0.81	0.63	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.85	1.58	1.27	0.95	0.80	0.65	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	6.67	5.42	4.08	2.97	2.37	1.89	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.6	17.5	17.0	16.7	18.8	21.0	GJ/capita
Final Energy per Capita	industry	20.2	19.2	19.0	19.8	19.3	18.5	20.0	21.9	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.0	15.4	16.5	16.6	19.8	22.7	GJ/capita
Final Energy per Capita	total	49.7	51.0	50.6	52.7	52.7	51.8	58.6	65.7	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.6	\$41.1	\$43.1	\$43.0	\$42.6	\$41.4	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$48.9	\$60.6	\$84.1	\$128.4	\$129.0	\$138.7	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$3.9	\$4.1	\$4.1	\$4.2	\$4.1	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.4	\$6.3	\$9.1	\$14.6	\$14.8	\$16.0	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.5	\$1.4	\$1.3	\$1.2	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$3.8	\$6.1	\$10.7	\$20.4	\$20.5	\$22.9	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	6.59	6.64	7.40	7.82	7.93	8.12	cents/kWh (2005\$)
	carbon price	0.0	0.0	77.5	161.2	335.0	696.4	703.3	793.1	\$/tC (2005\$)

Crop Prices

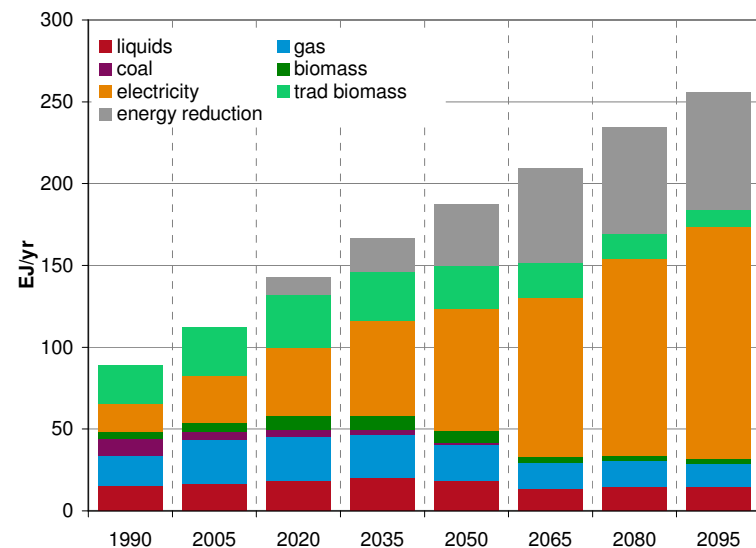
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	49	61	77	103	96	92	\$/Gcal (2005\$)
	global rice	32	32	57	73	102	149	125	107	\$/Gcal (2005\$)
	global wheat	27	27	55	75	105	156	134	118	\$/Gcal (2005\$)

Emissions by Sectors

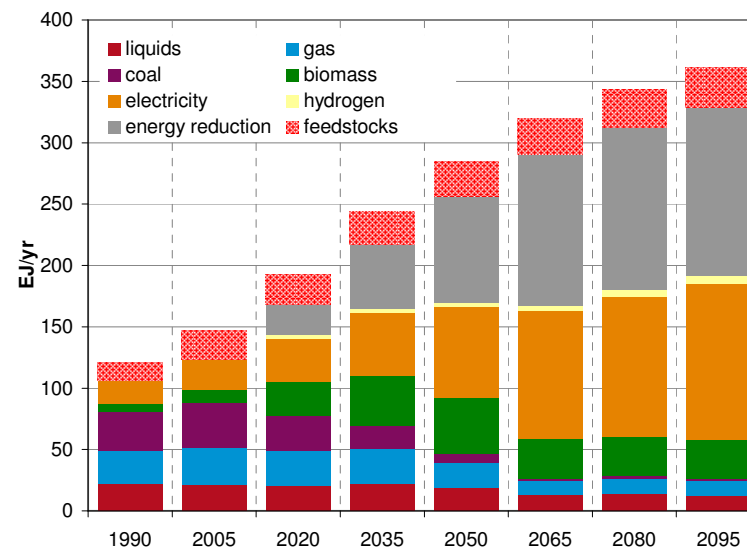
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.877	0.839	0.652	0.404	0.403	0.355	GtC/yr
	industry	1.623	1.706	1.521	1.327	0.783	0.210	0.200	0.084	GtC/yr
	transportation	1.354	1.863	2.064	2.333	2.172	1.582	1.718	1.652	GtC/yr
	electricity	1.909	2.848	3.239	3.401	1.664	0.689	0.697	0.682	GtC/yr
	cement	0.261	0.483	0.596	0.660	0.607	0.486	0.452	0.397	GtC/yr
	emissions reduction	0.000	0.000	1.968	4.703	10.248	15.564	18.145	21.128	GtC/yr
	total: w/o reduction	6.006	7.760	8.298	8.561	5.877	3.372	3.470	3.170	GtC/yr

Scenario: nucref stab

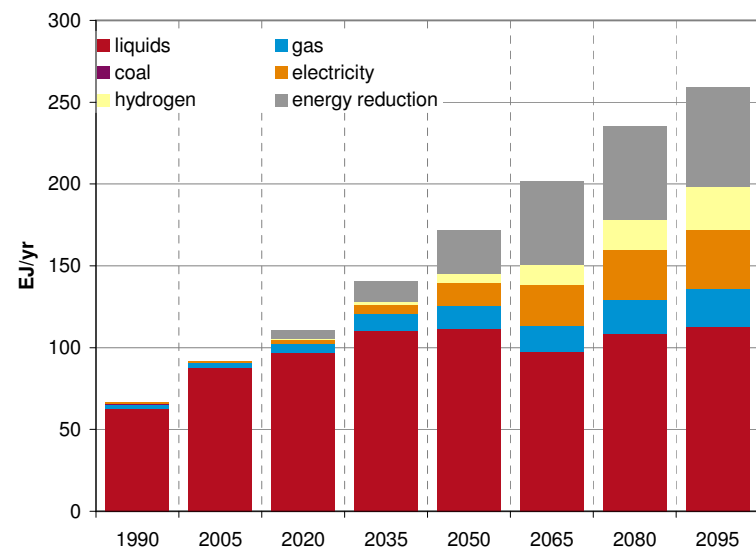
Final Energy Consumption: Buildings



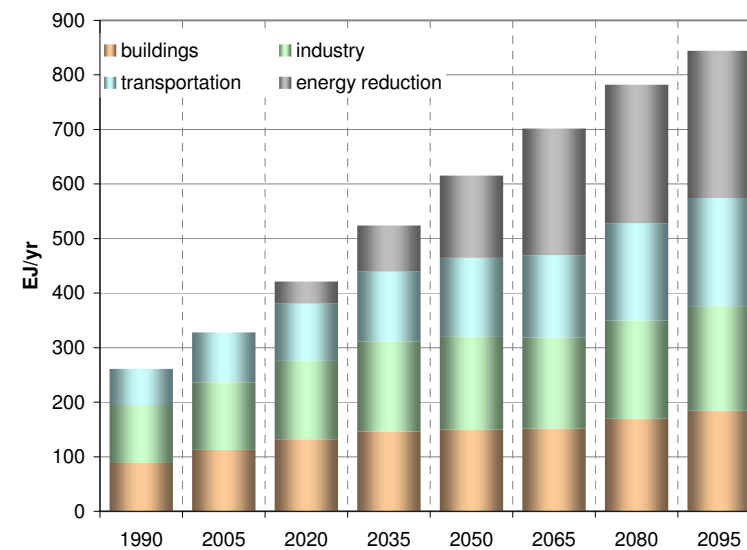
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

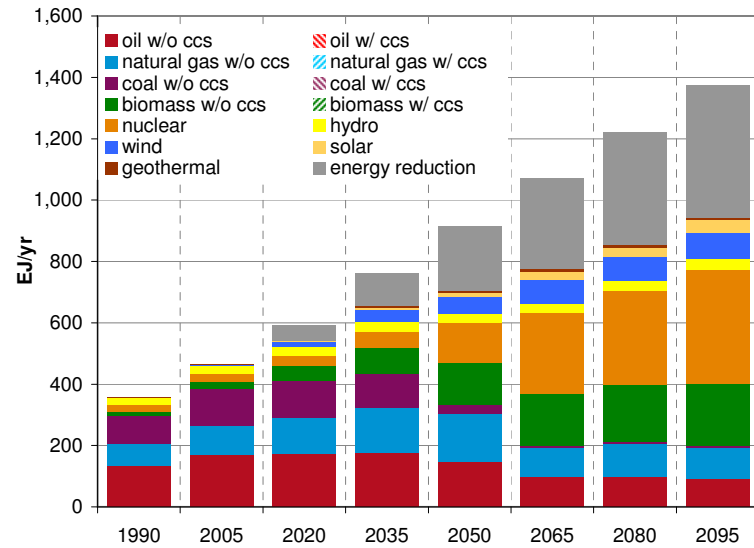


Final Energy Consumption by Sector

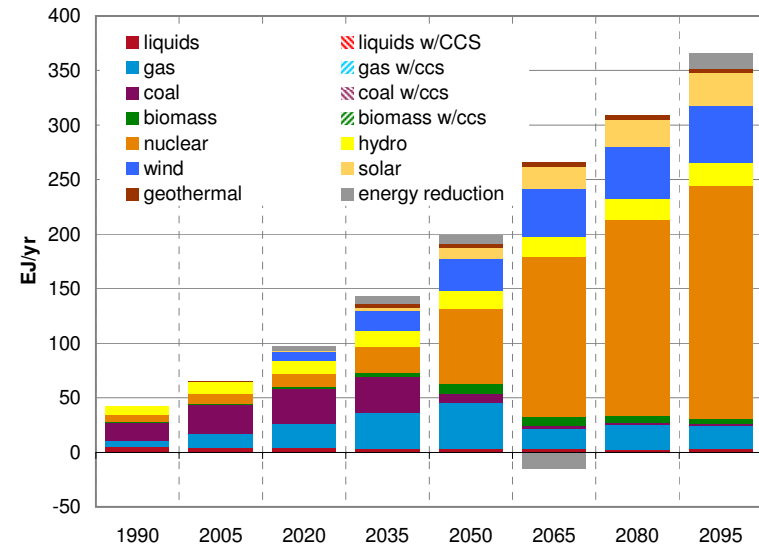


Scenario: nucref stab

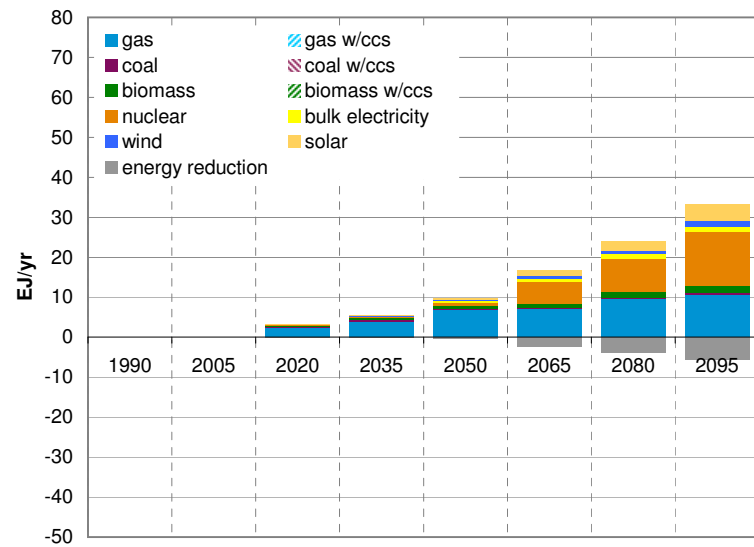
Primary Energy Consumption



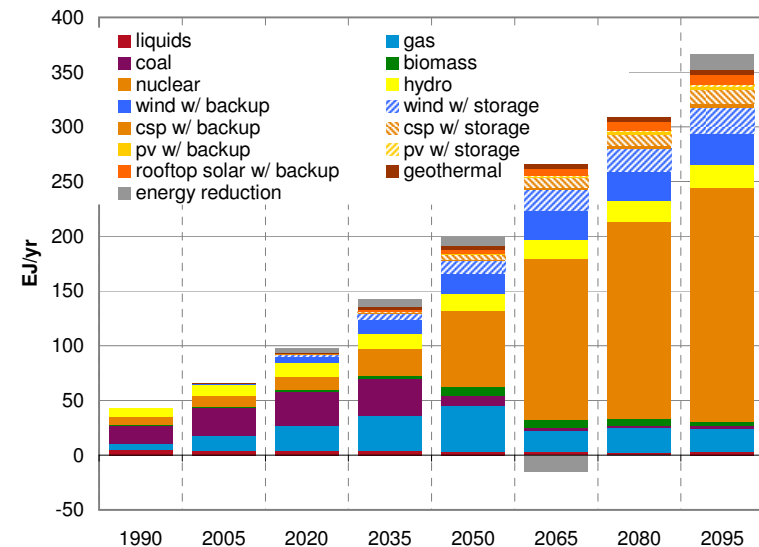
Electricity Production by Fuel: CCS Focus



Hydrogen Production by Fuel

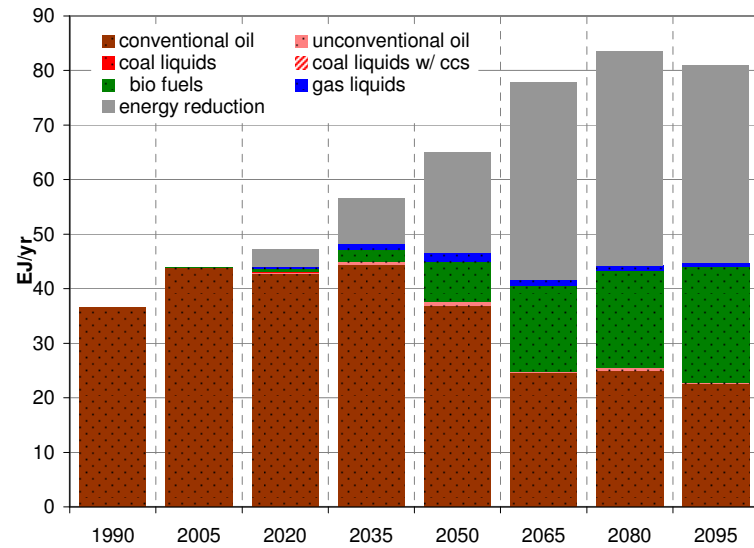


Electricity Production by Fuel: Renewable Focus

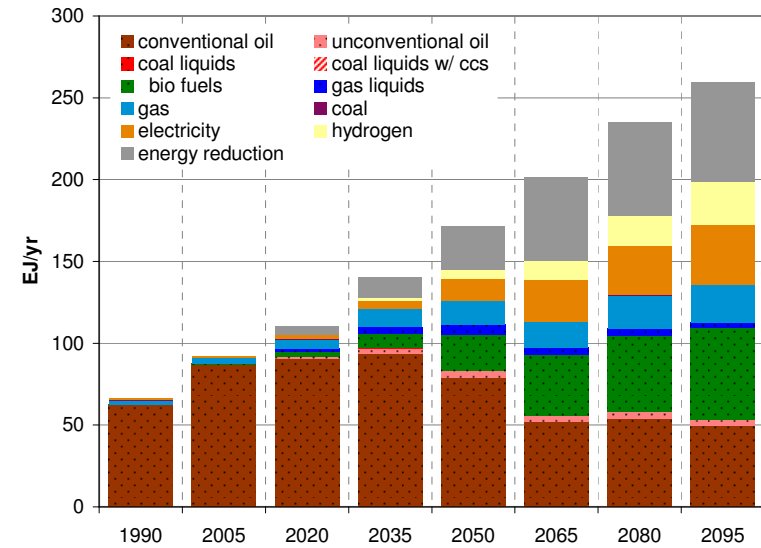


Scenario: nucref stab

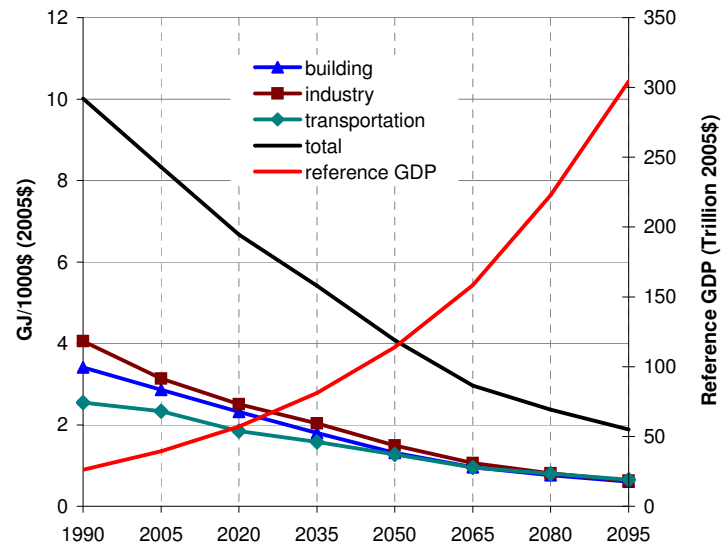
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



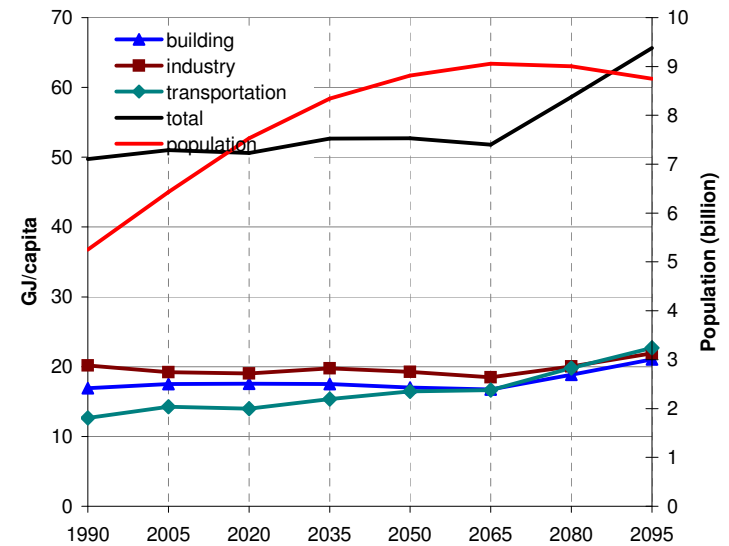
Transportation Fuels Composition



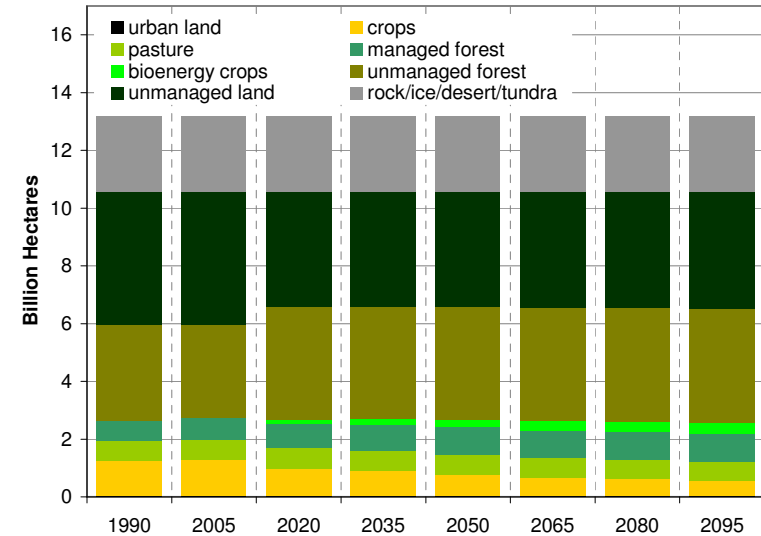
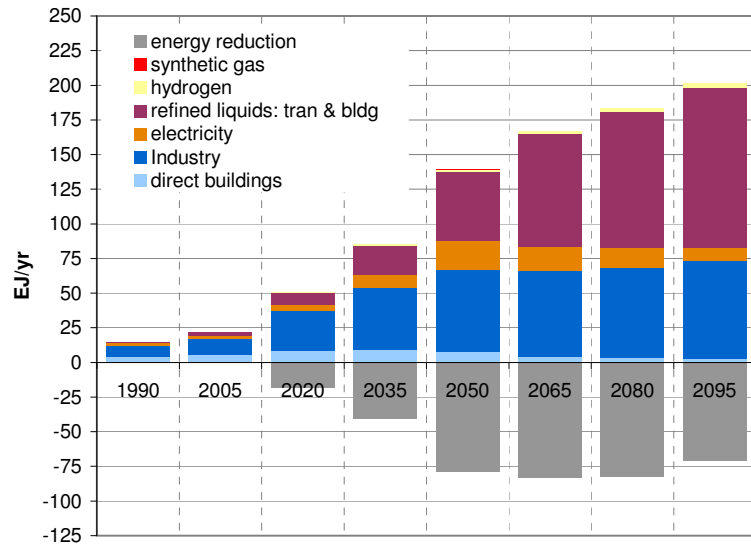
Final Energy Intensity



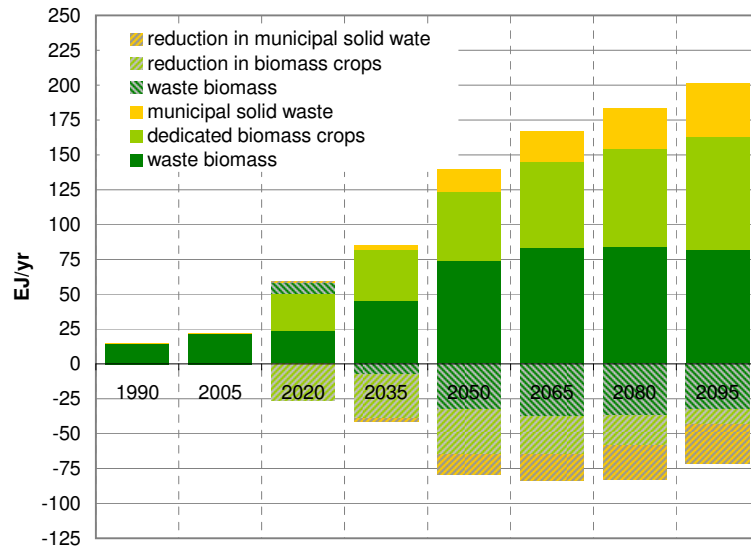
Final Energy per Capita



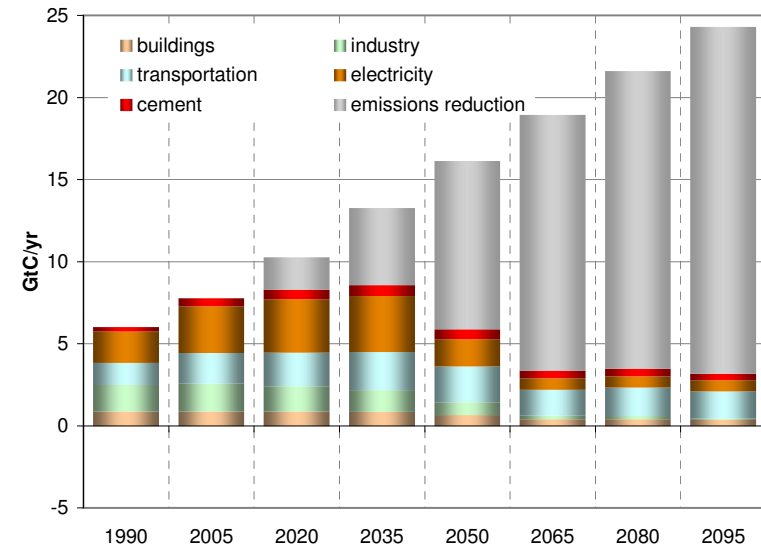
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: nucadv stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	18.5	20.0	18.0	14.4	15.1	15.1	EJ/yr
building	gas	18.7	26.7	26.8	26.3	22.0	16.1	15.7	14.1	EJ/yr
building	coal	10.1	5.1	4.4	2.7	1.1	0.3	0.3	0.2	EJ/yr
building	biomass	4.5	5.5	8.7	9.1	7.3	4.3	3.6	2.9	EJ/yr
building	electricity	16.9	29.0	40.9	57.8	75.8	98.7	123.0	145.9	EJ/yr
building	trad biomass	23.5	29.9	33.0	30.3	25.9	21.0	15.3	10.2	EJ/yr
building	energy reduction	0.0	0.0	10.6	20.4	37.3	54.5	61.7	67.6	EJ/yr
	total: w/o reduction	88.9	112.7	132.3	146.2	150.1	154.8	172.9	188.4	EJ/yr
industry	liquids	22.4	21.2	20.1	21.7	18.6	13.5	13.8	12.7	EJ/yr
industry	gas	26.6	30.5	29.2	28.6	19.7	11.9	12.3	11.4	EJ/yr
industry	coal	31.4	35.8	28.1	18.6	7.3	2.2	2.1	1.8	EJ/yr
industry	biomass	7.3	11.2	27.5	40.5	44.8	33.4	32.4	32.5	EJ/yr
industry	electricity	18.1	24.8	35.4	52.3	75.9	106.6	118.9	131.9	EJ/yr
industry	hydrogen	0.0	0.0	2.7	3.3	3.7	4.4	5.1	6.1	EJ/yr
industry	energy reduction	0.0	0.0	24.8	51.8	86.2	118.6	127.5	132.4	EJ/yr
industry	feedstocks	15.2	23.7	24.9	27.5	28.6	29.9	31.8	33.4	EJ/yr
	total: w/o reduction	105.8	123.6	143.2	164.9	170.1	171.9	184.6	196.5	EJ/yr
transportation	liquids	62.7	87.7	96.6	109.9	110.9	100.2	110.3	114.8	EJ/yr
transportation	gas	2.2	3.0	5.9	10.9	14.5	16.1	20.5	23.5	EJ/yr
transportation	coal	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.2	5.1	13.7	25.3	31.2	36.8	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.7	11.5	17.7	25.4	EJ/yr
transportation	energy reduction	0.0	0.0	5.2	12.3	26.9	48.6	55.6	58.9	EJ/yr
	total: w/o reduction	66.4	91.8	105.4	128.1	144.9	153.1	179.7	200.5	EJ/yr
total final energy	buildings	88.9	112.7	132.3	146.2	150.1	154.8	172.9	188.4	EJ/yr
total final energy	industry	105.8	123.6	143.2	164.9	170.1	171.9	184.6	196.5	EJ/yr
total final energy	transportation	66.4	91.8	105.4	128.1	144.9	153.1	179.7	200.5	EJ/yr
total final energy	energy reduction	0.0	0.0	40.6	84.5	150.4	221.7	244.8	258.8	EJ/yr
	total: w/o reduction	261.1	328.1	380.9	439.2	465.0	479.8	537.1	585.4	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	171.8	176.1	147.0	103.6	100.6	92.8	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	117.8	145.4	151.8	96.2	103.7	100.4	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	121.1	109.4	27.7	9.2	7.7	7.1	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	50.7	84.8	139.3	166.4	183.5	201.1	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	29.3	55.9	140.3	280.4	342.2	406.8	EJ/yr
hydro	23.6	29.2	29.3	30.6	28.5	30.3	32.2	35.1	EJ/yr
wind	0.0	0.9	18.5	41.2	55.3	73.7	75.7	82.2	EJ/yr
solar	0.0	0.1	1.9	5.8	12.8	23.8	28.3	36.2	EJ/yr
geothermal	0.4	0.5	1.6	6.1	7.6	7.3	7.0	6.9	EJ/yr
energy reduction	0.0	0.0	50.8	106.5	206.6	279.3	338.2	404.2	EJ/yr
total: w/o reduction	356	463	542	655	710	791	881	969	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.10	3.38	3.25	2.98	2.35	2.89	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	22.46	32.60	41.33	18.77	20.38	18.56	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	31.42	33.10	8.28	2.78	2.07	2.02	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.65	3.69	8.55	7.98	5.64	3.72	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	12.45	24.86	74.85	155.89	196.31	234.15	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.86	13.03	19.07	25.32	26.01	27.97	EJ/yr
wind w/storage	0.00	0.00	1.76	5.54	10.91	17.55	19.52	21.43	EJ/yr
CSP w/backup	0.00	0.00	0.50	0.92	1.38	2.40	2.77	3.47	EJ/yr
CSP w/storage	0.00	0.00	0.18	1.45	4.42	7.86	9.00	11.11	EJ/yr
PV w/backup	0.00	0.04	0.05	0.08	0.47	1.64	2.47	3.01	EJ/yr
PV w/storage	0.00	0.00	0.01	0.05	0.26	0.79	1.12	1.34	EJ/yr
rooftop PV w/backup	0.00	0.00	0.34	1.10	2.66	5.00	6.82	8.42	EJ/yr
geothermal	0.13	0.21	0.66	2.88	4.35	4.43	4.39	4.38	EJ/yr
energy reduction	0.00	0.00	4.34	7.56	7.51	-12.36	-0.34	13.29	EJ/yr
total: w/o reduction	42.7	65.2	93.6	136.7	195.6	271.1	318.4	363.9	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	90.8	93.8	78.1	54.7	54.6	50.4	EJ/yr
unconventional oil	0.0	0.0	1.0	3.1	4.8	4.1	4.6	4.2	EJ/yr
coal liquids	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	3.4	8.7	22.3	36.8	47.1	56.7	EJ/yr
gas liquids	0.0	0.0	1.3	4.1	5.6	4.5	4.1	3.5	EJ/yr
gas	2.2	3.0	5.9	10.9	14.5	16.1	20.5	23.5	EJ/yr
coal	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.2	5.1	13.7	25.3	31.2	36.8	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.7	11.5	17.7	25.4	EJ/yr
energy reduction	0.0	0.0	5.2	12.3	26.9	48.6	55.6	58.9	EJ/yr
total: w/o reduction	66.4	91.8	105.4	128.1	144.9	153.1	179.7	200.5	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	42.81	44.25	36.43	26.07	25.34	22.98	EJ/yr
unconventional oil	0.00	0.00	0.23	0.60	0.73	0.29	0.56	0.40	EJ/yr
coal liquids	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.59	2.14	7.54	15.03	17.87	21.28	EJ/yr
gas liquids	0.00	0.00	0.31	1.17	1.49	1.16	0.90	0.70	EJ/yr
energy reduction	0.0	0.0	3.3	8.4	18.8	35.3	38.7	35.6	EJ/yr
total: w/o reduction	36.6	43.9	44.0	48.2	46.2	42.5	44.7	45.4	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.37	3.93	6.65	7.36	9.66	10.90	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.32	0.35	0.34	0.27	0.37	0.44	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.24	0.43	0.82	1.04	1.32	1.73	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.13	0.23	0.57	4.75	7.44	11.89	EJ/yr
bulk electricity	0.00	0.00	0.10	0.20	0.48	0.85	1.18	1.50	EJ/yr
wind	0.00	0.00	0.07	0.10	0.20	0.47	0.83	1.37	EJ/yr
solar	0.00	0.00	0.08	0.15	0.43	1.14	2.03	3.68	EJ/yr
energy reduction	0.00	0.00	-0.06	-0.15	-0.12	-1.64	-2.85	-3.80	EJ/yr
total: w/o reduction	0.00	0.00	3.30	5.39	9.49	15.89	22.83	31.52	EJ/yr

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	8.7	9.1	7.3	4.3	3.6	2.9	EJ/yr
	Industry	7.4	11.3	28.7	44.8	59.5	62.0	65.6	71.0	EJ/yr
	electricity	2.1	2.5	4.6	9.4	20.0	17.7	12.1	7.9	EJ/yr
	refined liquids: tran & bldg	0.5	2.2	8.2	20.6	50.7	80.3	99.5	115.9	EJ/yr
	hydrogen	0.0	0.0	0.5	0.9	1.7	2.1	2.6	3.4	EJ/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	energy reduction	0.0	0.0	-18.6	-41.0	-79.0	-82.8	-82.2	-71.0	EJ/yr
	total: w/o reduction	14.4	21.6	50.7	84.8	139.3	166.4	183.5	201.1	EJ/yr

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	24.0	45.3	74.0	83.0	83.7	82.1	EJ
dedicated biomass crops	0.0	0.0	26.6	36.5	49.1	61.3	70.5	80.9	EJ
municipal solid waste	0.0	0.1	0.1	3.0	16.2	22.0	29.3	38.1	EJ
waste biomass	0.0	0.0	7.6	-7.4	-32.2	-37.7	-36.6	-32.7	EJ
reduction in biomass crops	0.0	0.0	-26.6	-31.6	-32.4	-26.5	-21.8	-10.6	EJ
reduction in municipal solid waste	0.0	0.0	0.4	-2.0	-14.4	-18.6	-23.8	-27.8	EJ
total: w/o reduction	14.4	21.6	31.8	45.8	74.7	102.2	125.1	157.8	EJ

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Scenario: nucadv stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.1	\$81.1	\$113.9	\$158.8	\$223.1	\$305.0	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.32	1.80	1.32	0.97	0.77	0.62	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.51	2.03	1.49	1.08	0.83	0.64	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.85	1.58	1.27	0.96	0.81	0.66	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	6.67	5.41	4.08	3.02	2.41	1.92	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.6	17.5	17.0	17.1	19.2	21.5	GJ/capita
Final Energy per Capita	industry	20.2	19.2	19.0	19.8	19.3	19.0	20.5	22.5	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.0	15.4	16.4	16.9	19.9	22.9	GJ/capita
Final Energy per Capita	total	49.7	51.0	50.6	52.7	52.8	53.0	59.6	66.9	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.6	\$41.1	\$43.0	\$43.0	\$42.6	\$41.5	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$48.9	\$60.6	\$84.1	\$121.1	\$125.1	\$134.0	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$3.9	\$4.1	\$4.1	\$4.2	\$4.1	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.4	\$6.3	\$9.1	\$13.7	\$14.2	\$15.4	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.5	\$1.4	\$1.3	\$1.2	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$3.8	\$6.1	\$10.7	\$18.8	\$19.6	\$21.8	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	6.59	6.57	7.18	7.44	7.50	7.63	cents/kWh (2005\$)
	carbon price	0.0	0.0	77.5	161.2	335.0	636.3	669.7	751.9	\$/tC (2005\$)

Crop Prices

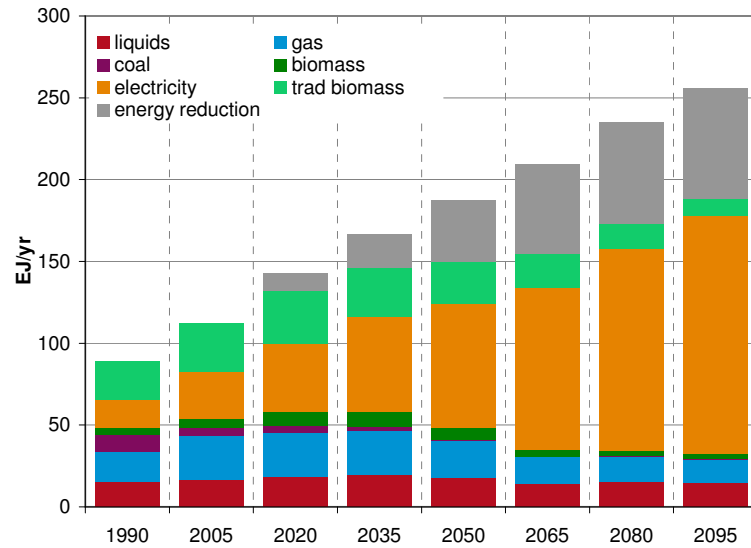
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	49	61	77	98	94	89	\$/Gcal (2005\$)
	global rice	32	32	57	73	102	139	120	103	\$/Gcal (2005\$)
	global wheat	27	27	55	75	105	145	128	113	\$/Gcal (2005\$)

Emissions by Sectors

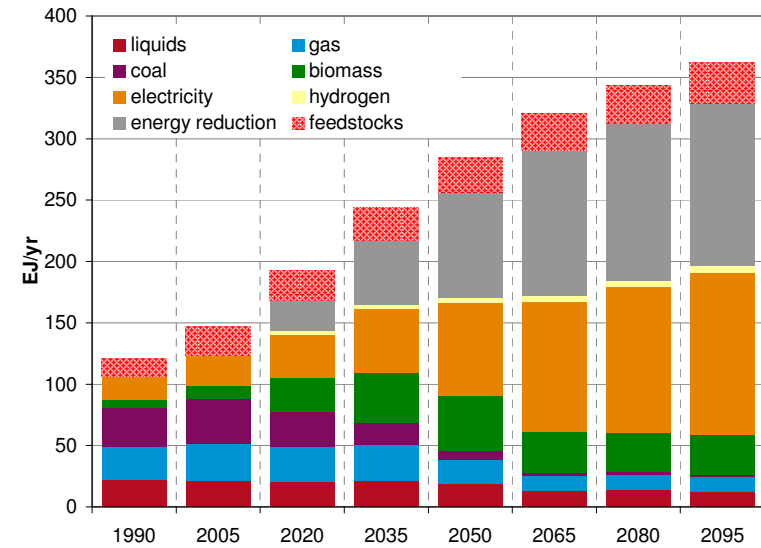
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.877	0.836	0.643	0.426	0.409	0.363	GtC/yr
	industry	1.623	1.706	1.521	1.317	0.754	0.244	0.195	0.081	GtC/yr
	transportation	1.354	1.863	2.064	2.332	2.155	1.660	1.745	1.692	GtC/yr
	electricity	1.909	2.848	3.239	3.380	1.634	0.708	0.662	0.631	GtC/yr
	cement	0.261	0.483	0.596	0.661	0.607	0.502	0.459	0.404	GtC/yr
	emissions reduction	0.000	0.000	1.968	4.738	10.332	15.396	18.145	21.129	GtC/yr
	total: w/o reduction	6.006	7.760	8.298	8.525	5.793	3.540	3.470	3.170	GtC/yr

Scenario: nucadv stab

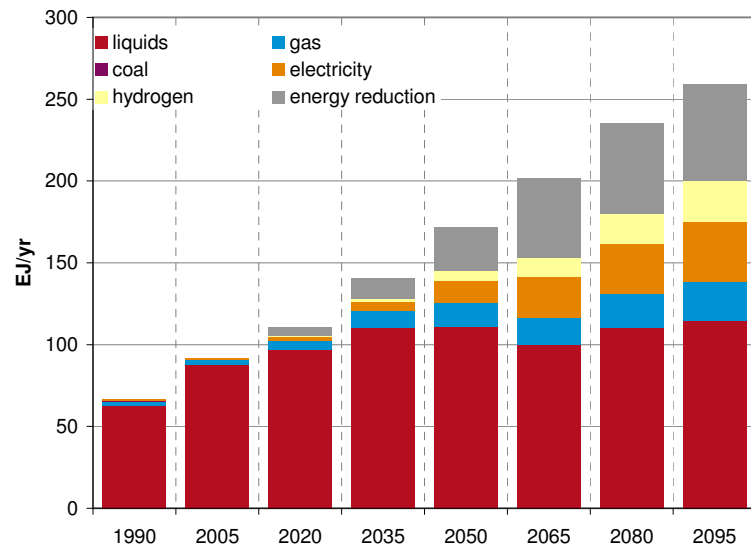
Final Energy Consumption: Buildings



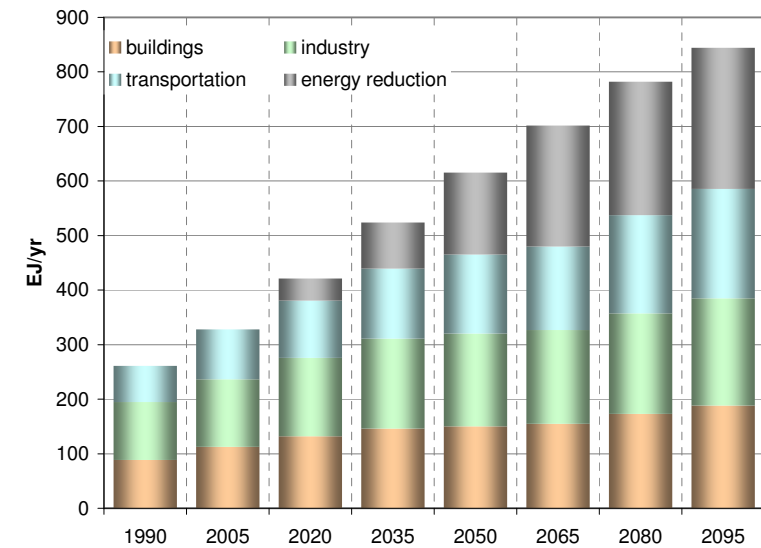
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

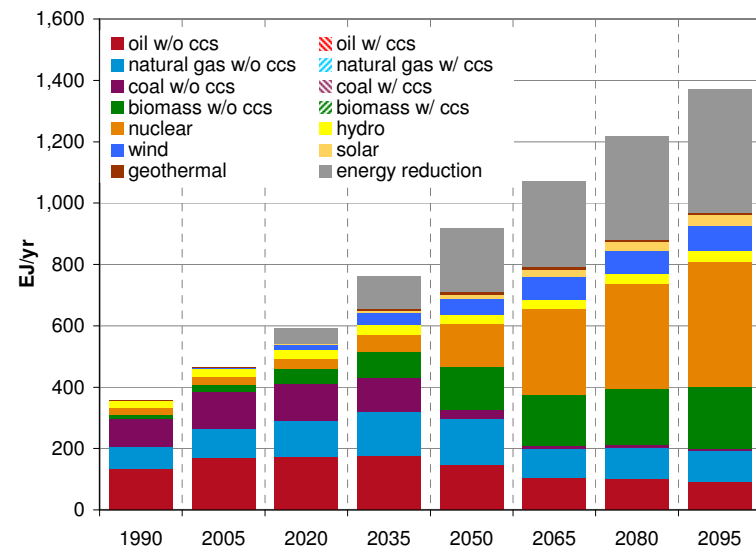


Final Energy Consumption by Sector

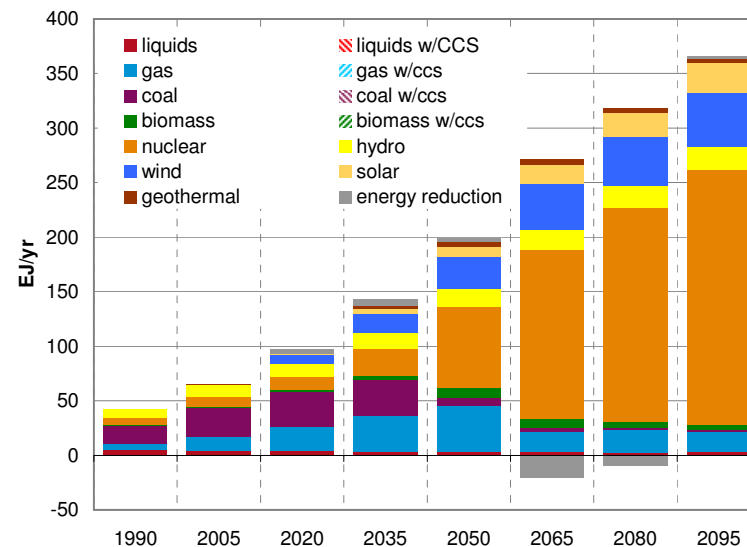


Scenario: nucadv stab

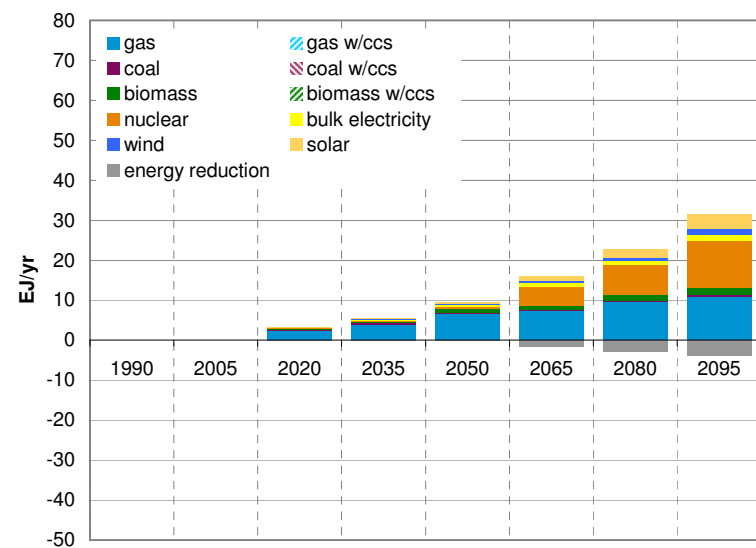
Primary Energy Consumption



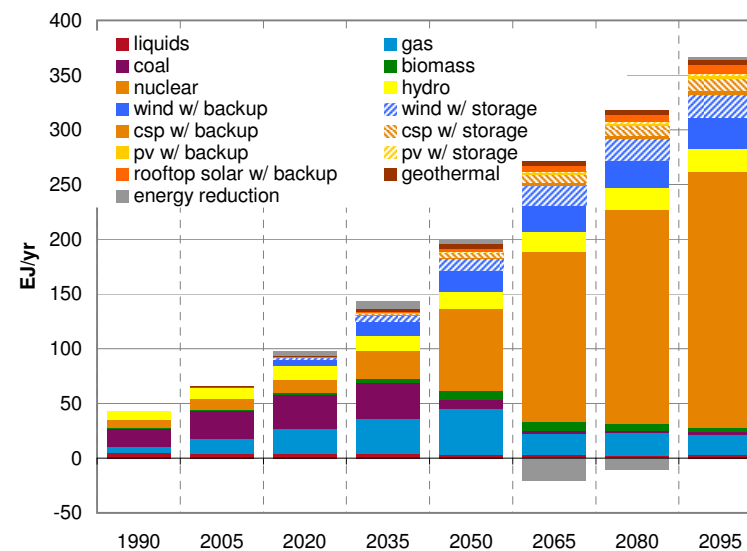
Electricity Production by Fuel: CCS Focus



Hydrogen Production by Fuel

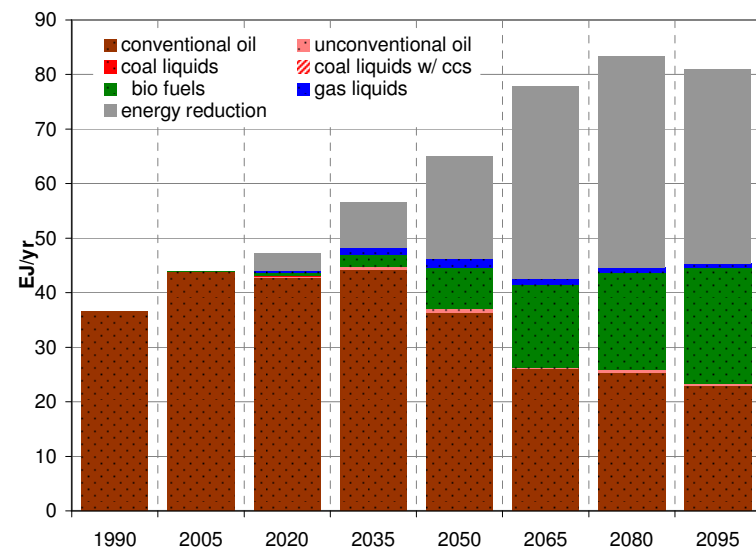


Electricity Production by Fuel: Renewable Focus

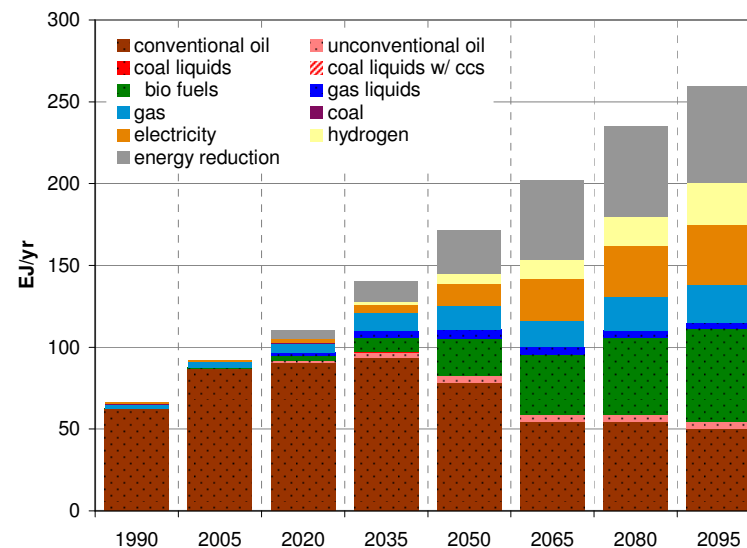


Scenario: nucadv stab

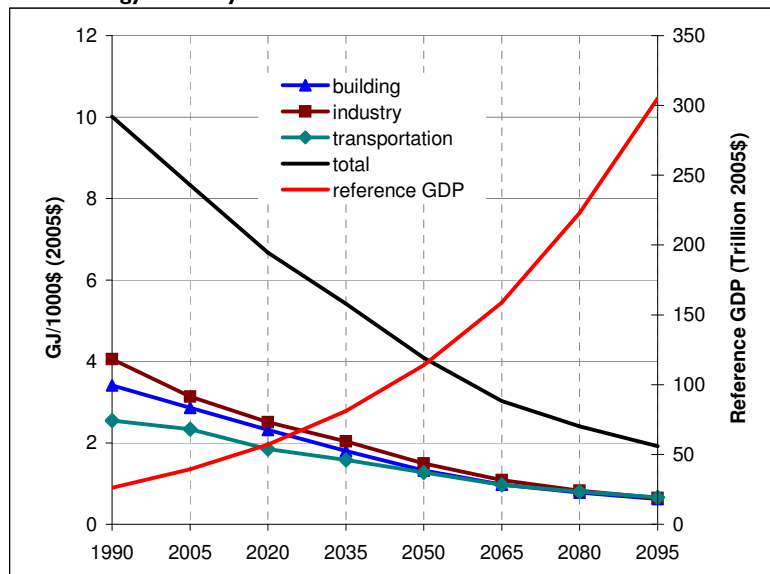
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



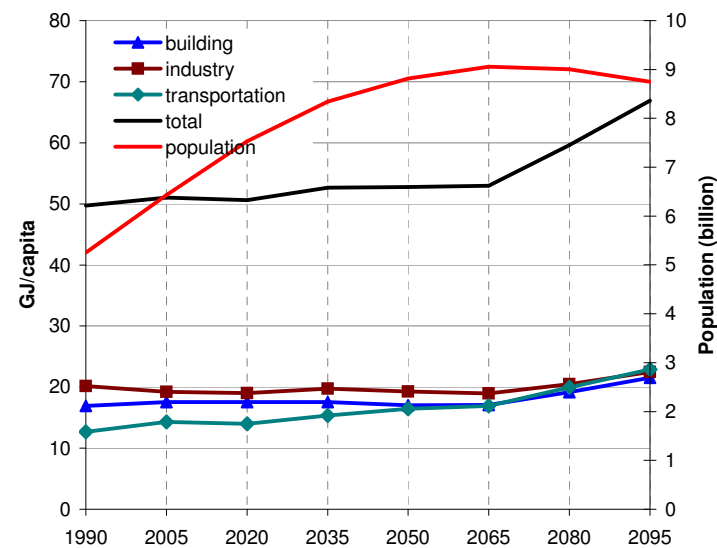
Transportation Fuels Composition



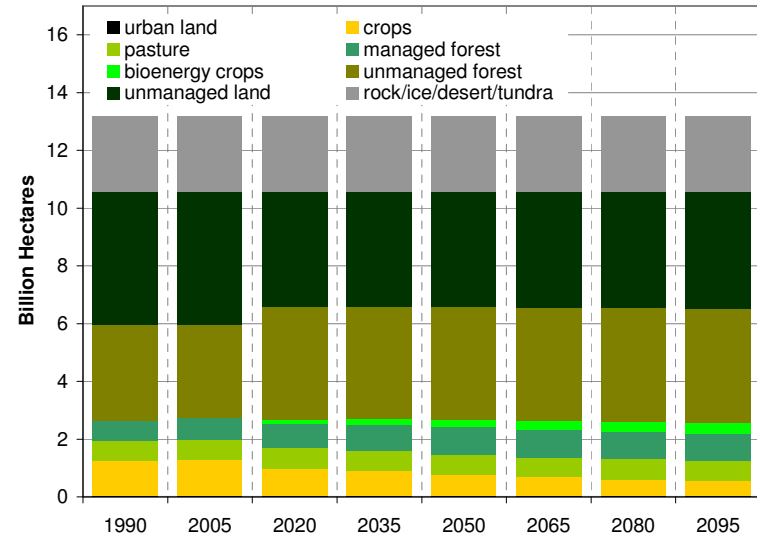
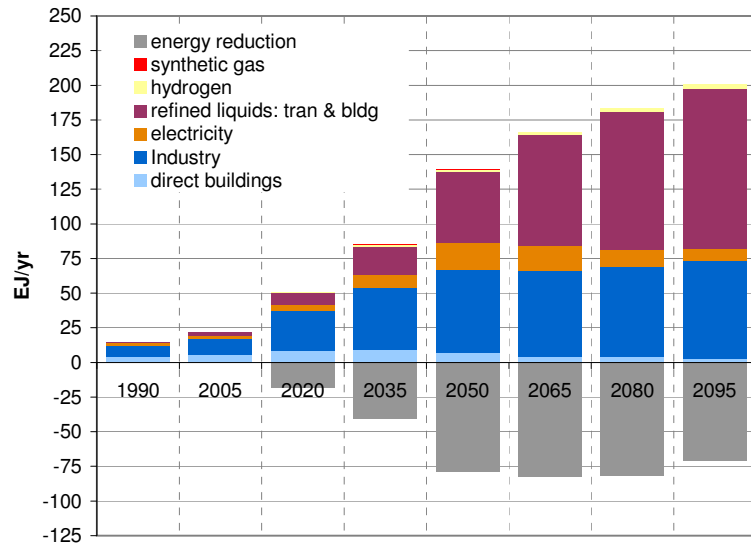
Final Energy Intensity



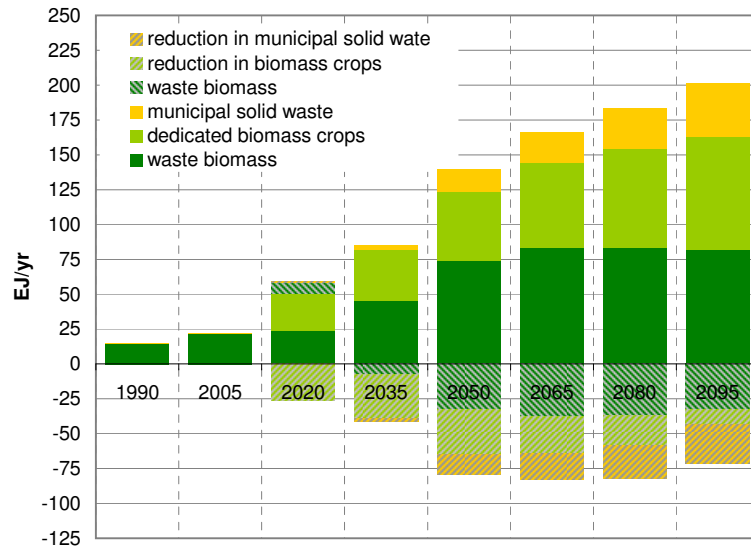
Final Energy per Capita



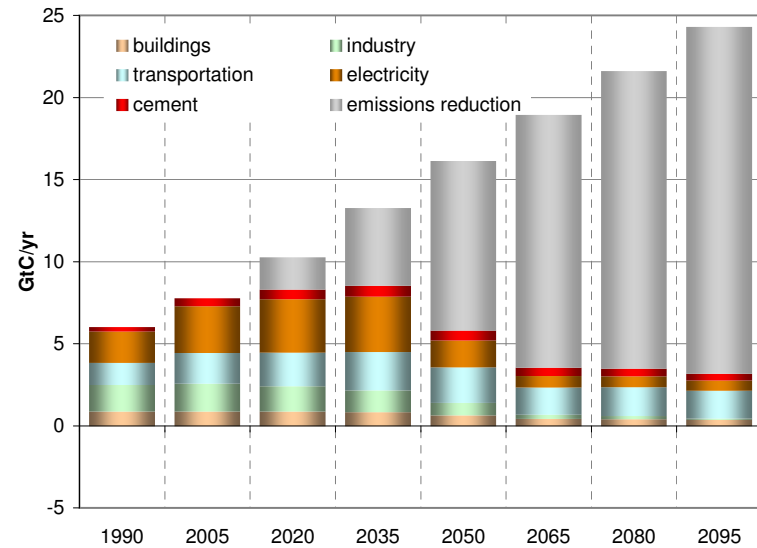
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: ccs stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	19.2	21.6	19.8	20.0	21.5	20.6	EJ/yr
building	gas	18.7	26.7	27.8	28.2	24.2	21.3	20.9	19.9	EJ/yr
building	coal	10.1	5.1	5.1	3.7	1.6	1.0	0.9	0.8	EJ/yr
building	biomass	4.5	5.5	8.7	9.3	7.6	5.5	4.9	4.3	EJ/yr
building	electricity	16.9	29.0	41.0	57.3	77.3	100.5	127.2	152.5	EJ/yr
building	trad biomass	23.5	29.9	32.8	30.1	25.3	20.1	14.2	9.3	EJ/yr
building	energy reduction	0.0	0.0	8.3	16.4	31.6	40.9	45.0	48.5	EJ/yr
	total: w/o reduction	88.9	112.7	134.6	150.2	155.8	168.4	189.7	207.5	EJ/yr
industry	liquids	22.4	21.2	20.6	23.9	21.5	22.6	23.9	19.7	EJ/yr
industry	gas	26.6	30.5	30.9	33.0	23.4	19.4	19.7	19.8	EJ/yr
industry	coal	31.4	35.8	34.8	28.0	12.3	8.3	9.0	9.2	EJ/yr
industry	biomass	7.3	11.2	25.5	38.3	43.4	38.4	38.6	40.7	EJ/yr
industry	electricity	18.1	24.8	33.9	47.4	74.2	98.2	112.0	126.2	EJ/yr
industry	hydrogen	0.0	0.0	2.8	3.6	4.6	5.7	6.2	7.3	EJ/yr
industry	energy reduction	0.0	0.0	19.4	42.5	76.9	97.9	102.7	106.1	EJ/yr
industry	feedstocks	15.2	23.7	25.5	28.5	29.7	32.2	34.6	36.3	EJ/yr
	total: w/o reduction	105.8	123.6	148.6	174.1	179.4	192.7	209.4	222.9	EJ/yr
transportation	liquids	62.7	87.7	97.7	112.5	115.6	120.6	135.5	137.7	EJ/yr
transportation	gas	2.2	3.0	6.1	11.3	14.9	17.9	22.4	27.3	EJ/yr
transportation	coal	0.5	0.2	0.2	0.1	0.1	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.7	12.6	19.6	24.8	30.9	EJ/yr
transportation	hydrogen	0.0	0.0	0.5	2.1	6.4	11.9	17.3	25.1	EJ/yr
transportation	energy reduction	0.0	0.0	4.0	9.6	22.1	31.7	35.2	38.3	EJ/yr
	total: w/o reduction	66.4	91.8	106.6	130.8	149.7	170.1	200.0	221.1	EJ/yr
total final energy	buildings	88.9	112.7	134.6	150.2	155.8	168.4	189.7	207.5	EJ/yr
total final energy	industry	105.8	123.6	148.6	174.1	179.4	192.7	209.4	222.9	EJ/yr
total final energy	transportation	66.4	91.8	106.6	130.8	149.7	170.1	200.0	221.1	EJ/yr
total final energy	energy reduction	0.0	0.0	31.7	68.5	130.5	170.4	182.9	192.8	EJ/yr
	total: w/o reduction	261.1	328.1	389.8	455.2	484.9	531.1	599.1	651.4	EJ/yr

Scenario: ccs stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	174.9	184.2	166.9	173.6	195.4	187.1	EJ/yr
oil w/ ccs	0.0	0.0	0.6	2.7	8.0	11.6	12.6	13.6	EJ/yr
natural gas w/o ccs	69.9	97.5	119.6	146.4	137.5	116.2	114.1	123.1	EJ/yr
natural gas w/ ccs	0.0	0.0	2.2	12.6	44.0	77.7	98.9	115.4	EJ/yr
coal w/o ccs	91.2	119.1	130.5	117.7	33.3	11.5	12.0	12.3	EJ/yr
coal w/ ccs	0.0	0.0	1.6	17.3	94.8	156.8	206.7	244.2	EJ/yr
biomass w/o ccs	14.4	21.6	46.4	72.9	94.1	85.1	78.7	84.2	EJ/yr
biomass w/ ccs	0.0	0.0	0.2	3.2	40.5	78.8	103.5	116.9	EJ/yr
nuclear	21.0	26.1	23.5	21.9	17.6	16.2	15.5	15.0	EJ/yr
hydro	23.6	29.2	29.4	31.1	29.2	29.0	31.0	33.4	EJ/yr
wind	0.0	0.9	17.4	41.1	55.5	59.6	61.2	73.2	EJ/yr
solar	0.0	0.1	1.5	5.3	11.9	16.3	19.7	29.2	EJ/yr
geothermal	0.4	0.5	1.5	6.2	7.7	7.1	6.8	6.7	EJ/yr
energy reduction	0.0	0.0	43.5	99.1	175.9	230.8	262.8	318.5	EJ/yr
total: w/o reduction	356	463	549	663	741	839	956	1054	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.84	2.50	1.30	0.87	1.01	1.23	EJ/yr
oil w/ccs	0.00	0.00	0.24	1.15	3.50	5.35	5.98	6.50	EJ/yr
gas	6.07	12.82	21.99	28.48	27.45	17.36	12.73	11.69	EJ/yr
gas w/ccs	0.00	0.00	0.89	6.50	24.76	45.60	59.67	70.77	EJ/yr
coal	16.06	26.35	32.07	31.92	8.00	0.77	0.71	0.77	EJ/yr
coal w/ccs	0.00	0.00	0.59	7.28	42.33	71.39	95.64	113.95	EJ/yr
biomass	0.43	0.71	1.50	2.66	2.77	1.93	0.91	0.58	EJ/yr
biomass w/ccs	0.00	0.00	0.02	1.16	16.74	32.33	43.44	48.88	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.53	12.81	18.77	22.18	23.27	27.67	EJ/yr
wind w/storage	0.00	0.00	1.61	5.45	10.52	13.89	15.03	18.75	EJ/yr
CSP w/backup	0.00	0.00	0.37	0.78	1.25	1.79	2.08	3.14	EJ/yr
CSP w/storage	0.00	0.00	0.13	1.36	4.00	5.87	6.76	10.08	EJ/yr
PV w/backup	0.00	0.04	0.05	0.07	0.42	1.13	1.86	2.71	EJ/yr
PV w/storage	0.00	0.00	0.01	0.04	0.22	0.54	0.84	1.20	EJ/yr
rooftop PV w/backup	0.00	0.00	0.34	1.10	2.42	4.50	5.86	7.08	EJ/yr
geothermal	0.13	0.21	0.63	2.88	4.33	4.38	4.36	4.39	EJ/yr
energy reduction	0.00	0.00	5.93	14.04	7.78	-2.10	4.28	13.60	EJ/yr
total: w/o reduction	42.7	65.2	91.9	130.1	194.6	257.5	309.7	360.8	EJ/yr

Scenario: ccs stab

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	92.2	97.6	88.5	89.0	97.1	83.1	EJ/yr
unconventional oil	0.0	0.0	1.1	3.7	7.4	11.7	19.8	32.0	EJ/yr
coal liquids	0.0	0.0	0.3	0.3	0.2	0.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.1	0.2	0.4	0.5	0.9	EJ/yr
bio fuels	0.2	0.9	2.7	6.2	12.6	13.1	12.4	14.9	EJ/yr
gas liquids	0.0	0.0	1.3	4.6	6.7	6.4	5.7	6.8	EJ/yr
gas	2.2	3.0	6.1	11.3	14.9	17.9	22.4	27.3	EJ/yr
coal	0.5	0.2	0.2	0.1	0.1	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.7	12.6	19.6	24.8	30.9	EJ/yr
hydrogen	0.0	0.0	0.5	2.1	6.4	11.9	17.3	25.1	EJ/yr
energy reduction	0.0	0.0	4.0	9.6	22.1	31.7	35.2	38.3	EJ/yr
total: w/o reduction	66.4	91.8	106.6	130.8	149.7	170.1	200.0	221.1	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	44.03	47.65	43.00	45.53	47.32	38.93	EJ/yr
unconventional oil	0.00	0.00	0.26	0.80	1.80	3.11	5.94	10.84	EJ/yr
coal liquids	0.00	0.00	0.06	0.06	0.03	0.05	0.07	0.15	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.01	0.03	0.05	0.07	0.15	EJ/yr
bio fuels	0.01	0.05	0.45	1.44	3.51	3.56	3.07	3.70	EJ/yr
gas liquids	0.00	0.00	0.33	1.41	1.88	1.69	1.27	1.57	EJ/yr
energy reduction	0.0	0.0	2.1	5.2	14.8	23.9	25.7	25.6	EJ/yr
total: w/o reduction	36.6	43.9	45.1	51.4	50.3	54.0	57.7	55.3	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.13	3.36	4.65	5.89	7.76	9.51	EJ/yr
gas w/ccs	0.00	0.00	0.38	0.96	2.57	4.18	5.36	7.26	EJ/yr
coal	0.00	0.00	0.27	0.25	0.14	0.11	0.16	0.21	EJ/yr
coal w/ccs	0.00	0.00	0.11	0.28	0.95	1.96	3.09	4.89	EJ/yr
biomass	0.00	0.00	0.17	0.24	0.22	0.15	0.20	0.25	EJ/yr
biomass w/ccs	0.00	0.00	0.06	0.22	1.62	3.92	4.73	6.88	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.09	0.18	0.36	0.58	0.83	1.12	EJ/yr
wind	0.00	0.00	0.09	0.10	0.16	0.27	0.43	0.63	EJ/yr
solar	0.00	0.00	0.09	0.15	0.35	0.58	0.97	1.64	EJ/yr
energy reduction	0.00	0.00	-0.14	-0.50	-1.65	-3.40	-3.56	-4.68	EJ/yr
total: w/o reduction	0.00	0.00	3.38	5.74	11.02	17.65	23.54	32.40	EJ/yr

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	8.7	9.3	7.6	5.5	4.9	4.3	EJ/yr
	Industry	7.4	11.3	26.4	41.2	50.3	45.3	44.3	47.4	EJ/yr
	electricity	2.1	2.5	4.2	9.6	43.8	75.3	96.0	104.7	EJ/yr
	refined liquids: tran & bldg	0.5	2.2	6.7	15.0	29.0	29.4	27.0	30.8	EJ/yr
	hydrogen	0.0	0.0	0.5	1.0	3.8	8.3	9.9	14.0	EJ/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	EJ/yr
	energy reduction	0.0	0.0	-14.5	-32.2	-74.3	-80.3	-80.9	-71.1	EJ/yr
	total: w/o reduction	14.4	21.6	46.6	76.1	134.6	163.9	182.2	201.1	EJ/yr

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	23.0	40.6	71.0	82.6	84.0	83.1	EJ
dedicated biomass crops	0.0	0.0	23.6	34.0	47.5	59.2	68.5	79.4	EJ
municipal solid waste	0.0	0.1	0.1	1.4	16.1	22.2	29.7	38.6	EJ
waste biomass	0.0	0.0	8.7	-2.7	-29.2	-37.2	-36.9	-33.7	EJ
reduction in biomass crops	0.0	0.0	-23.6	-29.1	-30.8	-24.4	-19.8	-9.1	EJ
reduction in municipal solid waste	0.0	0.0	0.4	-0.4	-14.3	-18.7	-24.2	-28.3	EJ
total: w/o reduction	14.4	21.6	31.7	44.3	74.6	102.3	125.5	158.4	EJ

[illegible]

Scenario: ccs stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.4	\$81.7	\$114.8	\$161.6	\$227.3	\$310.8	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.35	1.84	1.36	1.04	0.83	0.67	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.59	2.13	1.56	1.19	0.92	0.72	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.86	1.60	1.30	1.05	0.88	0.71	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	6.79	5.57	4.22	3.29	2.64	2.10	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.9	18.0	17.7	18.6	21.1	23.7	GJ/capita
Final Energy per Capita	industry	20.2	19.2	19.7	20.9	20.4	21.3	23.2	25.5	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.2	15.7	17.0	18.8	22.2	25.3	GJ/capita
Final Energy per Capita	total	49.7	51.0	51.8	54.6	55.0	58.6	66.5	74.4	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.6	\$41.5	\$43.9	\$45.2	\$46.7	\$55.1	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$46.4	\$55.7	\$73.9	\$86.1	\$87.7	\$98.7	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$4.0	\$4.3	\$5.0	\$5.4	\$5.7	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.1	\$5.7	\$8.0	\$9.9	\$10.2	\$10.6	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.6	\$1.6	\$1.6	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$3.3	\$4.9	\$8.2	\$10.6	\$10.4	\$10.6	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	6.59	6.78	6.90	6.87	6.69	6.77	cents/kWh (2005\$)
	carbon price	0.0	0.0	56.1	116.7	242.6	327.0	321.6	330.2	\$/tC (2005\$)

Crop Prices

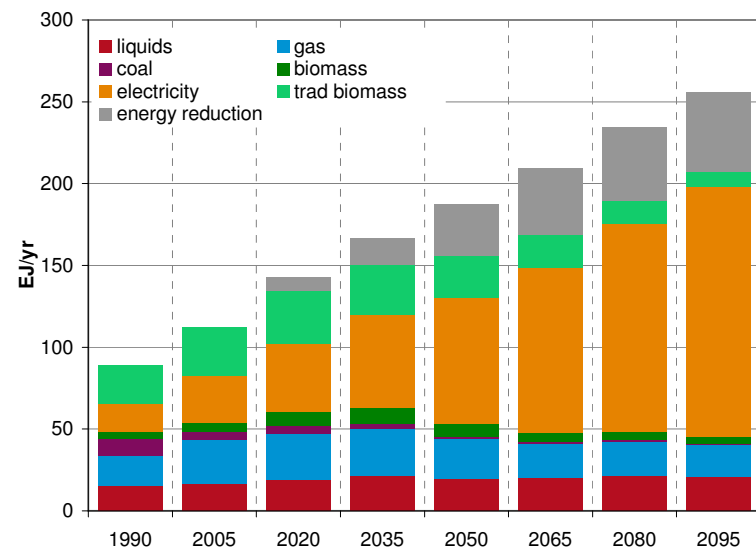
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	45	55	68	74	70	66	\$/Gcal (2005\$)
	global rice	32	32	50	63	85	92	80	68	\$/Gcal (2005\$)
	global wheat	27	27	48	63	86	94	82	71	\$/Gcal (2005\$)

Emissions by Sectors

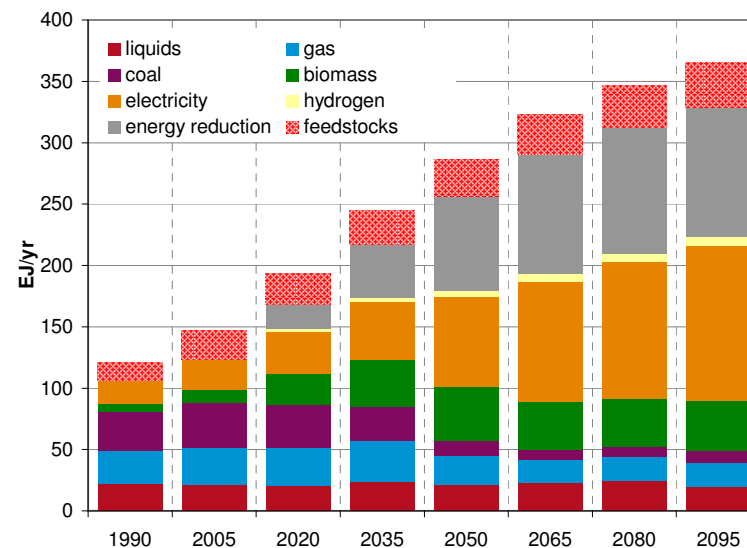
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.930	0.932	0.760	0.702	0.729	0.687	GtC/yr
	industry	1.623	1.706	1.687	1.630	1.013	0.830	0.891	0.815	GtC/yr
	transportation	1.354	1.863	2.106	2.441	2.408	2.474	2.852	2.882	GtC/yr
	electricity	1.909	2.848	3.266	3.179	0.679	-0.666	-1.206	-1.386	GtC/yr
	cement	0.261	0.483	0.659	0.714	0.323	0.201	0.204	0.172	GtC/yr
	emissions reduction	0.000	0.000	1.618	4.367	10.942	15.396	18.145	21.128	GtC/yr
	total: w/o reduction	6.006	7.760	8.648	8.896	5.182	3.540	3.470	3.170	GtC/yr

Scenario: ccs stab

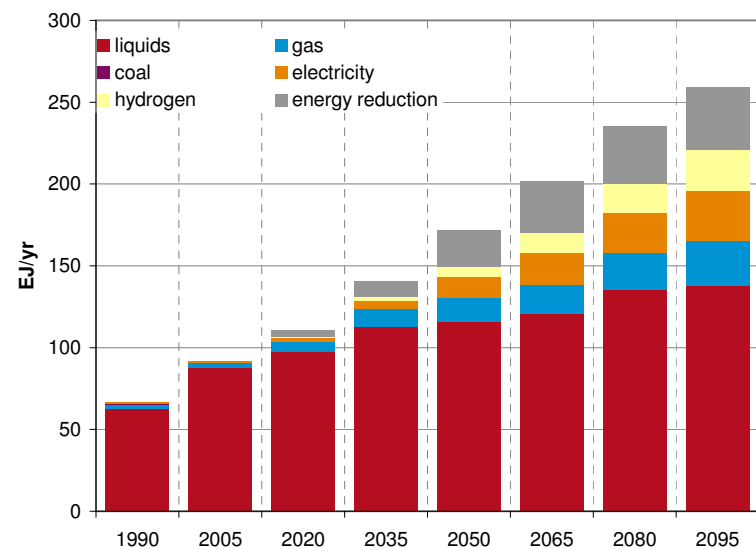
Final Energy Consumption: Buildings



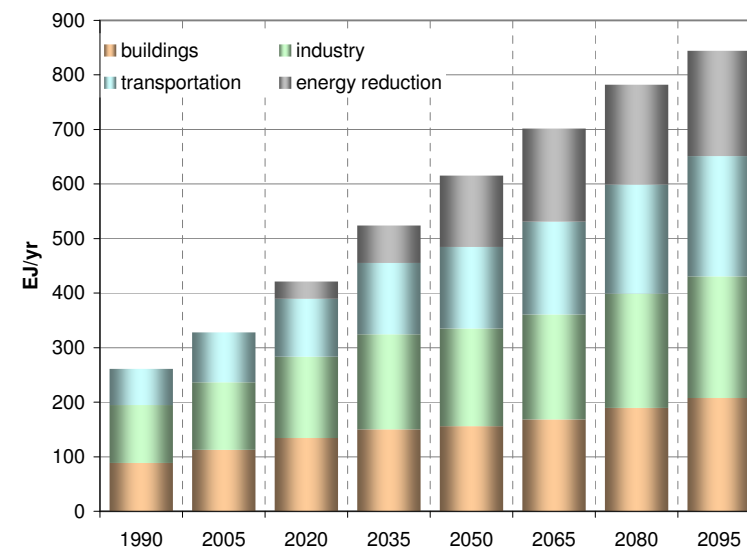
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

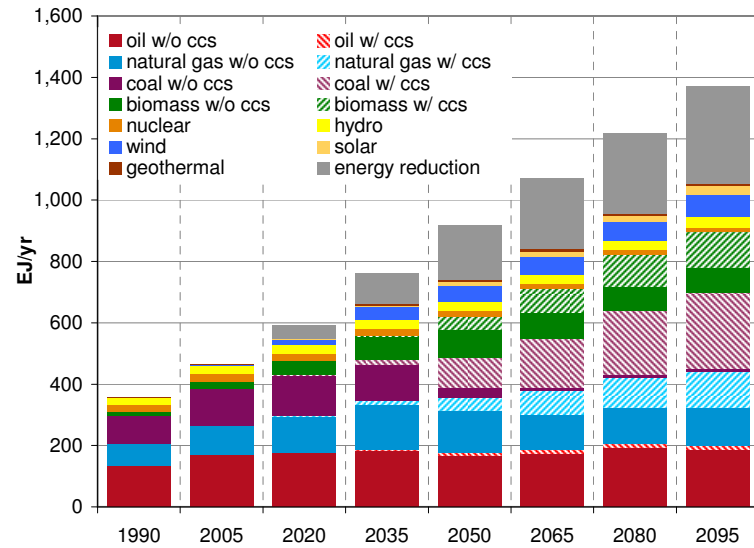


Final Energy Consumption by Sector

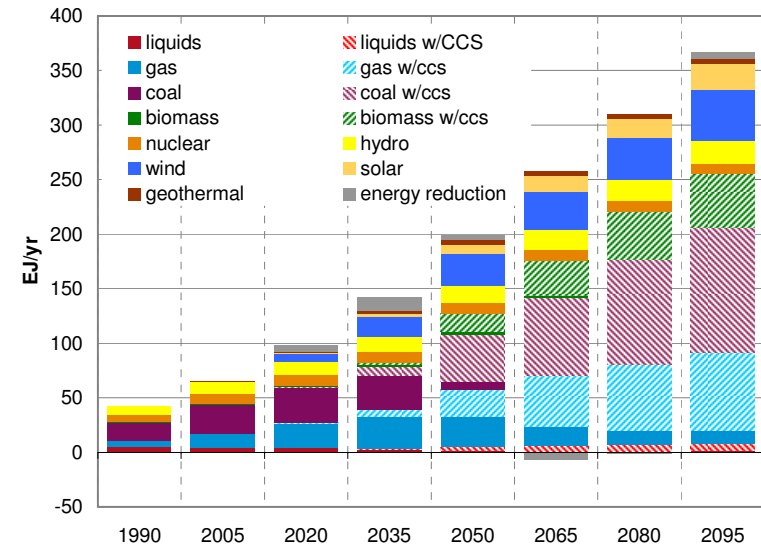


Scenario: ccs stab

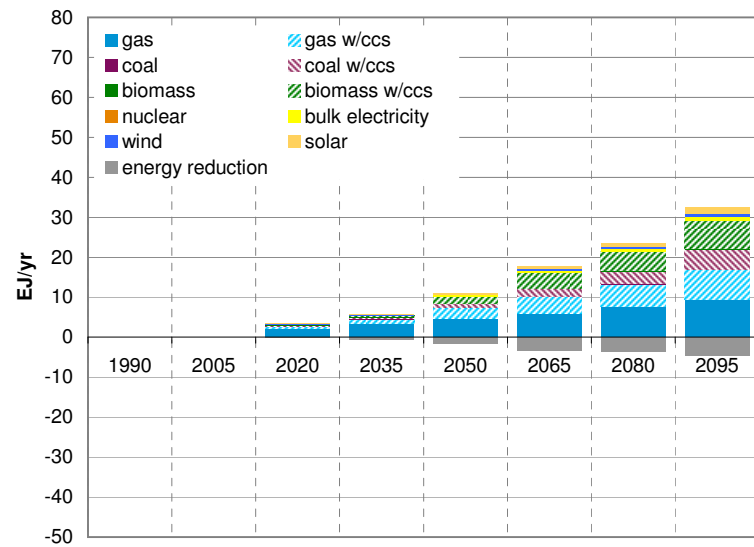
Primary Energy Consumption



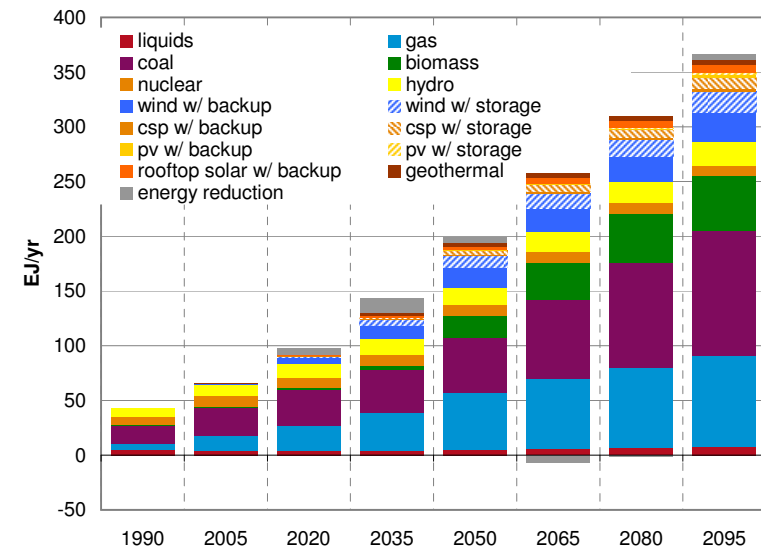
Electricity Production by Fuel: CCS Focus



Hydrogen Production by Fuel

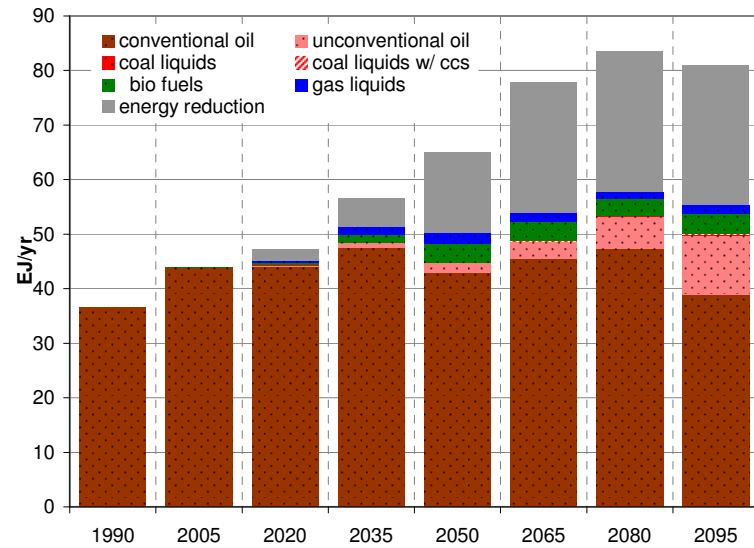


Electricity Production by Fuel: Renewable Focus

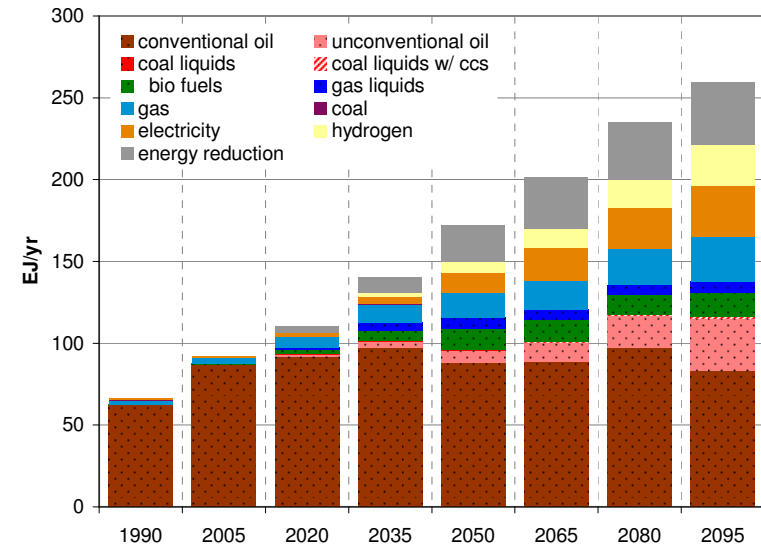


Scenario: ccs stab

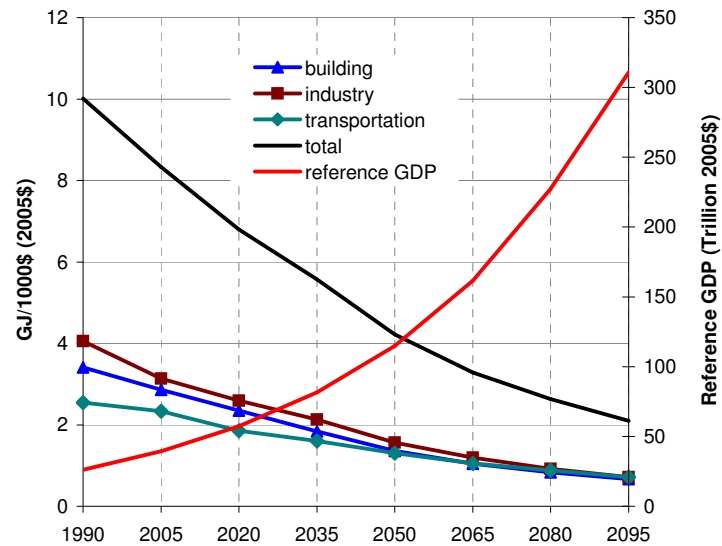
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



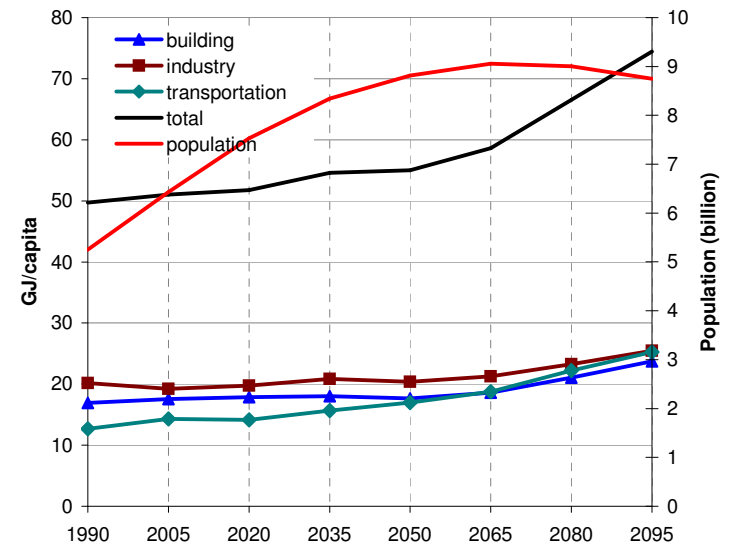
Transportation Fuels Composition



Final Energy Intensity

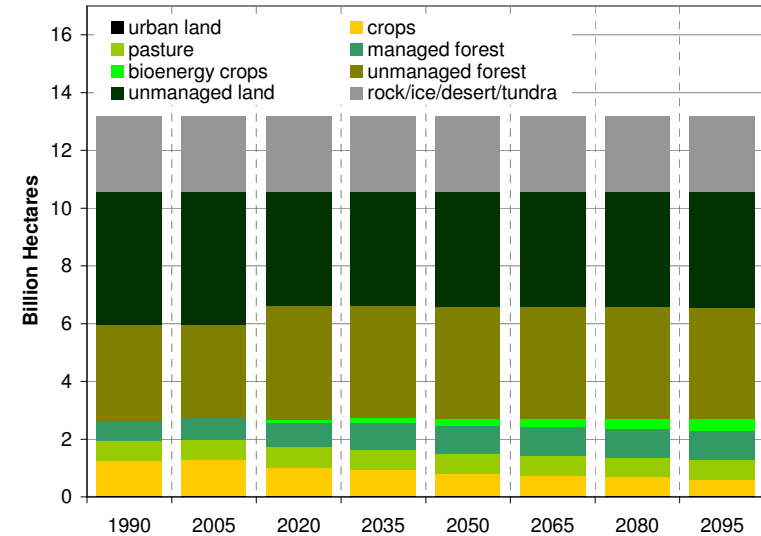
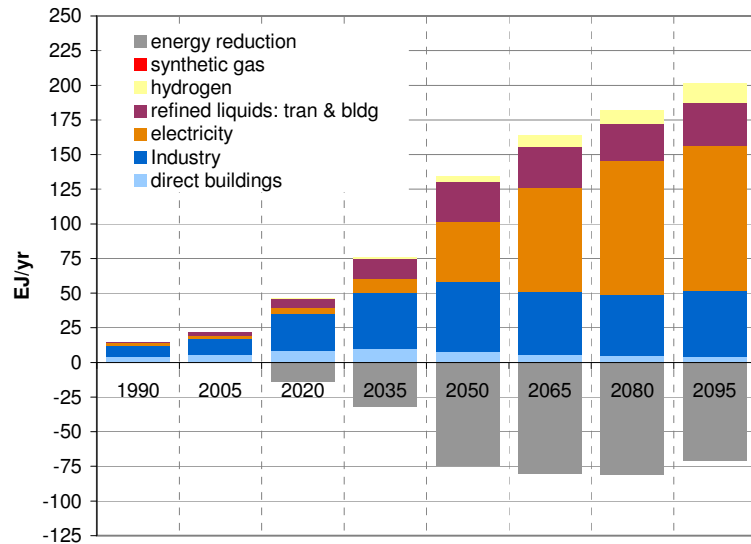


Final Energy per Capita

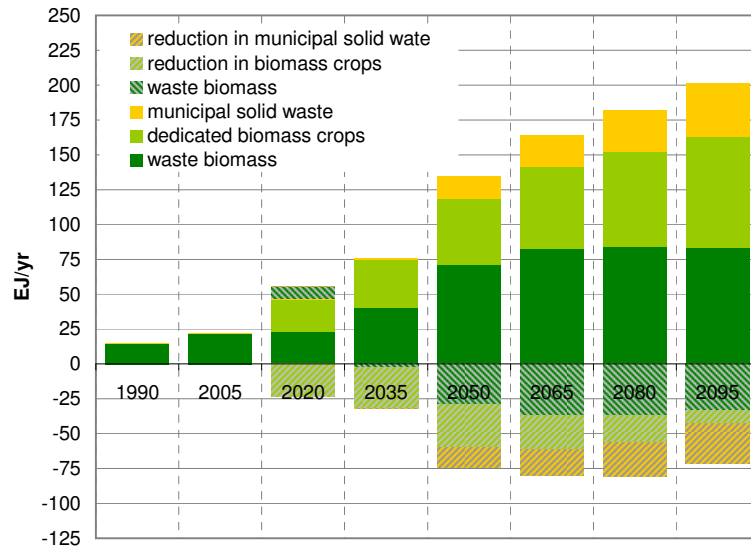


Scenario: ccs stab

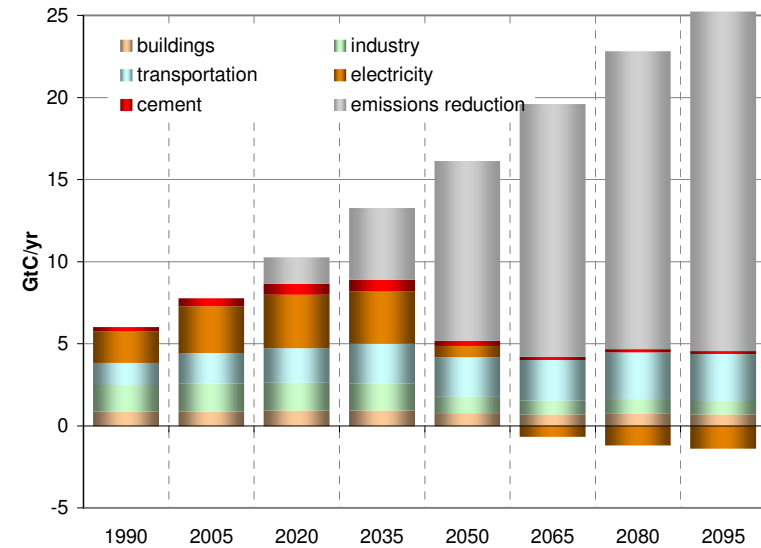
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: bioccs stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	19.3	21.7	20.0	20.4	22.1	21.4	EJ/yr
building	gas	18.7	26.7	27.8	28.4	24.3	21.7	21.5	20.5	EJ/yr
building	coal	10.1	5.1	5.2	3.7	1.6	1.1	1.0	0.9	EJ/yr
building	biomass	4.5	5.5	8.8	9.6	7.9	6.0	5.4	4.7	EJ/yr
building	electricity	16.9	29.0	41.1	57.7	78.1	101.6	128.6	154.2	EJ/yr
building	trad biomass	23.5	29.9	32.8	30.1	25.2	20.0	14.0	9.2	EJ/yr
building	energy reduction	0.0	0.0	7.9	15.5	30.3	38.5	42.0	45.1	EJ/yr
	total: w/o reduction	88.9	112.7	135.0	151.1	157.1	170.8	192.7	210.9	EJ/yr
industry	liquids	22.4	21.2	20.6	23.8	21.4	22.9	24.4	20.8	EJ/yr
industry	gas	26.6	30.5	30.9	33.0	23.3	19.8	20.2	20.2	EJ/yr
industry	coal	31.4	35.8	34.8	28.0	12.3	8.8	9.7	9.9	EJ/yr
industry	biomass	7.3	11.2	26.0	39.6	45.5	42.0	43.0	45.5	EJ/yr
industry	electricity	18.1	24.8	33.9	47.4	74.4	97.6	110.9	124.8	EJ/yr
industry	hydrogen	0.0	0.0	2.8	3.6	4.6	5.7	6.2	7.3	EJ/yr
industry	energy reduction	0.0	0.0	18.9	41.2	74.8	93.8	97.6	100.4	EJ/yr
industry	feedstocks	15.2	23.7	25.6	28.7	29.9	32.7	35.2	36.9	EJ/yr
	total: w/o reduction	105.8	123.6	149.1	175.4	181.5	196.8	214.4	228.6	EJ/yr
transportation	liquids	62.7	87.7	97.9	113.1	116.5	122.8	138.3	141.6	EJ/yr
transportation	gas	2.2	3.0	6.1	11.4	15.1	18.2	22.8	27.7	EJ/yr
transportation	coal	0.5	0.2	0.2	0.2	0.1	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.8	12.7	19.5	24.6	30.6	EJ/yr
transportation	hydrogen	0.0	0.0	0.5	2.1	6.5	11.9	17.3	25.0	EJ/yr
transportation	energy reduction	0.0	0.0	3.8	8.9	20.9	29.3	32.1	34.4	EJ/yr
	total: w/o reduction	66.4	91.8	106.8	131.5	150.8	172.5	203.1	224.9	EJ/yr
total final energy	buildings	88.9	112.7	135.0	151.1	157.1	170.8	192.7	210.9	EJ/yr
total final energy	industry	105.8	123.6	149.1	175.4	181.5	196.8	214.4	228.6	EJ/yr
total final energy	transportation	66.4	91.8	106.8	131.5	150.8	172.5	203.1	224.9	EJ/yr
total final energy	energy reduction	0.0	0.0	30.5	65.7	126.0	161.5	171.7	179.9	EJ/yr
	total: w/o reduction	261.1	328.1	390.9	458.0	489.4	540.0	610.2	664.4	EJ/yr

Scenario: bioccs stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	175.0	183.9	165.0	172.2	194.1	186.3	EJ/yr
oil w/ ccs	0.0	0.0	0.6	2.8	8.0	11.3	12.3	13.5	EJ/yr
natural gas w/o ccs	69.9	97.5	119.9	146.9	137.8	119.4	117.4	126.4	EJ/yr
natural gas w/ ccs	0.0	0.0	2.2	12.6	43.9	75.7	96.2	111.3	EJ/yr
coal w/o ccs	91.2	119.1	130.7	118.2	33.8	12.5	13.3	13.6	EJ/yr
coal w/ ccs	0.0	0.0	1.6	17.2	94.5	155.5	205.1	241.9	EJ/yr
biomass w/o ccs	14.4	21.6	47.6	76.7	103.0	99.1	95.6	104.8	EJ/yr
biomass w/ ccs	0.0	0.0	0.2	3.2	42.4	80.9	106.2	119.8	EJ/yr
nuclear	21.0	26.1	23.5	21.9	17.6	16.3	15.5	15.1	EJ/yr
hydro	23.6	29.2	29.4	31.1	29.2	29.2	31.1	33.5	EJ/yr
wind	0.0	0.9	17.4	41.1	55.6	59.4	61.1	73.3	EJ/yr
solar	0.0	0.1	1.5	5.4	11.9	16.2	19.6	29.0	EJ/yr
geothermal	0.4	0.5	1.5	6.2	7.7	7.1	6.8	6.7	EJ/yr
energy reduction	0.0	0.0	41.8	94.6	166.5	215.4	244.7	297.8	EJ/yr
total: w/o reduction	356	463	551	667	750	855	974	1075	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.85	2.51	1.32	0.95	1.15	1.40	EJ/yr
oil w/ccs	0.00	0.00	0.24	1.15	3.49	5.21	5.84	6.45	EJ/yr
gas	6.07	12.82	22.06	28.68	27.75	18.78	13.84	13.39	EJ/yr
gas w/ccs	0.00	0.00	0.89	6.49	24.68	44.43	58.12	68.33	EJ/yr
coal	16.06	26.35	32.15	32.10	8.21	0.96	0.90	0.99	EJ/yr
coal w/ccs	0.00	0.00	0.59	7.24	42.20	70.82	94.94	113.04	EJ/yr
biomass	0.43	0.71	1.52	2.74	2.87	2.04	1.08	0.81	EJ/yr
biomass w/ccs	0.00	0.00	0.02	1.19	17.52	33.24	44.64	50.10	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.53	12.83	18.80	22.03	23.21	27.66	EJ/yr
wind w/storage	0.00	0.00	1.61	5.46	10.53	13.70	14.89	18.69	EJ/yr
CSP w/backup	0.00	0.00	0.37	0.78	1.25	1.77	2.06	3.11	EJ/yr
CSP w/storage	0.00	0.00	0.13	1.37	4.00	5.82	6.69	10.00	EJ/yr
PV w/backup	0.00	0.04	0.05	0.07	0.42	1.13	1.85	2.69	EJ/yr
PV w/storage	0.00	0.00	0.01	0.04	0.22	0.53	0.83	1.19	EJ/yr
rooftop PV w/backup	0.00	0.00	0.34	1.11	2.43	4.52	5.88	7.10	EJ/yr
geothermal	0.13	0.21	0.63	2.88	4.33	4.38	4.36	4.39	EJ/yr
energy reduction	0.00	0.00	5.76	13.56	6.56	-2.57	4.08	13.57	EJ/yr
total: w/o reduction	42.7	65.2	92.1	130.6	195.8	258.0	309.8	360.7	EJ/yr

Scenario: bioccs stab

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	92.2	97.5	87.5	87.9	95.7	82.4	EJ/yr
unconventional oil	0.0	0.0	1.1	3.7	7.3	11.7	19.9	31.5	EJ/yr
coal liquids	0.0	0.0	0.3	0.3	0.2	0.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.1	0.2	0.3	0.5	0.9	EJ/yr
bio fuels	0.2	0.9	2.9	6.9	14.7	16.4	16.6	20.4	EJ/yr
gas liquids	0.0	0.0	1.3	4.6	6.6	6.3	5.6	6.4	EJ/yr
gas	2.2	3.0	6.1	11.4	15.1	18.2	22.8	27.7	EJ/yr
coal	0.5	0.2	0.2	0.2	0.1	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.8	12.7	19.5	24.6	30.6	EJ/yr
hydrogen	0.0	0.0	0.5	2.1	6.5	11.9	17.3	25.0	EJ/yr
energy reduction	0.0	0.0	3.8	8.9	20.9	29.3	32.1	34.4	EJ/yr
total: w/o reduction	66.4	91.8	106.8	131.5	150.8	172.5	203.1	224.9	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	44.01	47.53	42.42	45.08	47.02	39.06	EJ/yr
unconventional oil	0.00	0.00	0.26	0.80	1.78	3.18	6.07	10.76	EJ/yr
coal liquids	0.00	0.00	0.06	0.07	0.03	0.05	0.07	0.14	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.01	0.03	0.05	0.07	0.14	EJ/yr
bio fuels	0.01	0.05	0.48	1.64	4.29	4.72	4.39	5.49	EJ/yr
gas liquids	0.00	0.00	0.33	1.39	1.84	1.66	1.25	1.47	EJ/yr
energy reduction	0.0	0.0	2.1	5.1	14.6	23.1	24.5	23.9	EJ/yr
total: w/o reduction	36.6	43.9	45.1	51.4	50.4	54.7	58.9	57.1	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.13	3.37	4.65	6.03	8.04	9.83	EJ/yr
gas w/ccs	0.00	0.00	0.37	0.95	2.54	4.01	5.10	6.89	EJ/yr
coal	0.00	0.00	0.27	0.25	0.14	0.13	0.19	0.24	EJ/yr
coal w/ccs	0.00	0.00	0.11	0.28	0.95	1.91	2.98	4.70	EJ/yr
biomass	0.00	0.00	0.17	0.25	0.23	0.17	0.24	0.30	EJ/yr
biomass w/ccs	0.00	0.00	0.07	0.23	1.70	3.98	4.77	7.01	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.09	0.18	0.36	0.58	0.83	1.11	EJ/yr
wind	0.00	0.00	0.09	0.10	0.16	0.26	0.42	0.60	EJ/yr
solar	0.00	0.00	0.09	0.15	0.34	0.57	0.94	1.58	EJ/yr
energy reduction	0.00	0.00	-0.14	-0.52	-1.71	-3.39	-3.53	-4.54	EJ/yr
total: w/o reduction	0.00	0.00	3.39	5.75	11.08	17.64	23.51	32.26	EJ/yr

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	8.8	9.6	7.9	6.0	5.4	4.7	EJ/yr
	Industry	7.4	11.3	27.0	42.9	53.9	51.1	51.2	55.4	EJ/yr
	electricity	2.1	2.5	4.3	9.8	45.8	77.6	99.0	107.8	EJ/yr
	refined liquids: tran & bldg	0.5	2.2	7.1	16.6	33.8	36.8	36.0	42.2	EJ/yr
	hydrogen	0.0	0.0	0.5	1.0	4.0	8.5	10.0	14.3	EJ/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	EJ/yr
	energy reduction	0.0	0.0	-15.7	-36.1	-85.1	-96.4	-100.5	-94.5	EJ/yr
	total: w/o reduction	14.4	21.6	47.8	80.0	145.4	180.0	201.8	224.5	EJ/yr

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	21.6	38.4	71.4	84.7	86.5	85.9	EJ
dedicated biomass crops	0.0	0.0	26.2	40.7	58.1	73.0	85.3	99.6	EJ
municipal solid waste	0.0	0.1	0.0	0.9	15.9	22.3	30.0	39.0	EJ
waste biomass	0.0	0.0	10.1	-0.6	-29.6	-39.4	-39.5	-36.6	EJ
reduction in biomass crops	0.0	0.0	-26.2	-35.7	-41.4	-38.2	-36.6	-29.3	EJ
reduction in municipal solid waste	0.0	0.0	0.4	0.2	-14.1	-18.9	-24.4	-28.7	EJ
total: w/o reduction	14.4	21.6	31.7	43.7	74.4	102.5	125.8	158.7	EJ

[illegible]

Scenario: bioccs stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.5	\$82.2	\$115.9	\$163.5	\$229.9	\$314.4	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.35	1.84	1.36	1.04	0.84	0.67	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.59	2.13	1.57	1.20	0.93	0.73	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.86	1.60	1.30	1.05	0.88	0.72	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	6.79	5.57	4.22	3.30	2.65	2.11	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.9	18.1	17.8	18.9	21.4	24.1	GJ/capita
Final Energy per Capita	industry	20.2	19.2	19.8	21.0	20.6	21.7	23.8	26.1	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.2	15.8	17.1	19.0	22.6	25.7	GJ/capita
Final Energy per Capita	total	49.7	51.0	51.9	54.9	55.5	59.6	67.8	75.9	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.6	\$41.5	\$43.9	\$45.1	\$46.7	\$54.3	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$46.4	\$55.6	\$73.6	\$84.3	\$85.4	\$95.4	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$4.0	\$4.3	\$5.0	\$5.4	\$5.7	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.1	\$5.7	\$7.9	\$9.7	\$9.9	\$10.3	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.6	\$1.6	\$1.6	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$3.3	\$4.8	\$8.2	\$10.2	\$9.9	\$10.1	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	6.59	6.77	6.88	6.85	6.67	6.75	cents/kWh (2005\$)
	carbon price	0.0	0.0	55.7	115.9	240.8	313.5	304.0	311.8	\$/tC (2005\$)

Crop Prices

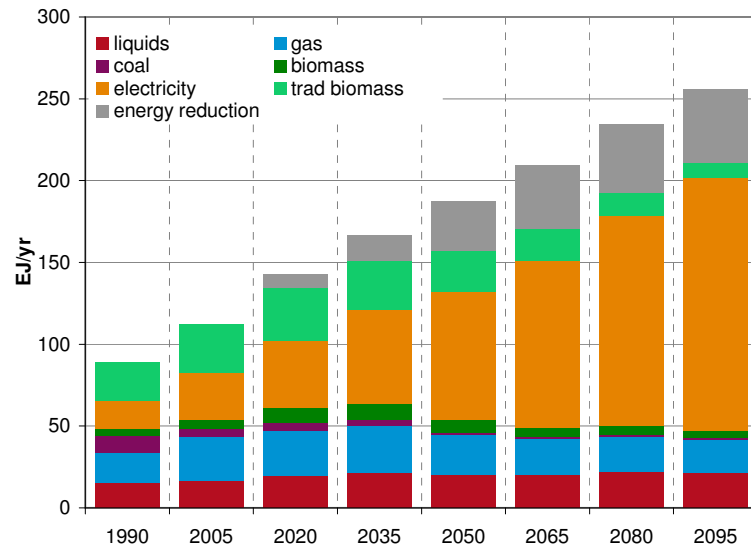
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	43	49	57	60	56	53	\$/Gcal (2005\$)
	global rice	32	32	46	51	63	65	56	48	\$/Gcal (2005\$)
	global wheat	27	27	43	51	64	66	56	49	\$/Gcal (2005\$)

Emissions by Sectors

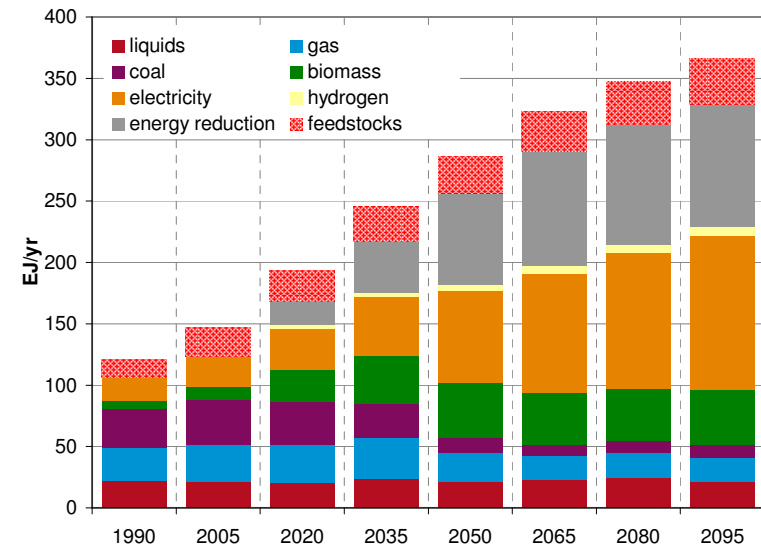
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.932	0.934	0.758	0.707	0.737	0.696	GtC/yr
	industry	1.623	1.706	1.688	1.631	0.999	0.841	0.914	0.833	GtC/yr
	transportation	1.354	1.863	2.107	2.439	2.382	2.455	2.834	2.854	GtC/yr
	electricity	1.909	2.848	3.273	3.194	0.662	-0.666	-1.227	-1.394	GtC/yr
	cement	0.261	0.483	0.658	0.713	0.322	0.203	0.212	0.181	GtC/yr
	emissions reduction	0.000	0.000	1.607	4.352	11.001	15.396	18.145	21.128	GtC/yr
	total: w/o reduction	6.006	7.760	8.659	8.912	5.124	3.540	3.470	3.170	GtC/yr

Scenario: bioccs stab

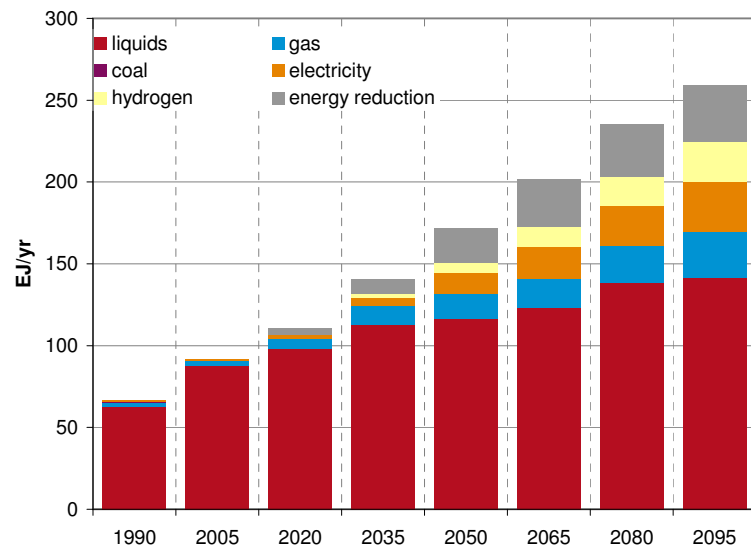
Final Energy Consumption: Buildings



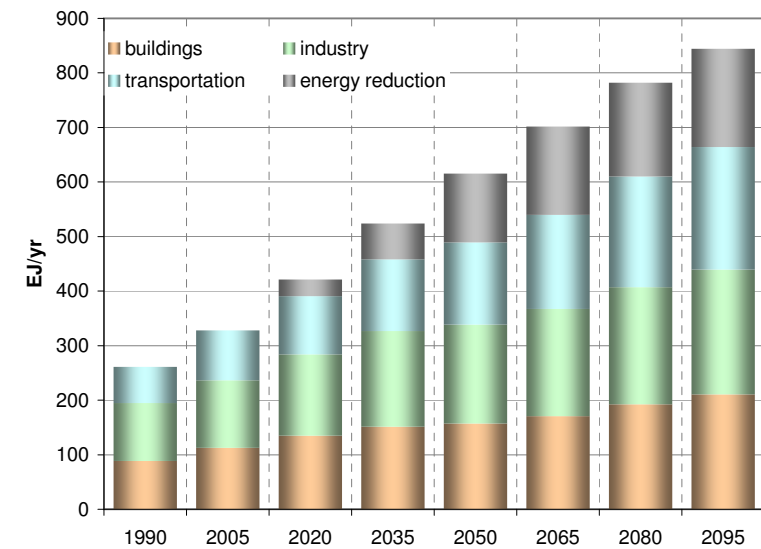
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

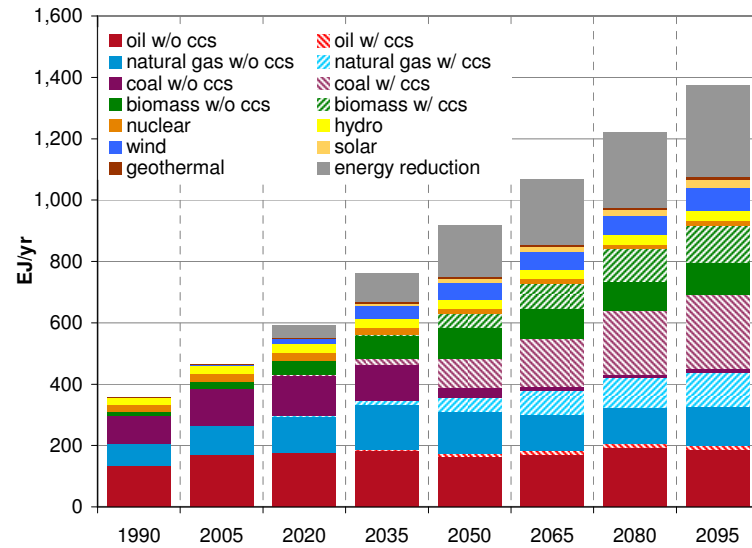


Final Energy Consumption by Sector

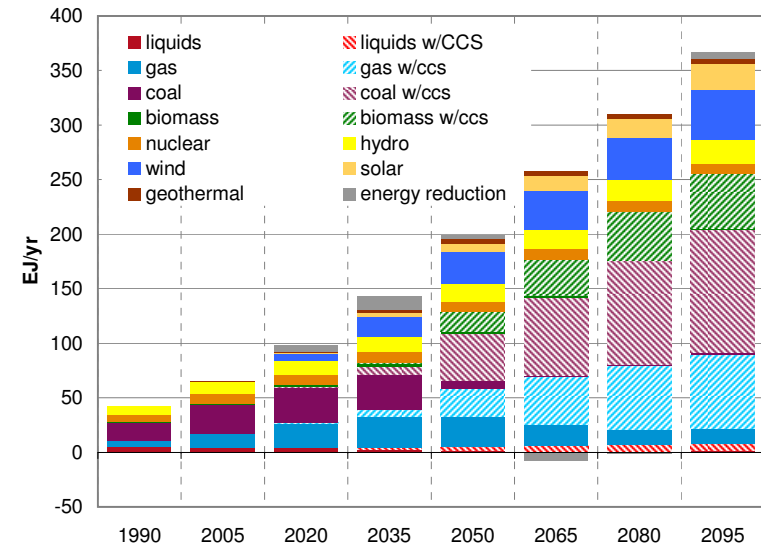


Scenario: bioccs stab

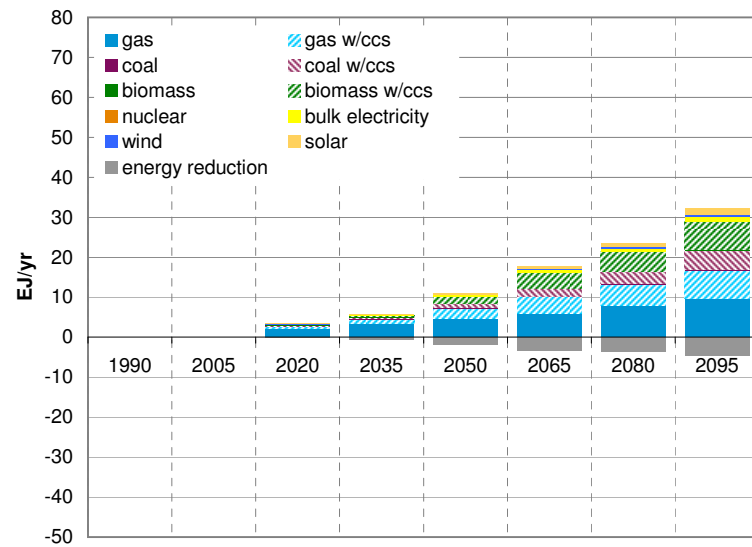
Primary Energy Consumption



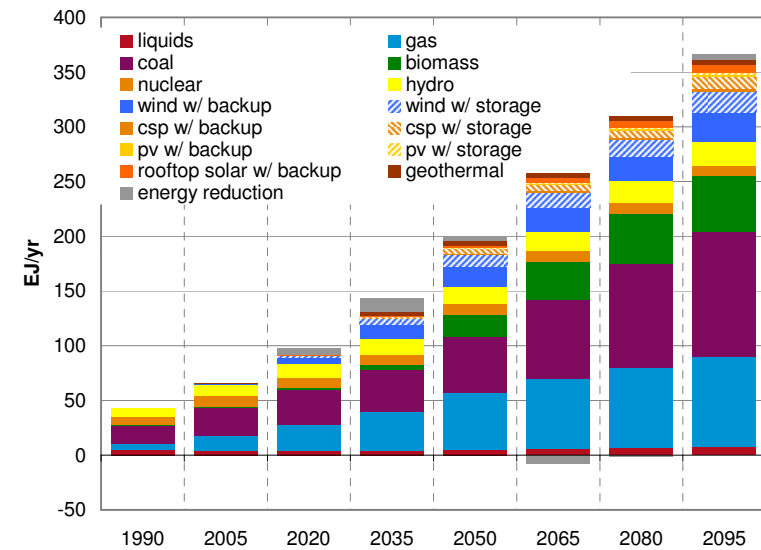
Electricity Production by Fuel: CCS Focus



Hydrogen Production by Fuel

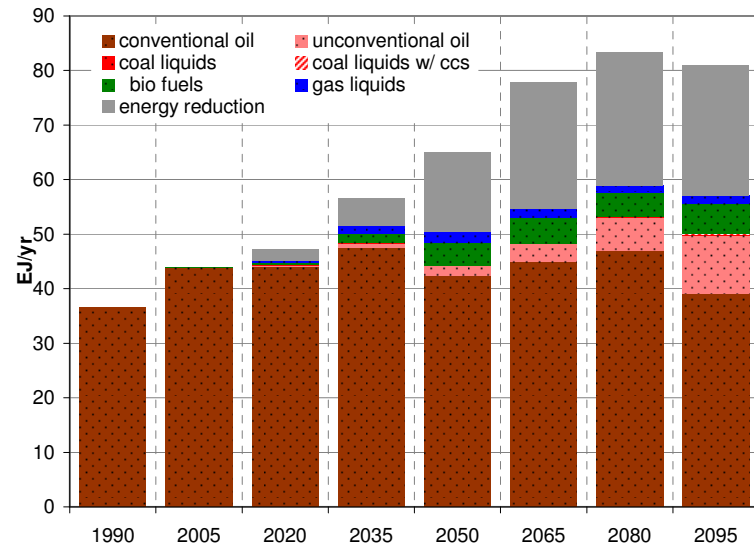


Electricity Production by Fuel: Renewable Focus

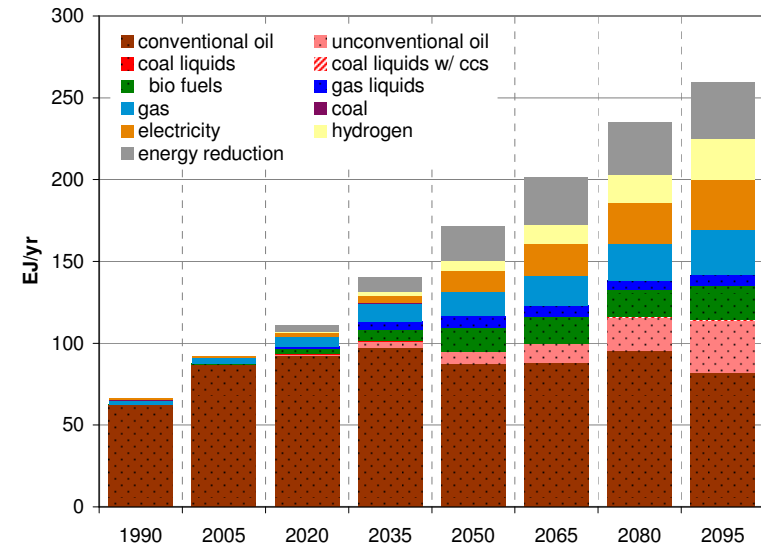


Scenario: bioccs stab

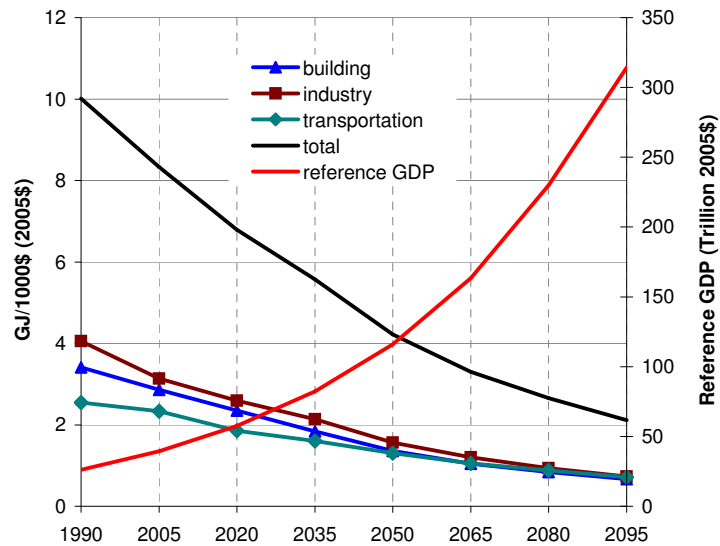
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



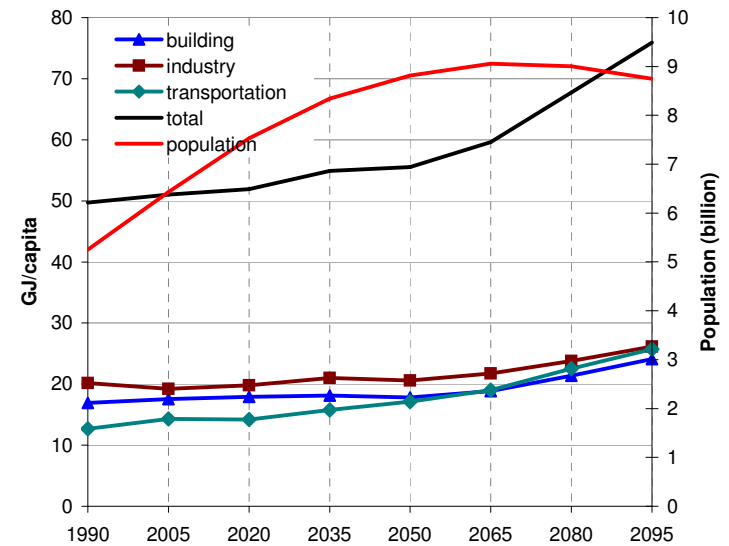
Transportation Fuels Composition



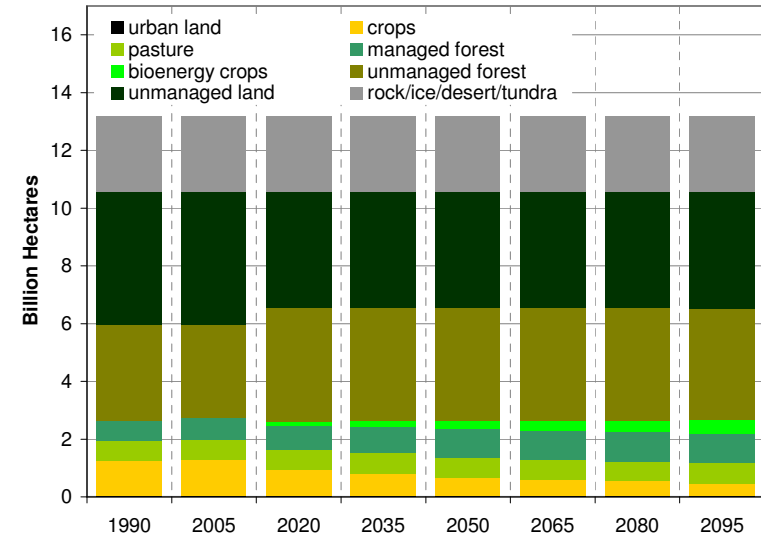
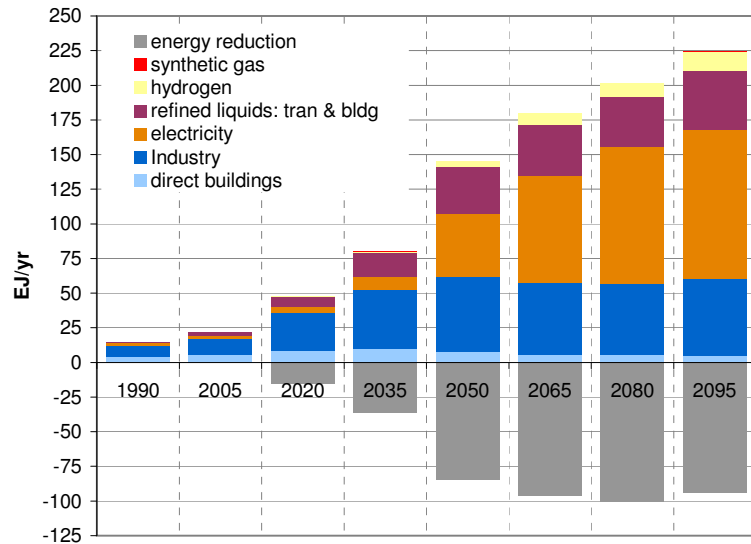
Final Energy Intensity



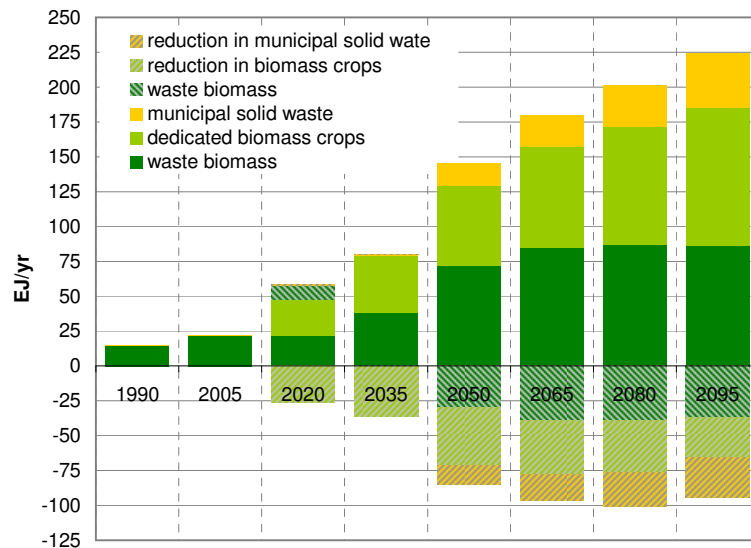
Final Energy per Capita



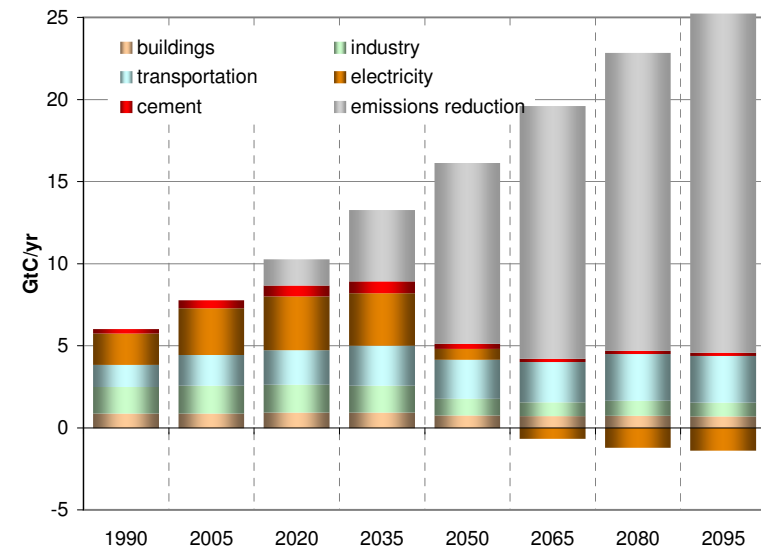
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: re stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	18.8	20.3	18.8	14.2	13.9	14.1	EJ/yr
building	gas	18.7	26.7	27.3	26.6	22.6	15.4	14.3	13.0	EJ/yr
building	coal	10.1	5.1	4.3	2.7	1.1	0.3	0.2	0.2	EJ/yr
building	biomass	4.5	5.5	9.0	9.3	7.2	3.7	3.0	2.5	EJ/yr
building	electricity	16.9	29.0	39.7	56.4	71.9	91.9	117.7	143.2	EJ/yr
building	trad biomass	23.5	29.9	33.3	30.7	27.0	22.3	15.9	10.4	EJ/yr
building	energy reduction	0.0	0.0	10.4	20.6	38.7	61.5	69.6	72.8	EJ/yr
	total: w/o reduction	88.9	112.7	132.4	146.1	148.6	147.7	165.0	183.2	EJ/yr
industry	liquids	22.4	21.2	20.3	21.5	19.8	14.0	12.7	11.4	EJ/yr
industry	gas	26.6	30.5	29.1	27.5	19.4	11.0	10.4	9.7	EJ/yr
industry	coal	31.4	35.8	27.0	18.1	8.5	2.3	1.9	1.6	EJ/yr
industry	biomass	7.3	11.2	28.7	41.4	44.4	30.6	27.7	27.7	EJ/yr
industry	electricity	18.1	24.8	34.3	51.5	70.5	99.3	117.3	135.3	EJ/yr
industry	hydrogen	0.0	0.0	3.1	3.6	4.3	4.3	4.5	4.9	EJ/yr
industry	energy reduction	0.0	0.0	25.5	53.1	89.4	129.0	137.5	138.4	EJ/yr
industry	feedstocks	15.2	23.7	24.7	27.3	28.0	28.3	30.4	32.7	EJ/yr
	total: w/o reduction	105.8	123.6	142.4	163.6	166.9	161.6	174.6	190.5	EJ/yr
transportation	liquids	62.7	87.7	96.6	109.9	111.8	98.9	106.1	112.5	EJ/yr
transportation	gas	2.2	3.0	5.9	10.8	14.8	16.3	20.0	22.9	EJ/yr
transportation	coal	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.2	5.2	13.1	25.4	33.3	40.0	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.2	6.0	10.7	16.0	22.1	EJ/yr
transportation	energy reduction	0.0	0.0	5.3	12.3	26.0	50.4	59.8	61.9	EJ/yr
	total: w/o reduction	66.4	91.8	105.4	128.1	145.7	151.3	175.4	197.4	EJ/yr
total final energy	buildings	88.9	112.7	132.4	146.1	148.6	147.7	165.0	183.2	EJ/yr
total final energy	industry	105.8	123.6	142.4	163.6	166.9	161.6	174.6	190.5	EJ/yr
total final energy	transportation	66.4	91.8	105.4	128.1	145.7	151.3	175.4	197.4	EJ/yr
total final energy	energy reduction	0.0	0.0	41.2	85.9	154.1	240.9	266.9	273.1	EJ/yr
	total: w/o reduction	261.1	328.1	380.2	437.8	461.3	460.6	515.0	571.2	EJ/yr

Scenario: re stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	171.2	173.5	143.7	97.3	89.1	82.7	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	118.4	144.6	153.3	116.6	105.1	109.6	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	114.6	101.0	37.5	12.2	11.7	11.3	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	53.6	92.3	154.1	184.6	205.3	226.0	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.0	23.2	21.6	17.2	16.0	15.6	15.2	EJ/yr
hydro	23.6	29.2	29.2	30.3	28.6	29.7	32.0	34.6	EJ/yr
wind	0.0	0.9	19.0	47.4	72.5	113.8	134.3	145.7	EJ/yr
solar	0.0	0.1	3.3	17.8	50.7	124.8	204.7	274.6	EJ/yr
geothermal	0.4	0.6	2.1	14.8	32.3	42.6	44.5	45.1	EJ/yr
energy reduction	0.0	0.0	58.1	118.5	226.9	332.5	376.8	427.8	EJ/yr
total: w/o reduction	356	463	535	643	690	738	842	945	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.98	3.43	3.36	3.55	3.87	4.61	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	22.44	32.66	41.41	30.77	22.70	25.36	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	29.76	30.53	12.10	4.13	4.14	4.07	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.57	3.88	9.74	12.42	10.83	9.21	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.87	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.08	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.71	13.30	20.14	29.47	33.29	35.93	EJ/yr
wind w/storage	0.00	0.00	2.16	8.29	19.00	38.41	49.15	54.24	EJ/yr
CSP w/backup	0.00	0.00	0.70	1.51	2.68	6.47	10.56	14.61	EJ/yr
CSP w/storage	0.00	0.00	0.55	6.00	19.49	47.35	75.64	102.16	EJ/yr
PV w/backup	0.00	0.04	0.06	0.31	2.60	9.06	14.22	17.95	EJ/yr
PV w/storage	0.00	0.00	0.01	0.17	1.37	7.95	17.71	24.91	EJ/yr
rooftop PV w/backup	0.00	0.00	0.91	3.01	6.65	10.49	12.90	15.31	EJ/yr
geothermal	0.15	0.23	0.88	6.85	18.37	26.03	27.95	28.74	EJ/yr
energy reduction	0.00	0.00	8.38	21.13	56.75	86.12	130.22	169.50	EJ/yr
total: w/o reduction	42.8	65.2	90.7	133.9	182.7	253.8	312.5	368.5	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	90.4	92.5	76.3	51.4	47.7	44.2	EJ/yr
unconventional oil	0.0	0.0	1.0	2.8	4.1	3.1	2.9	2.6	EJ/yr
coal liquids	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	3.8	10.5	26.0	40.4	52.5	63.5	EJ/yr
gas liquids	0.0	0.0	1.3	3.9	5.3	4.0	3.0	2.3	EJ/yr
gas	2.2	3.0	5.9	10.8	14.8	16.3	20.0	22.9	EJ/yr
coal	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.2	5.2	13.1	25.4	33.3	40.0	EJ/yr
hydrogen	0.0	0.0	0.6	2.2	6.0	10.7	16.0	22.1	EJ/yr
energy reduction	0.0	0.0	5.3	12.3	26.0	50.4	59.8	61.9	EJ/yr
total: w/o reduction	66.4	91.8	105.4	128.1	145.7	151.3	175.4	197.4	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	42.71	43.41	35.64	23.84	21.17	18.87	EJ/yr
unconventional oil	0.00	0.00	0.21	0.52	0.58	0.14	0.28	0.24	EJ/yr
coal liquids	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.70	2.74	9.26	16.47	20.18	23.83	EJ/yr
gas liquids	0.00	0.00	0.30	1.09	1.41	0.99	0.63	0.40	EJ/yr
energy reduction	0.0	0.0	3.3	8.8	18.1	36.4	41.2	37.6	EJ/yr
total: w/o reduction	36.6	43.9	44.0	47.8	46.9	41.4	42.3	43.3	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.68	4.29	7.58	9.78	12.45	14.51	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.37	0.40	0.42	0.31	0.41	0.52	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.30	0.55	1.08	1.35	1.71	2.25	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.09	0.20	0.46	1.04	1.57	2.18	EJ/yr
wind	0.00	0.00	0.10	0.11	0.23	0.56	0.85	1.31	EJ/yr
solar	0.00	0.00	0.10	0.19	0.60	1.92	3.60	6.16	EJ/yr
energy reduction	0.00	0.00	-0.40	-0.51	-1.00	-0.72	-0.61	0.80	EJ/yr
total: w/o reduction	0.00	0.00	3.64	5.74	10.37	14.97	20.59	26.92	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	9.0	9.3	7.2	3.7	3.0	2.5	Ej/yr
Industry	7.4	11.3	30.2	46.9	62.5	61.9	65.3	70.7	Ej/yr
electricity	2.1	2.5	4.4	9.8	22.8	28.1	23.3	19.6	Ej/yr
refined liquids: tran & bldg	0.5	2.2	9.4	25.0	59.4	88.1	110.3	128.8	Ej/yr
hydrogen	0.0	0.0	0.7	1.2	2.2	2.8	3.4	4.4	Ej/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Ej/yr
energy reduction	0.0	0.0	-21.5	-48.5	-93.9	-101.0	-104.0	-96.0	Ej/yr
total: w/o reduction	14.4	21.6	53.6	92.3	154.1	184.6	205.3	226.0	Ej/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	23.2	45.5	77.4	85.7	86.4	84.8	EJ
dedicated biomass crops	0.0	0.0	30.4	44.2	60.8	77.1	89.4	102.8	EJ
municipal solid waste	0.0	0.1	0.1	2.6	16.3	22.2	29.5	38.4	EJ
waste biomass	0.0	0.0	8.5	-7.6	-35.7	-40.4	-39.3	-35.5	EJ
reduction in biomass crops	0.0	0.0	-30.4	-39.2	-44.1	-42.3	-40.7	-32.4	EJ
reduction in municipal solid waste	0.0	0.0	0.4	-1.6	-14.5	-18.8	-24.0	-28.0	EJ
total: w/o reduction	14.4	21.6	31.7	45.4	74.8	102.4	125.3	158.1	EJ

Arable Land Use by Type

[illegible]

Scenario: re stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.2	\$81.5	\$114.8	\$160.0	\$224.9	\$308.0	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.32	1.79	1.29	0.92	0.73	0.59	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.49	2.01	1.45	1.01	0.78	0.62	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.84	1.57	1.27	0.95	0.78	0.64	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	6.65	5.37	4.02	2.88	2.29	1.85	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.6	17.5	16.9	16.3	18.3	20.9	GJ/capita
Final Energy per Capita	industry	20.2	19.2	18.9	19.6	18.9	17.8	19.4	21.8	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.0	15.4	16.5	16.7	19.5	22.6	GJ/capita
Final Energy per Capita	total	49.7	51.0	50.5	52.5	52.3	50.8	57.2	65.3	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.6	\$40.9	\$42.9	\$42.8	\$41.9	\$40.6	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$49.7	\$62.0	\$87.0	\$134.5	\$141.6	\$146.8	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$3.9	\$4.1	\$4.2	\$4.3	\$4.2	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.5	\$6.5	\$9.5	\$15.4	\$16.5	\$17.2	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.6	\$1.5	\$1.4	\$1.3	\$1.2	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$4.0	\$6.4	\$11.4	\$21.9	\$23.6	\$24.9	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.74	6.83	6.73	7.74	8.80	8.65	8.56	cents/kWh (2005\$)
	carbon price	0.0	0.0	83.5	173.6	361.0	750.5	815.2	868.6	\$/tC (2005\$)

Crop Prices

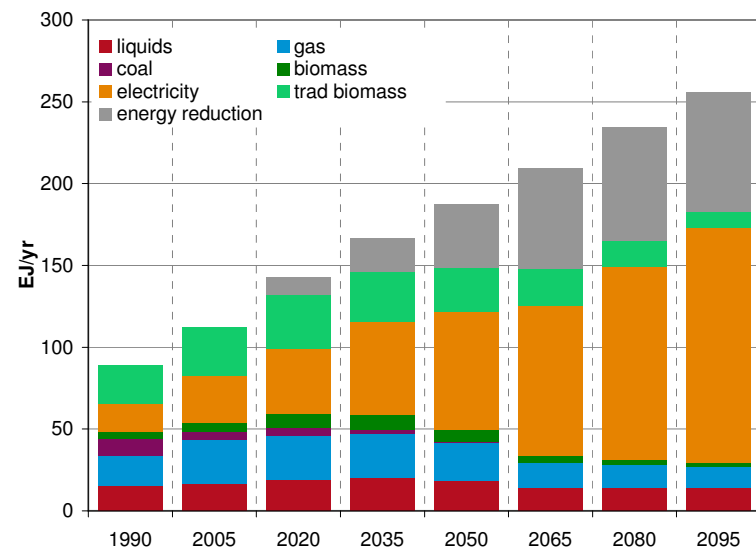
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	47	55	66	84	81	74	\$/Gcal (2005\$)
	global rice	32	32	53	61	78	107	92	73	\$/Gcal (2005\$)
	global wheat	27	27	51	63	82	113	98	81	\$/Gcal (2005\$)

Emissions by Sectors

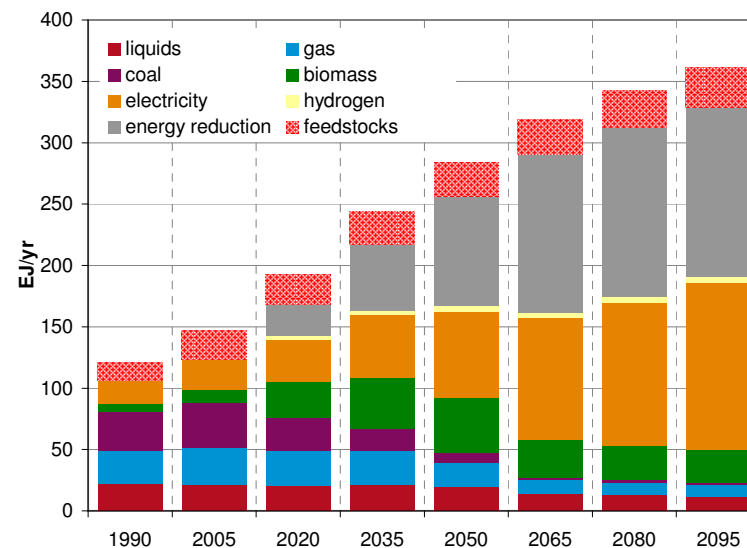
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.887	0.837	0.653	0.400	0.354	0.315	GtC/yr
	industry	1.623	1.706	1.509	1.293	0.788	0.234	0.108	-0.018	GtC/yr
	transportation	1.354	1.863	2.054	2.293	2.109	1.590	1.576	1.551	GtC/yr
	electricity	1.909	2.848	3.089	3.169	1.878	1.101	0.910	0.980	GtC/yr
	cement	0.261	0.483	0.578	0.641	0.592	0.475	0.429	0.387	GtC/yr
	emissions reduction	0.000	0.000	2.149	5.030	10.106	15.137	18.238	21.084	GtC/yr
	total: w/o reduction	6.005	7.759	8.117	8.234	6.019	3.799	3.377	3.214	GtC/yr

Scenario: re stab

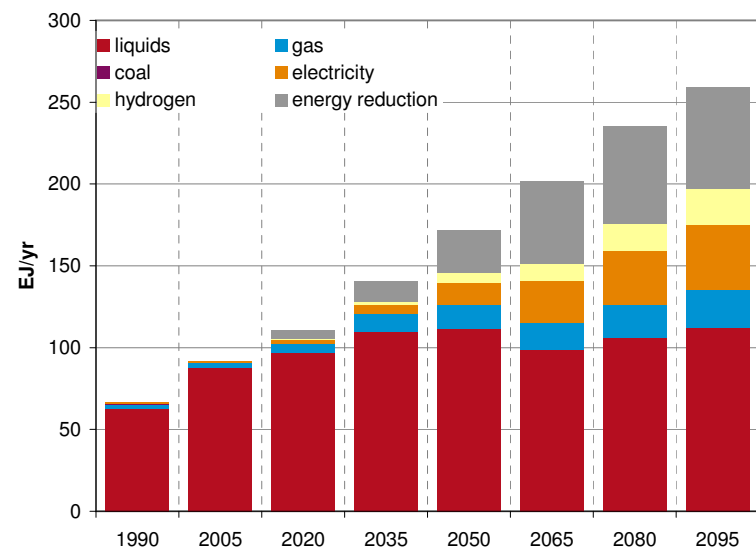
Final Energy Consumption: Buildings



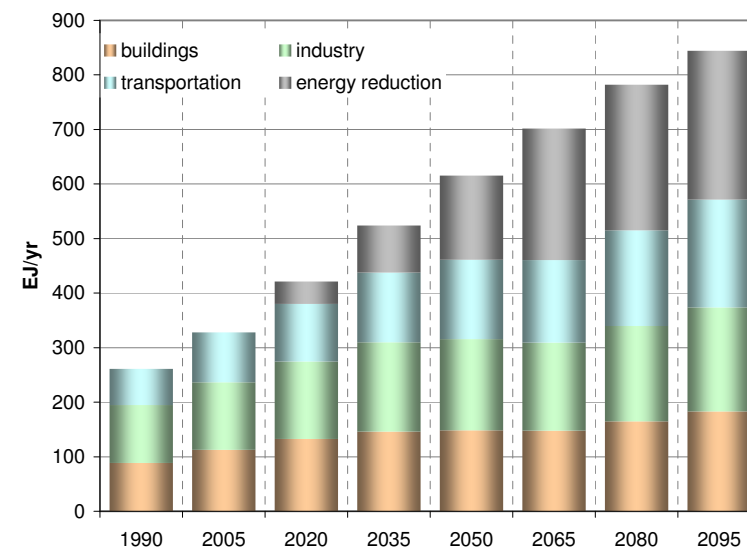
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

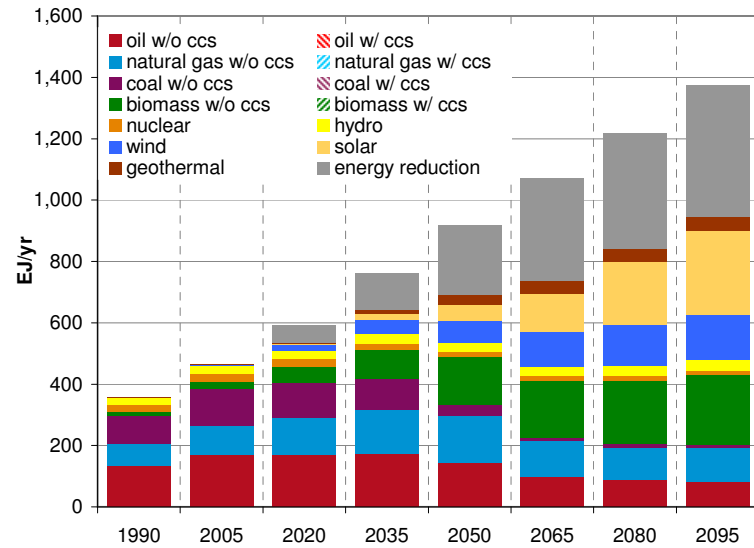


Final Energy Consumption by Sector

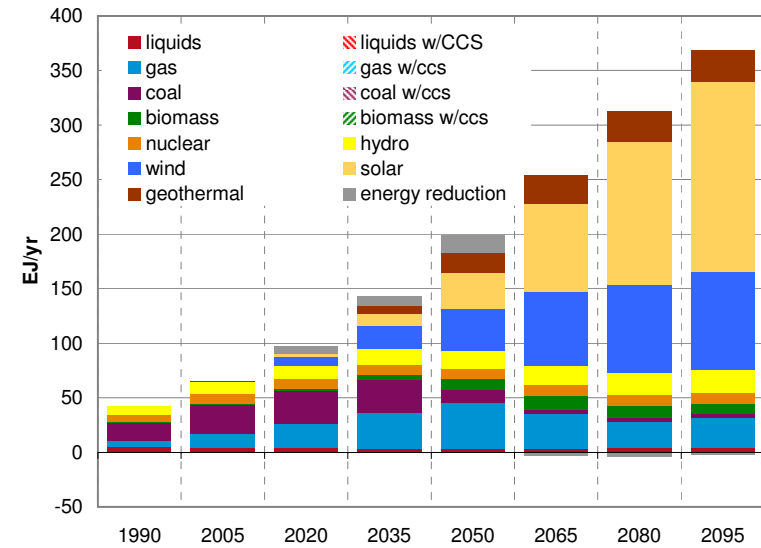


Scenario: re stab

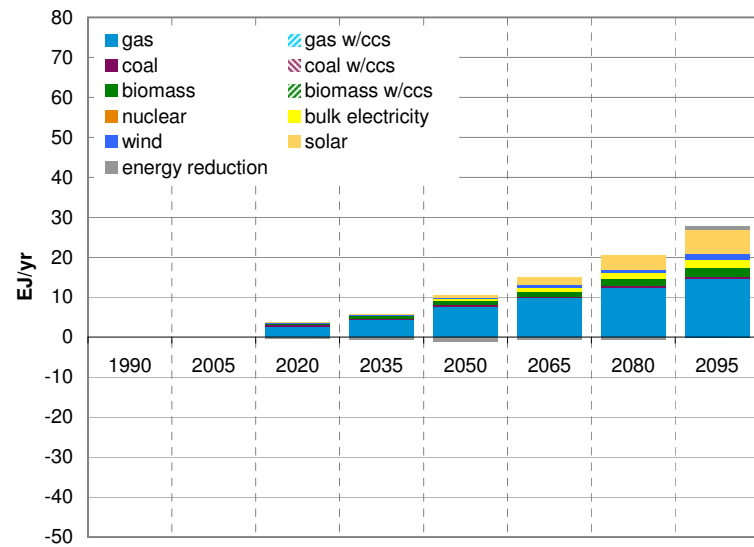
Primary Energy Consumption



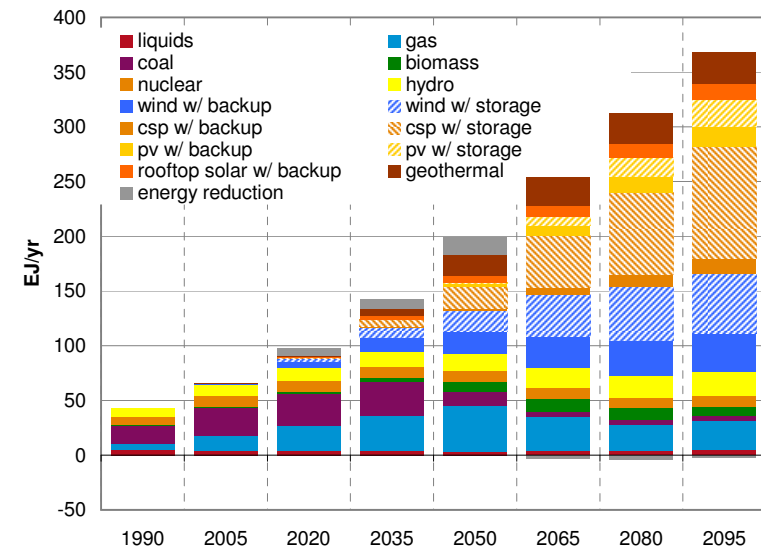
Electricity Production by Fuel: CCS Focus



Hydrogen Production by Fuel

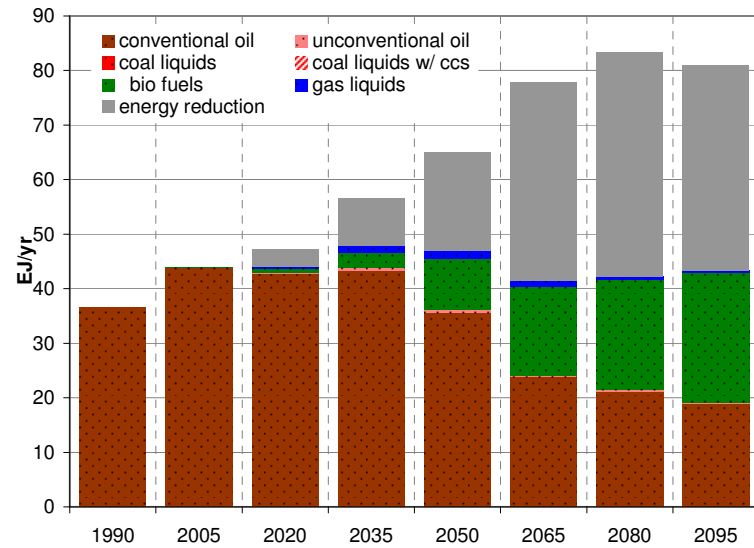


Electricity Production by Fuel: Renewable Focus

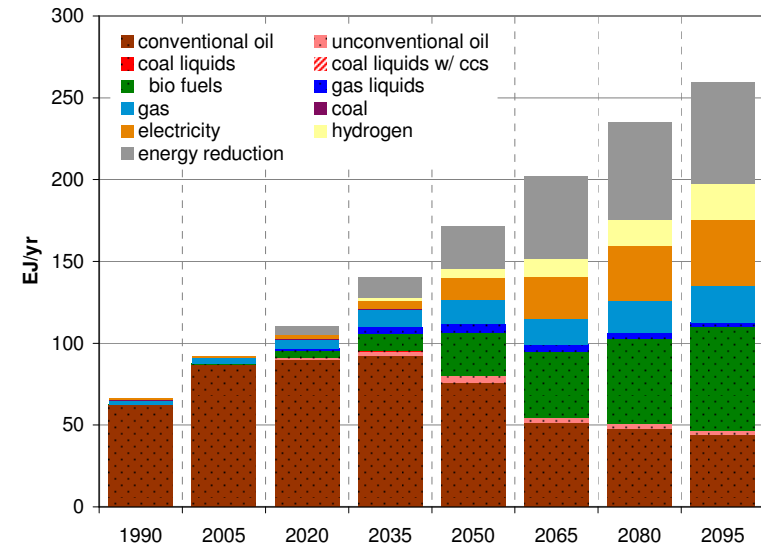


Scenario: re stab

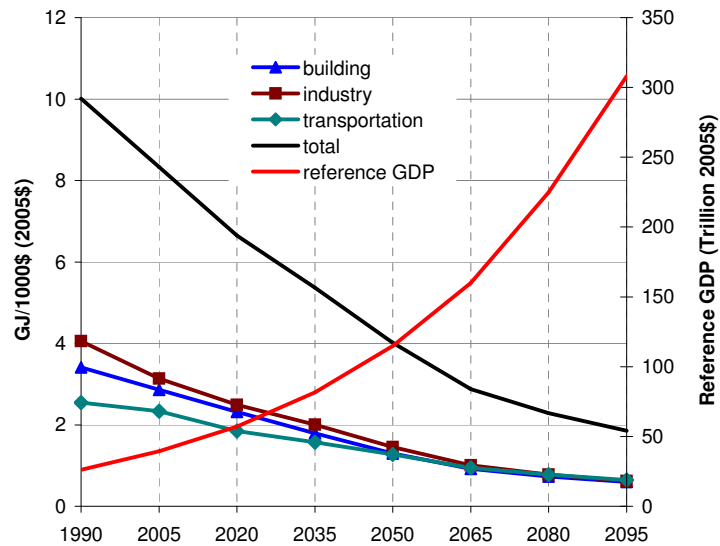
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



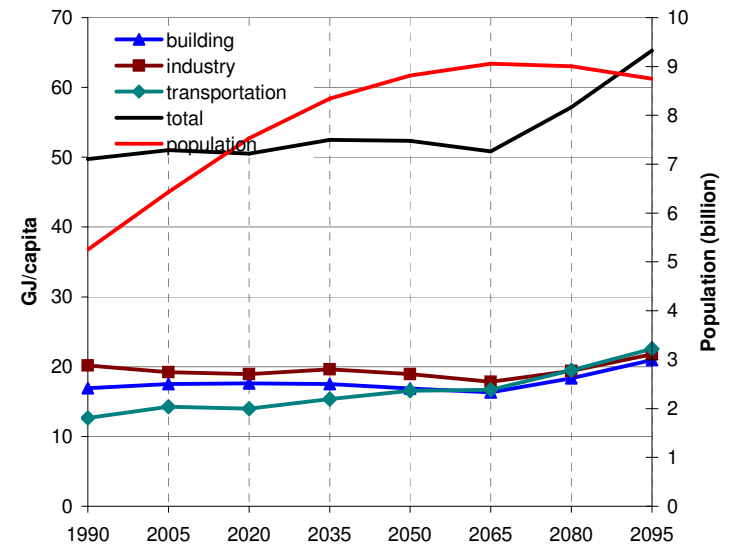
Transportation Fuels Composition



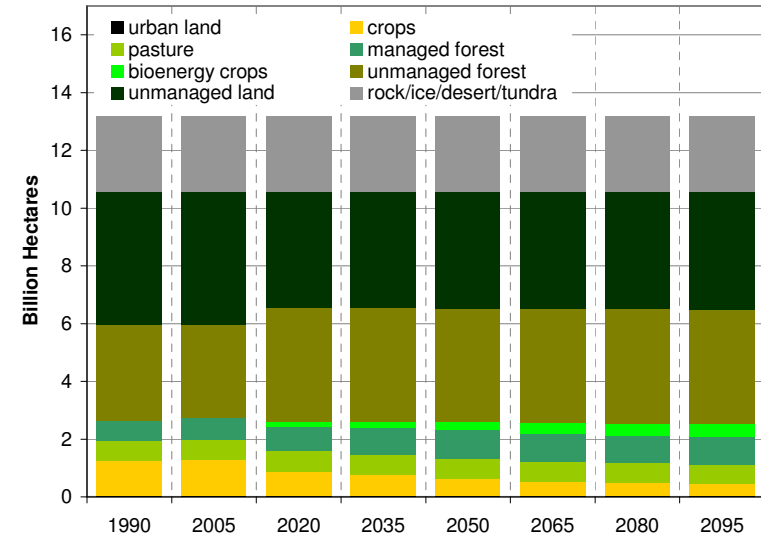
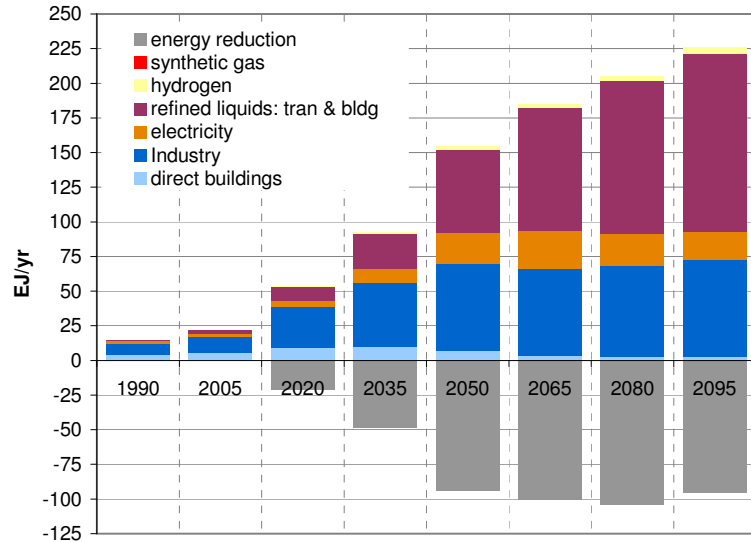
Final Energy Intensity



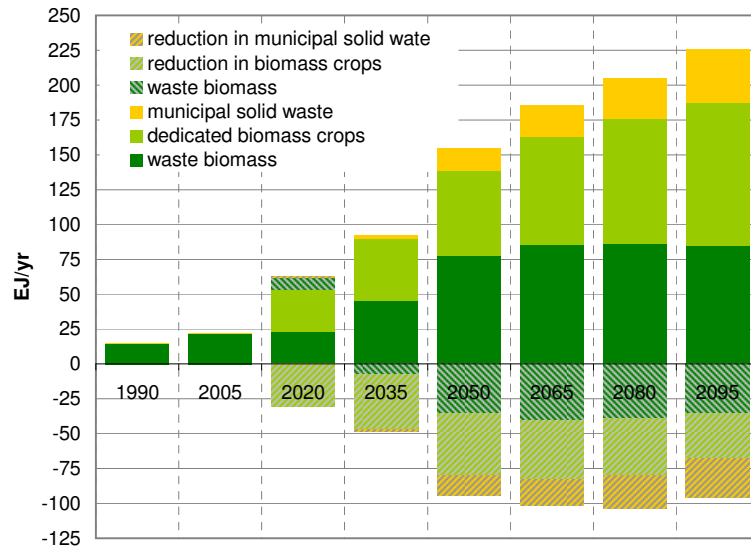
Final Energy per Capita



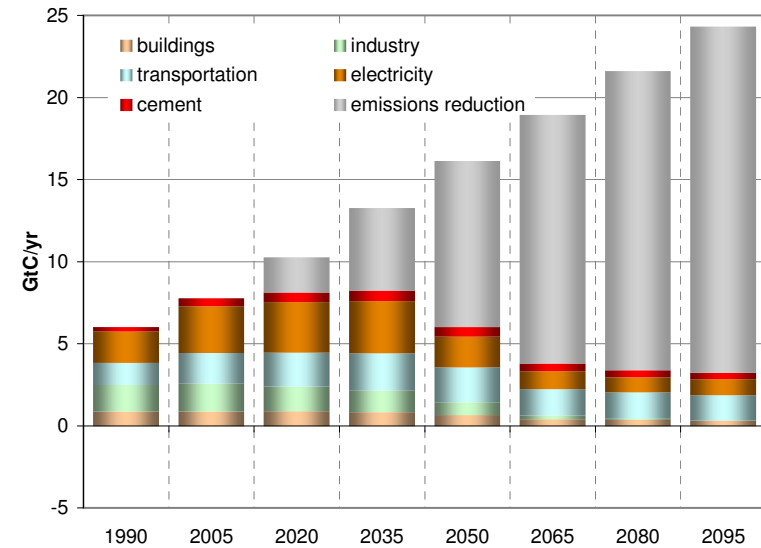
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: ee stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	18.1	17.3	15.6	11.3	11.2	10.1	EJ/yr
building	gas	18.7	26.7	26.0	22.1	18.2	11.4	10.8	8.8	EJ/yr
building	coal	10.1	5.1	4.5	2.6	1.1	0.2	0.2	0.1	EJ/yr
building	biomass	4.5	5.5	8.4	7.8	6.4	3.0	2.5	1.9	EJ/yr
building	electricity	16.9	29.0	39.3	47.7	54.5	59.1	68.5	74.6	EJ/yr
building	trad biomass	23.5	29.9	32.3	27.0	22.6	18.2	11.2	6.6	EJ/yr
building	energy reduction	0.0	0.0	14.3	42.1	69.0	106.0	130.2	154.0	EJ/yr
	total: w/o reduction	88.9	112.7	128.6	124.5	118.4	103.2	104.5	102.0	EJ/yr
industry	liquids	22.4	21.2	18.8	20.6	20.3	16.7	17.8	16.8	EJ/yr
industry	gas	26.6	30.5	28.5	27.5	21.3	12.3	13.7	12.2	EJ/yr
industry	coal	31.4	35.8	29.3	21.3	11.3	3.5	4.0	3.1	EJ/yr
industry	biomass	7.3	11.2	25.5	37.5	48.1	37.0	37.9	36.9	EJ/yr
industry	electricity	18.1	24.8	33.2	45.2	56.4	71.1	80.0	91.6	EJ/yr
industry	hydrogen	0.0	0.0	2.7	3.0	3.9	4.5	5.0	5.3	EJ/yr
industry	energy reduction	0.0	0.0	29.9	61.6	95.1	145.5	153.6	163.0	EJ/yr
industry	feedstocks	15.2	23.7	24.4	26.7	27.3	25.6	27.4	28.3	EJ/yr
	total: w/o reduction	105.8	123.6	138.0	155.1	161.2	145.0	158.5	166.0	EJ/yr
transportation	liquids	62.7	87.6	89.4	81.0	73.4	58.1	57.9	56.6	EJ/yr
transportation	gas	2.3	3.0	5.6	7.2	8.2	7.2	8.2	8.0	EJ/yr
transportation	coal	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.9	7.9	12.2	17.0	18.7	20.4	EJ/yr
transportation	hydrogen	0.0	0.0	1.0	6.5	13.2	20.6	27.1	31.4	EJ/yr
transportation	energy reduction	0.0	0.0	11.7	37.7	64.8	98.8	123.4	142.9	EJ/yr
	total: w/o reduction	66.5	91.9	99.0	102.7	106.9	102.9	111.9	116.5	EJ/yr
total final energy	buildings	88.9	112.7	128.6	124.5	118.4	103.2	104.5	102.0	EJ/yr
total final energy	industry	105.8	123.6	138.0	155.1	161.2	145.0	158.5	166.0	EJ/yr
total final energy	transportation	66.5	91.9	99.0	102.7	106.9	102.9	111.9	116.5	EJ/yr
total final energy	energy reduction	0.0	0.0	55.9	141.5	228.9	350.3	407.1	459.8	EJ/yr
	total: w/o reduction	261.2	328.2	365.6	382.3	386.5	351.2	374.8	384.4	EJ/yr

Scenario: ee stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	162.6	147.9	116.5	71.7	67.8	57.7	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	70.0	97.6	115.9	136.5	147.2	121.2	126.6	122.3	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	122.4	114.1	70.1	16.7	16.1	17.0	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	46.7	71.6	129.6	166.8	183.0	200.5	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	23.5	21.7	17.8	16.0	15.5	15.1	EJ/yr
hydro	23.6	29.2	29.4	30.7	29.5	29.8	31.7	34.2	EJ/yr
wind	0.0	0.9	17.0	38.1	54.9	88.5	94.9	100.9	EJ/yr
solar	0.0	0.1	1.4	5.0	12.7	41.0	58.4	75.9	EJ/yr
geothermal	0.4	0.5	1.5	5.9	7.7	7.3	7.0	6.8	EJ/yr
energy reduction	0.0	0.0	72.4	190.3	330.9	511.2	618.1	742.4	EJ/yr
total: w/o reduction	356	463	520	571	586	559	601	630	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.01	3.34	3.34	3.85	3.80	5.10	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	22.43	32.46	42.05	38.30	39.85	41.85	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	31.33	33.61	24.17	5.55	4.97	5.87	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.50	3.46	8.94	14.82	17.26	18.32	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.38	11.97	17.53	27.35	28.66	30.08	EJ/yr
wind w/storage	0.00	0.00	1.58	5.11	10.73	24.04	28.72	31.52	EJ/yr
CSP w/backup	0.00	0.00	0.34	0.72	1.23	4.00	5.83	7.63	EJ/yr
CSP w/storage	0.00	0.00	0.13	1.25	3.98	13.19	19.04	24.64	EJ/yr
PV w/backup	0.00	0.04	0.05	0.05	0.41	2.46	4.09	5.13	EJ/yr
PV w/storage	0.00	0.00	0.01	0.04	0.22	1.35	2.47	3.20	EJ/yr
rooftop PV w/backup	0.00	0.00	0.33	0.97	2.53	5.46	6.32	6.88	EJ/yr
geothermal	0.13	0.21	0.63	2.74	4.32	4.46	4.45	4.44	EJ/yr
energy reduction	0.00	0.00	8.00	24.06	57.18	93.43	135.67	177.16	EJ/yr
total: w/o reduction	42.7	65.2	89.8	119.7	145.3	172.5	195.0	216.0	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.7	84.3	71.6	52.8	30.3	27.4	22.0	EJ/yr
unconventional oil	0.0	0.0	0.9	1.7	2.5	1.1	1.3	0.9	EJ/yr
coal liquids	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	2.8	5.0	14.6	24.5	27.6	32.9	EJ/yr
gas liquids	0.0	0.0	1.1	2.5	3.4	2.2	1.6	0.9	EJ/yr
gas	2.3	3.0	5.6	7.2	8.2	7.2	8.2	8.0	EJ/yr
coal	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.9	7.9	12.2	17.0	18.7	20.4	EJ/yr
hydrogen	0.0	0.0	1.0	6.5	13.2	20.6	27.1	31.4	EJ/yr
energy reduction	0.0	0.0	11.7	37.7	64.8	98.8	123.4	142.9	EJ/yr
total: w/o reduction	66.5	91.9	99.0	102.7	106.9	102.9	111.9	116.5	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	41.18	43.11	36.58	23.46	23.66	19.11	EJ/yr
unconventional oil	0.00	0.00	0.21	0.46	0.54	0.06	0.23	0.13	EJ/yr
coal liquids	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.49	1.73	8.14	17.07	20.00	25.00	EJ/yr
gas liquids	0.00	0.00	0.30	1.02	1.39	0.91	0.59	0.28	EJ/yr
energy reduction	0.0	0.0	5.0	10.2	18.3	36.4	38.9	36.4	EJ/yr
total: w/o reduction	36.6	43.9	42.2	46.4	46.7	41.5	44.5	44.5	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.79	7.20	12.79	16.99	21.72	22.43	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.42	0.73	0.79	0.54	0.75	0.81	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.28	0.84	1.79	2.40	2.79	3.44	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.09	0.29	0.61	1.23	1.57	1.90	EJ/yr
wind	0.00	0.00	0.10	0.18	0.38	1.05	1.31	1.89	EJ/yr
solar	0.00	0.00	0.09	0.27	0.76	2.86	3.95	6.29	EJ/yr
energy reduction	0.00	0.00	-0.52	-4.28	-7.77	-10.81	-12.11	-9.03	EJ/yr
total: w/o reduction	0.00	0.00	3.77	9.52	17.13	25.06	32.09	36.76	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	8.4	7.8	6.4	3.0	2.5	1.9	EJ/yr
	Industry	7.4	11.3	26.5	41.0	63.9	69.5	75.2	82.1	EJ/yr
	electricity	2.1	2.5	4.2	8.8	20.9	33.5	38.3	39.8	EJ/yr
	refined liquids: tran & bldg	0.5	2.2	6.9	12.2	34.6	55.8	61.4	69.9	EJ/yr
	hydrogen	0.0	0.0	0.6	1.8	3.7	4.9	5.6	6.7	EJ/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	energy reduction	0.0	0.0	-14.6	-27.8	-69.3	-83.2	-81.7	-70.4	EJ/yr
	total: w/o reduction	14.4	21.6	46.7	71.6	129.6	166.8	183.0	200.5	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	21.8	36.5	67.0	83.0	83.8	82.3	EJ
dedicated biomass crops	0.0	0.0	24.8	34.4	47.1	61.6	70.0	80.1	EJ
municipal solid waste	0.0	0.1	0.1	0.7	15.5	22.1	29.2	38.1	EJ
waste biomass	0.0	0.0	9.8	1.4	-25.3	-37.6	-36.7	-32.9	EJ
reduction in biomass crops	0.0	0.0	-24.8	-29.5	-30.4	-26.8	-21.3	-9.7	EJ
reduction in municipal solid waste	0.0	0.0	0.4	0.3	-13.7	-18.7	-23.7	-27.8	EJ
total: w/o reduction	14.4	21.6	31.7	43.6	74.0	102.3	125.0	157.8	EJ

Arable Land Use by Type

[illegible]

Scenario: ee stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.2	\$81.5	\$114.5	\$158.3	\$223.4	\$305.7	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.25	1.53	1.03	0.65	0.47	0.33	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.41	1.90	1.41	0.92	0.71	0.54	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.73	1.26	0.93	0.65	0.50	0.38	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.02	8.33	6.39	4.69	3.38	2.22	1.68	1.26	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.1	14.9	13.4	11.4	11.6	11.7	GJ/capita
Final Energy per Capita	industry	20.2	19.2	18.3	18.6	18.3	16.0	17.6	19.0	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	13.1	12.3	12.1	11.4	12.4	13.3	GJ/capita
Final Energy per Capita	total	49.8	51.0	48.6	45.8	43.8	38.8	41.6	43.9	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.5	\$39.8	\$41.6	\$40.5	\$39.6	\$38.1	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$47.5	\$56.6	\$76.8	\$126.1	\$119.8	\$126.6	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.2	\$3.9	\$4.1	\$4.2	\$4.4	\$4.4	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.2	\$6.0	\$8.4	\$14.8	\$14.2	\$15.3	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.5	\$1.4	\$1.3	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$3.5	\$5.5	\$9.5	\$20.7	\$19.4	\$21.2	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	6.64	6.83	8.40	10.52	10.07	10.13	cents/kWh (2005\$)
	carbon price	0.0	0.0	66.8	138.8	288.8	706.0	660.0	730.0	\$/tC (2005\$)

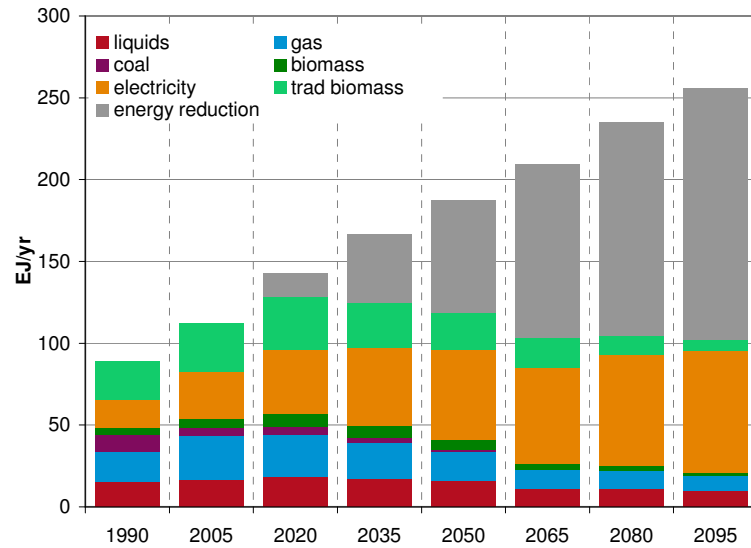
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	47	57	71	103	92	87	\$/Gcal (2005\$)
	global rice	32	32	53	67	91	149	118	99	\$/Gcal (2005\$)
	global wheat	27	27	52	68	94	157	126	109	\$/Gcal (2005\$)

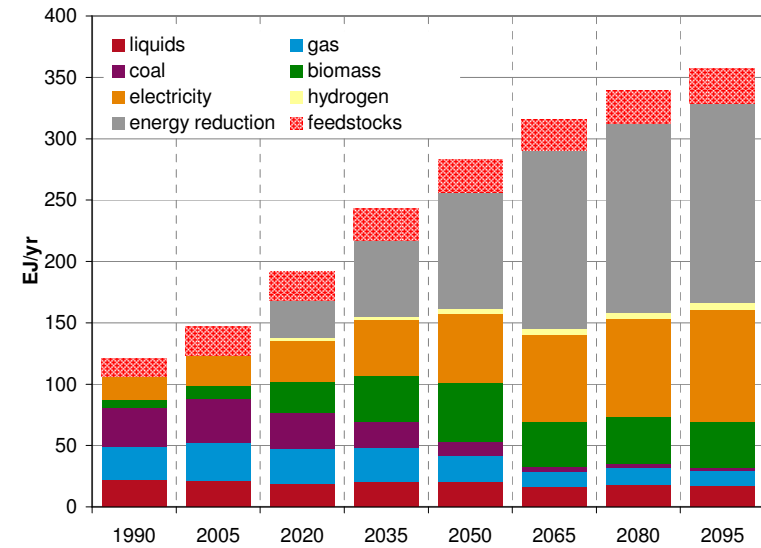
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.863	0.726	0.548	0.303	0.280	0.214	GtC/yr
	industry	1.623	1.706	1.511	1.362	0.923	0.333	0.332	0.159	GtC/yr
	transportation	1.355	1.863	1.930	1.827	1.563	1.072	1.087	0.957	GtC/yr
	electricity	1.909	2.849	3.229	3.417	2.683	1.362	1.319	1.433	GtC/yr
	cement	0.261	0.483	0.607	0.655	0.604	0.471	0.452	0.406	GtC/yr
	emissions reduction	0.000	0.000	2.125	5.276	9.803	15.396	18.145	21.129	GtC/yr
	total: w/o reduction	6.007	7.761	8.140	7.988	6.321	3.540	3.470	3.170	GtC/yr

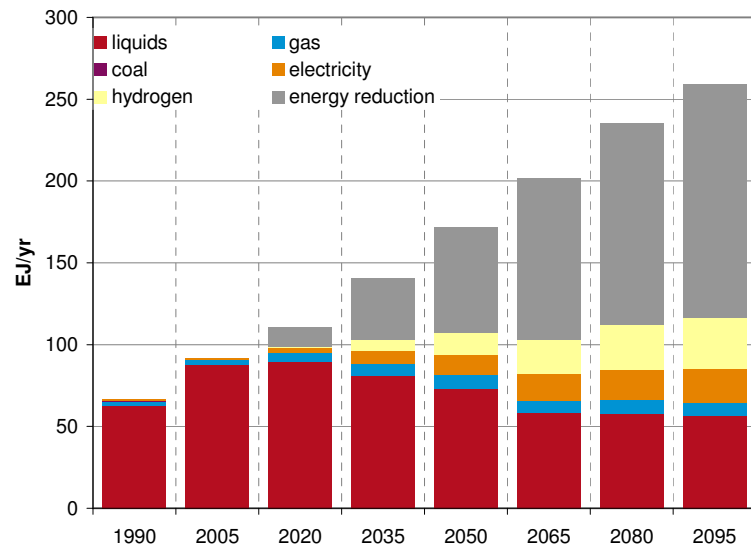
Final Energy Consumption: Buildings



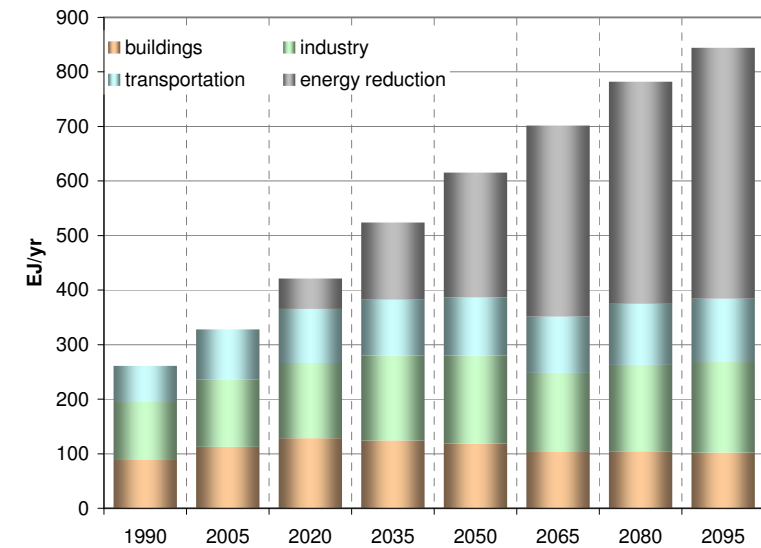
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

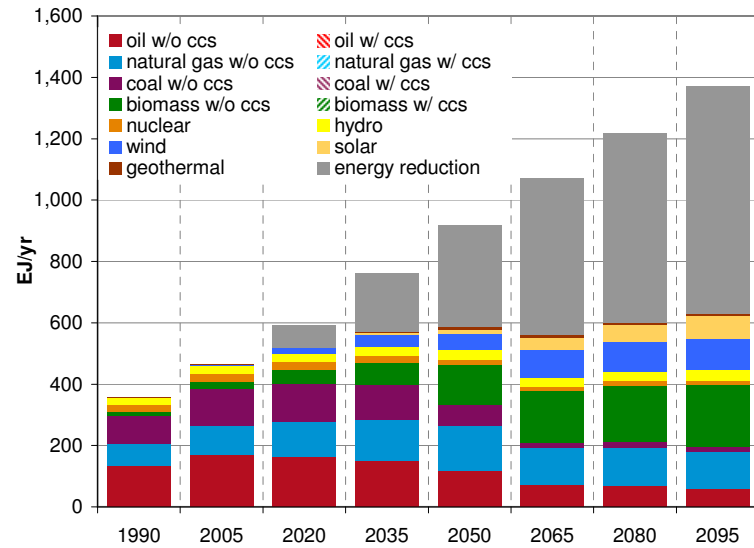


Final Energy Consumption by Sector

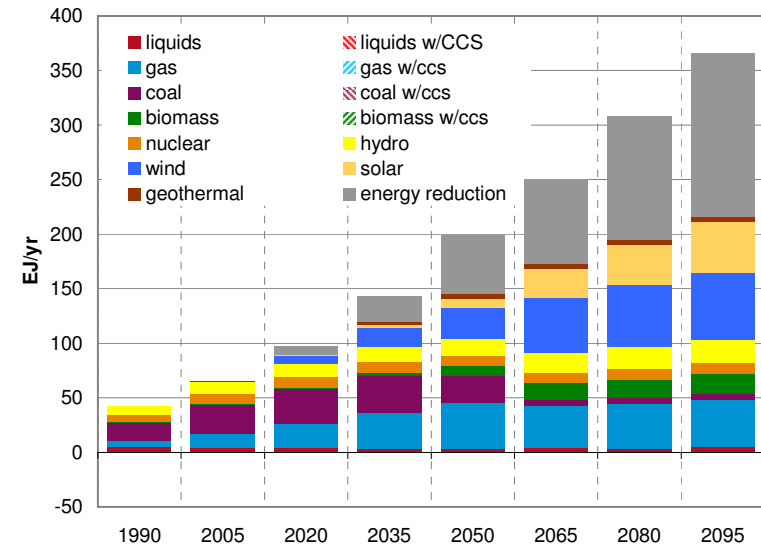


Scenario: ee stab

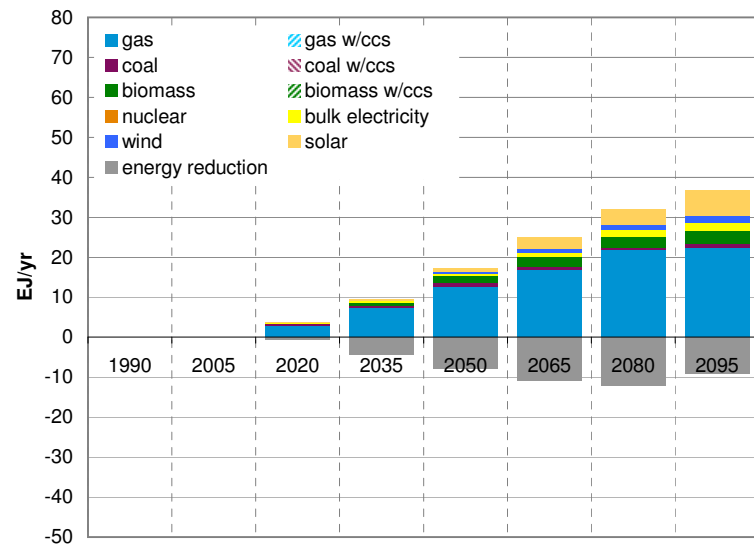
Primary Energy Consumption



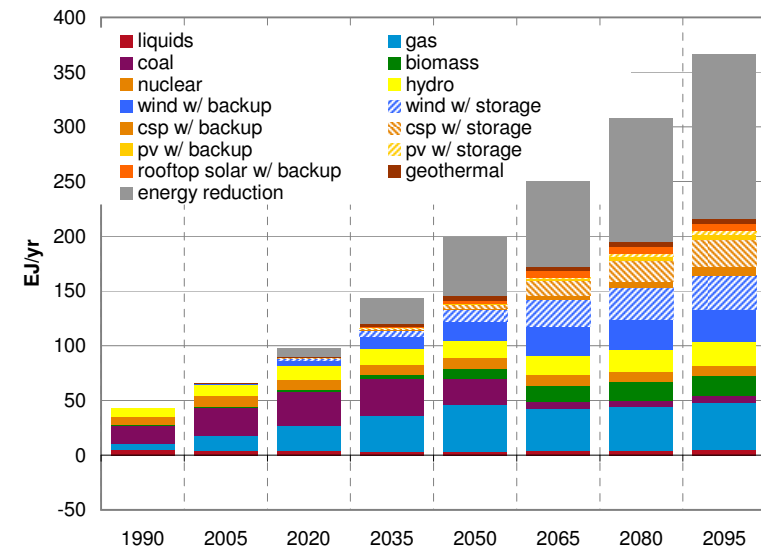
Electricity Production by Fuel: CCS Focus



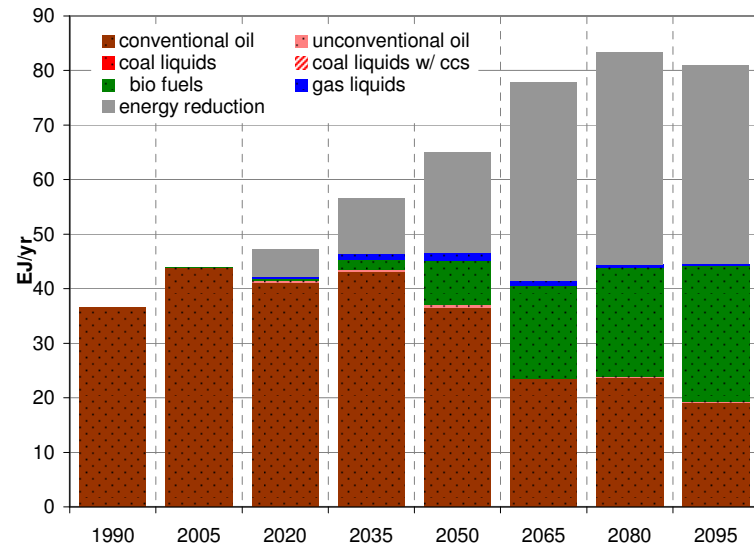
Hydrogen Production by Fuel



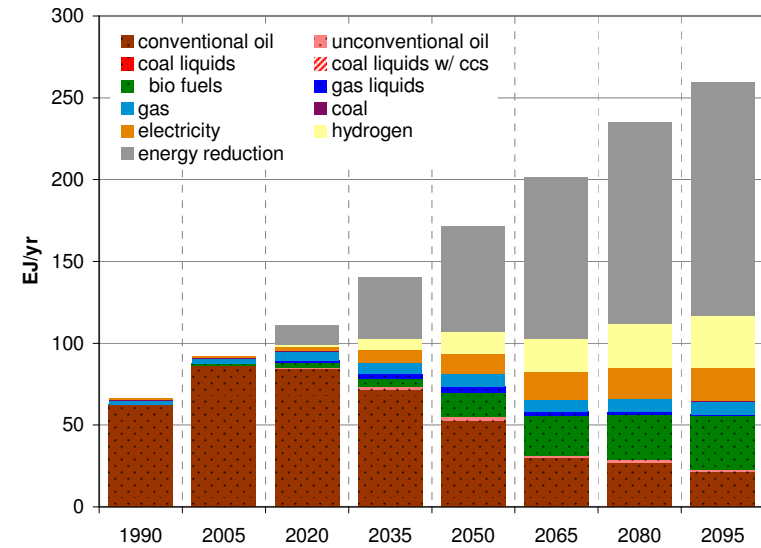
Electricity Production by Fuel: Renewable Focus



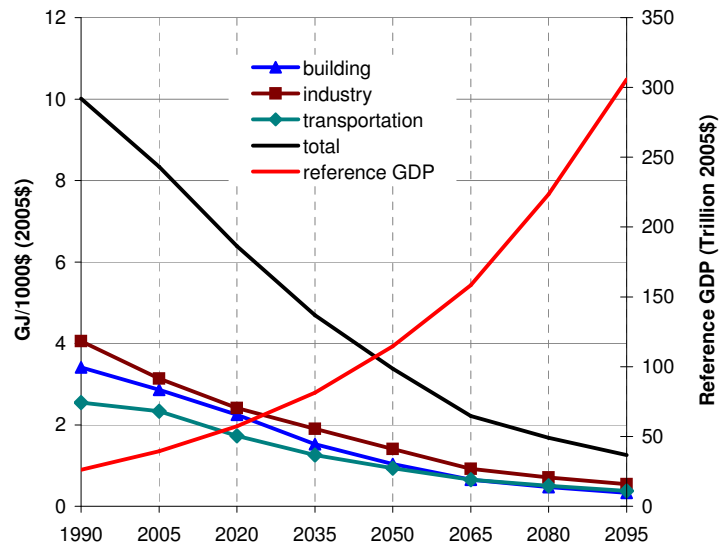
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



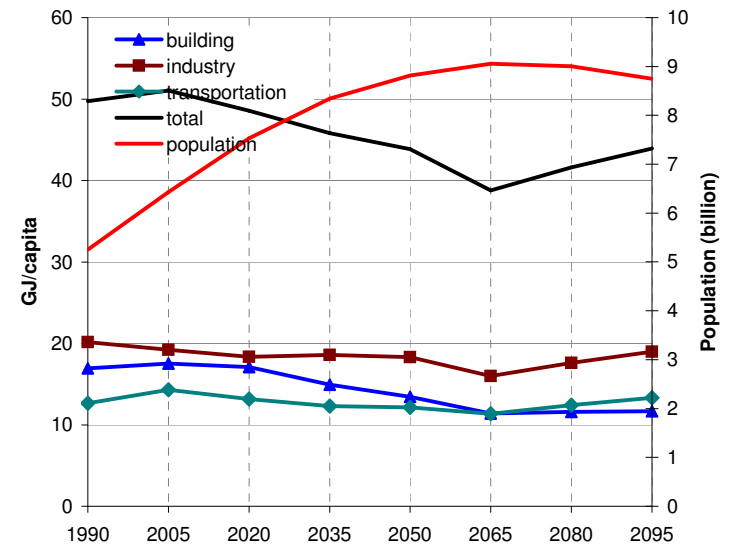
Transportation Fuels Composition



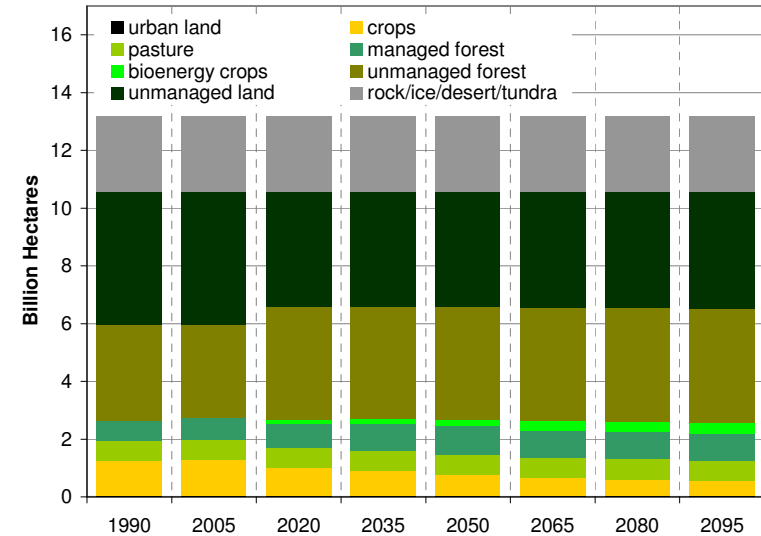
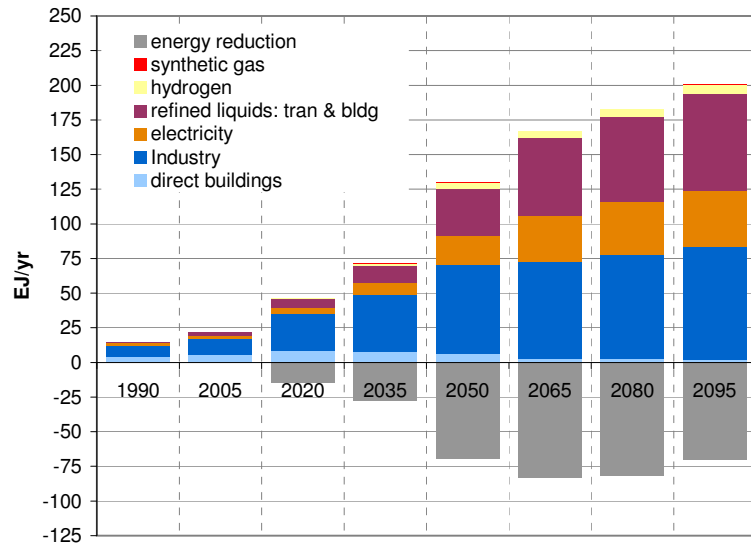
Final Energy Intensity



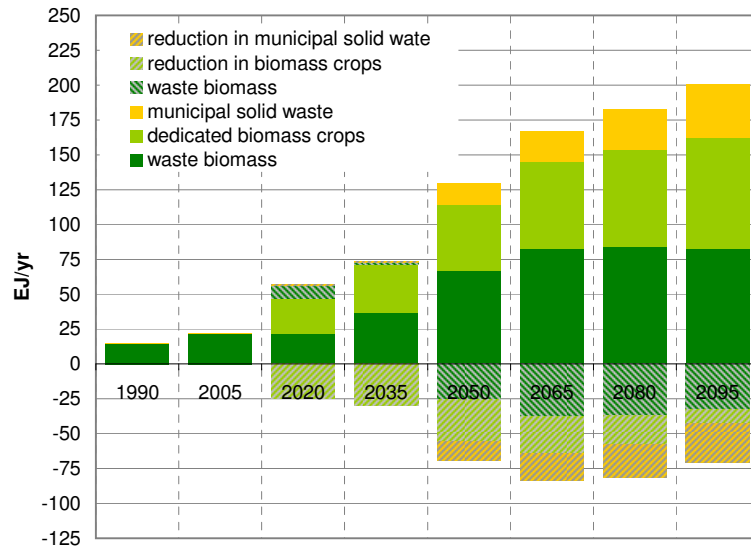
Final Energy per Capita



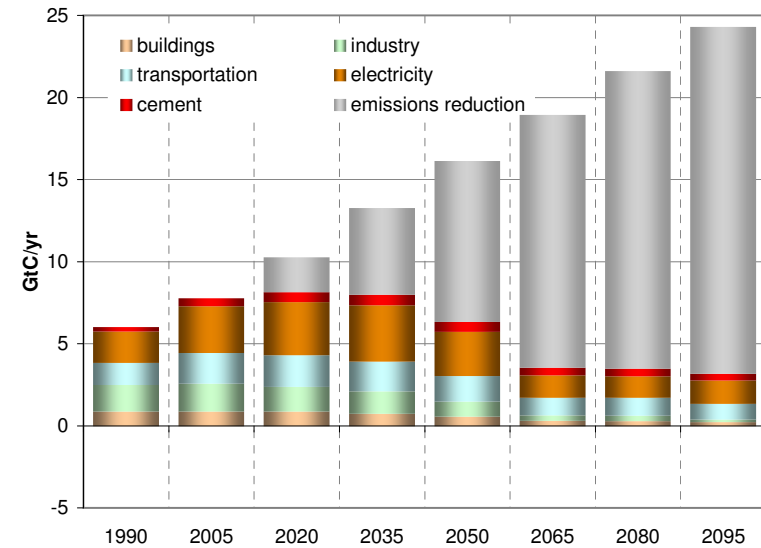
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	18.6	17.7	15.8	12.8	12.7	11.7	EJ/yr
building	gas	18.7	26.7	26.6	22.6	18.8	13.0	12.2	10.2	EJ/yr
building	coal	10.1	5.1	4.9	2.9	1.3	0.4	0.4	0.2	EJ/yr
building	biomass	4.5	5.5	8.6	8.1	6.8	4.1	3.4	2.8	EJ/yr
building	electricity	16.9	29.0	39.3	48.9	57.8	66.6	76.9	83.4	EJ/yr
building	trad biomass	23.5	29.9	32.3	26.5	21.6	15.9	9.7	5.7	EJ/yr
building	energy reduction	0.0	0.0	12.6	39.9	65.3	96.5	119.3	141.9	EJ/yr
	total: w/o reduction	88.9	112.7	130.2	126.8	122.1	112.7	115.3	114.0	EJ/yr
industry	liquids	22.4	21.2	18.8	20.2	19.3	17.0	17.9	17.6	EJ/yr
industry	gas	26.6	30.5	29.2	28.2	21.3	13.0	14.3	12.9	EJ/yr
industry	coal	31.4	35.8	32.1	23.5	12.7	4.7	5.4	4.3	EJ/yr
industry	biomass	7.3	11.2	24.8	36.6	47.8	41.6	42.6	42.5	EJ/yr
industry	electricity	18.1	24.8	33.2	48.0	63.7	85.1	97.0	110.9	EJ/yr
industry	hydrogen	0.0	0.0	2.7	2.9	3.5	3.7	4.1	4.3	EJ/yr
industry	energy reduction	0.0	0.0	27.1	57.3	88.1	125.5	130.7	136.6	EJ/yr
industry	feedstocks	15.2	23.7	24.7	27.4	28.5	28.8	31.1	32.5	EJ/yr
	total: w/o reduction	105.8	123.6	140.8	159.4	168.2	165.0	181.3	192.3	EJ/yr
transportation	liquids	62.7	87.6	90.0	81.7	74.3	63.4	63.0	62.3	EJ/yr
transportation	gas	2.3	3.0	5.7	7.3	8.2	7.5	8.5	8.5	EJ/yr
transportation	coal	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.9	8.3	13.3	18.9	21.4	23.5	EJ/yr
transportation	hydrogen	0.0	0.0	1.0	6.4	12.9	19.3	25.6	29.9	EJ/yr
transportation	energy reduction	0.0	0.0	10.9	36.6	63.0	92.7	116.8	135.2	EJ/yr
	total: w/o reduction	66.5	91.9	99.7	103.8	108.7	109.0	118.5	124.1	EJ/yr
total final energy	buildings	88.9	112.7	130.2	126.8	122.1	112.7	115.3	114.0	EJ/yr
total final energy	industry	105.8	123.6	140.8	159.4	168.2	165.0	181.3	192.3	EJ/yr
total final energy	transportation	66.5	91.9	99.7	103.8	108.7	109.0	118.5	124.1	EJ/yr
total final energy	energy reduction	0.0	0.0	50.6	133.7	216.4	314.8	366.8	413.8	EJ/yr
	total: w/o reduction	261.1	328.2	370.8	390.0	399.0	386.8	415.1	430.5	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	163.8	148.9	116.8	73.7	67.2	57.9	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	70.0	97.6	116.3	135.5	141.6	114.9	120.6	117.0	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	125.5	115.8	68.2	18.9	18.5	19.5	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	45.6	69.2	124.2	179.5	198.9	220.4	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.0	23.4	21.8	17.8	16.1	15.5	15.1	EJ/yr
hydro	23.6	29.2	29.4	30.8	29.6	29.9	31.8	34.4	EJ/yr
wind	0.0	0.9	16.7	38.9	56.0	85.3	91.3	96.8	EJ/yr
solar	0.0	0.1	2.8	12.6	29.3	71.9	94.5	113.3	EJ/yr
geothermal	0.4	0.6	1.9	12.0	27.0	35.8	35.2	36.5	EJ/yr
energy reduction	0.0	0.0	67.5	176.3	306.4	444.2	545.5	661.9	EJ/yr
total: w/o reduction	356	463	525	585	610	626	674	711	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.90	3.12	2.76	3.35	3.04	4.28	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	21.84	31.03	38.27	32.82	34.69	36.16	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.05	26.35	31.13	33.05	22.32	5.84	5.20	6.24	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.40	3.08	7.17	12.30	14.28	15.88	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.88	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.09	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.08	11.12	15.62	22.64	23.81	25.53	EJ/yr
wind w/storage	0.00	0.00	1.77	6.29	13.37	27.20	31.73	34.05	EJ/yr
CSP w/backup	0.00	0.00	0.58	1.08	1.44	3.59	4.68	5.72	EJ/yr
CSP w/storage	0.00	0.00	0.45	4.06	10.61	26.19	33.64	39.96	EJ/yr
PV w/backup	0.00	0.04	0.06	0.20	1.48	5.44	8.87	10.83	EJ/yr
PV w/storage	0.00	0.00	0.01	0.11	0.73	4.25	6.95	8.73	EJ/yr
rooftop PV w/backup	0.00	0.00	0.81	2.34	4.76	7.24	9.23	10.20	EJ/yr
geothermal	0.15	0.23	0.80	5.43	14.69	21.77	22.25	23.57	EJ/yr
energy reduction	0.00	0.00	9.00	25.95	64.21	103.61	147.30	189.67	EJ/yr
total: w/o reduction	42.8	65.2	89.8	124.9	159.0	200.3	227.9	252.5	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.7	84.9	72.1	53.1	30.9	27.2	22.2	EJ/yr
unconventional oil	0.0	0.0	1.0	2.0	3.1	2.3	2.2	1.8	EJ/yr
coal liquids	0.0	0.0	0.3	0.3	0.2	0.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	2.7	4.7	14.2	27.7	31.7	37.2	EJ/yr
gas liquids	0.0	0.0	1.2	2.6	3.6	2.5	1.9	1.2	EJ/yr
gas	2.3	3.0	5.7	7.3	8.2	7.5	8.5	8.5	EJ/yr
coal	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.9	8.3	13.3	18.9	21.4	23.5	EJ/yr
hydrogen	0.0	0.0	1.0	6.4	12.9	19.3	25.6	29.9	EJ/yr
energy reduction	0.0	0.0	10.9	36.6	63.0	92.7	116.8	135.2	EJ/yr
total: w/o reduction	66.5	91.9	99.7	103.8	108.7	109.0	118.5	124.1	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	41.48	43.30	36.72	23.97	23.30	19.35	EJ/yr
unconventional oil	0.00	0.00	0.23	0.57	0.78	0.16	0.49	0.31	EJ/yr
coal liquids	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.46	1.60	7.92	19.88	23.77	29.41	EJ/yr
gas liquids	0.00	0.00	0.31	1.08	1.53	1.06	0.72	0.39	EJ/yr
energy reduction	0.0	0.0	4.7	9.9	18.1	32.8	35.1	31.5	EJ/yr
total: w/o reduction	36.6	43.9	42.5	46.6	46.9	45.1	48.3	49.5	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.80	7.04	12.16	16.20	20.88	22.51	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.44	0.78	0.87	0.65	0.95	1.04	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.28	0.80	1.75	2.51	2.98	3.75	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.09	0.30	0.66	1.33	1.77	2.23	EJ/yr
wind	0.00	0.00	0.09	0.16	0.31	0.65	0.82	1.15	EJ/yr
solar	0.00	0.00	0.09	0.24	0.62	1.65	2.28	3.44	EJ/yr
energy reduction	0.00	0.00	-0.54	-4.08	-7.00	-8.74	-9.71	-6.39	EJ/yr
total: w/o reduction	0.00	0.00	3.78	9.32	16.37	22.99	29.69	34.12	EJ/yr

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	8.6	8.1	6.8	4.1	3.4	2.8	EJ/yr
	Industry	7.4	11.3	25.8	39.8	63.2	79.2	86.8	95.6	EJ/yr
	electricity	2.1	2.5	4.0	7.9	16.8	27.9	31.7	34.7	EJ/yr
	refined liquids: tran & bldg	0.5	2.2	6.6	11.6	33.7	63.2	70.9	79.9	EJ/yr
	hydrogen	0.0	0.0	0.6	1.7	3.6	5.1	6.0	7.4	EJ/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	EJ/yr
	energy reduction	0.0	0.0	-13.5	-25.4	-63.9	-95.9	-97.6	-90.3	EJ/yr
	total: w/o reduction	14.4	21.6	45.6	69.2	124.2	179.5	198.9	220.4	EJ/yr

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	19.9	29.8	58.5	84.4	85.8	85.1	EJ
dedicated biomass crops	0.0	0.0	25.6	39.2	55.7	72.8	83.8	96.7	EJ
municipal solid waste	0.0	0.1	0.0	0.2	9.9	22.3	29.8	38.8	EJ
waste biomass	0.0	0.0	11.8	8.0	-16.8	-39.0	-38.7	-35.7	EJ
reduction in biomass crops	0.0	0.0	-25.6	-34.2	-39.0	-38.0	-35.1	-26.3	EJ
reduction in municipal solid waste	0.0	0.0	0.4	0.8	-8.1	-18.9	-24.2	-28.5	EJ
total: w/o reduction	14.4	21.6	31.7	43.0	68.4	102.5	125.6	158.5	EJ

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Scenario: eere stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.6	\$82.3	\$116.1	\$162.2	\$228.8	\$313.1	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.26	1.54	1.05	0.69	0.50	0.36	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.45	1.94	1.45	1.02	0.79	0.61	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.73	1.26	0.94	0.67	0.52	0.40	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.02	8.33	6.44	4.74	3.44	2.38	1.81	1.37	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.3	15.2	13.8	12.4	12.8	13.0	GJ/capita
Final Energy per Capita	industry	20.2	19.2	18.7	19.1	19.1	18.2	20.1	22.0	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	13.2	12.4	12.3	12.0	13.2	14.2	GJ/capita
Final Energy per Capita	total	49.8	51.0	49.3	46.8	45.3	42.7	46.1	49.2	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.4	\$39.5	\$39.8	\$41.7	\$40.9	\$39.8	\$38.4	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.4	\$46.3	\$54.0	\$71.4	\$102.9	\$96.7	\$100.2	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$3.9	\$4.0	\$4.2	\$4.3	\$4.3	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.1	\$5.6	\$7.7	\$11.7	\$11.3	\$11.9	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.5	\$1.4	\$1.3	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$3.3	\$4.8	\$8.2	\$15.3	\$14.0	\$15.0	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.74	6.48	6.29	7.05	7.78	7.35	7.25	cents/kWh (2005\$)
	carbon price	0.0	0.0	56.1	116.7	242.6	506.9	464.0	504.7	\$/tC (2005\$)

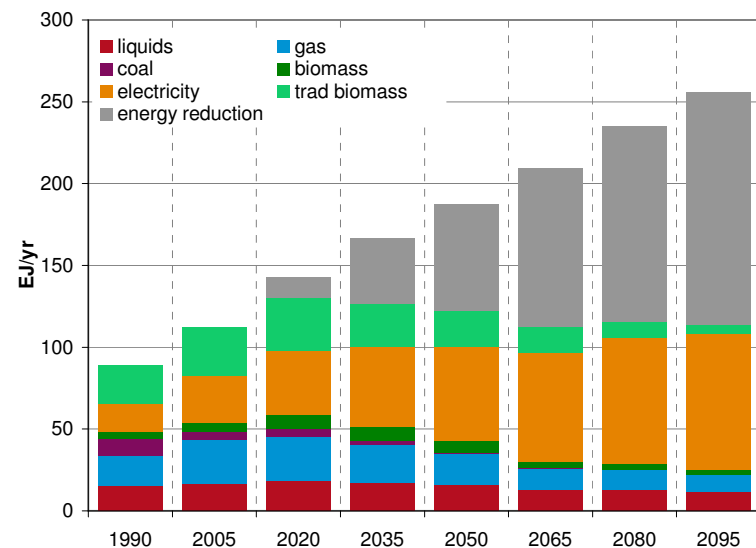
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	43	48	56	69	62	58	\$/Gcal (2005\$)
	global rice	32	32	45	50	61	79	62	51	\$/Gcal (2005\$)
	global wheat	27	27	43	50	62	82	65	55	\$/Gcal (2005\$)

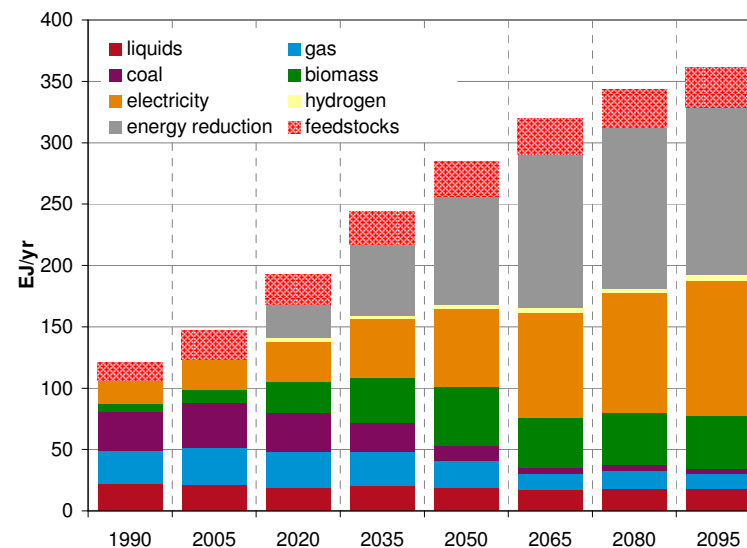
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.894	0.753	0.570	0.343	0.313	0.248	GtC/yr
	industry	1.623	1.706	1.578	1.409	0.939	0.323	0.301	0.123	GtC/yr
	transportation	1.355	1.863	1.950	1.855	1.599	1.123	1.119	1.013	GtC/yr
	electricity	1.909	2.848	3.194	3.336	2.457	1.227	1.181	1.296	GtC/yr
	cement	0.261	0.483	0.639	0.693	0.637	0.524	0.506	0.457	GtC/yr
	emissions reduction	0.000	0.000	2.011	5.217	9.923	15.396	18.194	21.161	GtC/yr
	total: w/o reduction	6.006	7.760	8.255	8.046	6.201	3.540	3.420	3.138	GtC/yr

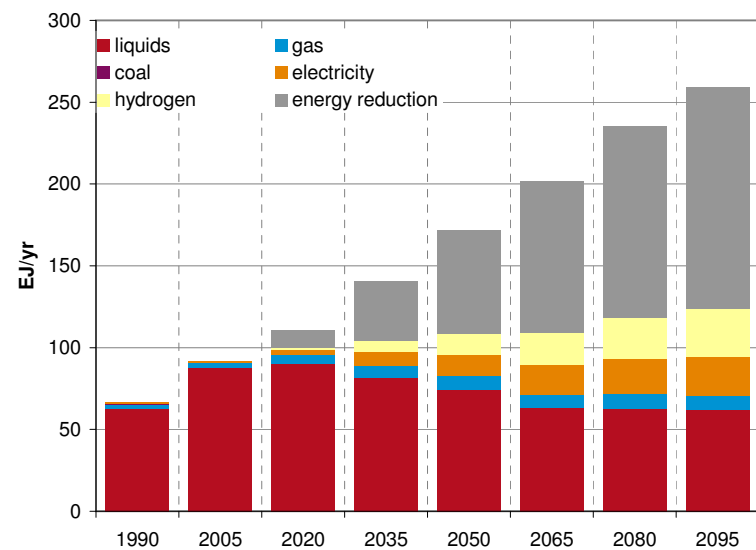
Final Energy Consumption: Buildings



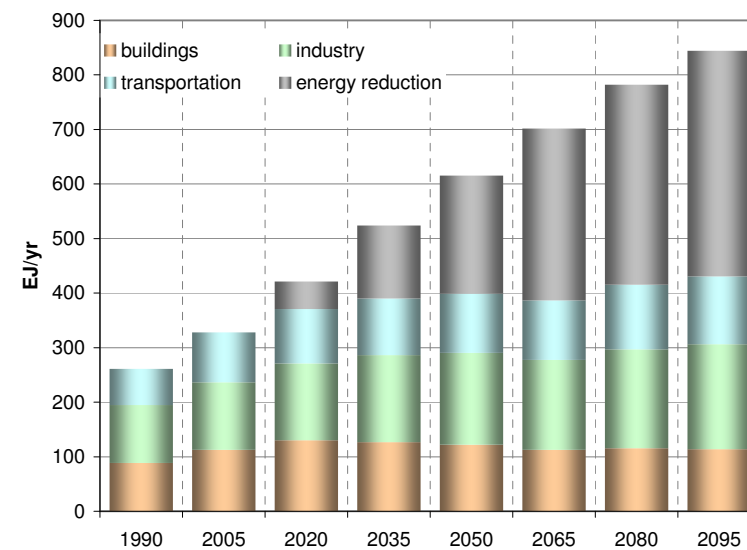
Final Energy Consumption: Industry (Does not Include Feedstocks)



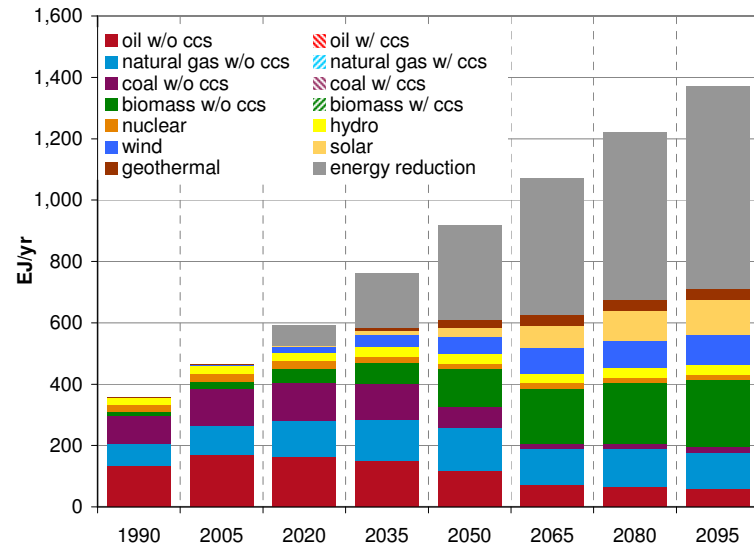
Final Energy Consumption: Transportation



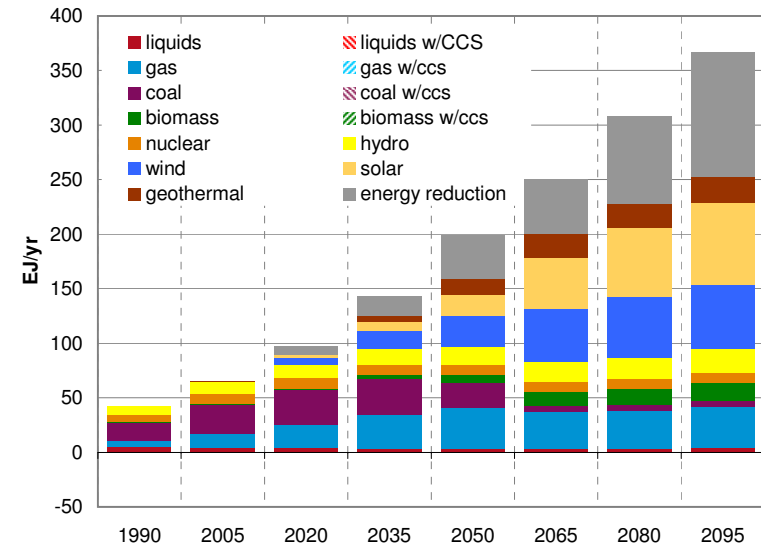
Final Energy Consumption by Sector



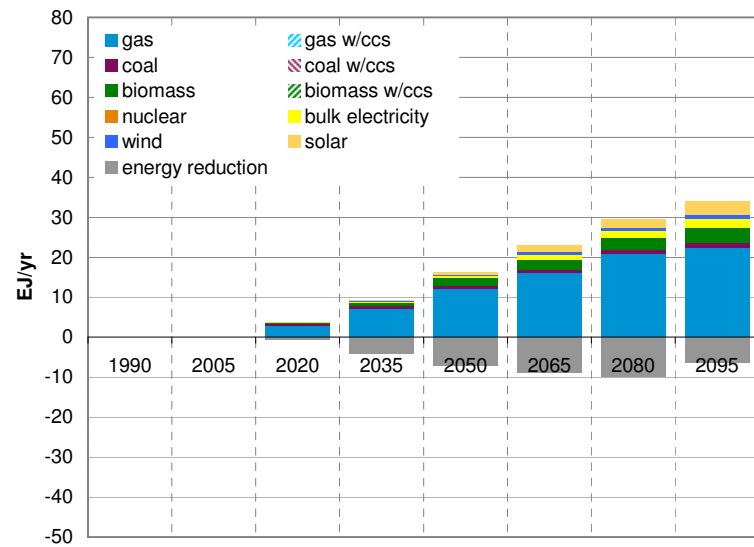
Primary Energy Consumption



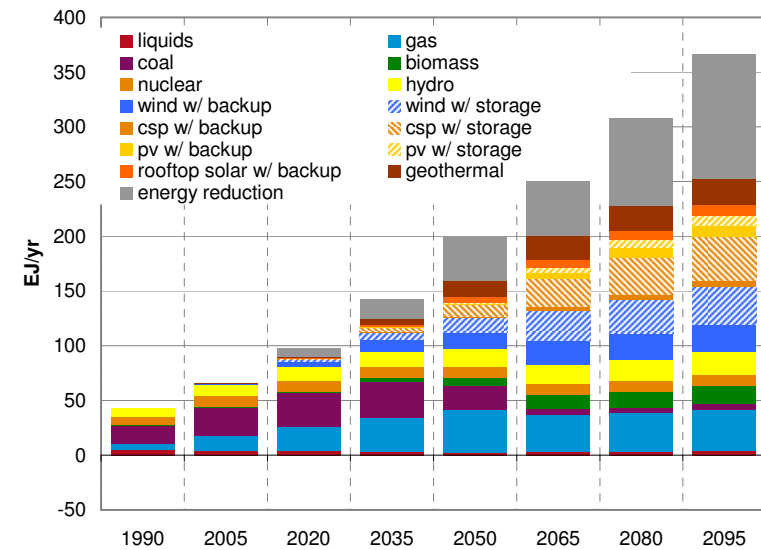
Electricity Production by Fuel: CCS Focus



Hydrogen Production by Fuel

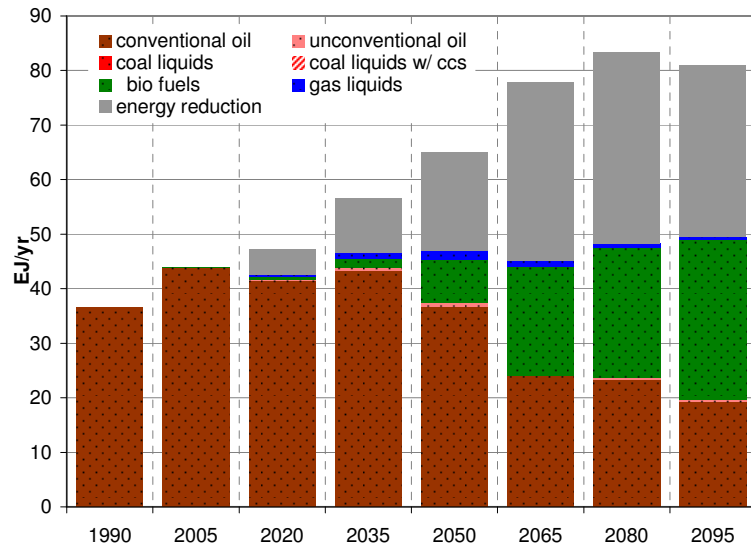


Electricity Production by Fuel: Renewable Focus

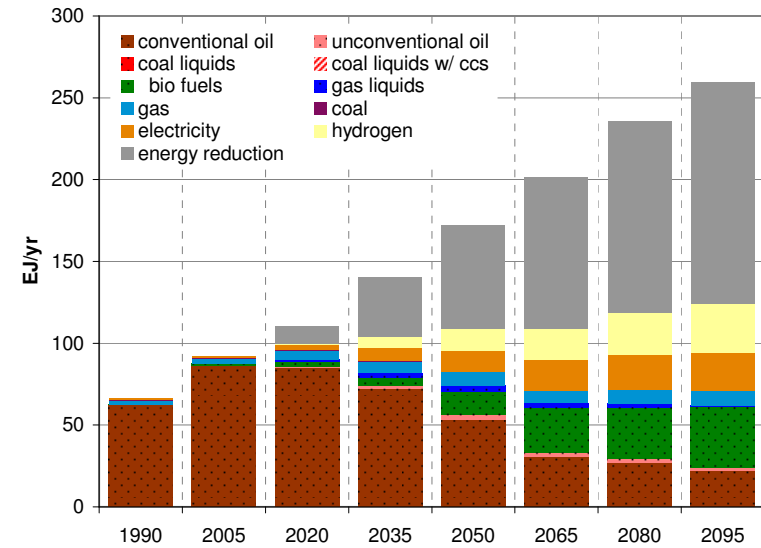


Scenario: eere stab

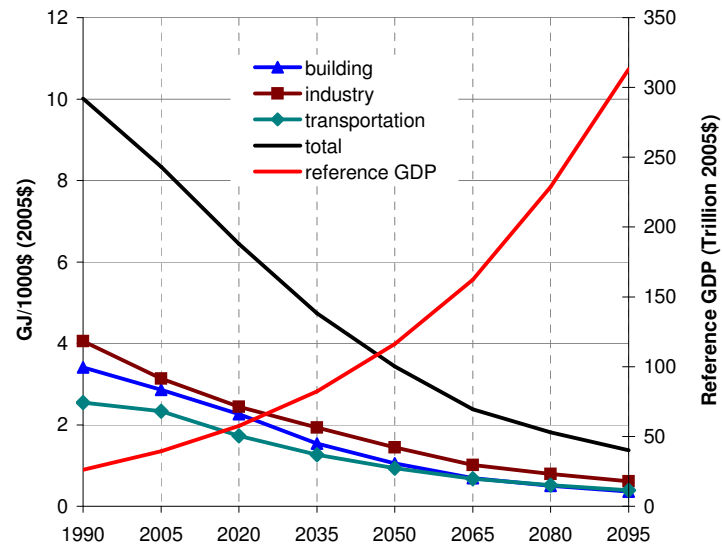
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



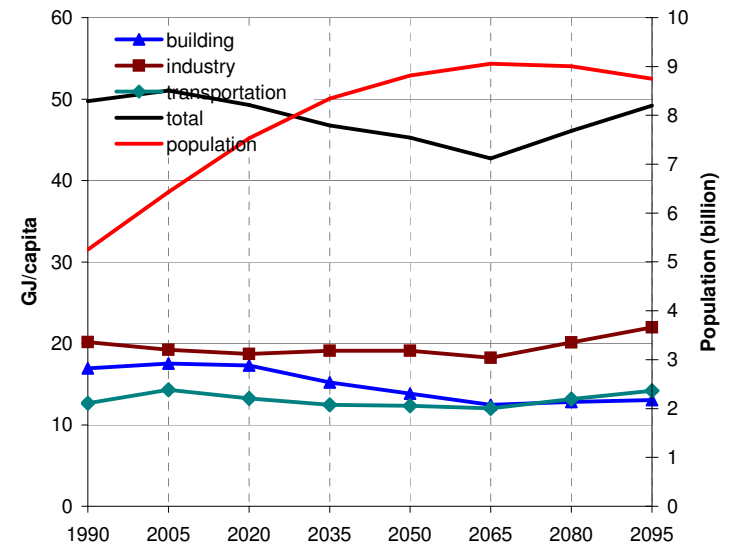
Transportation Fuels Composition



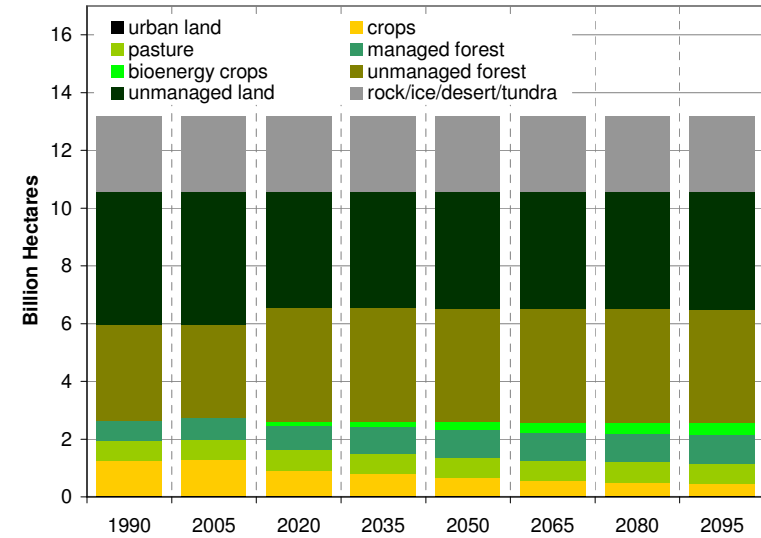
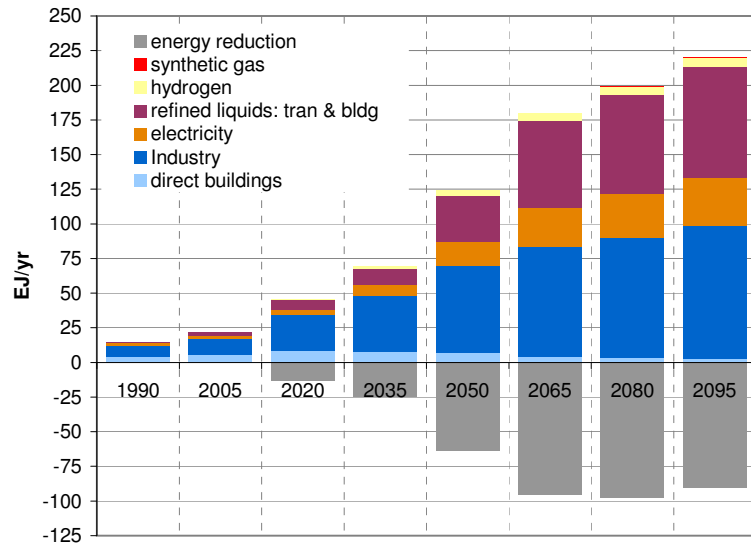
Final Energy Intensity



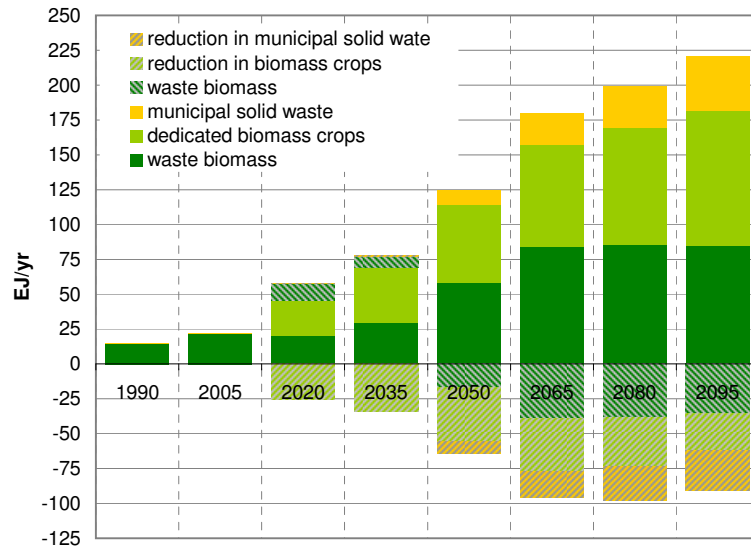
Final Energy per Capita



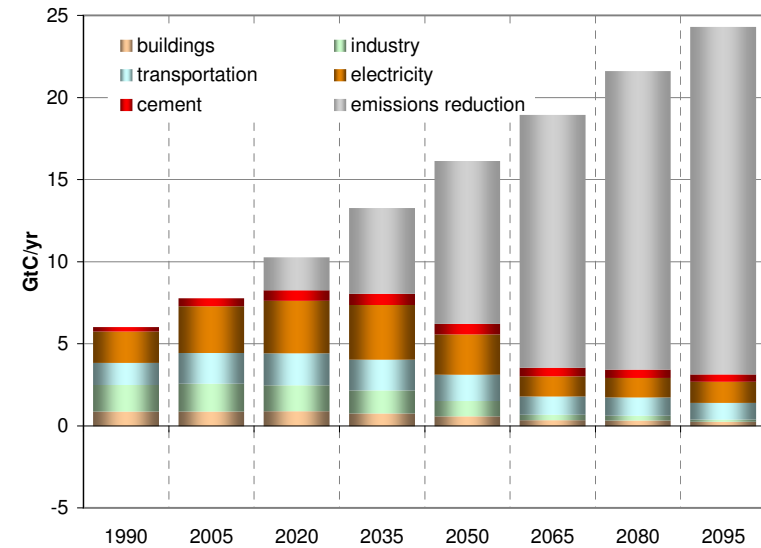
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: supply stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	19.5	21.7	20.4	21.5	23.4	24.4	EJ/yr
building	gas	18.7	26.7	28.0	28.4	24.9	23.4	23.2	22.1	EJ/yr
building	coal	10.1	5.1	5.4	3.9	1.9	1.4	1.4	1.2	EJ/yr
building	biomass	4.5	5.5	8.8	9.7	8.7	7.6	7.1	6.5	EJ/yr
building	electricity	16.9	29.0	41.3	59.3	80.3	105.6	133.8	160.5	EJ/yr
building	trad biomass	23.5	29.9	32.8	29.5	24.7	19.3	13.4	8.7	EJ/yr
building	energy reduction	0.0	0.0	7.0	14.1	26.6	30.5	32.5	32.6	EJ/yr
	total: w/o reduction	88.9	112.7	135.9	152.5	160.8	178.8	202.2	223.4	EJ/yr
industry	liquids	22.4	21.2	20.3	22.8	20.4	22.0	23.9	24.5	EJ/yr
industry	gas	26.6	30.5	31.2	32.3	23.1	21.0	21.2	20.6	EJ/yr
industry	coal	31.4	35.8	36.6	28.5	13.0	10.5	11.7	11.2	EJ/yr
industry	biomass	7.3	11.2	25.1	38.0	47.9	50.1	52.7	58.2	EJ/yr
industry	electricity	18.1	24.8	34.7	51.5	78.6	101.9	115.7	129.2	EJ/yr
industry	hydrogen	0.0	0.0	2.6	4.5	5.3	6.1	6.8	7.9	EJ/yr
industry	energy reduction	0.0	0.0	17.4	39.1	68.1	79.0	80.0	77.1	EJ/yr
industry	feedstocks	15.2	23.7	25.8	29.1	31.0	34.7	37.6	40.2	EJ/yr
	total: w/o reduction	105.8	123.6	150.6	177.6	188.2	211.6	232.0	251.8	EJ/yr
transportation	liquids	62.7	87.7	97.3	99.8	93.0	90.6	95.9	99.3	EJ/yr
transportation	gas	2.2	3.0	6.1	9.6	11.1	12.4	14.4	15.6	EJ/yr
transportation	coal	0.5	0.2	0.2	0.2	0.1	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.4	10.0	13.2	15.6	17.6	EJ/yr
transportation	hydrogen	0.0	0.0	1.1	11.8	25.4	39.5	52.2	63.3	EJ/yr
transportation	energy reduction	0.0	0.0	3.8	14.6	32.2	46.0	57.2	63.6	EJ/yr
	total: w/o reduction	66.4	91.8	106.8	125.8	139.5	155.8	178.1	195.8	EJ/yr
total final energy	buildings	88.9	112.7	135.9	152.5	160.8	178.8	202.2	223.4	EJ/yr
total final energy	industry	105.8	123.6	150.6	177.6	188.2	211.6	232.0	251.8	EJ/yr
total final energy	transportation	66.4	91.8	106.8	125.8	139.5	155.8	178.1	195.8	EJ/yr
total final energy	energy reduction	0.0	0.0	28.2	67.8	126.9	155.4	169.7	173.3	EJ/yr
	total: w/o reduction	261.1	328.1	393.3	455.9	488.5	546.1	612.3	671.0	EJ/yr

Scenario: supply stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	174.5	172.2	143.1	136.1	143.7	147.1	EJ/yr
oil w/ ccs	0.0	0.0	0.5	2.0	4.6	5.7	6.2	7.5	EJ/yr
natural gas w/o ccs	69.9	97.5	119.0	146.4	135.9	121.0	119.2	116.6	EJ/yr
natural gas w/ ccs	0.0	0.0	1.9	10.5	31.6	50.5	61.6	66.9	EJ/yr
coal w/o ccs	91.2	119.1	131.8	116.3	38.1	14.5	17.6	16.4	EJ/yr
coal w/ ccs	0.0	0.0	1.3	11.3	52.0	83.9	108.7	119.4	EJ/yr
biomass w/o ccs	14.4	21.6	45.9	70.8	104.3	120.4	128.6	139.2	EJ/yr
biomass w/ ccs	0.0	0.0	0.2	2.2	24.0	47.0	60.8	71.8	EJ/yr
nuclear	21.0	26.0	27.2	46.3	87.1	127.0	164.6	192.8	EJ/yr
hydro	23.6	29.2	29.5	31.4	29.6	29.4	32.0	34.1	EJ/yr
wind	0.0	0.9	17.5	39.7	51.5	54.4	58.8	67.1	EJ/yr
solar	0.0	0.1	3.5	13.2	24.7	29.9	35.7	45.6	EJ/yr
geothermal	0.4	0.6	1.9	12.2	25.4	27.4	26.5	29.3	EJ/yr
energy reduction	0.0	0.0	38.3	87.2	165.0	223.1	255.1	319.2	EJ/yr
total: w/o reduction	356	463	555	675	752	847	964	1054	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.74	2.27	0.98	0.76	0.93	1.08	EJ/yr
oil w/ccs	0.00	0.00	0.21	0.84	2.00	2.61	2.92	3.56	EJ/yr
gas	6.07	12.82	21.14	26.12	24.16	15.94	12.13	11.56	EJ/yr
gas w/ccs	0.00	0.00	0.75	4.65	15.10	25.22	31.75	34.73	EJ/yr
coal	16.06	26.35	31.66	30.72	9.27	0.69	1.51	1.28	EJ/yr
coal w/ccs	0.00	0.00	0.47	4.53	21.99	35.90	46.90	51.48	EJ/yr
biomass	0.43	0.71	1.45	2.36	2.43	1.78	1.13	0.93	EJ/yr
biomass w/ccs	0.00	0.00	0.02	0.71	8.68	16.15	21.68	24.06	EJ/yr
nuclear	7.36	9.97	11.48	19.68	42.28	70.69	90.90	109.10	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.32	11.36	15.19	17.14	18.14	20.92	EJ/yr
wind w/storage	0.00	0.00	1.81	6.19	11.60	15.07	17.22	20.55	EJ/yr
CSP w/backup	0.00	0.00	0.73	1.25	1.25	1.45	1.55	2.06	EJ/yr
CSP w/storage	0.00	0.00	0.59	4.13	8.93	10.57	11.02	14.30	EJ/yr
PV w/backup	0.00	0.04	0.06	0.21	1.23	3.20	4.94	6.46	EJ/yr
PV w/storage	0.00	0.00	0.01	0.11	0.60	1.50	2.28	2.97	EJ/yr
rooftop PV w/backup	0.00	0.00	0.82	2.65	5.22	7.88	10.23	12.41	EJ/yr
geothermal	0.15	0.23	0.82	5.39	13.80	16.71	16.61	18.94	EJ/yr
energy reduction	0.00	0.00	5.77	14.00	20.22	17.91	27.95	46.19	EJ/yr
total: w/o reduction	42.8	65.2	93.2	137.2	200.5	261.0	311.4	357.8	EJ/yr

Scenario: supply stab

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	91.7	87.1	69.2	59.6	58.9	57.9	EJ/yr
unconventional oil	0.0	0.0	1.2	3.3	5.8	8.3	12.2	14.8	EJ/yr
coal liquids	0.0	0.0	0.4	0.4	0.3	0.1	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	EJ/yr
bio fuels	0.2	0.9	2.7	5.3	12.7	17.6	20.2	22.7	EJ/yr
gas liquids	0.0	0.0	1.3	3.7	5.0	4.8	4.2	3.5	EJ/yr
gas	2.2	3.0	6.1	9.6	11.1	12.4	14.4	15.6	EJ/yr
coal	0.5	0.2	0.2	0.2	0.1	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.4	10.0	13.2	15.6	17.6	EJ/yr
hydrogen	0.0	0.0	1.1	11.8	25.4	39.5	52.2	63.3	EJ/yr
energy reduction	0.0	0.0	3.8	14.6	32.2	46.0	57.2	63.6	EJ/yr
total: w/o reduction	66.4	91.8	106.8	125.8	139.5	155.8	178.1	195.8	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	43.97	47.27	41.39	42.48	44.13	44.96	EJ/yr
unconventional oil	0.00	0.00	0.28	0.87	2.01	3.49	5.69	7.11	EJ/yr
coal liquids	0.00	0.00	0.07	0.08	0.03	0.04	0.07	0.08	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.01	0.03	0.04	0.07	0.08	EJ/yr
bio fuels	0.01	0.05	0.44	1.42	5.17	8.04	9.30	10.64	EJ/yr
gas liquids	0.00	0.00	0.34	1.32	1.78	1.77	1.43	1.14	EJ/yr
energy reduction	0.0	0.0	2.2	5.6	14.6	22.0	22.7	16.9	EJ/yr
total: w/o reduction	36.6	43.9	45.1	51.0	50.4	55.9	60.7	64.0	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.32	10.47	14.40	16.88	20.48	21.03	EJ/yr
gas w/ccs	0.00	0.00	0.36	1.88	5.38	8.39	10.26	12.33	EJ/yr
coal	0.00	0.00	0.29	0.56	0.37	0.39	0.58	0.62	EJ/yr
coal w/ccs	0.00	0.00	0.10	0.56	2.17	4.17	6.22	8.44	EJ/yr
biomass	0.00	0.00	0.17	0.58	0.73	0.76	1.04	1.06	EJ/yr
biomass w/ccs	0.00	0.00	0.06	0.24	2.28	5.67	6.94	10.65	EJ/yr
nuclear	0.00	0.00	0.14	1.15	3.23	5.82	8.23	10.47	EJ/yr
bulk electricity	0.00	0.00	0.11	0.53	1.07	1.60	2.17	2.44	EJ/yr
wind	0.00	0.00	0.08	0.15	0.36	0.65	0.98	1.21	EJ/yr
solar	0.00	0.00	0.08	0.22	0.68	1.32	2.09	2.96	EJ/yr
energy reduction	0.00	0.00	-0.47	-11.09	-21.30	-31.40	-39.01	-43.50	EJ/yr
total: w/o reduction	0.00	0.00	3.72	16.33	30.67	45.65	58.99	71.22	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.8	9.7	8.7	7.6	7.1	6.5	EJ/yr
Industry	7.4	11.3	26.0	40.8	58.0	65.4	70.1	77.4	EJ/yr
electricity	2.1	2.5	4.1	7.8	25.1	39.6	49.4	52.9	EJ/yr
refined liquids: tran & bldg	0.5	2.2	6.6	13.0	30.3	41.6	46.9	51.2	EJ/yr
hydrogen	0.0	0.0	0.5	1.7	6.2	13.1	15.9	22.9	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-13.9	-29.1	-68.0	-83.8	-88.1	-81.0	EJ/yr
total: w/o reduction	14.4	21.6	46.1	73.0	128.3	167.4	189.5	211.0	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	21.2	33.7	61.0	76.9	79.7	79.4	EJ
dedicated biomass crops	0.0	0.0	24.8	38.9	55.6	68.5	79.9	92.8	EJ
municipal solid waste	0.0	0.1	0.0	0.4	11.7	22.0	29.8	38.9	EJ
waste biomass	0.0	0.0	10.4	4.2	-19.3	-31.5	-32.7	-30.0	EJ
reduction in biomass crops	0.0	0.0	-24.8	-34.0	-38.9	-33.7	-31.2	-22.4	EJ
reduction in municipal solid waste	0.0	0.0	0.4	0.6	-9.9	-18.6	-24.3	-28.6	EJ
total: w/o reduction	14.4	21.6	31.7	43.2	70.1	102.2	125.6	158.6	EJ

Arable Land Use by Type

[illegible]

Scenario: supply stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.6	\$82.4	\$116.3	\$164.6	\$231.5	\$316.7	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.36	1.85	1.38	1.09	0.87	0.71	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.61	2.15	1.62	1.29	1.00	0.80	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.85	1.53	1.20	0.95	0.77	0.62	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	6.82	5.53	4.20	3.32	2.64	2.12	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.0	18.3	18.2	19.7	22.4	25.5	GJ/capita
Final Energy per Capita	industry	20.2	19.2	20.0	21.3	21.4	23.4	25.8	28.8	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.2	15.1	15.8	17.2	19.8	22.4	GJ/capita
Final Energy per Capita	total	49.7	51.0	52.2	54.7	55.4	60.3	68.0	76.7	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.6	\$41.0	\$43.2	\$43.8	\$44.6	\$44.5	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$45.6	\$53.5	\$69.6	\$75.9	\$76.0	\$77.4	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$4.0	\$4.2	\$4.6	\$5.0	\$5.1	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$5.0	\$5.5	\$7.4	\$8.5	\$8.6	\$9.0	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.6	\$1.5	\$1.4	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$3.1	\$4.5	\$7.4	\$8.5	\$8.2	\$8.4	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.74	6.37	6.15	6.20	6.07	5.87	5.89	cents/kWh (2005\$)
	carbon price	0.0	0.0	49.4	102.8	213.7	256.0	245.9	255.6	\$/tC (2005\$)

Crop Prices

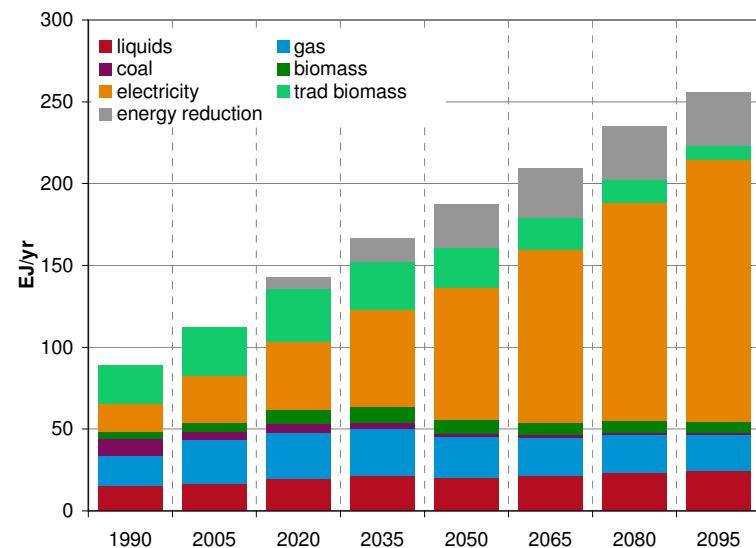
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	42	47	54	55	51	48	\$/Gcal (2005\$)
	global rice	32	32	44	48	58	56	48	41	\$/Gcal (2005\$)
	global wheat	27	27	41	48	59	56	47	41	\$/Gcal (2005\$)

Emissions by Sectors

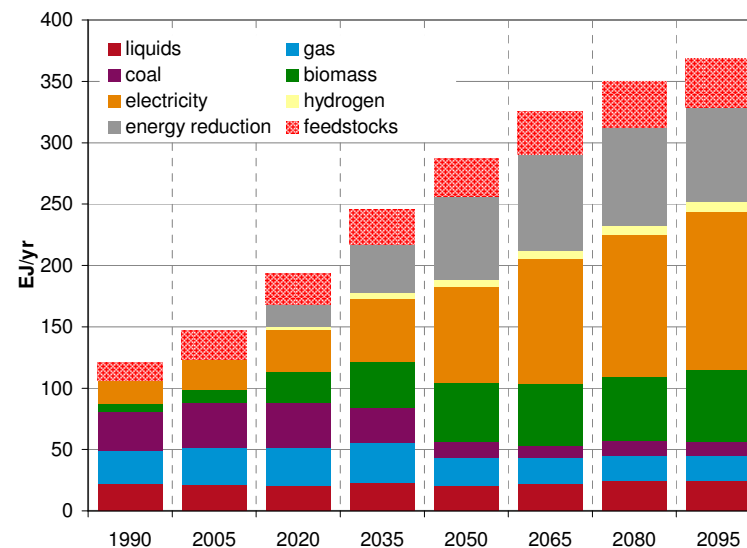
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.947	0.946	0.776	0.732	0.750	0.734	GtC/yr
	industry	1.623	1.706	1.716	1.614	1.004	0.866	0.915	0.878	GtC/yr
	transportation	1.354	1.863	2.111	2.294	2.014	1.792	1.890	1.801	GtC/yr
	electricity	1.909	2.848	3.210	3.033	0.946	-0.128	-0.391	-0.501	GtC/yr
	cement	0.261	0.483	0.682	0.757	0.416	0.278	0.306	0.257	GtC/yr
	emissions reduction	0.000	0.000	1.599	4.619	10.968	15.396	18.145	21.128	GtC/yr
	total: w/o reduction	6.005	7.759	8.667	8.644	5.157	3.540	3.470	3.170	GtC/yr

Scenario: supply stab

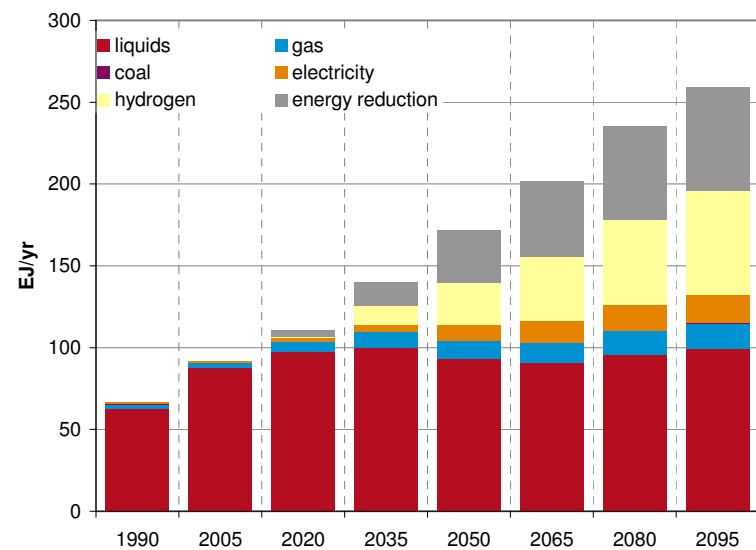
Final Energy Consumption: Buildings



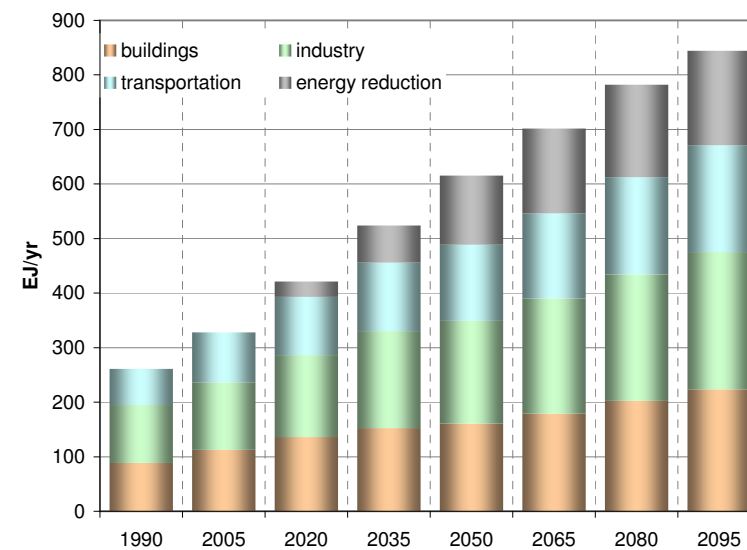
Final Energy Consumption: Industry (Does not Include Feedstocks)

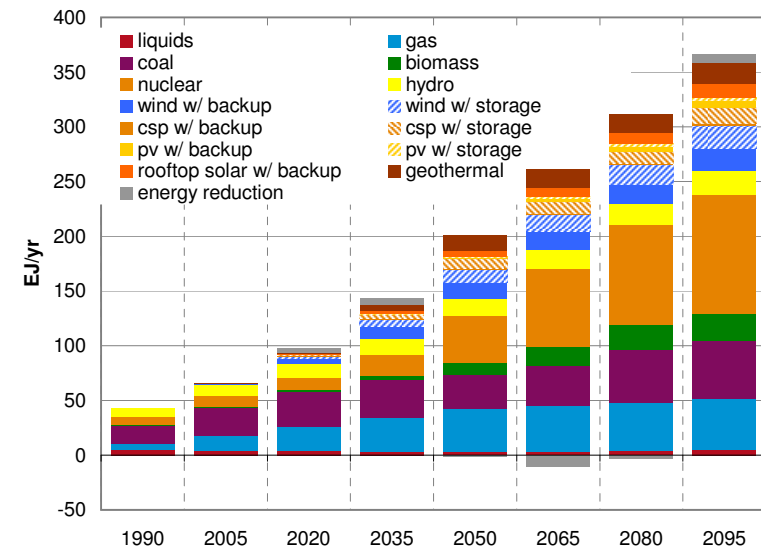


Final Energy Consumption: Transportation



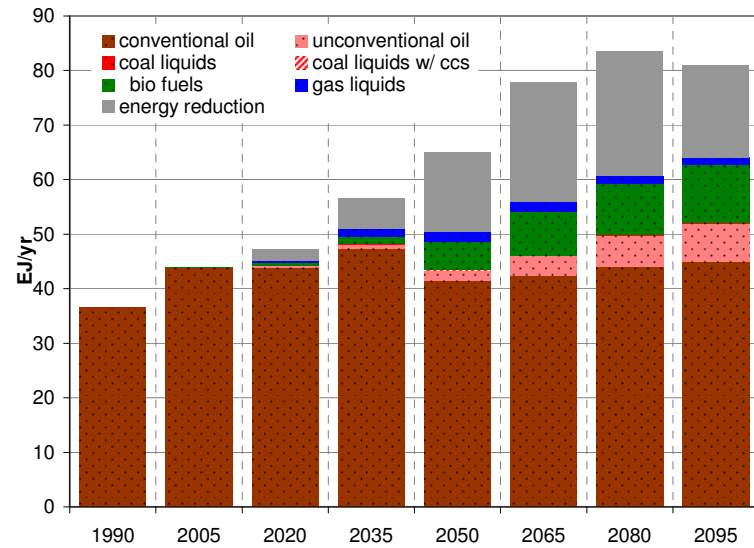
Final Energy Consumption by Sector



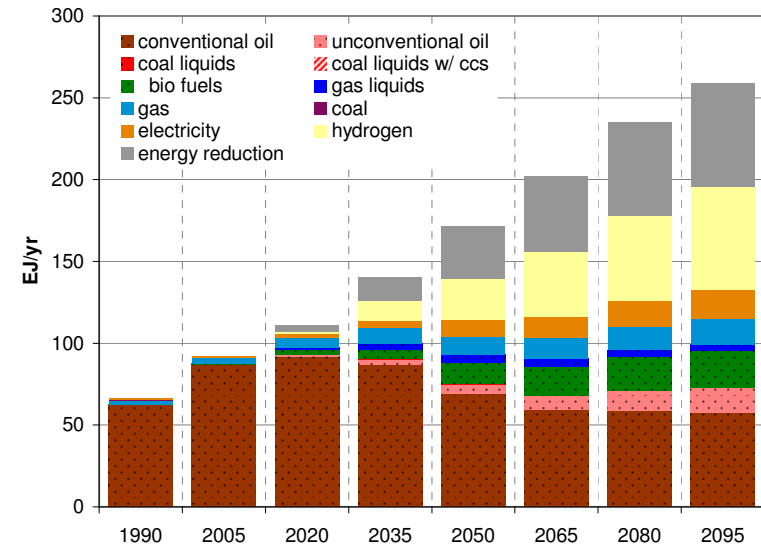


Scenario: supply stab

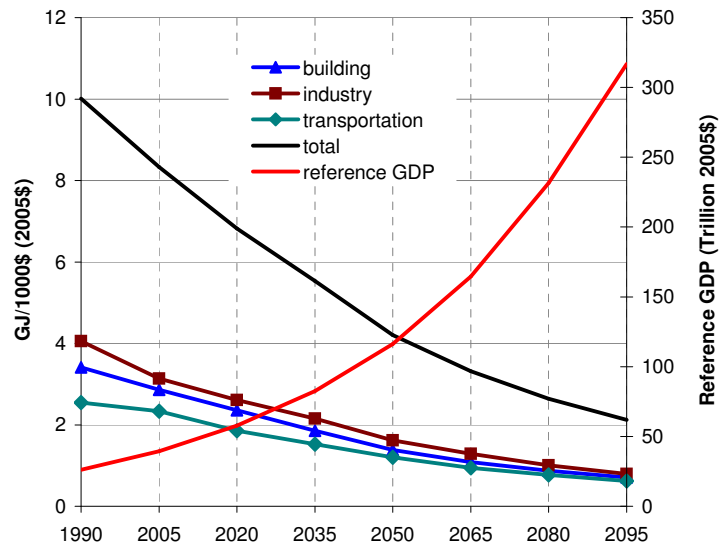
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



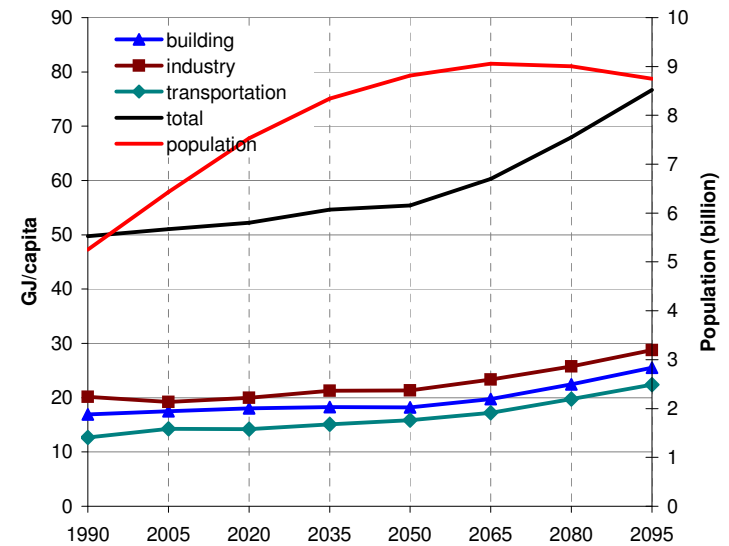
Transportation Fuels Composition



Final Energy Intensity

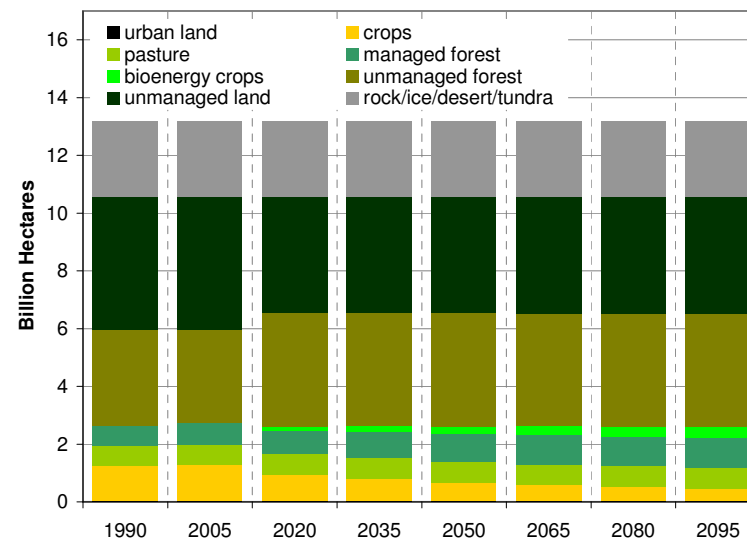
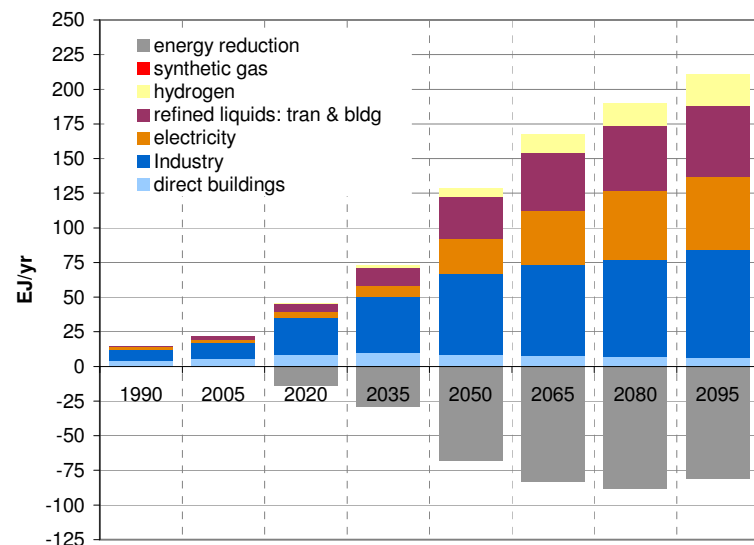


Final Energy per Capita

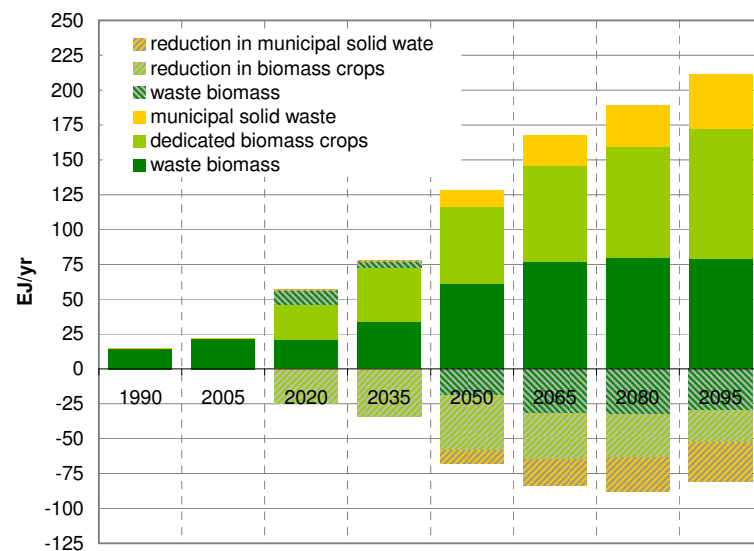


Scenario: supply stab

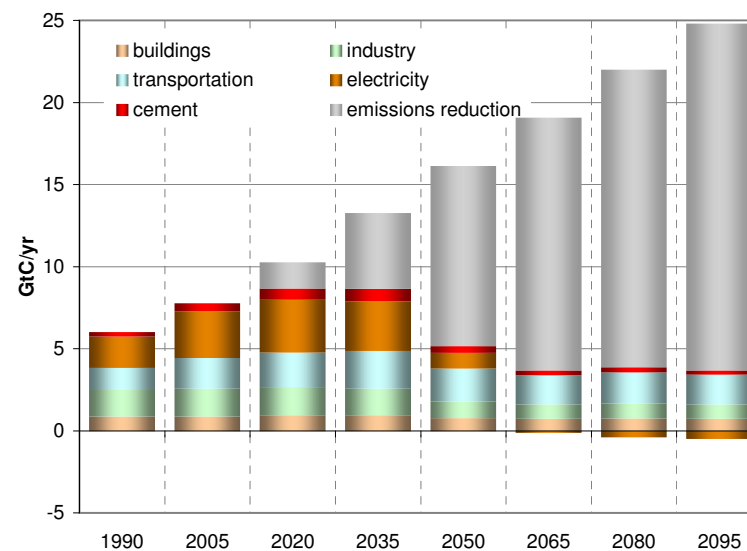
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: adv stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	18.9	18.4	16.5	15.7	16.0	15.2	EJ/yr
building	gas	18.7	26.7	27.0	23.6	20.0	17.0	15.7	13.9	EJ/yr
building	coal	10.1	5.1	5.6	3.7	1.8	1.1	1.1	0.9	EJ/yr
building	biomass	4.5	5.5	8.4	8.1	7.1	6.0	5.3	4.5	EJ/yr
building	electricity	16.9	29.0	40.3	50.3	61.5	73.3	83.4	89.6	EJ/yr
building	trad biomass	23.5	29.9	32.0	25.9	20.4	14.1	8.7	5.1	EJ/yr
building	energy reduction	0.0	0.0	10.7	36.6	60.0	82.1	104.6	126.8	EJ/yr
	total: w/o reduction	88.9	112.7	132.2	130.0	127.3	127.2	130.1	129.2	EJ/yr
industry	liquids	22.4	21.2	18.7	20.6	19.5	20.0	22.8	23.9	EJ/yr
industry	gas	26.6	30.5	30.4	31.2	24.7	21.0	22.2	22.1	EJ/yr
industry	coal	31.4	35.8	38.3	31.5	17.1	11.9	14.5	14.2	EJ/yr
industry	biomass	7.3	11.2	22.5	33.2	45.4	51.5	55.2	59.0	EJ/yr
industry	electricity	18.1	24.8	33.5	47.7	68.9	89.8	99.3	110.1	EJ/yr
industry	hydrogen	0.0	0.0	2.4	3.7	4.4	5.1	5.4	6.2	EJ/yr
industry	energy reduction	0.0	0.0	22.2	48.7	76.4	91.3	92.6	93.5	EJ/yr
industry	feedstocks	15.2	23.7	25.4	28.5	30.3	33.4	36.1	37.9	EJ/yr
	total: w/o reduction	105.8	123.6	145.7	168.0	179.9	199.2	219.4	235.4	EJ/yr
transportation	liquids	62.7	87.6	90.9	81.6	73.7	67.5	67.8	66.8	EJ/yr
transportation	gas	2.3	3.0	5.9	7.6	8.3	8.6	9.8	10.4	EJ/yr
transportation	coal	0.5	0.2	0.2	0.2	0.1	0.0	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.9	8.0	13.2	17.8	20.4	22.4	EJ/yr
transportation	hydrogen	0.0	0.0	1.0	8.1	15.4	23.0	29.3	34.8	EJ/yr
transportation	energy reduction	0.0	0.0	9.9	35.1	61.0	84.7	107.9	125.0	EJ/yr
	total: w/o reduction	66.5	91.9	100.8	105.3	110.7	117.0	127.4	134.4	EJ/yr
total final energy	buildings	88.9	112.7	132.2	130.0	127.3	127.2	130.1	129.2	EJ/yr
total final energy	industry	105.8	123.6	145.7	168.0	179.9	199.2	219.4	235.4	EJ/yr
total final energy	transportation	66.5	91.9	100.8	105.3	110.7	117.0	127.4	134.4	EJ/yr
total final energy	energy reduction	0.0	0.0	42.8	120.4	197.5	258.2	305.0	345.3	EJ/yr
	total: w/o reduction	261.1	328.2	378.7	403.3	417.9	443.4	476.9	499.0	EJ/yr

Scenario: adv stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	165.7	150.7	124.8	107.9	109.7	107.3	EJ/yr
oil w/ ccs	0.0	0.0	0.4	1.5	3.0	4.2	3.8	4.3	EJ/yr
natural gas w/o ccs	70.0	97.6	116.0	132.4	125.3	104.5	100.6	96.5	EJ/yr
natural gas w/ ccs	0.0	0.0	1.5	7.1	19.7	34.5	40.3	42.7	EJ/yr
coal w/o ccs	91.2	119.1	134.4	121.6	64.6	24.2	24.8	22.4	EJ/yr
coal w/ ccs	0.0	0.0	0.9	6.4	31.2	56.4	70.4	73.1	EJ/yr
biomass w/o ccs	14.4	21.6	41.1	58.4	87.7	113.5	123.2	131.1	EJ/yr
biomass w/ ccs	0.0	0.0	0.1	1.2	10.5	27.0	32.7	36.1	EJ/yr
nuclear	21.0	26.0	25.8	38.6	67.7	105.5	125.1	139.4	EJ/yr
hydro	23.6	29.2	29.5	31.4	30.9	30.8	32.9	34.9	EJ/yr
wind	0.0	0.9	16.1	34.3	44.3	48.6	48.6	51.3	EJ/yr
solar	0.0	0.1	3.1	10.5	18.6	23.7	25.5	28.3	EJ/yr
geothermal	0.4	0.6	1.8	10.5	23.2	25.0	22.9	23.9	EJ/yr
energy reduction	0.0	0.0	56.4	157.3	265.3	364.4	458.7	581.3	EJ/yr
total: w/o reduction	356	463	536	604	652	706	760	791	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.70	2.24	1.04	0.78	0.90	1.07	EJ/yr
oil w/ccs	0.00	0.00	0.17	0.62	1.29	1.96	1.79	2.04	EJ/yr
gas	6.07	12.82	21.07	26.14	25.30	17.56	13.91	12.95	EJ/yr
gas w/ccs	0.00	0.00	0.61	3.21	9.69	17.83	21.56	22.93	EJ/yr
coal	16.05	26.35	31.82	31.61	18.18	4.62	3.67	2.85	EJ/yr
coal w/ccs	0.00	0.00	0.32	2.55	13.34	24.63	31.17	32.43	EJ/yr
biomass	0.43	0.71	1.36	2.20	2.66	2.20	1.74	1.48	EJ/yr
biomass w/ccs	0.00	0.00	0.01	0.38	3.98	9.73	12.50	13.40	EJ/yr
nuclear	7.36	9.97	10.90	16.53	31.97	55.75	67.80	77.90	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.95	10.01	12.72	14.72	14.67	15.78	EJ/yr
wind w/storage	0.00	0.00	1.62	5.18	9.33	12.71	13.82	15.27	EJ/yr
CSP w/backup	0.00	0.00	0.66	1.07	0.92	1.09	1.10	1.27	EJ/yr
CSP w/storage	0.00	0.00	0.52	3.24	6.56	7.94	7.82	8.78	EJ/yr
PV w/backup	0.00	0.04	0.06	0.16	0.90	2.40	3.44	3.99	EJ/yr
PV w/storage	0.00	0.00	0.01	0.09	0.44	1.12	1.58	1.83	EJ/yr
rooftop PV w/backup	0.00	0.00	0.76	2.16	4.05	5.70	6.83	7.60	EJ/yr
geothermal	0.15	0.23	0.77	4.63	11.91	14.62	13.87	14.97	EJ/yr
energy reduction	0.00	0.00	7.36	22.95	44.70	57.72	90.06	128.12	EJ/yr
total: w/o reduction	42.8	65.2	91.4	126.0	170.1	213.1	237.7	258.0	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.7	85.9	72.7	56.1	43.4	40.7	37.8	EJ/yr
unconventional oil	0.0	0.0	1.1	2.4	4.6	5.6	7.1	8.0	EJ/yr
coal liquids	0.0	0.0	0.5	0.5	0.3	0.1	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	EJ/yr
bio fuels	0.2	0.9	2.2	3.3	8.3	14.2	16.2	17.9	EJ/yr
gas liquids	0.0	0.0	1.2	2.7	4.3	4.1	3.5	2.9	EJ/yr
gas	2.3	3.0	5.9	7.6	8.3	8.6	9.8	10.4	EJ/yr
coal	0.5	0.2	0.2	0.2	0.1	0.0	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.9	8.0	13.2	17.8	20.4	22.4	EJ/yr
hydrogen	0.0	0.0	1.0	8.1	15.4	23.0	29.3	34.8	EJ/yr
energy reduction	0.0	0.0	9.9	35.1	61.0	84.7	107.9	125.0	EJ/yr
total: w/o reduction	66.5	91.9	100.8	105.3	110.7	117.0	127.4	134.4	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	42.06	45.04	40.90	39.42	41.68	42.08	EJ/yr
unconventional oil	0.00	0.00	0.27	0.76	2.05	2.76	4.25	5.12	EJ/yr
coal liquids	0.00	0.00	0.09	0.12	0.10	0.03	0.05	0.06	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.02	0.03	0.05	0.05	EJ/yr
bio fuels	0.01	0.05	0.34	1.03	3.94	8.54	10.55	12.43	EJ/yr
gas liquids	0.00	0.00	0.33	1.23	1.95	1.94	1.67	1.38	EJ/yr
energy reduction	0.0	0.0	4.2	8.4	16.0	25.2	25.2	19.8	EJ/yr
total: w/o reduction	36.6	43.9	43.1	48.2	49.0	52.7	58.3	61.1	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.14	7.83	10.76	11.80	14.55	15.65	EJ/yr
gas w/ccs	0.00	0.00	0.30	1.17	2.98	5.00	5.73	6.86	EJ/yr
coal	0.00	0.00	0.29	0.51	0.39	0.31	0.53	0.61	EJ/yr
coal w/ccs	0.00	0.00	0.08	0.33	1.11	2.21	3.02	3.94	EJ/yr
biomass	0.00	0.00	0.15	0.44	0.63	0.65	0.93	1.04	EJ/yr
biomass w/ccs	0.00	0.00	0.05	0.13	0.80	2.81	2.83	3.91	EJ/yr
nuclear	0.00	0.00	0.12	0.74	1.83	3.22	4.25	5.29	EJ/yr
bulk electricity	0.00	0.00	0.10	0.37	0.70	1.00	1.33	1.52	EJ/yr
wind	0.00	0.00	0.07	0.10	0.22	0.39	0.56	0.70	EJ/yr
solar	0.00	0.00	0.07	0.14	0.38	0.71	1.05	1.43	EJ/yr
energy reduction	0.00	0.00	-0.12	-6.52	-10.43	-13.86	-14.79	-13.23	EJ/yr
total: w/o reduction	0.00	0.00	3.37	11.76	19.79	28.10	34.76	40.95	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	direct buildings	4.5	5.5	8.4	8.1	7.1	6.0	5.3	4.5	EJ/yr
	Industry	7.4	11.3	23.1	35.3	53.1	67.7	74.8	81.4	EJ/yr
	electricity	2.1	2.5	3.9	6.6	15.2	26.4	31.0	31.7	EJ/yr
	refined liquids: tran & bldg	0.5	2.2	5.3	8.3	19.8	33.3	37.4	39.9	EJ/yr
	hydrogen	0.0	0.0	0.4	1.2	2.9	7.0	7.4	9.7	EJ/yr
	synthetic gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	EJ/yr
	energy reduction	0.0	0.0	-9.1	-15.7	-37.9	-56.9	-54.6	-37.2	EJ/yr
	total: w/o reduction	14.4	21.6	41.2	59.5	98.2	140.5	155.9	167.3	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	20.1	25.0	44.6	61.9	62.9	60.3	EJ
dedicated biomass crops	0.0	0.0	21.1	34.4	51.7	64.7	74.5	86.2	EJ
municipal solid waste	0.0	0.1	0.0	0.1	1.9	13.8	18.5	20.7	EJ
waste biomass	0.0	0.0	11.6	12.8	-2.9	-16.6	-15.8	-11.0	EJ
reduction in biomass crops	0.0	0.0	-21.1	-29.5	-35.0	-29.9	-25.8	-15.9	EJ
reduction in municipal solid waste	0.0	0.0	0.4	1.0	-0.1	-10.4	-13.0	-10.3	EJ
total: w/o reduction	14.4	21.6	31.7	42.9	60.4	94.0	114.3	140.4	EJ

Arable Land Use by Type

[illegible]

Scenario: adv stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$57.9	\$82.9	\$117.1	\$165.5	\$233.2	\$319.3	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.28	1.57	1.09	0.77	0.56	0.40	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.52	2.03	1.54	1.20	0.94	0.74	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.74	1.27	0.95	0.71	0.55	0.42	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.02	8.33	6.54	4.86	3.57	2.68	2.04	1.56	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.6	15.6	14.4	14.0	14.4	14.8	GJ/capita
Final Energy per Capita	industry	20.2	19.2	19.4	20.1	20.4	22.0	24.4	26.9	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	13.4	12.6	12.6	12.9	14.1	15.4	GJ/capita
Final Energy per Capita	total	49.8	51.0	50.3	48.3	47.4	48.9	53.0	57.0	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.4	\$39.5	\$40.0	\$42.2	\$42.1	\$42.1	\$41.8	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.4	\$44.0	\$49.4	\$62.2	\$69.6	\$66.9	\$66.7	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$3.9	\$4.1	\$4.3	\$4.5	\$4.6	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.8	\$5.1	\$6.5	\$7.6	\$7.5	\$7.5	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.6	\$1.5	\$1.4	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.8	\$3.8	\$6.0	\$7.6	\$6.8	\$6.8	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.74	6.23	5.99	6.09	5.97	5.73	5.67	cents/kWh (2005\$)
	carbon price	0.0	0.0	37.4	77.8	161.7	220.2	196.5	196.8	\$/tC (2005\$)

Crop Prices

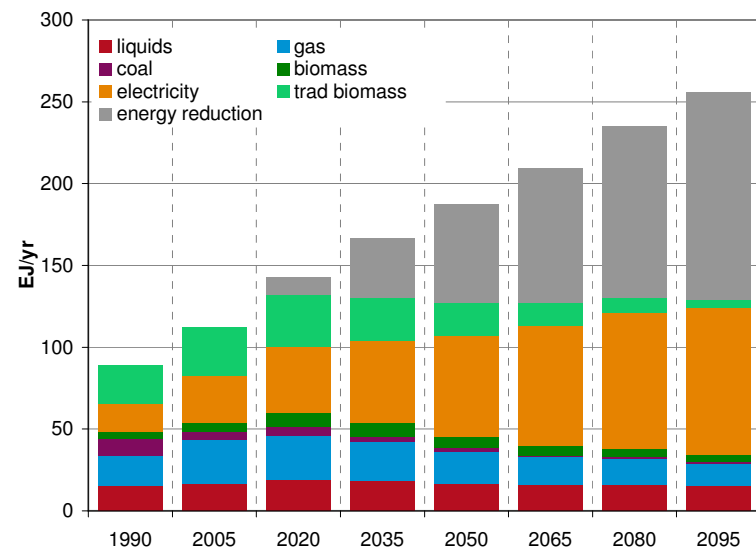
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	40	43	49	51	46	43	\$/Gcal (2005\$)
	global rice	32	32	41	44	51	50	42	36	\$/Gcal (2005\$)
	global wheat	27	27	37	42	50	50	41	35	\$/Gcal (2005\$)

Emissions by Sectors

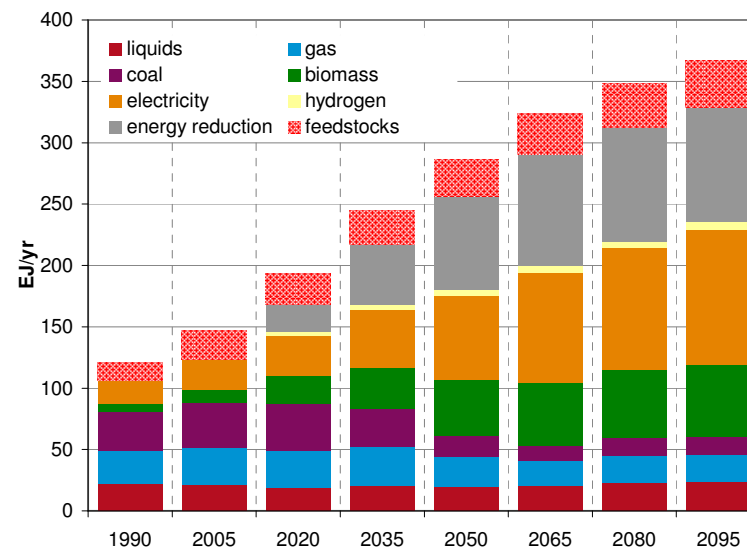
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.929	0.811	0.644	0.530	0.506	0.451	GtC/yr
	industry	1.623	1.706	1.701	1.617	1.147	0.877	0.979	0.952	GtC/yr
	transportation	1.355	1.863	1.986	1.886	1.651	1.339	1.360	1.288	GtC/yr
	electricity	1.909	2.848	3.216	3.093	1.747	0.384	0.125	0.015	GtC/yr
	cement	0.261	0.483	0.706	0.797	0.648	0.410	0.500	0.465	GtC/yr
	emissions reduction	0.000	0.000	1.727	5.060	10.288	15.396	18.145	21.128	GtC/yr
	total: w/o reduction	6.006	7.760	8.539	8.204	5.836	3.540	3.470	3.171	GtC/yr

Scenario: adv stab

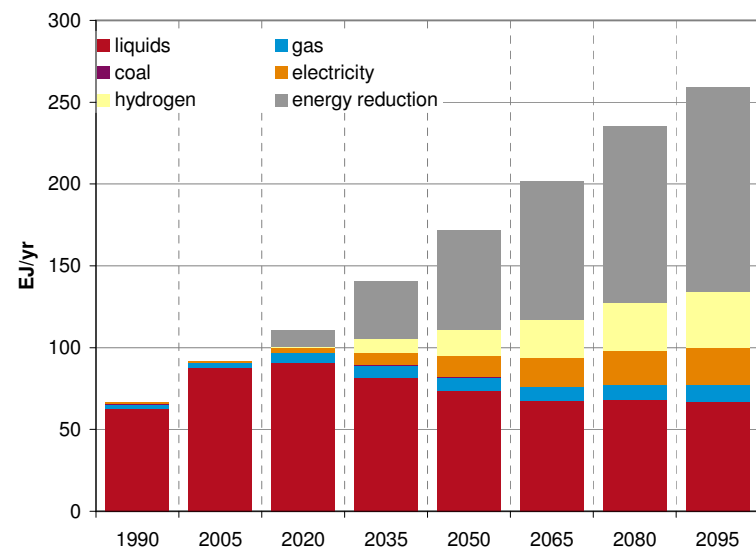
Final Energy Consumption: Buildings



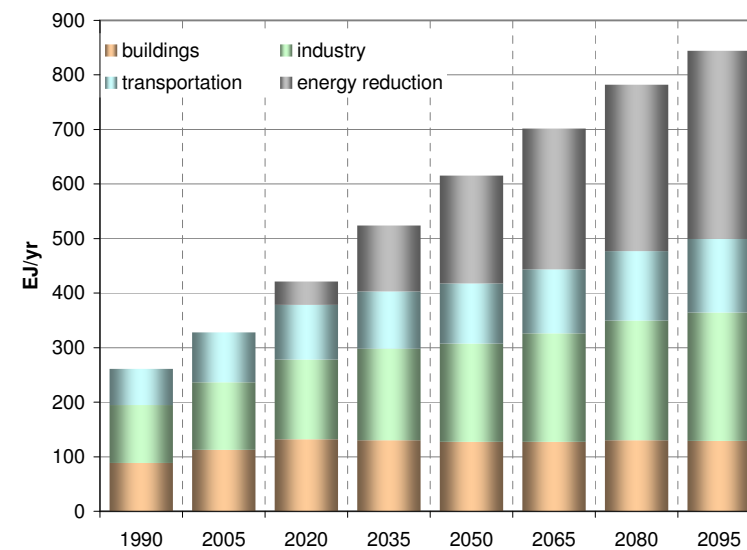
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

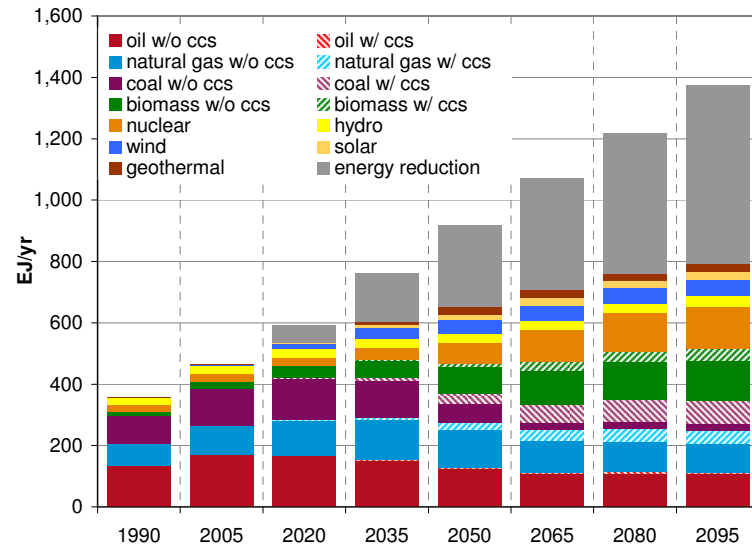


Final Energy Consumption by Sector

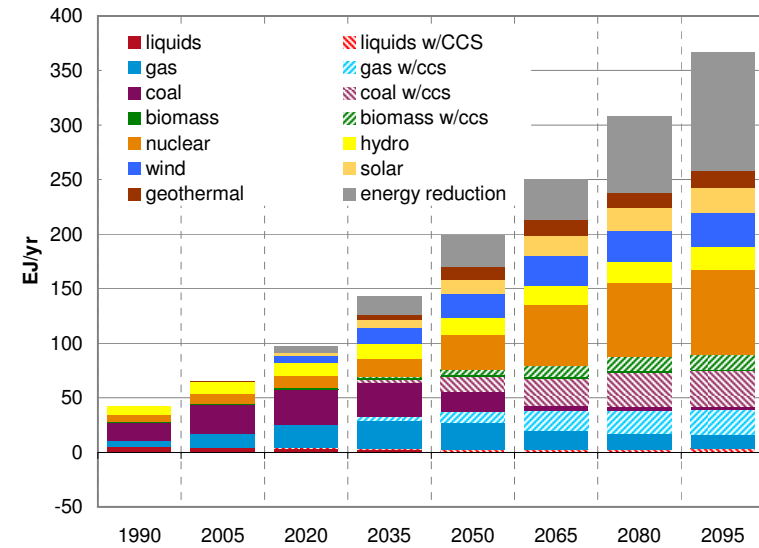


Scenario: adv stab

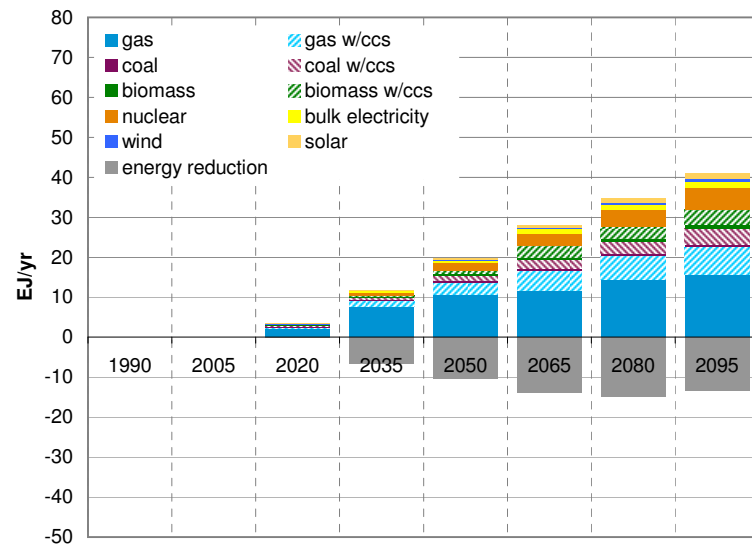
Primary Energy Consumption



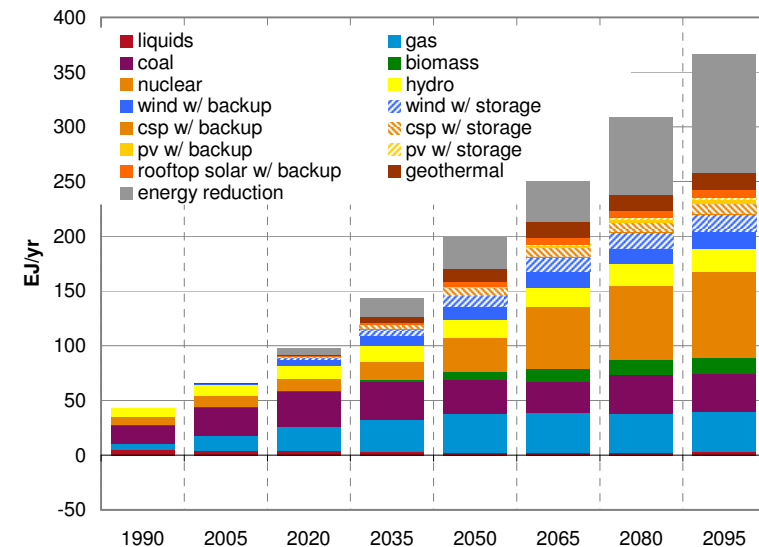
Electricity Production by Fuel: CCS Focus



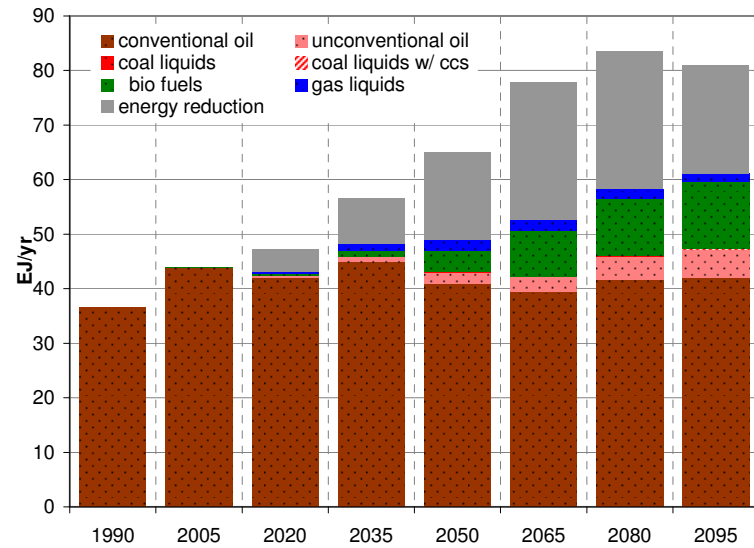
Hydrogen Production by Fuel



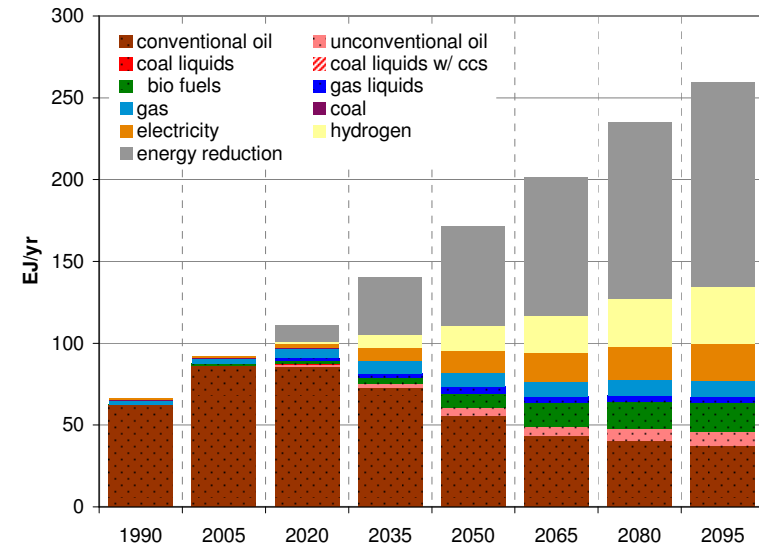
Electricity Production by Fuel: Renewable Focus



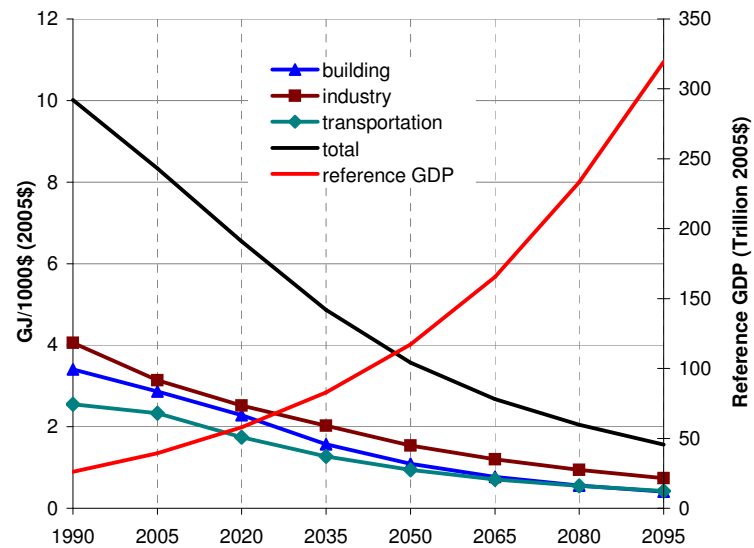
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



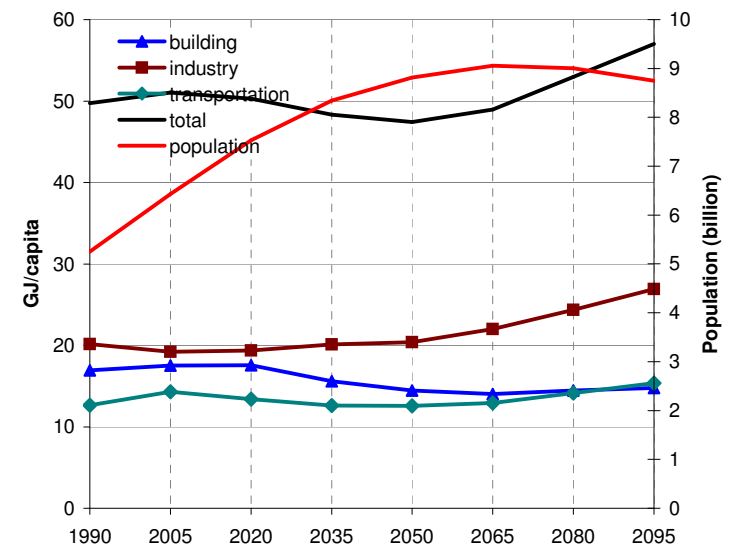
Transportation Fuels Composition



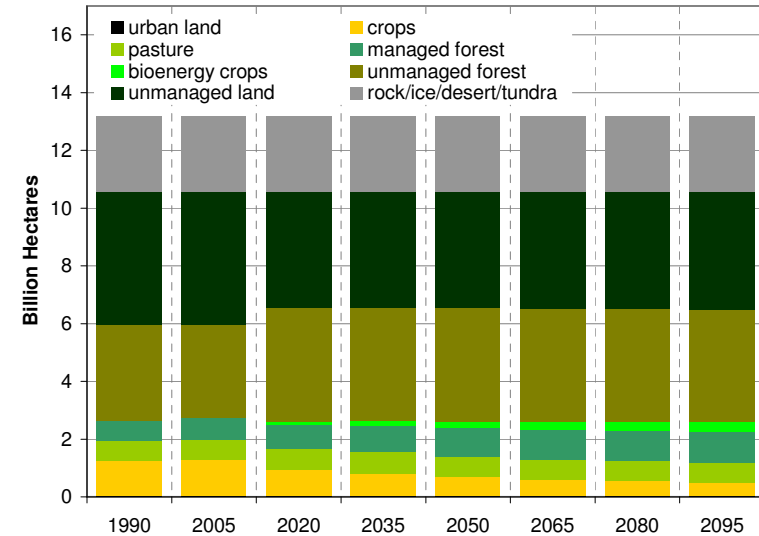
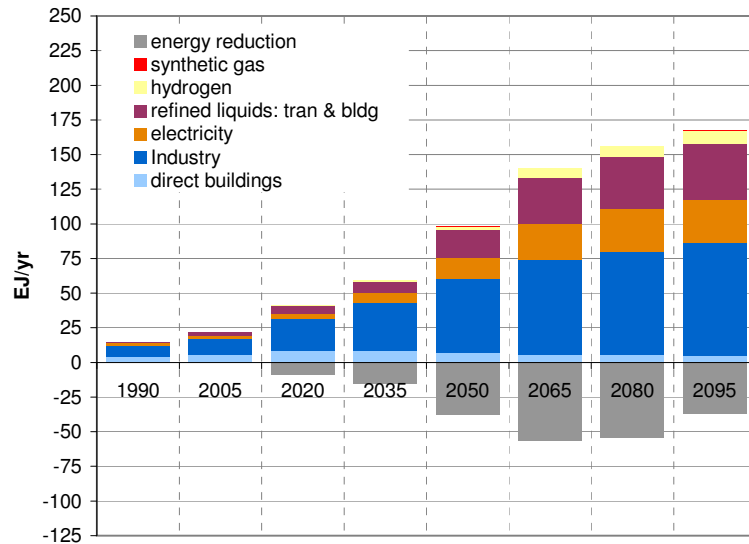
Final Energy Intensity



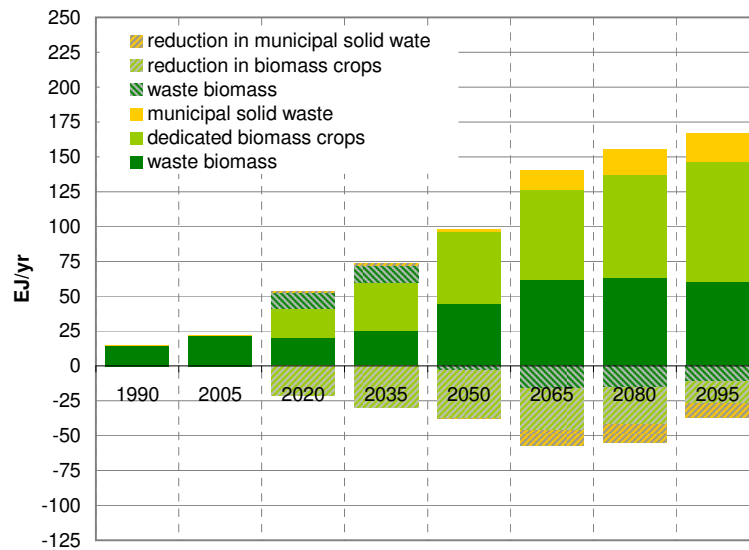
Final Energy per Capita



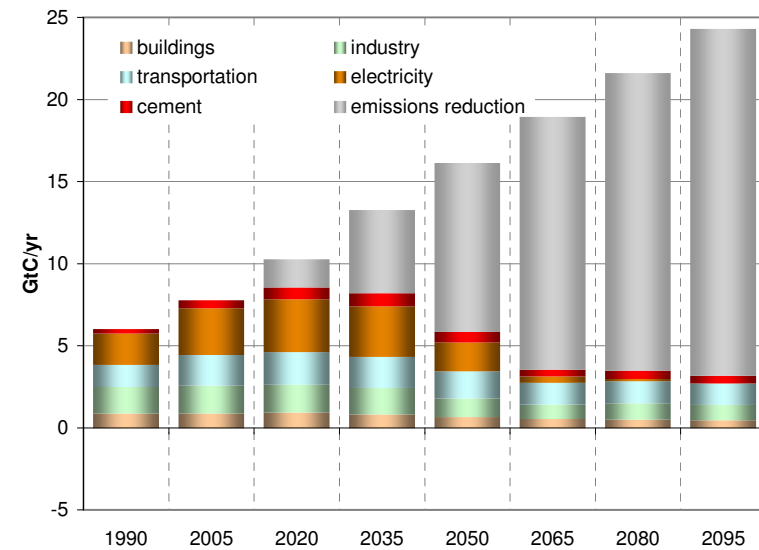
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



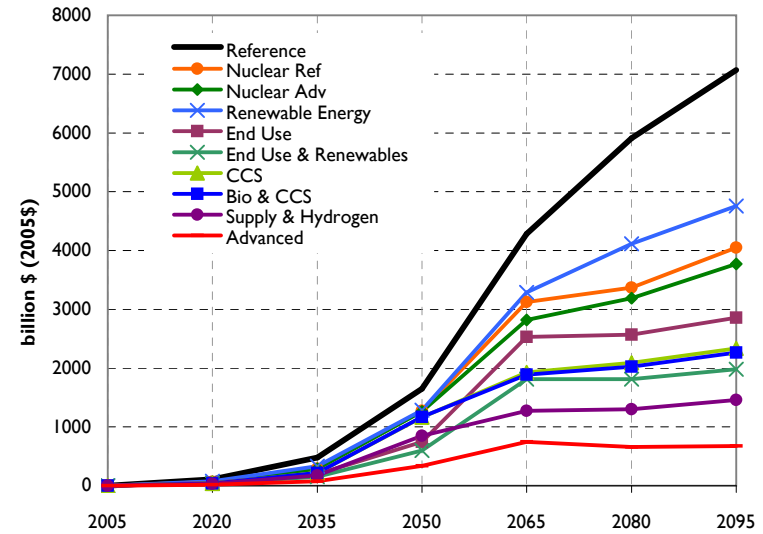
Biomass Production by Source



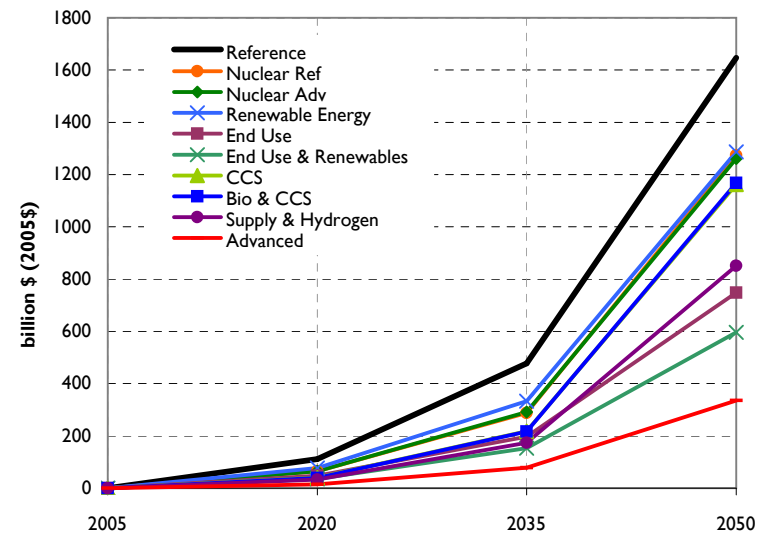
CO2 Emissions by Sector



Annual Undiscounted Policy Cost: 2005-2095



Annual Undiscounted Policy Cost: 2005-2050



Total Discounted Policy Cost 2005 through 2095 (5% Discount Rate)		
Reference	11.6	trillion 2005\$
Renewable Energy	8.5	trillion 2005\$
Nuclear Ref	7.8	trillion 2005\$
Nuclear Adv	7.4	trillion 2005\$
End Use	5.6	trillion 2005\$
End Use & Renewable:	4.1	trillion 2005\$
CCS	5.6	trillion 2005\$
Bio & CCS	5.5	trillion 2005\$
Supply & Hydrogen	3.9	trillion 2005\$
Advanced	1.9	trillion 2005\$
Note that these costs assume comprehensive international action and allocations of permits among countries so that the U.S. neither buys nor sells permits.		

Appendix B: 550 ppmv Scenarios: Global Results

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.9	24.7	26.8	30.6	32.4	31.0	EJ/yr
building	gas	18.7	26.7	29.3	31.2	31.5	29.6	29.2	28.3	EJ/yr
building	coal	10.1	5.1	8.0	8.3	7.7	7.1	6.2	5.3	EJ/yr
building	biomass	4.5	5.5	7.9	9.0	9.3	9.8	9.4	8.6	EJ/yr
building	electricity	16.9	29.0	44.7	65.7	89.2	114.3	145.2	174.8	EJ/yr
building	trad biomass	23.5	29.9	32.1	27.9	22.9	17.9	12.2	8.0	EJ/yr
building	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	total: w/o reduction	88.9	112.7	142.9	166.6	187.4	209.2	234.7	256.0	EJ/yr
industry	liquids	22.4	21.2	20.3	23.9	27.3	35.3	37.9	33.5	EJ/yr
industry	gas	26.6	30.5	34.0	39.6	39.4	32.9	33.3	34.1	EJ/yr
industry	coal	31.4	35.8	59.0	77.7	88.6	94.5	91.4	88.0	EJ/yr
industry	biomass	7.3	11.2	17.1	23.4	31.1	43.3	50.0	57.7	EJ/yr
industry	electricity	18.1	24.8	34.7	49.0	66.3	80.1	94.4	109.8	EJ/yr
industry	hydrogen	0.0	0.0	2.7	3.1	3.7	4.4	5.0	5.8	EJ/yr
industry	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
industry	feedstocks	15.2	23.7	27.9	33.6	38.7	43.4	46.3	48.2	EJ/yr
	total: w/o reduction	105.8	123.6	167.9	216.7	256.3	290.6	312.0	328.9	EJ/yr
transportation	liquids	62.7	87.7	101.1	120.9	136.7	154.4	171.9	177.0	EJ/yr
transportation	gas	2.2	3.0	6.5	12.2	17.8	21.1	26.8	32.9	EJ/yr
transportation	coal	0.5	0.2	0.4	0.5	0.6	0.5	0.3	0.2	EJ/yr
transportation	electricity	1.0	1.0	2.2	4.8	11.0	16.0	21.3	27.3	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.7	9.8	15.0	21.9	EJ/yr
transportation	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	total: w/o reduction	66.4	91.8	110.7	140.4	171.7	201.7	235.2	259.3	EJ/yr
total final energy	buildings	88.9	112.7	142.9	166.6	187.4	209.2	234.7	256.0	EJ/yr
total final energy	industry	105.8	123.6	167.9	216.7	256.3	290.6	312.0	328.9	EJ/yr
total final energy	transportation	66.4	91.8	110.7	140.4	171.7	201.7	235.2	259.3	EJ/yr
total final energy	energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
	total: w/o reduction	261.1	328.1	421.5	523.7	615.4	701.5	781.9	844.2	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	183.8	203.9	211.9	235.1	252.4	207.8	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	130.4	179.6	224.3	233.1	256.2	290.0	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	176.8	242.2	317.2	402.3	480.2	597.1	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	32.1	43.8	60.3	83.6	101.3	130.1	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	23.3	21.6	19.3	18.7	18.3	18.1	EJ/yr
hydro	23.6	29.2	29.0	30.5	31.1	33.5	36.1	38.9	EJ/yr
wind	0.0	0.9	14.7	31.3	39.1	46.9	53.9	64.2	EJ/yr
solar	0.0	0.1	1.3	3.5	5.9	9.0	12.9	19.0	EJ/yr
geothermal	0.4	0.5	1.3	5.2	7.9	8.0	7.8	7.7	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
total: w/o reduction	356	463	593	762	917	1070	1219	1373	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.26	3.80	4.44	6.23	8.00	6.13	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	24.71	40.05	58.99	69.35	81.78	95.52	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	37.89	53.64	76.37	102.24	133.45	164.44	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.24	2.48	5.18	7.98	11.07	14.05	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.90	10.50	13.65	16.64	19.28	22.91	EJ/yr
wind w/storage	0.00	0.00	1.22	3.66	5.95	8.05	10.00	12.69	EJ/yr
CSP w/backup	0.00	0.00	0.35	0.59	0.60	0.85	1.18	1.78	EJ/yr
CSP w/storage	0.00	0.00	0.12	0.85	1.91	2.78	3.82	5.73	EJ/yr
PV w/backup	0.00	0.04	0.05	0.05	0.20	0.56	1.05	1.54	EJ/yr
PV w/storage	0.00	0.00	0.00	0.03	0.10	0.26	0.47	0.68	EJ/yr
rooftop PV w/backup	0.00	0.00	0.29	0.80	1.68	3.32	4.25	5.00	EJ/yr
geothermal	0.13	0.21	0.57	2.44	4.14	4.32	4.32	4.35	EJ/yr
energy reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
total: w/o reduction	42.7	65.2	97.7	142.8	199.0	250.2	308.2	366.2	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	95.3	102.7	97.9	99.2	99.8	61.5	EJ/yr
unconventional oil	0.0	0.0	1.6	6.7	15.8	24.0	34.6	54.5	EJ/yr
coal liquids	0.0	0.0	1.6	5.2	12.3	20.0	25.7	42.6	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.2	1.7	2.5	3.9	5.6	11.2	EJ/yr
gas liquids	0.0	0.0	1.4	4.7	8.2	7.3	6.1	7.2	EJ/yr
gas	2.2	3.0	6.5	12.2	17.8	21.1	26.8	32.9	EJ/yr
coal	0.5	0.2	0.4	0.5	0.6	0.5	0.3	0.2	EJ/yr
electricity	1.0	1.0	2.2	4.8	11.0	16.0	21.3	27.3	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.7	9.8	15.0	21.9	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
total: w/o reduction	66.4	91.8	110.7	140.4	171.7	201.7	235.2	259.3	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	45.94	51.18	51.64	57.44	56.80	32.92	EJ/yr
unconventional oil	0.00	0.00	0.42	2.16	5.98	9.74	14.06	24.53	EJ/yr
coal liquids	0.00	0.00	0.39	1.53	4.35	7.65	9.63	18.42	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.13	0.25	0.48	0.88	1.27	3.09	EJ/yr
gas liquids	0.00	0.00	0.36	1.43	2.56	2.17	1.64	1.98	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
total: w/o reduction	36.6	43.9	47.2	56.5	65.0	77.9	83.4	80.9	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.36	3.85	6.72	9.42	12.66	16.68	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.54	0.86	1.67	3.15	4.76	7.19	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.16	0.24	0.45	0.81	1.22	1.84	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.08	0.15	0.31	0.51	0.74	1.04	EJ/yr
wind	0.00	0.00	0.06	0.06	0.08	0.13	0.21	0.31	EJ/yr
solar	0.00	0.00	0.06	0.08	0.14	0.23	0.39	0.66	EJ/yr
energy reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
total: w/o reduction	0.00	0.00	3.24	5.24	9.37	14.25	19.98	27.72	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	7.9	9.0	9.3	9.8	9.4	8.6	EJ/yr
Industry	7.4	11.3	17.4	23.9	32.0	45.0	52.4	63.2	EJ/yr
electricity	2.1	2.5	3.5	6.4	12.2	18.2	24.7	30.9	EJ/yr
refined liquids: tran & bldg	0.5	2.2	2.9	4.0	5.8	8.9	12.3	23.7	EJ/yr
hydrogen	0.0	0.0	0.4	0.5	0.9	1.7	2.4	3.6	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
total: w/o reduction	14.4	21.6	32.1	43.8	60.3	83.6	101.3	130.1	EJ/yr

Biomass Production

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	waste biomass	14.4	21.5	31.7	37.9	41.7	45.4	47.1	49.4	EJ
	dedicated biomass crops	0.0	0.0	0.0	4.9	16.7	34.8	48.7	70.4	EJ
	municipal solid waste	0.0	0.1	0.4	1.0	1.8	3.4	5.5	10.3	EJ
	waste biomass	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ
	reduction in biomass crops	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ
	reduction in municipal solid waste	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ
	total: w/o reduction	14.4	21.6	32.1	43.8	60.3	83.6	101.3	130.1	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.8	\$85.2	\$121.7	\$172.4	\$241.5	\$328.8	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.43	1.96	1.54	1.21	0.97	0.78	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.85	2.54	2.11	1.69	1.29	1.00	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.88	1.65	1.41	1.17	0.97	0.79	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.16	6.15	5.06	4.07	3.24	2.57	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	19.0	20.0	21.3	23.1	26.1	29.3	GJ/capita
Final Energy per Capita	industry	20.2	19.2	22.3	26.0	29.1	32.1	34.6	37.6	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.7	16.8	19.5	22.3	26.1	29.6	GJ/capita
Final Energy per Capita	total	49.7	51.0	56.0	62.8	69.8	77.4	86.8	96.5	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.8	\$42.2	\$45.1	\$46.9	\$48.3	\$62.1	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$39.8	\$42.2	\$45.1	\$46.9	\$48.3	\$62.1	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.6	\$5.7	\$5.9	\$6.1	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.6	\$5.7	\$5.9	\$6.1	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.8	\$1.9	\$2.0	\$2.1	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.8	\$1.9	\$2.0	\$2.1	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.76	5.52	5.37	5.50	5.35	5.30	cents/kWh (2005\$)
	carbon price	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$/tC (2005\$)

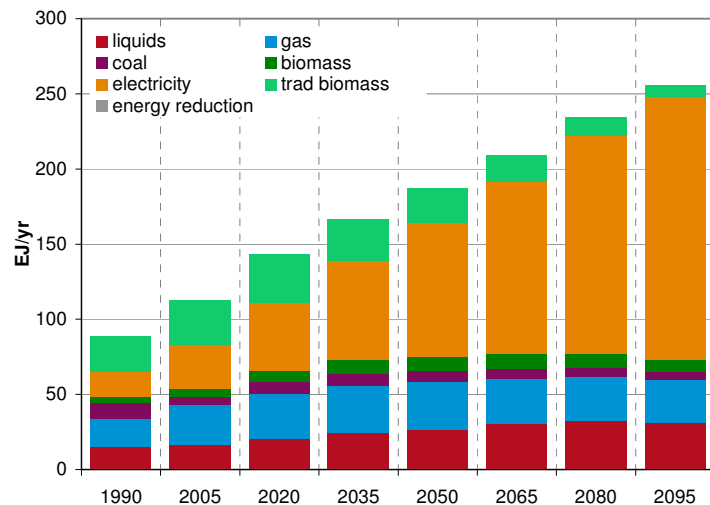
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	33	33	33	33	33	33	\$/Gcal (2005\$)
	global rice	32	32	32	32	32	32	32	32	\$/Gcal (2005\$)
	global wheat	27	27	27	26	26	26	26	26	\$/Gcal (2005\$)

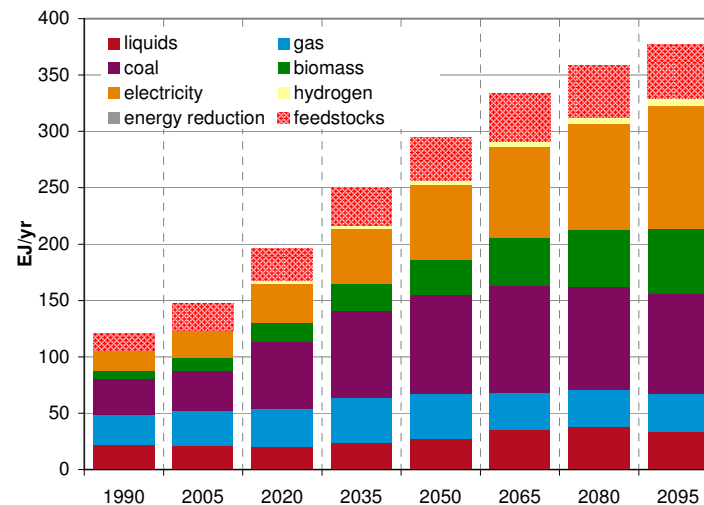
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.081	1.223	1.303	1.382	1.410	1.411	GtC/yr
	industry	1.623	1.706	2.271	2.844	3.240	3.599	3.681	3.839	GtC/yr
	transportation	1.354	1.863	2.272	2.935	3.673	4.399	5.088	5.871	GtC/yr
	electricity	1.909	2.848	3.749	4.992	6.435	8.085	10.070	11.951	GtC/yr
	cement	0.261	0.483	0.893	1.271	1.474	1.472	1.365	1.226	GtC/yr
	emissions reduction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	GtC/yr
	total: w/o reduction	6.006	7.760	10.266	13.264	16.125	18.936	21.615	24.298	GtC/yr

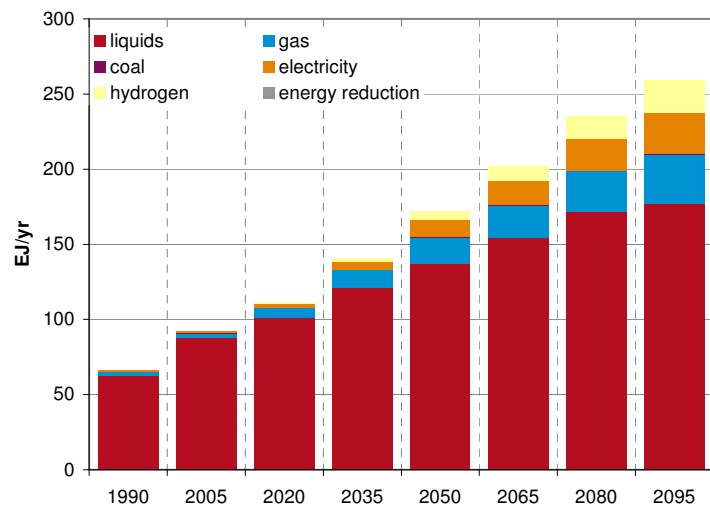
Final Energy Consumption: Buildings



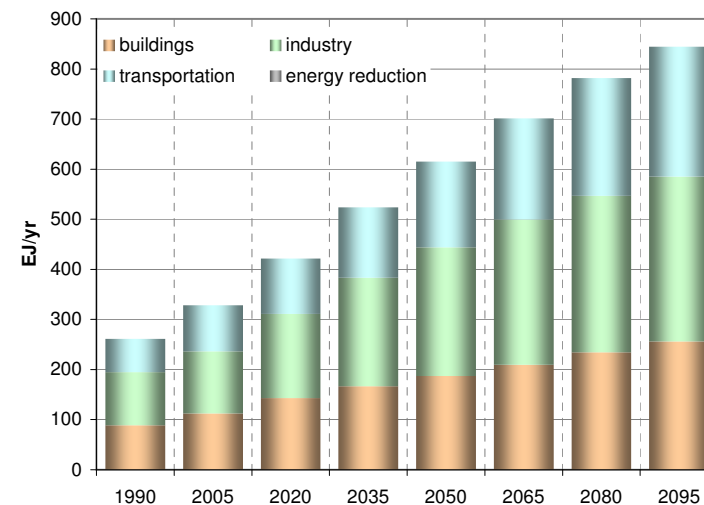
Final Energy Consumption: Industry (Does not Include Feedstocks)



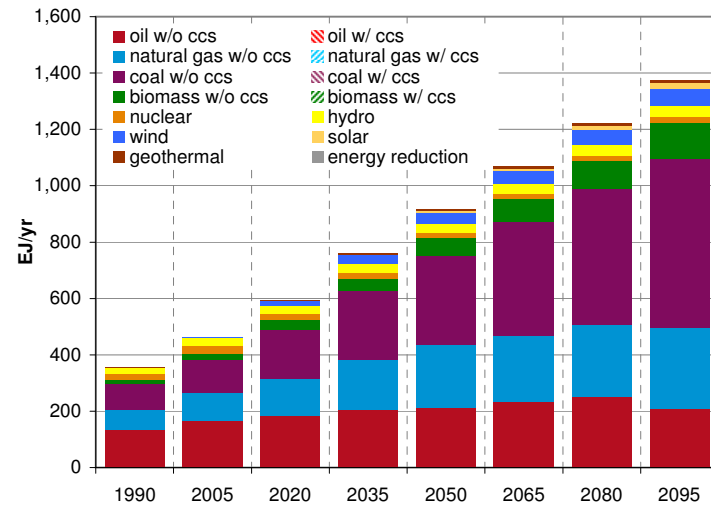
Final Energy Consumption: Transportation



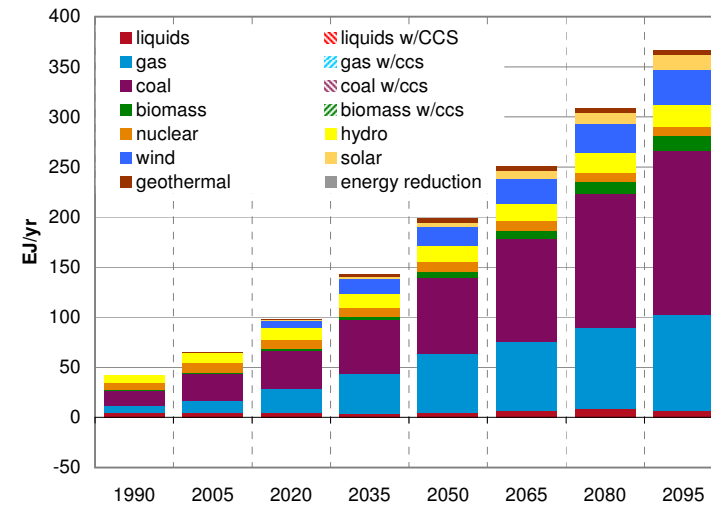
Final Energy Consumption by Sector



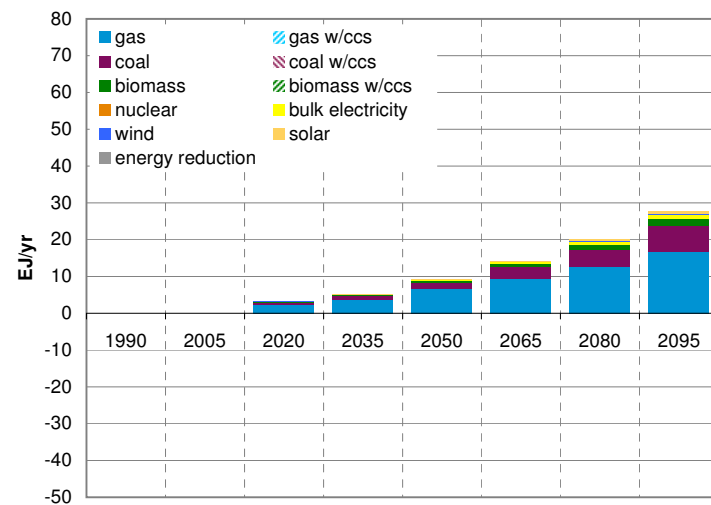
Primary Energy Consumption



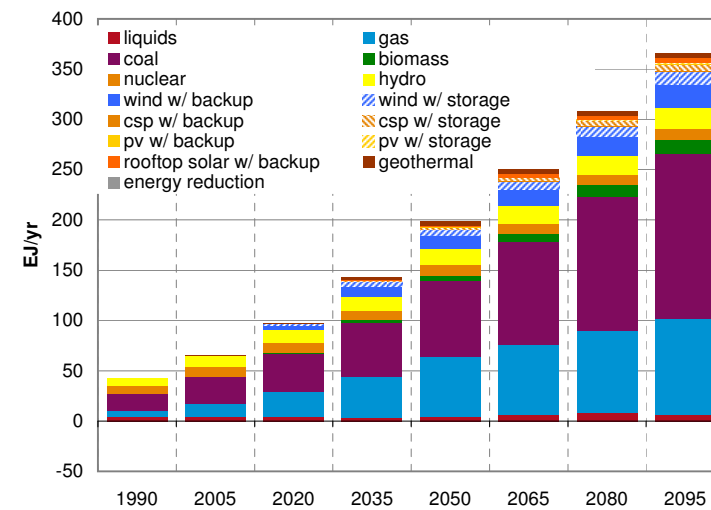
Electricity Production by Fuel: CCS Focus



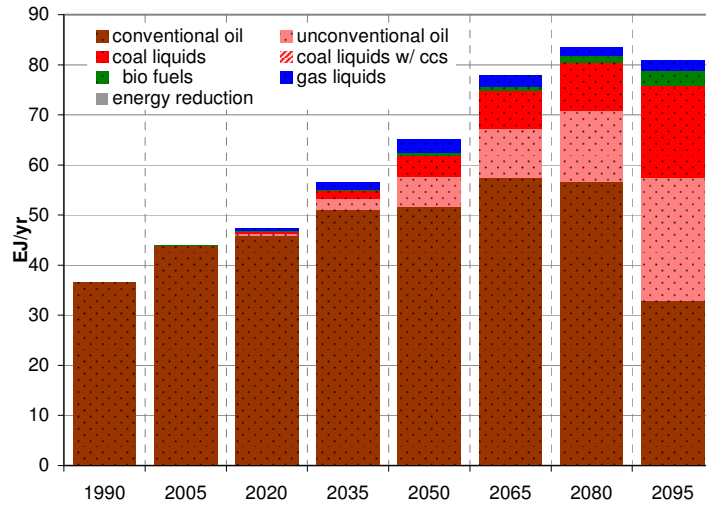
Hydrogen Production by Fuel



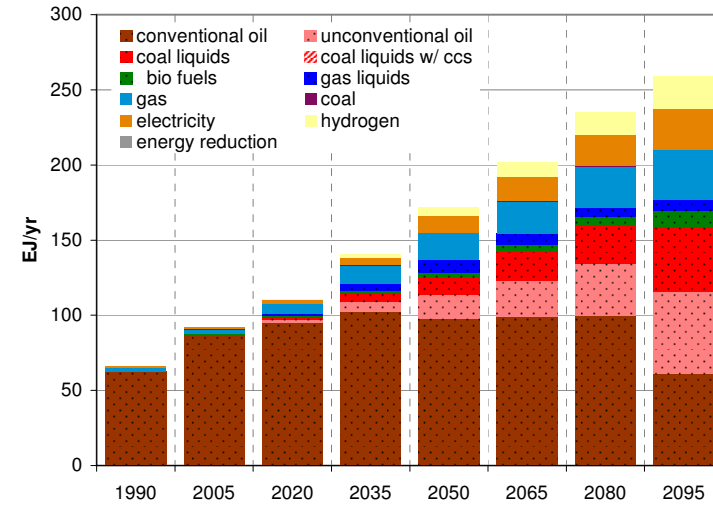
Electricity Production by Fuel: Renewable Focus



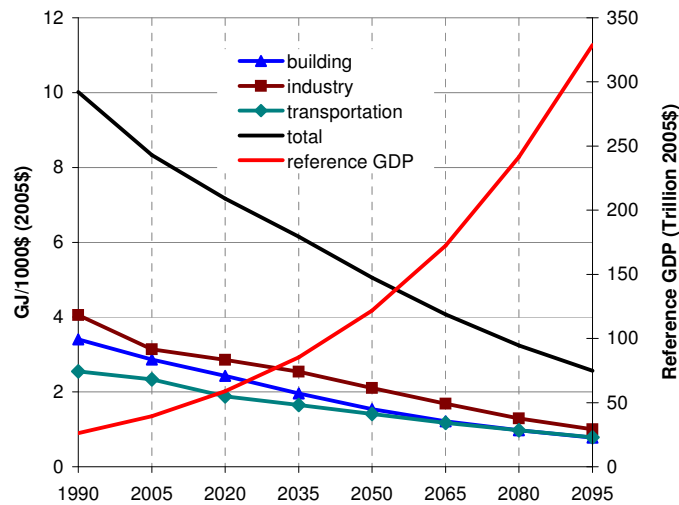
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



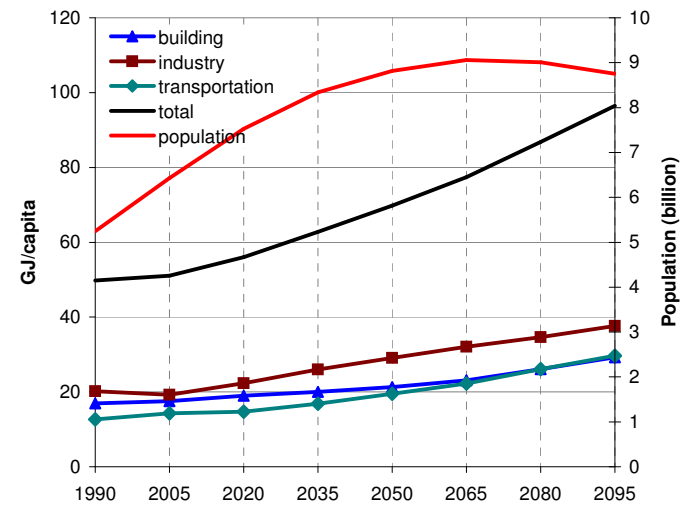
Transportation Fuels Composition



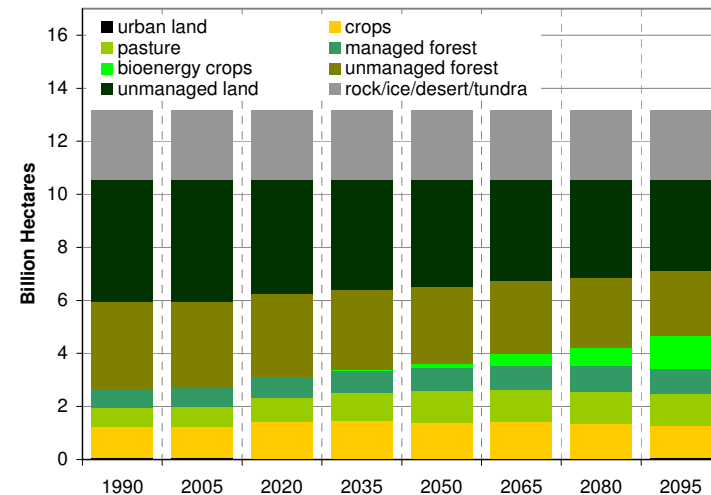
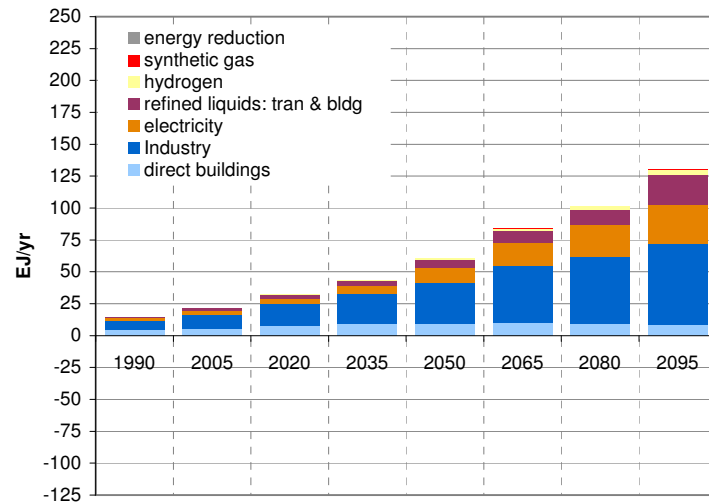
Final Energy Intensity



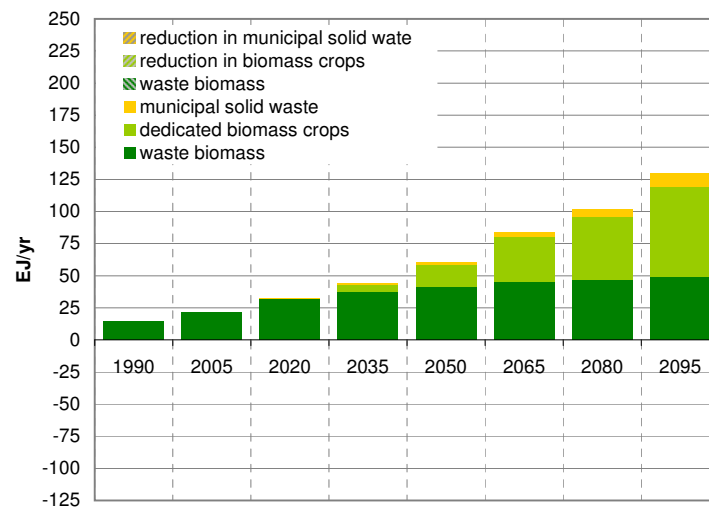
Final Energy per Capita



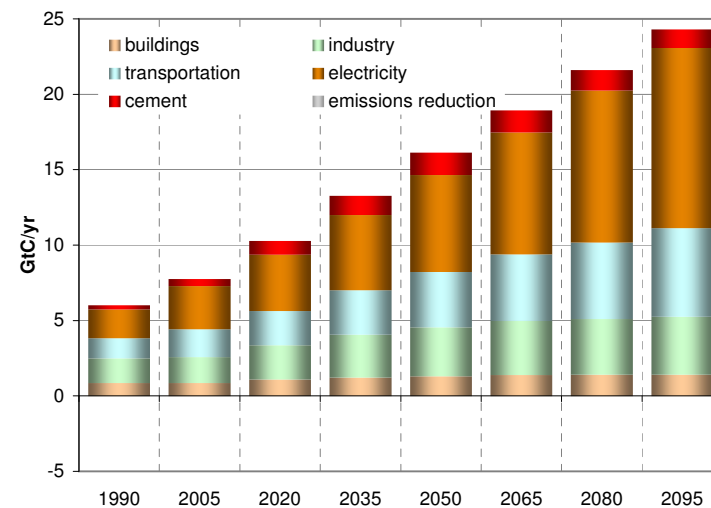
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.8	24.7	27.0	30.7	32.6	31.6	EJ/yr
building	gas	18.7	26.7	29.2	31.4	31.9	30.2	30.1	29.0	EJ/yr
building	coal	10.1	5.1	8.0	8.3	7.8	7.2	6.4	5.5	EJ/yr
building	biomass	4.5	5.5	7.9	9.0	9.3	9.8	9.5	8.7	EJ/yr
building	electricity	16.9	29.0	44.9	65.6	88.7	113.8	144.4	173.5	EJ/yr
building	trad biomass	23.5	29.9	32.1	27.8	22.9	17.9	12.2	8.0	EJ/yr
building	energy reduction	0.0	0.0	0.0	-0.1	-0.2	-0.4	-0.6	-0.4	EJ/yr
	total: w/o reduction	88.9	112.7	142.9	166.7	187.5	209.6	235.2	256.4	EJ/yr
industry	liquids	22.4	21.2	20.3	23.9	27.4	35.3	37.9	34.4	EJ/yr
industry	gas	26.6	30.5	34.2	40.3	40.5	34.4	35.8	36.5	EJ/yr
industry	coal	31.4	35.8	59.0	77.7	89.7	96.2	94.5	91.9	EJ/yr
industry	biomass	7.3	11.2	17.1	23.4	31.2	43.4	50.1	58.5	EJ/yr
industry	electricity	18.1	24.8	34.9	48.7	65.0	78.6	91.8	105.9	EJ/yr
industry	hydrogen	0.0	0.0	2.5	3.0	3.6	4.4	5.0	5.8	EJ/yr
industry	energy reduction	0.0	0.0	-0.1	-0.4	-1.1	-1.8	-3.2	-4.2	EJ/yr
industry	feedstocks	15.2	23.7	28.0	33.7	38.8	43.6	46.6	48.6	EJ/yr
	total: w/o reduction	105.8	123.6	168.0	217.0	257.4	292.3	315.2	333.1	EJ/yr
transportation	liquids	62.7	87.7	101.1	120.9	137.0	154.6	172.1	178.2	EJ/yr
transportation	gas	2.2	3.0	6.5	12.3	18.1	21.6	27.9	34.0	EJ/yr
transportation	coal	0.5	0.2	0.4	0.5	0.6	0.5	0.3	0.2	EJ/yr
transportation	electricity	1.0	1.0	2.2	4.7	10.8	15.8	20.9	26.6	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.6	9.8	15.0	21.8	EJ/yr
transportation	energy reduction	0.0	0.0	-0.1	-0.1	-0.3	-0.5	-0.9	-1.5	EJ/yr
	total: w/o reduction	66.4	91.8	110.7	140.6	172.0	202.2	236.1	260.8	EJ/yr
total final energy	buildings	88.9	112.7	142.9	166.7	187.5	209.6	235.2	256.4	EJ/yr
total final energy	industry	105.8	123.6	168.0	217.0	257.4	292.3	315.2	333.1	EJ/yr
total final energy	transportation	66.4	91.8	110.7	140.6	172.0	202.2	236.1	260.8	EJ/yr
total final energy	energy reduction	0.0	0.0	-0.1	-0.6	-1.6	-2.6	-4.6	-6.1	EJ/yr
	total: w/o reduction	261.1	328.1	421.6	524.3	617.0	704.2	786.6	850.3	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	183.6	203.2	210.2	231.3	246.4	209.3	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	129.6	177.4	218.6	221.5	242.0	267.1	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	175.9	235.1	295.1	355.7	414.0	505.0	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	32.1	43.3	58.6	79.5	94.8	119.7	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	25.8	35.4	54.6	91.7	120.8	149.6	EJ/yr
hydro	23.6	29.2	29.1	30.8	31.1	33.5	36.0	38.8	EJ/yr
wind	0.0	0.9	14.6	29.6	35.2	40.5	45.4	54.2	EJ/yr
solar	0.0	0.1	1.4	3.4	5.0	6.9	9.4	13.6	EJ/yr
geothermal	0.4	0.5	1.3	5.0	7.8	7.9	7.7	7.6	EJ/yr
energy reduction	0.0	0.0	-0.7	-1.4	0.7	1.8	2.5	7.9	EJ/yr
total: w/o reduction	356	463	593	763	916	1068	1217	1365	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.24	3.56	3.81	4.83	6.11	5.10	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	24.30	38.10	53.95	59.60	68.33	76.59	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	37.60	50.68	65.95	80.45	100.87	121.09	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.26	2.30	4.42	6.27	8.33	10.20	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	11.00	15.88	26.89	46.35	62.41	78.25	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.88	9.95	12.47	14.72	16.79	19.99	EJ/yr
wind w/storage	0.00	0.00	1.21	3.36	5.19	6.60	7.93	10.05	EJ/yr
CSP w/backup	0.00	0.00	0.39	0.61	0.51	0.65	0.86	1.28	EJ/yr
CSP w/storage	0.00	0.00	0.13	0.79	1.61	2.15	2.81	4.10	EJ/yr
PV w/backup	0.00	0.04	0.05	0.05	0.17	0.42	0.77	1.11	EJ/yr
PV w/storage	0.00	0.00	0.01	0.03	0.09	0.20	0.35	0.49	EJ/yr
rooftop PV w/backup	0.00	0.00	0.28	0.80	1.70	3.35	4.31	5.13	EJ/yr
geothermal	0.13	0.21	0.57	2.33	4.07	4.29	4.29	4.32	EJ/yr
energy reduction	0.00	0.00	-0.33	0.25	1.95	1.84	3.08	4.95	EJ/yr
total: w/o reduction	42.7	65.2	98.0	142.4	196.7	247.6	303.7	359.1	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	95.3	102.6	97.7	98.7	98.7	65.2	EJ/yr
unconventional oil	0.0	0.0	1.7	6.7	15.8	23.9	34.2	52.5	EJ/yr
coal liquids	0.0	0.0	1.6	5.2	12.5	20.3	26.7	42.3	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.2	1.7	2.5	3.9	5.5	10.4	EJ/yr
gas liquids	0.0	0.0	1.4	4.8	8.6	7.8	6.9	7.9	EJ/yr
gas	2.2	3.0	6.5	12.3	18.1	21.6	27.9	34.0	EJ/yr
coal	0.5	0.2	0.4	0.5	0.6	0.5	0.3	0.2	EJ/yr
electricity	1.0	1.0	2.2	4.7	10.8	15.8	20.9	26.6	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.6	9.8	15.0	21.8	EJ/yr
energy reduction	0.0	0.0	-0.1	-0.1	-0.3	-0.5	-0.9	-1.5	EJ/yr
total: w/o reduction	66.4	91.8	110.7	140.6	172.0	202.2	236.1	260.8	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	45.89	51.15	51.65	57.30	56.45	34.94	EJ/yr
unconventional oil	0.00	0.00	0.42	2.15	5.96	9.71	14.00	23.80	EJ/yr
coal liquids	0.00	0.00	0.39	1.53	4.45	7.84	10.14	18.47	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.13	0.25	0.48	0.87	1.27	2.83	EJ/yr
gas liquids	0.00	0.00	0.37	1.48	2.70	2.35	1.89	2.20	EJ/yr
energy reduction	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.3	-1.3	EJ/yr
total: w/o reduction	36.6	43.9	47.2	56.6	65.2	78.1	83.7	82.2	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.21	3.72	6.65	9.20	12.52	16.28	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.48	0.78	1.53	2.62	3.95	5.98	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.14	0.22	0.41	0.67	1.00	1.49	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.08	0.11	0.17	0.85	1.30	2.06	EJ/yr
bulk electricity	0.00	0.00	0.08	0.15	0.31	0.51	0.73	1.02	EJ/yr
wind	0.00	0.00	0.05	0.05	0.08	0.12	0.18	0.27	EJ/yr
solar	0.00	0.00	0.05	0.07	0.13	0.19	0.31	0.53	EJ/yr
energy reduction	0.00	0.00	0.15	0.12	0.09	0.10	-0.01	0.09	EJ/yr
total: w/o reduction	0.00	0.00	3.09	5.12	9.28	14.15	19.99	27.63	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	7.9	9.0	9.3	9.8	9.5	8.7	EJ/yr
Industry	7.4	11.3	17.4	23.9	32.1	45.1	52.5	63.6	EJ/yr
electricity	2.1	2.5	3.6	6.0	10.4	14.3	18.6	22.4	EJ/yr
refined liquids: tran & bldg	0.5	2.2	2.9	4.0	5.8	8.9	12.2	22.0	EJ/yr
hydrogen	0.0	0.0	0.3	0.5	0.9	1.4	2.0	2.9	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	0.1	0.5	1.7	4.1	6.5	10.4	EJ/yr
total: w/o reduction	14.4	21.6	32.1	43.3	58.6	79.5	94.8	119.7	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	31.6	37.8	41.6	44.8	46.2	47.9	EJ
dedicated biomass crops	0.0	0.0	0.0	4.5	15.3	31.6	43.8	63.4	EJ
municipal solid waste	0.0	0.1	0.4	1.0	1.7	3.1	4.8	8.4	EJ
waste biomass	0.0	0.0	0.0	0.1	0.2	0.5	0.9	1.4	EJ
reduction in biomass crops	0.0	0.0	0.0	0.4	1.4	3.2	4.9	7.0	EJ
reduction in municipal solid waste	0.0	0.0	0.0	0.0	0.1	0.3	0.7	1.9	EJ
total: w/o reduction	14.4	21.6	32.1	43.8	60.2	83.3	100.6	128.1	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.8	\$85.2	\$121.7	\$172.4	\$241.5	\$328.9	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.43	1.96	1.54	1.22	0.97	0.78	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.86	2.55	2.11	1.70	1.31	1.01	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.88	1.65	1.41	1.17	0.98	0.79	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.17	6.15	5.07	4.08	3.26	2.59	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	19.0	20.0	21.3	23.1	26.1	29.3	GJ/capita
Final Energy per Capita	industry	20.2	19.2	22.3	26.0	29.2	32.3	35.0	38.1	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.7	16.8	19.5	22.3	26.2	29.8	GJ/capita
Final Energy per Capita	total	49.7	51.0	56.0	62.9	70.0	77.7	87.3	97.2	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.8	\$42.2	\$45.1	\$46.8	\$48.1	\$59.1	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$39.8	\$42.2	\$45.1	\$46.8	\$48.1	\$59.1	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.5	\$5.6	\$5.7	\$5.9	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.5	\$5.6	\$5.7	\$5.9	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.8	\$1.9	\$1.9	\$2.0	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.8	\$1.9	\$1.9	\$2.0	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.78	5.58	5.47	5.58	5.43	5.41	cents/kWh (2005\$)
	carbon price	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$/tC (2005\$)

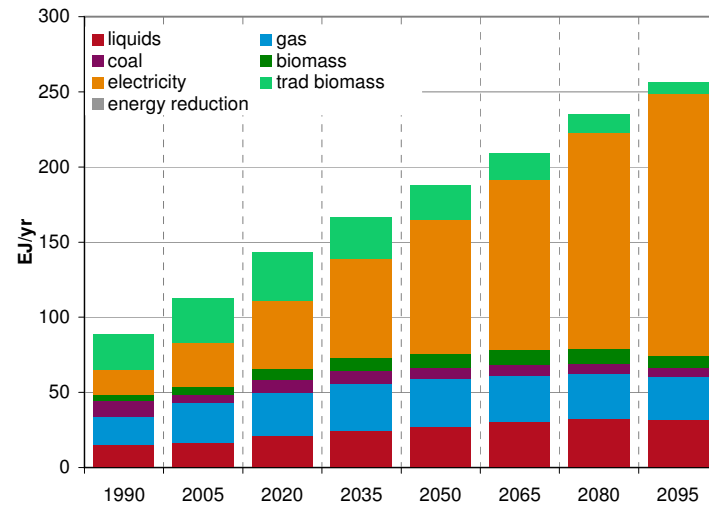
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	33	33	33	33	33	33	\$/Gcal (2005\$)
	global rice	32	32	32	32	32	32	32	31	\$/Gcal (2005\$)
	global wheat	27	27	27	26	26	26	26	26	\$/Gcal (2005\$)

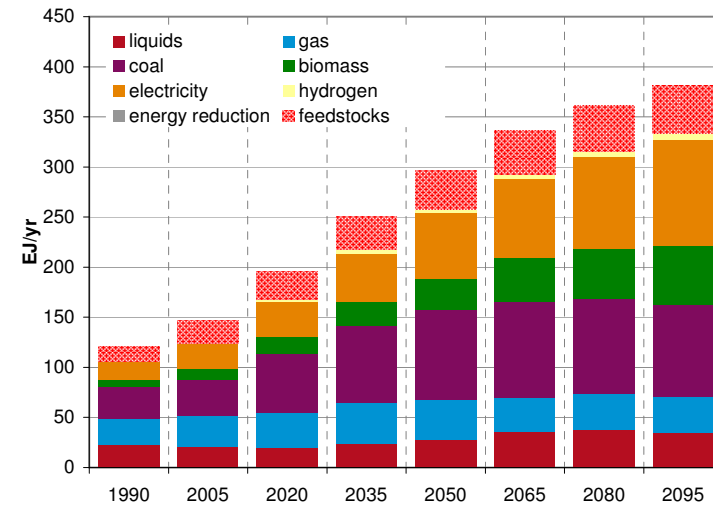
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.079	1.226	1.315	1.398	1.438	1.441	GtC/yr
	industry	1.623	1.706	2.266	2.851	3.289	3.663	3.808	3.991	GtC/yr
	transportation	1.354	1.863	2.272	2.937	3.684	4.403	5.111	5.864	GtC/yr
	electricity	1.909	2.848	3.717	4.740	5.643	6.483	7.759	8.956	GtC/yr
	cement	0.261	0.483	0.893	1.271	1.474	1.473	1.367	1.228	GtC/yr
	emissions reduction	0.000	0.000	0.039	0.239	0.720	1.517	2.132	2.818	GtC/yr
	total: w/o reduction	6.006	7.760	10.227	13.025	15.405	17.419	19.483	21.480	GtC/yr

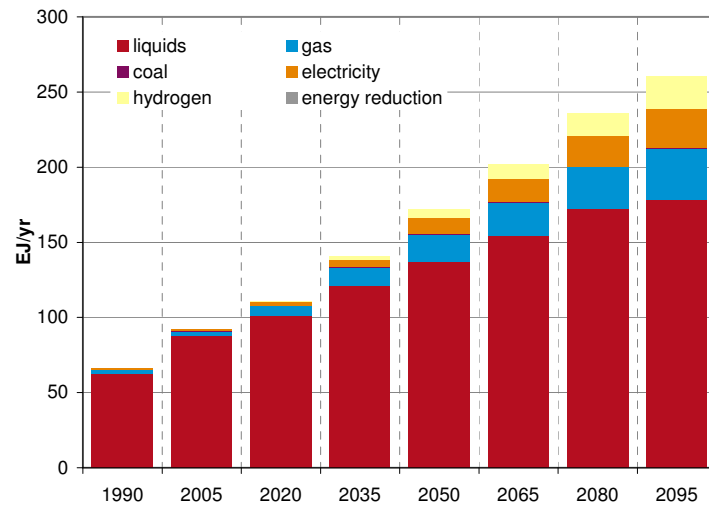
Final Energy Consumption: Buildings



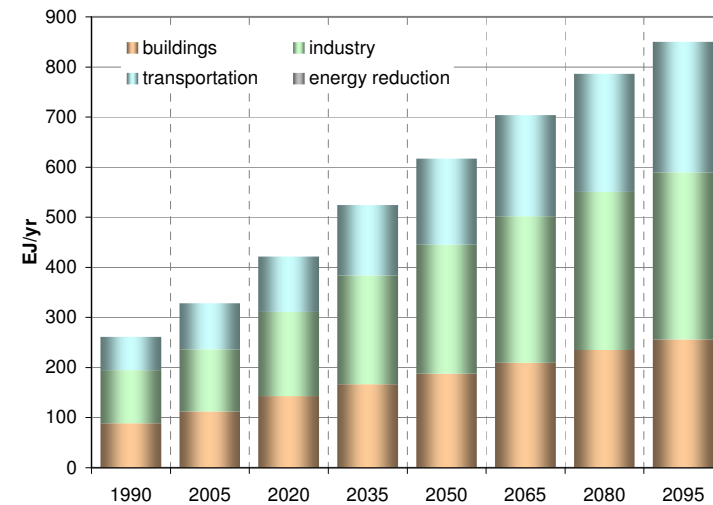
Final Energy Consumption: Industry (Does not Include Feedstocks)



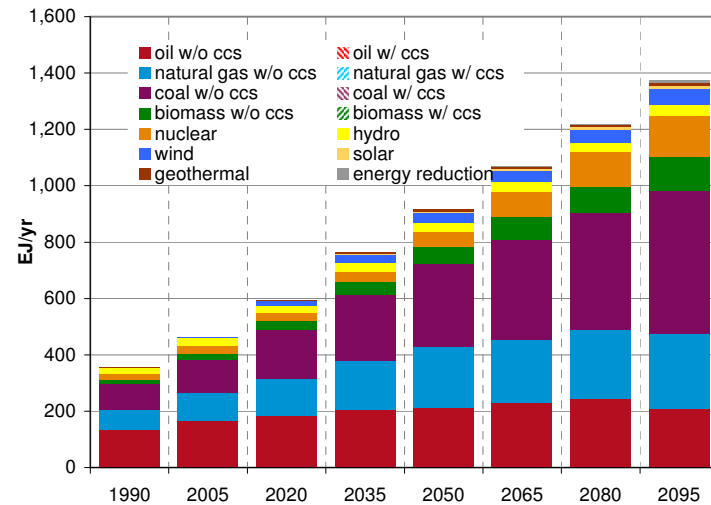
Final Energy Consumption: Transportation



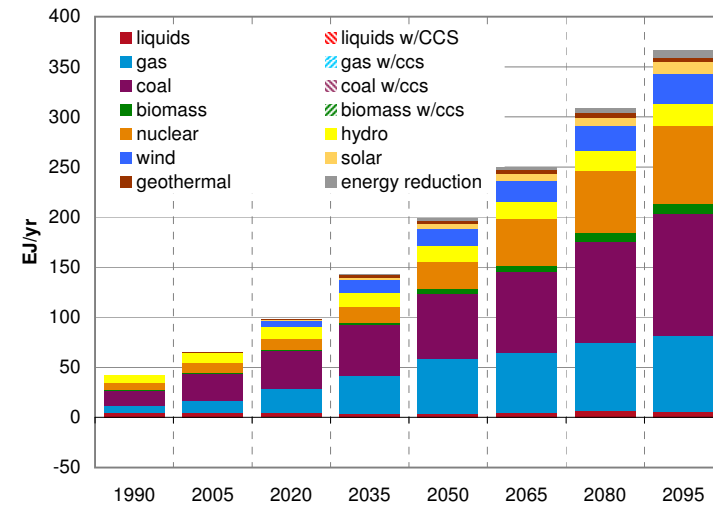
Final Energy Consumption by Sector



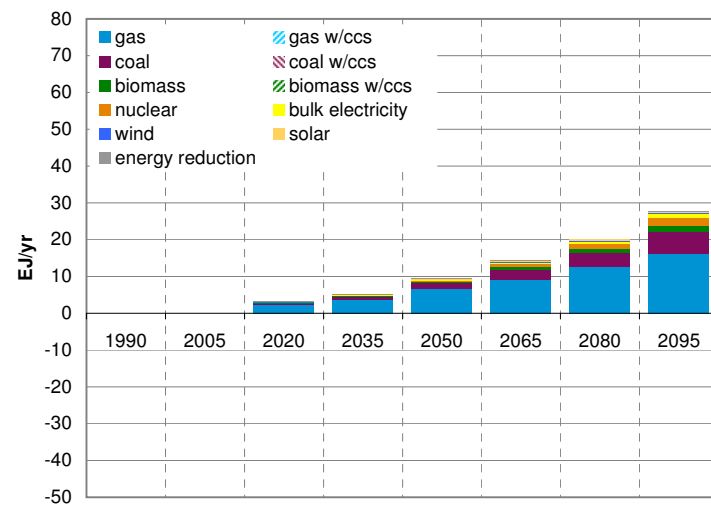
Primary Energy Consumption



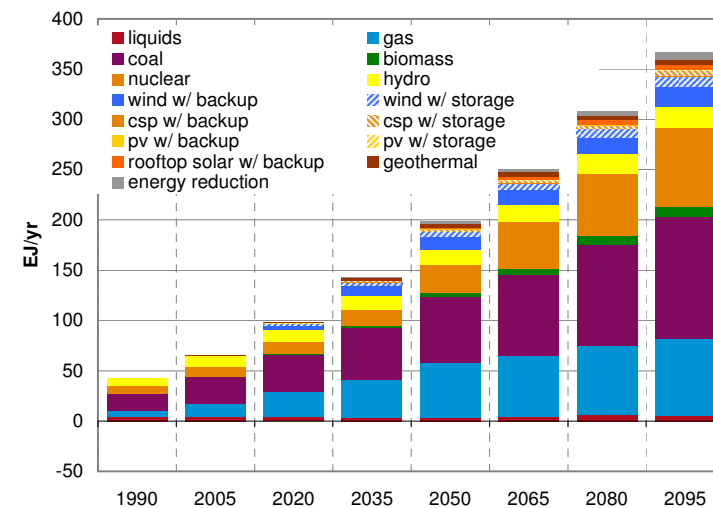
Electricity Production by Fuel: CCS Focus



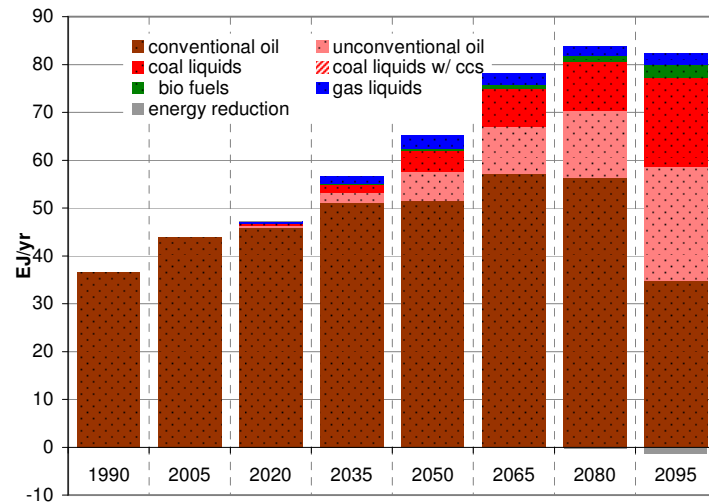
Hydrogen Production by Fuel



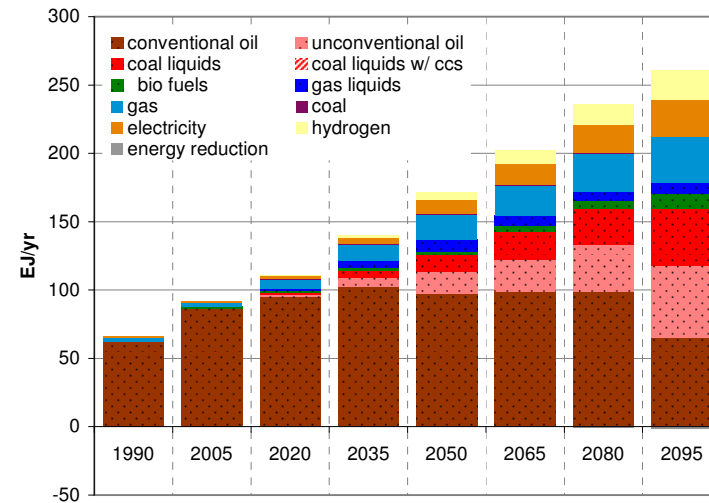
Electricity Production by Fuel: Renewable Focus



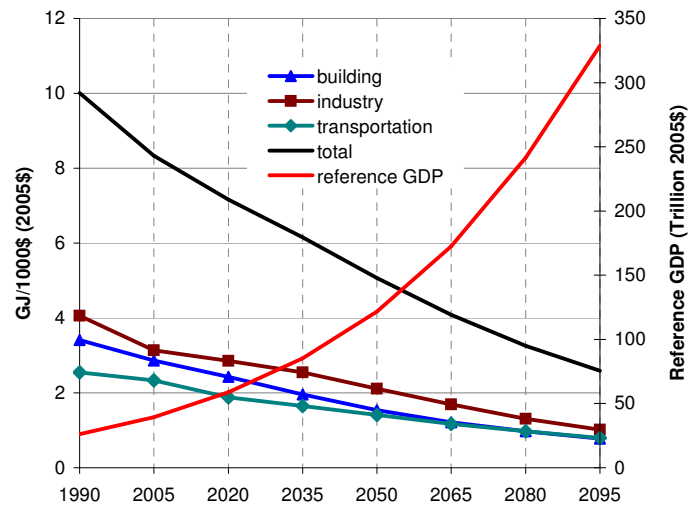
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



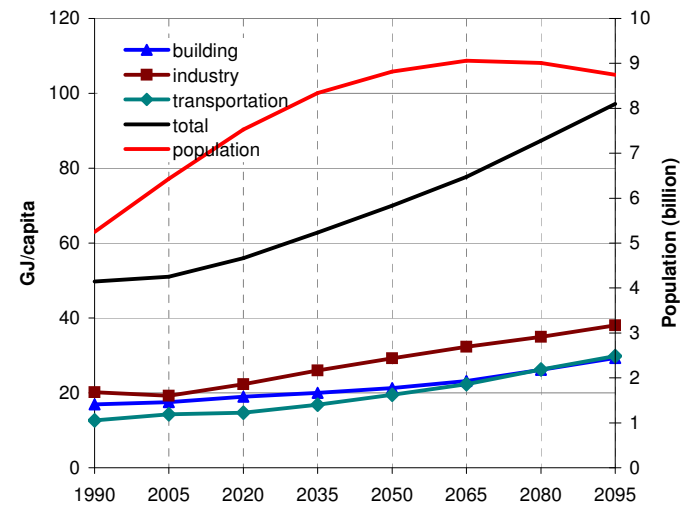
Transportation Fuels Composition



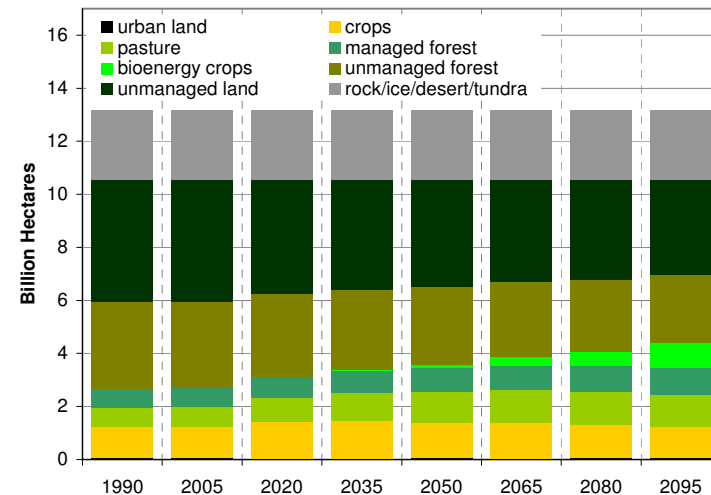
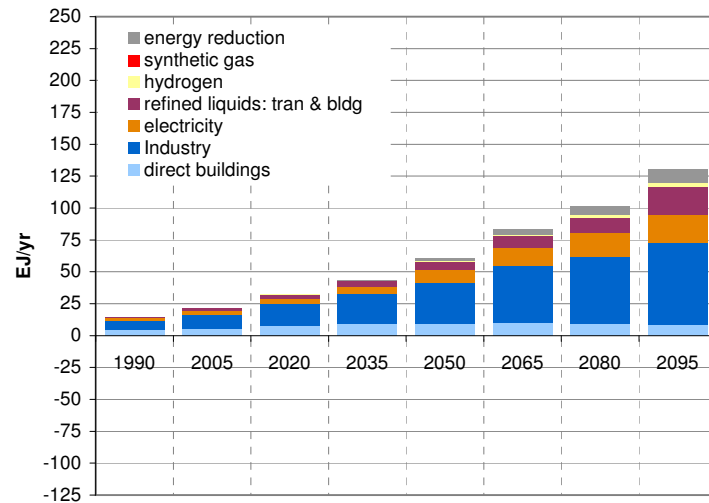
Final Energy Intensity



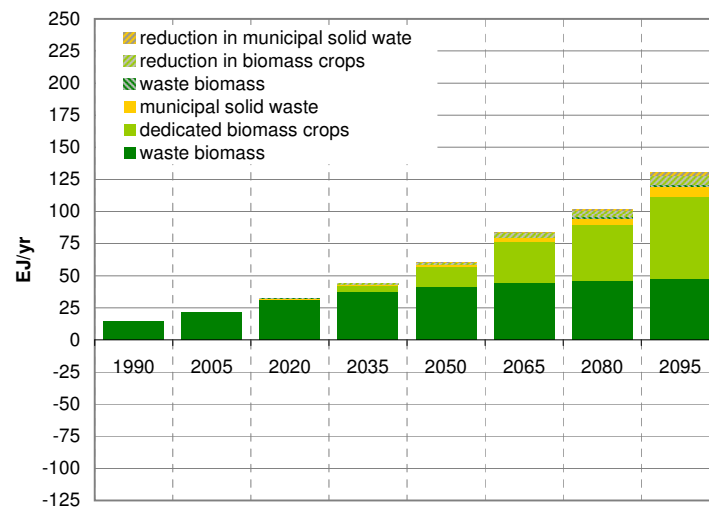
Final Energy per Capita



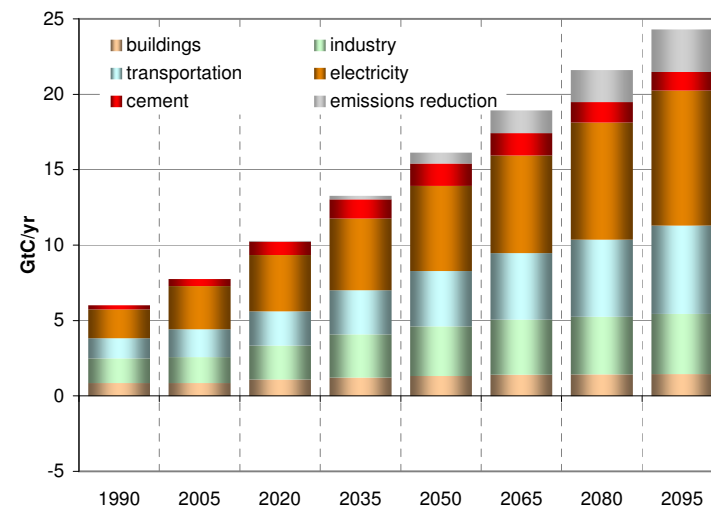
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.0	23.0	24.2	25.2	21.8	15.1	EJ/yr
building	gas	18.7	26.7	28.5	29.8	28.9	25.1	20.3	12.8	EJ/yr
building	coal	10.1	5.1	6.5	5.7	3.8	2.0	0.7	0.2	EJ/yr
building	biomass	4.5	5.5	8.4	9.4	9.4	8.5	5.4	2.4	EJ/yr
building	electricity	16.9	29.0	42.7	60.7	77.8	93.0	108.3	122.8	EJ/yr
building	trad biomass	23.5	29.9	32.3	28.9	24.9	21.1	16.8	12.4	EJ/yr
building	energy reduction	0.0	0.0	4.5	9.2	18.3	34.3	61.3	90.3	EJ/yr
	total: w/o reduction	88.9	112.7	138.3	157.5	169.0	174.9	173.3	165.7	EJ/yr
industry	liquids	22.4	21.2	20.3	24.1	27.4	30.8	25.6	15.1	EJ/yr
industry	gas	26.6	30.5	32.4	36.6	33.5	25.1	19.0	11.0	EJ/yr
industry	coal	31.4	35.8	46.7	49.5	37.3	20.0	8.1	2.2	EJ/yr
industry	biomass	7.3	11.2	21.2	31.2	45.9	60.9	51.0	33.1	EJ/yr
industry	electricity	18.1	24.8	34.3	47.6	61.5	72.2	84.9	104.7	EJ/yr
industry	hydrogen	0.0	0.0	2.8	3.4	4.3	5.4	6.3	6.8	EJ/yr
industry	energy reduction	0.0	0.0	10.2	24.2	46.4	76.1	117.2	156.0	EJ/yr
industry	feedstocks	15.2	23.7	26.7	30.8	33.1	34.0	31.8	29.3	EJ/yr
	total: w/o reduction	105.8	123.6	157.8	192.4	209.9	214.5	194.9	172.9	EJ/yr
transportation	liquids	62.7	87.7	99.3	116.3	127.4	135.7	135.0	113.5	EJ/yr
transportation	gas	2.2	3.0	6.3	11.7	16.6	19.9	23.7	23.4	EJ/yr
transportation	coal	0.5	0.2	0.3	0.3	0.2	0.1	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.7	10.5	15.2	21.3	32.5	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.8	10.2	16.2	24.6	EJ/yr
transportation	energy reduction	0.0	0.0	2.1	5.4	11.2	20.7	39.1	65.3	EJ/yr
	total: w/o reduction	66.4	91.8	108.5	135.0	160.5	181.1	196.2	194.0	EJ/yr
total final energy	buildings	88.9	112.7	138.3	157.5	169.0	174.9	173.3	165.7	EJ/yr
total final energy	industry	105.8	123.6	157.8	192.4	209.9	214.5	194.9	172.9	EJ/yr
total final energy	transportation	66.4	91.8	108.5	135.0	160.5	181.1	196.2	194.0	EJ/yr
total final energy	energy reduction	0.0	0.0	16.8	38.8	76.0	131.1	217.5	311.6	EJ/yr
	total: w/o reduction	261.1	328.1	404.6	484.9	539.4	570.5	564.4	532.7	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	179.6	197.1	202.7	205.5	183.5	121.2	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	126.2	169.6	206.9	206.7	207.7	150.8	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	153.5	178.7	168.2	141.5	70.9	17.2	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	39.1	59.4	96.1	150.3	182.7	204.0	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	23.4	21.5	18.6	17.7	15.7	15.0	EJ/yr
hydro	23.6	29.2	29.2	30.5	30.5	32.2	32.7	34.2	EJ/yr
wind	0.0	0.9	15.7	34.9	47.8	65.5	94.6	147.3	EJ/yr
solar	0.0	0.1	1.3	4.1	8.8	18.0	47.8	137.7	EJ/yr
geothermal	0.4	0.5	1.4	5.6	7.9	7.7	7.1	7.0	EJ/yr
energy reduction	0.0	0.0	23.5	60.3	129.4	224.9	376.4	538.5	EJ/yr
total: w/o reduction	356	463	569	701	788	845	843	834	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.15	3.73	4.22	5.50	7.34	6.76	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	23.83	37.69	54.23	61.35	70.12	50.44	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	35.20	45.21	51.42	51.33	28.79	6.57	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.38	3.09	7.53	12.67	19.79	21.56	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.13	11.42	16.04	21.67	30.83	44.16	EJ/yr
wind w/storage	0.00	0.00	1.37	4.38	8.18	13.72	25.02	46.83	EJ/yr
CSP w/backup	0.00	0.00	0.33	0.64	0.89	1.70	4.57	14.27	EJ/yr
CSP w/storage	0.00	0.00	0.12	1.06	2.84	5.59	14.83	46.60	EJ/yr
PV w/backup	0.00	0.04	0.05	0.06	0.30	1.13	4.07	9.31	EJ/yr
PV w/storage	0.00	0.00	0.01	0.03	0.16	0.53	1.94	5.71	EJ/yr
rooftop PV w/backup	0.00	0.00	0.31	0.92	2.36	5.42	8.60	12.23	EJ/yr
geothermal	0.13	0.21	0.59	2.61	4.24	4.39	4.46	4.54	EJ/yr
energy reduction	0.00	0.00	3.19	8.56	22.66	43.41	78.28	126.93	EJ/yr
total: w/o reduction	42.7	65.2	94.6	134.8	178.2	212.7	249.9	300.4	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	93.9	101.1	97.7	94.8	86.9	59.5	EJ/yr
unconventional oil	0.0	0.0	1.4	5.2	12.0	15.4	14.2	8.0	EJ/yr
coal liquids	0.0	0.0	0.8	1.6	1.8	1.0	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.9	3.6	7.6	17.3	28.7	43.7	EJ/yr
gas liquids	0.0	0.0	1.4	4.8	8.3	7.1	5.1	2.3	EJ/yr
gas	2.2	3.0	6.3	11.7	16.6	19.9	23.7	23.4	EJ/yr
coal	0.5	0.2	0.3	0.3	0.2	0.1	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.7	10.5	15.2	21.3	32.5	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.8	10.2	16.2	24.6	EJ/yr
energy reduction	0.0	0.0	2.1	5.4	11.2	20.7	39.1	65.3	EJ/yr
total: w/o reduction	66.4	91.8	108.5	135.0	160.5	181.1	196.2	194.0	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	44.89	49.93	50.69	51.56	44.45	28.09	EJ/yr
unconventional oil	0.00	0.00	0.34	1.47	4.05	5.02	1.82	0.21	EJ/yr
coal liquids	0.00	0.00	0.16	0.35	0.37	0.01	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.26	0.70	1.97	5.36	9.03	15.24	EJ/yr
gas liquids	0.00	0.00	0.35	1.47	2.53	2.05	1.28	0.19	EJ/yr
energy reduction	0.0	0.0	1.3	2.6	5.4	13.9	26.8	37.2	EJ/yr
total: w/o reduction	36.6	43.9	46.0	53.9	59.6	64.0	56.6	43.7	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.47	4.14	7.61	11.66	16.02	15.35	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.48	0.66	0.98	1.07	0.85	0.63	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.21	0.35	0.75	1.42	1.98	2.67	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.08	0.16	0.34	0.61	1.01	1.59	EJ/yr
wind	0.00	0.00	0.07	0.07	0.13	0.28	0.65	1.87	EJ/yr
solar	0.00	0.00	0.07	0.11	0.25	0.59	2.01	9.35	EJ/yr
energy reduction	0.00	0.00	-0.12	-0.25	-0.69	-1.38	-2.53	-3.75	EJ/yr
total: w/o reduction	0.00	0.00	3.36	5.49	10.06	15.63	22.51	31.47	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.4	9.4	9.4	8.5	5.4	2.4	EJ/yr
Industry	7.4	11.3	21.7	32.6	49.7	71.1	67.7	60.4	EJ/yr
electricity	2.1	2.5	3.9	7.9	17.6	28.8	43.8	46.7	EJ/yr
refined liquids: tran & bldg	0.5	2.2	4.6	8.7	17.8	38.9	61.8	89.1	EJ/yr
hydrogen	0.0	0.0	0.5	0.8	1.6	2.9	4.0	5.2	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	EJ/yr
energy reduction	0.0	0.0	-7.0	-15.6	-35.9	-66.7	-81.4	-73.9	EJ/yr
total: w/o reduction	14.4	21.6	39.1	59.4	96.1	150.3	182.7	204.0	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	23.6	32.8	50.9	74.3	84.2	82.8	EJ
dedicated biomass crops	0.0	0.0	15.4	26.3	40.0	53.9	68.6	82.8	EJ
municipal solid waste	0.0	0.1	0.1	0.4	5.2	22.1	30.0	38.5	EJ
waste biomass	0.0	0.0	8.1	5.1	-9.2	-28.9	-37.1	-33.4	EJ
reduction in biomass crops	0.0	0.0	-15.4	-21.3	-23.2	-19.1	-19.8	-12.4	EJ
reduction in municipal solid waste	0.0	0.0	0.4	0.7	-3.4	-18.7	-24.5	-28.1	EJ
total: w/o reduction	14.4	21.6	31.8	43.2	63.7	102.3	125.8	158.2	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.0	\$82.9	\$117.0	\$163.4	\$225.3	\$302.5	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.39	1.90	1.44	1.07	0.77	0.55	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.72	2.32	1.79	1.31	0.86	0.57	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.87	1.63	1.37	1.11	0.87	0.64	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	6.98	5.85	4.61	3.49	2.50	1.76	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.4	18.9	19.2	19.3	19.2	18.9	GJ/capita
Final Energy per Capita	industry	20.2	19.2	21.0	23.1	23.8	23.7	21.6	19.8	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.4	16.2	18.2	20.0	21.8	22.2	GJ/capita
Final Energy per Capita	total	49.7	51.0	53.7	58.1	61.2	63.0	62.7	60.9	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.7	\$41.9	\$44.8	\$46.3	\$47.0	\$46.4	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$42.7	\$48.1	\$58.0	\$73.8	\$104.0	\$163.6	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.1	\$4.5	\$5.4	\$5.5	\$5.4	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.7	\$4.9	\$6.0	\$8.7	\$12.3	\$19.6	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.4	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.4	\$3.1	\$4.5	\$7.7	\$14.0	\$27.2	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	6.13	6.14	6.83	8.08	9.69	11.41	cents/kWh (2005\$)
	carbon price	0.0	0.0	24.3	50.5	105.2	218.5	454.4	944.5	\$/tC (2005\$)

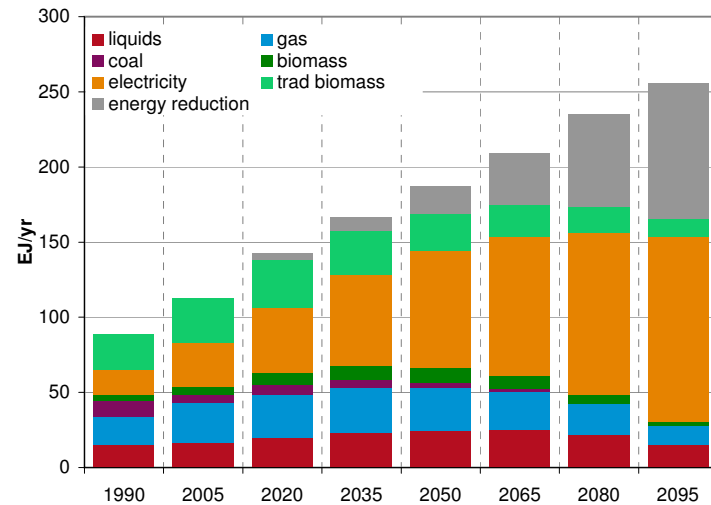
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	39	44	51	62	79	101	\$/Gcal (2005\$)
	global rice	32	32	40	46	55	70	94	123	\$/Gcal (2005\$)
	global wheat	27	27	36	43	54	70	98	137	\$/Gcal (2005\$)

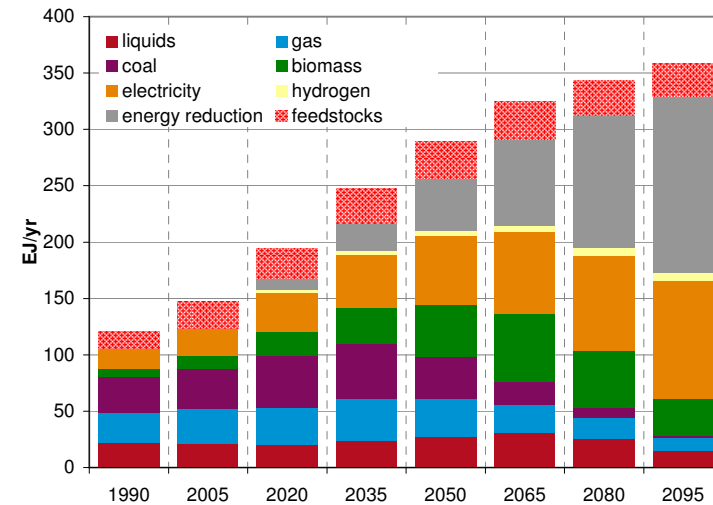
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.000	1.060	1.007	0.877	0.666	0.379	GtC/yr
	industry	1.623	1.706	1.966	2.153	1.941	1.480	0.910	0.282	GtC/yr
	transportation	1.354	1.863	2.184	2.651	2.946	2.980	2.780	2.002	GtC/yr
	electricity	1.909	2.848	3.537	4.351	4.736	4.743	3.468	1.736	GtC/yr
	cement	0.261	0.483	0.785	0.986	0.910	0.694	0.525	0.378	GtC/yr
	emissions reduction	0.000	0.000	0.795	2.062	4.586	8.163	13.267	19.522	GtC/yr
	total: w/o reduction	6.006	7.760	9.471	11.201	11.539	10.774	8.348	4.776	GtC/yr

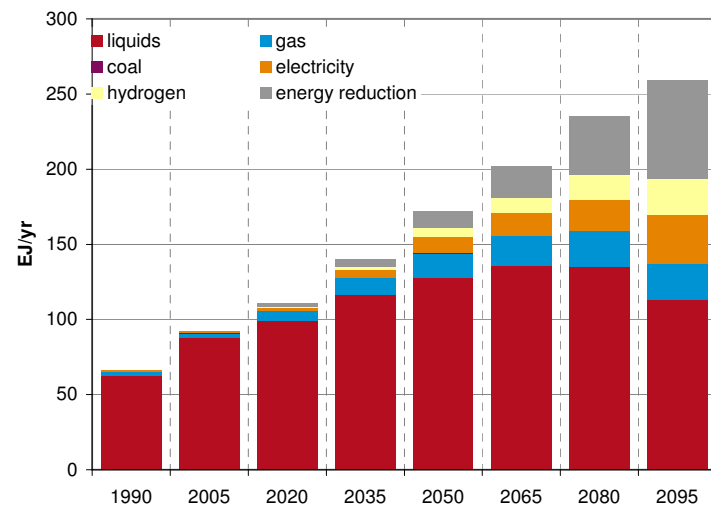
Final Energy Consumption: Buildings



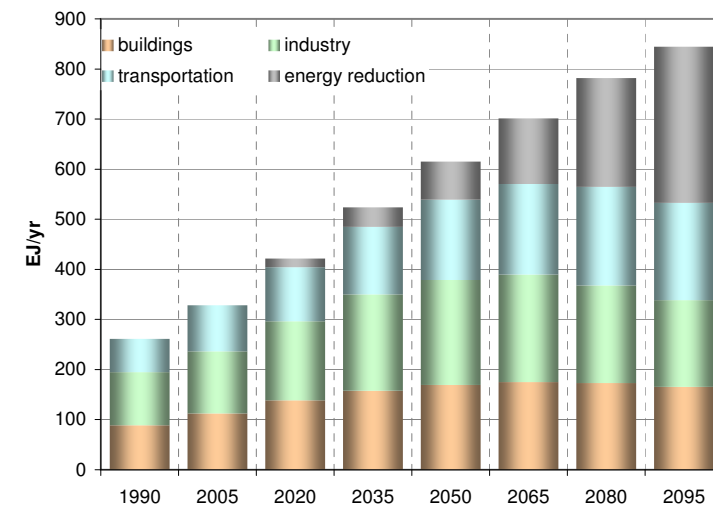
Final Energy Consumption: Industry (Does not Include Feedstocks)



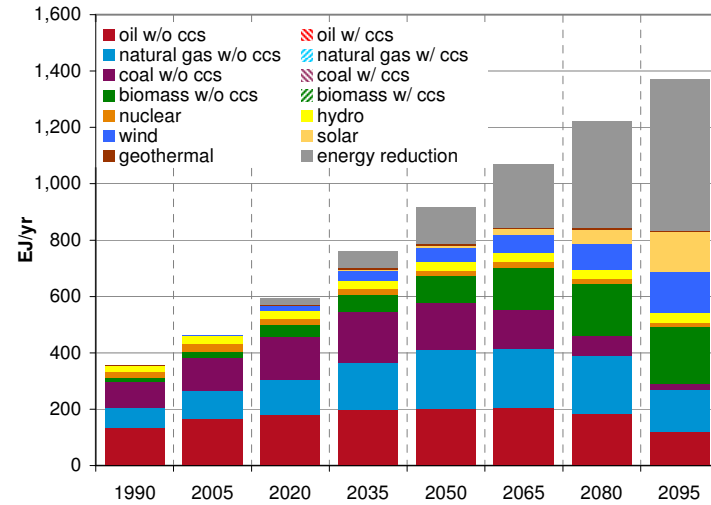
Final Energy Consumption: Transportation



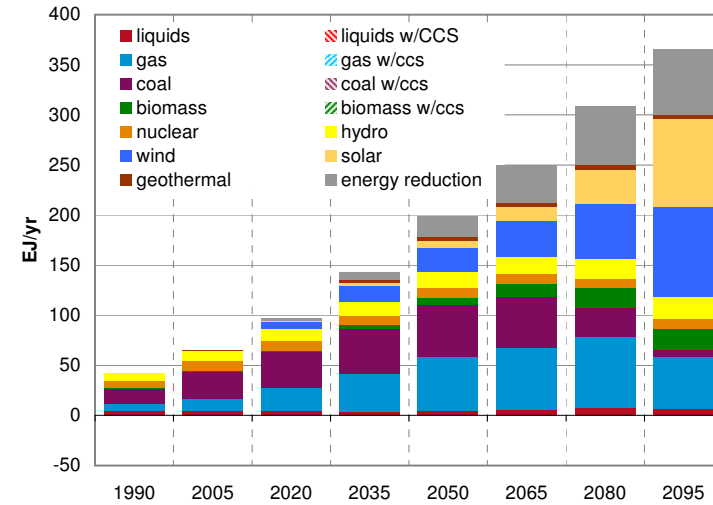
Final Energy Consumption by Sector



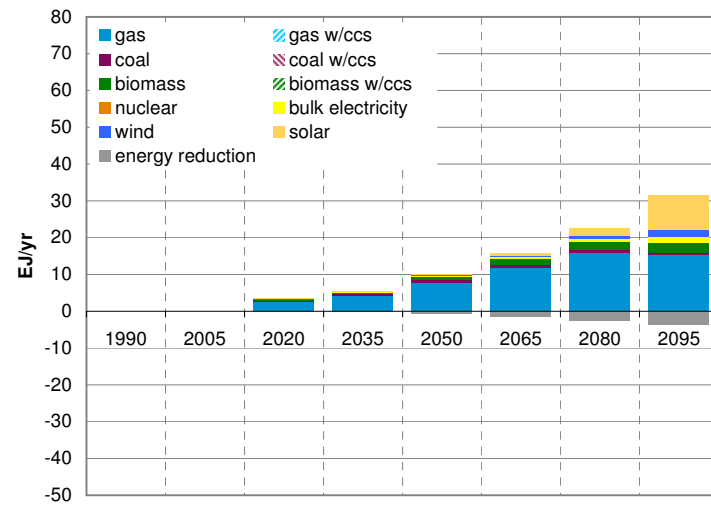
Primary Energy Consumption



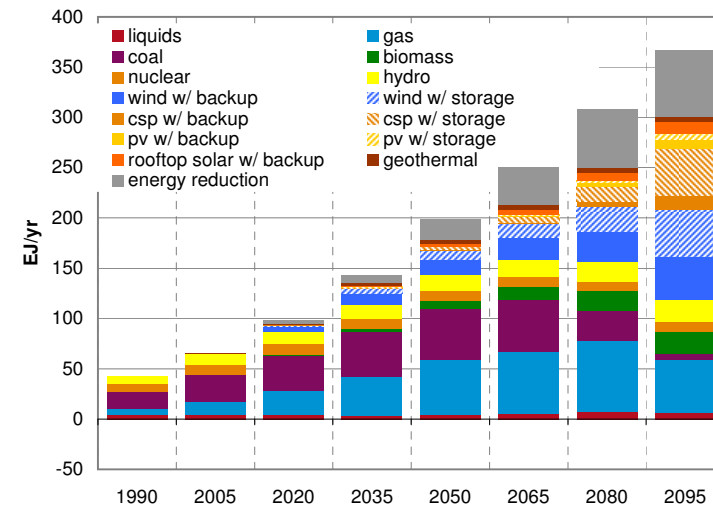
Electricity Production by Fuel: CCS Focus



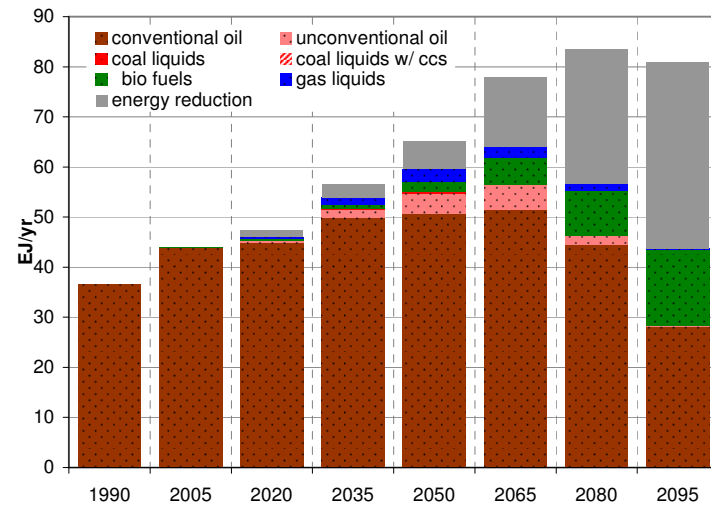
Hydrogen Production by Fuel



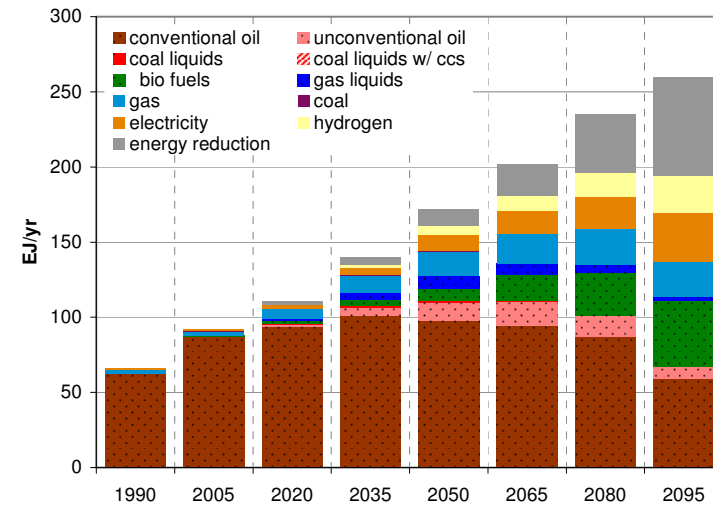
Electricity Production by Fuel: Renewable Focus



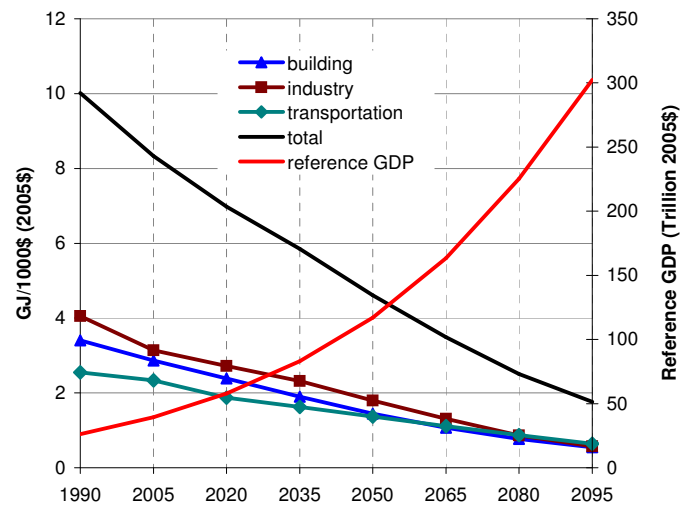
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



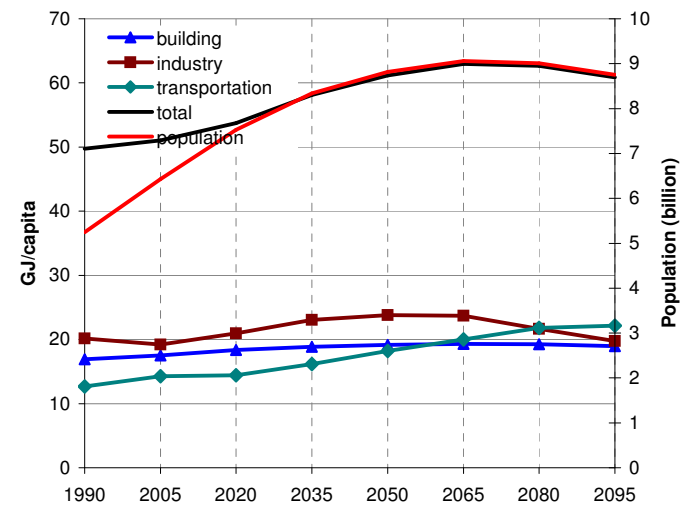
Transportation Fuels Composition



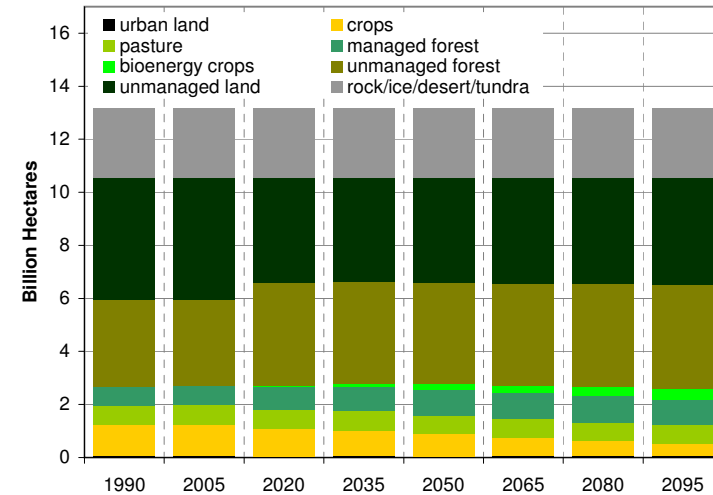
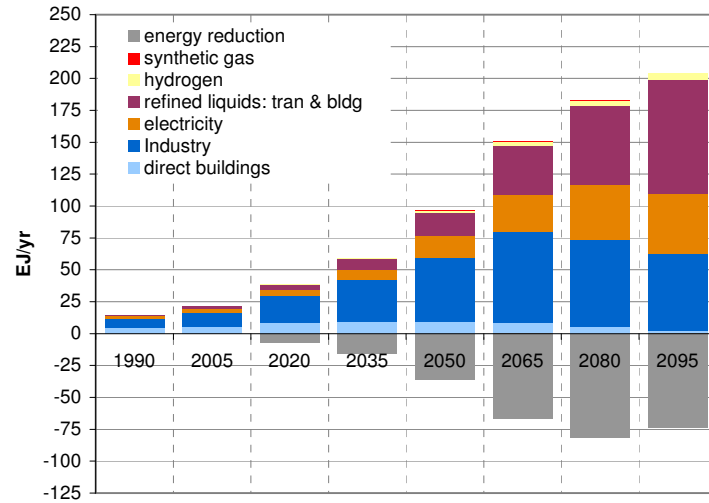
Final Energy Intensity



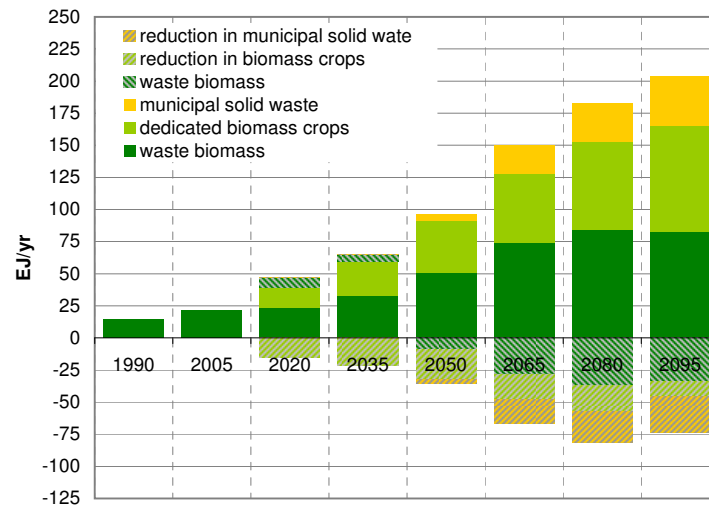
Final Energy per Capita



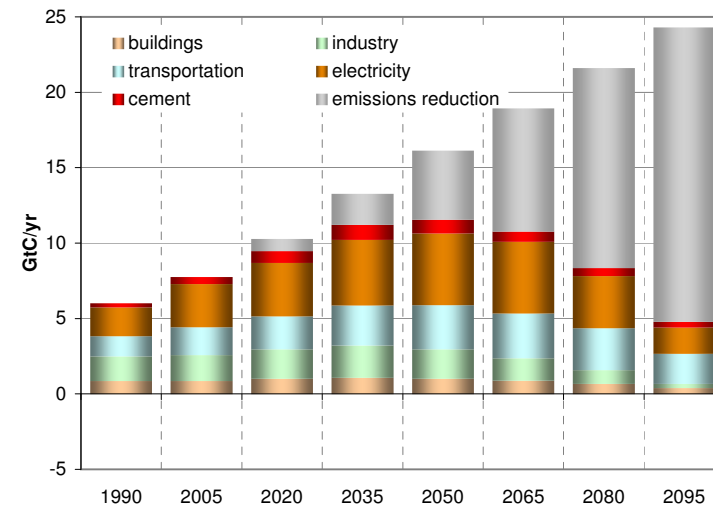
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.1	23.3	24.6	25.6	23.0	17.5	EJ/yr
building	gas	18.7	26.7	28.6	30.3	29.7	26.3	22.2	15.1	EJ/yr
building	coal	10.1	5.1	6.9	6.3	4.6	2.6	1.1	0.3	EJ/yr
building	biomass	4.5	5.5	8.2	9.3	9.5	9.2	7.0	3.7	EJ/yr
building	electricity	16.9	29.0	43.5	62.2	81.5	101.6	123.9	145.3	EJ/yr
building	trad biomass	23.5	29.9	32.2	28.5	24.1	19.7	14.7	10.3	EJ/yr
building	energy reduction	0.0	0.0	3.4	6.8	13.4	24.3	42.8	63.8	EJ/yr
	total: w/o reduction	88.9	112.7	139.5	159.9	173.9	185.0	191.8	192.2	EJ/yr
industry	liquids	22.4	21.2	20.1	23.7	26.9	30.1	25.0	16.0	EJ/yr
industry	gas	26.6	30.5	32.9	37.9	35.4	27.4	20.9	12.3	EJ/yr
industry	coal	31.4	35.8	50.3	56.6	47.9	26.7	10.2	2.7	EJ/yr
industry	biomass	7.3	11.2	19.9	28.8	41.6	59.7	58.7	40.8	EJ/yr
industry	electricity	18.1	24.8	34.7	48.5	64.6	81.4	99.8	125.1	EJ/yr
industry	hydrogen	0.0	0.0	2.6	3.2	3.9	4.8	5.5	6.6	EJ/yr
industry	energy reduction	0.0	0.0	7.3	17.9	35.9	60.3	91.9	125.5	EJ/yr
industry	feedstocks	15.2	23.7	27.1	31.6	34.5	36.3	35.4	34.0	EJ/yr
	total: w/o reduction	105.8	123.6	160.6	198.8	220.4	230.2	220.1	203.4	EJ/yr
transportation	liquids	62.7	87.7	99.8	117.4	129.5	138.9	141.5	125.6	EJ/yr
transportation	gas	2.2	3.0	6.4	11.9	17.0	20.0	23.5	23.5	EJ/yr
transportation	coal	0.5	0.2	0.3	0.3	0.3	0.1	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.7	10.8	16.2	23.2	33.8	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.6	9.9	15.7	24.7	EJ/yr
transportation	energy reduction	0.0	0.0	1.5	4.0	8.7	16.6	31.3	51.8	EJ/yr
	total: w/o reduction	66.4	91.8	109.2	136.4	163.1	185.2	204.0	207.6	EJ/yr
total final energy	buildings	88.9	112.7	139.5	159.9	173.9	185.0	191.8	192.2	EJ/yr
total final energy	industry	105.8	123.6	160.6	198.8	220.4	230.2	220.1	203.4	EJ/yr
total final energy	transportation	66.4	91.8	109.2	136.4	163.1	185.2	204.0	207.6	EJ/yr
total final energy	energy reduction	0.0	0.0	12.2	28.6	58.0	101.1	166.0	241.1	EJ/yr
	total: w/o reduction	261.1	328.1	409.2	495.1	557.4	600.4	615.9	603.2	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	180.4	198.0	204.6	210.6	186.8	125.6	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	126.3	169.3	203.9	198.1	188.5	137.1	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	159.3	188.1	178.1	141.8	67.4	12.7	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	36.9	54.1	82.4	128.9	175.1	202.3	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	26.4	38.6	68.4	129.2	206.3	310.1	EJ/yr
hydro	23.6	29.2	29.1	30.7	30.7	32.6	33.0	34.0	EJ/yr
wind	0.0	0.9	15.3	31.6	39.9	49.6	63.7	87.4	EJ/yr
solar	0.0	0.1	1.5	3.7	6.3	10.3	19.5	40.3	EJ/yr
geothermal	0.4	0.5	1.4	5.2	7.8	7.7	7.1	6.8	EJ/yr
energy reduction	0.0	0.0	16.1	42.2	94.7	161.4	271.6	416.7	EJ/yr
total: w/o reduction	356	463	577	719	822	909	947	956	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.15	3.49	3.54	4.11	4.78	4.06	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	23.63	36.21	50.02	52.89	55.37	41.00	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	35.70	44.92	48.81	46.28	25.55	4.07	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.37	2.70	5.69	8.55	12.16	10.56	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	11.25	17.28	33.85	66.06	113.35	181.21	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.03	10.50	13.80	17.47	23.07	30.85	EJ/yr
wind w/storage	0.00	0.00	1.30	3.76	6.30	9.09	14.18	23.62	EJ/yr
CSP w/backup	0.00	0.00	0.40	0.65	0.64	0.98	1.85	4.06	EJ/yr
CSP w/storage	0.00	0.00	0.14	0.91	2.04	3.21	6.01	13.04	EJ/yr
PV w/backup	0.00	0.04	0.05	0.05	0.22	0.64	1.69	3.54	EJ/yr
PV w/storage	0.00	0.00	0.01	0.03	0.11	0.30	0.76	1.57	EJ/yr
rooftop PV w/backup	0.00	0.00	0.29	0.87	2.04	4.35	6.55	8.81	EJ/yr
geothermal	0.13	0.21	0.58	2.42	4.14	4.34	4.38	4.42	EJ/yr
energy reduction	0.00	0.00	1.71	5.16	12.47	15.87	24.39	28.05	EJ/yr
total: w/o reduction	42.7	65.2	96.0	137.8	187.1	236.0	289.3	352.2	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	94.3	101.5	97.8	95.4	85.6	61.2	EJ/yr
unconventional oil	0.0	0.0	1.5	5.7	13.9	19.8	20.4	13.3	EJ/yr
coal liquids	0.0	0.0	1.0	2.3	3.1	2.1	0.3	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.7	3.0	5.9	13.7	29.3	48.0	EJ/yr
gas liquids	0.0	0.0	1.4	4.9	8.7	7.8	6.0	3.1	EJ/yr
gas	2.2	3.0	6.4	11.9	17.0	20.0	23.5	23.5	EJ/yr
coal	0.5	0.2	0.3	0.3	0.3	0.1	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.7	10.8	16.2	23.2	33.8	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.6	9.9	15.7	24.7	EJ/yr
energy reduction	0.0	0.0	1.5	4.0	8.7	16.6	31.3	51.8	EJ/yr
total: w/o reduction	66.4	91.8	109.2	136.4	163.1	185.2	204.0	207.6	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	45.05	50.00	50.66	51.66	42.59	29.32	EJ/yr
unconventional oil	0.00	0.00	0.37	1.70	4.97	7.19	6.57	0.72	EJ/yr
coal liquids	0.00	0.00	0.21	0.54	0.73	0.47	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.21	0.55	1.43	3.96	8.87	18.49	EJ/yr
gas liquids	0.00	0.00	0.36	1.53	2.68	2.27	1.48	0.65	EJ/yr
energy reduction	0.0	0.0	1.1	2.2	4.5	12.3	23.9	31.8	EJ/yr
total: w/o reduction	36.6	43.9	46.2	54.3	60.5	65.5	59.5	49.2	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.25	3.86	7.05	10.03	12.68	11.09	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.43	0.63	1.00	1.05	0.86	0.58	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.17	0.29	0.59	1.01	1.58	2.02	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.09	0.13	0.25	1.52	3.77	11.87	EJ/yr
bulk electricity	0.00	0.00	0.08	0.16	0.34	0.60	0.95	1.34	EJ/yr
wind	0.00	0.00	0.05	0.06	0.10	0.19	0.42	1.12	EJ/yr
solar	0.00	0.00	0.06	0.09	0.18	0.34	0.93	3.30	EJ/yr
energy reduction	0.00	0.00	0.10	0.02	-0.14	-0.49	-1.21	-3.61	EJ/yr
total: w/o reduction	0.00	0.00	3.14	5.22	9.51	14.74	21.19	31.33	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.2	9.3	9.5	9.2	7.0	3.7	EJ/yr
Industry	7.4	11.3	20.4	29.9	44.4	67.2	75.0	73.9	EJ/yr
electricity	2.1	2.5	3.9	7.0	13.4	19.5	27.0	22.6	EJ/yr
refined liquids: tran & bldg	0.5	2.2	4.1	7.3	13.9	30.8	62.8	98.1	EJ/yr
hydrogen	0.0	0.0	0.4	0.6	1.2	2.1	3.2	4.0	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-4.8	-10.3	-22.1	-45.3	-73.8	-72.2	EJ/yr
total: w/o reduction	14.4	21.6	36.9	54.1	82.4	128.9	175.1	202.3	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	24.9	31.5	44.3	62.7	80.6	83.7	EJ
dedicated biomass crops	0.0	0.0	11.9	22.3	36.0	49.7	64.3	79.8	EJ
municipal solid waste	0.0	0.1	0.1	0.3	2.1	16.5	30.2	38.8	EJ
waste biomass	0.0	0.0	6.7	6.3	-2.5	-17.4	-33.6	-34.4	EJ
reduction in biomass crops	0.0	0.0	-11.9	-17.4	-19.3	-14.9	-15.6	-9.4	EJ
reduction in municipal solid waste	0.0	0.0	0.3	0.7	-0.3	-13.1	-24.6	-28.5	EJ
total: w/o reduction	14.4	21.6	31.8	43.1	60.5	96.7	125.9	158.5	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.2	\$83.4	\$117.9	\$165.0	\$228.1	\$306.7	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.40	1.92	1.48	1.12	0.84	0.63	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.76	2.38	1.87	1.40	0.96	0.66	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.88	1.64	1.38	1.12	0.89	0.68	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.03	5.93	4.73	3.64	2.70	1.97	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.5	19.2	19.7	20.4	21.3	22.0	GJ/capita
Final Energy per Capita	industry	20.2	19.2	21.3	23.8	25.0	25.4	24.4	23.3	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.5	16.4	18.5	20.4	22.6	23.7	GJ/capita
Final Energy per Capita	total	49.7	51.0	54.4	59.3	63.2	66.3	68.4	68.9	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.7	\$41.9	\$44.9	\$46.4	\$47.3	\$46.5	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$41.7	\$46.1	\$53.7	\$65.1	\$86.4	\$126.7	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.1	\$4.4	\$5.3	\$5.3	\$5.3	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.6	\$4.6	\$5.5	\$7.5	\$9.9	\$14.7	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.5	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.2	\$2.7	\$3.6	\$5.7	\$9.9	\$18.8	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.99	5.91	6.25	6.84	7.41	7.93	cents/kWh (2005\$)
	carbon price	0.0	0.0	16.3	33.9	70.4	146.5	304.6	633.2	\$/tC (2005\$)

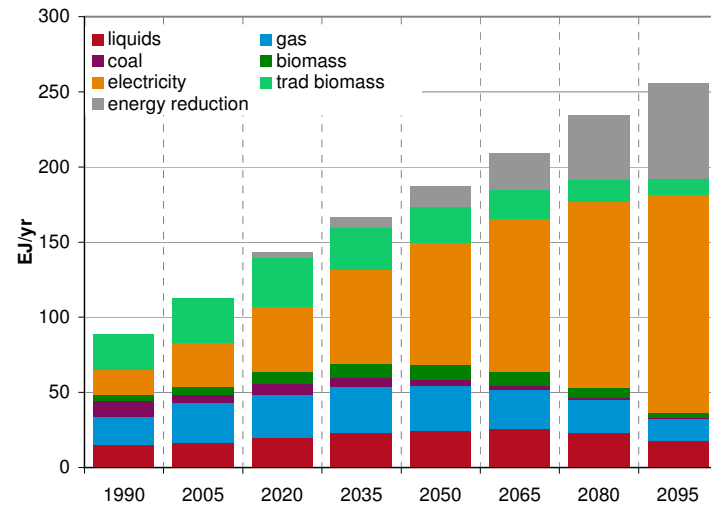
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	37	41	46	54	66	83	\$/Gcal (2005\$)
	global rice	32	32	37	41	48	57	72	92	\$/Gcal (2005\$)
	global wheat	27	27	33	38	45	56	74	100	\$/Gcal (2005\$)

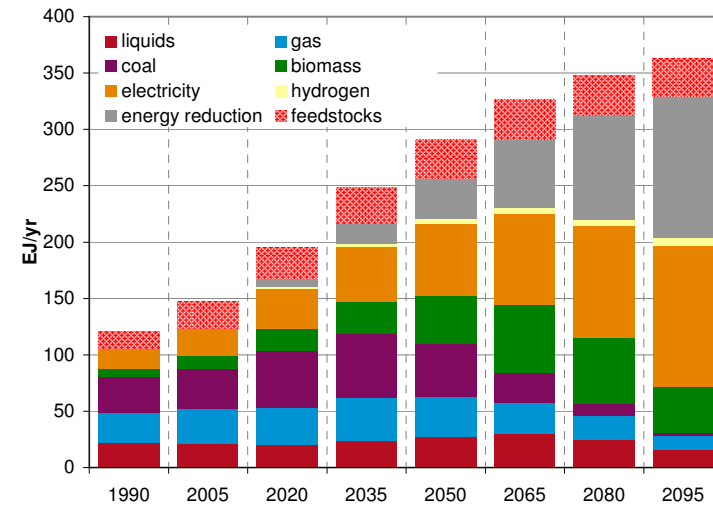
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.018	1.098	1.065	0.945	0.729	0.447	GtC/yr
	industry	1.623	1.706	2.041	2.306	2.160	1.661	0.975	0.252	GtC/yr
	transportation	1.354	1.863	2.208	2.717	3.081	3.159	2.890	2.116	GtC/yr
	electricity	1.909	2.848	3.566	4.289	4.454	4.199	2.851	1.261	GtC/yr
	cement	0.261	0.483	0.820	1.074	1.062	0.804	0.589	0.431	GtC/yr
	emissions reduction	0.000	0.000	0.613	1.779	4.302	8.170	13.580	19.792	GtC/yr
	total: w/o reduction	6.006	7.760	9.653	11.484	11.823	10.766	8.035	4.506	GtC/yr

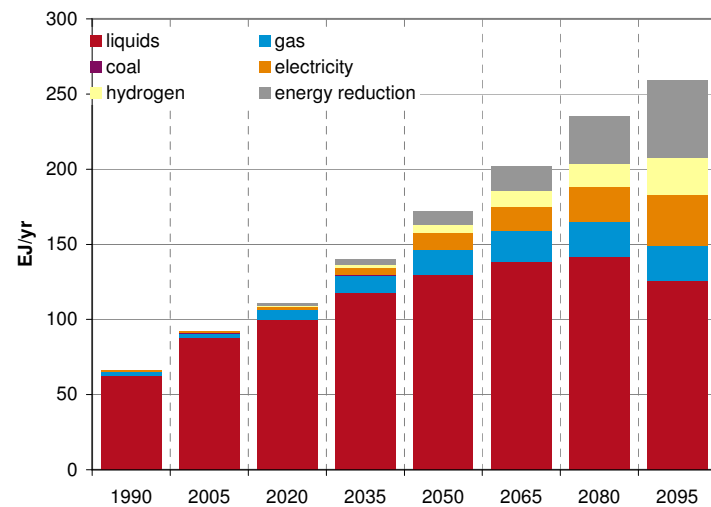
Final Energy Consumption: Buildings



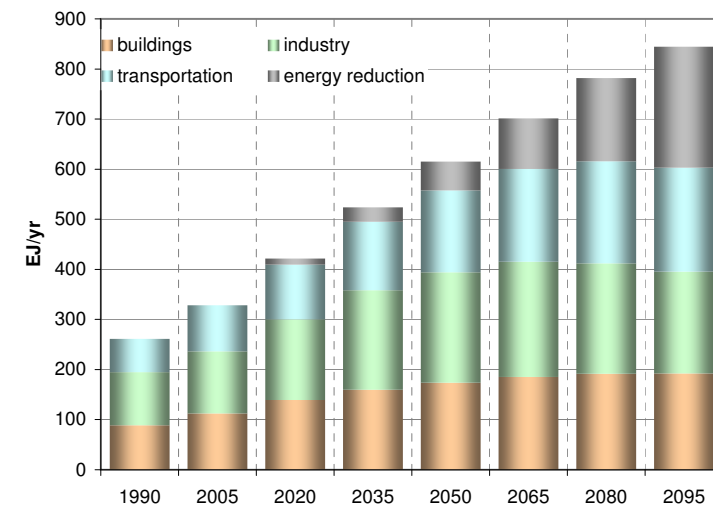
Final Energy Consumption: Industry (Does not Include Feedstocks)



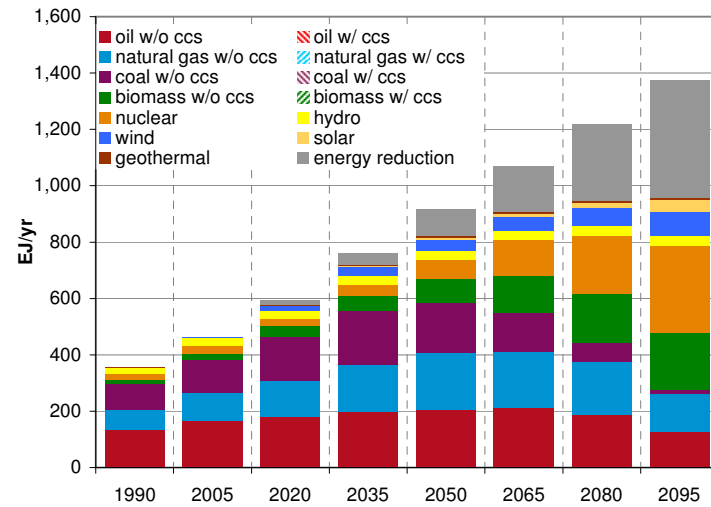
Final Energy Consumption: Transportation



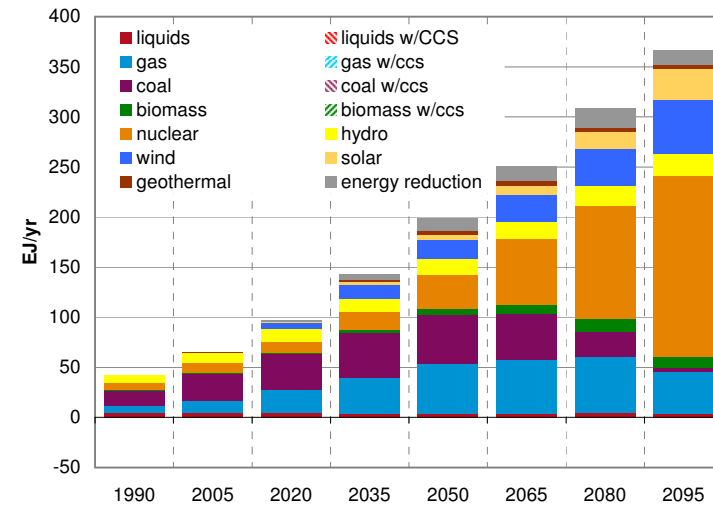
Final Energy Consumption by Sector



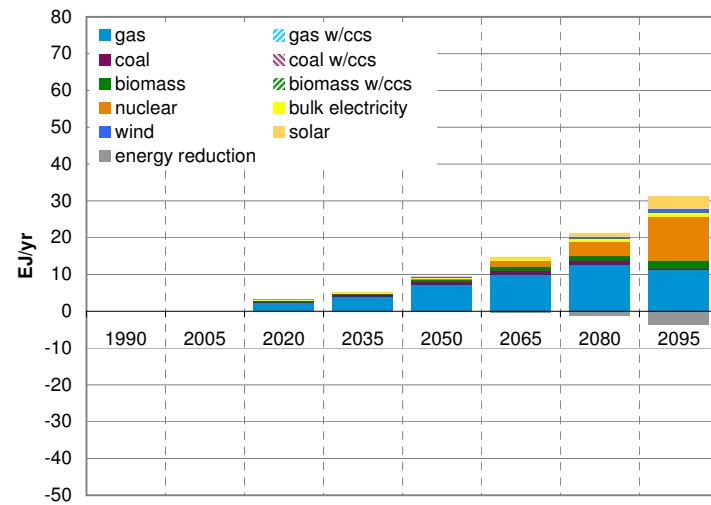
Primary Energy Consumption



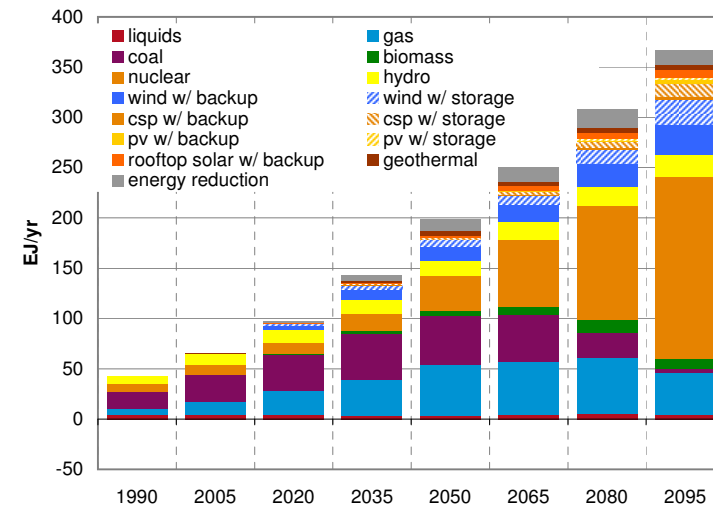
Electricity Production by Fuel: CCS Focus



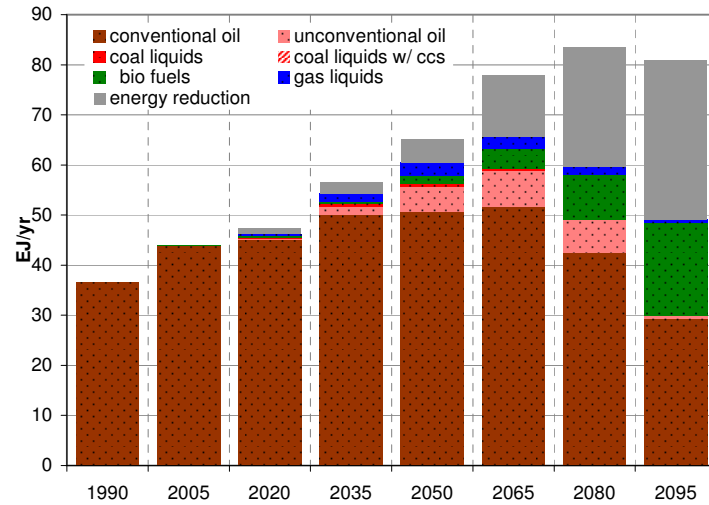
Hydrogen Production by Fuel



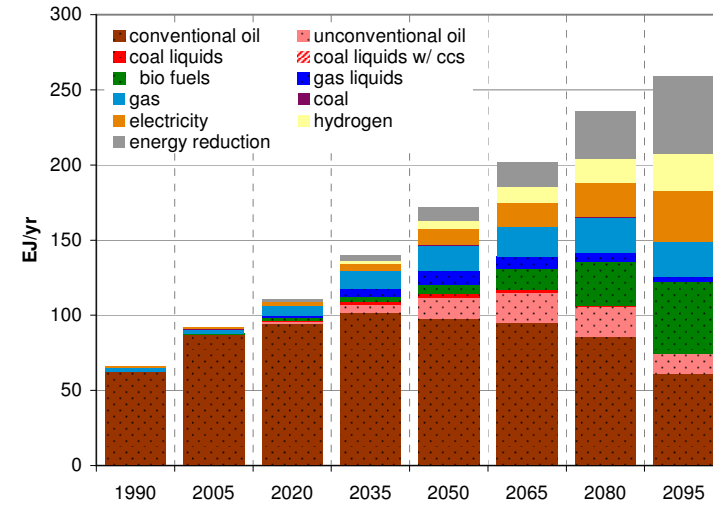
Electricity Production by Fuel: Renewable Focus



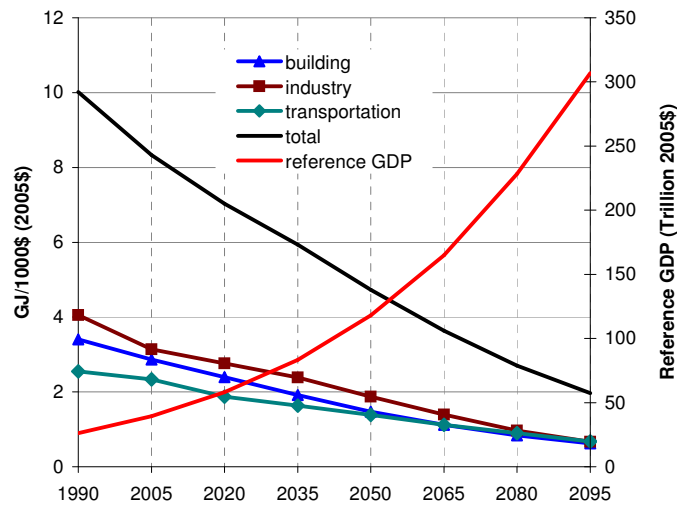
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



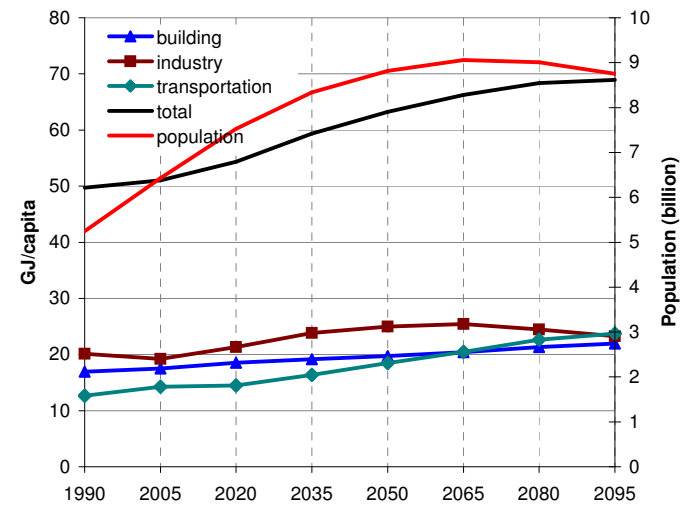
Transportation Fuels Composition



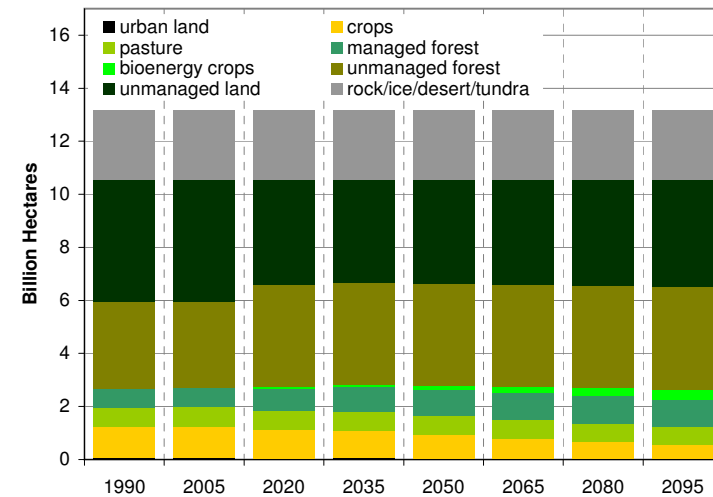
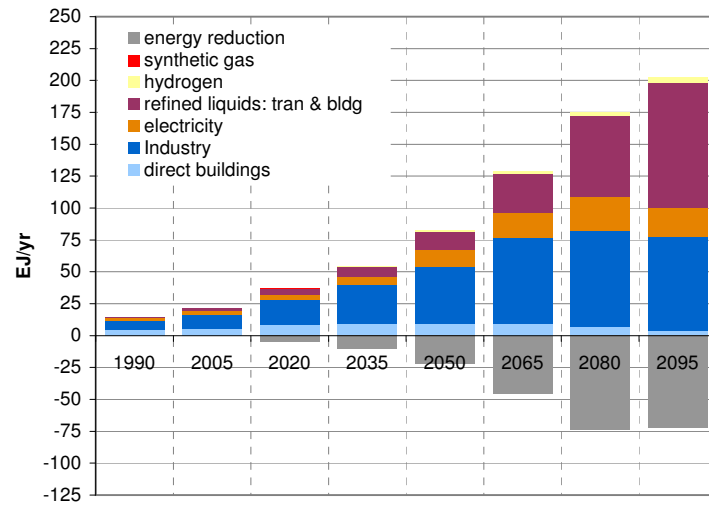
Final Energy Intensity



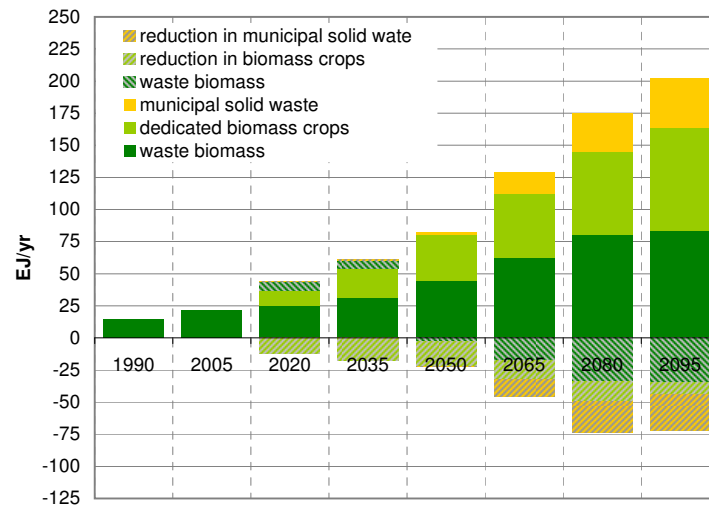
Final Energy per Capita



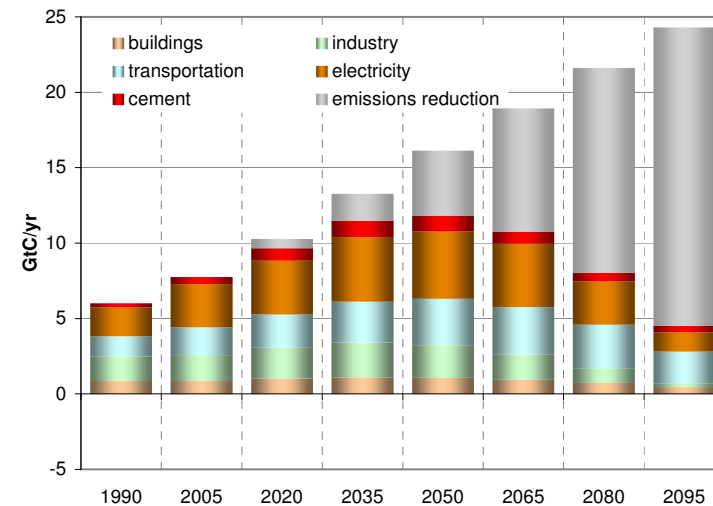
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.1	23.3	24.5	25.5	23.0	17.6	EJ/yr
building	gas	18.7	26.7	28.7	30.3	29.7	26.3	22.3	15.4	EJ/yr
building	coal	10.1	5.1	7.0	6.4	4.7	2.7	1.1	0.3	EJ/yr
building	biomass	4.5	5.5	8.2	9.3	9.5	9.2	7.2	3.8	EJ/yr
building	electricity	16.9	29.0	43.5	62.5	82.2	103.3	126.9	149.8	EJ/yr
building	trad biomass	23.5	29.9	32.1	28.4	24.0	19.4	14.3	10.0	EJ/yr
building	energy reduction	0.0	0.0	3.3	6.5	12.8	22.8	39.8	59.1	EJ/yr
	total: w/o reduction	88.9	112.7	139.6	160.2	174.6	186.4	194.8	196.9	EJ/yr
industry	liquids	22.4	21.2	20.1	23.7	26.7	29.7	24.5	15.7	EJ/yr
industry	gas	26.6	30.5	33.0	38.0	35.4	27.4	20.8	12.2	EJ/yr
industry	coal	31.4	35.8	50.7	57.5	49.1	27.6	10.5	2.7	EJ/yr
industry	biomass	7.3	11.2	19.8	28.5	40.9	58.6	58.8	41.1	EJ/yr
industry	electricity	18.1	24.8	34.7	48.8	65.6	84.1	104.0	131.0	EJ/yr
industry	hydrogen	0.0	0.0	2.6	3.1	3.8	4.7	5.2	6.0	EJ/yr
industry	energy reduction	0.0	0.0	6.9	17.1	34.7	58.5	88.3	120.2	EJ/yr
industry	feedstocks	15.2	23.7	27.1	31.7	34.7	36.6	35.9	34.8	EJ/yr
	total: w/o reduction	105.8	123.6	161.0	199.5	221.6	232.1	223.7	208.7	EJ/yr
transportation	liquids	62.7	87.7	99.8	117.5	129.6	139.1	142.2	127.3	EJ/yr
transportation	gas	2.2	3.0	6.4	11.9	17.0	20.0	23.4	23.5	EJ/yr
transportation	coal	0.5	0.2	0.3	0.3	0.3	0.1	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.7	10.9	16.6	23.8	34.7	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.6	9.8	15.4	23.8	EJ/yr
transportation	energy reduction	0.0	0.0	1.4	3.8	8.4	16.2	30.4	50.1	EJ/yr
	total: w/o reduction	66.4	91.8	109.2	136.6	163.3	185.6	204.8	209.3	EJ/yr
total final energy	buildings	88.9	112.7	139.6	160.2	174.6	186.4	194.8	196.9	EJ/yr
total final energy	industry	105.8	123.6	161.0	199.5	221.6	232.1	223.7	208.7	EJ/yr
total final energy	transportation	66.4	91.8	109.2	136.6	163.3	185.6	204.8	209.3	EJ/yr
total final energy	energy reduction	0.0	0.0	11.6	27.4	55.9	97.5	158.6	229.4	EJ/yr
	total: w/o reduction	261.1	328.1	409.8	496.3	559.5	604.1	623.4	614.9	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	180.5	198.1	204.6	211.1	187.1	127.4	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	126.5	169.5	203.7	197.5	187.2	128.3	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	160.1	190.0	180.9	144.2	61.1	12.6	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	36.7	53.5	80.8	125.3	173.2	201.9	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	26.4	39.8	73.9	143.2	234.7	352.9	EJ/yr
hydro	23.6	29.2	29.1	30.7	30.7	32.6	32.9	34.3	EJ/yr
wind	0.0	0.9	15.2	31.5	39.4	48.4	61.5	85.0	EJ/yr
solar	0.0	0.1	1.5	3.7	6.2	9.8	18.2	36.7	EJ/yr
geothermal	0.4	0.5	1.4	5.2	7.8	7.7	7.1	6.8	EJ/yr
energy reduction	0.0	0.0	15.4	39.8	89.0	150.3	256.1	387.0	EJ/yr
total: w/o reduction	356	463	577	722	828	920	963	986	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.15	3.49	3.50	4.05	4.66	4.07	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	23.65	36.26	49.89	52.57	54.60	34.45	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	35.79	45.16	49.12	46.61	21.56	3.99	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.36	2.68	5.57	8.30	11.90	9.82	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	11.24	17.79	36.51	73.30	130.28	207.10	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.02	10.46	13.66	17.17	22.65	30.13	EJ/yr
wind w/storage	0.00	0.00	1.29	3.73	6.16	8.73	13.45	22.15	EJ/yr
CSP w/backup	0.00	0.00	0.39	0.65	0.63	0.93	1.75	3.69	EJ/yr
CSP w/storage	0.00	0.00	0.14	0.90	1.99	3.07	5.67	11.82	EJ/yr
PV w/backup	0.00	0.04	0.05	0.05	0.21	0.62	1.56	3.15	EJ/yr
PV w/storage	0.00	0.00	0.01	0.03	0.11	0.29	0.70	1.40	EJ/yr
rooftop PV w/backup	0.00	0.00	0.30	0.85	1.98	4.13	6.09	8.07	EJ/yr
geothermal	0.13	0.21	0.58	2.41	4.13	4.33	4.37	4.40	EJ/yr
energy reduction	0.00	0.00	1.63	4.47	10.09	9.64	13.85	12.08	EJ/yr
total: w/o reduction	42.7	65.2	96.1	138.4	189.3	241.8	298.8	365.7	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	94.3	101.5	97.7	95.4	85.0	61.5	EJ/yr
unconventional oil	0.0	0.0	1.5	5.8	14.2	20.3	21.4	14.3	EJ/yr
coal liquids	0.0	0.0	1.0	2.4	3.3	2.3	1.1	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.6	2.9	5.8	13.1	28.7	48.3	EJ/yr
gas liquids	0.0	0.0	1.4	4.9	8.7	7.9	6.0	3.2	EJ/yr
gas	2.2	3.0	6.4	11.9	17.0	20.0	23.4	23.5	EJ/yr
coal	0.5	0.2	0.3	0.3	0.3	0.1	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.7	10.9	16.6	23.8	34.7	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.6	9.8	15.4	23.8	EJ/yr
energy reduction	0.0	0.0	1.4	3.8	8.4	16.2	30.4	50.1	EJ/yr
total: w/o reduction	66.4	91.8	109.2	136.6	163.3	185.6	204.8	209.3	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	45.08	49.99	50.51	51.52	42.32	29.54	EJ/yr
unconventional oil	0.00	0.00	0.37	1.73	5.07	7.42	7.08	0.87	EJ/yr
coal liquids	0.00	0.00	0.22	0.57	0.79	0.53	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.21	0.53	1.37	3.72	8.70	18.65	EJ/yr
gas liquids	0.00	0.00	0.36	1.53	2.68	2.28	1.50	0.67	EJ/yr
energy reduction	0.0	0.0	1.0	2.2	4.6	12.4	23.8	31.2	EJ/yr
total: w/o reduction	36.6	43.9	46.2	54.3	60.4	65.5	59.6	49.7	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.25	3.83	6.97	9.88	12.48	11.28	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.44	0.64	1.01	1.08	0.89	0.59	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.17	0.28	0.58	0.99	1.57	2.01	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.09	0.13	0.24	1.44	3.46	10.43	EJ/yr
bulk electricity	0.00	0.00	0.08	0.16	0.34	0.61	0.98	1.45	EJ/yr
wind	0.00	0.00	0.05	0.06	0.10	0.18	0.40	1.05	EJ/yr
solar	0.00	0.00	0.06	0.09	0.18	0.32	0.87	2.95	EJ/yr
energy reduction	0.00	0.00	0.11	0.04	-0.06	-0.25	-0.65	-2.03	EJ/yr
total: w/o reduction	0.00	0.00	3.14	5.20	9.43	14.50	20.63	29.75	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.2	9.3	9.5	9.2	7.2	3.8	EJ/yr
Industry	7.4	11.3	20.2	29.6	43.6	65.6	74.8	74.5	EJ/yr
electricity	2.1	2.5	3.9	6.9	13.1	19.0	26.5	20.9	EJ/yr
refined liquids: tran & bldg	0.5	2.2	4.0	7.1	13.4	29.4	61.5	98.7	EJ/yr
hydrogen	0.0	0.0	0.4	0.6	1.2	2.0	3.1	3.9	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-4.6	-9.7	-20.5	-41.7	-71.9	-71.8	EJ/yr
total: w/o reduction	14.4	21.6	36.7	53.5	80.8	125.3	173.2	201.9	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	25.2	31.5	43.5	61.2	79.5	83.8	EJ
dedicated biomass crops	0.0	0.0	11.4	21.7	35.4	49.1	63.6	79.3	EJ
municipal solid waste	0.0	0.1	0.1	0.3	1.8	15.0	30.1	38.8	EJ
waste biomass	0.0	0.0	6.5	6.4	-1.7	-15.8	-32.4	-34.4	EJ
reduction in biomass crops	0.0	0.0	-11.4	-16.8	-18.7	-14.3	-14.9	-8.9	EJ
reduction in municipal solid waste	0.0	0.0	0.3	0.7	0.0	-11.5	-24.6	-28.5	EJ
total: w/o reduction	14.4	21.6	31.8	43.1	60.3	95.1	125.9	158.6	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.2	\$83.5	\$118.0	\$165.2	\$228.5	\$307.3	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.40	1.92	1.48	1.13	0.85	0.64	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.77	2.39	1.88	1.40	0.98	0.68	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.88	1.64	1.38	1.12	0.90	0.68	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.04	5.94	4.74	3.66	2.73	2.00	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.5	19.2	19.8	20.6	21.6	22.5	GJ/capita
Final Energy per Capita	industry	20.2	19.2	21.4	23.9	25.1	25.6	24.8	23.9	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.5	16.4	18.5	20.5	22.7	23.9	GJ/capita
Final Energy per Capita	total	49.7	51.0	54.4	59.5	63.5	66.7	69.2	70.3	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.7	\$41.9	\$44.9	\$46.4	\$47.2	\$46.5	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$41.6	\$45.9	\$53.2	\$64.1	\$84.3	\$122.3	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.1	\$4.4	\$5.3	\$5.3	\$5.2	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.6	\$4.6	\$5.4	\$7.3	\$9.6	\$14.2	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.7	\$1.7	\$1.7	\$1.6	\$1.5	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.2	\$2.6	\$3.5	\$5.5	\$9.4	\$17.8	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.98	5.86	6.13	6.60	7.02	7.42	cents/kWh (2005\$)
	carbon price	0.0	0.0	15.4	31.9	66.4	138.0	287.1	596.8	\$/tC (2005\$)

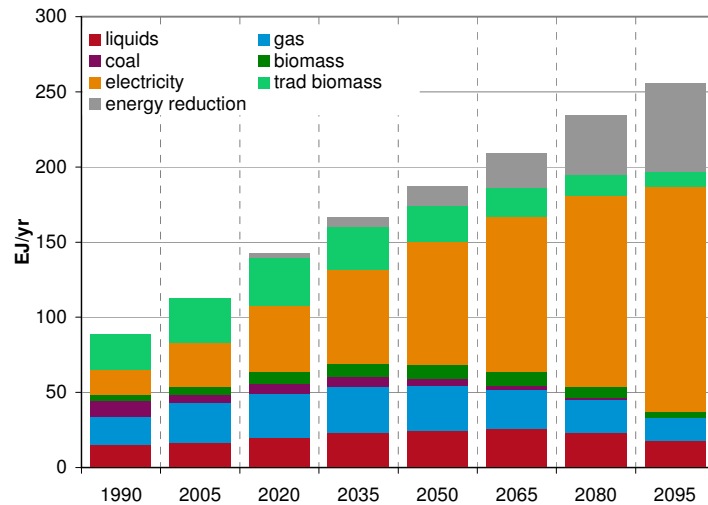
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	37	40	45	53	64	80	\$/Gcal (2005\$)
	global rice	32	32	37	41	47	56	69	88	\$/Gcal (2005\$)
	global wheat	27	27	33	37	44	54	71	96	\$/Gcal (2005\$)

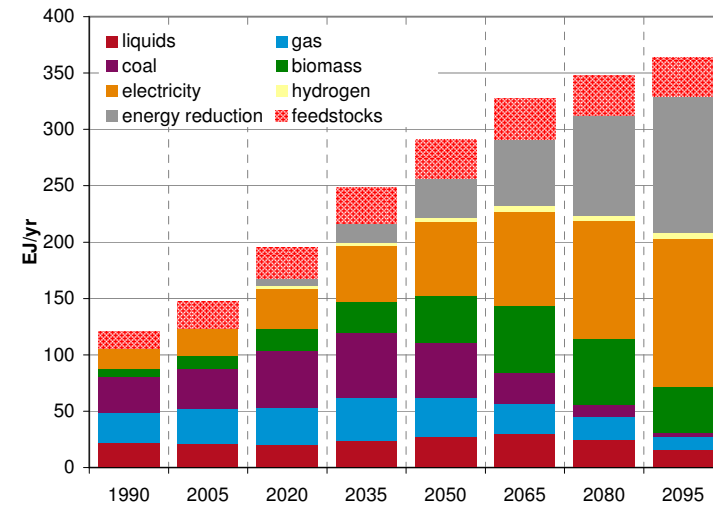
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.021	1.102	1.069	0.949	0.738	0.454	GtC/yr
	industry	1.623	1.706	2.052	2.324	2.177	1.669	0.971	0.242	GtC/yr
	transportation	1.354	1.863	2.211	2.726	3.098	3.184	2.944	2.153	GtC/yr
	electricity	1.909	2.848	3.572	4.306	4.470	4.210	2.598	1.120	GtC/yr
	cement	0.261	0.483	0.824	1.085	1.084	0.824	0.599	0.439	GtC/yr
	emissions reduction	0.000	0.000	0.585	1.721	4.227	8.101	13.765	19.891	GtC/yr
	total: w/o reduction	6.006	7.760	9.680	11.542	11.897	10.835	7.850	4.407	GtC/yr

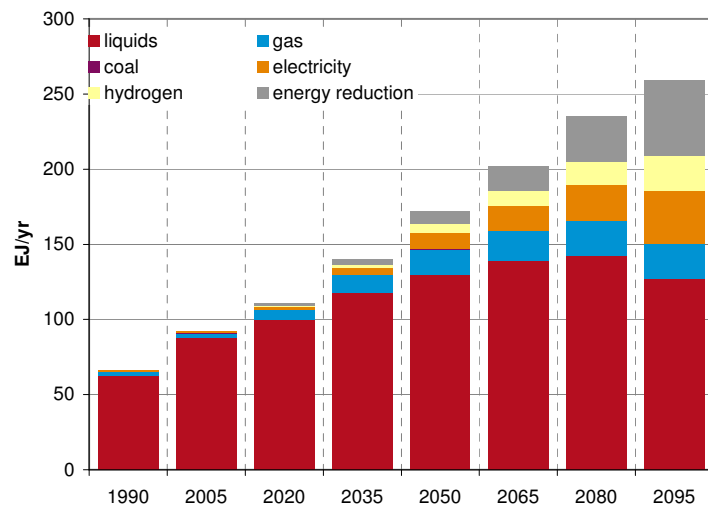
Final Energy Consumption: Buildings



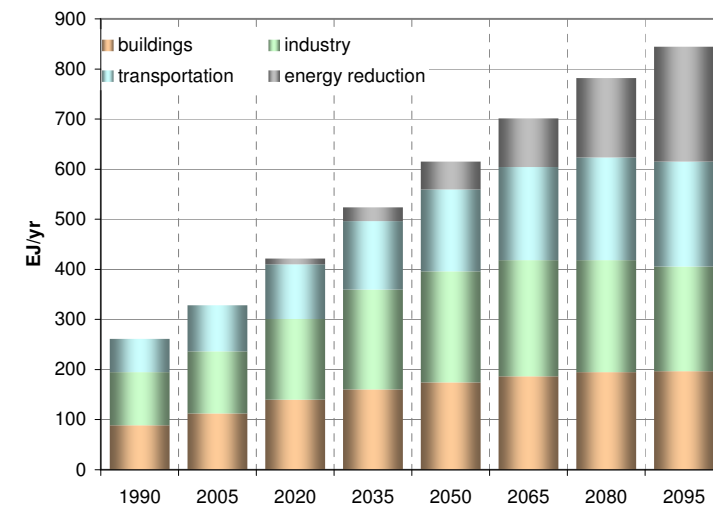
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

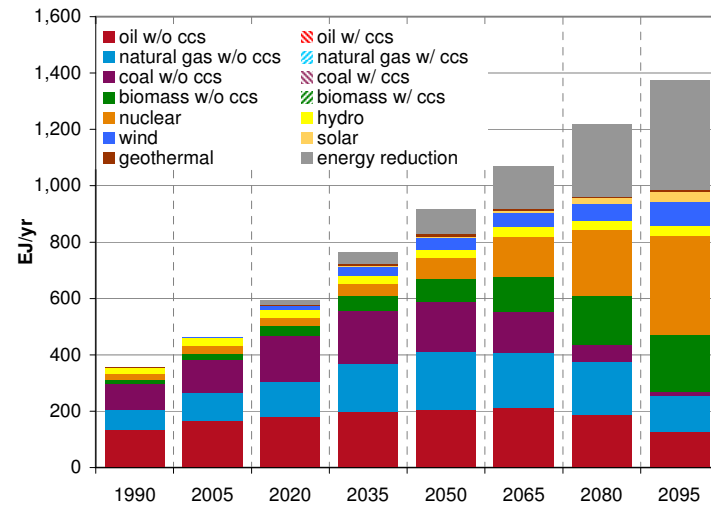


Final Energy Consumption by Sector

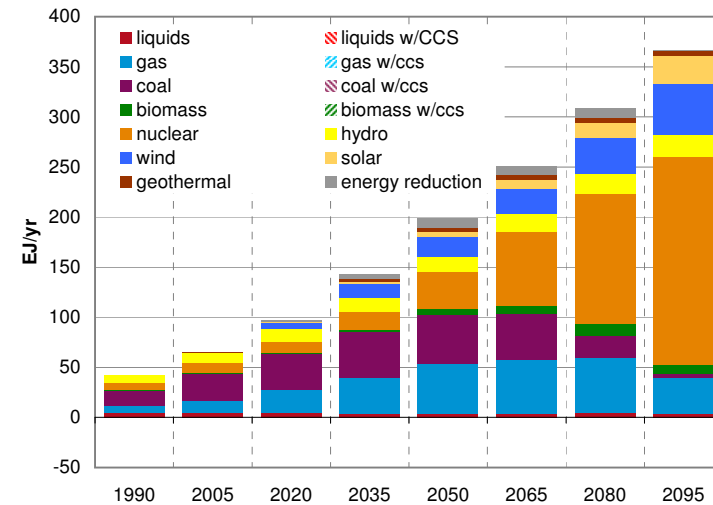


Scenario: nucadv stab

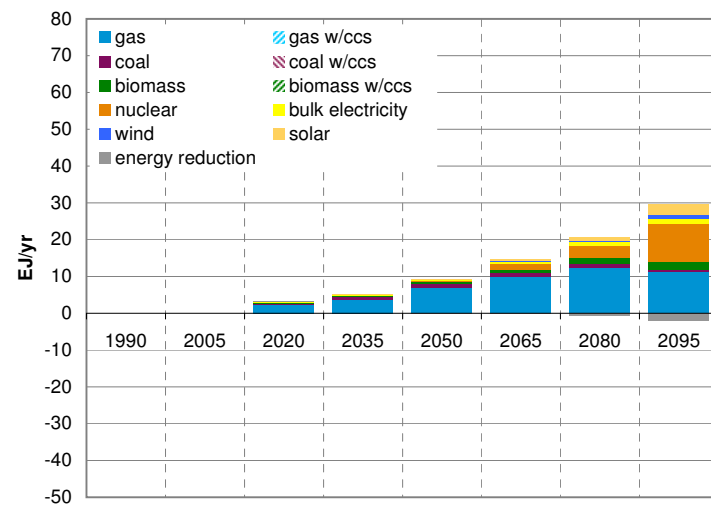
Primary Energy Consumption



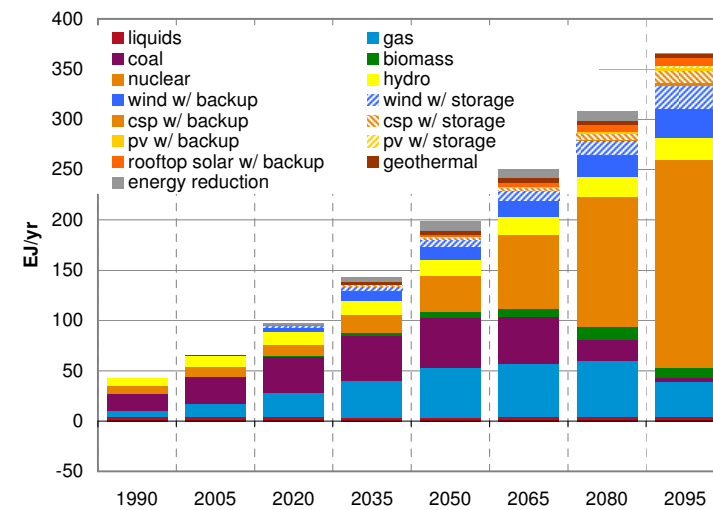
Electricity Production by Fuel: CCS Focus



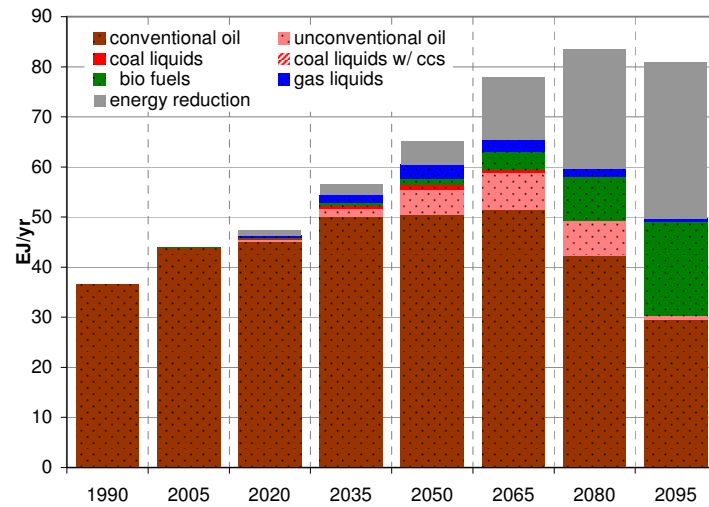
Hydrogen Production by Fuel



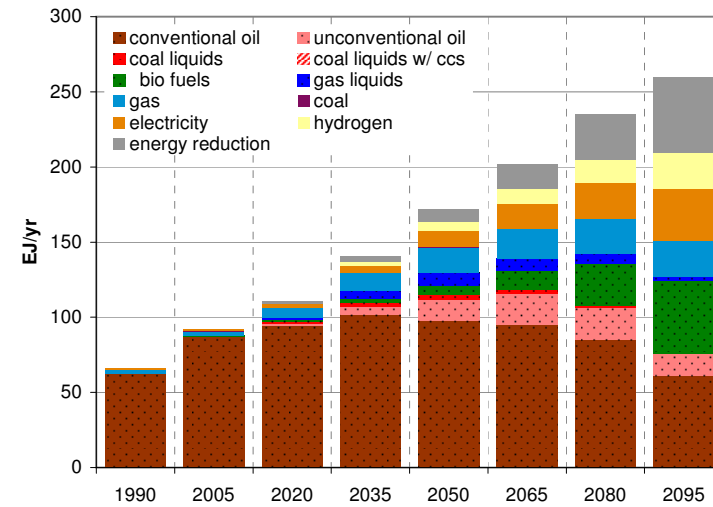
Electricity Production by Fuel: Renewable Focus



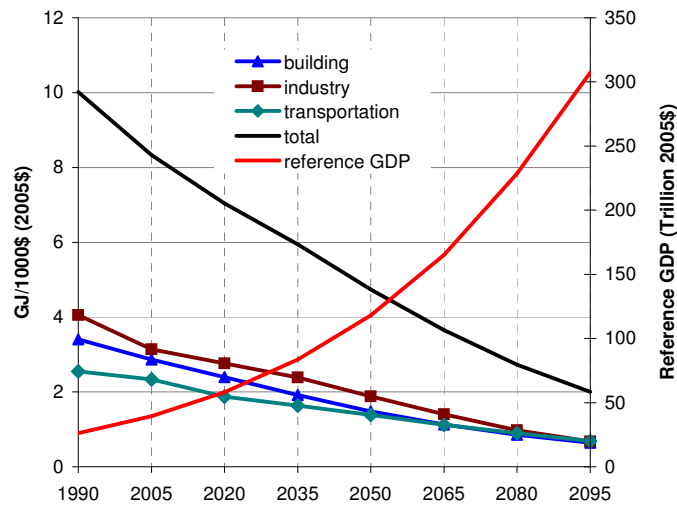
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



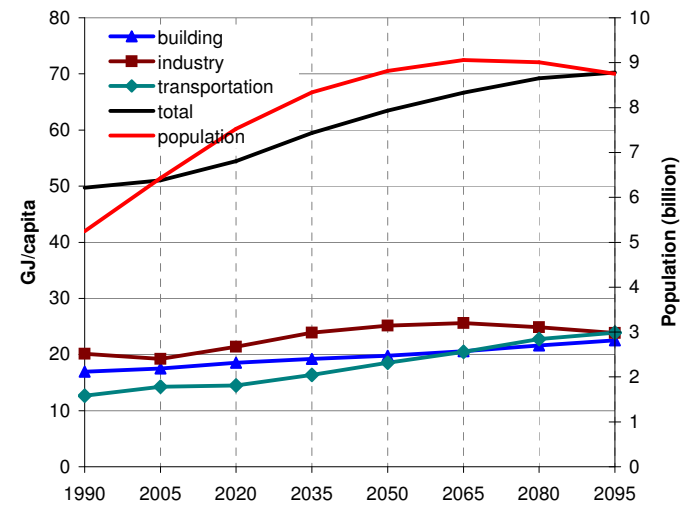
Transportation Fuels Composition



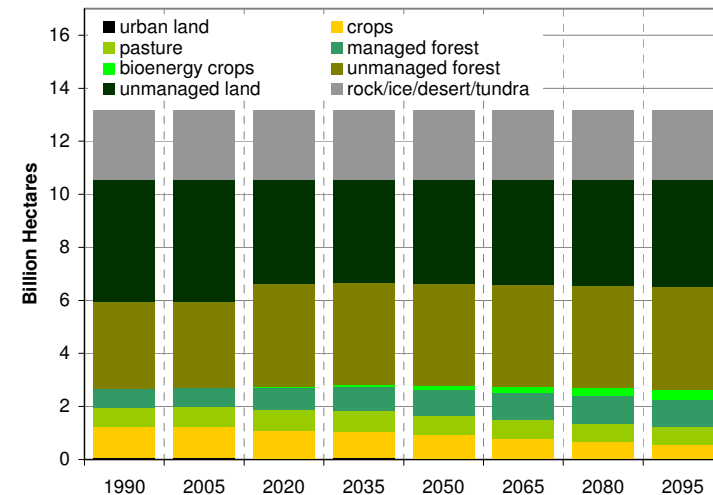
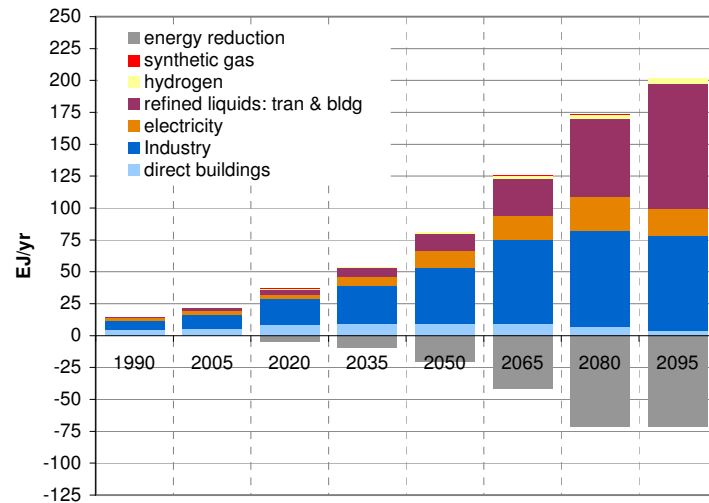
Final Energy Intensity



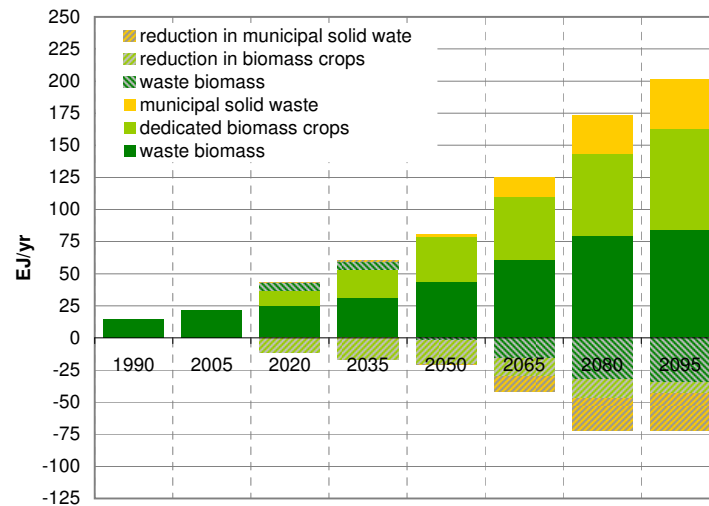
Final Energy per Capita



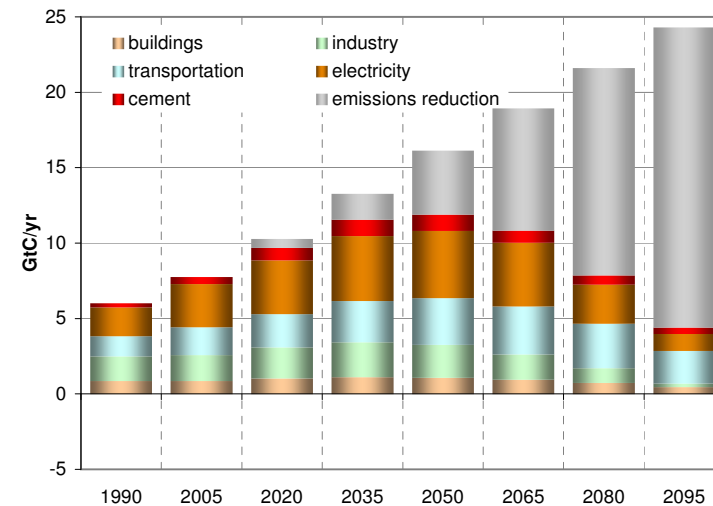
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.3	23.7	25.4	27.3	24.2	20.2	EJ/yr
building	gas	18.7	26.7	28.9	30.6	30.4	27.3	23.1	19.7	EJ/yr
building	coal	10.1	5.1	7.1	6.8	5.2	3.3	1.4	0.8	EJ/yr
building	biomass	4.5	5.5	8.2	9.3	9.5	9.4	6.9	4.2	EJ/yr
building	electricity	16.9	29.0	43.4	62.1	81.1	99.9	127.2	153.5	EJ/yr
building	trad biomass	23.5	29.9	32.2	28.5	24.2	19.8	14.2	9.5	EJ/yr
building	energy reduction	0.0	0.0	2.8	5.7	11.6	22.2	37.6	48.1	EJ/yr
	total: w/o reduction	88.9	112.7	140.1	161.0	175.8	187.0	197.0	207.9	EJ/yr
industry	liquids	22.4	21.2	20.3	24.2	27.8	33.6	27.2	18.6	EJ/yr
industry	gas	26.6	30.5	33.3	38.4	36.9	29.0	22.3	19.5	EJ/yr
industry	coal	31.4	35.8	52.2	61.6	56.7	37.1	14.3	9.3	EJ/yr
industry	biomass	7.3	11.2	19.5	28.1	39.9	58.3	54.8	40.3	EJ/yr
industry	electricity	18.1	24.8	34.2	46.9	61.4	74.6	102.0	127.3	EJ/yr
industry	hydrogen	0.0	0.0	2.6	3.2	4.0	5.1	6.0	7.4	EJ/yr
industry	energy reduction	0.0	0.0	5.8	14.3	29.6	53.0	85.4	106.6	EJ/yr
industry	feedstocks	15.2	23.7	27.2	32.0	35.2	37.0	36.3	36.2	EJ/yr
	total: w/o reduction	105.8	123.6	162.1	202.3	226.7	237.6	226.6	222.3	EJ/yr
transportation	liquids	62.7	87.7	100.1	118.2	131.1	142.7	144.8	135.4	EJ/yr
transportation	gas	2.2	3.0	6.4	11.9	17.2	20.3	23.5	27.5	EJ/yr
transportation	coal	0.5	0.2	0.3	0.4	0.3	0.1	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.6	10.4	15.2	22.9	31.5	EJ/yr
transportation	hydrogen	0.0	0.0	0.5	2.0	5.6	9.9	16.3	25.6	EJ/yr
transportation	energy reduction	0.0	0.0	1.2	3.3	7.0	13.5	27.8	39.4	EJ/yr
	total: w/o reduction	66.4	91.8	109.4	137.1	164.7	188.3	207.5	220.0	EJ/yr
total final energy	buildings	88.9	112.7	140.1	161.0	175.8	187.0	197.0	207.9	EJ/yr
total final energy	industry	105.8	123.6	162.1	202.3	226.7	237.6	226.6	222.3	EJ/yr
total final energy	transportation	66.4	91.8	109.4	137.1	164.7	188.3	207.5	220.0	EJ/yr
total final energy	energy reduction	0.0	0.0	9.8	23.3	48.2	88.7	150.8	194.1	EJ/yr
	total: w/o reduction	261.1	328.1	411.6	500.4	567.2	612.9	631.1	650.2	EJ/yr

Scenario: ccs stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	180.8	198.8	207.3	222.1	205.5	171.8	EJ/yr
oil w/ ccs	0.0	0.0	0.4	1.3	2.6	5.7	12.9	12.2	EJ/yr
natural gas w/o ccs	69.9	97.5	126.4	168.6	201.0	191.6	167.1	149.0	EJ/yr
natural gas w/ ccs	0.0	0.0	1.2	4.7	12.4	25.2	56.0	98.8	EJ/yr
coal w/o ccs	91.2	119.1	162.6	199.1	200.8	161.0	74.9	13.5	EJ/yr
coal w/ ccs	0.0	0.0	0.5	3.1	14.9	49.5	144.5	243.3	EJ/yr
biomass w/o ccs	14.4	21.6	36.0	52.3	77.2	115.6	123.4	105.3	EJ/yr
biomass w/ ccs	0.0	0.0	0.1	0.6	3.0	10.5	51.2	97.8	EJ/yr
nuclear	21.0	26.1	23.4	21.8	19.0	18.2	16.8	15.0	EJ/yr
hydro	23.6	29.2	29.2	30.8	30.8	32.8	33.6	32.6	EJ/yr
wind	0.0	0.9	15.2	33.4	44.4	57.8	71.2	77.1	EJ/yr
solar	0.0	0.1	1.3	3.8	7.6	13.7	24.1	33.4	EJ/yr
geothermal	0.4	0.5	1.4	5.4	7.9	7.8	7.3	6.6	EJ/yr
energy reduction	0.0	0.0	14.3	38.2	88.0	158.7	230.5	316.3	EJ/yr
total: w/o reduction	356	463	578	724	829	911	989	1056	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.97	2.98	2.99	3.17	2.13	1.26	EJ/yr
oil w/ccs	0.00	0.00	0.15	0.54	1.15	2.61	6.12	5.80	EJ/yr
gas	6.07	12.82	23.42	35.11	47.27	47.41	40.60	26.64	EJ/yr
gas w/ccs	0.00	0.00	0.47	2.34	6.66	14.44	33.42	60.10	EJ/yr
coal	16.06	26.35	36.04	46.69	53.43	48.98	25.79	1.08	EJ/yr
coal w/ccs	0.00	0.00	0.17	1.26	6.47	22.40	67.49	113.40	EJ/yr
biomass	0.43	0.71	1.32	2.58	5.30	7.34	6.54	2.73	EJ/yr
biomass w/ccs	0.00	0.00	0.01	0.20	1.19	4.21	20.76	40.09	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.01	10.91	15.03	19.56	24.73	29.36	EJ/yr
wind w/storage	0.00	0.00	1.30	4.02	7.25	11.20	16.09	20.84	EJ/yr
CSP w/backup	0.00	0.00	0.33	0.61	0.76	1.29	2.28	3.70	EJ/yr
CSP w/storage	0.00	0.00	0.12	0.95	2.43	4.25	7.42	11.89	EJ/yr
PV w/backup	0.00	0.04	0.05	0.06	0.26	0.85	2.05	3.25	EJ/yr
PV w/storage	0.00	0.00	0.01	0.03	0.13	0.40	0.92	1.44	EJ/yr
rooftop PV w/backup	0.00	0.00	0.30	0.88	2.09	4.58	6.03	7.31	EJ/yr
geothermal	0.13	0.21	0.58	2.53	4.20	4.36	4.39	4.40	EJ/yr
energy reduction	0.00	0.00	2.40	7.49	17.67	28.72	18.81	12.53	EJ/yr
total: w/o reduction	42.7	65.2	95.3	135.6	182.4	224.7	296.3	364.7	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	94.5	102.1	98.9	100.5	94.3	63.2	EJ/yr
unconventional oil	0.0	0.0	1.5	5.8	14.4	20.9	25.3	42.6	EJ/yr
coal liquids	0.0	0.0	1.1	2.7	4.0	2.8	1.3	0.2	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.2	0.5	1.1	EJ/yr
bio fuels	0.2	0.9	1.6	2.8	5.1	10.7	17.4	21.1	EJ/yr
gas liquids	0.0	0.0	1.4	4.8	8.6	7.6	5.9	7.2	EJ/yr
gas	2.2	3.0	6.4	11.9	17.2	20.3	23.5	27.5	EJ/yr
coal	0.5	0.2	0.3	0.4	0.3	0.1	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.6	10.4	15.2	22.9	31.5	EJ/yr
hydrogen	0.0	0.0	0.5	2.0	5.6	9.9	16.3	25.6	EJ/yr
energy reduction	0.0	0.0	1.2	3.3	7.0	13.5	27.8	39.4	EJ/yr
total: w/o reduction	66.4	91.8	109.4	137.1	164.7	188.3	207.5	220.0	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	45.36	50.69	51.85	55.96	47.96	29.49	EJ/yr
unconventional oil	0.00	0.00	0.37	1.75	5.22	7.84	8.61	16.59	EJ/yr
coal liquids	0.00	0.00	0.25	0.68	1.04	0.74	0.07	0.20	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.20	EJ/yr
bio fuels	0.01	0.05	0.20	0.49	1.20	2.95	4.59	5.87	EJ/yr
gas liquids	0.00	0.00	0.36	1.49	2.68	2.24	1.49	1.82	EJ/yr
energy reduction	0.0	0.0	0.7	1.4	3.0	8.1	20.6	26.8	EJ/yr
total: w/o reduction	36.6	43.9	46.5	55.1	62.0	69.8	62.8	54.2	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.08	3.46	6.23	9.00	9.33	9.62	EJ/yr
gas w/ccs	0.00	0.00	0.25	0.47	1.03	1.88	4.11	7.29	EJ/yr
coal	0.00	0.00	0.39	0.56	0.79	0.76	0.33	0.21	EJ/yr
coal w/ccs	0.00	0.00	0.07	0.12	0.34	0.98	2.60	5.07	EJ/yr
biomass	0.00	0.00	0.14	0.22	0.40	0.60	0.42	0.26	EJ/yr
biomass w/ccs	0.00	0.00	0.03	0.06	0.17	0.64	3.45	6.93	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.08	0.16	0.33	0.56	0.83	1.15	EJ/yr
wind	0.00	0.00	0.07	0.07	0.11	0.20	0.37	0.63	EJ/yr
solar	0.00	0.00	0.07	0.10	0.20	0.40	0.87	1.76	EJ/yr
energy reduction	0.00	0.00	0.06	0.02	-0.24	-0.77	-2.32	-5.19	EJ/yr
total: w/o reduction	0.00	0.00	3.18	5.22	9.60	15.02	22.30	32.92	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.2	9.3	9.5	9.4	6.9	4.2	EJ/yr
Industry	7.4	11.3	19.9	29.1	42.3	63.9	63.3	50.9	EJ/yr
electricity	2.1	2.5	3.8	7.1	15.1	26.0	59.0	90.1	EJ/yr
refined liquids: tran & bldg	0.5	2.2	3.9	6.7	12.0	24.2	37.6	43.9	EJ/yr
hydrogen	0.0	0.0	0.4	0.6	1.2	2.5	7.8	14.1	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-4.0	-9.0	-19.9	-42.5	-73.3	-73.1	EJ/yr
total: w/o reduction	14.4	21.6	36.1	52.9	80.2	126.1	174.6	203.2	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	25.9	32.1	43.9	61.9	80.4	84.4	EJ
dedicated biomass crops	0.0	0.0	10.1	20.4	34.4	48.7	64.0	79.9	EJ
municipal solid waste	0.0	0.1	0.1	0.3	1.9	15.5	30.2	38.9	EJ
waste biomass	0.0	0.0	5.8	5.7	-2.1	-16.5	-33.3	-35.0	EJ
reduction in biomass crops	0.0	0.0	-10.1	-15.5	-17.7	-13.9	-15.3	-9.5	EJ
reduction in municipal solid waste	0.0	0.0	0.3	0.7	-0.1	-12.1	-24.7	-28.6	EJ
total: w/o reduction	14.4	21.6	31.8	43.1	60.4	95.7	126.0	158.6	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.3	\$83.7	\$118.3	\$165.7	\$229.2	\$310.8	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.40	1.92	1.49	1.13	0.86	0.67	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.78	2.42	1.92	1.43	0.99	0.72	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.88	1.64	1.39	1.14	0.91	0.71	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.06	5.98	4.79	3.70	2.75	2.09	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.6	19.3	19.9	20.6	21.9	23.8	GJ/capita
Final Energy per Capita	industry	20.2	19.2	21.5	24.3	25.7	26.2	25.2	25.4	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.5	16.4	18.7	20.8	23.0	25.1	GJ/capita
Final Energy per Capita	total	49.7	51.0	54.7	60.0	64.3	67.7	70.1	74.3	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.7	\$42.0	\$45.0	\$46.7	\$47.9	\$61.8	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$41.3	\$45.3	\$52.0	\$61.5	\$78.8	\$108.0	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.5	\$5.5	\$5.6	\$5.9	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.6	\$4.6	\$5.3	\$7.2	\$9.2	\$10.9	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.7	\$1.8	\$1.7	\$1.7	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.1	\$2.5	\$3.2	\$4.9	\$8.3	\$10.8	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.99	5.95	6.32	7.01	6.85	6.87	cents/kWh (2005\$)
	carbon price	0.0	0.0	12.8	26.7	55.5	115.3	239.6	334.1	\$/tC (2005\$)

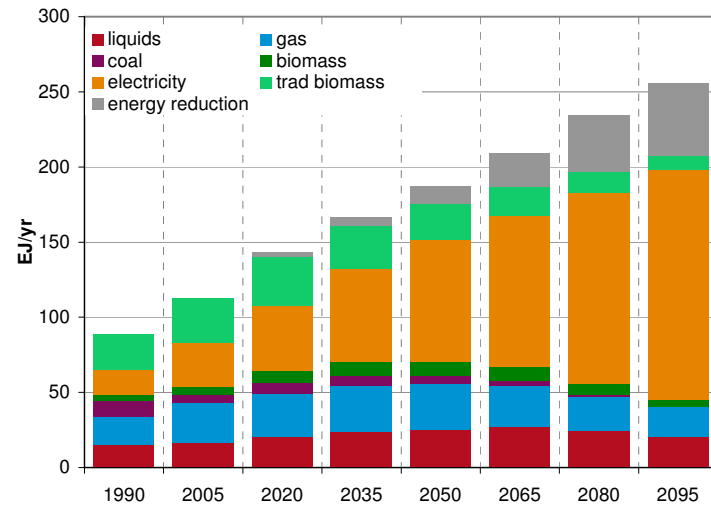
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	36	39	43	50	61	67	\$/Gcal (2005\$)
	global rice	32	32	36	39	44	53	65	70	\$/Gcal (2005\$)
	global wheat	27	27	32	36	41	51	66	73	\$/Gcal (2005\$)

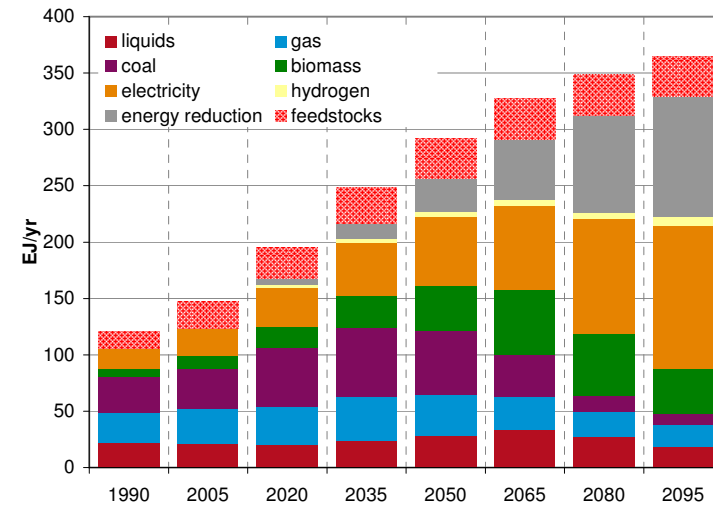
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.034	1.128	1.118	1.027	0.820	0.661	GtC/yr
	industry	1.623	1.706	2.090	2.432	2.388	1.983	1.154	0.756	GtC/yr
	transportation	1.354	1.863	2.218	2.748	3.152	3.289	3.083	2.741	GtC/yr
	electricity	1.909	2.848	3.578	4.377	4.648	4.132	1.825	-0.657	GtC/yr
	cement	0.261	0.483	0.834	1.110	1.138	0.871	0.345	0.174	GtC/yr
	emissions reduction	0.000	0.000	0.511	1.467	3.682	7.633	14.388	20.623	GtC/yr
	total: w/o reduction	6.006	7.760	9.755	11.797	12.443	11.303	7.227	3.676	GtC/yr

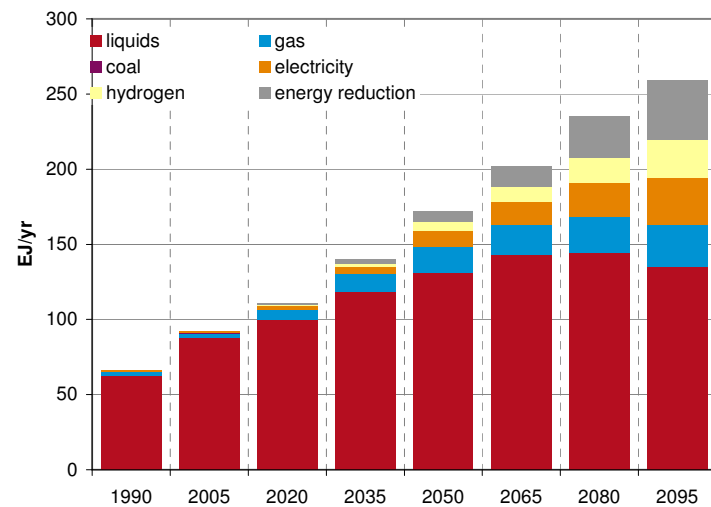
Final Energy Consumption: Buildings



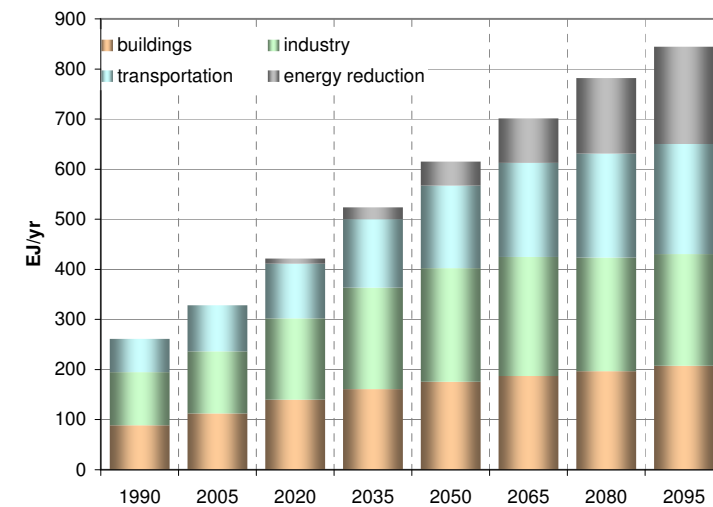
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

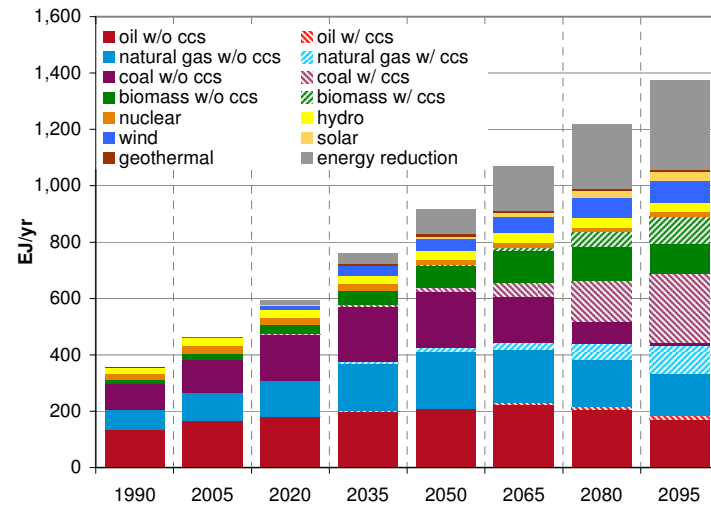


Final Energy Consumption by Sector

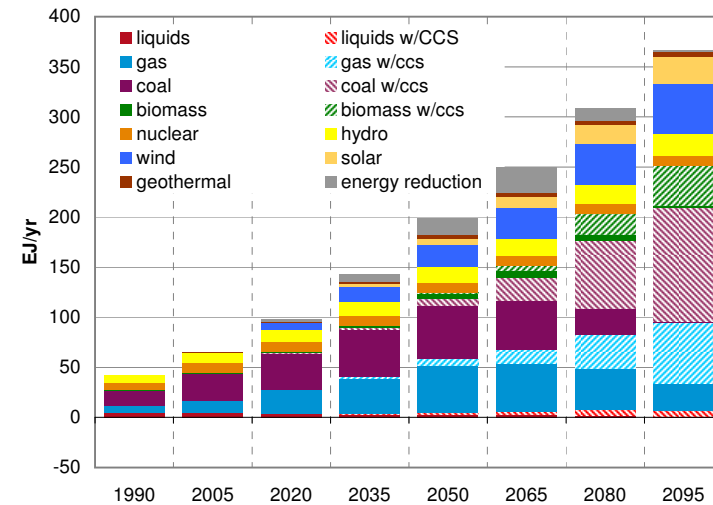


Scenario: ccs stab

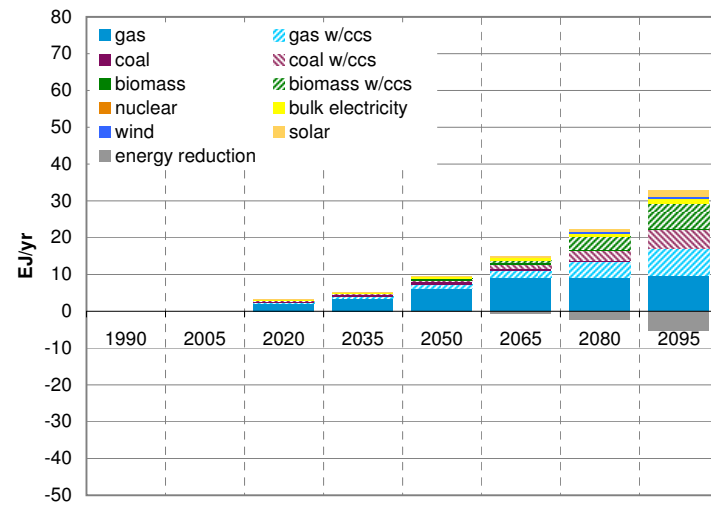
Primary Energy Consumption



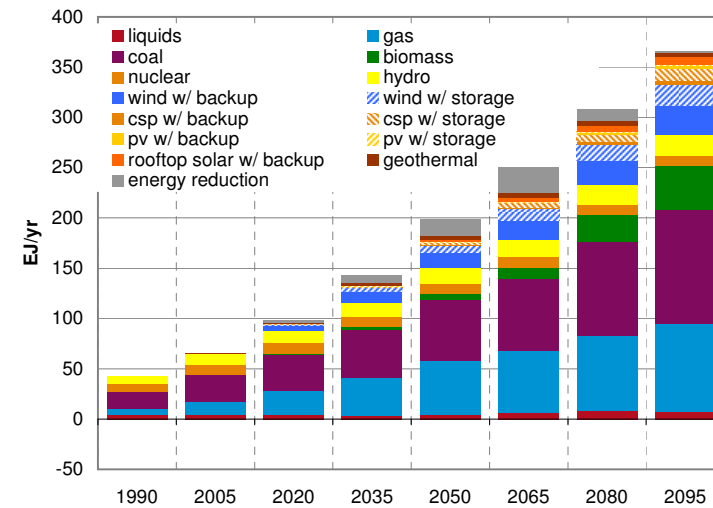
Electricity Production by Fuel: CCS Focus



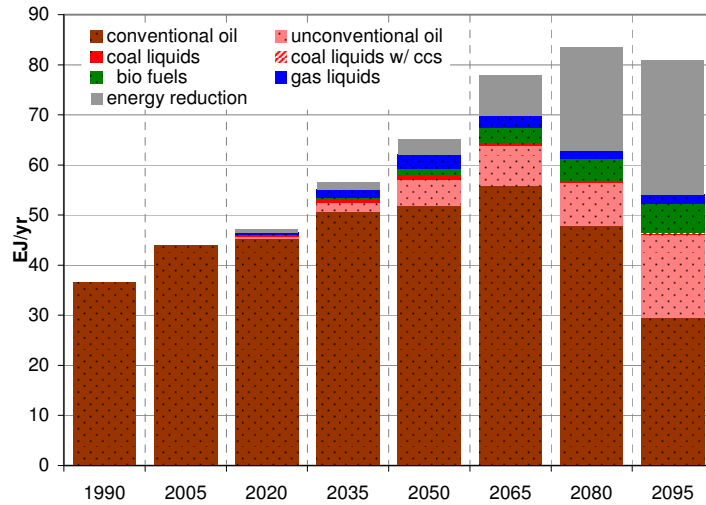
Hydrogen Production by Fuel



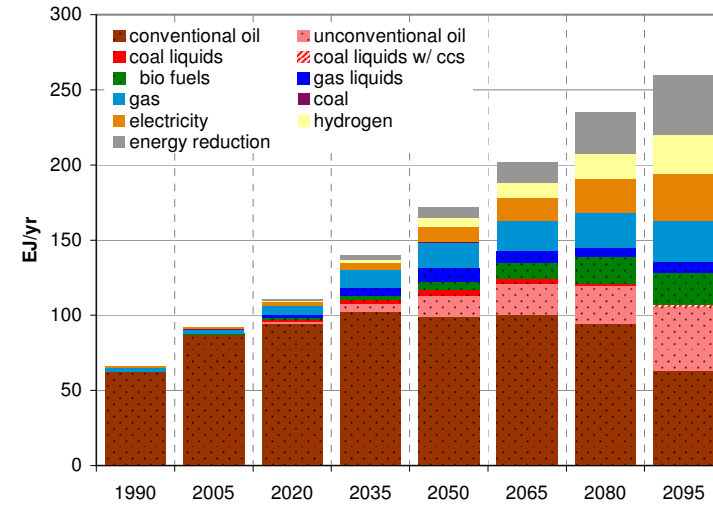
Electricity Production by Fuel: Renewable Focus



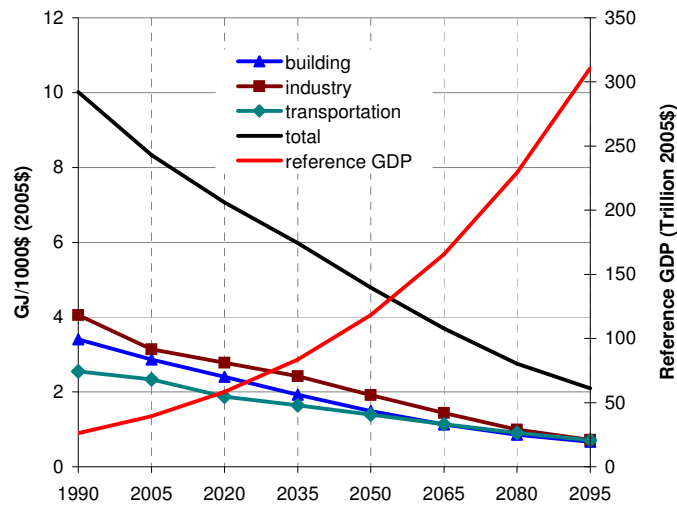
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



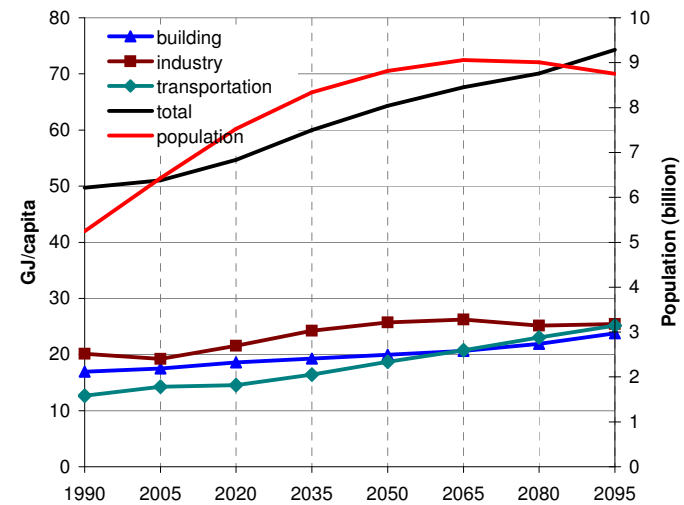
Transportation Fuels Composition



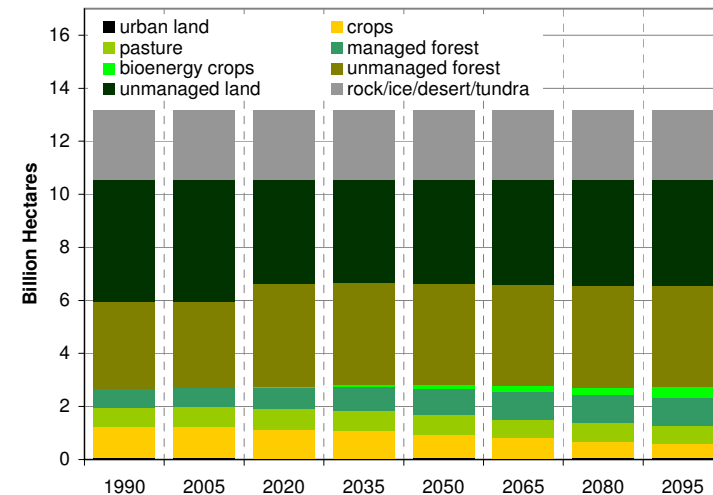
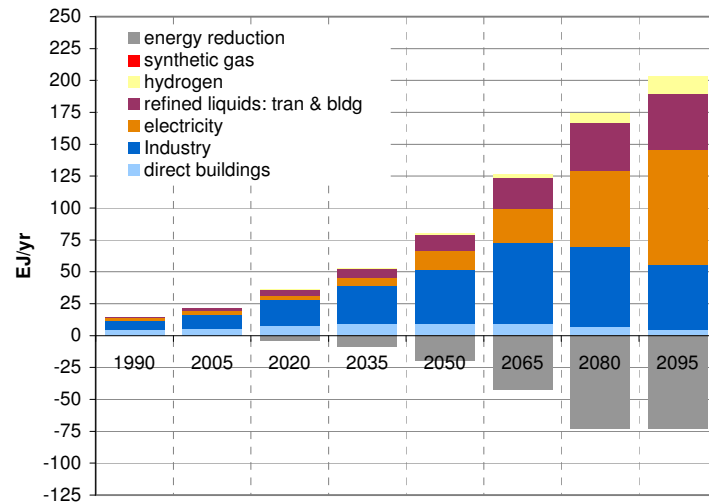
Final Energy Intensity



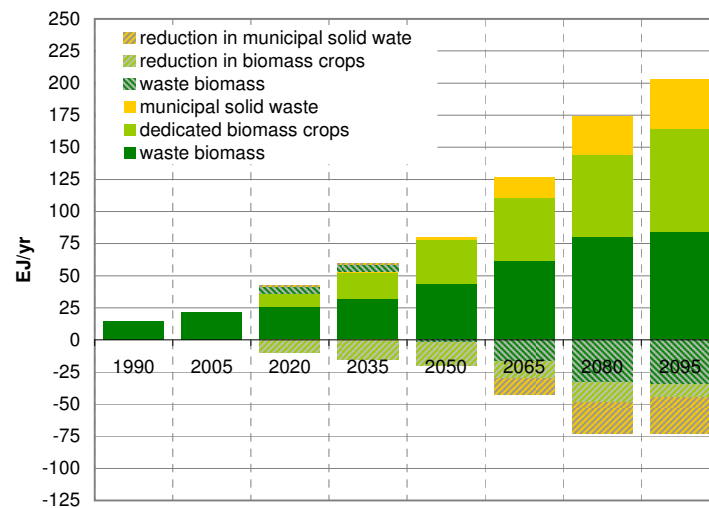
Final Energy per Capita



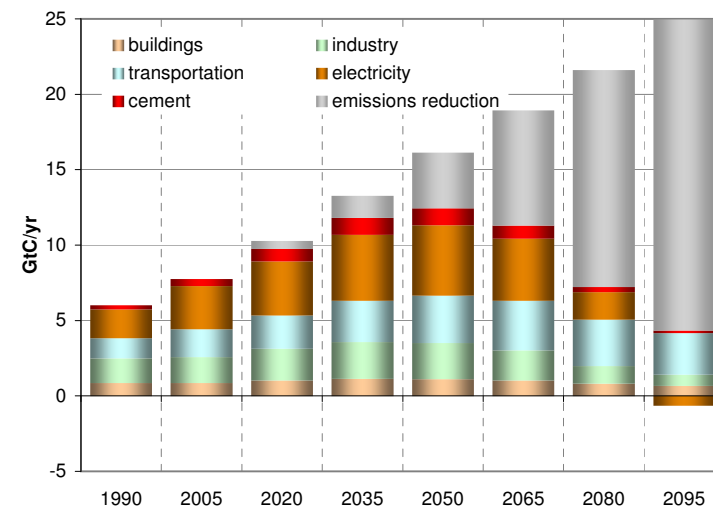
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.4	23.8	25.5	27.5	24.4	21.4	EJ/yr
building	gas	18.7	26.7	29.0	30.6	30.5	27.4	23.2	20.7	EJ/yr
building	coal	10.1	5.1	7.1	6.8	5.3	3.3	1.4	0.9	EJ/yr
building	biomass	4.5	5.5	8.2	9.5	9.9	9.7	7.3	4.8	EJ/yr
building	electricity	16.9	29.0	43.5	62.4	81.7	100.7	128.5	154.7	EJ/yr
building	trad biomass	23.5	29.9	32.2	28.5	24.1	19.7	14.1	9.4	EJ/yr
building	energy reduction	0.0	0.0	2.6	5.0	10.6	20.9	35.6	44.1	EJ/yr
	total: w/o reduction	88.9	112.7	140.3	161.6	176.8	188.4	199.0	211.9	EJ/yr
industry	liquids	22.4	21.2	20.3	24.1	27.7	33.5	27.2	20.3	EJ/yr
industry	gas	26.6	30.5	33.3	38.3	36.8	29.0	22.2	20.7	EJ/yr
industry	coal	31.4	35.8	52.3	61.8	56.8	37.1	14.2	10.9	EJ/yr
industry	biomass	7.3	11.2	19.7	29.0	41.9	61.0	58.3	45.9	EJ/yr
industry	electricity	18.1	24.8	34.2	46.9	61.4	74.6	102.1	124.2	EJ/yr
industry	hydrogen	0.0	0.0	2.6	3.2	4.0	5.1	6.0	7.3	EJ/yr
industry	energy reduction	0.0	0.0	5.5	13.3	27.8	50.3	82.0	99.6	EJ/yr
industry	feedstocks	15.2	23.7	27.3	32.1	35.4	37.3	36.7	36.9	EJ/yr
	total: w/o reduction	105.8	123.6	162.4	203.3	228.5	240.2	230.0	229.4	EJ/yr
transportation	liquids	62.7	87.7	100.2	118.5	131.7	143.7	146.2	140.9	EJ/yr
transportation	gas	2.2	3.0	6.4	12.0	17.3	20.4	23.7	28.2	EJ/yr
transportation	coal	0.5	0.2	0.3	0.4	0.3	0.1	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.6	10.5	15.3	23.0	30.8	EJ/yr
transportation	hydrogen	0.0	0.0	0.5	2.1	5.6	10.0	16.4	25.0	EJ/yr
transportation	energy reduction	0.0	0.0	1.1	2.8	6.2	12.2	25.9	34.4	EJ/yr
	total: w/o reduction	66.4	91.8	109.5	137.6	165.5	189.5	209.3	224.9	EJ/yr
total final energy	buildings	88.9	112.7	140.3	161.6	176.8	188.4	199.0	211.9	EJ/yr
total final energy	industry	105.8	123.6	162.4	203.3	228.5	240.2	230.0	229.4	EJ/yr
total final energy	transportation	66.4	91.8	109.5	137.6	165.5	189.5	209.3	224.9	EJ/yr
total final energy	energy reduction	0.0	0.0	9.2	21.2	44.6	83.5	143.6	178.1	EJ/yr
	total: w/o reduction	261.1	328.1	412.2	502.5	570.8	618.1	638.4	666.1	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	181.0	198.9	207.1	221.1	201.9	172.4	EJ/yr
oil w/ ccs	0.0	0.0	0.4	1.3	2.6	5.6	12.9	11.6	EJ/yr
natural gas w/o ccs	69.9	97.5	126.5	169.0	201.5	192.3	167.5	155.2	EJ/yr
natural gas w/ ccs	0.0	0.0	1.2	4.7	12.3	25.1	55.7	93.9	EJ/yr
coal w/o ccs	91.2	119.1	162.8	199.7	201.8	162.3	75.8	16.8	EJ/yr
coal w/ ccs	0.0	0.0	0.5	3.1	14.7	48.9	143.4	238.4	EJ/yr
biomass w/o ccs	14.4	21.6	36.4	54.2	82.0	124.0	138.6	131.3	EJ/yr
biomass w/ ccs	0.0	0.0	0.1	0.6	3.1	10.7	54.3	95.2	EJ/yr
nuclear	21.0	26.1	23.4	21.8	19.0	18.2	16.8	15.3	EJ/yr
hydro	23.6	29.2	29.2	30.8	30.9	32.8	33.6	33.0	EJ/yr
wind	0.0	0.9	15.3	33.4	44.5	57.8	71.2	77.0	EJ/yr
solar	0.0	0.1	1.3	3.8	7.6	13.7	24.1	33.0	EJ/yr
geothermal	0.4	0.5	1.4	5.5	7.9	7.8	7.3	6.7	EJ/yr
energy reduction	0.0	0.0	13.4	35.1	82.1	149.7	216.0	293.1	EJ/yr
total: w/o reduction	356	463	579	727	835	921	1003	1080	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.98	2.99	3.01	3.21	2.17	1.52	EJ/yr
oil w/ccs	0.00	0.00	0.15	0.54	1.15	2.61	6.10	5.53	EJ/yr
gas	6.07	12.82	23.47	35.24	47.52	47.80	41.07	28.48	EJ/yr
gas w/ccs	0.00	0.00	0.47	2.34	6.65	14.40	33.26	57.25	EJ/yr
coal	16.06	26.35	36.08	46.86	53.78	49.51	26.19	1.73	EJ/yr
coal w/ccs	0.00	0.00	0.17	1.25	6.40	22.12	67.00	111.20	EJ/yr
biomass	0.43	0.71	1.33	2.63	5.48	7.64	6.83	4.03	EJ/yr
biomass w/ccs	0.00	0.00	0.01	0.20	1.21	4.29	21.96	39.43	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	5.01	10.93	15.04	19.59	24.76	29.06	EJ/yr
wind w/storage	0.00	0.00	1.30	4.03	7.25	11.19	16.07	20.50	EJ/yr
CSP w/backup	0.00	0.00	0.33	0.61	0.76	1.30	2.28	3.62	EJ/yr
CSP w/storage	0.00	0.00	0.12	0.96	2.43	4.25	7.41	11.63	EJ/yr
PV w/backup	0.00	0.04	0.05	0.06	0.26	0.86	2.05	3.20	EJ/yr
PV w/storage	0.00	0.00	0.01	0.03	0.13	0.40	0.92	1.42	EJ/yr
rooftop PV w/backup	0.00	0.00	0.30	0.88	2.10	4.60	6.05	7.36	EJ/yr
geothermal	0.13	0.21	0.58	2.54	4.20	4.36	4.39	4.40	EJ/yr
energy reduction	0.00	0.00	2.29	7.12	16.91	27.68	17.03	15.16	EJ/yr
total: w/o reduction	42.7	65.2	95.4	136.0	183.2	225.8	298.0	361.7	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	94.6	102.2	98.8	99.9	92.5	63.1	EJ/yr
unconventional oil	0.0	0.0	1.5	5.8	14.4	20.9	24.9	42.3	EJ/yr
coal liquids	0.0	0.0	1.1	2.7	4.0	2.8	1.3	0.2	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.2	0.4	1.1	EJ/yr
bio fuels	0.2	0.9	1.6	3.0	5.8	12.3	21.2	27.2	EJ/yr
gas liquids	0.0	0.0	1.4	4.8	8.6	7.6	5.8	7.0	EJ/yr
gas	2.2	3.0	6.4	12.0	17.3	20.4	23.7	28.2	EJ/yr
coal	0.5	0.2	0.3	0.4	0.3	0.1	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.6	10.5	15.3	23.0	30.8	EJ/yr
hydrogen	0.0	0.0	0.5	2.1	5.6	10.0	16.4	25.0	EJ/yr
energy reduction	0.0	0.0	1.1	2.8	6.2	12.2	25.9	34.4	EJ/yr
total: w/o reduction	66.4	91.8	109.5	137.6	165.5	189.5	209.3	224.9	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.89	45.37	50.70	51.76	55.64	47.12	29.62	EJ/yr
unconventional oil	0.00	0.00	0.37	1.75	5.23	7.85	8.48	16.69	EJ/yr
coal liquids	0.00	0.00	0.25	0.68	1.05	0.75	0.06	0.21	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.20	EJ/yr
bio fuels	0.01	0.05	0.20	0.55	1.41	3.51	5.91	8.09	EJ/yr
gas liquids	0.00	0.00	0.36	1.49	2.66	2.22	1.46	1.78	EJ/yr
energy reduction	0.0	0.0	0.7	1.4	2.9	7.9	20.3	24.4	EJ/yr
total: w/o reduction	36.6	43.9	46.6	55.2	62.1	70.0	63.1	56.6	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.09	3.46	6.24	9.03	9.30	10.48	EJ/yr
gas w/ccs	0.00	0.00	0.25	0.47	1.02	1.87	4.06	6.73	EJ/yr
coal	0.00	0.00	0.39	0.56	0.80	0.77	0.33	0.28	EJ/yr
coal w/ccs	0.00	0.00	0.07	0.12	0.34	0.97	2.57	4.80	EJ/yr
biomass	0.00	0.00	0.14	0.23	0.42	0.63	0.45	0.34	EJ/yr
biomass w/ccs	0.00	0.00	0.03	0.06	0.17	0.66	3.71	6.24	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.08	0.16	0.33	0.56	0.83	1.15	EJ/yr
wind	0.00	0.00	0.07	0.07	0.11	0.20	0.36	0.60	EJ/yr
solar	0.00	0.00	0.07	0.10	0.20	0.40	0.86	1.66	EJ/yr
energy reduction	0.00	0.00	0.06	0.01	-0.27	-0.83	-2.49	-4.58	EJ/yr
total: w/o reduction	0.00	0.00	3.18	5.23	9.63	15.08	22.47	32.30	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.2	9.5	9.9	9.7	7.3	4.8	EJ/yr
Industry	7.4	11.3	20.1	30.1	44.6	67.6	69.2	60.5	EJ/yr
electricity	2.1	2.5	3.8	7.3	15.6	26.9	62.2	91.8	EJ/yr
refined liquids: tran & bldg	0.5	2.2	4.0	7.2	13.7	27.8	45.8	56.4	EJ/yr
hydrogen	0.0	0.0	0.4	0.6	1.2	2.6	8.3	12.9	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-4.4	-11.0	-24.7	-51.1	-91.6	-96.4	EJ/yr
total: w/o reduction	14.4	21.6	36.5	54.8	85.0	134.7	192.9	226.5	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	25.4	30.1	40.7	60.6	81.8	87.2	EJ
dedicated biomass crops	0.0	0.0	11.0	24.5	43.3	62.1	80.7	100.1	EJ
municipal solid waste	0.0	0.1	0.1	0.2	1.0	12.1	30.3	39.2	EJ
waste biomass	0.0	0.0	6.3	7.8	1.0	-15.2	-34.7	-37.8	EJ
reduction in biomass crops	0.0	0.0	-11.0	-19.6	-26.6	-27.2	-32.0	-29.7	EJ
reduction in municipal solid waste	0.0	0.0	0.3	0.8	0.8	-8.7	-24.8	-28.9	EJ
total: w/o reduction	14.4	21.6	31.8	43.0	59.5	92.3	126.1	158.9	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.4	\$84.0	\$119.0	\$167.0	\$231.5	\$314.7	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.40	1.92	1.49	1.13	0.86	0.67	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.78	2.42	1.92	1.44	0.99	0.73	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.88	1.64	1.39	1.13	0.90	0.71	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.06	5.98	4.80	3.70	2.76	2.12	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.6	19.4	20.1	20.8	22.1	24.2	GJ/capita
Final Energy per Capita	industry	20.2	19.2	21.6	24.4	25.9	26.5	25.5	26.2	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.6	16.5	18.8	20.9	23.2	25.7	GJ/capita
Final Energy per Capita	total	49.7	51.0	54.8	60.2	64.8	68.2	70.9	76.1	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.7	\$42.0	\$45.0	\$46.7	\$47.8	\$60.9	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$41.3	\$45.2	\$51.9	\$61.3	\$78.5	\$102.4	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.5	\$5.5	\$5.6	\$5.9	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.6	\$4.6	\$5.3	\$7.2	\$9.2	\$10.4	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.7	\$1.8	\$1.7	\$1.7	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.1	\$2.5	\$3.2	\$4.9	\$8.2	\$9.9	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.98	5.95	6.31	7.00	6.83	6.86	cents/kWh (2005\$)
	carbon price	0.0	0.0	12.7	26.3	54.9	114.1	237.2	300.7	\$/tC (2005\$)

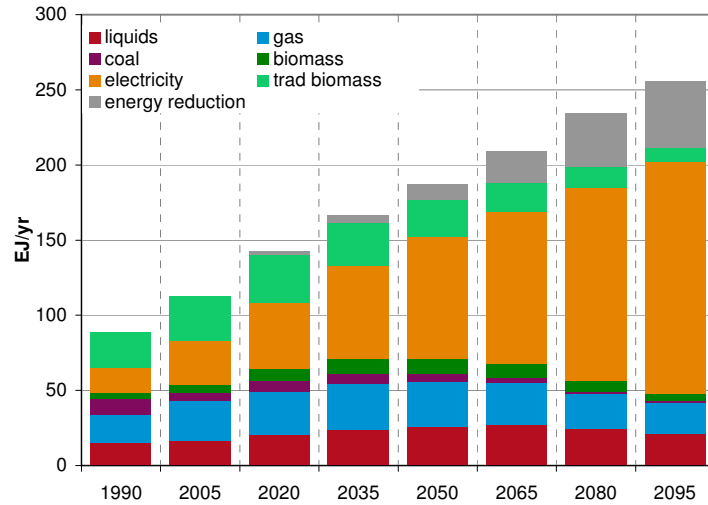
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	35	37	39	44	51	53	\$/Gcal (2005\$)
	global rice	32	32	34	35	38	42	48	49	\$/Gcal (2005\$)
	global wheat	27	27	30	31	34	39	48	49	\$/Gcal (2005\$)

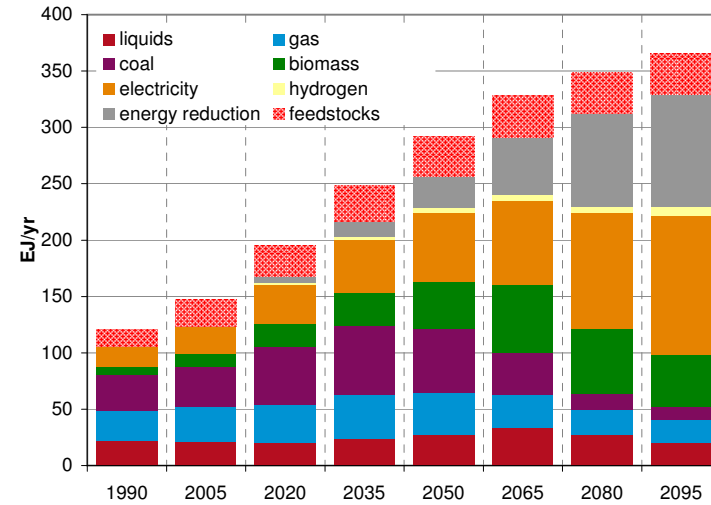
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.036	1.131	1.120	1.027	0.814	0.683	GtC/yr
	industry	1.623	1.706	2.092	2.436	2.387	1.980	1.130	0.818	GtC/yr
	transportation	1.354	1.863	2.220	2.753	3.153	3.280	3.027	2.774	GtC/yr
	electricity	1.909	2.848	3.582	4.392	4.675	4.170	1.802	-0.555	GtC/yr
	cement	0.261	0.483	0.834	1.112	1.136	0.868	0.345	0.205	GtC/yr
	emissions reduction	0.000	0.000	0.502	1.440	3.655	7.612	14.497	20.373	GtC/yr
	total: w/o reduction	6.006	7.760	9.764	11.823	12.470	11.324	7.118	3.926	GtC/yr

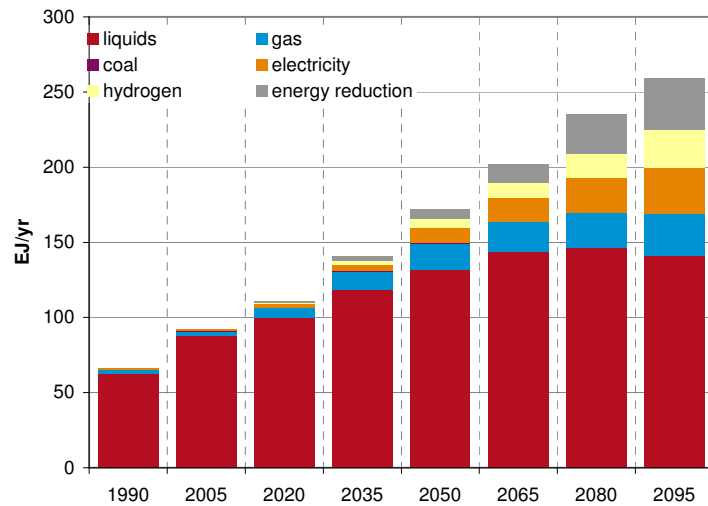
Final Energy Consumption: Buildings



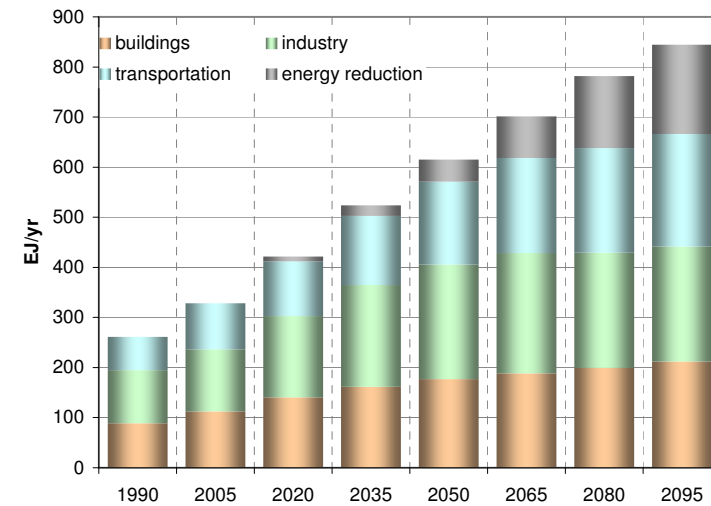
Final Energy Consumption: Industry (Does not Include Feedstocks)



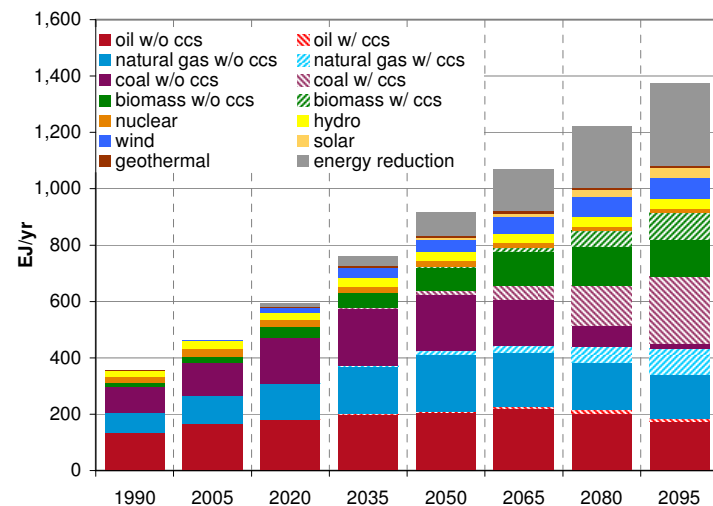
Final Energy Consumption: Transportation



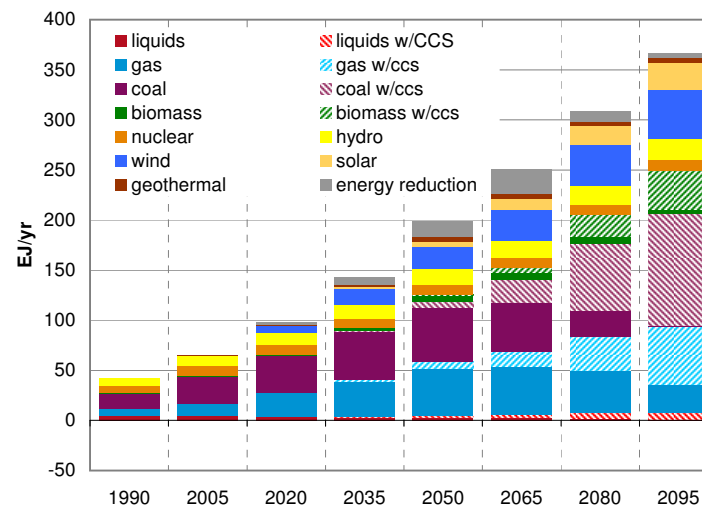
Final Energy Consumption by Sector



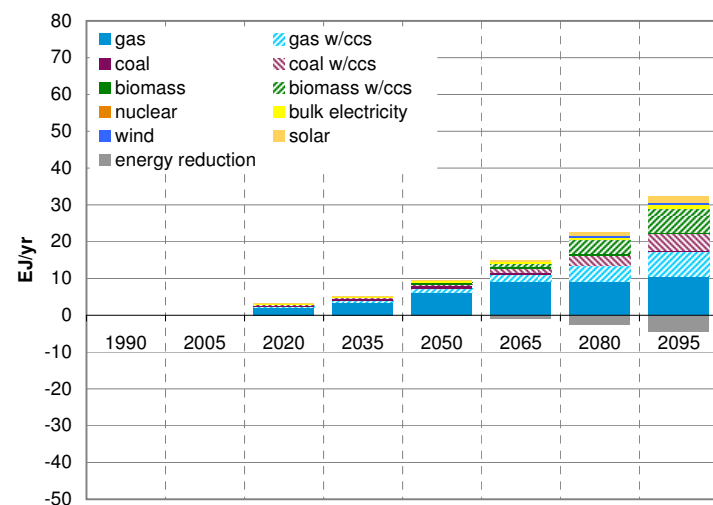
Primary Energy Consumption



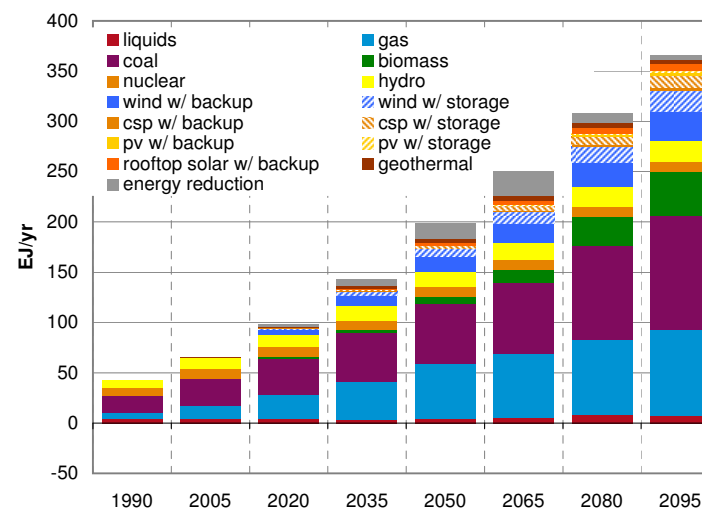
Electricity Production by Fuel: CCS Focus



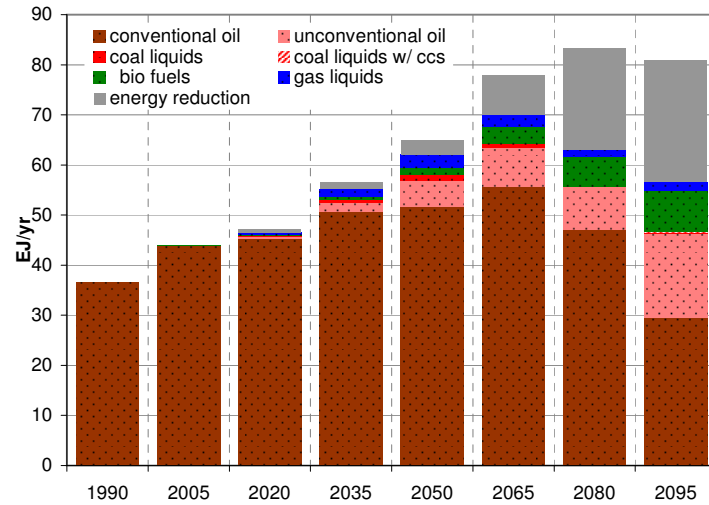
Hydrogen Production by Fuel



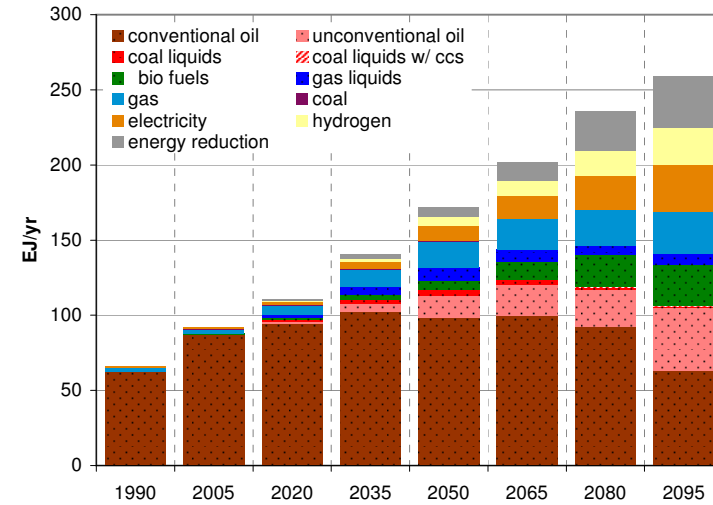
Electricity Production by Fuel: Renewable Focus



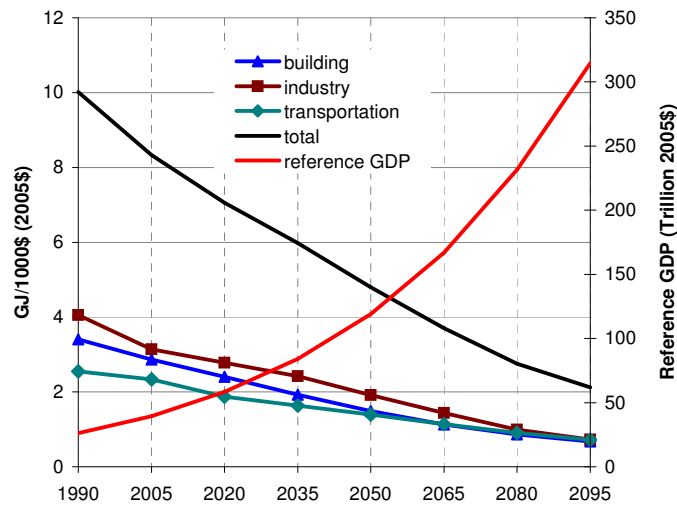
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



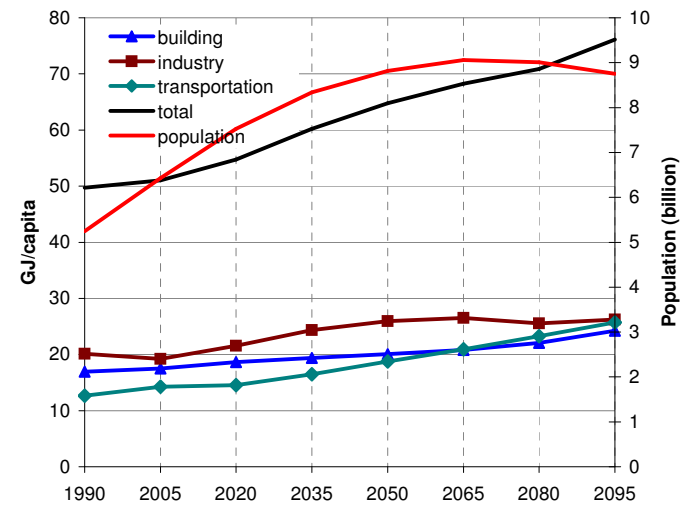
Transportation Fuels Composition



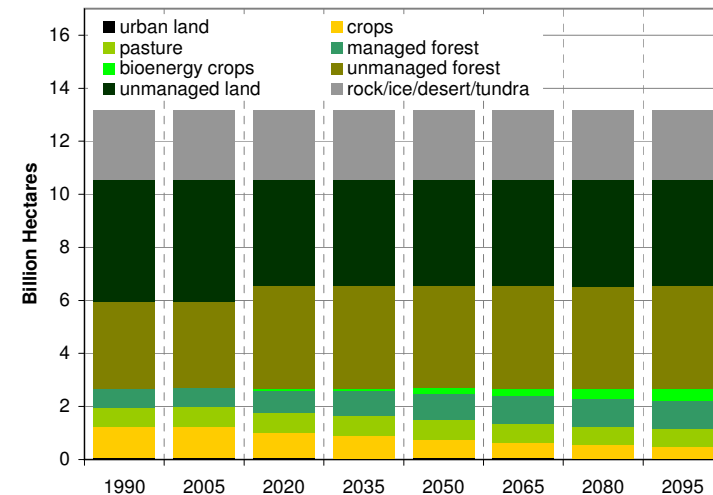
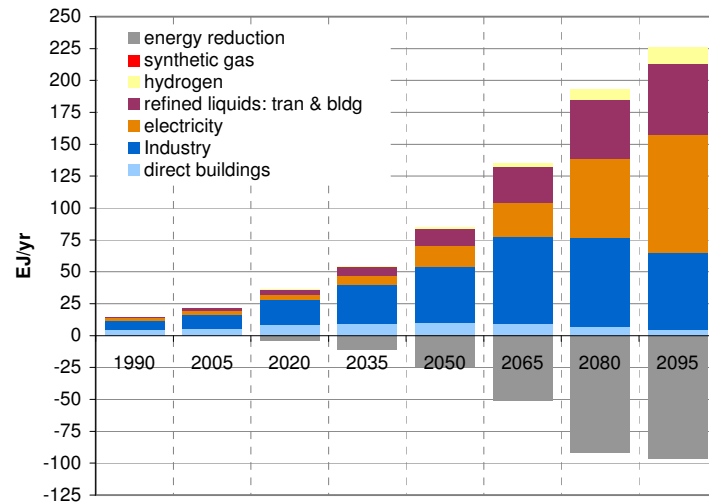
Final Energy Intensity



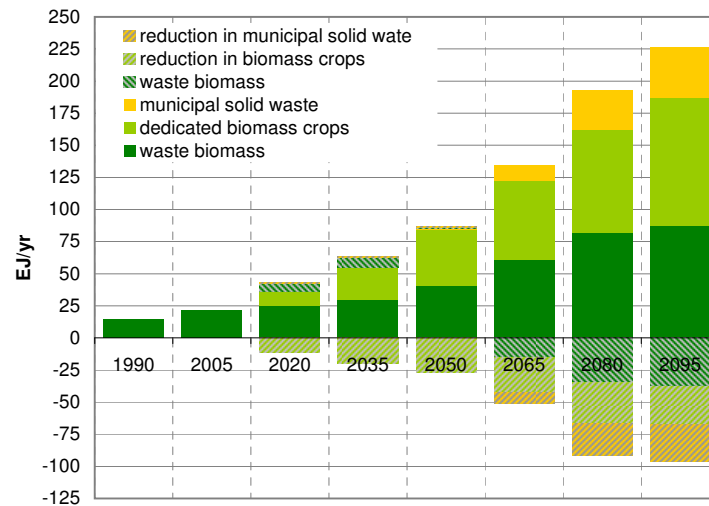
Final Energy per Capita



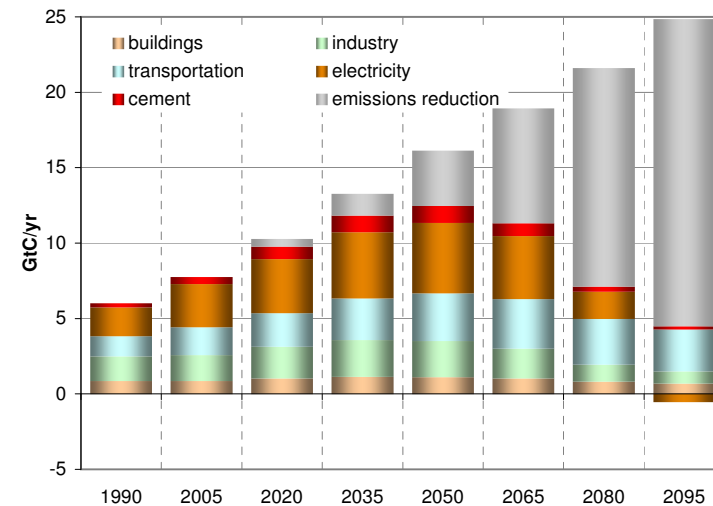
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.4	23.5	24.9	25.8	23.0	16.9	EJ/yr
building	gas	18.7	26.7	29.1	30.5	29.8	26.2	21.8	14.6	EJ/yr
building	coal	10.1	5.1	6.9	6.3	4.6	2.6	1.0	0.3	EJ/yr
building	biomass	4.5	5.5	8.4	9.6	9.8	9.3	6.7	3.3	EJ/yr
building	electricity	16.9	29.0	42.6	61.7	80.6	100.4	122.1	144.6	EJ/yr
building	trad biomass	23.5	29.9	32.3	28.7	24.4	19.9	14.8	10.3	EJ/yr
building	energy reduction	0.0	0.0	3.1	6.4	13.4	25.1	45.2	66.0	EJ/yr
	total: w/o reduction	88.9	112.7	139.8	160.3	174.0	184.2	189.5	190.0	EJ/yr
industry	liquids	22.4	21.2	20.2	23.5	26.6	29.7	24.6	15.0	EJ/yr
industry	gas	26.6	30.5	32.9	37.2	34.1	25.9	19.1	11.0	EJ/yr
industry	coal	31.4	35.8	49.7	55.0	46.0	25.9	10.4	2.6	EJ/yr
industry	biomass	7.3	11.2	20.5	29.9	43.7	60.9	55.8	36.5	EJ/yr
industry	electricity	18.1	24.8	34.2	49.3	65.3	81.7	101.1	130.0	EJ/yr
industry	hydrogen	0.0	0.0	2.8	3.3	4.0	4.8	5.3	5.1	EJ/yr
industry	energy reduction	0.0	0.0	7.5	18.5	36.5	61.6	95.7	128.7	EJ/yr
industry	feedstocks	15.2	23.7	27.0	31.5	34.5	36.2	35.0	33.7	EJ/yr
	total: w/o reduction	105.8	123.6	160.4	198.2	219.8	229.0	216.4	200.2	EJ/yr
transportation	liquids	62.7	87.7	99.8	117.4	129.3	138.8	141.7	126.6	EJ/yr
transportation	gas	2.2	3.0	6.3	11.9	16.9	20.1	23.5	23.5	EJ/yr
transportation	coal	0.5	0.2	0.3	0.3	0.3	0.1	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.8	10.9	16.5	23.6	36.0	EJ/yr
transportation	hydrogen	0.0	0.0	0.6	2.1	5.7	10.0	15.3	21.2	EJ/yr
transportation	energy reduction	0.0	0.0	1.5	3.9	8.6	16.3	31.1	52.0	EJ/yr
	total: w/o reduction	66.4	91.8	109.2	136.5	163.1	185.4	204.1	207.3	EJ/yr
total final energy	buildings	88.9	112.7	139.8	160.3	174.0	184.2	189.5	190.0	EJ/yr
total final energy	industry	105.8	123.6	160.4	198.2	219.8	229.0	216.4	200.2	EJ/yr
total final energy	transportation	66.4	91.8	109.2	136.5	163.1	185.4	204.1	207.3	EJ/yr
total final energy	energy reduction	0.0	0.0	12.1	28.8	58.5	102.9	171.9	246.6	EJ/yr
	total: w/o reduction	261.1	328.1	409.3	495.0	556.9	598.6	610.0	597.6	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	180.4	197.4	203.0	207.2	181.7	120.8	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	69.9	97.5	126.1	168.2	201.2	200.7	196.4	140.7	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	156.6	183.1	172.8	147.6	75.0	18.2	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	37.9	56.9	89.5	144.4	196.4	227.1	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.0	23.5	21.6	18.8	17.9	16.0	15.0	EJ/yr
hydro	23.6	29.2	29.2	30.6	30.6	32.5	32.9	34.6	EJ/yr
wind	0.0	0.9	15.5	35.8	49.8	70.3	96.6	140.1	EJ/yr
solar	0.0	0.1	2.6	10.6	21.9	42.9	94.1	218.8	EJ/yr
geothermal	0.4	0.6	1.8	11.1	25.0	32.8	38.4	44.2	EJ/yr
energy reduction	0.0	0.0	19.2	46.4	104.2	173.8	291.5	413.3	EJ/yr
total: w/o reduction	356	463	574	715	813	896	928	960	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.03	3.45	3.51	4.77	5.88	5.75	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	23.15	35.74	49.02	55.16	61.02	41.03	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	34.81	43.69	47.80	49.65	29.31	6.70	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.29	2.73	6.00	10.41	16.56	16.94	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.86	10.67	14.53	19.49	26.63	36.04	EJ/yr
wind w/storage	0.00	0.00	1.55	5.51	10.74	18.62	30.63	50.63	EJ/yr
CSP w/backup	0.00	0.00	0.54	0.99	1.11	1.90	4.31	11.72	EJ/yr
CSP w/storage	0.00	0.00	0.42	3.45	7.93	13.88	30.70	81.48	EJ/yr
PV w/backup	0.00	0.04	0.06	0.17	1.13	4.12	10.48	16.42	EJ/yr
PV w/storage	0.00	0.00	0.01	0.09	0.55	2.11	6.47	18.26	EJ/yr
rooftop PV w/backup	0.00	0.00	0.76	2.43	5.11	8.33	12.85	15.08	EJ/yr
geothermal	0.15	0.23	0.75	5.05	13.00	18.19	23.75	28.39	EJ/yr
energy reduction	0.00	0.00	4.35	11.95	32.47	51.35	90.42	148.72	EJ/yr
total: w/o reduction	42.8	65.2	94.3	137.9	186.2	234.3	288.1	359.8	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	94.3	101.2	97.1	93.6	83.1	58.2	EJ/yr
unconventional oil	0.0	0.0	1.5	5.6	13.7	18.9	18.9	11.8	EJ/yr
coal liquids	0.0	0.0	0.9	2.2	2.8	1.8	0.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.8	3.4	7.2	16.8	34.1	53.8	EJ/yr
gas liquids	0.0	0.0	1.4	5.0	8.6	7.7	5.6	2.8	EJ/yr
gas	2.2	3.0	6.3	11.9	16.9	20.1	23.5	23.5	EJ/yr
coal	0.5	0.2	0.3	0.3	0.3	0.1	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.8	10.9	16.5	23.6	36.0	EJ/yr
hydrogen	0.0	0.0	0.6	2.1	5.7	10.0	15.3	21.2	EJ/yr
energy reduction	0.0	0.0	1.5	3.9	8.6	16.3	31.1	52.0	EJ/yr
total: w/o reduction	66.4	91.8	109.2	136.5	163.1	185.4	204.1	207.3	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	45.09	49.66	50.14	50.43	41.11	26.81	EJ/yr
unconventional oil	0.00	0.00	0.36	1.67	4.84	6.78	5.55	0.52	EJ/yr
coal liquids	0.00	0.00	0.21	0.49	0.63	0.39	0.00	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.24	0.65	1.82	5.16	10.73	20.08	EJ/yr
gas liquids	0.00	0.00	0.36	1.52	2.64	2.22	1.40	0.56	EJ/yr
energy reduction	0.0	0.0	1.0	2.5	4.9	12.9	24.6	33.0	EJ/yr
total: w/o reduction	36.6	43.9	46.2	54.0	60.1	65.0	58.8	48.0	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.48	4.03	7.32	10.94	14.69	15.27	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.49	0.69	1.09	1.26	1.03	0.68	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.20	0.33	0.71	1.36	2.09	2.58	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.08	0.16	0.34	0.63	1.08	1.96	EJ/yr
wind	0.00	0.00	0.07	0.06	0.11	0.21	0.43	1.08	EJ/yr
solar	0.00	0.00	0.06	0.10	0.21	0.45	1.31	4.76	EJ/yr
energy reduction	0.00	0.00	-0.13	-0.13	-0.41	-0.60	-0.66	1.39	EJ/yr
total: w/o reduction	0.00	0.00	3.38	5.37	9.78	14.85	20.64	26.33	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.4	9.6	9.8	9.3	6.7	3.3	EJ/yr
Industry	7.4	11.3	21.0	31.2	47.3	70.7	75.6	72.5	EJ/yr
electricity	2.1	2.5	3.7	7.0	14.1	23.7	36.7	36.5	EJ/yr
refined liquids: tran & bldg	0.5	2.2	4.4	8.3	16.8	37.9	73.1	109.6	EJ/yr
hydrogen	0.0	0.0	0.4	0.7	1.5	2.8	4.2	5.1	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-5.8	-13.1	-29.2	-60.8	-95.1	-97.0	EJ/yr
total: w/o reduction	14.4	21.6	37.9	56.9	89.5	144.4	196.4	227.1	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	23.9	28.9	42.0	64.4	84.6	86.8	EJ
dedicated biomass crops	0.0	0.0	14.0	27.9	46.3	64.1	82.4	101.2	EJ
municipal solid waste	0.0	0.1	0.1	0.2	1.2	16.0	30.3	39.0	EJ
waste biomass	0.0	0.0	7.8	8.9	-0.3	-19.0	-37.5	-37.5	EJ
reduction in biomass crops	0.0	0.0	-14.0	-22.9	-29.5	-29.3	-33.7	-30.8	EJ
reduction in municipal solid waste	0.0	0.0	0.4	0.9	0.6	-12.6	-24.8	-28.7	EJ
total: w/o reduction	14.4	21.6	31.7	43.0	59.7	96.2	126.1	158.8	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.3	\$83.7	\$118.5	\$166.1	\$230.0	\$310.0	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.40	1.91	1.47	1.11	0.82	0.61	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.75	2.37	1.86	1.38	0.94	0.65	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.87	1.63	1.38	1.12	0.89	0.67	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.03	5.91	4.70	3.60	2.65	1.93	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.6	19.2	19.7	20.3	21.0	21.7	GJ/capita
Final Energy per Capita	industry	20.2	19.2	21.3	23.8	24.9	25.3	24.0	22.9	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.5	16.4	18.5	20.5	22.7	23.7	GJ/capita
Final Energy per Capita	total	49.7	51.0	54.4	59.3	63.2	66.1	67.7	68.3	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.7	\$41.9	\$44.8	\$46.3	\$47.1	\$46.3	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$41.9	\$46.4	\$54.5	\$66.6	\$89.6	\$133.3	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.1	\$4.4	\$5.3	\$5.4	\$5.3	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.6	\$4.6	\$5.6	\$7.7	\$10.3	\$15.6	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.5	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.2	\$2.7	\$3.8	\$6.1	\$10.6	\$20.3	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.74	6.03	5.79	6.09	6.72	7.49	8.26	cents/kWh (2005\$)
	carbon price	0.0	0.0	17.8	36.9	76.8	159.7	332.0	690.2	\$/tC (2005\$)

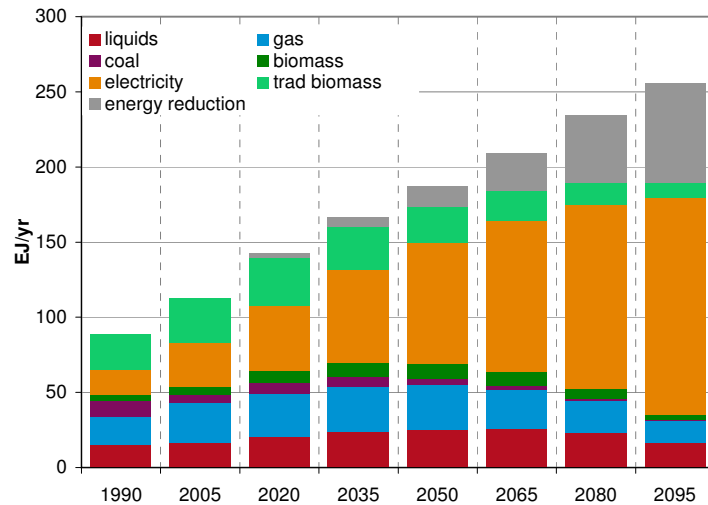
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	36	38	41	47	56	68	\$/Gcal (2005\$)
	global rice	32	32	36	37	41	46	54	64	\$/Gcal (2005\$)
	global wheat	27	27	32	34	38	44	55	70	\$/Gcal (2005\$)

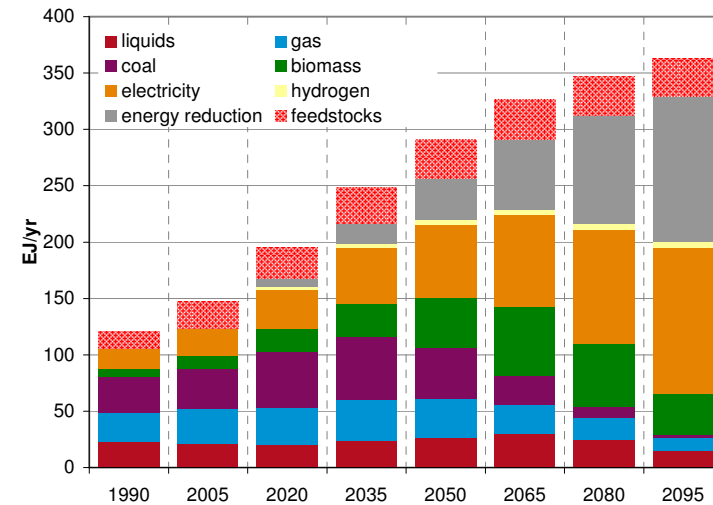
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.031	1.102	1.065	0.930	0.703	0.416	GtC/yr
	industry	1.623	1.706	2.039	2.261	2.110	1.617	0.922	0.191	GtC/yr
	transportation	1.354	1.863	2.205	2.704	3.044	3.098	2.814	2.080	GtC/yr
	electricity	1.909	2.848	3.487	4.193	4.362	4.477	3.240	1.502	GtC/yr
	cement	0.261	0.483	0.813	1.057	1.022	0.770	0.573	0.421	GtC/yr
	emissions reduction	0.000	0.000	0.693	1.947	4.522	8.045	13.361	19.689	GtC/yr
	total: w/o reduction	6.005	7.759	9.573	11.317	11.602	10.891	8.254	4.610	GtC/yr

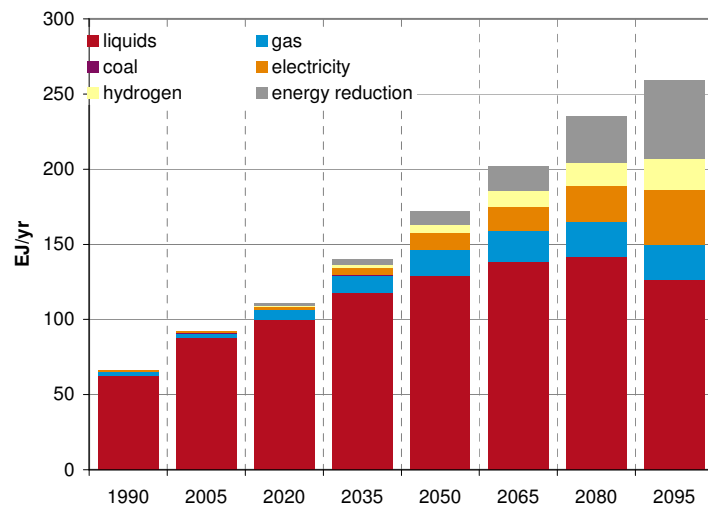
Final Energy Consumption: Buildings



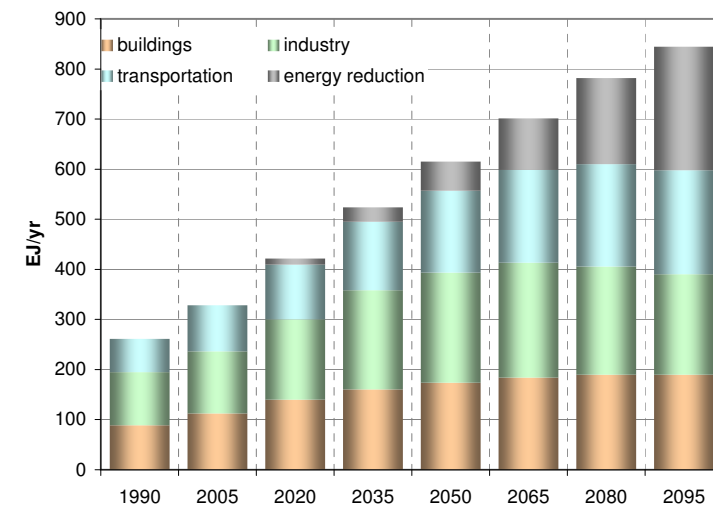
Final Energy Consumption: Industry (Does not Include Feedstocks)



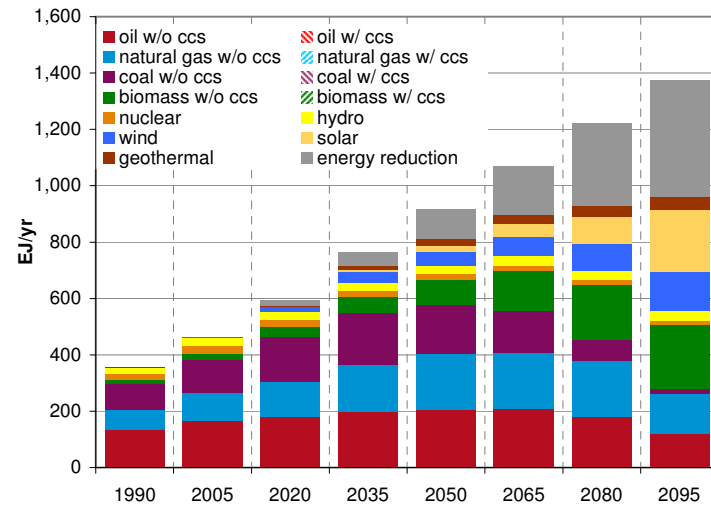
Final Energy Consumption: Transportation



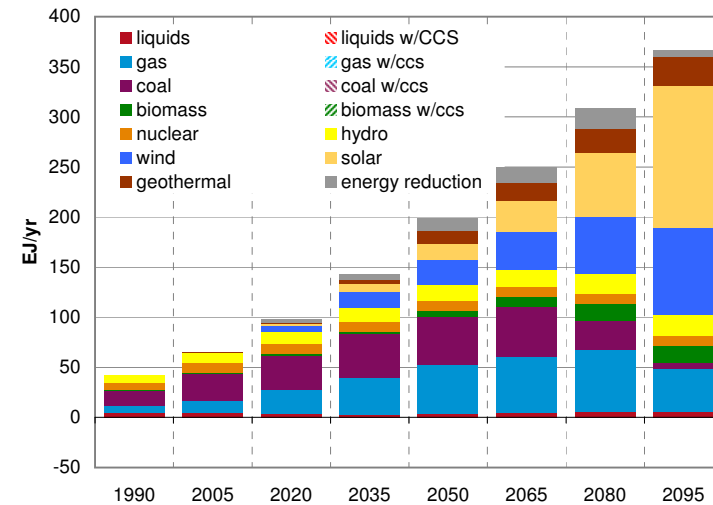
Final Energy Consumption by Sector



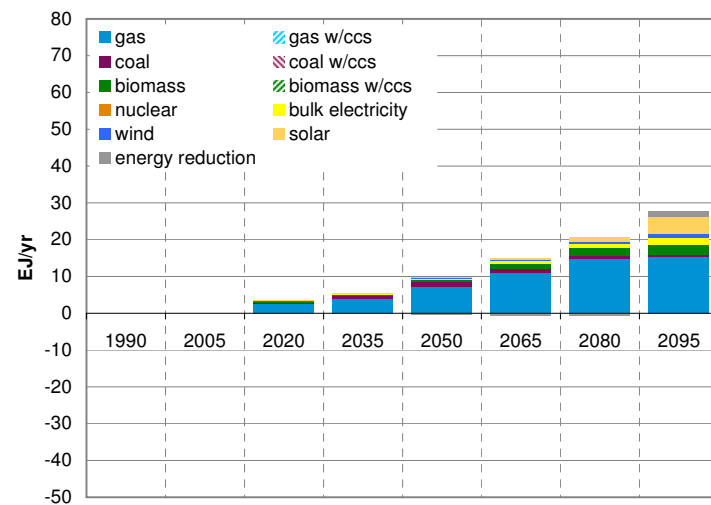
Primary Energy Consumption



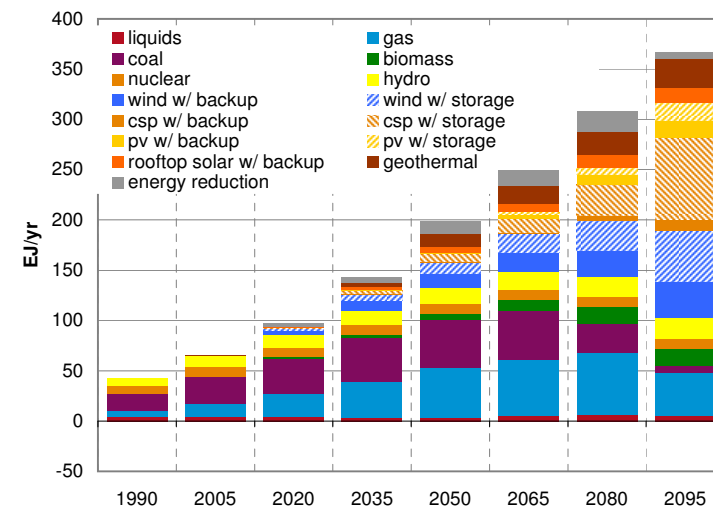
Electricity Production by Fuel: CCS Focus



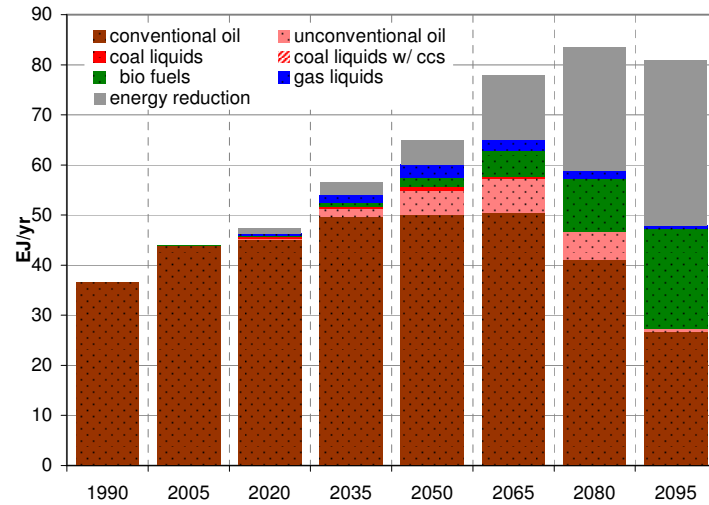
Hydrogen Production by Fuel



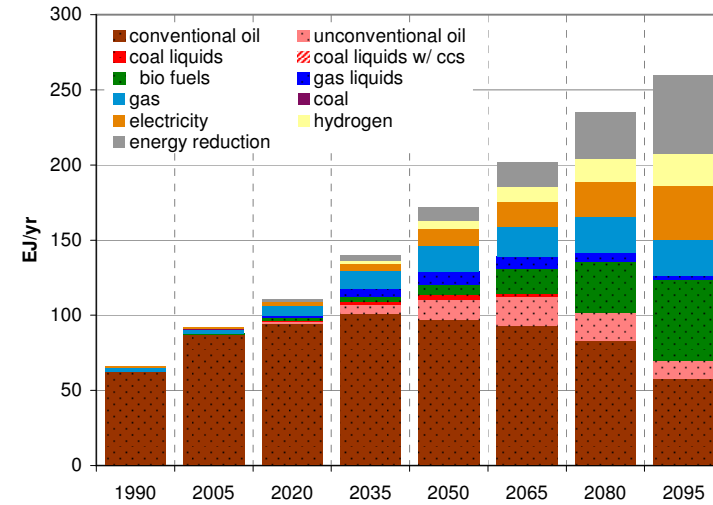
Electricity Production by Fuel: Renewable Focus



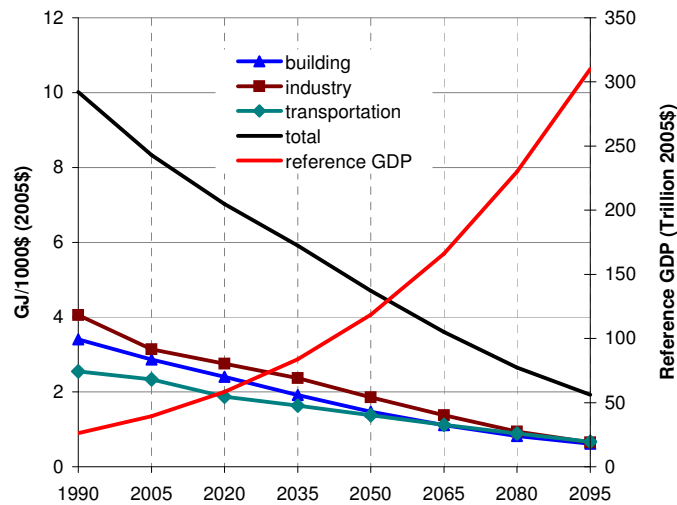
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



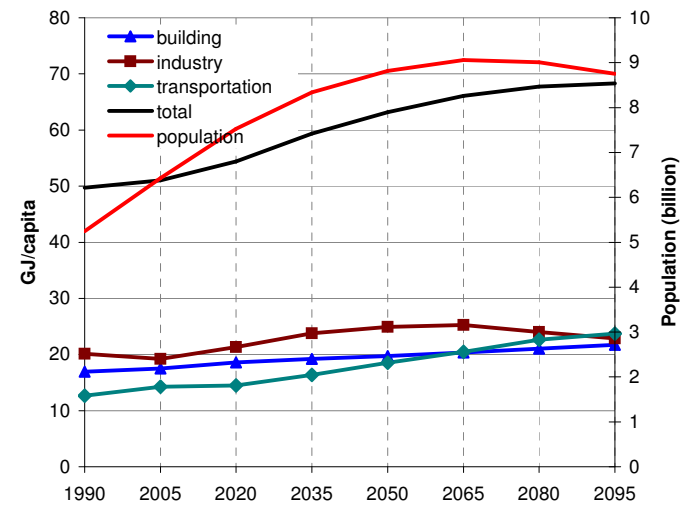
Transportation Fuels Composition



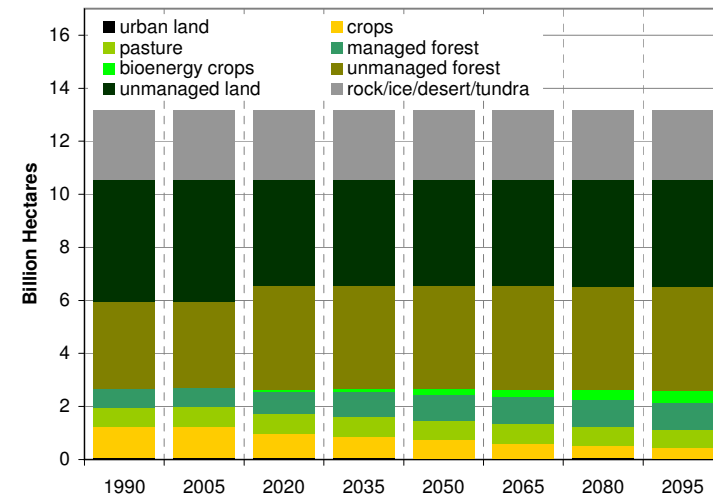
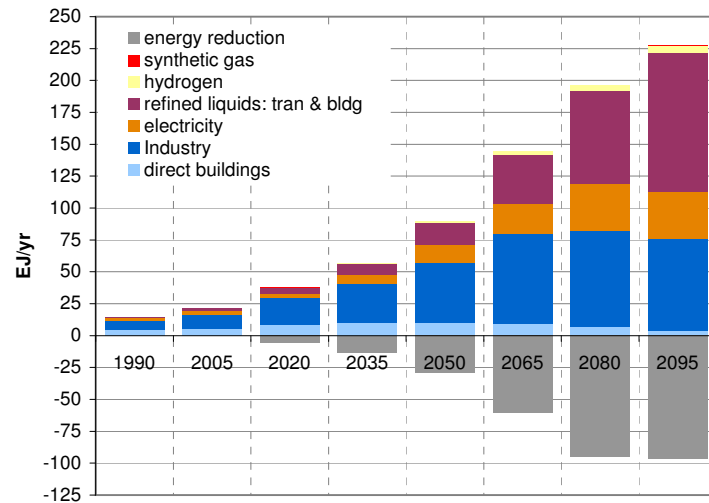
Final Energy Intensity



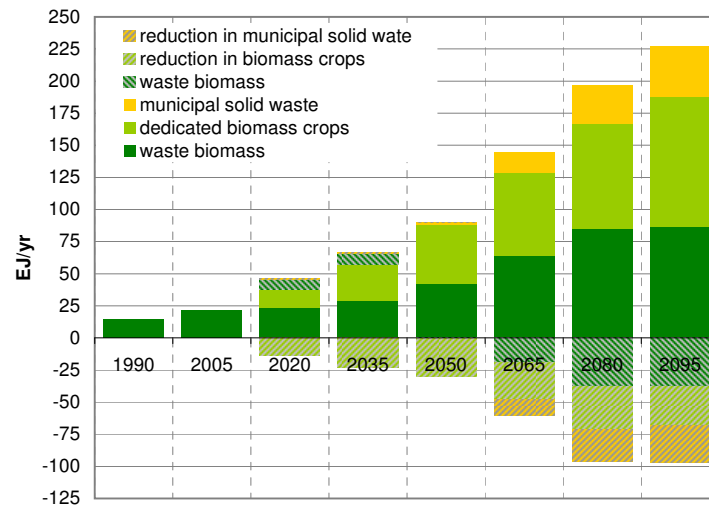
Final Energy per Capita



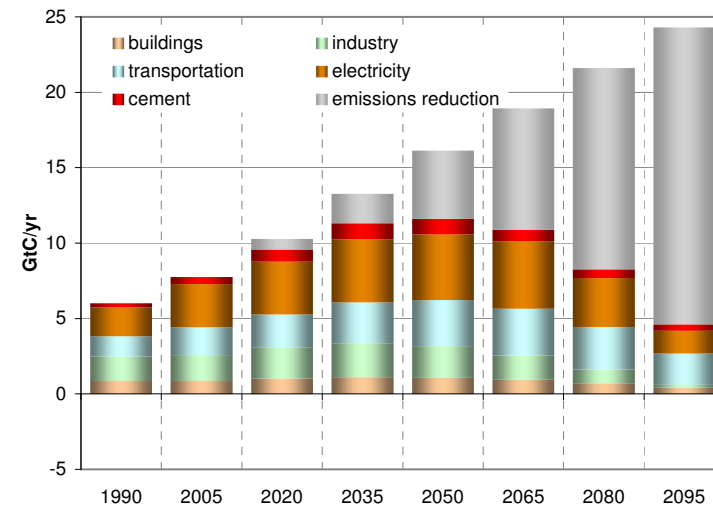
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	19.5	19.6	19.2	19.2	17.1	13.6	EJ/yr
building	gas	18.7	26.7	27.5	24.8	22.6	19.4	15.8	11.3	EJ/yr
building	coal	10.1	5.1	6.9	5.6	4.0	2.5	1.2	0.4	EJ/yr
building	biomass	4.5	5.5	7.8	7.6	7.3	6.7	5.6	3.4	EJ/yr
building	electricity	16.9	29.0	42.0	52.7	63.4	71.4	77.6	78.8	EJ/yr
building	trad biomass	23.5	29.9	31.4	25.1	19.7	14.3	9.5	6.1	EJ/yr
building	energy reduction	0.0	0.0	7.8	31.4	51.1	75.8	108.0	142.3	EJ/yr
	total: w/o reduction	88.9	112.7	135.0	135.3	136.2	133.4	126.7	113.7	EJ/yr
industry	liquids	22.4	21.2	18.6	21.3	24.4	30.1	28.1	24.6	EJ/yr
industry	gas	26.6	30.5	31.7	35.8	33.6	29.0	23.5	16.9	EJ/yr
industry	coal	31.4	35.8	49.5	55.4	53.0	38.5	19.5	7.8	EJ/yr
industry	biomass	7.3	11.2	18.1	24.5	35.1	52.4	66.3	58.6	EJ/yr
industry	electricity	18.1	24.8	33.4	45.9	59.6	69.0	77.0	86.5	EJ/yr
industry	hydrogen	0.0	0.0	2.5	2.7	3.3	4.1	4.8	5.5	EJ/yr
industry	energy reduction	0.0	0.0	14.1	31.1	47.4	67.5	92.8	129.0	EJ/yr
industry	feedstocks	15.2	23.7	26.5	30.8	33.7	35.9	35.1	32.2	EJ/yr
	total: w/o reduction	105.8	123.6	153.8	185.6	208.9	223.1	219.3	199.9	EJ/yr
transportation	liquids	62.7	87.6	92.2	86.2	82.7	77.9	72.3	65.7	EJ/yr
transportation	gas	2.3	3.0	6.0	8.3	9.9	10.4	10.5	9.4	EJ/yr
transportation	coal	0.5	0.2	0.3	0.3	0.2	0.1	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.9	7.9	12.4	15.7	18.2	19.5	EJ/yr
transportation	hydrogen	0.0	0.0	1.0	6.5	12.8	19.7	26.3	31.1	EJ/yr
transportation	energy reduction	0.0	0.0	8.3	31.2	53.7	77.8	107.8	133.5	EJ/yr
	total: w/o reduction	66.5	91.9	102.3	109.2	118.0	123.9	127.4	125.8	EJ/yr
total final energy	buildings	88.9	112.7	135.0	135.3	136.2	133.4	126.7	113.7	EJ/yr
total final energy	industry	105.8	123.6	153.8	185.6	208.9	223.1	219.3	199.9	EJ/yr
total final energy	transportation	66.5	91.9	102.3	109.2	118.0	123.9	127.4	125.8	EJ/yr
total final energy	energy reduction	0.0	0.0	30.2	93.6	152.3	221.1	308.5	404.9	EJ/yr
	total: w/o reduction	261.2	328.2	391.2	430.1	463.2	480.4	473.4	439.4	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	170.0	162.5	155.9	157.4	137.6	98.8	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	70.0	97.6	123.3	157.3	181.9	184.8	177.9	161.2	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	158.1	184.9	191.7	175.9	141.5	59.8	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	33.7	44.5	65.5	97.6	144.4	195.9	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.1	23.4	21.8	18.9	18.1	17.3	15.4	EJ/yr
hydro	23.6	29.2	29.2	30.8	30.8	32.7	34.6	35.1	EJ/yr
wind	0.0	0.9	14.3	29.0	36.3	44.8	54.9	77.9	EJ/yr
solar	0.0	0.1	1.2	3.2	5.7	9.5	16.4	39.7	EJ/yr
geothermal	0.4	0.5	1.3	4.8	7.6	7.7	7.4	6.9	EJ/yr
energy reduction	0.0	0.0	38.3	123.0	222.6	341.9	487.0	682.0	EJ/yr
total: w/o reduction	356	463	554	639	694	728	732	691	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	4.08	3.30	3.46	4.41	4.80	6.05	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	23.58	35.64	48.23	53.90	56.83	58.11	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.06	26.35	35.42	44.49	52.30	55.18	52.41	23.78	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.26	2.44	5.27	8.25	12.27	17.94	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.73	9.60	12.45	15.49	18.57	25.58	EJ/yr
wind w/storage	0.00	0.00	1.20	3.37	5.67	8.28	11.67	20.69	EJ/yr
CSP w/backup	0.00	0.00	0.31	0.52	0.56	0.86	1.44	3.72	EJ/yr
CSP w/storage	0.00	0.00	0.11	0.76	1.78	2.83	4.66	11.95	EJ/yr
PV w/backup	0.00	0.04	0.05	0.04	0.19	0.56	1.25	3.15	EJ/yr
PV w/storage	0.00	0.00	0.00	0.03	0.10	0.26	0.56	1.45	EJ/yr
rooftop PV w/backup	0.00	0.00	0.28	0.70	1.47	2.97	4.28	5.98	EJ/yr
geothermal	0.13	0.21	0.56	2.25	4.03	4.30	4.33	4.40	EJ/yr
energy reduction	0.00	0.00	4.01	15.36	37.24	64.98	106.75	161.66	EJ/yr
total: w/o reduction	42.7	65.2	93.7	127.1	161.3	184.9	202.6	214.2	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.7	87.3	76.5	64.5	56.5	47.3	34.0	EJ/yr
unconventional oil	0.0	0.0	1.3	3.2	7.7	10.1	9.6	6.2	EJ/yr
coal liquids	0.0	0.0	1.0	1.7	2.6	1.9	1.0	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.4	1.7	2.8	4.9	11.2	23.8	EJ/yr
gas liquids	0.0	0.0	1.2	3.1	5.1	4.5	3.2	1.7	EJ/yr
gas	2.3	3.0	6.0	8.3	9.9	10.4	10.5	9.4	EJ/yr
coal	0.5	0.2	0.3	0.3	0.2	0.1	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.9	7.9	12.4	15.7	18.2	19.5	EJ/yr
hydrogen	0.0	0.0	1.0	6.5	12.8	19.7	26.3	31.1	EJ/yr
energy reduction	0.0	0.0	8.3	31.2	53.7	77.8	107.8	133.5	EJ/yr
total: w/o reduction	66.5	91.9	102.3	109.2	118.0	123.9	127.4	125.8	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	43.04	47.46	48.85	53.96	48.18	35.16	EJ/yr
unconventional oil	0.00	0.00	0.34	1.30	4.12	6.14	5.70	0.78	EJ/yr
coal liquids	0.00	0.00	0.24	0.58	0.96	0.72	0.03	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.17	0.38	0.94	2.21	7.14	19.57	EJ/yr
gas liquids	0.00	0.00	0.34	1.39	2.38	2.17	1.48	0.71	EJ/yr
energy reduction	0.0	0.0	3.1	5.4	7.8	12.7	20.9	24.7	EJ/yr
total: w/o reduction	36.6	43.9	44.1	51.1	57.2	65.2	62.5	56.2	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.60	6.91	11.99	17.82	22.64	24.94	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.53	1.22	2.05	2.56	2.24	1.45	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.19	0.50	1.00	1.82	3.17	4.19	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.09	0.26	0.52	0.87	1.24	1.65	EJ/yr
wind	0.00	0.00	0.07	0.11	0.18	0.31	0.62	1.20	EJ/yr
solar	0.00	0.00	0.06	0.15	0.28	0.51	1.19	3.21	EJ/yr
energy reduction	0.00	0.00	-0.29	-3.90	-6.67	-9.64	-11.12	-8.93	EJ/yr
total: w/o reduction	0.00	0.00	3.54	9.14	16.04	23.89	31.10	36.65	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	7.8	7.6	7.3	6.7	5.6	3.4	EJ/yr
Industry	7.4	11.3	18.5	25.3	37.0	56.6	79.4	93.5	EJ/yr
electricity	2.1	2.5	3.6	6.3	12.4	18.8	27.3	39.2	EJ/yr
refined liquids: tran & bldg	0.5	2.2	3.4	4.2	6.8	11.7	25.6	51.4	EJ/yr
hydrogen	0.0	0.0	0.4	1.1	2.1	3.7	6.3	8.2	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-1.6	-0.6	-5.3	-14.0	-43.1	-65.9	EJ/yr
total: w/o reduction	14.4	21.6	33.7	44.5	65.5	97.6	144.4	195.9	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	25.7	28.3	35.3	49.0	63.8	81.9	EJ
dedicated biomass crops	0.0	0.0	7.8	16.0	29.7	44.4	58.2	74.9	EJ
municipal solid waste	0.0	0.1	0.1	0.2	0.5	4.1	22.5	39.1	EJ
waste biomass	0.0	0.0	5.9	9.6	6.4	-3.6	-16.7	-32.5	EJ
reduction in biomass crops	0.0	0.0	-7.8	-11.1	-13.0	-9.6	-9.5	-4.6	EJ
reduction in municipal solid waste	0.0	0.0	0.3	0.9	1.3	-0.7	-17.0	-28.8	EJ
total: w/o reduction	14.4	21.6	31.8	43.0	59.0	84.3	118.3	158.8	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.4	\$84.0	\$118.9	\$166.7	\$231.0	\$311.1	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.31	1.61	1.15	0.80	0.55	0.37	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.63	2.21	1.76	1.34	0.95	0.64	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.75	1.30	0.99	0.74	0.55	0.40	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.02	8.33	6.70	5.12	3.90	2.88	2.05	1.41	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	17.9	16.2	15.5	14.7	14.1	13.0	GJ/capita
Final Energy per Capita	industry	20.2	19.2	20.4	22.3	23.7	24.6	24.3	22.8	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	13.6	13.1	13.4	13.7	14.1	14.4	GJ/capita
Final Energy per Capita	total	49.8	51.0	52.0	51.6	52.5	53.0	52.6	50.2	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.6	\$40.4	\$43.1	\$43.7	\$44.2	\$43.1	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$40.9	\$43.1	\$48.7	\$55.7	\$69.1	\$93.9	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$4.0	\$4.3	\$5.0	\$5.2	\$5.2	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.5	\$4.3	\$5.0	\$6.4	\$8.1	\$11.3	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.6	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.0	\$2.3	\$2.9	\$4.3	\$7.0	\$12.7	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.75	5.89	5.69	5.97	6.63	7.33	8.94	cents/kWh (2005\$)
	carbon price	0.0	0.0	10.6	21.9	45.4	94.6	196.6	408.7	\$/tC (2005\$)

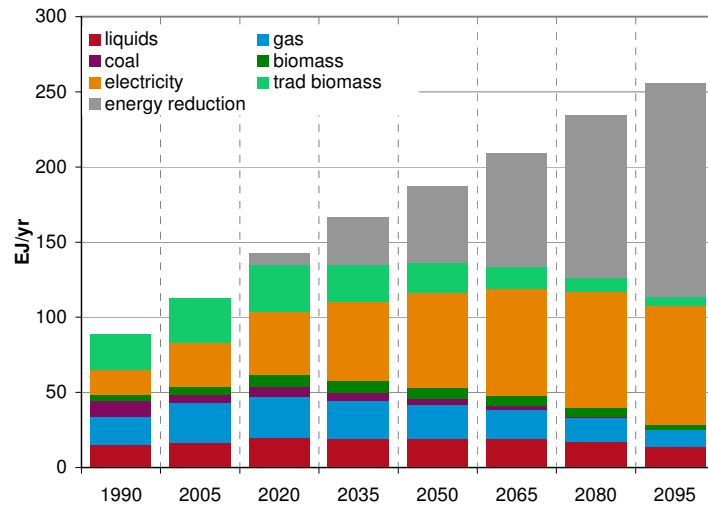
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	36	38	41	47	55	67	\$/Gcal (2005\$)
	global rice	32	32	35	37	41	48	56	68	\$/Gcal (2005\$)
	global wheat	27	27	31	34	38	45	55	72	\$/Gcal (2005\$)

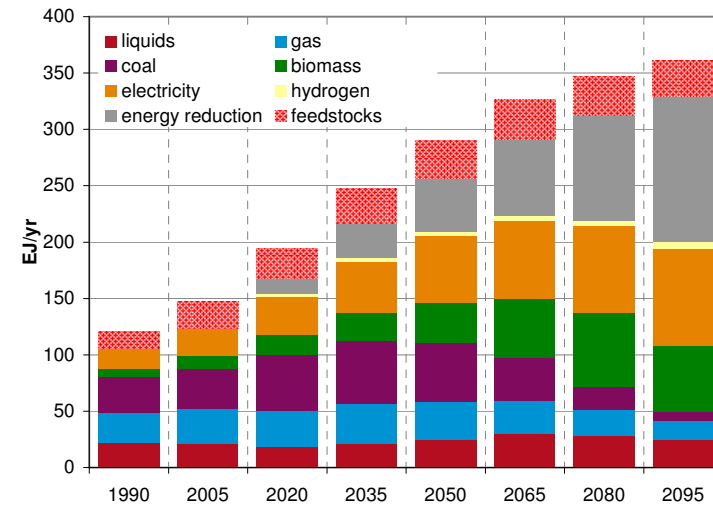
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	0.991	0.923	0.845	0.736	0.565	0.352	GtC/yr
	industry	1.623	1.706	1.978	2.208	2.202	1.980	1.366	0.641	GtC/yr
	transportation	1.355	1.863	2.059	2.104	2.182	2.113	1.882	1.420	GtC/yr
	electricity	1.909	2.849	3.542	4.257	4.624	4.770	4.538	2.804	GtC/yr
	cement	0.261	0.483	0.816	1.058	1.114	0.911	0.651	0.488	GtC/yr
	emissions reduction	0.000	0.000	0.879	2.714	5.158	8.427	12.614	18.594	GtC/yr
	total: w/o reduction	6.007	7.761	9.386	10.550	10.967	10.510	9.001	5.704	GtC/yr

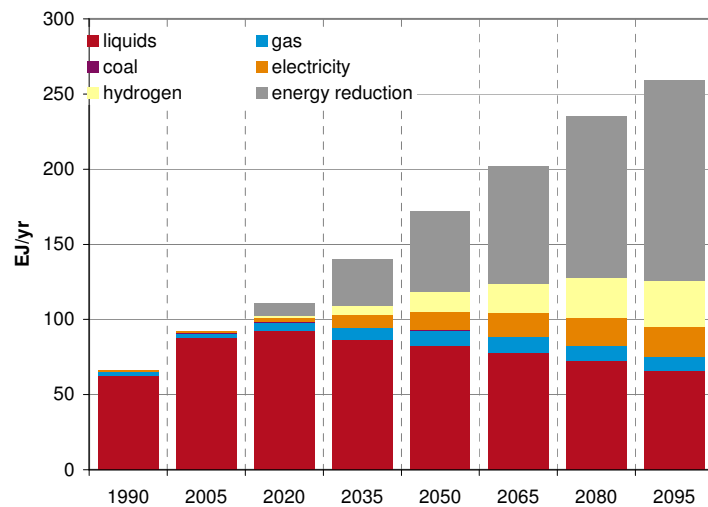
Final Energy Consumption: Buildings



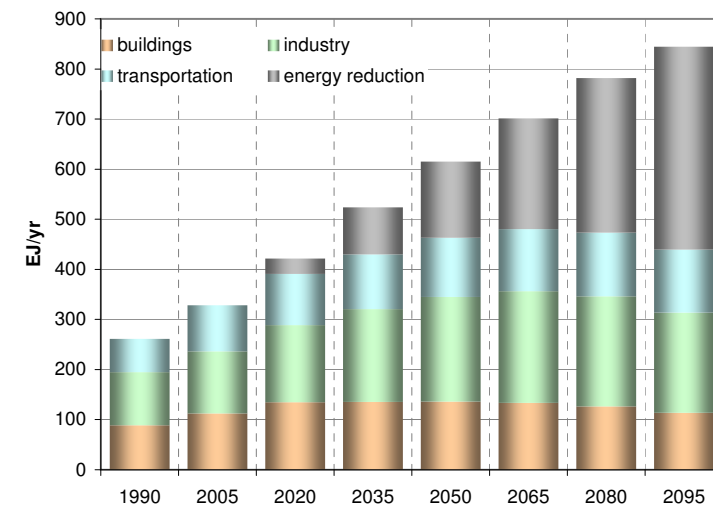
Final Energy Consumption: Industry (Does not Include Feedstocks)



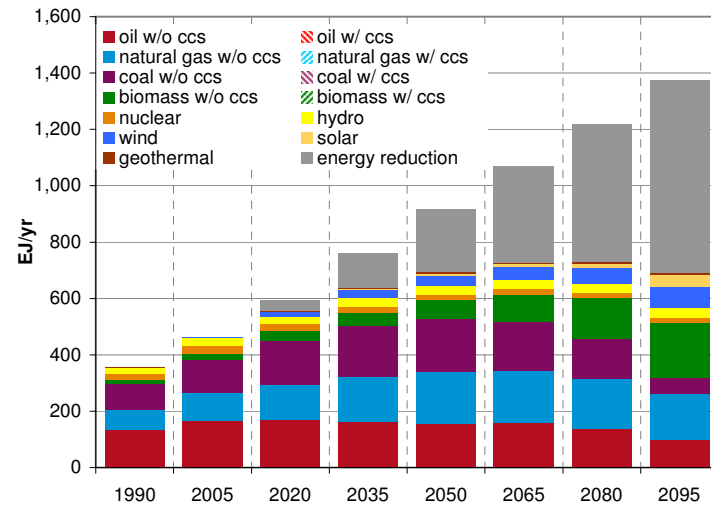
Final Energy Consumption: Transportation



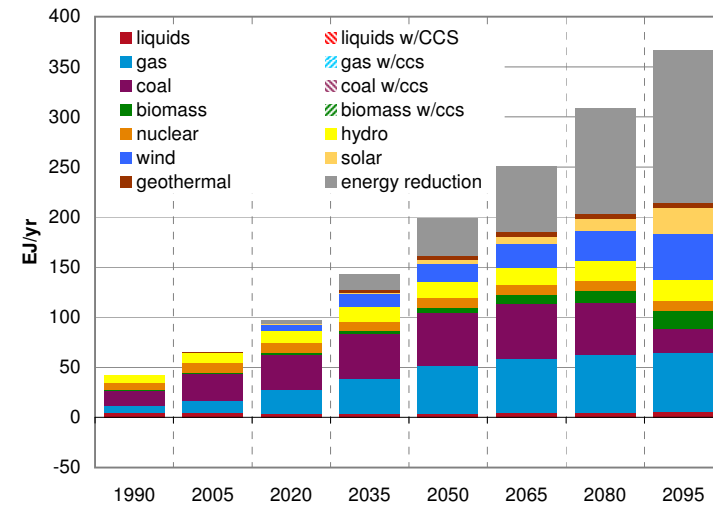
Final Energy Consumption by Sector



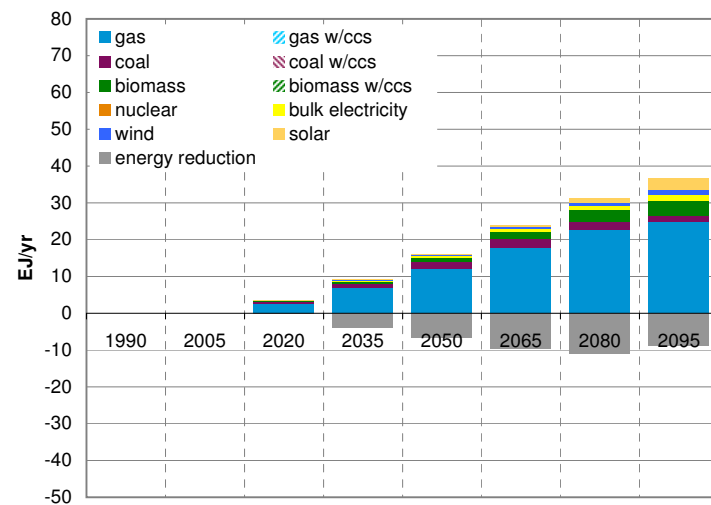
Primary Energy Consumption



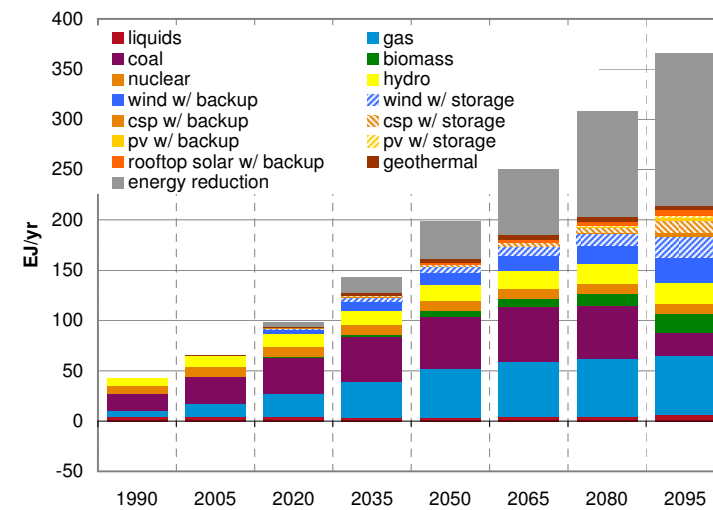
Electricity Production by Fuel: CCS Focus



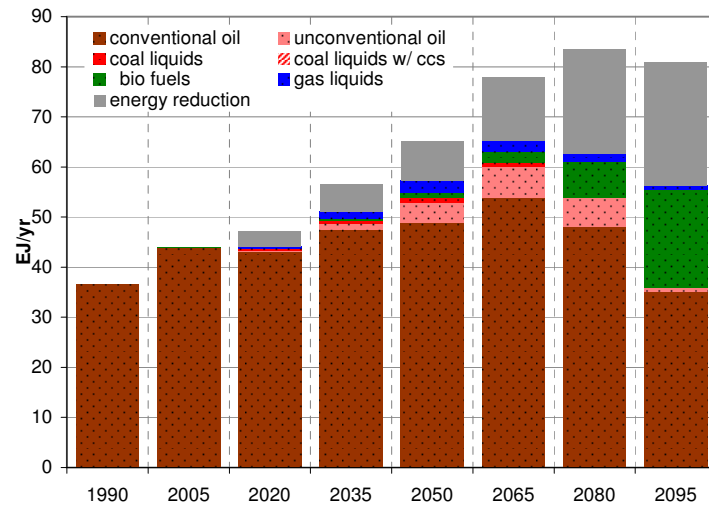
Hydrogen Production by Fuel



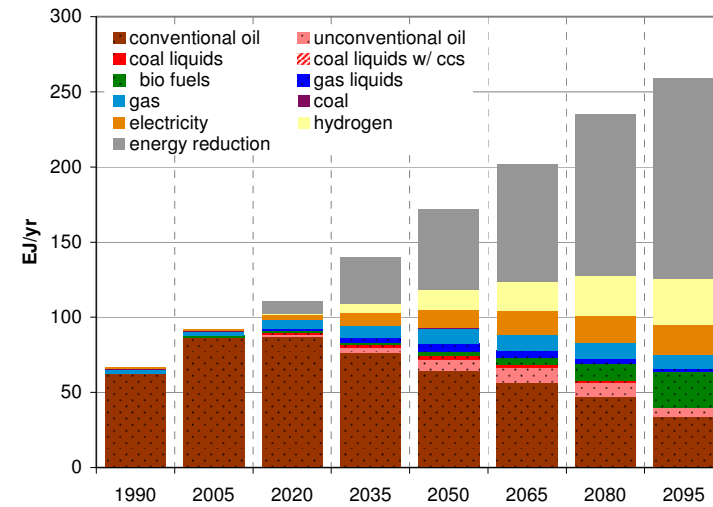
Electricity Production by Fuel: Renewable Focus



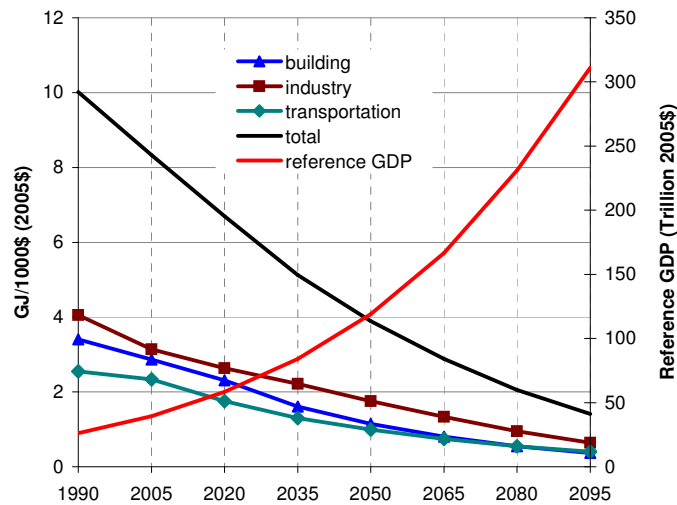
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



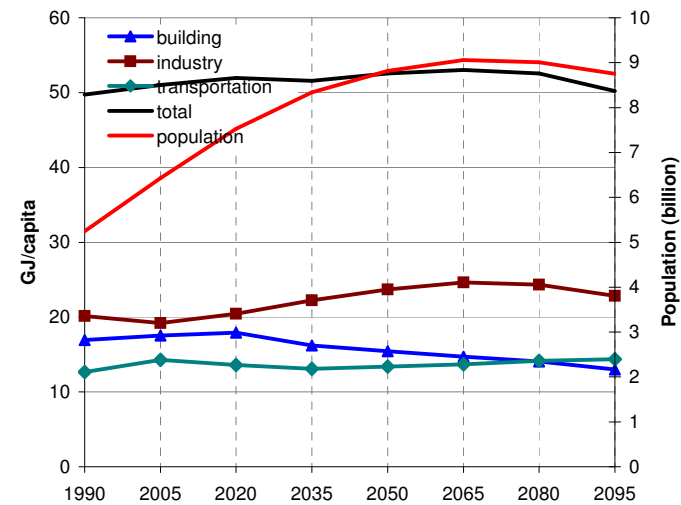
Transportation Fuels Composition



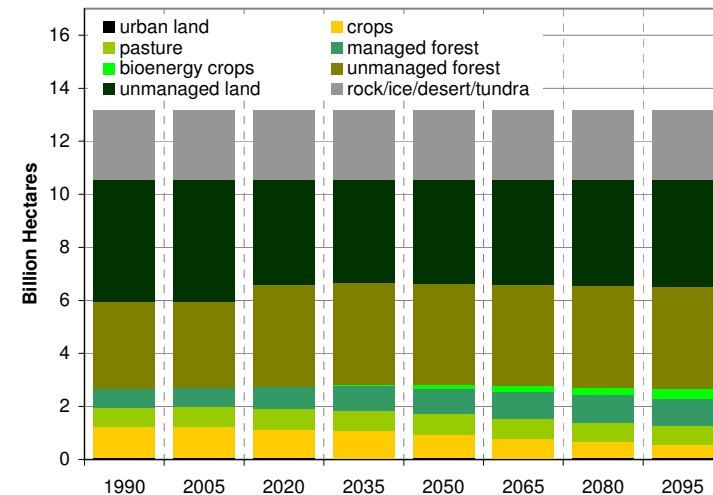
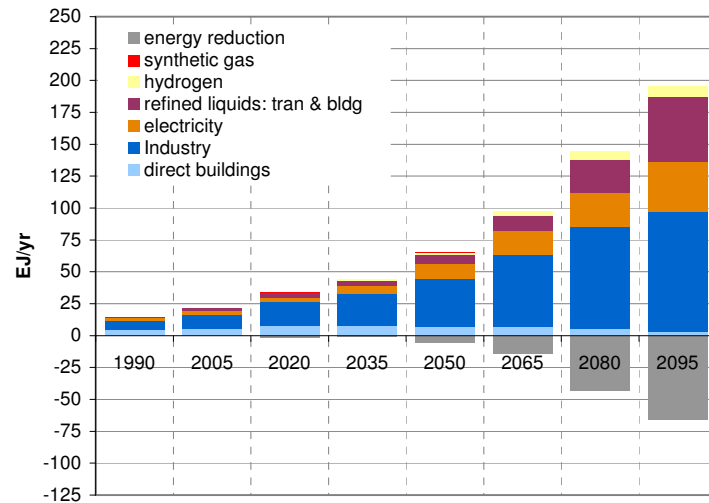
Final Energy Intensity



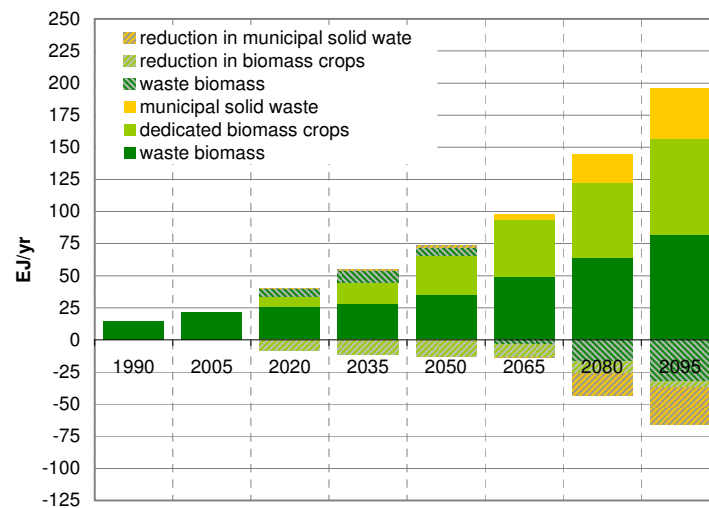
Final Energy per Capita



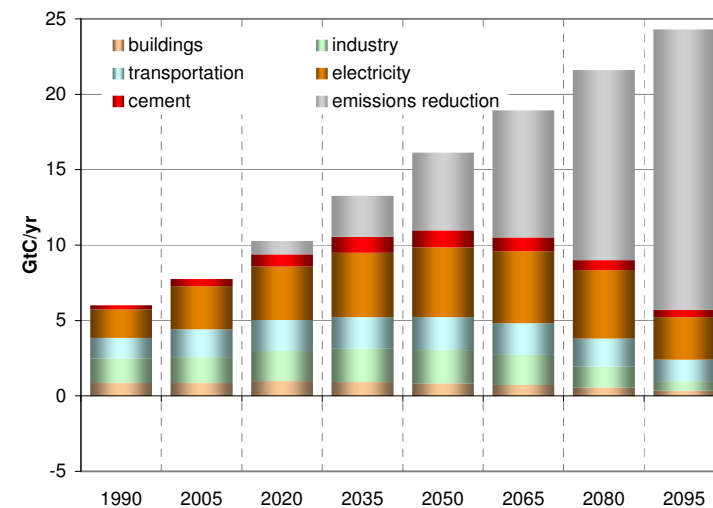
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	19.8	19.9	19.6	19.5	17.6	14.7	EJ/yr
building	gas	18.7	26.7	27.9	25.2	23.1	20.0	16.5	12.2	EJ/yr
building	coal	10.1	5.1	7.2	5.9	4.5	2.9	1.5	0.6	EJ/yr
building	biomass	4.5	5.5	7.8	7.7	7.5	7.0	5.9	4.3	EJ/yr
building	electricity	16.9	29.0	41.8	52.9	64.3	74.0	82.0	85.9	EJ/yr
building	trad biomass	23.5	29.9	31.5	25.1	19.6	13.8	8.9	5.5	EJ/yr
building	energy reduction	0.0	0.0	6.9	29.9	48.8	71.9	102.2	132.8	EJ/yr
	total: w/o reduction	88.9	112.7	136.0	136.7	138.6	137.3	132.5	123.1	EJ/yr
industry	liquids	22.4	21.2	18.6	20.9	23.7	28.8	27.6	24.3	EJ/yr
industry	gas	26.6	30.5	32.1	36.1	34.0	30.0	24.4	16.9	EJ/yr
industry	coal	31.4	35.8	50.9	58.0	58.7	45.9	25.3	9.9	EJ/yr
industry	biomass	7.3	11.2	17.7	23.8	34.1	49.6	62.7	63.7	EJ/yr
industry	electricity	18.1	24.8	33.3	47.1	61.7	74.9	87.3	102.5	EJ/yr
industry	hydrogen	0.0	0.0	2.5	2.6	3.1	3.9	4.3	4.6	EJ/yr
industry	energy reduction	0.0	0.0	12.7	28.2	41.0	57.5	80.4	107.1	EJ/yr
industry	feedstocks	15.2	23.7	26.7	31.2	34.6	37.4	37.1	35.6	EJ/yr
	total: w/o reduction	105.8	123.6	155.2	188.5	215.3	233.0	231.6	221.8	EJ/yr
transportation	liquids	62.7	87.6	92.5	86.6	83.3	78.8	74.0	69.1	EJ/yr
transportation	gas	2.3	3.0	6.0	8.4	10.1	10.7	10.8	9.6	EJ/yr
transportation	coal	0.5	0.2	0.3	0.3	0.3	0.1	0.0	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.8	8.1	12.8	16.6	19.8	22.3	EJ/yr
transportation	hydrogen	0.0	0.0	1.0	6.5	12.8	19.8	26.0	30.3	EJ/yr
transportation	energy reduction	0.0	0.0	8.0	30.6	52.5	75.8	104.6	128.2	EJ/yr
	total: w/o reduction	66.5	91.9	102.7	109.8	119.2	126.0	130.7	131.2	EJ/yr
total final energy	buildings	88.9	112.7	136.0	136.7	138.6	137.3	132.5	123.1	EJ/yr
total final energy	industry	105.8	123.6	155.2	188.5	215.3	233.0	231.6	221.8	EJ/yr
total final energy	transportation	66.5	91.9	102.7	109.8	119.2	126.0	130.7	131.2	EJ/yr
total final energy	energy reduction	0.0	0.0	27.6	88.7	142.2	205.2	287.1	368.1	EJ/yr
	total: w/o reduction	261.1	328.2	393.8	435.0	473.2	496.3	494.8	476.1	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	170.4	162.3	154.5	155.7	141.6	99.5	EJ/yr
oil w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
natural gas w/o ccs	70.0	97.6	122.9	155.1	176.4	179.7	172.5	151.3	EJ/yr
natural gas w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
coal w/o ccs	91.2	119.1	158.5	184.0	188.3	176.5	145.7	68.1	EJ/yr
coal w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
biomass w/o ccs	14.4	21.6	33.0	43.0	62.3	91.1	128.1	200.6	EJ/yr
biomass w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
nuclear	21.0	26.0	23.5	21.9	19.0	18.2	17.4	15.5	EJ/yr
hydro	23.6	29.2	29.3	30.9	30.9	32.8	34.8	35.5	EJ/yr
wind	0.0	0.9	14.3	30.4	39.2	50.5	62.2	80.5	EJ/yr
solar	0.0	0.1	2.3	8.3	14.9	24.0	38.0	71.4	EJ/yr
geothermal	0.4	0.6	1.7	9.3	20.9	25.5	27.8	33.4	EJ/yr
energy reduction	0.0	0.0	36.8	116.6	210.4	316.3	450.9	616.9	EJ/yr
total: w/o reduction	356	463	556	645	706	754	768	756	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.96	3.09	2.92	3.79	4.10	4.71	EJ/yr
oil w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
gas	6.07	12.82	22.86	33.86	43.86	48.62	51.10	50.83	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	16.05	26.35	34.75	42.49	46.91	50.45	49.83	26.12	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.43	0.71	1.19	2.20	4.33	6.81	9.83	14.29	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	7.36	9.97	9.95	9.95	9.95	9.95	9.95	9.95	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.53	9.18	11.66	14.54	17.14	21.89	EJ/yr
wind w/storage	0.00	0.00	1.38	4.40	7.97	12.47	17.47	26.22	EJ/yr
CSP w/backup	0.00	0.00	0.49	0.82	0.75	1.04	1.59	3.36	EJ/yr
CSP w/storage	0.00	0.00	0.38	2.58	5.32	7.56	11.34	23.31	EJ/yr
PV w/backup	0.00	0.04	0.06	0.14	0.74	2.38	4.49	7.36	EJ/yr
PV w/storage	0.00	0.00	0.01	0.07	0.36	1.11	2.29	5.08	EJ/yr
rooftop PV w/backup	0.00	0.00	0.71	1.90	3.63	5.57	7.24	8.77	EJ/yr
geothermal	0.15	0.23	0.71	4.20	10.71	13.83	15.85	21.03	EJ/yr
energy reduction	0.00	0.00	5.41	18.69	46.78	73.63	113.68	170.11	EJ/yr
total: w/o reduction	42.8	65.2	93.1	128.9	165.0	195.8	221.8	244.4	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.7	87.5	76.5	63.9	55.2	47.8	34.1	EJ/yr
unconventional oil	0.0	0.0	1.3	3.4	8.2	11.2	11.6	8.1	EJ/yr
coal liquids	0.0	0.0	1.1	2.0	3.2	2.6	1.5	0.0	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	EJ/yr
bio fuels	0.2	0.9	1.3	1.6	2.7	4.7	9.4	24.8	EJ/yr
gas liquids	0.0	0.0	1.3	3.1	5.3	4.9	3.7	2.0	EJ/yr
gas	2.3	3.0	6.0	8.4	10.1	10.7	10.8	9.6	EJ/yr
coal	0.5	0.2	0.3	0.3	0.3	0.1	0.0	0.0	EJ/yr
electricity	1.0	1.0	2.8	8.1	12.8	16.6	19.8	22.3	EJ/yr
hydrogen	0.0	0.0	1.0	6.5	12.8	19.8	26.0	30.3	EJ/yr
energy reduction	0.0	0.0	8.0	30.6	52.5	75.8	104.6	128.2	EJ/yr
total: w/o reduction	66.5	91.9	102.7	109.8	119.2	126.0	130.7	131.2	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	43.17	47.29	48.29	52.74	48.60	35.41	EJ/yr
unconventional oil	0.00	0.00	0.35	1.39	4.46	7.08	7.64	1.42	EJ/yr
coal liquids	0.00	0.00	0.26	0.69	1.31	1.12	0.62	0.00	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bio fuels	0.01	0.05	0.16	0.35	0.92	2.11	5.45	21.58	EJ/yr
gas liquids	0.00	0.00	0.35	1.42	2.49	2.40	1.73	0.88	EJ/yr
energy reduction	0.0	0.0	3.0	5.4	7.5	12.4	19.4	21.7	EJ/yr
total: w/o reduction	36.6	43.9	44.3	51.1	57.5	65.4	64.0	59.3	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.62	6.85	11.85	17.47	21.91	23.56	EJ/yr
gas w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
coal	0.00	0.00	0.55	1.25	2.18	2.83	2.74	1.85	EJ/yr
coal w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
biomass	0.00	0.00	0.19	0.48	0.97	1.72	2.95	4.58	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	EJ/yr
bulk electricity	0.00	0.00	0.08	0.26	0.53	0.89	1.32	1.85	EJ/yr
wind	0.00	0.00	0.07	0.10	0.16	0.25	0.46	0.84	EJ/yr
solar	0.00	0.00	0.06	0.14	0.26	0.43	0.94	2.18	EJ/yr
energy reduction	0.00	0.00	-0.33	-3.86	-6.59	-9.35	-10.34	-7.14	EJ/yr
total: w/o reduction	0.00	0.00	3.58	9.09	15.95	23.60	30.32	34.86	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	7.8	7.7	7.5	7.0	5.9	4.3	EJ/yr
Industry	7.4	11.3	18.1	24.5	35.9	53.6	72.7	102.1	EJ/yr
electricity	2.1	2.5	3.4	5.7	10.2	15.6	21.9	31.4	EJ/yr
refined liquids: tran & bldg	0.5	2.2	3.3	4.0	6.7	11.3	21.5	53.7	EJ/yr
hydrogen	0.0	0.0	0.4	1.0	2.0	3.5	5.9	9.0	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-0.9	0.8	-2.1	-7.5	-26.7	-70.6	EJ/yr
total: w/o reduction	14.4	21.6	33.0	43.0	62.3	91.1	128.1	200.6	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	26.7	27.6	30.0	38.4	51.7	73.5	EJ
dedicated biomass crops	0.0	0.0	6.2	15.3	32.2	52.0	70.6	90.0	EJ
municipal solid waste	0.0	0.1	0.1	0.1	0.2	0.7	5.8	37.2	EJ
waste biomass	0.0	0.0	4.9	10.3	11.7	7.0	-4.6	-24.1	EJ
reduction in biomass crops	0.0	0.0	-6.2	-10.3	-15.4	-17.2	-21.9	-19.6	EJ
reduction in municipal solid waste	0.0	0.0	0.3	0.9	1.6	2.7	-0.3	-26.8	EJ
total: w/o reduction	14.4	21.6	31.8	42.9	58.6	80.9	101.6	156.9	EJ

Arable Land Use by Type

[illegible]

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.6	\$84.5	\$120.0	\$168.8	\$234.6	\$317.2	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.32	1.62	1.15	0.81	0.56	0.39	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.65	2.23	1.79	1.38	0.99	0.70	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.75	1.30	0.99	0.75	0.56	0.41	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.02	8.33	6.73	5.15	3.94	2.94	2.11	1.50	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.1	16.4	15.7	15.2	14.7	14.1	GJ/capita
Final Energy per Capita	industry	20.2	19.2	20.6	22.6	24.4	25.7	25.7	25.3	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	13.6	13.2	13.5	13.9	14.5	15.0	GJ/capita
Final Energy per Capita	total	49.8	51.0	52.3	52.2	53.7	54.8	54.9	54.4	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.4	\$39.6	\$40.4	\$43.0	\$43.7	\$44.1	\$43.1	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.4	\$40.5	\$42.4	\$47.2	\$52.4	\$62.4	\$80.4	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$4.0	\$4.3	\$4.8	\$5.0	\$5.1	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.8	\$5.8	\$7.2	\$9.5	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$1.6	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.0	\$2.2	\$2.6	\$3.6	\$5.5	\$9.6	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.74	5.85	5.47	5.54	5.85	6.09	6.85	cents/kWh (2005\$)
	carbon price	0.0	0.0	7.6	15.8	32.9	68.4	142.3	295.7	\$/tC (2005\$)

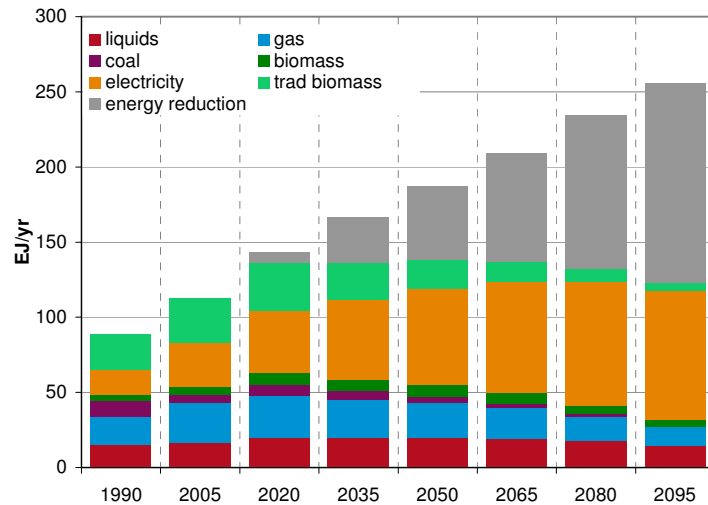
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	34	35	36	39	42	48	\$/Gcal (2005\$)
	global rice	32	32	33	33	34	36	38	40	\$/Gcal (2005\$)
	global wheat	27	27	28	29	30	32	36	41	\$/Gcal (2005\$)

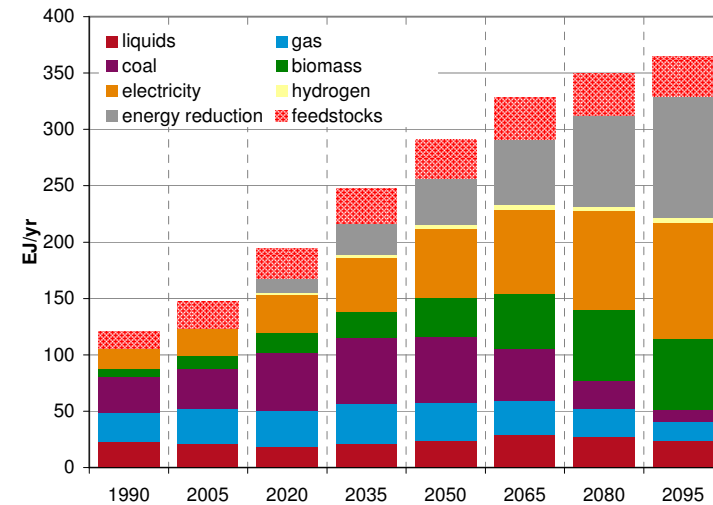
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.012	0.947	0.880	0.774	0.612	0.385	GtC/yr
	industry	1.623	1.706	2.018	2.260	2.324	2.122	1.546	0.643	GtC/yr
	transportation	1.355	1.863	2.071	2.126	2.230	2.181	1.997	1.479	GtC/yr
	electricity	1.909	2.848	3.473	4.072	4.164	4.340	4.237	2.743	GtC/yr
	cement	0.261	0.483	0.828	1.092	1.180	1.014	0.728	0.535	GtC/yr
	emissions reduction	0.000	0.000	0.864	2.766	5.346	8.505	12.495	18.513	GtC/yr
	total: w/o reduction	6.006	7.760	9.402	10.497	10.779	10.431	9.119	5.786	GtC/yr

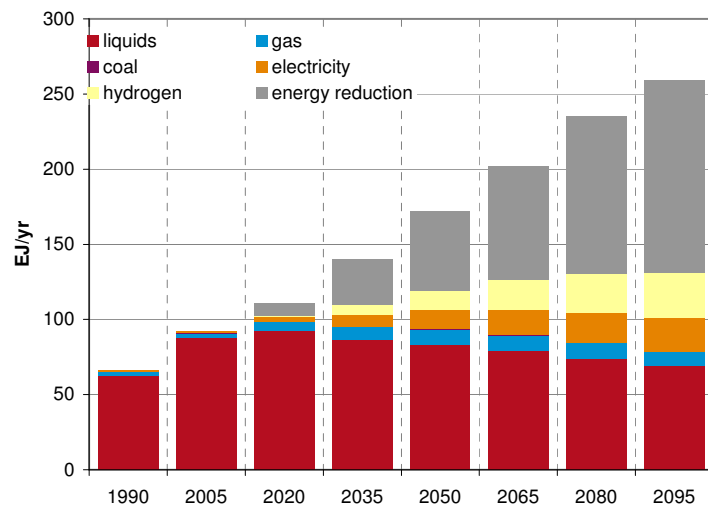
Final Energy Consumption: Buildings



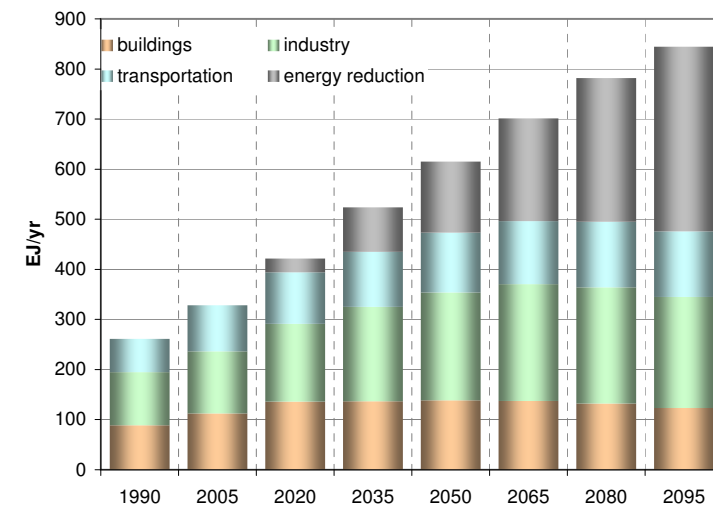
Final Energy Consumption: Industry (Does not Include Feedstocks)



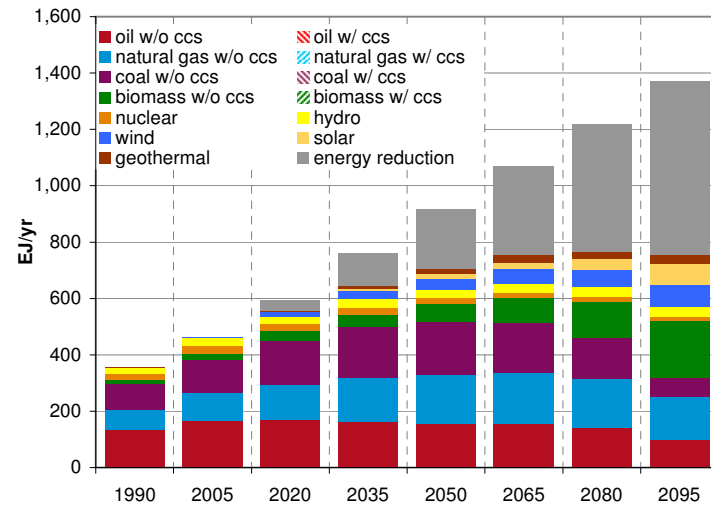
Final Energy Consumption: Transportation



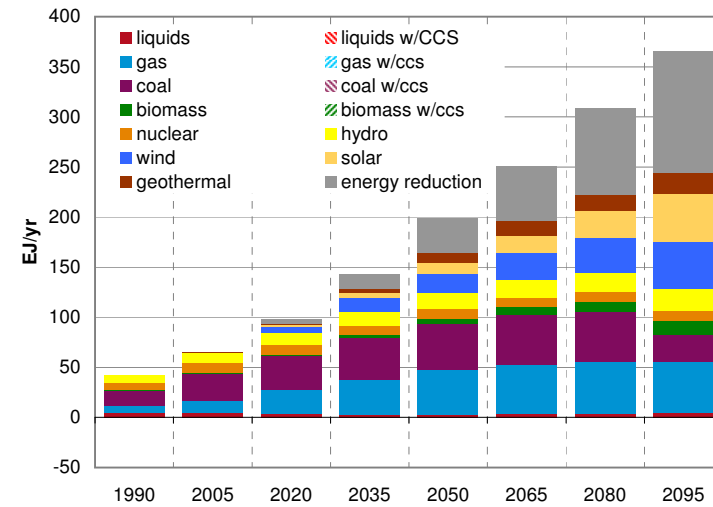
Final Energy Consumption by Sector



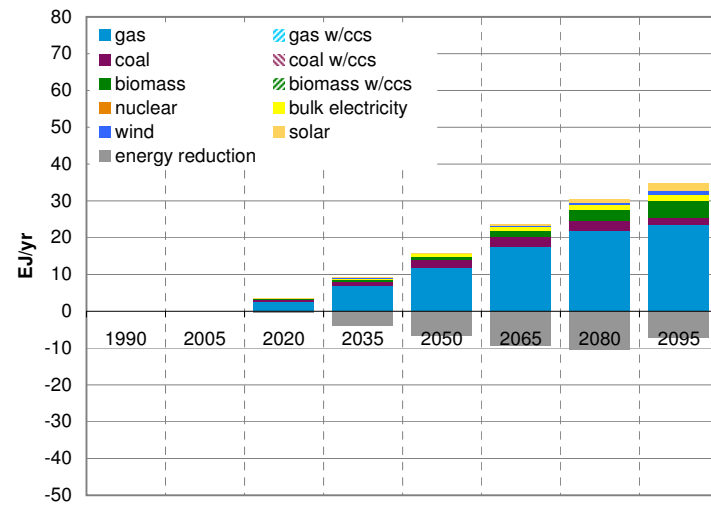
Primary Energy Consumption



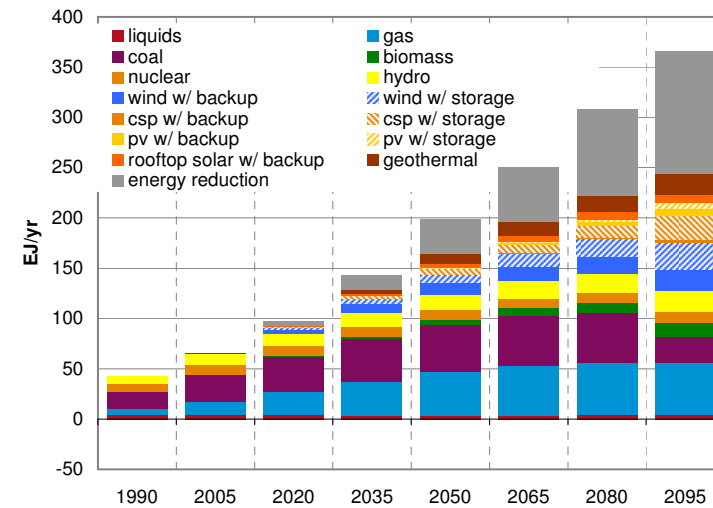
Electricity Production by Fuel: CCS Focus



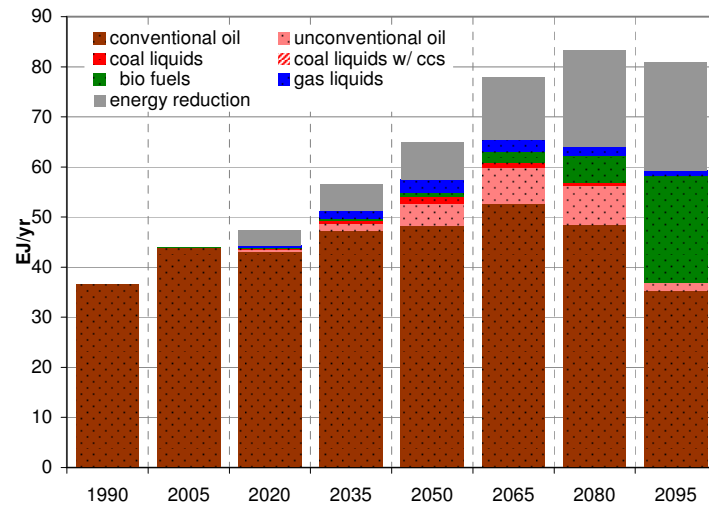
Hydrogen Production by Fuel



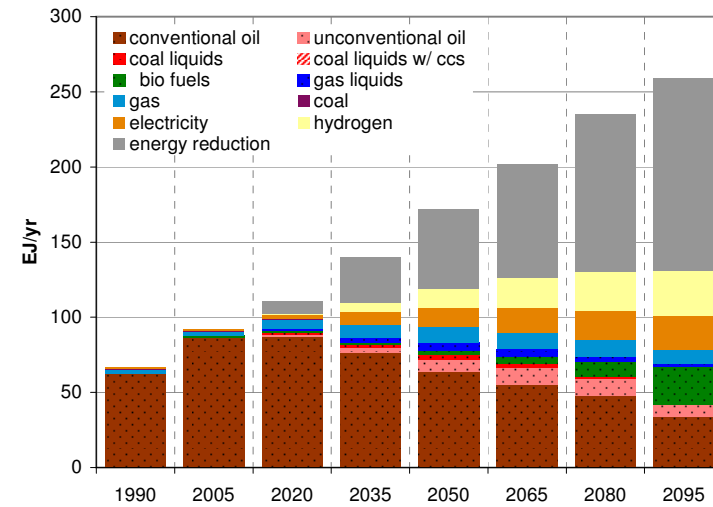
Electricity Production by Fuel: Renewable Focus



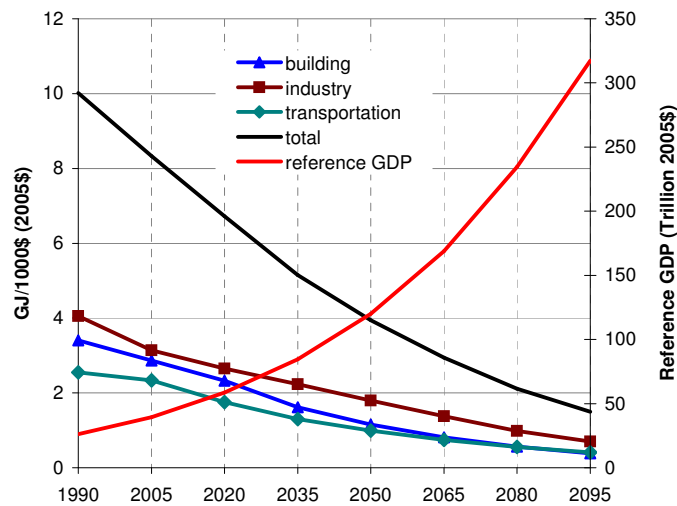
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



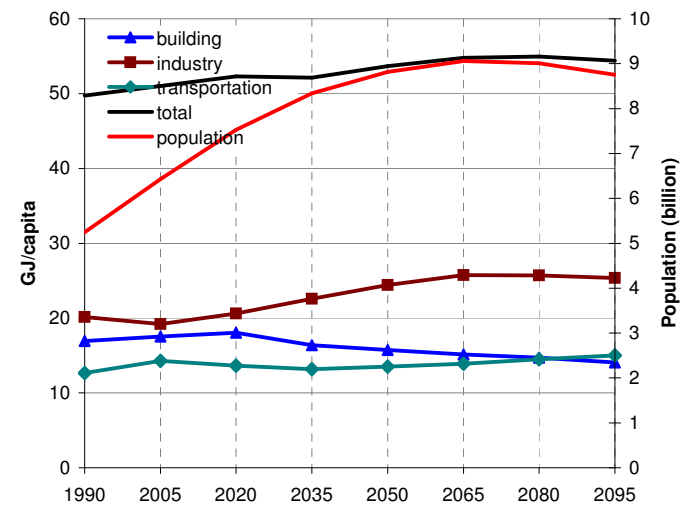
Transportation Fuels Composition



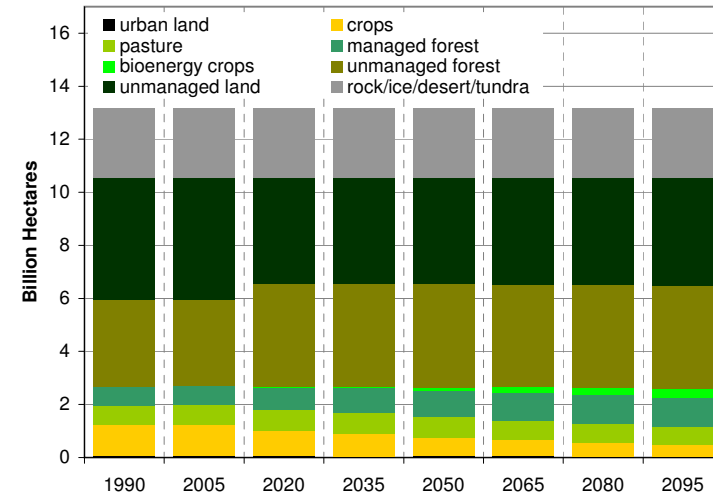
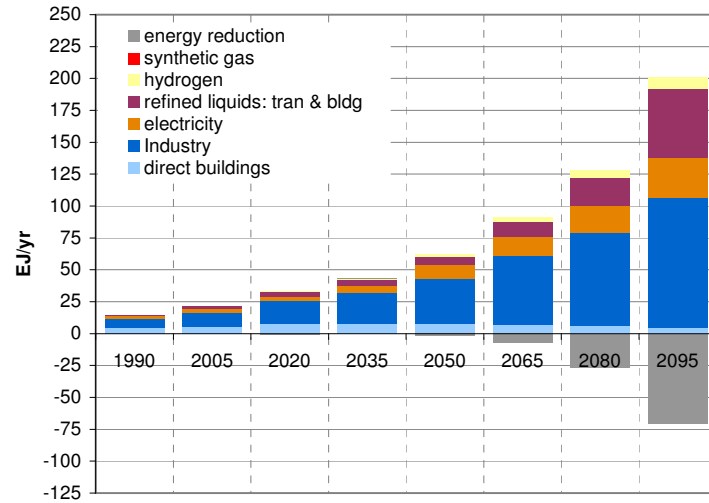
Final Energy Intensity



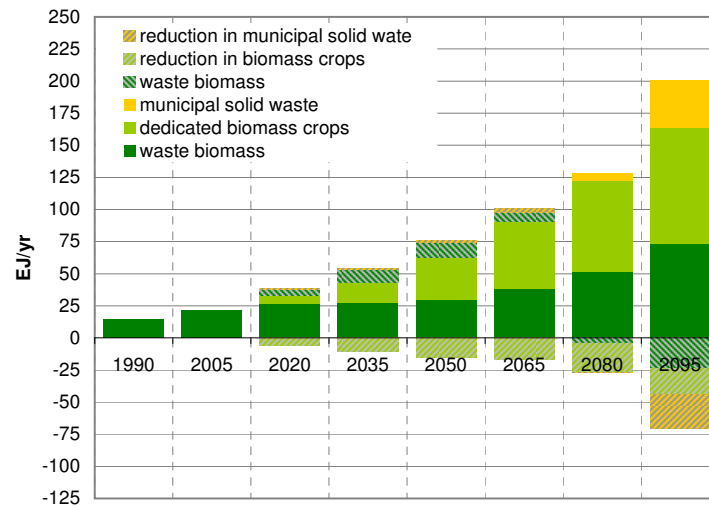
Final Energy per Capita



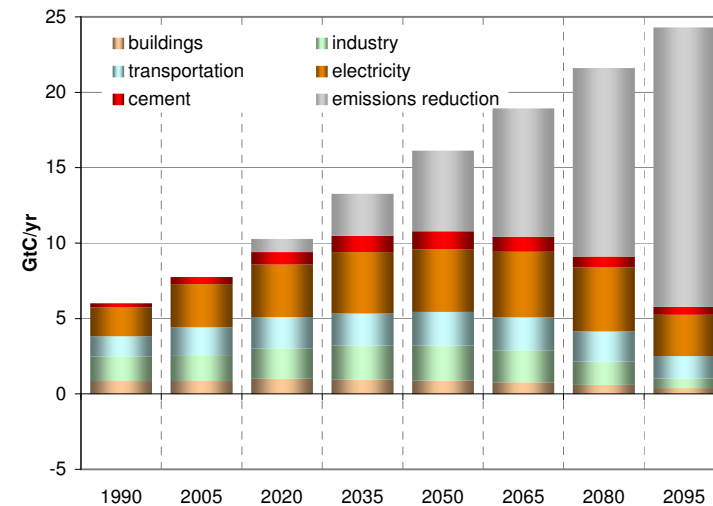
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Scenario: supply stab

Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.7	24.3	26.1	28.1	27.2	23.5	EJ/yr
building	gas	18.7	26.7	29.3	31.1	31.2	28.4	25.8	20.6	EJ/yr
building	coal	10.1	5.1	7.5	7.4	6.1	4.3	2.4	1.0	EJ/yr
building	biomass	4.5	5.5	8.2	9.5	10.0	10.0	9.1	6.3	EJ/yr
building	electricity	16.9	29.0	43.4	63.0	83.9	107.2	134.4	162.6	EJ/yr
building	trad biomass	23.5	29.9	32.2	28.3	23.7	18.8	13.3	8.9	EJ/yr
building	energy reduction	0.0	0.0	1.5	3.1	6.4	12.3	22.4	33.0	EJ/yr
	total: w/o reduction	88.9	112.7	141.3	163.5	180.9	196.9	212.2	223.0	EJ/yr
industry	liquids	22.4	21.2	20.2	23.7	26.9	32.5	29.7	22.4	EJ/yr
industry	gas	26.6	30.5	33.8	38.4	37.1	30.1	25.5	17.7	EJ/yr
industry	coal	31.4	35.8	54.8	66.2	66.4	50.3	25.1	8.8	EJ/yr
industry	biomass	7.3	11.2	18.7	26.6	37.7	54.0	65.9	57.9	EJ/yr
industry	electricity	18.1	24.8	34.4	48.3	64.7	83.1	103.5	134.4	EJ/yr
industry	hydrogen	0.0	0.0	2.5	4.2	4.9	5.6	6.4	8.3	EJ/yr
industry	energy reduction	0.0	0.0	3.5	9.2	18.5	35.1	56.0	79.6	EJ/yr
industry	feedstocks	15.2	23.7	27.5	32.6	36.7	39.5	40.0	39.9	EJ/yr
	total: w/o reduction	105.8	123.6	164.5	207.4	237.8	255.5	256.1	249.4	EJ/yr
transportation	liquids	62.7	87.7	99.7	106.0	108.6	109.6	106.7	95.8	EJ/yr
transportation	gas	2.2	3.0	6.5	10.6	14.0	14.9	16.1	14.4	EJ/yr
transportation	coal	0.5	0.2	0.3	0.4	0.4	0.2	0.1	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.1	4.2	8.6	11.6	14.7	18.0	EJ/yr
transportation	hydrogen	0.0	0.0	1.1	11.3	23.2	35.6	49.8	64.9	EJ/yr
transportation	energy reduction	0.0	0.0	1.0	8.0	17.0	29.8	48.0	66.2	EJ/yr
	total: w/o reduction	66.4	91.8	109.6	132.5	154.7	172.0	187.3	193.1	EJ/yr
total final energy	buildings	88.9	112.7	141.3	163.5	180.9	196.9	212.2	223.0	EJ/yr
total final energy	industry	105.8	123.6	164.5	207.4	237.8	255.5	256.1	249.4	EJ/yr
total final energy	transportation	66.4	91.8	109.6	132.5	154.7	172.0	187.3	193.1	EJ/yr
total final energy	energy reduction	0.0	0.0	6.1	20.3	42.0	77.1	126.3	178.8	EJ/yr
	total: w/o reduction	261.1	328.1	415.4	503.4	573.4	624.4	655.6	665.4	EJ/yr

Scenario: supply stab

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	180.7	187.4	186.0	192.9	177.2	142.0	EJ/yr
oil w/ ccs	0.0	0.0	0.3	1.0	1.5	2.6	4.7	9.1	EJ/yr
natural gas w/o ccs	69.9	97.5	126.0	169.2	196.9	188.0	173.4	122.9	EJ/yr
natural gas w/ ccs	0.0	0.0	1.1	4.2	9.1	15.5	28.2	53.4	EJ/yr
coal w/o ccs	91.2	119.1	164.6	198.3	198.2	168.4	108.9	13.6	EJ/yr
coal w/ ccs	0.0	0.0	0.4	2.1	6.8	17.0	47.6	101.5	EJ/yr
biomass w/o ccs	14.4	21.6	34.7	49.0	69.8	100.3	133.7	141.9	EJ/yr
biomass w/ ccs	0.0	0.0	0.1	0.4	1.6	4.1	14.8	73.3	EJ/yr
nuclear	21.0	26.0	25.4	36.7	60.5	113.5	165.2	192.4	EJ/yr
hydro	23.6	29.2	29.3	31.1	31.1	33.1	35.1	32.6	EJ/yr
wind	0.0	0.9	15.2	32.5	41.8	53.3	64.7	69.8	EJ/yr
solar	0.0	0.1	3.0	9.5	16.3	25.3	38.5	50.9	EJ/yr
geothermal	0.4	0.6	1.7	9.9	22.6	27.5	29.3	30.3	EJ/yr
energy reduction	0.0	0.0	10.3	30.4	74.7	128.9	197.9	339.1	EJ/yr
total: w/o reduction	356	463	583	731	842	941	1021	1034	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.87	2.67	2.27	2.43	1.98	1.03	EJ/yr
oil w/ccs	0.00	0.00	0.13	0.40	0.66	1.19	2.22	4.34	EJ/yr
gas	6.07	12.82	22.47	31.87	39.85	38.48	34.90	23.19	EJ/yr
gas w/ccs	0.00	0.00	0.40	1.71	4.00	7.09	12.99	26.23	EJ/yr
coal	16.06	26.35	35.42	43.17	44.95	42.19	32.36	0.57	EJ/yr
coal w/ccs	0.00	0.00	0.14	0.74	2.58	6.62	19.54	43.10	EJ/yr
biomass	0.43	0.71	1.25	2.15	3.81	5.17	5.59	3.68	EJ/yr
biomass w/ccs	0.00	0.00	0.01	0.12	0.53	1.29	4.57	20.33	EJ/yr
nuclear	7.36	9.97	10.75	15.82	28.54	55.29	82.36	114.64	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.80	9.75	12.46	15.53	18.44	22.29	EJ/yr
wind w/storage	0.00	0.00	1.48	4.69	8.41	12.68	17.25	22.50	EJ/yr
CSP w/backup	0.00	0.00	0.64	1.00	0.81	1.06	1.52	2.44	EJ/yr
CSP w/storage	0.00	0.00	0.50	2.93	5.75	7.75	10.84	16.96	EJ/yr
PV w/backup	0.00	0.04	0.06	0.15	0.81	2.46	4.79	7.53	EJ/yr
PV w/storage	0.00	0.00	0.01	0.08	0.40	1.14	2.21	3.52	EJ/yr
rooftop PV w/backup	0.00	0.00	0.74	2.34	4.72	7.51	10.14	12.66	EJ/yr
geothermal	0.15	0.23	0.74	4.46	11.47	14.79	16.59	20.15	EJ/yr
energy reduction	0.00	0.00	3.17	10.58	26.27	32.28	40.97	43.13	EJ/yr
total: w/o reduction	42.8	65.2	95.5	138.1	187.9	240.4	297.9	366.6	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.8	94.1	92.0	81.4	75.2	66.1	53.4	EJ/yr
unconventional oil	0.0	0.0	1.5	5.0	12.1	17.7	20.2	17.1	EJ/yr
coal liquids	0.0	0.0	1.2	2.9	4.7	4.0	2.2	0.6	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	EJ/yr
bio fuels	0.2	0.9	1.4	2.1	3.7	6.7	13.5	21.7	EJ/yr
gas liquids	0.0	0.0	1.4	4.0	6.7	5.9	4.5	2.7	EJ/yr
gas	2.2	3.0	6.5	10.6	14.0	14.9	16.1	14.4	EJ/yr
coal	0.5	0.2	0.3	0.4	0.4	0.2	0.1	0.0	EJ/yr
electricity	1.0	1.0	2.1	4.2	8.6	11.6	14.7	18.0	EJ/yr
hydrogen	0.0	0.0	1.1	11.3	23.2	35.6	49.8	64.9	EJ/yr
energy reduction	0.0	0.0	1.0	8.0	17.0	29.8	48.0	66.2	EJ/yr
total: w/o reduction	66.4	91.8	109.6	132.5	154.7	172.0	187.3	193.1	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	45.51	50.75	51.71	55.88	50.10	41.07	EJ/yr
unconventional oil	0.00	0.00	0.39	1.82	5.63	9.19	10.62	8.81	EJ/yr
coal liquids	0.00	0.00	0.30	0.88	1.65	1.46	0.81	0.05	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.05	EJ/yr
bio fuels	0.01	0.05	0.17	0.42	1.04	2.39	5.72	10.75	EJ/yr
gas liquids	0.00	0.00	0.37	1.44	2.59	2.25	1.61	0.87	EJ/yr
energy reduction	0.0	0.0	0.5	1.2	2.4	6.7	14.5	19.3	EJ/yr
total: w/o reduction	36.6	43.9	46.7	55.3	62.6	71.2	68.9	61.6	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.32	10.77	18.42	23.64	26.21	17.47	EJ/yr
gas w/ccs	0.00	0.00	0.25	0.95	1.96	3.43	6.80	11.99	EJ/yr
coal	0.00	0.00	0.43	1.42	2.43	2.83	1.72	0.45	EJ/yr
coal w/ccs	0.00	0.00	0.07	0.25	0.66	1.79	4.44	8.49	EJ/yr
biomass	0.00	0.00	0.14	0.51	1.06	1.89	2.17	0.83	EJ/yr
biomass w/ccs	0.00	0.00	0.03	0.06	0.19	0.60	2.51	15.72	EJ/yr
nuclear	0.00	0.00	0.11	0.79	1.84	4.14	7.45	11.53	EJ/yr
bulk electricity	0.00	0.00	0.10	0.47	0.94	1.54	2.23	2.31	EJ/yr
wind	0.00	0.00	0.07	0.11	0.23	0.49	0.85	1.22	EJ/yr
solar	0.00	0.00	0.07	0.15	0.38	0.91	1.84	3.17	EJ/yr
energy reduction	0.00	0.00	-0.33	-10.25	-18.75	-27.03	-36.25	-45.47	EJ/yr
total: w/o reduction	0.00	0.00	3.58	15.49	28.11	41.28	56.23	73.19	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	8.2	9.5	10.0	10.0	9.1	6.3	EJ/yr
Industry	7.4	11.3	19.1	27.5	39.7	58.5	76.5	77.1	EJ/yr
electricity	2.1	2.5	3.6	5.9	10.2	14.7	22.3	50.6	EJ/yr
refined liquids: tran & bldg	0.5	2.2	3.6	5.3	9.0	16.1	31.3	48.6	EJ/yr
hydrogen	0.0	0.0	0.4	1.2	2.5	4.9	9.2	32.4	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	-2.7	-5.5	-11.1	-20.7	-47.2	-85.1	EJ/yr
total: w/o reduction	14.4	21.6	34.8	49.4	71.4	104.3	148.5	215.2	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	27.4	30.6	35.2	46.7	60.5	82.2	EJ
dedicated biomass crops	0.0	0.0	7.2	18.6	35.8	55.2	72.9	93.5	EJ
municipal solid waste	0.0	0.1	0.1	0.2	0.4	2.4	15.1	39.4	EJ
waste biomass	0.0	0.0	4.2	7.3	6.6	-1.3	-13.5	-32.9	EJ
reduction in biomass crops	0.0	0.0	-7.2	-13.7	-19.0	-20.4	-24.1	-23.2	EJ
reduction in municipal solid waste	0.0	0.0	0.3	0.8	1.4	1.0	-9.6	-29.1	EJ
total: w/o reduction	14.4	21.6	31.8	43.0	58.9	82.6	110.9	159.1	EJ

Arable Land Use by Type

[illegible]

Scenario: supply stab

Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.5	\$84.4	\$119.8	\$168.5	\$234.1	\$316.4	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.41	1.94	1.51	1.17	0.91	0.70	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.81	2.46	1.98	1.52	1.09	0.79	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.87	1.57	1.29	1.02	0.80	0.61	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.01	8.33	7.10	5.97	4.79	3.71	2.80	2.10	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.8	19.6	20.5	21.7	23.6	25.5	GJ/capita
Final Energy per Capita	industry	20.2	19.2	21.8	24.9	27.0	28.2	28.4	28.5	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	14.6	15.9	17.5	19.0	20.8	22.1	GJ/capita
Final Energy per Capita	total	49.7	51.0	55.2	60.3	65.0	68.9	72.8	76.1	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.5	\$39.7	\$41.6	\$44.3	\$45.7	\$46.5	\$46.2	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.5	\$40.7	\$43.6	\$48.6	\$54.6	\$65.4	\$83.6	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.4	\$4.2	\$4.4	\$5.3	\$5.4	\$5.5	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.5	\$4.4	\$4.9	\$6.4	\$7.6	\$9.8	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.8	\$1.7	\$1.7	\$1.7	\$1.6	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$2.0	\$2.2	\$2.6	\$3.6	\$5.6	\$9.5	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.74	5.91	5.66	5.69	5.93	5.94	5.92	cents/kWh (2005\$)
	carbon price	0.0	0.0	7.8	16.2	33.5	69.6	144.7	287.3	\$/tC (2005\$)

Crop Prices

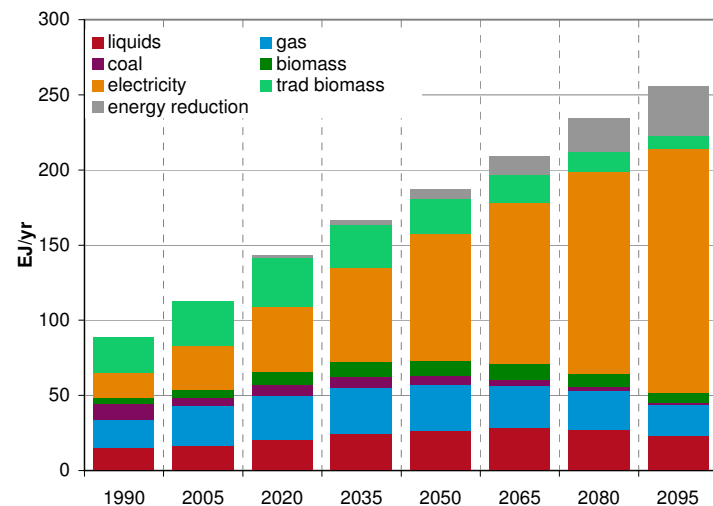
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	34	35	36	39	43	49	\$/Gcal (2005\$)
	global rice	32	32	33	33	35	37	39	43	\$/Gcal (2005\$)
	global wheat	27	27	29	29	30	33	37	43	\$/Gcal (2005\$)

Emissions by Sectors

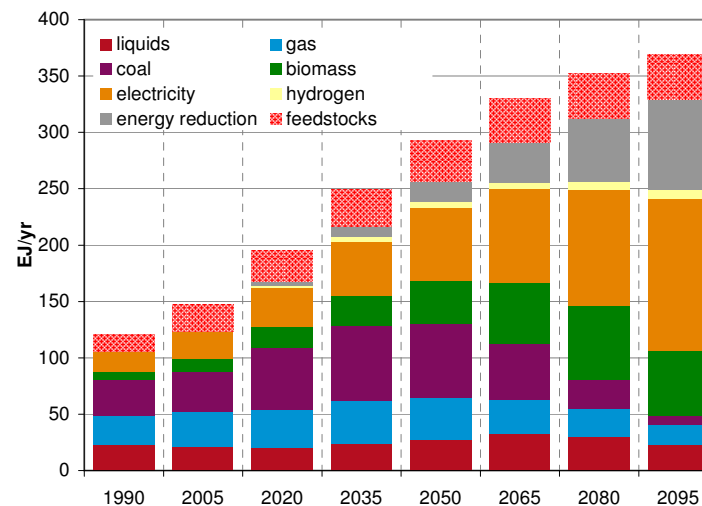
		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.060	1.170	1.185	1.115	0.950	0.704	GtC/yr
	industry	1.623	1.706	2.152	2.536	2.601	2.265	1.554	0.710	GtC/yr
	transportation	1.354	1.863	2.229	2.641	2.950	2.978	2.653	1.522	GtC/yr
	electricity	1.909	2.848	3.506	4.055	3.925	3.548	2.666	-0.153	GtC/yr
	cement	0.261	0.483	0.857	1.172	1.264	1.078	0.704	0.181	GtC/yr
	emissions reduction	0.000	0.000	0.462	1.689	4.199	7.953	13.089	21.334	GtC/yr
	total: w/o reduction	6.005	7.759	9.804	11.574	11.926	10.983	8.526	2.964	GtC/yr

Scenario: supply stab

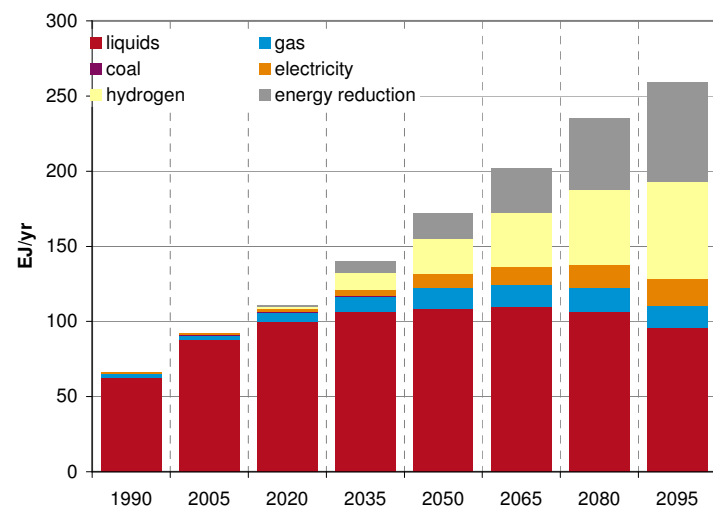
Final Energy Consumption: Buildings



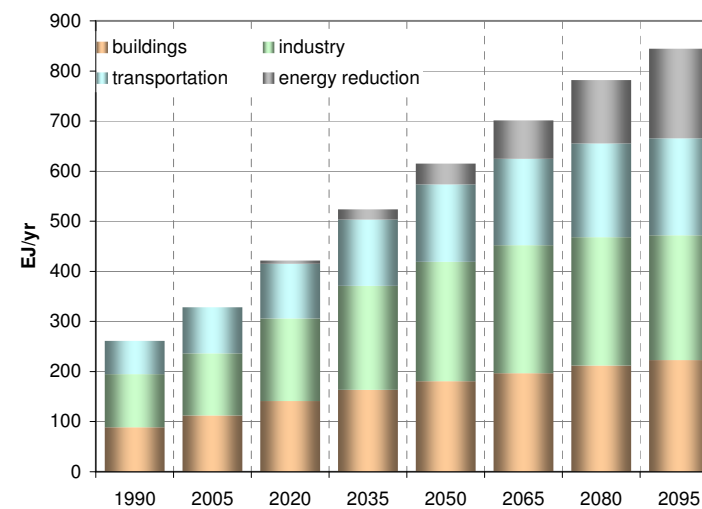
Final Energy Consumption: Industry (Does not Include Feedstocks)



Final Energy Consumption: Transportation

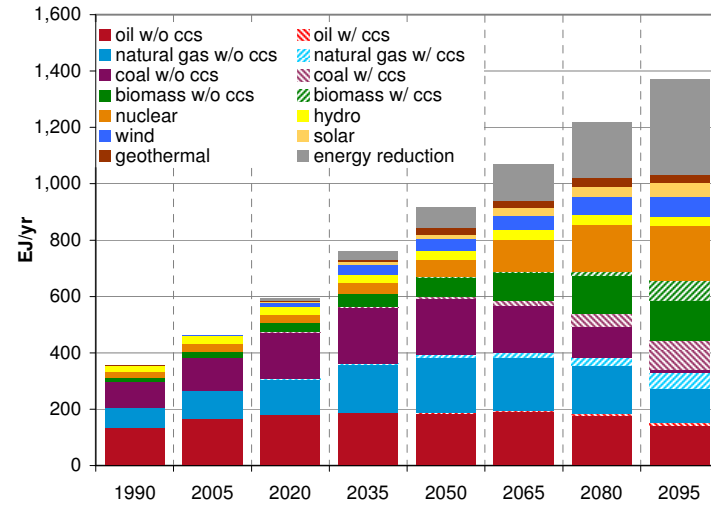


Final Energy Consumption by Sector

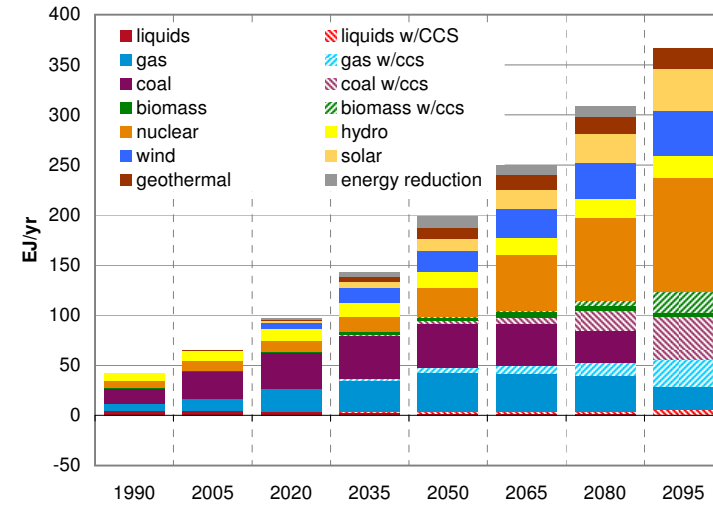


Scenario: supply stab

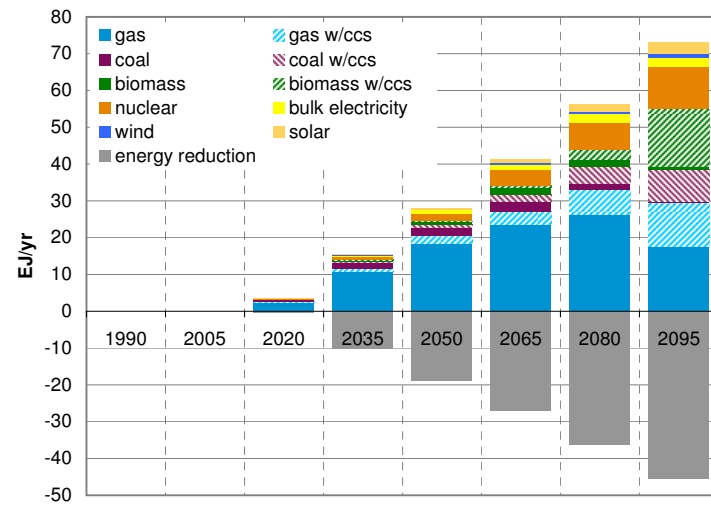
Primary Energy Consumption



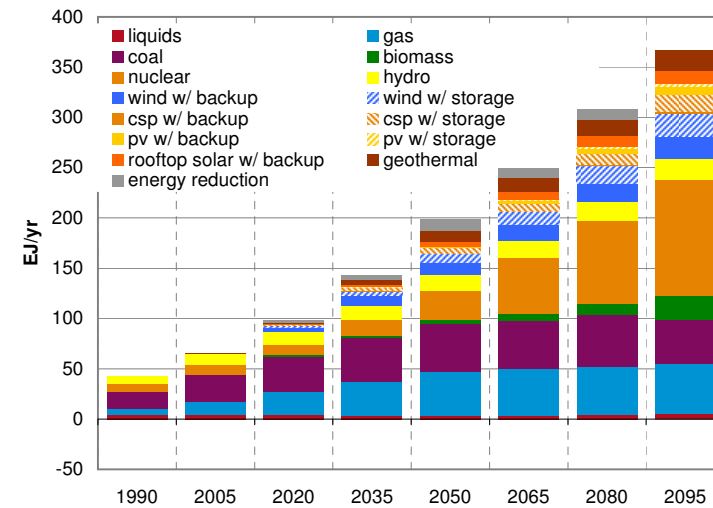
Electricity Production by Fuel: CCS Focus



Hydrogen Production by Fuel

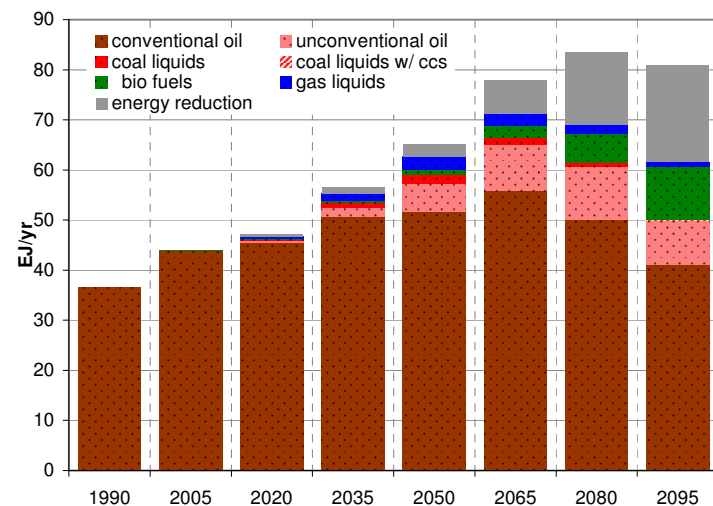


Electricity Production by Fuel: Renewable Focus

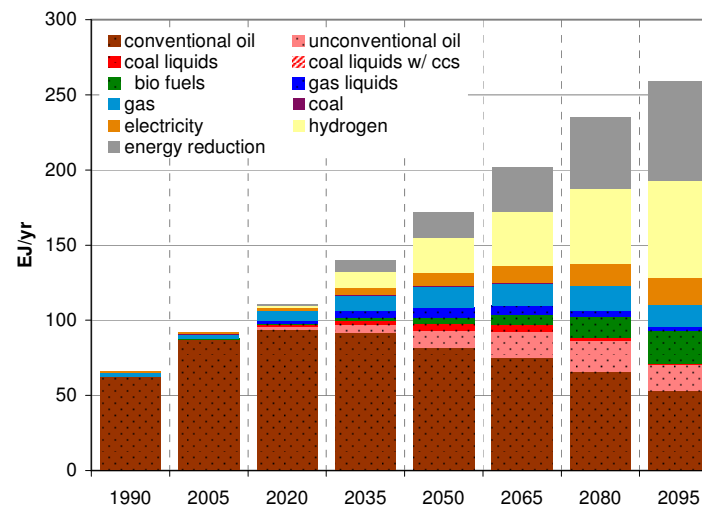


Scenario: supply stab

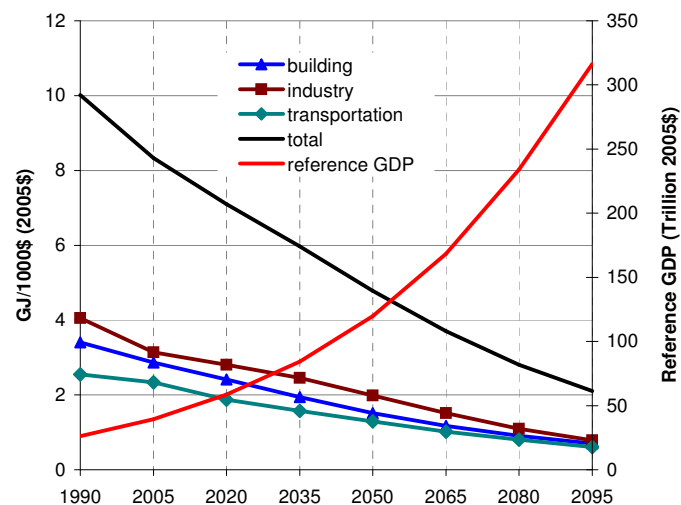
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



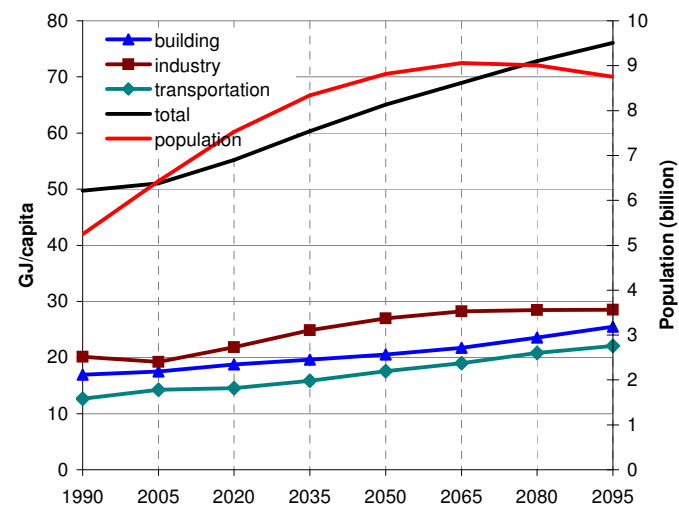
Transportation Fuels Composition



Final Energy Intensity

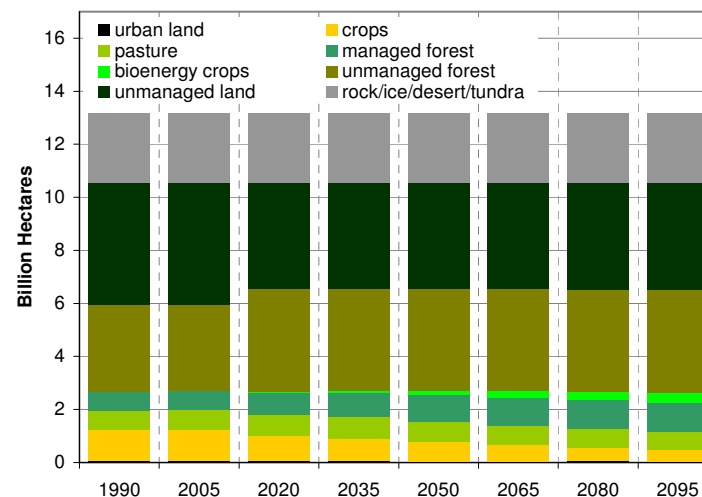
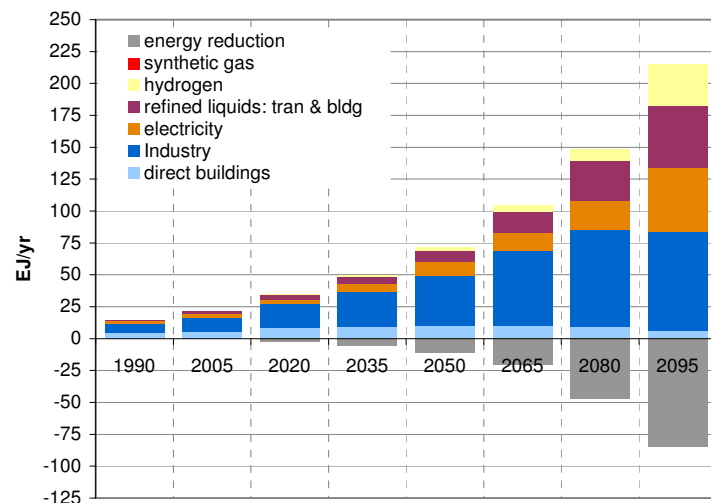


Final Energy per Capita

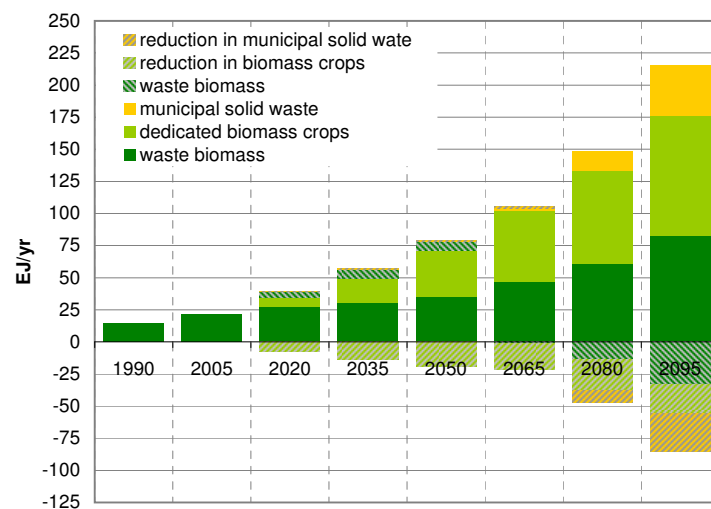


Scenario: supply stab

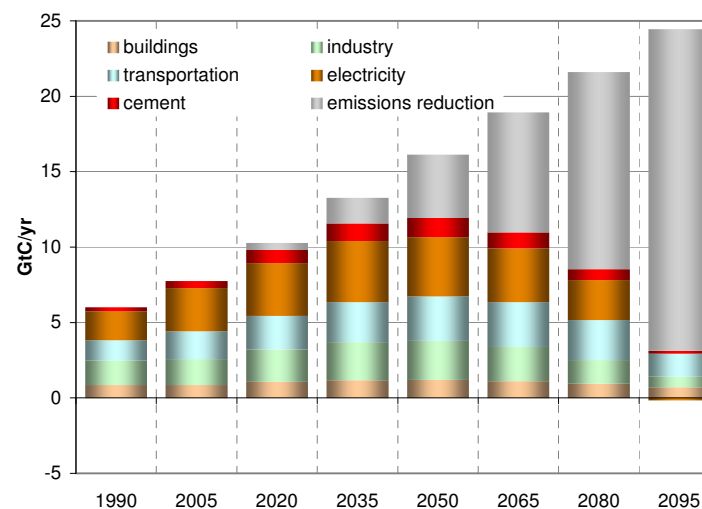
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



Biomass Production by Source



CO2 Emissions by Sector



Final Energy Consumption

		1990	2005	2020	2035	2050	2065	2080	2095	Units
building	liquids	15.2	16.4	20.0	20.2	20.1	20.3	19.0	16.3	EJ/yr
building	gas	18.7	26.7	28.0	25.6	23.7	21.0	17.9	14.4	EJ/yr
building	coal	10.1	5.1	7.4	6.3	5.1	3.7	2.4	1.2	EJ/yr
building	biomass	4.5	5.5	7.7	7.6	7.4	7.1	6.3	5.1	EJ/yr
building	electricity	16.9	29.0	42.1	53.3	65.1	75.9	85.2	90.6	EJ/yr
building	trad biomass	23.5	29.9	31.5	25.0	19.4	13.4	8.5	5.1	EJ/yr
building	energy reduction	0.0	0.0	6.2	28.8	46.5	67.7	95.4	123.3	EJ/yr
	total: w/o reduction	88.9	112.7	136.6	137.9	140.8	141.6	139.3	132.7	EJ/yr
industry	liquids	22.4	21.2	18.6	21.0	23.9	29.2	29.8	26.6	EJ/yr
industry	gas	26.6	30.5	32.6	37.3	35.9	33.4	29.1	23.4	EJ/yr
industry	coal	31.4	35.8	52.9	62.2	67.4	60.6	43.3	20.5	EJ/yr
industry	biomass	7.3	11.2	17.0	22.2	31.1	44.1	56.3	65.6	EJ/yr
industry	electricity	18.1	24.8	33.5	46.2	60.7	74.6	87.8	105.6	EJ/yr
industry	hydrogen	0.0	0.0	2.3	3.5	4.0	4.7	5.2	6.0	EJ/yr
industry	energy reduction	0.0	0.0	11.0	24.4	33.3	43.9	60.4	81.2	EJ/yr
industry	feedstocks	15.2	23.7	26.9	31.6	35.6	39.2	39.8	39.1	EJ/yr
	total: w/o reduction	105.8	123.6	156.9	192.3	223.0	246.6	251.6	247.8	EJ/yr
transportation	liquids	62.7	87.6	92.8	85.6	82.3	78.5	74.8	69.5	EJ/yr
transportation	gas	2.3	3.0	6.2	8.5	10.3	11.2	11.6	10.8	EJ/yr
transportation	coal	0.5	0.2	0.3	0.3	0.3	0.2	0.1	0.0	EJ/yr
transportation	electricity	1.0	1.0	2.8	7.8	12.3	16.3	19.5	22.1	EJ/yr
transportation	hydrogen	0.0	0.0	1.0	8.0	15.0	22.0	28.5	34.2	EJ/yr
transportation	energy reduction	0.0	0.0	7.6	30.2	51.6	73.7	100.8	122.6	EJ/yr
	total: w/o reduction	66.5	91.9	103.1	110.2	120.2	128.1	134.5	136.7	EJ/yr
total final energy	buildings	88.9	112.7	136.6	137.9	140.8	141.6	139.3	132.7	EJ/yr
total final energy	industry	105.8	123.6	156.9	192.3	223.0	246.6	251.6	247.8	EJ/yr
total final energy	transportation	66.5	91.9	103.1	110.2	120.2	128.1	134.5	136.7	EJ/yr
total final energy	energy reduction	0.0	0.0	24.8	83.3	131.4	185.3	256.6	327.1	EJ/yr
	total: w/o reduction	261.1	328.2	396.6	440.4	484.0	516.2	525.4	517.2	EJ/yr

Primary Energy w/CCS

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil w/o ccs	135.6	167.5	170.7	160.5	151.8	153.6	148.1	127.1	EJ/yr
oil w/ ccs	0.0	0.0	0.3	0.8	1.0	1.4	2.1	3.7	EJ/yr
natural gas w/o ccs	70.0	97.6	121.9	152.0	168.3	165.1	153.8	125.9	EJ/yr
natural gas w/ ccs	0.0	0.0	1.0	3.2	6.2	9.3	13.4	22.7	EJ/yr
coal w/o ccs	91.2	119.1	161.2	186.3	191.9	179.4	146.5	82.4	EJ/yr
coal w/ ccs	0.0	0.0	0.4	1.4	3.7	6.7	14.0	34.9	EJ/yr
biomass w/o ccs	14.4	21.6	31.7	39.4	53.5	73.2	94.8	122.7	EJ/yr
biomass w/ ccs	0.0	0.0	0.1	0.3	0.9	1.7	3.6	12.4	EJ/yr
nuclear	21.0	26.0	24.5	31.7	46.6	79.0	107.4	137.1	EJ/yr
hydro	23.6	29.2	29.3	31.3	31.2	33.1	35.4	37.3	EJ/yr
wind	0.0	0.9	14.4	28.7	35.0	41.8	47.6	56.2	EJ/yr
solar	0.0	0.1	2.8	7.9	12.3	16.8	22.5	31.5	EJ/yr
geothermal	0.4	0.6	1.7	8.6	19.8	23.0	23.1	26.3	EJ/yr
energy reduction	0.0	0.0	32.9	109.7	194.9	286.0	406.8	552.6	EJ/yr
total: w/o reduction	356	463	560	652	722	784	812	820	EJ/yr

Electricity Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
oil	4.86	4.33	3.81	2.49	1.98	2.14	2.05	1.58	EJ/yr
oil w/ccs	0.00	0.00	0.12	0.31	0.46	0.67	1.00	1.74	EJ/yr
gas	6.07	12.82	22.20	30.56	37.14	36.73	35.60	28.63	EJ/yr
gas w/ccs	0.00	0.00	0.36	1.34	2.81	4.38	6.34	10.92	EJ/yr
coal	16.05	26.35	34.90	41.11	42.54	41.85	38.87	25.02	EJ/yr
coal w/ccs	0.00	0.00	0.12	0.50	1.41	2.60	5.62	14.52	EJ/yr
biomass	0.43	0.71	1.19	1.87	3.11	4.10	4.99	4.61	EJ/yr
biomass w/ccs	0.00	0.00	0.00	0.09	0.31	0.57	1.15	3.83	EJ/yr
nuclear	7.36	9.97	10.37	13.73	22.17	39.14	54.33	70.88	EJ/yr
hydro	7.82	10.44	12.13	13.99	15.85	17.70	19.56	21.42	EJ/yr
wind w/backup	0.01	0.36	4.57	8.71	10.57	12.49	13.90	16.25	EJ/yr
wind w/storage	0.00	0.00	1.37	4.01	6.86	9.66	12.27	15.64	EJ/yr
CSP w/backup	0.00	0.00	0.60	0.88	0.62	0.72	0.90	1.31	EJ/yr
CSP w/storage	0.00	0.00	0.47	2.39	4.38	5.25	6.41	9.10	EJ/yr
PV w/backup	0.00	0.04	0.06	0.13	0.61	1.64	2.85	4.07	EJ/yr
PV w/storage	0.00	0.00	0.01	0.07	0.30	0.76	1.30	1.86	EJ/yr
rooftop PV w/backup	0.00	0.00	0.71	1.89	3.53	5.22	6.58	7.70	EJ/yr
geothermal	0.15	0.23	0.72	3.86	10.00	12.28	12.86	15.25	EJ/yr
energy reduction	0.00	0.00	4.93	19.09	45.17	66.24	97.69	132.55	EJ/yr
total: w/o reduction	42.8	65.2	93.7	127.9	164.6	197.9	226.6	254.3	EJ/yr

Transportation Fuels Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	62.5	86.7	87.7	75.5	62.3	53.8	48.3	41.0	EJ/yr
unconventional oil	0.0	0.0	1.4	3.4	8.3	12.0	13.8	12.7	EJ/yr
coal liquids	0.0	0.0	1.2	2.3	4.4	4.4	3.2	1.3	EJ/yr
coal liquids w/ ccs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	EJ/yr
bio fuels	0.2	0.9	1.2	1.3	2.0	3.2	5.4	11.5	EJ/yr
gas liquids	0.0	0.0	1.3	3.1	5.2	5.1	4.0	2.8	EJ/yr
gas	2.3	3.0	6.2	8.5	10.3	11.2	11.6	10.8	EJ/yr
coal	0.5	0.2	0.3	0.3	0.3	0.2	0.1	0.0	EJ/yr
electricity	1.0	1.0	2.8	7.8	12.3	16.3	19.5	22.1	EJ/yr
hydrogen	0.0	0.0	1.0	8.0	15.0	22.0	28.5	34.2	EJ/yr
energy reduction	0.0	0.0	7.6	30.2	51.6	73.7	100.8	122.6	EJ/yr
total: w/o reduction	66.5	91.9	103.1	110.2	120.2	128.1	134.5	136.7	EJ/yr

Industrial Liquids Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
conventional oil	36.59	43.88	43.39	47.55	48.51	53.40	52.36	46.19	EJ/yr
unconventional oil	0.00	0.00	0.36	1.49	4.77	8.09	10.14	9.34	EJ/yr
coal liquids	0.00	0.00	0.30	0.88	2.06	2.23	1.60	0.67	EJ/yr
coal liquids w/ ccs	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	EJ/yr
bio fuels	0.01	0.05	0.14	0.28	0.65	1.34	2.82	7.50	EJ/yr
gas liquids	0.00	0.00	0.35	1.45	2.57	2.62	2.04	1.36	EJ/yr
energy reduction	0.0	0.0	2.7	4.9	6.4	10.2	14.4	15.9	EJ/yr
total: w/o reduction	36.6	43.9	44.5	51.6	58.6	67.7	69.0	65.1	EJ/yr

Hydrogen Production by Fuel

	1990	2005	2020	2035	2050	2065	2080	2095	Units
gas	0.00	0.00	2.14	8.10	12.67	16.42	18.64	17.61	EJ/yr
gas w/ccs	0.00	0.00	0.22	0.66	1.17	1.87	3.01	5.34	EJ/yr
coal	0.00	0.00	0.40	1.10	1.96	2.55	2.31	1.11	EJ/yr
coal w/ccs	0.00	0.00	0.06	0.16	0.35	0.73	1.53	3.31	EJ/yr
biomass	0.00	0.00	0.12	0.35	0.68	1.16	1.64	1.54	EJ/yr
biomass w/ccs	0.00	0.00	0.02	0.04	0.09	0.21	0.55	2.25	EJ/yr
nuclear	0.00	0.00	0.10	0.53	1.10	2.05	3.43	5.42	EJ/yr
bulk electricity	0.00	0.00	0.09	0.34	0.62	0.95	1.32	1.57	EJ/yr
wind	0.00	0.00	0.06	0.08	0.15	0.27	0.45	0.68	EJ/yr
solar	0.00	0.00	0.06	0.10	0.22	0.44	0.81	1.42	EJ/yr
energy reduction	0.00	0.00	-0.03	-6.22	-9.65	-12.41	-13.71	-12.53	EJ/yr
total: w/o reduction	0.00	0.00	3.27	11.45	19.01	26.66	33.69	40.25	EJ/yr

Dedicated Bioenergy Crops, Crop Residues, and Municipal Solid Waste Consumption by Sector

	1990	2005	2020	2035	2050	2065	2080	2095	Units
direct buildings	4.5	5.5	7.7	7.6	7.4	7.1	6.3	5.1	EJ/yr
Industry	7.4	11.3	17.3	22.8	32.4	46.7	61.5	79.0	EJ/yr
electricity	2.1	2.5	3.4	5.1	8.0	10.7	13.6	18.2	EJ/yr
refined liquids: tran & bldg	0.5	2.2	3.0	3.3	5.0	7.7	12.5	25.4	EJ/yr
hydrogen	0.0	0.0	0.3	0.8	1.5	2.7	4.2	7.4	EJ/yr
synthetic gas	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	EJ/yr
energy reduction	0.0	0.0	0.4	4.2	5.9	8.7	3.0	-5.0	EJ/yr
total: w/o reduction	14.4	21.6	31.7	39.7	54.3	74.9	98.3	135.1	EJ/yr

Biomass Production

	1990	2005	2020	2035	2050	2065	2080	2095	Units
waste biomass	14.4	21.5	29.1	30.8	31.7	33.5	36.9	48.3	EJ
dedicated biomass crops	0.0	0.0	2.5	8.6	22.4	41.0	60.7	81.9	EJ
municipal solid waste	0.0	0.1	0.2	0.2	0.2	0.3	0.7	4.9	EJ
waste biomass	0.0	0.0	2.6	7.0	10.0	11.9	10.2	1.0	EJ
reduction in biomass crops	0.0	0.0	-2.5	-3.7	-5.7	-6.2	-12.0	-11.5	EJ
reduction in municipal solid waste	0.0	0.0	0.2	0.8	1.6	3.1	4.8	5.4	EJ
total: w/o reduction	14.4	21.6	31.9	43.0	58.7	80.5	96.5	124.6	EJ

Arable Land Use by Type

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Population, GDP, and Energy Indicators

		1990	2005	2020	2035	2050	2065	2080	2095	Units
Economic Activity	reference GDP	\$26.1	\$39.4	\$58.7	\$84.8	\$120.7	\$170.3	\$237.1	\$321.2	trillion 2005\$
Final Energy Intensity	building	3.41	2.86	2.33	1.63	1.17	0.83	0.59	0.41	GJ/1000\$ (2005\$)
Final Energy Intensity	industry	4.06	3.14	2.67	2.27	1.85	1.45	1.06	0.77	GJ/1000\$ (2005\$)
Final Energy Intensity	transportation	2.55	2.33	1.76	1.30	1.00	0.75	0.57	0.43	GJ/1000\$ (2005\$)
Final Energy Intensity	total	10.02	8.33	6.76	5.19	4.01	3.03	2.22	1.61	GJ/1000\$ (2005\$)
Population	population	5.2	6.4	7.5	8.3	8.8	9.1	9.0	8.7	billion
Final Energy per Capita	building	16.9	17.5	18.2	16.5	16.0	15.6	15.5	15.2	GJ/capita
Final Energy per Capita	industry	20.2	19.2	20.8	23.0	25.3	27.2	27.9	28.3	GJ/capita
Final Energy per Capita	transportation	12.7	14.3	13.7	13.2	13.6	14.1	14.9	15.6	GJ/capita
Final Energy per Capita	total	49.8	51.0	52.7	52.8	54.9	57.0	58.3	59.1	GJ/capita

Long-Term Equilibrium Energy Producer Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global oil (w/o carbon charge)	\$27.6	\$32.4	\$39.6	\$40.4	\$43.0	\$43.6	\$44.1	\$44.0	\$/barrel (2005\$)
	global oil (w/ carbon charge)	\$27.6	\$32.4	\$40.1	\$41.4	\$45.1	\$48.0	\$53.4	\$63.2	\$/barrel (2005\$)
	domestic natural gas (w/o carbon charge)	\$3.3	\$3.8	\$4.3	\$4.0	\$4.3	\$4.7	\$5.0	\$5.0	\$/mmBTU (2005\$)
	domestic natural gas (w/ carbon charge)	\$3.3	\$3.8	\$4.4	\$4.1	\$4.5	\$5.2	\$6.1	\$7.2	\$/mmBTU (2005\$)
	domestic coal (w/o carbon charge)	\$1.7	\$1.7	\$1.8	\$1.7	\$1.7	\$1.7	\$1.7	\$1.6	\$/GJ (2005\$)
	domestic coal (w/ carbon charge)	\$1.7	\$1.7	\$1.9	\$2.0	\$2.1	\$2.7	\$3.6	\$5.6	\$/GJ (2005\$)
	domestic electricity (w/ carbon charge)	6.21	5.74	5.83	5.49	5.45	5.55	5.57	5.72	cents/kWh (2005\$)
	carbon price	0.0	0.0	3.8	7.9	16.4	34.2	71.1	147.9	\$/tC (2005\$)

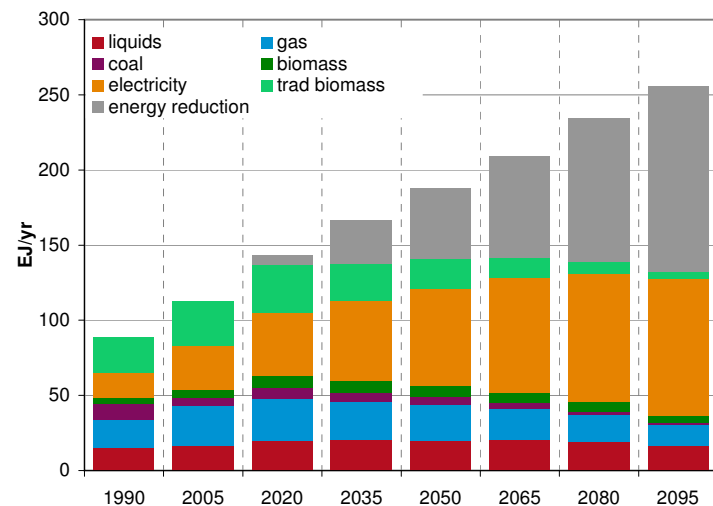
Crop Prices

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	global corn	33	33	34	34	34	35	37	40	\$/Gcal (2005\$)
	global rice	32	32	32	32	32	33	33	34	\$/Gcal (2005\$)
	global wheat	27	27	27	27	27	28	30	32	\$/Gcal (2005\$)

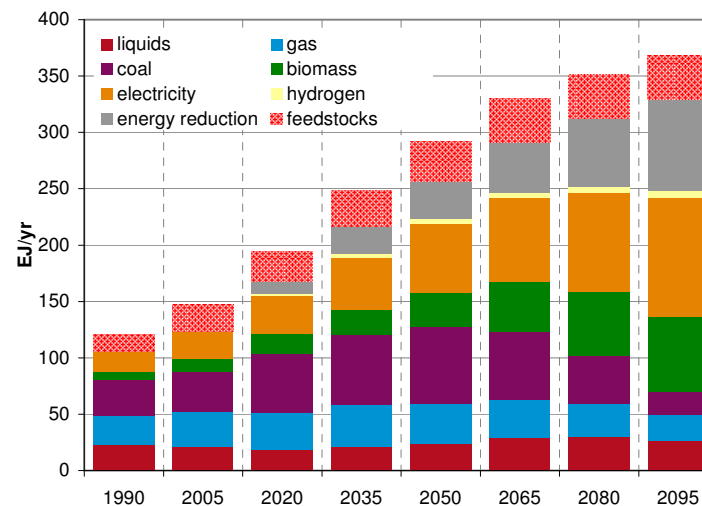
Emissions by Sectors

		1990	2005	2020	2035	2050	2065	2080	2095	Units
	buildings	0.858	0.860	1.024	0.975	0.930	0.852	0.718	0.530	GtC/yr
	industry	1.623	1.706	2.060	2.382	2.573	2.513	2.072	1.323	GtC/yr
	transportation	1.355	1.863	2.083	2.123	2.251	2.231	2.076	1.638	GtC/yr
	electricity	1.909	2.848	3.461	3.880	3.698	3.484	3.161	2.038	GtC/yr
	cement	0.261	0.483	0.845	1.133	1.271	1.192	0.953	0.627	GtC/yr
	emissions reduction	0.000	0.000	0.793	2.772	5.401	8.665	12.636	18.142	GtC/yr
	total: w/o reduction	6.006	7.760	9.473	10.492	10.724	10.272	8.979	6.156	GtC/yr

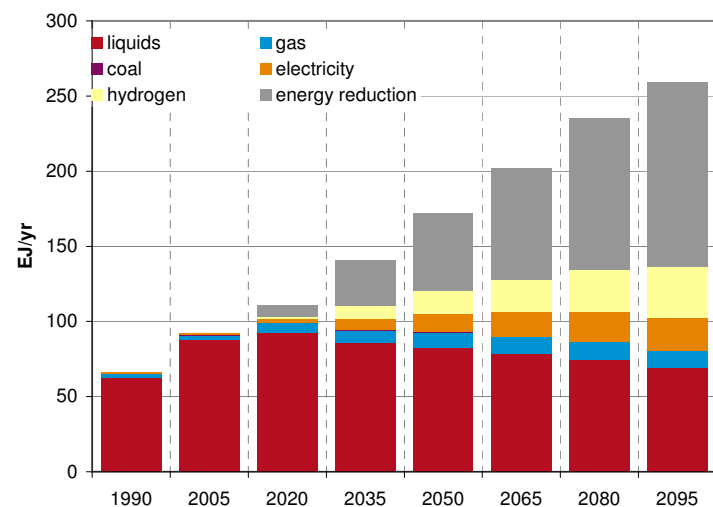
Final Energy Consumption: Buildings



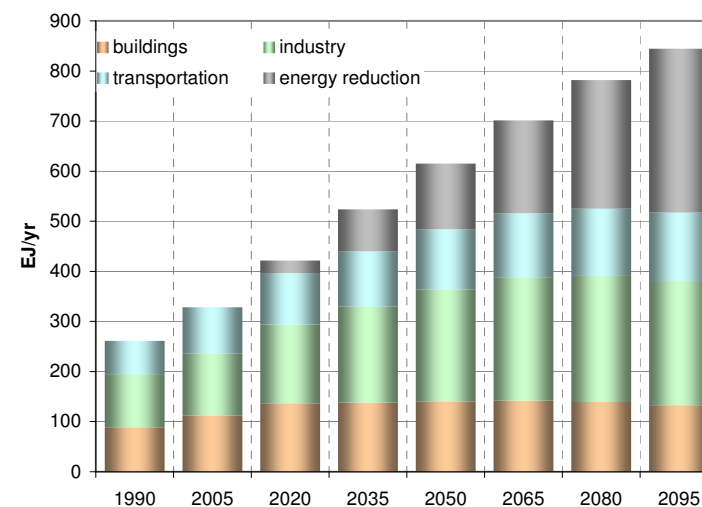
Final Energy Consumption: Industry (Does not Include Feedstocks)



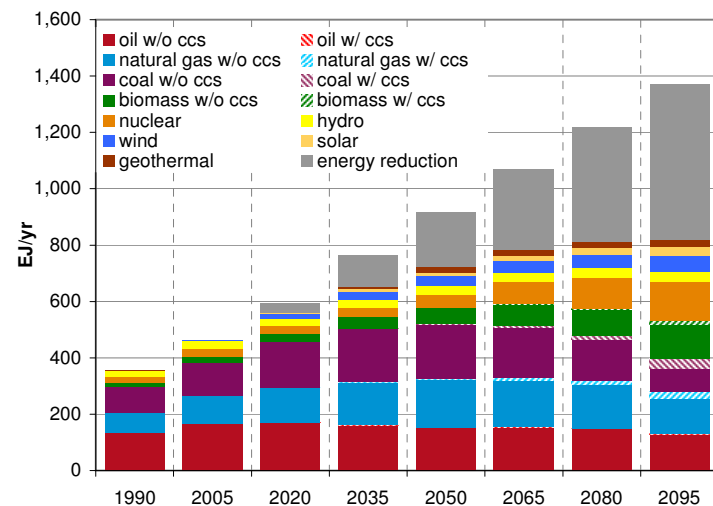
Final Energy Consumption: Transportation



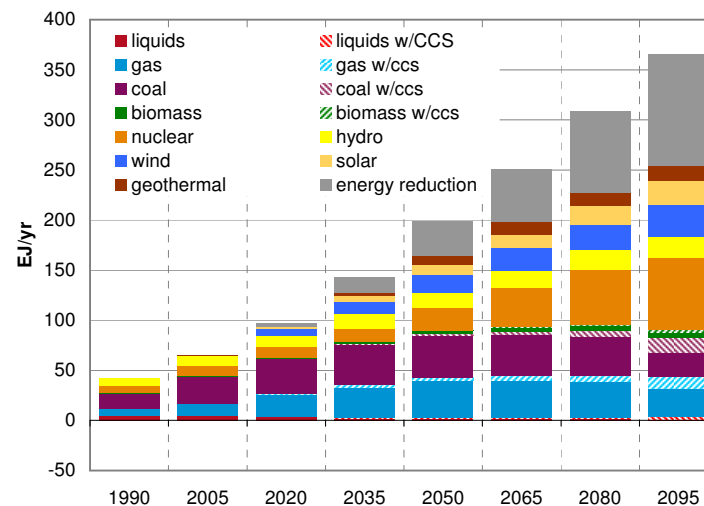
Final Energy Consumption by Sector



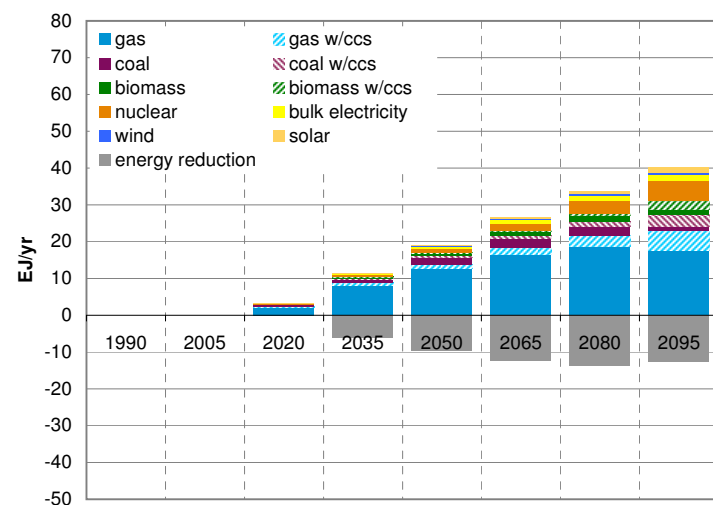
Primary Energy Consumption



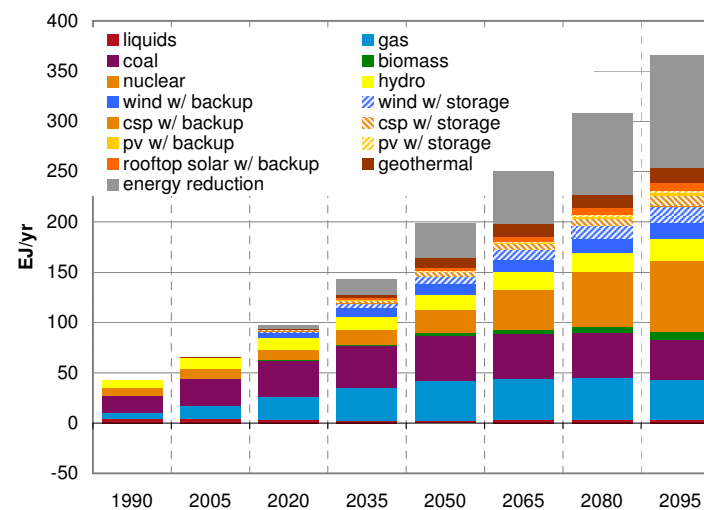
Electricity Production by Fuel: CCS Focus



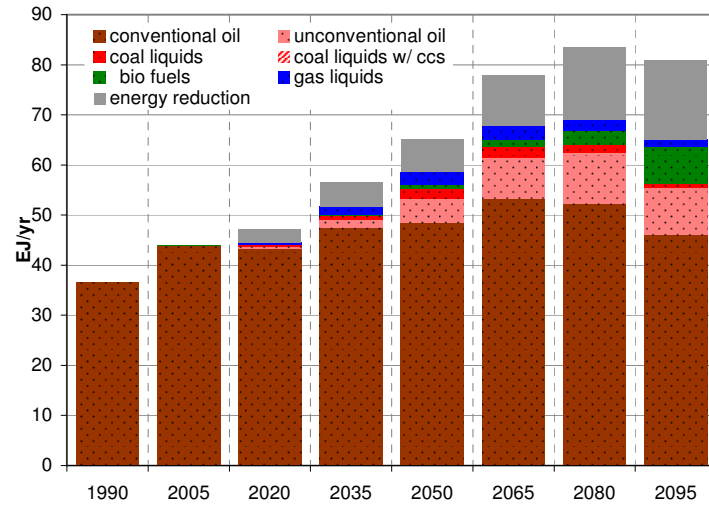
Hydrogen Production by Fuel



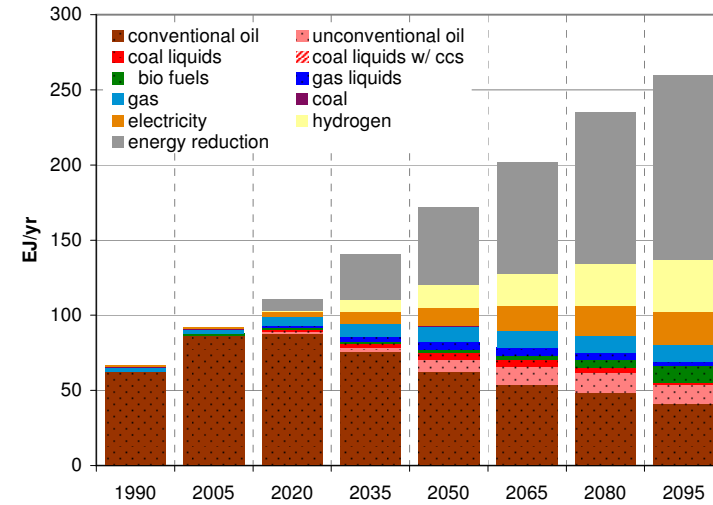
Electricity Production by Fuel: Renewable Focus



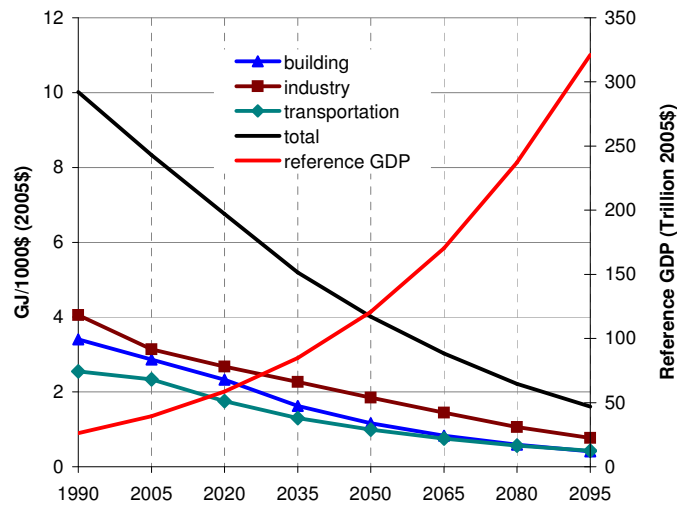
Industrial Liquids Production by Fuel (Feedstocks and Fuel)



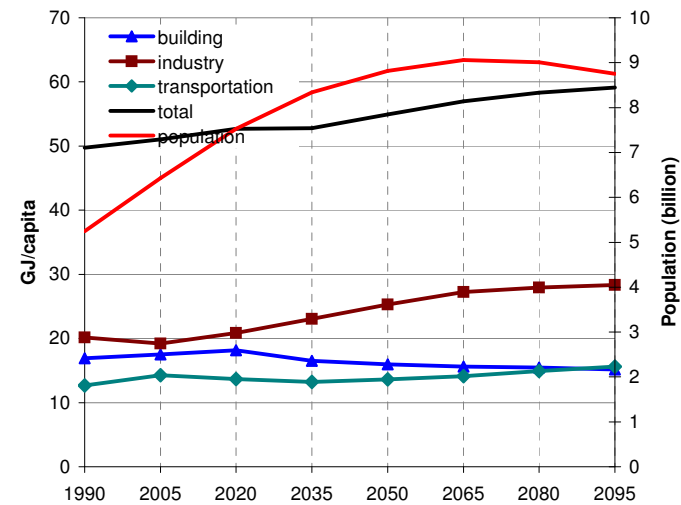
Transportation Fuels Composition



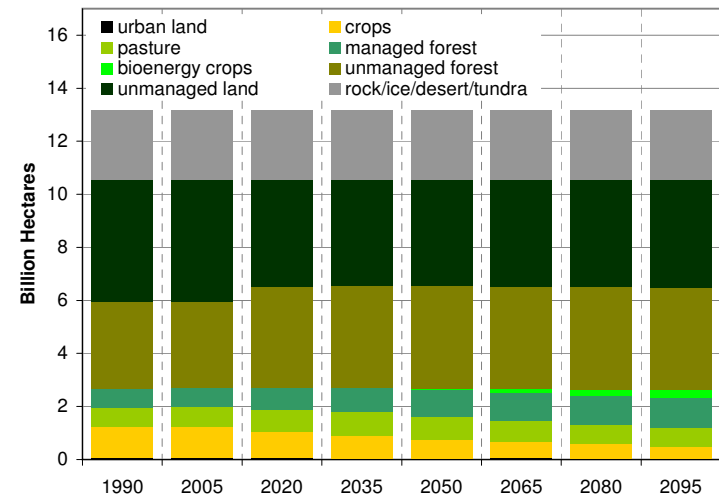
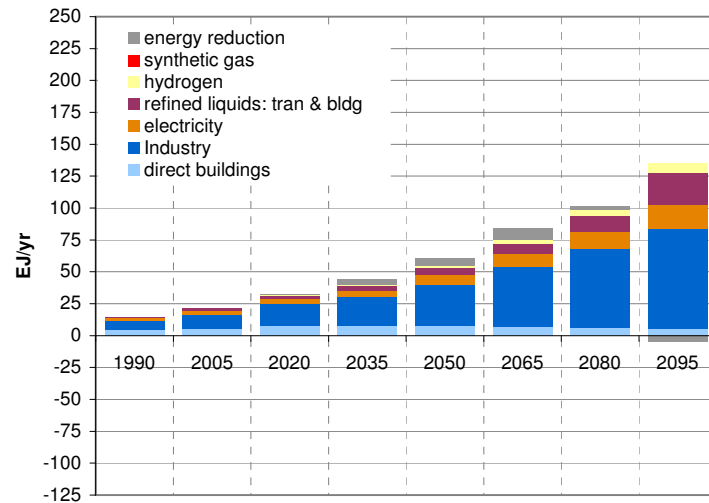
Final Energy Intensity



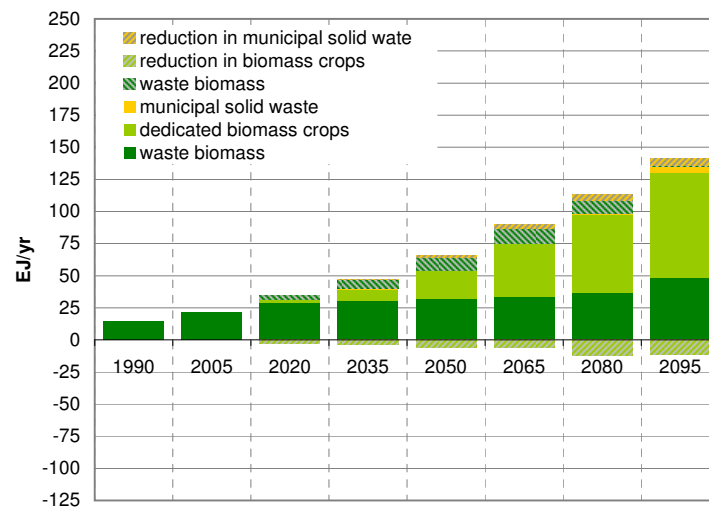
Final Energy per Capita



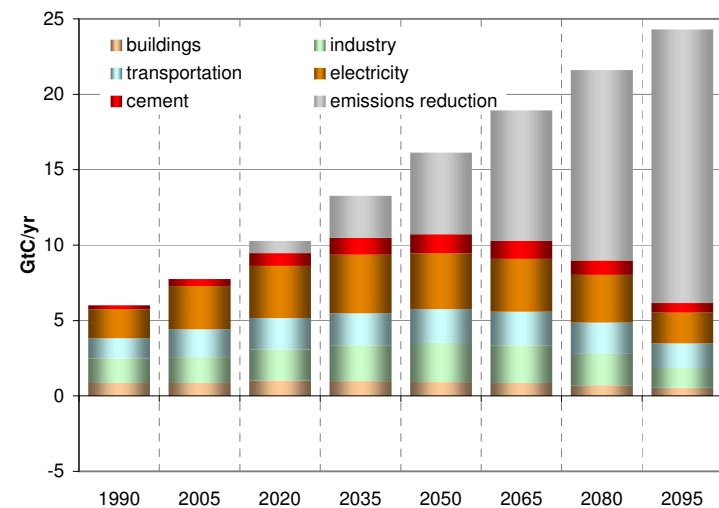
Dedicated Energy Crops, Waste Biomass, and Municipal Solid Waste Consumption by Sector Land Use by Type



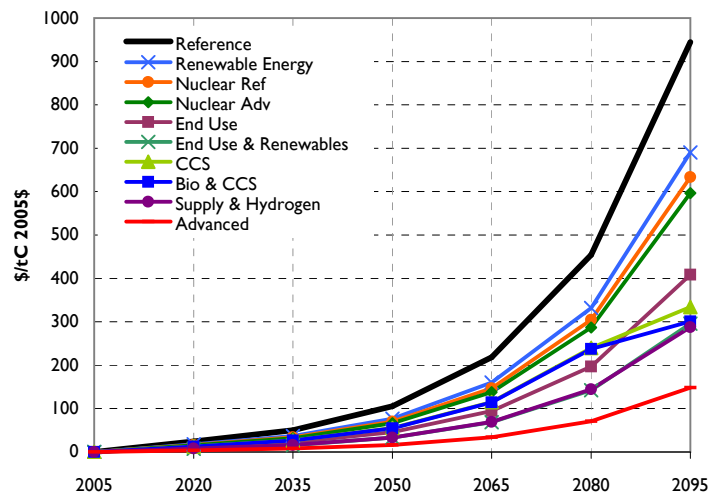
Biomass Production by Source



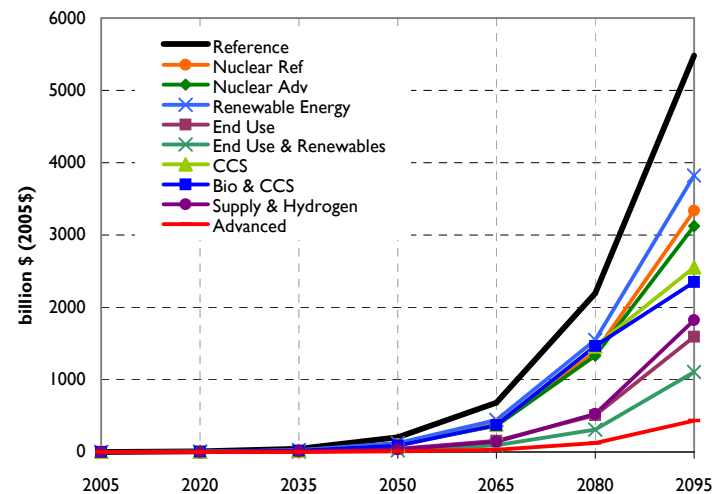
CO2 Emissions by Sector



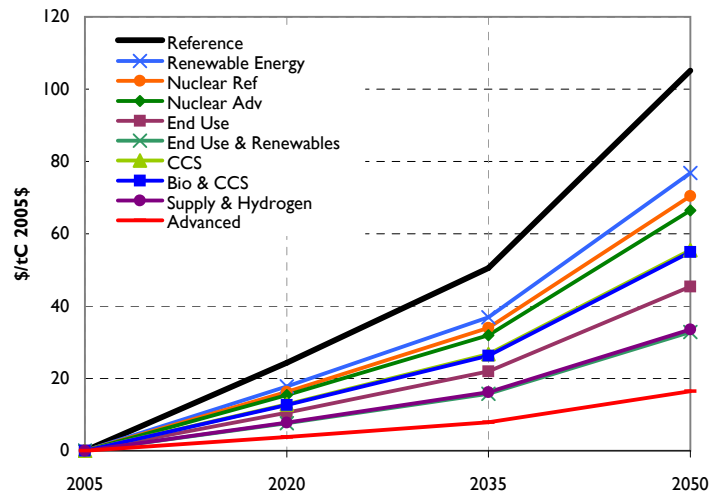
Global Carbon Price: 2005-2095



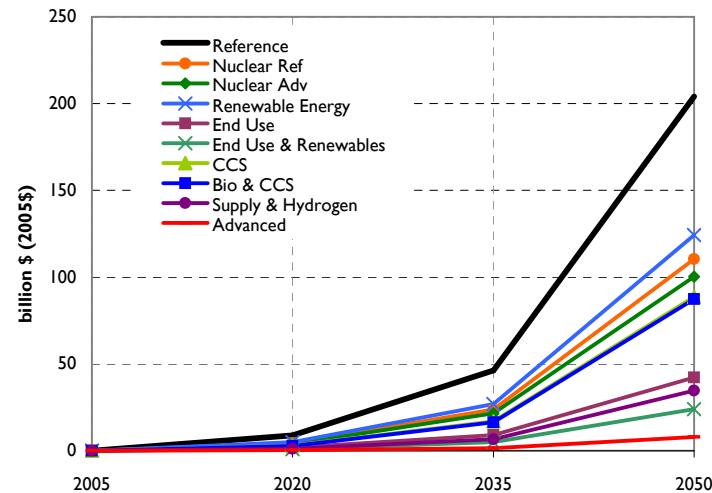
Annual Undiscounted Policy Cost: 2005-2095



Global Carbon Price: 2005-2050



Annual Undiscounted Policy Cost: 2005-2050



Total Discounted Policy Cost 2005 through 2095 (5% Discount Rate)		
Reference	2.5	trillion 2005\$
Renewable Energy	1.6	trillion 2005\$
Nuclear Ref	1.5	trillion 2005\$
Nuclear Adv	1.4	trillion 2005\$
End Use	0.6	trillion 2005\$
End Use & Renewable	0.4	trillion 2005\$
CCS	1.3	trillion 2005\$
Bio & CCS	1.3	trillion 2005\$
Supply & Hydrogen	0.6	trillion 2005\$
Advanced	0.1	trillion 2005\$
Note that these costs assume comprehensive international action and allocations of permits among countries so that the U.S. neither buys nor sells permits.		