

World on the Edge - Supporting Data for Chapter 13

[Plan B Carbon Dioxide Emissions Reductions and Sequestration in 2020](#)

GRAPH: Plan B Carbon Dioxide Emissions Reduction Goals for 2020

[Plan B Budget: Additional Annual Expenditures Needed to Meet Social Goals and to Restore the Earth Military Budgets by Country and for the World in 2009 and Plan B Budget](#)

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[Fossil Fuel Consumption Subsidies in Selected Countries by Fuel Type, 2009](#)

A full listing of data for the entire book is on-line at:

http://www.earth-policy.org/books/wote/wote_data

This is part of a supporting dataset for Lester R. Brown, **World On the Edge: How to Prevent Environmental and Economic Collapse** (New York: W.W. Norton & Company, 2010). For more information and a free download of the book, see Earth Policy Institute on-line at www.earth-policy.org.

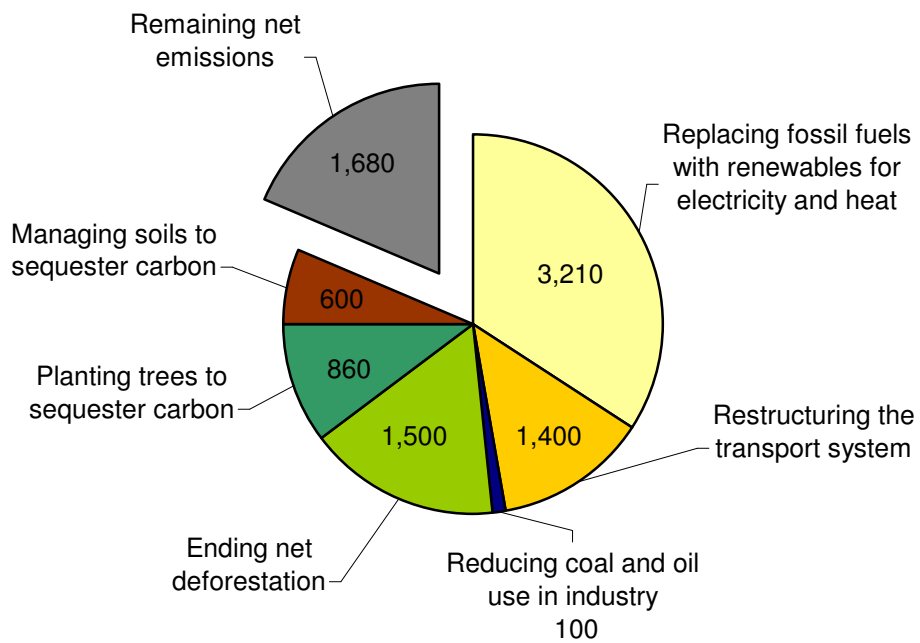
Plan B Carbon Dioxide Emissions Reductions and Sequestration in 2020

Action	Amount
	Million Tons of Carbon
Energy Restructuring	
Replacing fossil fuels with renewables for electricity and heat	3,210
Restructuring the transport system	1,400
Reducing coal and oil use in industry	100
Biological Carbon Sequestration	
Ending net deforestation	1,500
Planting trees to sequester carbon	860
Managing soils to sequester carbon	600
Total Carbon Dioxide Reductions in 2020	7,670
Carbon Dioxide Emissions in 2006	9,350
Percent Reduction from 2006 Baseline	82.0

Source: Calculated by Earth Policy Institute using International Energy Agency (IEA), *World Energy Outlook 2008* (Paris: 2008), p. 507; IEA, *Tracking Industrial Energy Efficiency and CO2 Emissions* (Paris: 2007); Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, U.K.: Cambridge University Press, 2007), pp. 543, 559; and Rattan Lal, "Soil Carbon Sequestration Impacts on Global Climate Change and Food Security," *Science*, vol. 304 (11 June 2004), pp. 1,623–27.

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Plan B Carbon Dioxide Emissions Reduction Goals for 2020 (Million Tons of Carbon)



Baseline Emissions (2006) = 9,350 Million Tons of Carbon

Source: EPI

Plan B Budget: Additional Annual Expenditures Needed to Meet Social Goals and to Restore the Earth

<u>Goal</u>	<u>Funding</u> Billion Dollars
Basic Social Goals	
Universal primary education	10
Eradication of adult illiteracy	4
School lunch programs	3
Aid to women, infants, and preschool children	4
Reproductive health and family planning	21
Universal basic health care	33
Total	75
Earth Restoration Goals	
Planting trees	23
Protecting topsoil on cropland	24
Restoring rangelands	9
Restoring fisheries	13
Stabilizing water tables	10
Protecting biological diversity	31
Total	110
Grand Total	185

Source: Compiled by Earth Policy Institute, with full sources at www.earth-policy.org/books/wote/wote_data.

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Military Budgets by Country and for the World in 2009 and Plan B Budget

Country	Budget
	Billion Dollars
United States	661
China	100
France	64
United Kingdom	58
Russia	53
Japan	51
Germany	46
Saudi Arabia	41
India	36
Italy	36
All Other	384
World Military Expenditure	1,522
Plan B Budget	185
U.S. Military Budget	661
Plan B budget as share of this	28%
World Military Budget	1,522
Plan B budget as share of this	12%

Source: Compiled by Earth Policy Institute with military spending from Stockholm International Peace Research Institute (SIPRI), *Military Expenditure Database*, electronic database, at milexdata.sipri.org, updated 2010; Plan B budget compiled by Earth Policy Institute, with full sources at www.earth-policy.org/books/wote/wote_data.

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The Real Price of Gasoline, 2007 Update

Cost	Lower Bound	Upper Bound	Lower Bound	Upper Bound
	Billion Nominal Dollars		Billion 2000 Dollars	
Climate Change	3.4	30.9	3.2	29.0
Supply and Protection Costs	78.2	158.4	73.5	148.9
2005 Energy Policy Act Subsidies	6.0	6.0	5.3	5.3
Depletion Allowance	0.8	1.0	0.8	1.0
Fuel Production Tax Credit	0.8	0.9	0.8	0.9
Expensing E&D Costs	0.2	0.3	0.2	0.3
Enhanced Oil Recovery Tax Credit	0.0	0.1	0.0	0.1
Foreign Tax Credit	1.1	3.4	1.2	3.6
Deferral of Foreign Income	0.2	0.3	0.2	0.3
Accelerated Depletion Allowance	1.0	4.5	1.0	4.7
Other Tax Credit	0.1	0.1	0.1	0.1
State and Local Taxes	4.9	5.1	5.2	5.4
Government Spending Subsidies	38.0	114.6	39.8	120.1
Air Pollution	29.3	542.4	30.7	568.5
Agricultural Crop Losses	2.1	4.2	2.2	4.4
Loss of Visibility	6.1	44.5	6.4	46.6
Damage to Buildings	1.2	9.6	1.3	10.1
Oil Spills	2.2	2.2	2.3	2.3
De-Icing and Runoff	2.0	5.2	2.1	5.4
Impervious Area Effect	4.2	29.4	4.4	30.8
Noise Pollution	6.0	12.0	6.3	12.6
Disposal of Cars	4.4	4.4	4.6	4.6
Social Cost of Sprawl	163.7	245.5	171.6	257.3
Barrier Effect of Motor Vehicles	11.7	23.4	12.3	24.5
Other Costs	191.4	474.1	200.6	496.9
Oil Costs (incl. supply protection, subsidies, government spending)	131.3	294.7	128.2	290.7
Gasoline Costs (climate change, health/environmental effects, social costs)	427.7	1,427.8	447.9	1,493.0
2006 Oil Consumption:	233 billion gallons			
2006 Gasoline Consumption:	104 billion gallons			
Total Costs per Gallon:	4.68	14.99	4.86	15.60
Average Indirect Costs per Gallon:	\$10.23 in 2000 dollars = \$11.92 in 2006 dollars			

Source: Compiled by Earth Policy Institute using International Center for Technology Assessment (ICTA), *The Real Price of Gasoline*, Report No. 3 (Washington, DC: 1998), p. 34; ICTA, *Gasoline Cost Externalities Associated with Global Climate Change: An Update to CTA's Real Price of Gasoline Report* (Washington, DC: September 2004); ICTA, *Gasoline Cost Externalities: Security and Protection Services: An Update to CTA's Real Price of Gasoline Report* (Washington, DC: January 2005); Terry Tamminen, *Lives Per Gallon: The True Cost of Our Oil Addiction* (Washington, DC: Island Press, 2006), p. 60; with price deflators from Bureau for Economic Analysis, "Table 3 - Price Indices for Gross Domestic Product and Gross Domestic Purchases," *GDP and Other Major Series, 1929-2007* (Washington, DC: August 2007); oil consumption from BP, *BP Statistical Review of World Energy* (London: June 2007); and gasoline consumption from Energy Information Administration, "Total Crude Oil and Petroleum Products," at tonto.eia.doe.gov/dnav/pet/pet_cons_psup_dc_nus_mbb1_a.htm, updated 26 November 2007.

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Retail Gasoline Prices by Country: Subsidies and Taxation, 2008

<u>Subsidy Level</u>	<u>Country</u>	<u>Price of Gasoline</u> U.S. Dollars / Gallon
<u>Very High Subsidies</u>		
	Venezuela	0.08
	Iran	0.38
	Libya	0.53
	Saudi Arabia	0.61
	Bahrain	0.79
	Turkmenistan	0.83
	Qatar	0.83
	Kuwait	0.91
<u>Subsidies</u>		
	Yemen	1.14
	Oman	1.17
	Algeria	1.29
	Trinidad and Tobago	1.36
	Brunei	1.44
	Burma (Myanmar)	1.63
	United Arab Emirates	1.70
	Egypt	1.85
	Indonesia	1.89
	Ecuador	1.93
	Angola	2.01
	Malaysia	2.01
<u>Taxation</u>		
	United States	2.12
	Nigeria	2.23
	Jordan	2.31
	Taiwan	2.42
	Sudan	2.46
	Panama	2.54
	Bolivia	2.57
	Belize	2.65
	Mexico	2.80
	Azerbaijan	2.80
	Jamaica	2.80
	Australia	2.80
	Lebanon	2.88
	Canada	2.88
	North Korea	2.88
	Liberia	2.91
	Argentina	2.95
	El Salvador	2.95
	Namibia	2.95
	Gambia	2.99
	Lesotho	2.99
	Vietnam	3.03
	Honduras	3.03
	Kyrgyzstan	3.03
	Republic of Congo	3.07
	Kazakhstan	3.14
	Pakistan	3.18
	Guyana	3.18

Syria	3.22
Guatemala	3.26
Swaziland	3.26
Thailand	3.29
Nicaragua	3.29
South Africa	3.29
Ukraine	3.33
Botswana	3.33
Russian Federation	3.37
Togo	3.37
Ghana	3.41
Philippines	3.44
Sierra Leone	3.44
Bhutan	3.44
Suriname	3.44
Laos	3.48
Ethiopia	3.48
Cambodia	3.56
Papua New Guinea	3.56
Chile	3.60
Tunisia	3.63
Niger	3.75
China	3.75
Barbados	3.79
Guinea	3.86
Tajikistan	3.90
Benin	3.90
Colombia	3.94
Dominican Republic	3.94
Afghanistan	3.97
Singapore	4.05
Armenia	4.09
India	4.13
New Zealand	4.13
Georgia	4.13
Kosovo	4.16
Romania	4.20
Tanzania	4.20
Antigua and Barbuda	4.20
Somalia	4.24
Latvia	4.24
Nepal	4.28
Bosnia and Herzegovina	4.28
Lithuania	4.28
Gabon	4.32
Cameroon	4.32
Fiji	4.35
Macedonia	4.35
Iceland	4.35
Haiti	4.39
Bangladesh	4.43
Paraguay	4.43
Uruguay	4.47
Slovenia	4.47
Estonia	4.47

Moldova	4.54
Kenya	4.54
Timor-Leste	4.62

Very High Taxation

Dem. Rep. of the Congo	4.66
Spain	4.66
Greece	4.66
Andorra	4.69
Costa Rica	4.69
Brazil	4.77
Montenegro	4.81
Croatia	4.81
Hungary	4.81
Cyprus, South	4.85
Grenada	4.85
Bulgaria	4.85
Morocco	4.88
Serbia	4.88
Zimbabwe	4.92
Mali	4.92
Uganda	4.92
Chad	4.92
Liechtenstein	4.92
Switzerland	4.92
Belarus	5.03
Cote d'Ivoire	5.03
Palestine (W. Bank and Gaza)	5.07
Uzbekistan	5.11
Senegal	5.11
Albania	5.15
Rwanda	5.19
Austria	5.19
Czech Republic	5.19
Israel	5.19
Burkina Faso	5.22
Mongolia	5.22
Sweden	5.22
Burundi	5.26
Luxembourg	5.30
Peru	5.38
Japan	5.38
Sri Lanka	5.41
Poland	5.41
Central African Republic	5.45
United Kingdom	5.45
Mauritania	5.64
Belgium	5.68
South Korea	5.72
France	5.75
Denmark	5.83
Madagascar	5.87
Germany	5.91
Ireland	5.91
Finland	5.94
Italy	5.94
Slovakia	5.94

French Polynesia (Tahiti)	5.98
South Sudan	6.02
Portugal	6.09
Norway	6.17
Monaco	6.21
Malta	6.28
Cuba	6.32
Netherlands	6.36
Zambia	6.44
Mozambique	6.47
Malawi	6.74
Guadeloupe	6.85
Cape Verde	6.97
Turkey	7.08
Hong Kong	7.38
Eritrea	9.58

Notes: 1 Gallon = 3.785 Liters. Three benchmarks determine the classification of retail prices into levels of subsidies and taxation. The price of crude on the world market distinguishes those countries with very high subsidies from those with subsidies. The United States' retail prices are assumed to be an adequate approximation for the "international minimum benchmark for a non-subsidized road transport policy." Spain marks the boundary between taxation and very high taxation; of the EU-15 countries that pay VAT, fuel taxes, and other country-specific fees, Spain had the lowest fuel prices at the time of the analysis in 2008. The four categories, with costs per liter, are the following:

1. Very High Gasoline Subsidies (\$0.01-1.13/Gallon): these countries sell gasoline below the world market's price for crude oil (\$1.14/Gallon).
2. Gasoline Subsidies (\$1.14-2.11/Gallon): these countries sell gasoline above the price of crude but below the retail price in the United States.
3. Gasoline Taxation (\$2.12-4.65/Gallon): these countries sell gasoline at retail prices between that of the United States and that of Spain.
4. Very High Gasoline Taxation (\$4.66-9.58/Gallon): these countries sell gasoline at a retail price above that of Spain.

Source: Sebastian Ebert et al., *International Fuel Prices 2009* (Eschborn, Germany: GTZ Transport Policy Advisory Services, December 2009), p. 63, at www.gtz.de/en/themen/29957.htm.

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Fossil Fuel Consumption Subsidies in Selected Countries by Fuel Type, 2009

	Iran	Russia	India	China	Indonesia
Total					
Subsidies (Billion Dollars)	66.4	33.6	21.1	18.6	12.2
<i>per capita (Dollars)</i>	<i>895</i>	<i>238</i>	<i>18</i>	<i>14</i>	<i>53</i>
<i>as share of GDP (Percent)</i>	<i>20.1</i>	<i>2.7</i>	<i>1.7</i>	<i>0.4</i>	<i>2.3</i>
Rate of Subsidization (Percent)	89	23	15	4	25
By Fuel					
Oil (Billion Dollars)	30.1	n/a	12.1	5.0	8.6
<i>Rate of Subsidization (Percent)</i>	<i>88</i>	<i>n/a</i>	<i>18</i>	<i>3</i>	<i>28</i>
Natural Gas (Billion Dollars)	24.8	18.7	2.7	0.5	n/a
<i>Rate of Subsidization (Percent)</i>	<i>95</i>	<i>50</i>	<i>77</i>	<i>2</i>	<i>n/a</i>
Coal (Billion Dollars)	n/a	n/a	n/a	4.3	n/a
<i>Rate of Subsidization (Percent)</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>7</i>	<i>n/a</i>
Electricity (Billion Dollars)	11.4	14.9	6.3	8.8	3.6
<i>Rate of Subsidization (Percent)</i>	<i>82</i>	<i>27</i>	<i>12</i>	<i>4</i>	<i>31</i>

Note: n/a indicates data that are unavailable. The five countries profiled are those selected and analyzed by the International Energy Agency; they have some of the largest fossil fuel subsidies but have plans to introduce market-based pricing gradually in the future. For a list of fossil fuel subsidies by fuel and country, see www.worldenergyoutlook.org/docs/weo2010/key_graphs.pdf.

Source: Compiled by Earth Policy Institute from International Energy Agency, *World Energy Outlook 2010* (Paris: 9 November 2010), pp. 598, 601, 605, 611, 614.

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