

# Footnotes

## Section One

1. From the G-20 Leader's Statement, Pittsburgh Summit, 24-25 September 2009: "All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements."
2. It was observed in the 'WOO 2010' that the price needed to support Canadian oil sands projects would exceed \$70/b at internal rates of return above 10%.
3. It could be argued to some degree that part of these cyclical factors has become structural as the axis of economic growth shifts towards emerging economies, especially in Asia, with the concomitant steady and rising pressures upon demand for, and the price of, building materials.
4. IHS CERA, 'Costs of Building and Operating Upstream Oil and Gas Facilities Begin Measured Rise', December 2010, <http://press.ihs.com>.
5. OPEC, 'World Oil Outlook 2010', p.129.
6. Goldman Sachs, '230 Projects to Change the World', February 2009.
7. Michael C. Lynch, 'Upstream Costs: cycle or rising trend?', Strategic Energy & Economic Research, Inc., December 2009.
8. Paul Segal, 'Why do oil price shocks no longer shock?', Oxford Institute for Energy Studies, October 2007.
9. Ali Aissaoui, 'Fiscal break-even prices: what more could they tell us about OPEC policy behaviour?', APICORP, March 2011.
10. Carmen Reinhart and Kenneth Rogoff, 'This Time Is Different: Eight Centuries of Financial Folly', Princeton University Press, 11 September 2009.
11. It is worth noting that increased pessimism for growth prospects in some countries, notably the US, has emerged in the second half of 2011, after the model runs for this Outlook had been undertaken.
12. This is using the medium variant of projections from the UN Department of Economic and Social Affairs. There are, however, uncertainties, largely with regard to future fertility rates, with the UN also offering estimates for low and high variants, which suggest a global population by 2035 of 8 and 9.2 billion, respectively.
13. Defined as population aged 15–64.
14. There is no single definition used by the UN for what is designated as 'urban' since there are national differences that distinguish urban from rural areas. The traditional distinction has related to the higher standard of living in urban areas, but this is becoming blurred in developed countries. Typically, a population density of 1,000 persons per square mile (although this can be as low as 400, as with Canada, or even 200, as with Greenland and Norway) and/or population size (with this ranging between a minimum population of 2,000–5,000, although it can be as low as 200, as in the case of Iceland, or

- as high as 20,000, as with Turkey) is used as a definition in censuses. See [http://unstats.un.org/unsd/demographic/sconcerns/densurb/Defintion\\_of%20Urban.pdf](http://unstats.un.org/unsd/demographic/sconcerns/densurb/Defintion_of%20Urban.pdf).
15. Excluding non-commercial use of biomass.
  16. Potential Gas Committee, Press Release, 27 April 2011, <http://potentialgas.org>.
  17. Energy Information Administration, 'Review of emerging resources: US shale gas and shale oil plays,' July 2011, <http://www.eia.gov/analysis/studies/usshalegas/>.
  18. Energy Information Administration, 'World Shale Gas Resources: An Initial Assessment of 14 Regions Outside the United States', April 2011, <http://www.eia.gov/analysis/studies/worldshalegas/pdf/fullreport.pdf>.
  19. [http://www.eia.gov/pressroom/releases/pdf/shale\\_gas.pdf](http://www.eia.gov/pressroom/releases/pdf/shale_gas.pdf).
  20. George E. King, 'Thirsty year of gas shale fracturing: what have we learned?', Society of Petroleum Engineers, Paper 131456, 2010.
  21. Florence Geny, 'Can Unconventional Gas be a Game Changer in European Gas Markets', The Oxford Institute for Energy Studies, December 2010, <http://www.oxfordenergy.org>.
  22. The Massachusetts Institute of Technology Energy Initiative, 'The Future of Natural Gas', 2011, <http://web.mit.edu/mitei/research/studies/natural-gas-2011.shtml>.
  23. Stephen G. Osborn et al, 'Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing', Proceedings of the National Academy of Sciences, April 2011, <http://www.pnas.org/content/early/2011/05/02/1100682108>.
  24. <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfm#curstud>.
  25. <http://www.bbc.co.uk/news/world-europe-13592208>.
  26. [http://world-nuclear.org/info/fukushima\\_accident\\_inf129.html](http://world-nuclear.org/info/fukushima_accident_inf129.html).
  27. <http://www.neimagazine.com/story.asp?sectioncode=132&storyCode=2059858>.
  28. <http://www.world-nuclear.org>.
  29. <http://www.world-nuclear.org/info/inf17.html>.
  30. <http://www.ifandp.com/wp-content/uploads/2011/03/032111-ORC-International-Japan-Nuclear-Reactor-survey-report-FINAL1.pdf>.
  31. [http://www.nytimes.com/2011/03/25/us/25lobby.html?\\_r=1](http://www.nytimes.com/2011/03/25/us/25lobby.html?_r=1).
  32. A significant portion of this change is due to revisions for short-term expectations for OECD regions.
  33. Of course, even over the medium-term policies can play a significant role in changing demand patterns, such as with blending mandates.
  34. Measured in terms of energy content.
  35. This fall occurred at the same time that Indonesia was added to the definition of non-OPEC as it left the Organization in 2008. The revision was therefore even more emphatic than the figure shows.
  36. Supply figures are slightly higher than those of demand due to the need for additional oil to satisfy stock build.
  37. Same source used in this Chapter for subsequent depictions of historical oil use by sector.

38. Including sports utility vehicles.
39. Defined as lorries plus buses. Lorries are rigid motor vehicles designed, exclusively or primarily, to carry goods, and include vans and pick-ups. Buses are passenger road motor vehicles designed to seat more than nine persons, including the driver.
40. Defined as passenger-kilometres performed expressed as a percentage of seat-kilometres available.
41. Airbus, 'Global Market Forecast 2010'.
42. IATA is an international trade body representing two hundred and thirty airlines in 188 countries, and comprising 93% of scheduled international air traffic.
43. IATA 2008, [http://www.iata.org/whatwedo/environment/Pages/fuel\\_efficiency.aspx](http://www.iata.org/whatwedo/environment/Pages/fuel_efficiency.aspx).
44. International Civil Aviation Organization (ICAO), <http://icaodata.com>.
45. International air traffic applies to passengers, freight and mail disembarked at an airport located in a state other than that of the airport of embarkation, or vice versa.
46. 'Outlook for Air Transport to the Year 2025', ICAO, 2010.
47. Covers quantities delivered to ships of all flags that are engaged in international navigation.
48. Additionally, the following sources are used: IMF, World Economic Outlook; OECD, Economic Outlook; Economist Intelligence Unit; United Nations; national sources.
49. Oil use in diesel generators in factories is included in industrial oil use.
50. The prospects are not uniform across all Member Countries.
51. Prices by 2035 are 11% higher than in the Reference Case.
52. It should be noted that the effects of the ATTP and economic growth scenarios cannot be simply aggregated, as different driving forces are assumed to be at work.
53. Climate Change 2007: Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007. This report is often termed AR4.
54. Leon Clarke, Jae Edmonds, Volker Krey, Richard Richels, Steven Rose, Massimo Tavoni, 'International climate change policy architectures: Overview of the EMF 22 International Scenarios', *Energy Economics* 31 (2009).
55. Results presented to the January 2011 IEA-IEF-OPEC Symposium on Energy Outlooks, Riyadh, Saudi Arabia, using the CGE model of Charles River Associates confirm this. Such impacts are also corroborated by other assessments, including work at the OPEC Secretariat.
56. See [www.ofid.org](http://www.ofid.org).
57. Data is for average water use relating to both raw materials and transformation.
58. Original source is: Stephen G. Osborn, Avner Vengosh, Nathaniel R. Warner, and Robert B. Jackson, 'Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing', April 2011, Proceedings of the National Academy of Sciences, available at <http://www.pnas.org/content/108/20/8172.full>.

## Section Two

1. The World Oil Refining Logistic and Demand (WORLD) model is a trademark of EnSys Energy & Systems, Inc. OPEC's version of the model was developed jointly with EnSys Energy & Systems.
2. Heavy IFO fuels comprise the majority of marine fuel sold, especially for larger vessels. IFO fuels have primarily been distinguished based on their viscosity (Centistokes at 50°C). IFO380 has traditionally been the most used with IFO180 following second. Rising fuel costs and distillate/resid differentials are, however leading to the increasing use of IFO500 and even IFO700.
3. Initially, ECAs were established for sulphur/SO<sub>x</sub> only and so were called SECAs. Since broadening the emissions covered to include NO<sub>x</sub> and PM, the acronym has been changed to ECA.
4. Starting with the fiscal year 2012, some changes to the tax scheme for India's oil industry are being considered, potentially removing some of the benefits currently in place.
5. In fact, since fuel oil margins are negative on international markets, increased exports of fuel oil means value destruction compared to crude oil exports.
6. Construction of the pipeline was completed in June 2011.
7. A combination of finished gasolines and reformulated blendstock for oxygenate blending/conventional blendstock for oxygenate blending for final blending at terminals with ethanol.
8. Volumes of acidic 'high TAN' (total acid number) crudes are growing. These require additional pre-treating and/or processing in crude units with either metallurgy or additives to counter the acid's corrosive effects.
9. Percentage calculated on a weight basis.
10. Directive 98/70/EC as amended by two subsequent directives – Directive 2003/17/EC and Directive 2009/30/EC.
11. Note that all references to upgrading and conversion in this study exclude operations, capacity and requirements for upgraders associated with extra-heavy crude oil and oil sands (Venezuela and Canada). The analysis starts from the marketed streams (syncrudes, dilbit type blends, etc.) of such production and facilities.
12. In the model, the production of fuel grade coke is allowed to float as a by-product with prices based on those for coal, with which fuel grade coke competes.
13. On a weight basis, the coke yield on a coking unit can be in the range of 30%.
14. IHS CERA, 'OECD Refining: Lighter Supply Spells Lasting Trouble', October 2010.
15. Oil here includes crude oil, part of condensates and NGLs that are blended with crude oil, refined products, intermediates and non-crude based products.
16. Transneft's website: [www.transneft.ru](http://www.transneft.ru).
17. The consortium's four largest shareholders are: Transneft (24%), KMG (19%), Chevron (15%), and LukArco (12.5%).
18. Calculated as 90% of the difference between crude distillation capacity and required crude throughputs.



# Annex A

## **Abbreviations**



API	American Petroleum Institute
AR4	IPCC's Fourth Assessment Report
ATTP	Accelerated Transportation Technology and Policy
AWG-KP	Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
AWG-LCA	Ad Hoc Working Group on Long-Term Cooperative Action under the Convention
b/d	Barrels per day
boe	Barrels of oil equivalent
BPS	Baltic Pipeline System
BTC	Baku-Tbilisi-Ceyhan (pipeline)
BTLs	Biomass-to-liquids
CCS	Carbon capture and storage
CFTC	Commodity Futures Trading Commission
CLSF	Carbon Sequestration Leadership Forum
CNG	Compressed natural gas
CNOOC	China National Offshore Oil Corporation
CNPC	China National Petroleum Corporation
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> -eq	Carbon dioxide equivalent
COP	Conference of the Parties
CTLs	Coal-to-liquids
DCCI	Downstream capital costs index
DCs	Developing countries
DOE/EIA	(US) Department of Energy/Energy Information Administration
dwt	Dead weight tonnes
EC	European Commission
ECAs	Emission control areas
EFQD	European Fuel Quality Directive
EIA	Energy Information Administration
EISA	(US) Energy Independence and Security Act
EOR	Enhanced oil recovery
EPA	Environmental Protection Agency
EPRI	Electric Power Institute
ESPO	Eastern Siberia Pacific Ocean
EU	European Union
EU ETS	EU Emissions Trading Scheme

FAME	Fatty-acid methyl ester
FCC	Fluid catalytic cracking
FSU	Former Soviet Union
FYP	Five Year Plan
GCCSI	Global CCS Institute
GDP	Gross domestic product
GHG	Greenhouse gas
GSI	Global Subsidies Initiative
GTLs	Gas-to-liquids
GW	Gigawatt
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICE	Intercontinental Exchange
IEA	International Energy Agency
IEA GHG	International Energy Agency Greenhouse Gas Programme
IEF	International Energy Forum
IFO	Intermediate fuel oil
IFQC	International Fuel Quality Centre
IHS CERA	IHS Cambridge Energy Research Associates
IMF	International Monetary Fund
IMO	International Maritime Organization
IOCs	International oil companies
IPCC	Intergovernmental Panel on Climate Change
JODI	Joint Oil Data Initiative
JVETS	Japan's Voluntary Emissions Trading Scheme
KCTS	Kazakhstan Caspian Transportation System
KMG	KazMunayGas
kpg	Kilometres per hour
LCFS	Low Carbon Fuel Standard
LNG	Liquefied natural gas
LPG	Liquefied petroleum gas
MARPOL	International Convention for the Prevention of Pollution from Ships
mb/d	Million barrels per day
mboe	Million barrels of oil equivalent
mBtu	Million British thermal units

MDGs	Millennium Development Goals
MDO	Marine diesel
MEPC	Marine Environmental Protection Committee
METI	Ministry of Economy, Trade & Industry
MGO	Marine gasoil
MOMR	(OPEC's) Monthly Oil Market Report
mpg	Miles per gallon
MR1	General Purpose Vessels (16,500–24,999 dwt)
MR2	Medium Range Vessels (25,000–49,999 dwt)
MTBE	Methyl tetra-butyl ether
MW	Megawatt
NDRC	National Development and Reform Commission
NEI	Nuclear Energy Institute
NGLs	Natural gas liquids
NOCs	National oil companies
NO <sub>x</sub>	Nitrogen oxide
OECD	Organisation for Economic Co-operation and Development
OFID	OPEC Fund for International Development
OPEC	Organization of the Petroleum Exporting Countries
ORB	OPEC Reference Basket (of crudes)
OTC	Over-the-counter
OWEM	OPEC's World Energy Model
p.a.	Per annum
PM	Particulate matters
ppm	Parts per million
R&D	Research and development
RED	(EU) Renewable Energy Directive
R/P	Reserves-to-production
Sinopec	China Petrochemical Corporation
SO <sub>x</sub>	Sulphur oxide
TAN	Total acid number
Tcf	Trillion cubic feet
toe	Tons of oil equivalent
UN	United Nations

UNCTAD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
URR	Ultimately recoverable reserves
USGS	United States Geological Survey
WCSB	Western Canadian Sedimentary Basin
WHO	World Health Organization
WNA	World Nuclear Association
WOO	World Oil Outlook
WORLD	World Oil Refining Logistics Demand Model
WRFS	World Refining & Fuels Services
WTI	West Texas Intermediate



# Annex B

# **OPEC World Energy Model (OWEM): definitions of regions**



## OECD

### North America

Canada

Guam

Mexico

Puerto Rico

United States of America

United States Virgin Islands

### Western Europe

Austria

Belgium

Czech Republic

Denmark

Finland

France

Germany

Greece

Hungary

Iceland

Ireland

Italy

Luxembourg

Netherlands

Norway

Poland

Portugal

Slovak Republic

Spain

Sweden

Switzerland

Turkey

United Kingdom

### OECD Pacific

Australia

Japan

New Zealand

Republic of Korea

## Developing countries

### Latin America

Anguilla

Antigua and Barbuda

Argentina

Aruba

Grenada

Guadeloupe

Guatemala

Guyana

Bahamas  
Barbados  
Belize  
Bermuda  
Bolivia  
Brazil  
British Virgin Islands  
Cayman Islands  
Chile  
Colombia  
Costa Rica  
Cuba  
Dominica  
Dominican Republic  
El Salvador  
Falkland Islands (Malvinas)  
French Guiana

Middle East & Africa

Bahrain  
Benin  
Botswana  
Burkina Faso  
Burundi  
Cameroon  
Cape Verde  
Central African Republic  
Chad  
Comoros  
Congo  
Congo, Democratic Republic  
Djibouti  
Egypt

Haiti  
Honduras  
Jamaica  
Martinique  
Montserrat  
Netherlands Antilles  
Nicaragua  
Panama  
Paraguay  
Peru  
St. Kitts and Nevis  
St. Lucia  
St. Vincent and the Grenadines  
Suriname  
Trinidad and Tobago  
Turks and Caicos Islands  
Uruguay

Malawi  
Mali  
Mauritania  
Mauritius  
Mayotte  
Middle East, Other  
Morocco  
Mozambique  
Namibia  
Niger  
Oman  
Réunion  
Sao Tome and Principe  
Senegal

Equatorial Guinea  
Eritrea  
Ethiopia  
Gabon  
Gambia  
Ghana  
Guinea  
Guinea-Bissau  
Ivory Coast  
Jordan  
Kenya  
Lebanon  
Lesotho  
Liberia  
Madagascar  
Rwanda

#### South Asia

Afghanistan  
Bangladesh  
Bhutan  
India

#### Southeast Asia

American Samoa  
Brunei Darussalam  
Cambodia  
Chinese Taipei  
Cook Islands  
Democratic People's Republic of Korea  
Fiji  
French Polynesia  
Hong Kong, China

Seychelles  
Sierra Leone  
Somalia  
South Africa  
Sudan  
Swaziland  
Syrian Arab Republic  
Togo  
Tunisia  
Uganda  
United Republic of Tanzania  
Western Sahara  
Yemen  
Zambia  
Zimbabwe

Maldives  
Nepal  
Pakistan  
Sri Lanka

Myanmar  
Nauru  
New Caledonia  
Niue  
Papua New Guinea  
Philippines  
Samoa  
Mongolia  
Singapore

Indonesia  
Kiribati  
Lao People's Democratic Republic  
Macao  
Malaysia

Solomon Islands  
Thailand  
Tonga  
Vanuatu (New Hebrides)  
Vietnam

China

OPEC

Algeria  
Angola  
Ecuador  
I.R. Iran  
Iraq  
Kuwait

Libya  
Nigeria  
Qatar  
Saudi Arabia  
United Arab Emirates  
Venezuela

### **Transition economies**

Russia

Other transition economies

Albania  
Armenia  
Azerbaijan  
Belarus  
Bosnia and Herzegovina  
Bulgaria  
Croatia  
Cyprus  
Estonia  
Georgia  
Kazakhstan

Kyrgyzstan  
Latvia  
Lithuania  
Malta  
Moldova  
Montenegro  
Romania  
Serbia  
Slovenia  
Tajikistan  
The Former Yugoslav Republic of Macedonia

Turkmenistan  
Ukraine

Uzbekistan

# Annex C

**World Oil Refining Logistics and Demand  
(WORLD) model:  
definitions of regions**



## US & Canada

United States of America

Canada

## Latin America

Greater Caribbean

Antigua and Barbuda

Bahamas

Barbados

Belize

Bermuda

British Virgin Islands

Cayman Islands

Colombia

Costa Rica

Dominica

Dominican Republic

Ecuador

El Salvador

Falkland Islands (Malvinas)

French Guiana

Grenada

Grenadines

Guadeloupe

Guatemala

Guyana

Haiti

Honduras

Jamaica

Martinique

Mexico

Montserrat

Netherlands Antilles

Nicaragua

Panama

St. Kitts & Anguilla

St. Lucia

St. Pierre et Miquelon

St. Vincent

Suriname

Trinidad & Tobago

Turks and Caicos Islands

Venezuela

Rest of South America

Argentina

Bolivia

Paraguay

Peru

Brazil  
Chile

Uruguay

## **Africa**

### North Africa/Eastern Mediterranean

Algeria  
Egypt  
Lebanon  
Libya

Mediterranean, Other  
Morocco  
Syrian Arab Republic  
Tunisia

### West Africa

Angola  
Benin  
Cameroon  
Congo, Democratic Republic  
Equatorial Guinea  
Gabon  
Ghana  
Guinea  
Guinea-Bissau

Ivory Coast  
Liberia  
Mali  
Mauritania  
Niger  
Senegal  
Sierra Leone  
Togo

### East/South Africa

Botswana  
Burkina Faso  
Burundi  
Cape Verde  
Central African Republic  
Chad  
Comoros

Namibia  
Réunion  
Rwanda  
Sao Tome and Principe  
Seychelles  
Somalia  
South Africa

Djibouti  
Ethiopia  
Gambia  
Kenya  
Lesotho  
Madagascar  
Malawi  
Mauritius  
Mozambique

St. Helena  
Sudan  
Swaziland  
United Republic of Tanzania  
Uganda  
Western Sahara  
Zambia  
Zimbabwe

## Europe

### North Europe

Austria  
Belgium  
Denmark  
Finland  
Germany  
Iceland  
Ireland

Luxembourg  
Netherlands  
Norway  
Sweden  
Switzerland  
United Kingdom

### South Europe

France  
Greece  
Italy

Portugal  
Spain  
Turkey

### Eastern Europe

Albania  
Bosnia and Herzegovina  
Bulgaria

Poland  
Romania  
Serbia

Croatia  
Czech Republic  
Hungary  
Montenegro

Slovakia  
Slovenia  
The Former Yugoslav Republic of Macedonia

## **FSU**

### Caspian Region

Armenia	Kyrgyzstan
Azerbaijan	Tajikistan
Georgia	Turkmenistan
Kazakhstan	Uzbekistan

### Russia & Other FSU (excluding Caspian region)

Belarus	Moldova
Estonia	Russia
Latvia	Ukraine
Lithuania	

## **Middle East**

Bahrain	Oman
I.R. Iran	Qatar
Iraq	Saudi Arabia
Jordan	United Arab Emirates
Kuwait	Yemen

## Asia-Pacific

### OECD Pacific

Australia

New Zealand

Japan

Republic of Korea

### Pacific High Growth – non OECD Industrializing

Brunei Darussalam

Hong Kong, China

Indonesia

Malaysia

Philippines

Singapore

Chinese Taipei

Thailand

China

### Rest of Asia

Afghanistan

Bangladesh

Bhutan

Cambodia

Christmas Island

Cook Island

Fiji

French Polynesia

Guam

India

Democratic People's Republic of Korea

Lao People's Democratic Republic

Macao

Maldives

Mongolia

Myanmar

Nauru

Nepal

New Caledonia

Pakistan

Papua New Guinea

Solomon Islands

Sri Lanka

Timor

Tonga

Vietnam

Wake Islands

# Annex D

## **Major data sources**



Airbus, Global Market Forecasts 2010

American Petroleum Institute

APICORP

Baker Hughes

Bank of International Settlements, Semiannual Over-The-Counter (OTC) Derivatives Markets Statistics, <http://www.bis.org/statistics/derstats.htm>

BP Statistical Review of World Energy

Central Banks' reports

C1 Energy Limited

Canadian Energy Research Institute

Cedigaz

Consensus forecasts

Direct Communications to the OPEC Secretariat

The Economist

Economist Intelligence Unit online database

EIA, Performance Profiles of Major Energy Producers, 2009

Energy Information Administration, 'Review of emerging resources: US shale gas and shale oil plays,' July 2011, <http://www.eia.gov/analysis/studies/usshalegas/>

Energy Information Administration, 'World Shale Gas Resources: An Initial Assessment of 14 Regions Outside the United States', April 2011, <http://www.eia.gov/analysis/studies/worldshalegas/pdf/fullreport.pdf>

Energy Intelligence, Top 100 : Ranking The World's Oil Companies, 2010

Energy Policy Research Foundation, Inc

Energy Security Analysis, Inc, ESAI, Impact of Fuel and Engine Technology in the Transportation Sector on Future Oil Demand 2010–2030, 2010

Energy Security Analysis, Inc, ESAI, Fuel Engine Pathways for Automotive Transportation 2010-2025, 2009

ENI, World Oil and Gas Review

Energy Intelligence Research, The Almanac of Russian and Caspian Petroleum

EnSys Energy & Systems, Inc

European Commission, Commission staff working paper on refining and the supply of petroleum products in the EU, Brussels, SEC(2010) 1398/2

Eurostat

Geny, Florence, 'Can Unconventional Gas be a Game Changer in European Gas Markets', The Oxford Institute for Energy Studies, December 2010, <http://www.oxford-energy.org>

Global Subsidies Initiative (GSI), Biofuels – At What Cost? Government support for ethanol and biodiesel in the United States, 2007

Global Subsidies Initiative, [http://www.globalsubsidies.org/files/assets/relative\\_energy\\_subsidies.pdf](http://www.globalsubsidies.org/files/assets/relative_energy_subsidies.pdf)

Global Subsidies Initiative, relative subsidies to energy sources: estimates, 2010

Goldman Sachs

Hart Energy Downstream Services, World Refining and Fuels Service

Hart Energy Downstream Services, Refinery Tracker

Haver Analytics

<http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfm#curstud>

[http://www.eia.gov/pressroom/releases/pdf/shale\\_gas.pdf](http://www.eia.gov/pressroom/releases/pdf/shale_gas.pdf)

IEA, Quarterly Energy Prices & Taxes

IHS Cambridge Energy Research Associates

IHS CERA, Russia's Evolving Oil Export Policy: Security of Demand Becomes a Higher Priority

IHS CERA Advisory Service, World refined products outlook: How strong a rebound?, March 2011

IHS Global Insight, online database

IHS Global Insight, Future Powertrain Technologies: The Next Generation Update, 2015 to 2025, Final Report

IHS Herold

IHS Petroleum Economics and Policy Solutions database

IMF, Direction of Trade Statistics

IMF, International Financial Statistics

IMF, World Economic Outlook

Intergovernmental Panel on Climate Change

International Air Transport Association

International Banks' reports

International Civil Aviation Organization (ICAO), ICAO's data set, <http://www.icao-data.com>

International Fuel Quality Centre

International Oil Companies, Annual Reports

International Oil Daily

International Road Federation, World Road Statistics

King, George E., 'Thirsty year of gas shale fracturing: what have we learned?', Society of Petroleum Engineers, Paper 131456, 2010

The Massachusetts Institute of Technology Energy Initiative, 'The Future of Natural Gas', 2011, <http://web.mit.edu/mitei/research/studies/natural-gas-2011.shtml>

National Oceanic & Atmospheric Administration, Monthly Climatic Data for the World

OECD Trade by Commodities

OECD/IEA, Energy Balances of non-OECD countries

OECD/IEA, Energy Balances of OECD countries

OECD/IEA, Energy Statistics of non-OECD countries

OECD/IEA, Energy Statistics of OECD countries

OECD, International Trade by Commodities Statistics

OECD, National Accounts of OECD Countries

OECD, OECD Economic Outlook

OPEC Annual Statistical Bulletin

OPEC Fund for International Development

OPEC Monthly Oil Market Report

OPEC, Who gets what from imported oil, 2009

OPEC World Oil Outlook, 2010

Osborn, Stephen G., et al., 'Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing', Proceedings of the National Academy of Sciences, April 2011, <http://www.pnas.org/content/early/2011/05/02/1100682108>

Petroleum Economist, European refining suits some, 18 April 2011

PFC 'Study on China's 12<sup>th</sup> Five Year Plan, August 2011

Platt's special report, Russian crude oil exports to the Pacific Basin – an ESPO update, February 2011

Platt's special report, Russian crude oil production and export, June 2011

Plunkett Research, Automotive Industry Introduction, 2009

Potential Gas Committee, Press Release, 27 April 2011, <http://potentialgas.org>

Purvin & Gertz, Global Petroleum Market Outlook – Petroleum Balances

Renewable Energy Policy Network for the 21<sup>st</sup> Century

Renewable Fuels Association

Ricardo Strategic Consulting, 'Potential of Technologies Advances in the Road Transport Sector', June 2011

Society of Petroleum Engineers

Tanker Broker's Panel, London

Turner, Mason & Company

UN, Department of Economic and Social Affairs, online database

UN, Energy Statistics

UN, International Trade Statistics Yearbook

UN, National Account Statistics

UN Statistical Yearbook

UN online database, <http://unstats.un.org>

US Commodity Futures Trading Commission

United States Geological Survey, World Petroleum Assessment 2000

United States Geological Survey, 'An Evaluation of the USGS World Petroleum Assessment 2000 – Supporting Data', Open-File Report 2007–1021

US Energy Information Administration

US National Academy of Engineering, 2009

World Bank, World Development Indicators

World Health Organization

Wood Mackenzie

World Nuclear Association

World Oil

World Resources Institute, <http://earthtrends.wri.org>

World Trade Organization, International Trade Statistics