BMZ Federal Ministry for Economic Cooperation and Development

Future-Makers. Building the future. Let's join forces.

International Fuel Prices 2010/2011

7th Edition

Published by giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

This edition is dedicated to Lee (Leon) Shipper. Lee was always an inspiring colleague who supported our work on international fuel prices with sharp analysis and profound comments. We will miss him.

Lee passed away in August 2011.

International Fuel Prices 2010/2011

7th Edition

Disclaimer

Findings, interpretation and conclusions expressed in this document are based on the information gained by the authors and from the contributors. GIZ does not guarantee the accuracy or completeness of information in this document and cannot be held responsible for any errors, omissions or losses which emerge from its use.

CONTENTS

1 Executive summary

- The 2010/2011 International Fuel Prices report provides an **overview of the retail prices of gasoline and diesel in over 170 countries**. This report further **explores recent trends and case studies on fuel prices and fuel pricing policies in developing countries** (with an additional chapter dedicated to the **Arab World**) and provides access to numerous additional resources.
- As depicted in the figure below, the years 2009/2010 were mainly characterised by a **steady price increase** in **fossil fuels** on the global market and **moderate price volatility**.

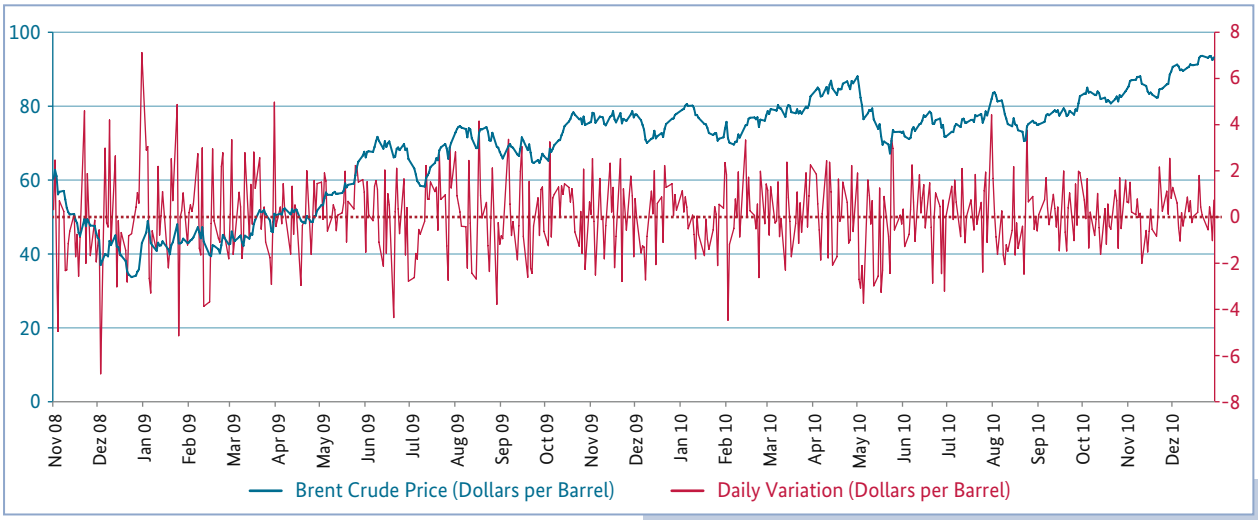


Figure 1: *Brent crude and daily variations*
Source: www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=rbrte&f=d, 12.7.2011

- After the price rally in mid-2008 with peak prices around USD 140 per barrel, prices decreased to below USD 40 per barrel. As the economy rapidly recovered, crude oil prices consequently started to rise again. Once more, this fuelled the **global debate on energy security, the role of fossil fuels and especially subsidies**.
- Recent political turmoil in various countries has been at least partly linked to increasing commodity prices, including transport fuels. Public grievance with regard to increasing prices is caused *inter alia* by often inappropriate regulatory approaches and limited transparency.
- As the **mid-2008 period put high budgetary pressure** on fuel price subsidising countries, the **years 2009/2010 with falling prices offered a unique opportunity to call for a reassessment of fuel price policies**, the (re-)adjustment of national retail prices and the question of taxation. This holds true in particular for countries with *non-transparent ad hoc pricing*.
- In **countries with *ad hoc* pricing**, reform efforts need to be built on a long-term (5–10 year) perspective and should begin with comprehensive transparency campaigns. Even if subsidies are maintained, these countries need to start introducing regular (monthly) price adjustments. Transparency is the crucial prerequisite for all subsequent steps. The reform timeline must be outlined, including information on:

1) Government plans and the motivation behind them;
2) The phasing out of subsidies by a given date "20XX" and the price increase increments;
3) The introduction of taxes, if necessary with ear-marking (*e.g.* for transport projects, social safety nets).

- Countries with **regular price reviews** or other forms of active regulation are encouraged to continue the regular adjustment of prices based on changes in input parameters as well as improve transparency and/or to intensify outreach efforts. Temporary suspensions of regular price adjustments have proven difficult to implement as the subsequent price increases might be substantial and the costs to the budget are potentially enormous. These countries may consider forgoing windfall tax profits collected through taxes based on percentage values (*e.g.* VAT).
- Countries with **passive or no regulation** may consider the application of tools that increase transparency and limit daily fluctuations as well as potential profiteering. This may include the publication of indicative maximum prices and detailed presentation of the price break-up as well as full transparency in terms of the costs of input products and margins.
- Fuel **subsidies are not only a burden on the economy** but also encourage **wasteful fuel use**. Thus, normalised petrol prices, in line with world market prices, would clearly **reduce the impact of subsidies on the economy and foster an energy efficient transport system**.
- The combination of a **proper and holistic fuel pricing approach** with **other policy instruments and investments in sustainable transport services and infrastructure** will therefore make walking, cycling and public transport more attractive.
- Current **prices are still below former peak levels and the window of opportunity of action for governments is not yet closed**. The possibility for readjustment of fuel price policies still exists and the issues of reliability of supply, sustainability and efficiency remain on the agenda at individual and political levels. For countries currently using *ad hoc* pricing mechanisms, the opportunity remains to move to regular price reviews (if applicable based on automatic formulae) at a relatively low political cost.
- Taxation of fossil fuels remains a powerful instrument to **generate revenues for road infrastructure and its maintenance**. In developing countries, fuel prices can be a crucial element in financing road maintenance. The high fuel prices in 2008 as well as current fuel price levels confirm that the transport sector is capable of bearing higher fuel prices. For example a USD 0.10 duty earmarked for road maintenance in developing countries as advocated by SSATP (the Sub-Saharan African Policy Programme), is feasible and would not lead to major economic distortions.
- Besides the absolute level of fuel prices and its tax components, the question of **how and how often prices are adjusted** is of considerable interest in many countries. As for taxation principles, **pricing mechanisms should be accountable and transparent** as well as sustainable in terms of limited fiscal impact and low political costs.
- A transparent fuel **pricing scheme will prepare both the consumer and oil marketers for the frequent movements** in market prices. Further transparent fuel pricing will eliminate the common consumer chorus of market exploitation any time the crude costs increase.
- **Global and national debates** on fuel pricing and taxation as well as approaches and policies on energy efficiency **are hampered by the lack of data** on fuel prices and subsidies and information on pricing mechanisms. Furthermore, non-transparent mechanisms and taxation policies are a major source of public discontent. We therefore strongly urge decision-makers to:
  - ➔ Make fuel price information public and easily accessible
  - ➔ Disclose information on taxation levels and composition of fuel prices
  - ➔ Provide information on determinants of pricing, frequency of updates and underlying formula if automatic mechanisms are applied
- The current edition of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH International Fuel Prices is based on our survey in **mid-November 2010** and provides a snapshot based on the crude oil price level of USD 81 per barrel.

More information is available on:
www.giz.de/fuelprices

Contact: Armin Wagner, Transport Policy Advisor, GIZ Transport and Mobility: Armin.Wagner@giz.de

Our survey at a glance

- Survey conducted in mid-November 2010.
- Super gasoline and diesel prices in over 170 countries.
- Price data reflect crude oil price (Brent) of USD 81 per barrel.
- Fuel price data are mainly based on the global network of regional GIZ offices. Further data sources include German embassies/consulates worldwide and the German Automobile Association (ADAC) amongst others.
- Crude oil prices and exchange rates:

Brent crude oil price trend			Exchange rate
	USD/barrel	US cents/litre	USD 1 =
Mid-November 2004	42	27	EUR 0.77
15–17 November 2006	60	38	EUR 0.78
17–21 November 2008	48	30	EUR 0.79
16–18 November 2010	81	51	EUR 0.73

- On the reference day of the survey the crude oil price had increased by 68 % compared to 2008. There was a slight decrease in the dollar-euro exchange rate between November 2008 (USD 1 = EUR 0.79) and November 2010 (USD 1 = EUR 0.73).
- 4 country categories were introduced to benchmark transport and energy policies:

Very High Subsidies (below red benchmark line)	Retail price of gasoline and diesel below price of crude oil on world market.
Subsidies (below green benchmark line)	Retail price of gasoline and diesel above price of crude oil on world market and below the price level of the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. USD 0.10. This fuel price without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.
Taxation (below grey benchmark line)	Retail price of gasoline and diesel above price level of the United States and below price level of Romania (Luxembourg). In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country-specific duties and taxes.
Very High Taxation (above grey benchmark line)	Retail price of gasoline and diesel above price level of Romania (Luxembourg). At these levels, countries effectively use taxes to generate revenues and to encourage energy efficiency in the transport sector.

More information and all previous surveys are available online: www.giz.de/fuelprices

2 Three dimensions of fuel pricing

Fuel price policies are built on three dimensions: regulation, transparency and price levels. This chapter provides a brief overview of these dimensions and introduces selected transparency instruments.

Essentially, as a **first dimension** of fuel pricing, three categories of fuel price regulation can be distinguished:

	Description	Example
***Ad hoc* regulation**	Unsystematic price changes over long intervals or constant prices over several years	Saudi Arabia, Bolivia, Qatar, Nigeria
Active regulation	Prices are regulated and reviewed based on pre-determined criteria and/or formulae and often at regular intervals (weekly, monthly)	South Africa, PR China, Vietnam
Passive or no regulation	Regulation is limited to the level of taxes and framework conditions (*e.g.* fuel qualities)	Germany, USA

Furthermore, the **second dimension** of fuel pricing refers to the level of taxation/subsidies:

- Very high subsidies (retail price is below level of crude oil price);
- Subsidies (above price of crude oil but below price in US);
- Taxation (above price of US but below price of cheapest EU-27 country);
- High Taxation (above price level of cheapest EU-27 country).

The **third dimension** of fuel pricing is transparency, *i.e.* the question of how transparent the composition and regulation of fuel prices are.

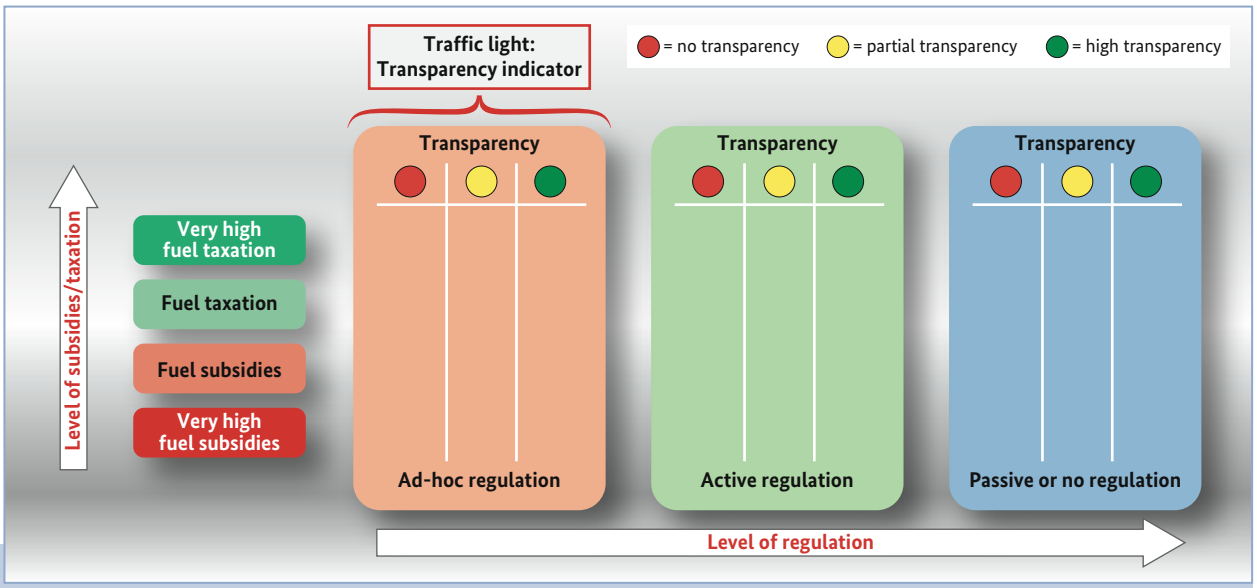


Figure 2: *The chart shows the relationship between the three dimensions and will help to guide the debate on appropriate regulatory responses to increasing fuel prices.*

Based on the current status of fuel price regulation, the following measures should be considered in order to improve fuel pricing and regulation:

Countries with passive or no regulation

- Increase transparency and limit daily fluctuations;
- Describe the lack of government action in a positive way (lack of interference with free market, no waste of public resources for fuel subsidies);
- Highlight how taxes are used to limit dependence on fossil fuels, *e.g.* investments in public transport, research in fuel efficiency, for social benefits;
- Apply anti-trust measures to pre-empt potential profiteering;
- Consider the publication of indicative maximum prices and detailed presentation of the price breakdown as well as full transparency in terms of the costs of input products and margins.

Countries with regular price reviews or other forms of active regulation

- Provide maximum transparency on review mechanisms and price composition and/or to intensify outreach efforts;
- Review frequency of price adjustments (high fluctuations may justify more frequent adjustments to minimise levels of increase);
- Continue regular adjustment of prices based on changes of input parameters. Temporary suspensions of regular price adjustments have proven difficult to implement as subsequent price increases might be substantial and the costs to the budget are potentially enormous;
- Show how taxes are used to limit dependence on fossil fuels, *e.g.* investments in public transport, research in fuel efficiency, social benefits;
- May consider forgoing windfall tax profits collected through taxes based on percentage values (*e.g.* VAT).

Countries with *ad hoc* pricing

- In these countries, a lack of careful preparation and no or limited transparency have made price increases difficult to implement (*cf.* Bolivia in December 2010);
- Even if subsidies are maintained, these countries need to start introducing regular (monthly) price adjustments;
- All stakeholders are involved in the consultation process on the introduction of rational price adjustment mechanisms. The introduction of price increases is easier when crude oil prices are temporarily falling (allowing for a price reduction as first application of price mechanism);
- Reform efforts need to be built on a long-term (5-10 year) perspective and should start with comprehensive transparency campaigns;
- Transparency is a crucial prerequisite for all subsequent steps. The reform timeline must be outlined, including information on:
  1. Government plans and the motivation behind them;
  2. The phasing out of subsidies by a given date "201X" and the price increase intervals;
  3. The introduction of taxes, if necessary with earmarking (*e.g.* for transport projects, social safety nets).

The following specific instruments to increase transparency can be applied:

Brunei Darussalam: Unsubsidised prices on Earth Day

On the occasion of Earth Day 2010, Brunei Darussalam sold fuel at unsubsidised prices for one day. In this way, the amount of subsidy per litre was made public. The right column of the leaflet (left) shows the normal (subsidised) sales price, while the left column shows the unsubsidised levels.

Source/More from: www.energy.gov.bn/energydivision/index.php?option=com_content&view=article&id=241:a-day-without-fuel-subsidies&catid=52:news-2010&Itemid=85

Picture from Brunei Post

Nigeria: Information on subsidy level at webpage (country with *ad hoc* regulation)

The Nigerian Petroleum Products Pricing Regulatory Agency (PPPRA) regularly publishes information on the level of prices as well as price composition. As the price of PMS (gasoline) is presently capped at 97 Naira, the calculation identifies an under-recovery (subsidy).

Source/More from: www.pppra-nigeria.org/pricingtemplate.asp

South Africa: Regulation of gasoline prices and full information on webpage (country with rational regulation)

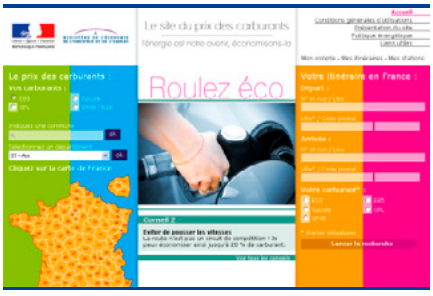
The petrol retail price is regulated by government, and changed on the first Wednesday of every month. The wholesale price of diesel is regulated, but not the retail price. The calculation of the new price is made by the Central Energy Fund (CEF) on behalf of the Department of Energy (DME). The petrol pump price is composed of a number of price elements divided into international and domestic elements. All elements are explained on the website.

Source/More from: www.energy.gov.za/files/petroleum_frame.html

United States: Detailed tracking of fuel price data (country with no regulation)

The website of the US Energy Information Administration offers a host of information on energy prices, including weekly price statistics for various regions, historic data and analytical information.

Source/More from: www.eia.gov



France: National fuel price webpage

Retailers are requested to post prices for gasoline and other fuels on this website, which is managed by the Ministry of Economy and Industry. Users can receive updates on price change at their favourite stations.

Source/More from: www.prix-carburants.gouv.fr/index.php

Western Australia: Fuel watch

FuelWatch has been designed to stop intra-day fuel price variations and to track/monitor fuel prices. Retailers must announce the retail price for each fuel they sell by 14:00 and stick to the notified price from 06:00 next day for 24 hours.

Source/More from: www.fuelwatch.wa.gov.au

	CALCULATED MAXIMUM PRICES FOR NOVEMBER 2010.		
	PMS	KERO	AGO
	kes/lt	kes/lt	kes/lt
Av. weighted cost Nov.2010 (Cu)	49.16	53.02	51.55
Est. KPRL Handicap at 5%(crp adj.)	2.46	2.65	2.58
KOSF Charges(F)	0.29	0.29	0.29
Taxes(T) & levies	28.95	7.65	19.74
TOTAL COST EX MOMBASA(CU)	80.86	63.61	74.16
Transportation(K)	3.10	3.10	3.10
NBI Depot Costs	0.70	0.70	0.70
KPC Losses(lp)	0.21	0.17	0.19
Depot Losses(ld)	0.42	0.20	0.23
TOTAL COST EX NAIROBI	85.29	67.08	78.38
Wholesale margin(M)	6.00	6.00	6.00
MAX. WHOLESALE PRICE NAIROBI (PW)	91.29	73.08	84.38
Retail Margin(mr)	3.00	3.00	3.00
Local Delivery (z)	0.49	0.49	0.49
MAXIMUM RETAIL NAIROBI (PR)	94.78	76.57	87.87
Average Pump price on 10/11/2010	98	78	90

Kenya: Recommended maximum prices

In response to escalating prices and based on provisions of Kenya's energy act, in November 2010 the Energy Regulatory Commission of Kenya began to publish recommended maximum prices (including information on the composition of prices) in an effort to encourage competition in the market.

Source/More from: www.erc.go.ke/erc/news_and_publications/?ContentID=7


PETROL 92

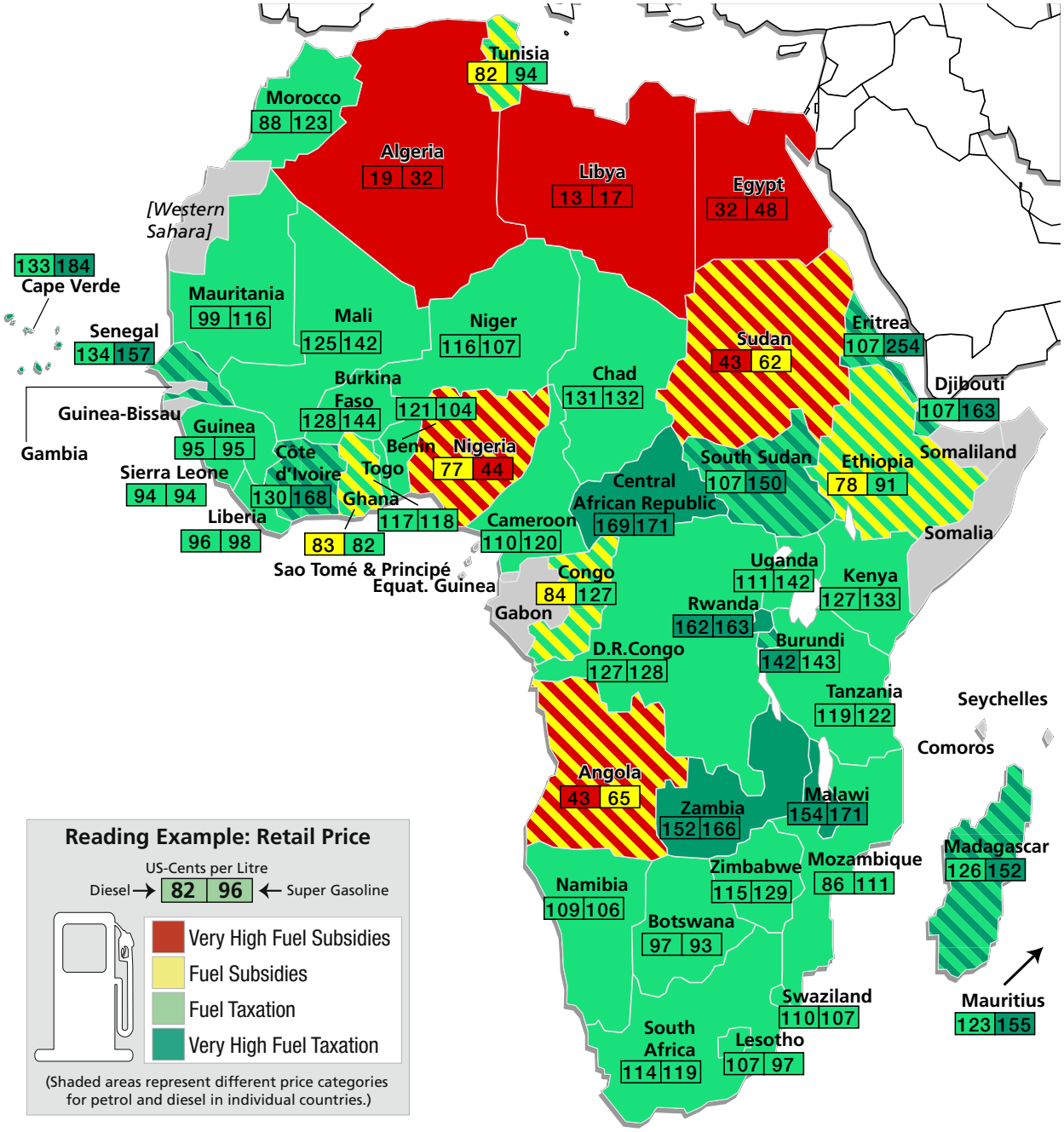
3 Fuel prices by continent

3.1 Fuel prices in Africa

- Retail fuel prices in Africa
- Comparison of retail fuel prices in Africa
- Time series of retail fuel prices in Africa
- Detailed time series of fuel prices in Africa




3.1.1 Retail fuel prices in Africa – as of November 2010 (in US-cents/litre)



Fuel Taxation Category 1: Very High Fuel Subsidies
The retail price of fuel (average of Diesel and Super Gasoline) is below the price for crude oil on world market.

Fuel Taxation Category 2: Fuel Subsidies
The retail price of fuel is above the price for crude oil on world market and below the price level of the United States.

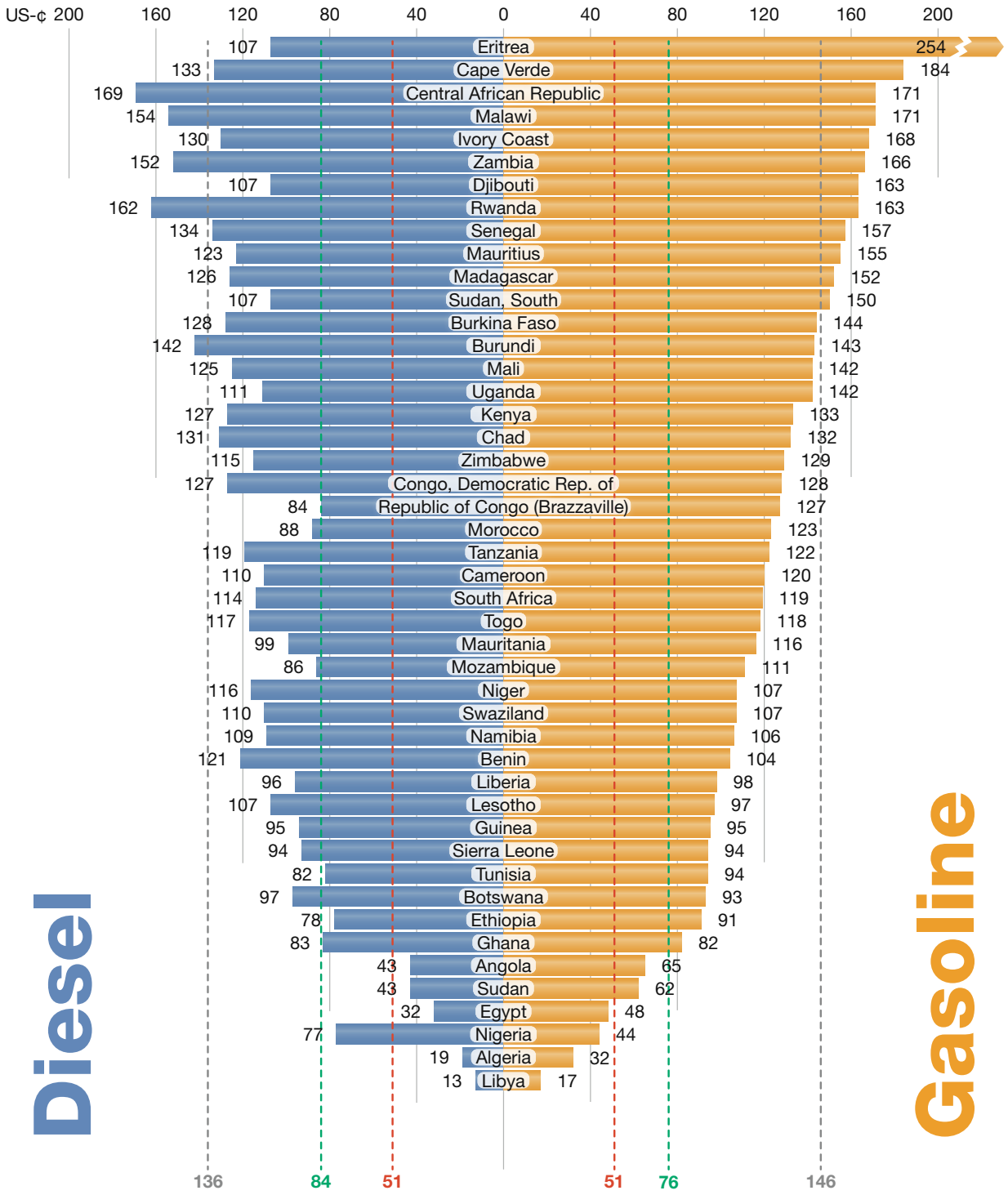
Note: The fuel prices of the United States are average cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for the 2 road funds (federal and state). This fuel price may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Fuel Taxation Category 3: Fuel Taxation
The retail price of fuel is above the price level of the United States and below the price level of Romania (Luxembourg).

Note: In November 2010, fuel prices in Romania (Luxembourg) were the lowest in EU-27. Prices in EU countries are subject to VAT, fuel taxes as well as other country-specific duties and taxes.

Fuel Taxation Category 4: Very High Fuel Taxation – The retail price of fuel is above the price level of Romania (Luxembourg).

3.1.2 Comparison of retail fuel prices in Africa – as of November 2010 (in US-cents/litre)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

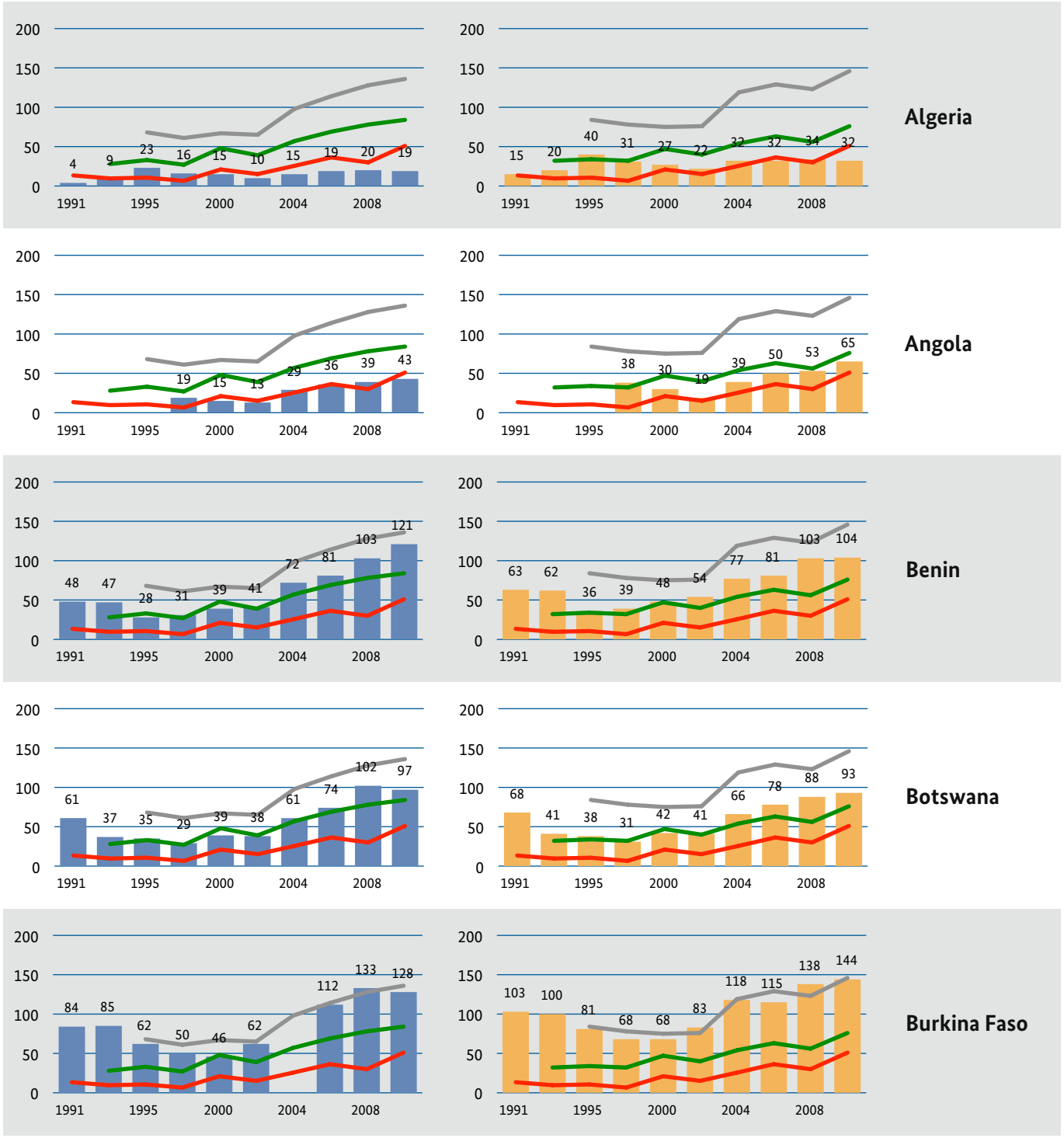
3.1.3 Time Series of retail fuel prices in Africa in US-cents/litre (last survey 16 – 18 November 2010)

	Diesel [US cents/litre]										Super Gasoline [US cents/litre]									
Country	1991	1993	1995	1998	2000	2002	2004	2006	2008	2010	1991	1993	1995	1998	2000	2002	2004	2006	2008	2010
Algeria	4	9	23	16	15	10	15	19	20	19	15	20	40	31	27	22	32	32	34	32
Angola				19	15	13	29	36	39	43				38	30	19	39	50	53	65
Benin	48	47	28	31	39	41	72	81	103	121	63	62	36	39	48	54	77	81	103	104
Botswana	61	37	35	29	39	38	61	74	102	97	68	41	38	31	42	41	66	78	88	93
Burkina Faso	84	85	62	50	46	62		112	133	128	103	100	81	68	68	83	118	115	138	144
Burundi	61	54	48	66	71	54	108	122	123	142	63	59	52	72	101	58	104	120	139	143
Cameroon	58	58	50	48	47	57	83	107	104	110	68	69	68	64	56	68	95	114	114	120
Cape Verde	40			43	39		81		143	133	68			81	59		140		184	184
Centr. African Rep.	99	98	64	65		87	114	127	144	169	133	128	82	81		100	129	137	144	171
Chad	97	95	70	61	60	77	101	120	132	131	105	102	80	70	68	79	117	131	130	132
Congo, D.R. (Kin.)	73	67	70	50	93	69	81	100	121	127	81	74	73	50	100	70	92	94	123	128
Congo, R. (Brazzav.)	71			40	30	48	59	67	57	84	105			72	53	69	87	96	81	127
Djibouti	38	56	40	40	53	54	35	89		107	77	61	93	91	105	98	52	145		163
Egypt	7	9	12	12	10	8	10	12	20	32	29	30	29	29	26	19	28	30	49	48
Eritrea		29	19	23	33	25	40	81	107	107		50	40	37	56	36	80	190	253	254
Ethiopia	14	19	24	25	27	32	42	62	89	78	27	26	32	36	46	52	60	93	92	91
Ghana	43	45	33	30	19	23	43	84	90	83	53	53	38	32	20	28	49	86	90	82
Guinea	61	56		56	69	56	69	82	102	95	67	61		68	85	66	75	79	102	95
Ivory Coast	115	86	56	45	51	60	95	106	120	130	124	123	83	74	76	85	114	120	133	168
Kenya	37	33	43	54	60	56	76	98	114	127	53	40	56	70	71	70	92	112	120	133
Lesotho				38	47		68	88	93	107				39	50		73	89	79	97
Liberia							77	85	103	96							75	79	77	98
Libya				17	16	8	8	13	12	13				22	25	10	9	13	14	17
Madagascar	25	31	32	33	45	65	79	100	143	126	43	54	47	47	76	108	105	115	155	152
Malawi	56	67	55	45	68	62	88	112	167	154	64	71	65	51	69	66	95	117	178	171
Mali	74	74	57	48	43	55	90	104	110	125	112	114	82	77	70	69	116	122	130	142
Mauritania	53	43		31	40	39	59	84	106	99	86	85		59	67	63	80	97	149	116
Mauritius										123										155
Morocco	45	41	47	47	53	55	70	87	83	88	82	75	94	79	82	87	110	122	129	123
Mozambique	26	21	32	41	54	43	79	106	137	86	74	48	53	55	56	46	88	115	171	111
Namibia	41	38		36	44	43	65	87	88	109	46	42		38	47	45	68	87	78	106
Niger	81	60	55	52	48	55	91	111	97	116	94	92	79	76	68	77	102	114	99	107
Nigeria	4	1	3	10	27	19	45	66	113	77	5	2	13	13	27	20	39	51	59	44
Rwanda	79	88		72	84	84	99	108	137	162	81	93		72	89	84	98	111	137	163
Senegal	74	88	62	48	52	53	90	109	126	134	119	123	94	71	73	75	110	131	135	157
Sierra Leone	43	44		53		50	89	98	91	94	45	49		61		51	76	98	91	94
South Africa		52	46	39	50	40	80	84	95	114		52	51	43	50	43	81	85	87	119
Sudan	6	58	25	26	24	24	29	49	45	43	7	58	50	33	28	30	47	72	65	62
Sudan, South								122	125	107								176	159	150
Swaziland	41	40		36	44		73	85	93	110	46	43		37	47		76	80	86	107
Tanzania	25	30	44	57	73	61	87	99	130	119	42	43	56	63	75	67	93	104	111	122
Togo	66	63	40	37	40	46	83	101	88	117	81	72	47	42	48	56	85	103	89	118
Tunisia	33	31	44	33	29	19	39	57	84	82	58	52	64	60	49	29	68	83	96	94
Uganda	55	71	85	68	75	70	88	101	122	111	69	79	98	86	86	83	102	117	130	142
Zambia	24	66	57	49		60	98	122	161	152	40	72	60	53		72	110	131	170	166
Zimbabwe	37	28	29	22	72	5	65		105	115	68	47	38	26	85	5	61		130	129

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from Algeria to Burkina Faso)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

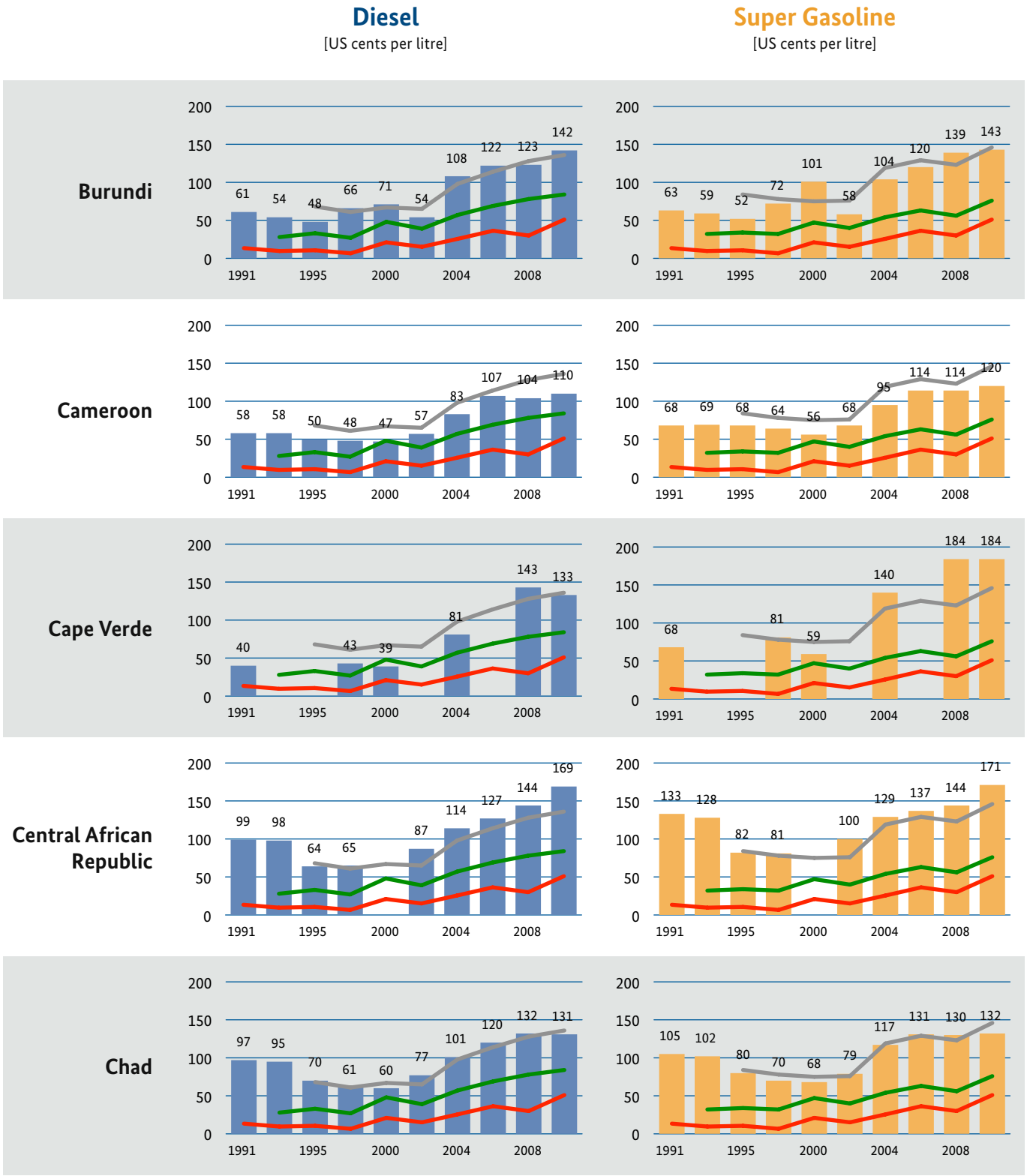


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from Burundi to Chad)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

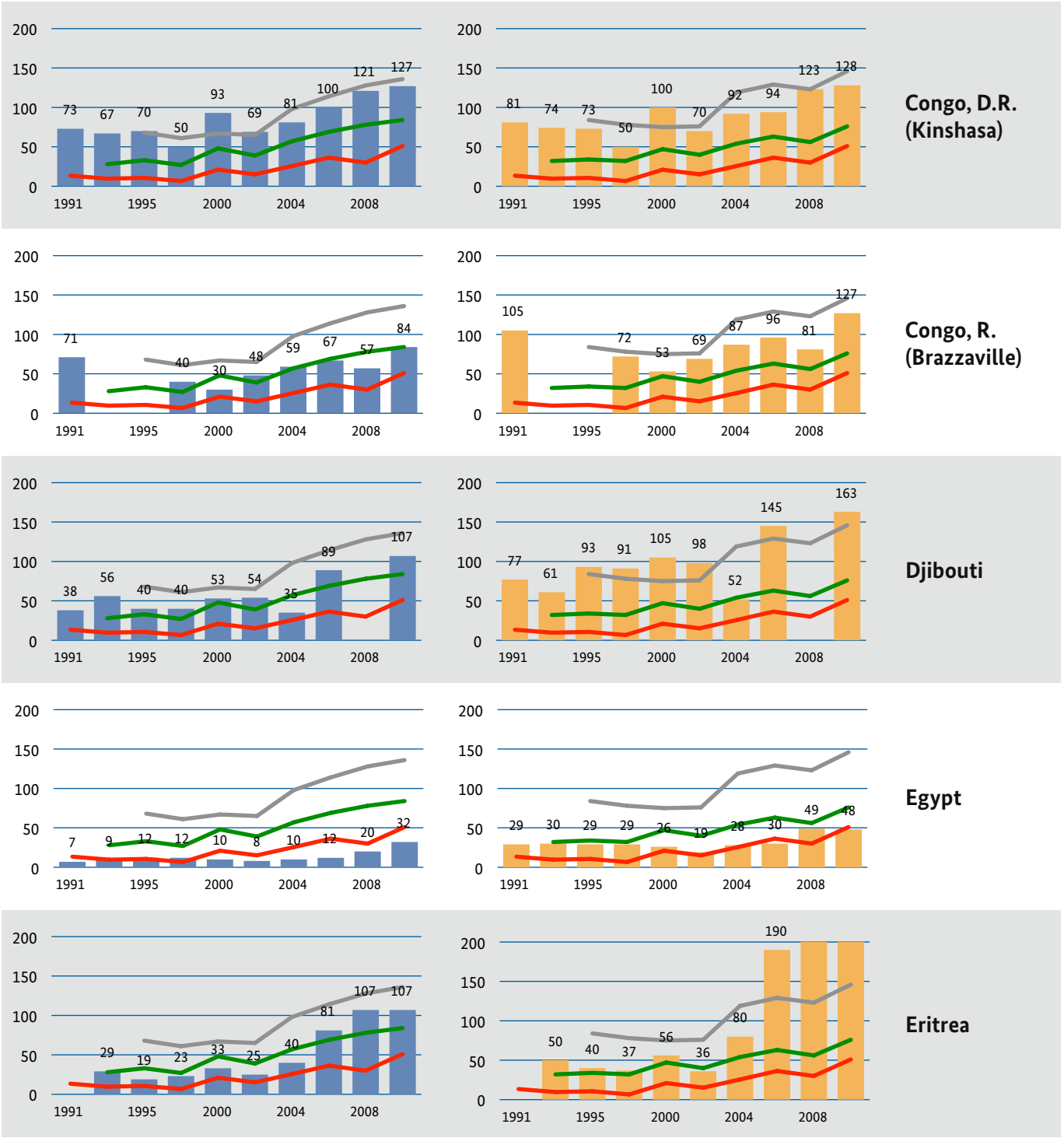
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from DR Congo to Eritrea)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

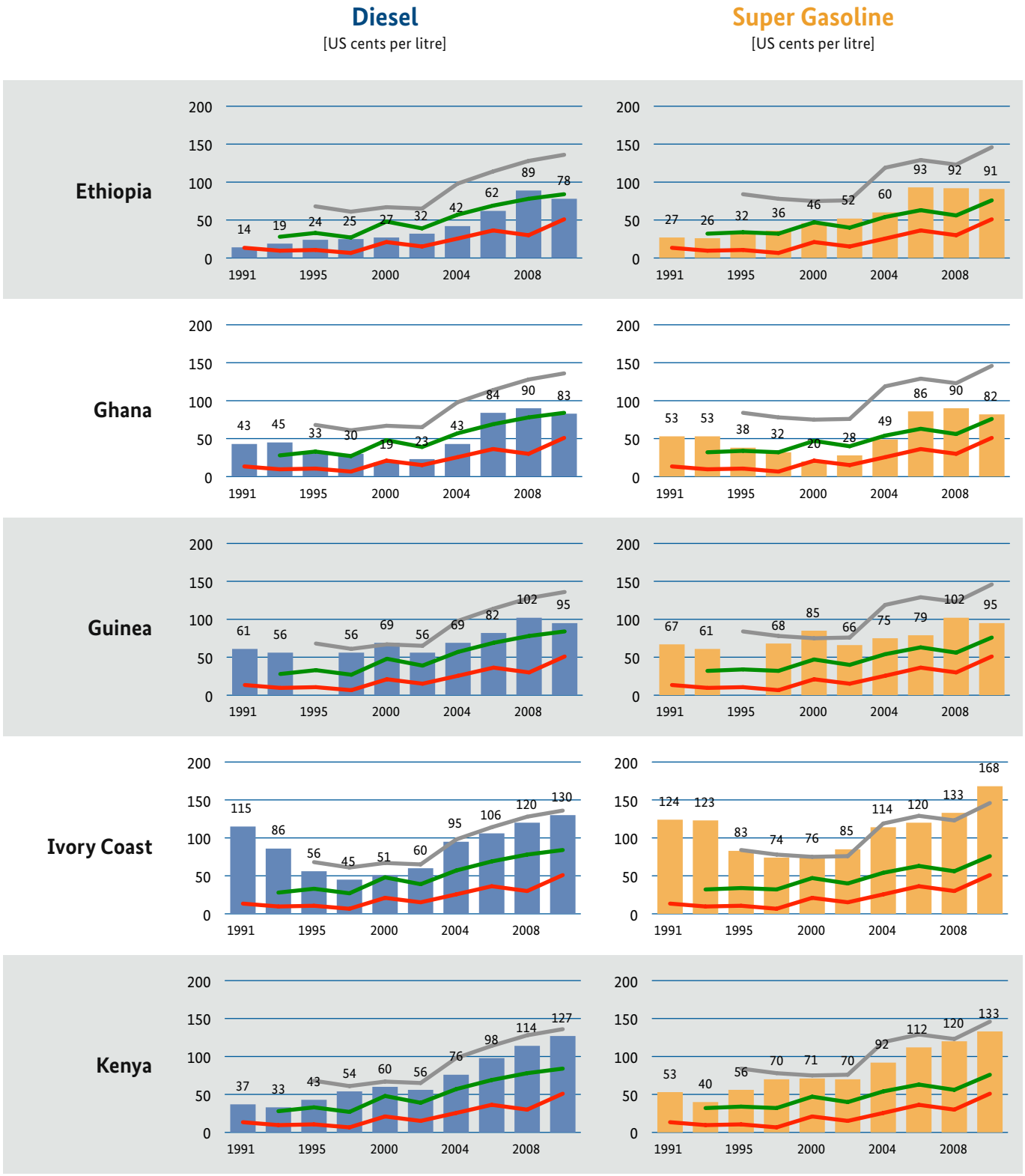


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from Ethiopia to Kenya)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

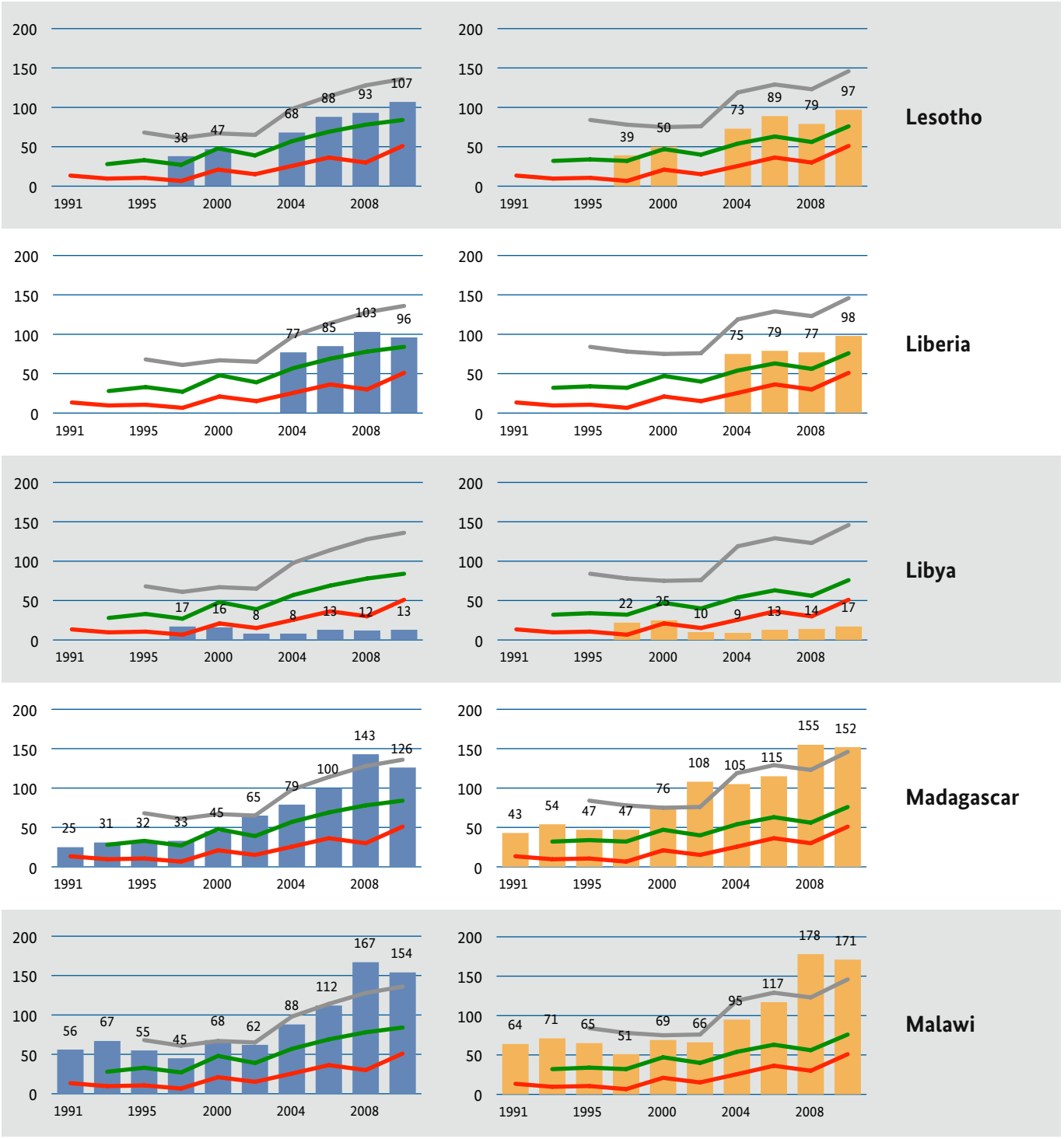
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from Lesotho to Malawi)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

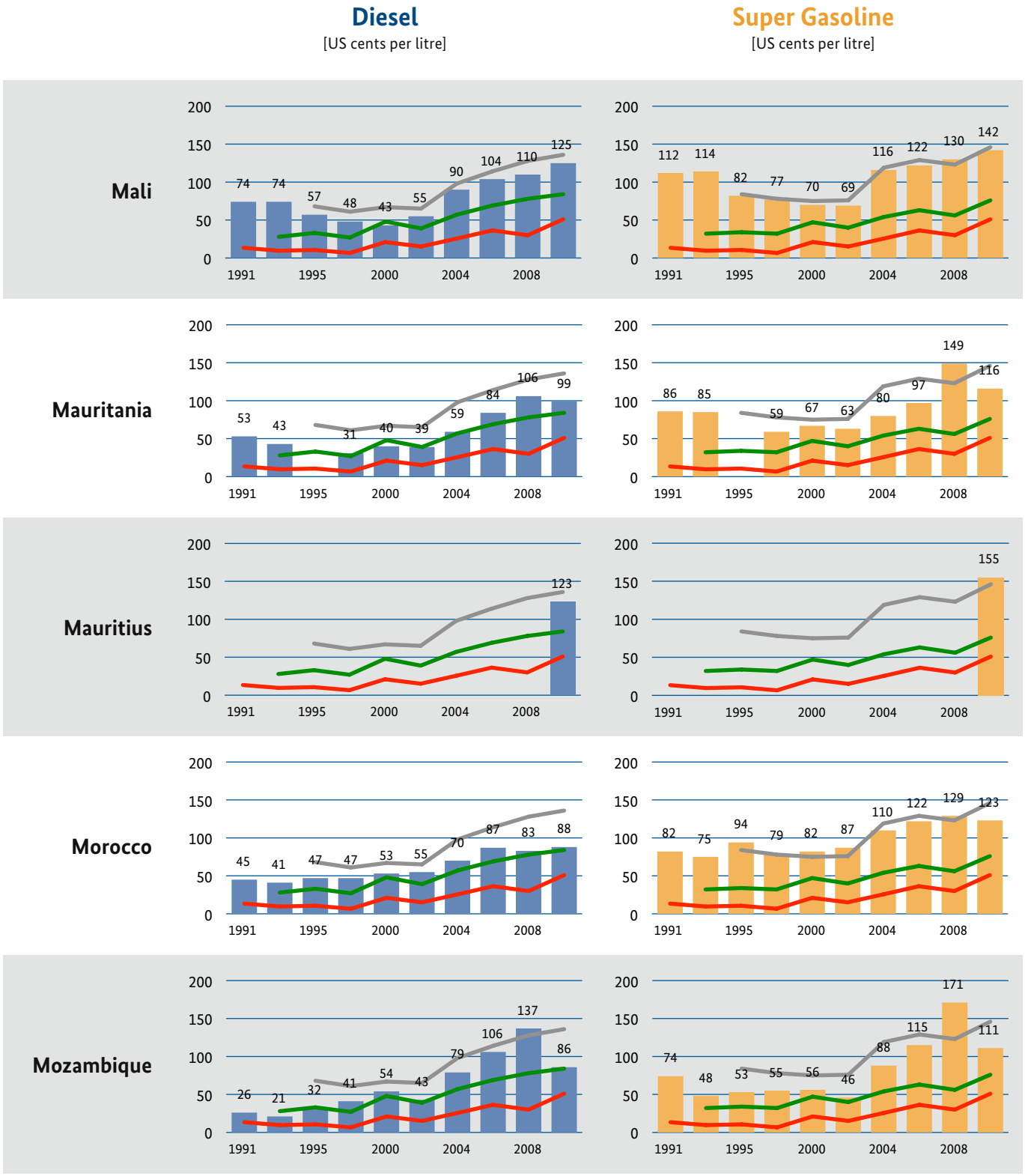


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from Mali to Mozambique)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

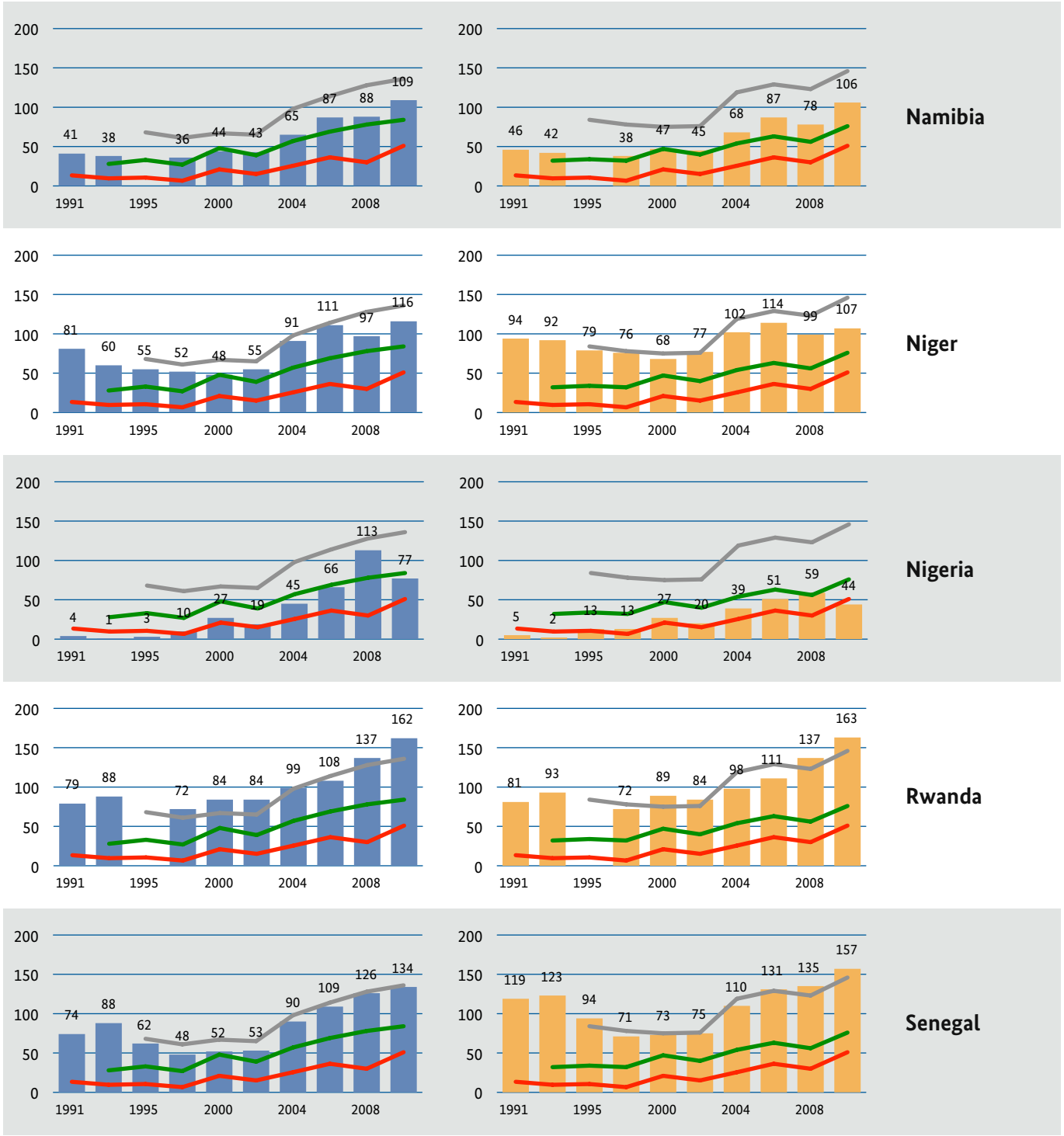
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from Namibia to Senegal)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

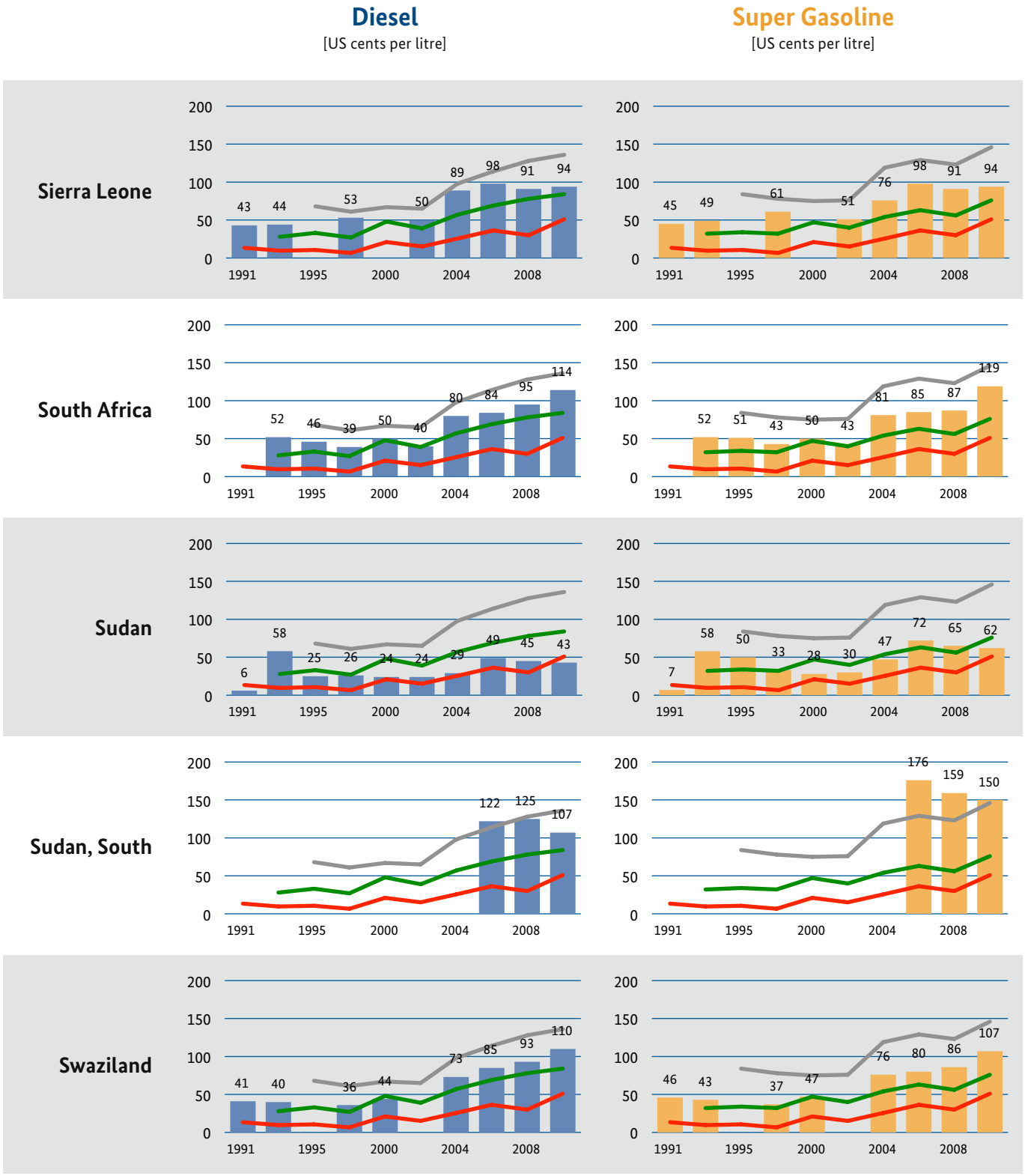


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from Sierra Leone to Swaziland)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

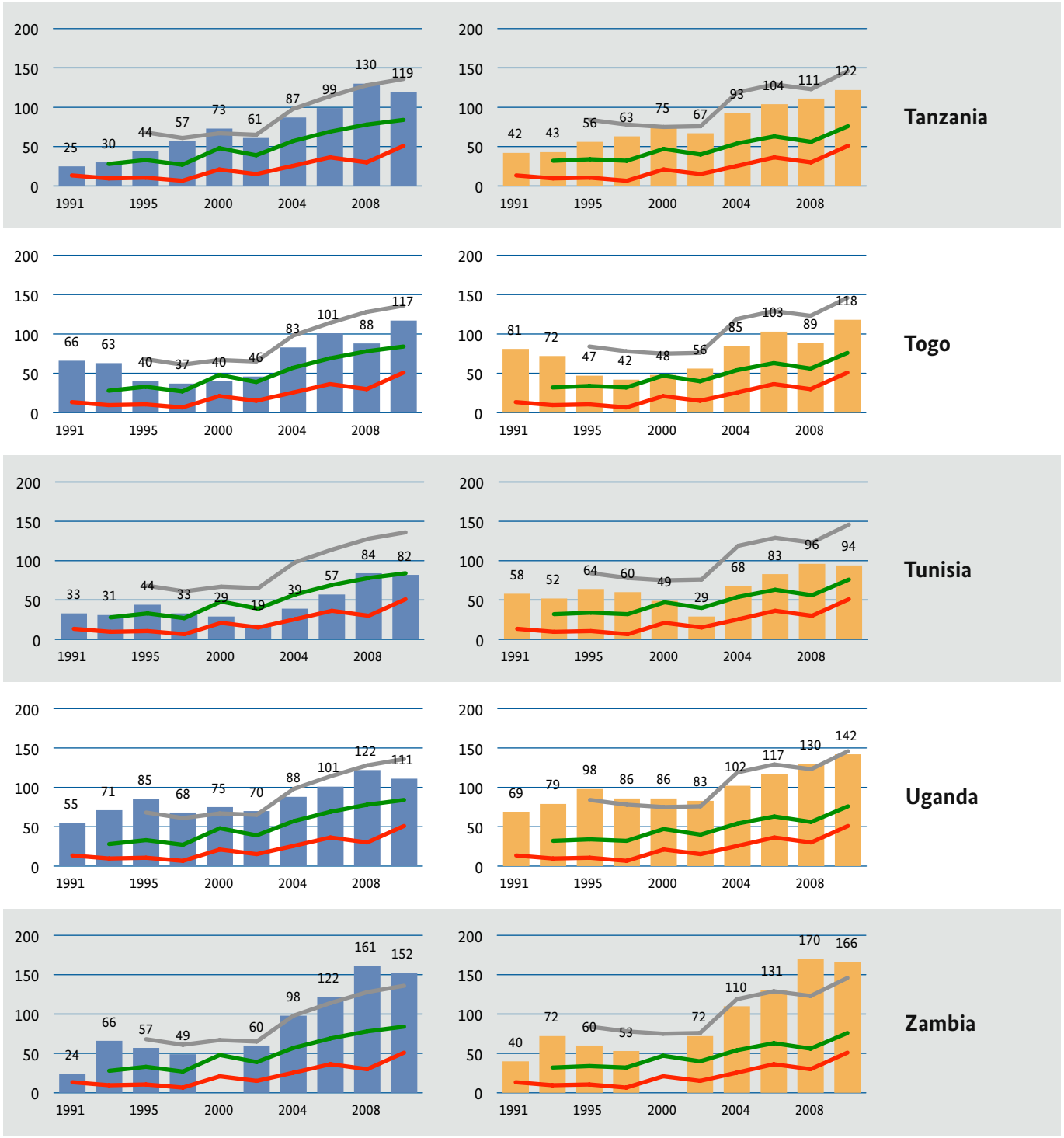
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (from Tanzania to Zambia)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

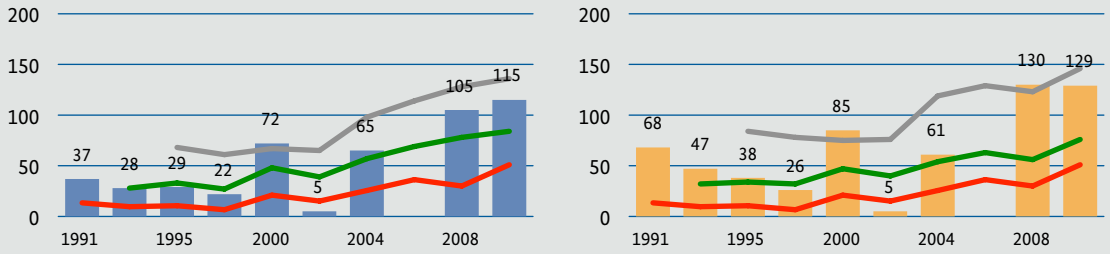
Red Benchmark Line: Price of crude oil on world market.

3.1.4 Detailed time series of fuel prices in Africa, 1991 – 2010 (Zimbabwe)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

Zimbabwe



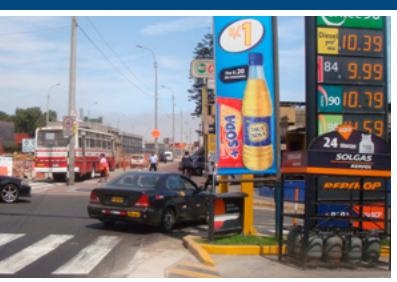
Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

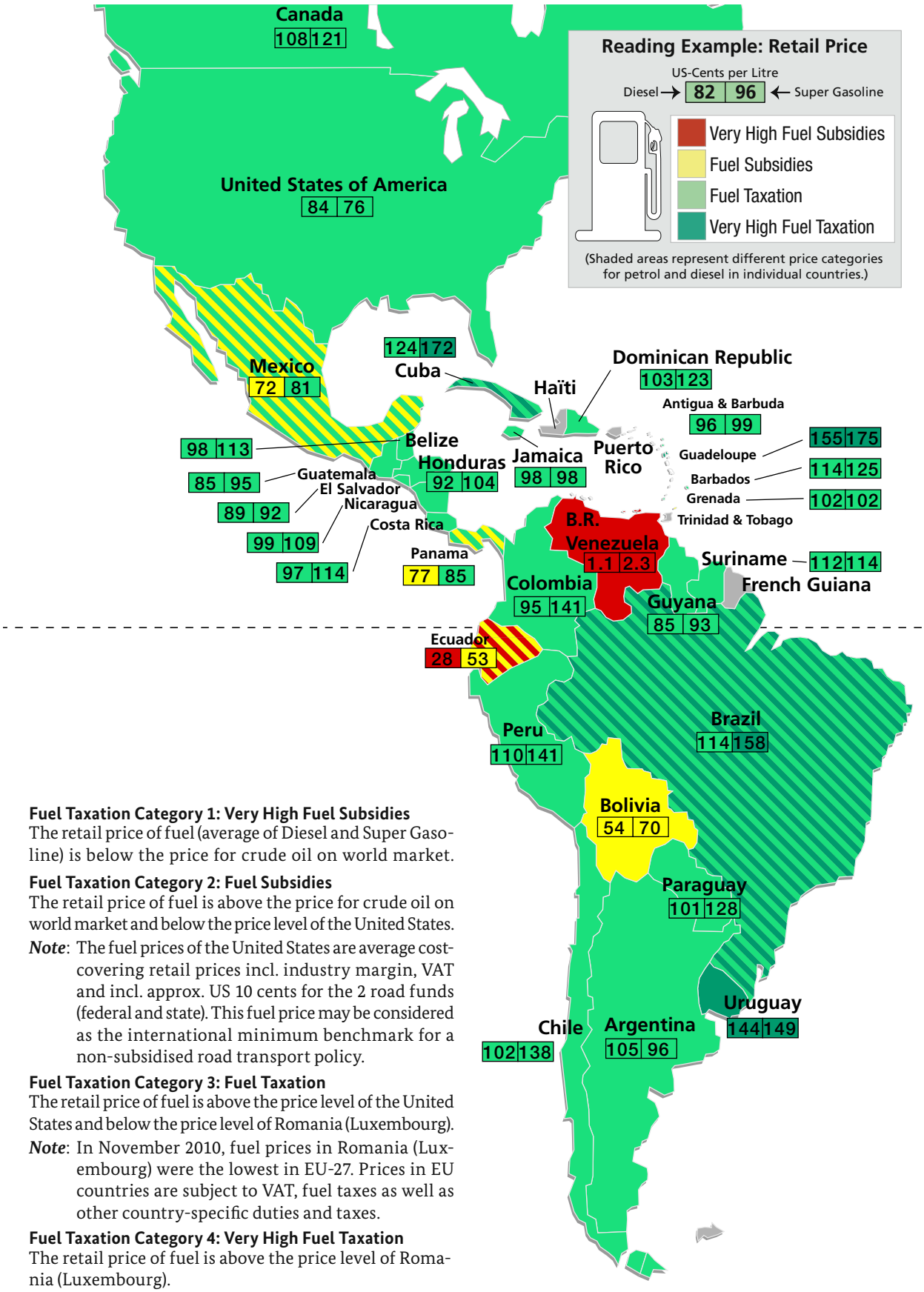
Red Benchmark Line: Price of crude oil on world market.

3.2 Fuel prices in America

- Retail fuel prices in America
- Comparison of retail fuel prices in America
- Time series of retail fuel prices in America
- Detailed time series of fuel prices in America



3.2.1 Retail fuel prices in Ameria – as of November 2010 (in US-cents/litre)



Fuel Taxation Category 1: Very High Fuel Subsidies
The retail price of fuel (average of Diesel and Super Gasoline) is below the price for crude oil on world market.

Fuel Taxation Category 2: Fuel Subsidies
The retail price of fuel is above the price for crude oil on world market and below the price level of the United States.

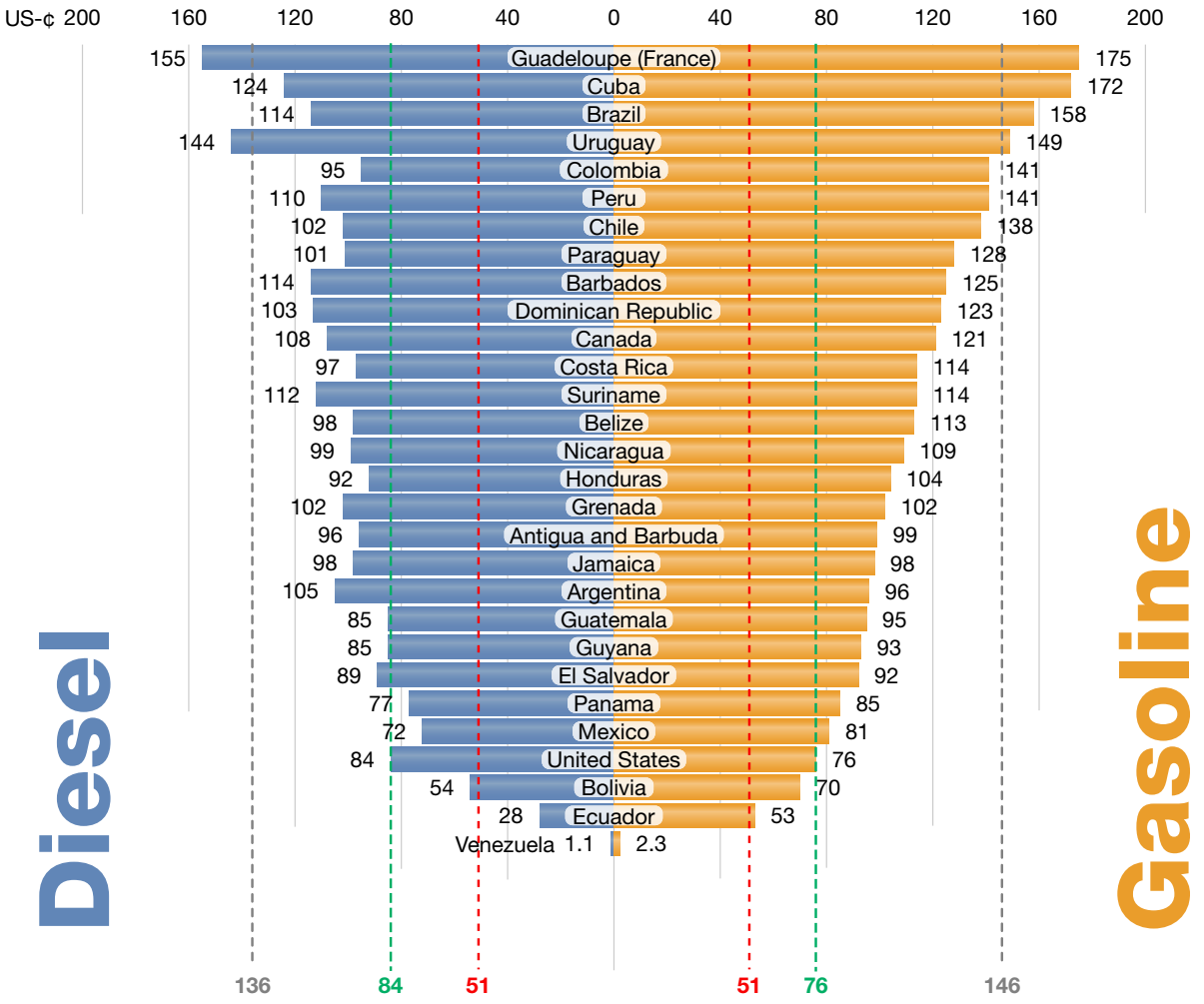
Note: The fuel prices of the United States are average cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for the 2 road funds (federal and state). This fuel price may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Fuel Taxation Category 3: Fuel Taxation
The retail price of fuel is above the price level of the United States and below the price level of Romania (Luxembourg).

Note: In November 2010, fuel prices in Romania (Luxembourg) were the lowest in EU-27. Prices in EU countries are subject to VAT, fuel taxes as well as other country-specific duties and taxes.

Fuel Taxation Category 4: Very High Fuel Taxation
The retail price of fuel is above the price level of Romania (Luxembourg).

3.2.2 Comparison of retail fuel prices in America – as of November 2010 (in US-cents/litre)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

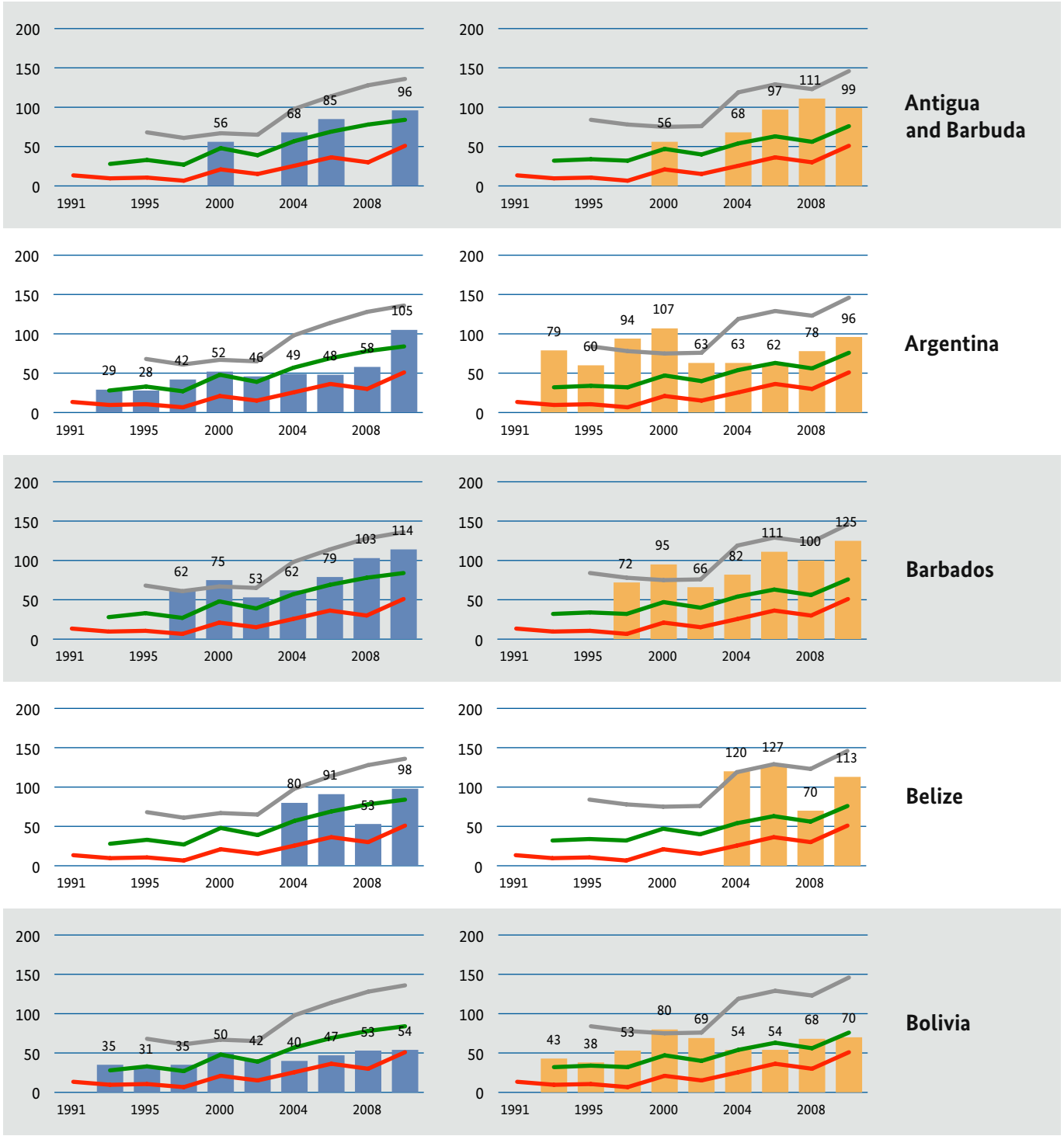
3.2.3 Time Series of retail fuel prices in America in US-cents/litre (last survey 16 – 18 November 2010)

	Diesel [US cents/litre]										Super Gasoline [US cents/litre]									
Country	1991	1993	1995	1998	2000	2002	2004	2006	2008	2010	1991	1993	1995	1998	2000	2002	2004	2006	2008	2010
Antigua + Barbuda					56		68	85		96					56		68	97	111	99
Argentina		29	28	42	52	46	49	48	58	105		79	60	94	107	63	63	62	78	96
Barbados				62	75	53	62	79	103	114				72	95	66	82	111	100	125
Belize							80	91	53	98							120	127	70	113
Bolivia		35	31	35	50	42	40	47	53	54		43	38	53	80	69	54	54	68	70
Brazil		38	39	34	34	31	49	84	103	114		53	63	80	92	55	84	126	126	158
Canada		39	36	39	47	43	68	78	90	108		47	45	41	58	51	68	84	76	121
Chile		31	33	29	47	39	64	86	95	102		43	53	49	64	58	85	109	95	138
Colombia		19	27	20	35	24	36	57	73	95		23	35	24	49	44	72	98	104	141
Costa Rica						44	56	67	110	97						64	78	98	124	114
Cuba				18		45	55	91	151	124				50		90	95	110	167	172
Dominican Rep.			28	22	39	27	61	75	94	103			40	40	71	49	85	103	104	123
Ecuador		19	28	24	18	27	27	39	27	28		31	33	38	31	55	54	47	51	53
El Salvador				30	40	33	58	80	81	89				54	67	46	65	82	78	92
Grenada				41	41	41	68	89	134	102				54	54	54	73	89	128	102
Guadeloupe (F)									154	155									181	175
Guatemala		25	28	32	42	32	63	64	82	85		32	39	41	53	48	68	78	86	95
Guyana				27	37	27	61		85	85				30	37	31	74		84	93
Honduras		26	25	30	46	46	66	73	80	92		41	35	50	62	63	81	89	80	104
Jamaica				33	49	44	57	75	84	98				37	62	52	63	82	74	98
Mexico		28	25	28	45	47	45	52	54	72		39	32	36	61	62	59	74	74	81
Nicaragua		30	31	35	54	41	64	58	82	99		69	62	47	62	54	69	67	87	109
Panama		30		28	41	36	48	60	68	77		43		41	53	51	54	70	67	85
Paraguay		27	28	24	34	34	51	77	96	101		43	44	47	72	56	62	97	117	128
Peru		32	43	33	54	48	76	86	99	110		56	68	55	80	74	112	122	142	141
Suriname				41	41	41	50	94		112				56	56	56	50	94	91	114
United States		28	33	27	48	39	57	69	78	84		32	34	32	47	40	54	63	56	76
Uruguay			38	42	53	20	71	94	117	144			89	90	119	46	113	123	118	149
Venezuela			1	8	6	5	2	2	1	1.1			3	14	12	5	4	3	2	2.3

3.2.4 Detailed time series of fuel prices in America, 1991 – 2010 (from Antigua and Barbuda to Bolivia)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

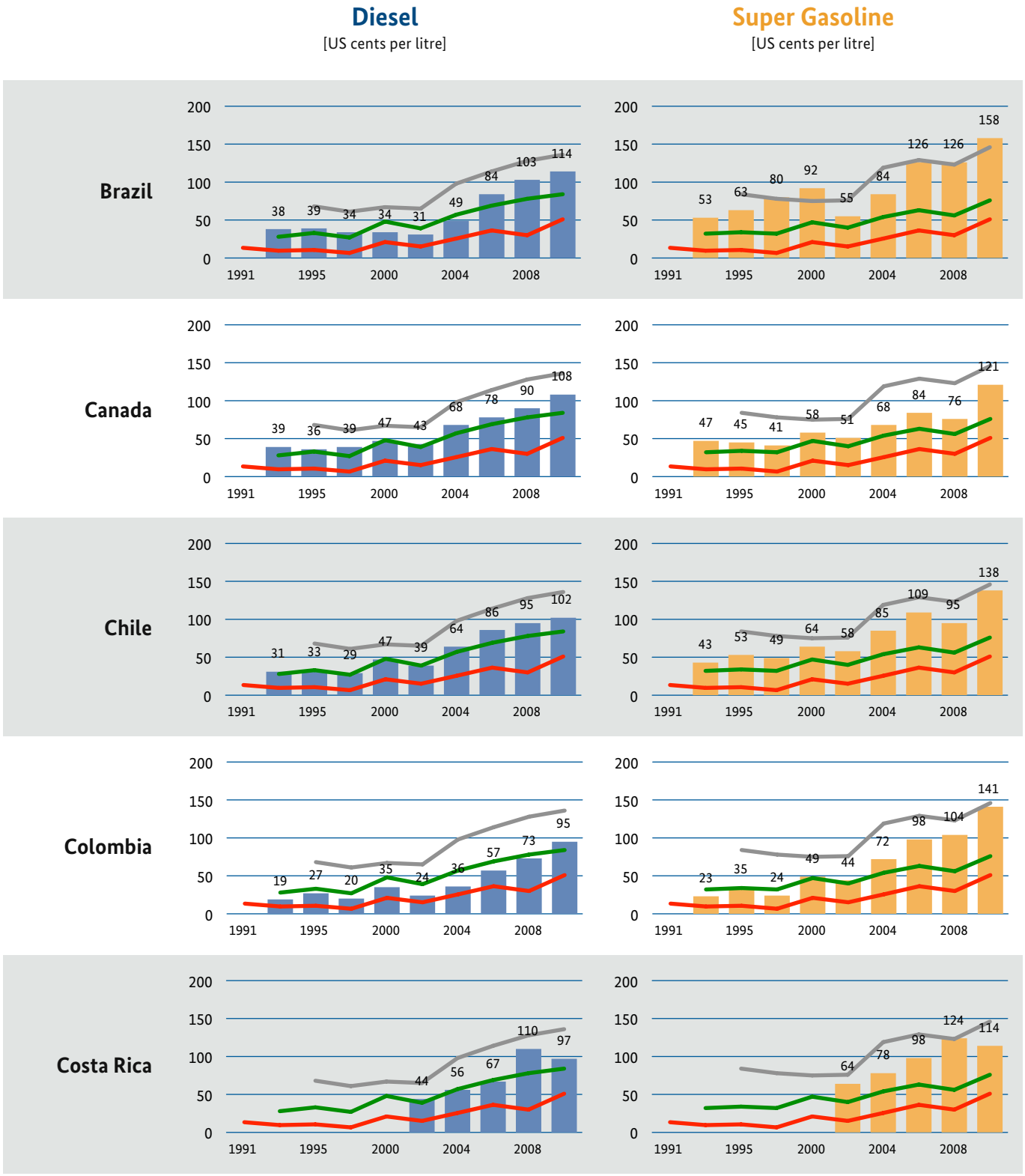


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.2.4 Detailed time series of fuel prices in America, 1991 – 2010 (from Brazil to Costa Rica)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

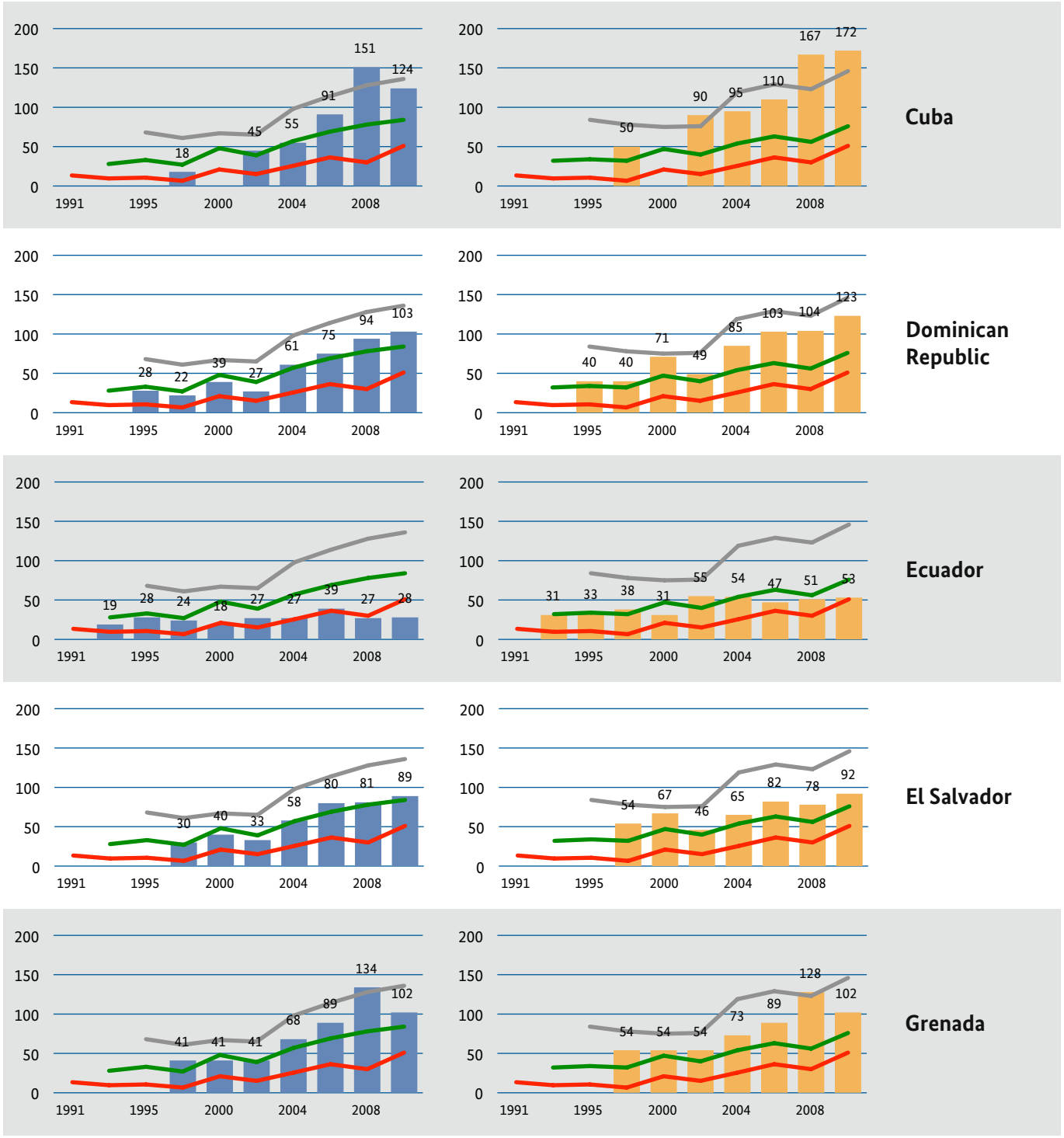
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.2.4 Detailed time series of fuel prices in America, 1991 – 2010 (from Cuba to Grenada)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

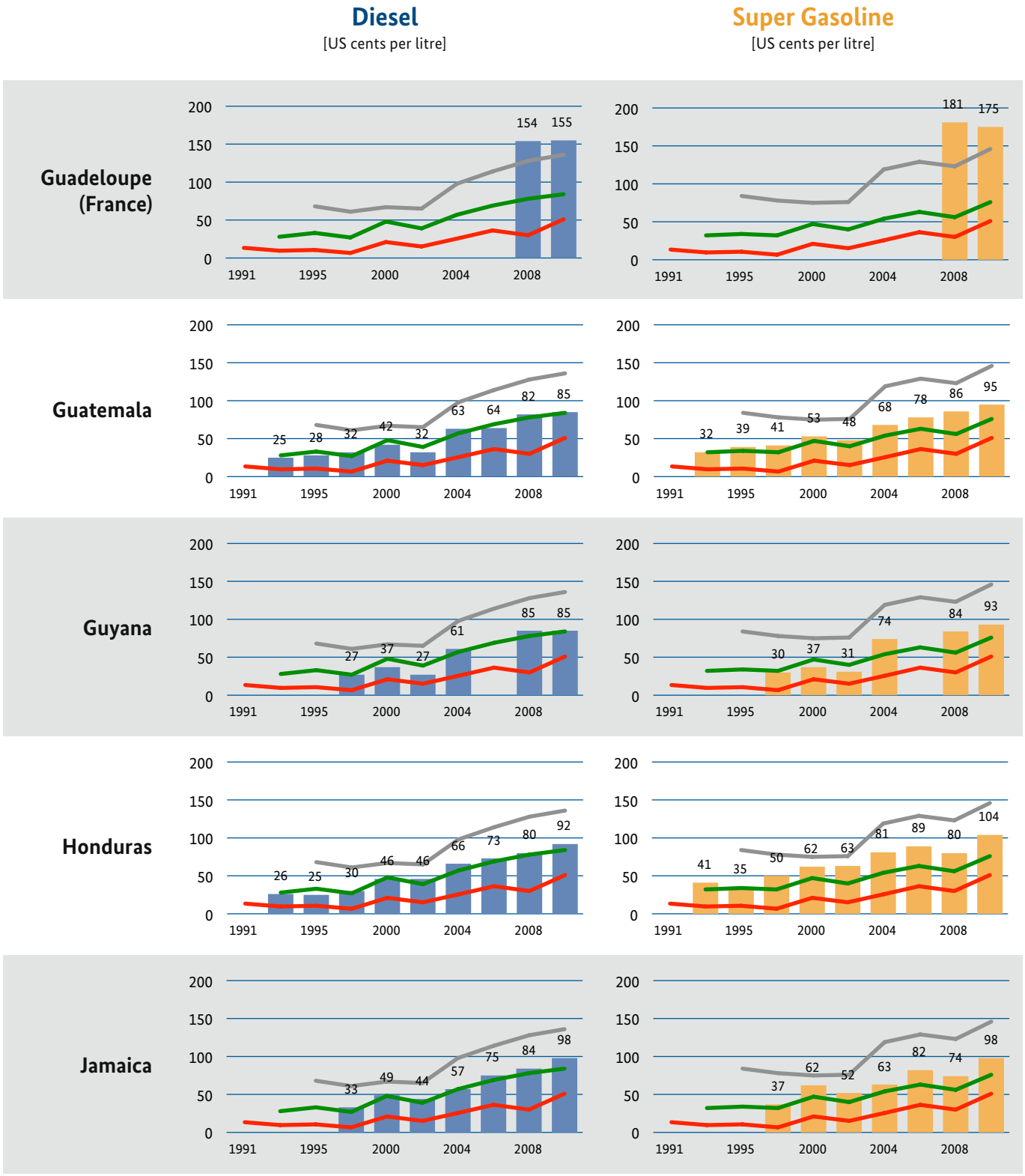


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.2.4 Detailed time series of fuel prices in America, 1991 – 2010 (from Guadeloupe (France) to Jamaica)

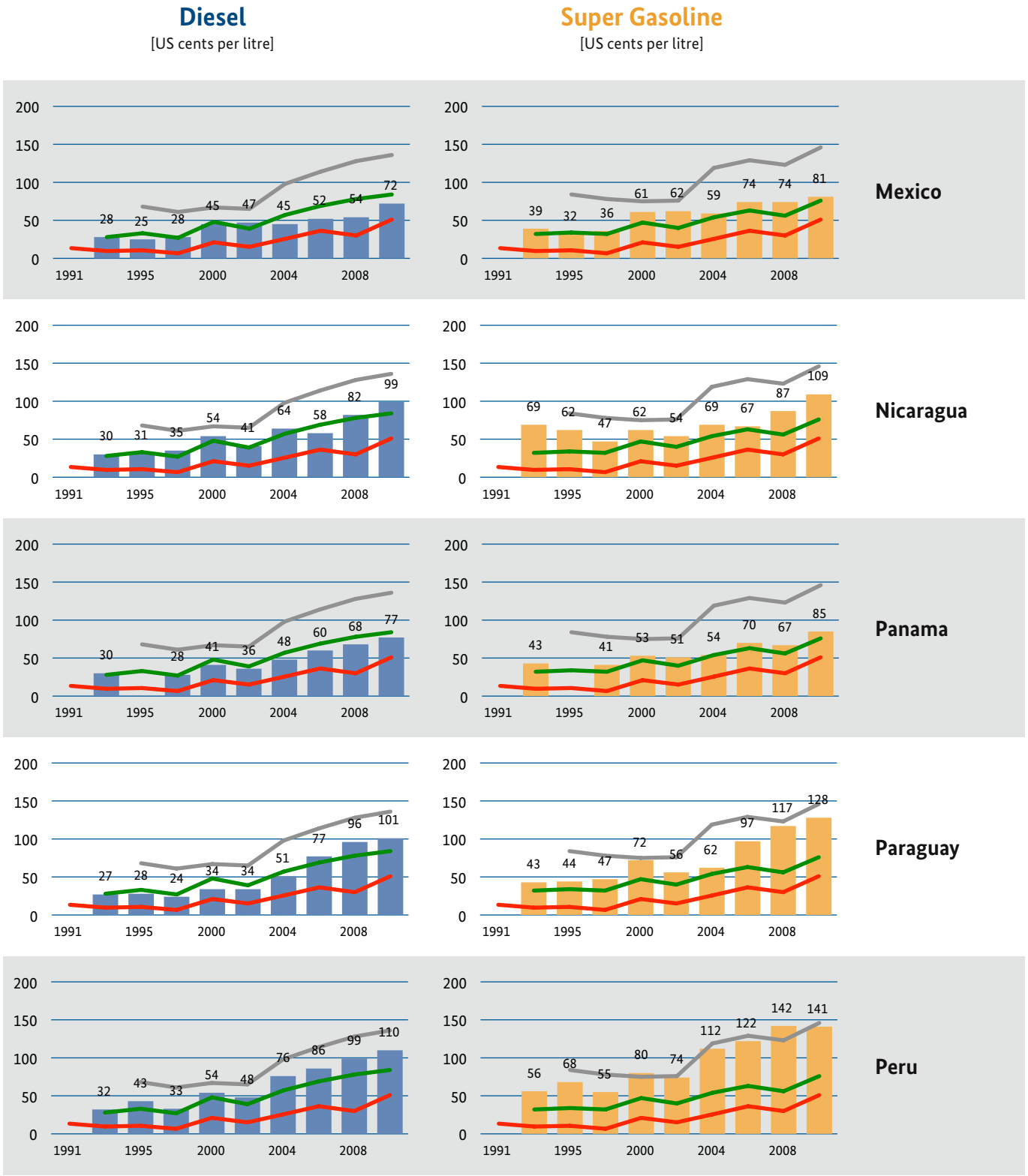


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.2.4 Detailed time series of fuel prices in America, 1991 – 2010 (from Mexico to Peru)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

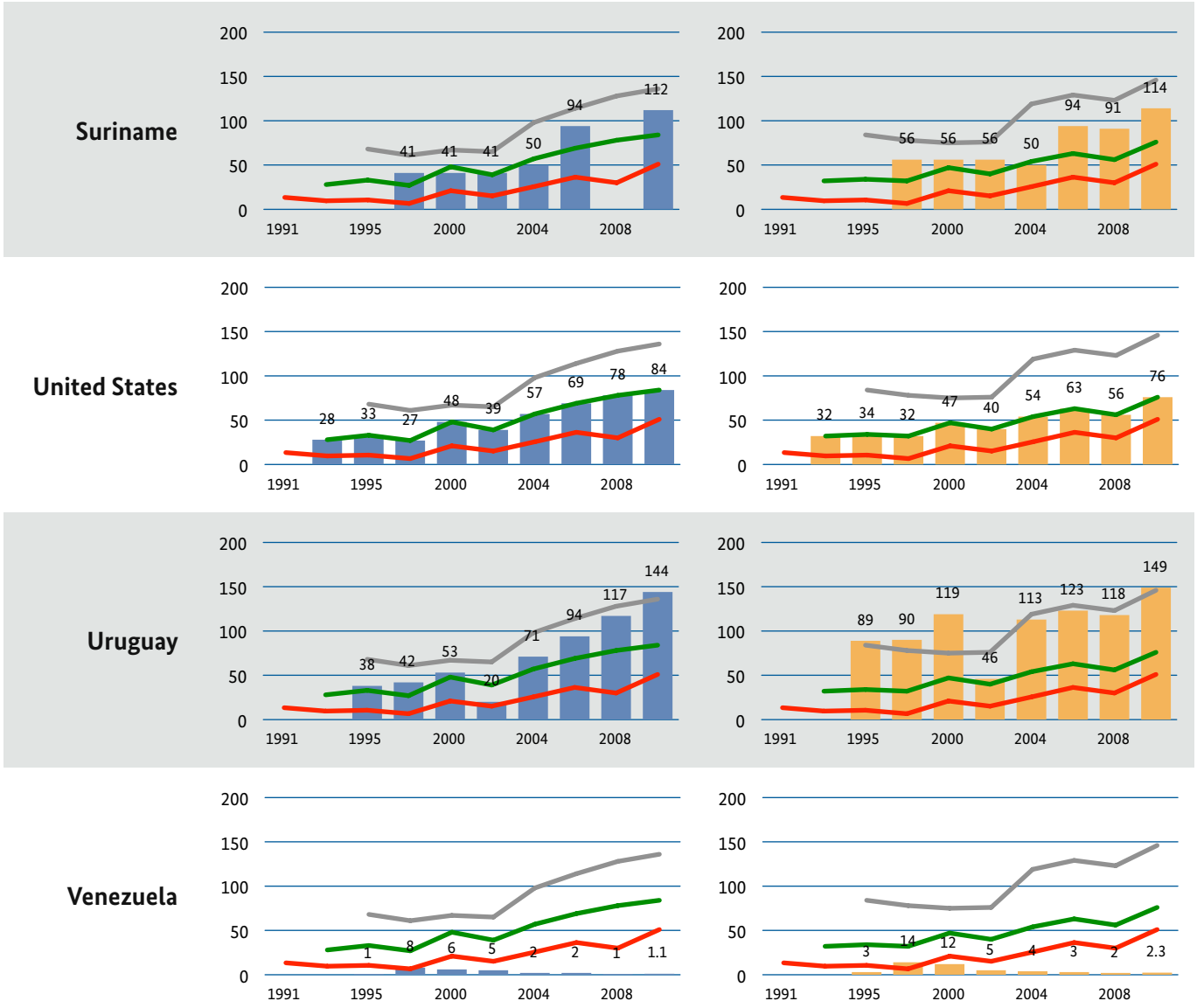
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.2.4 Detailed time series of fuel prices in America, 1991 – 2010 (from Suriname to Venezuela)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

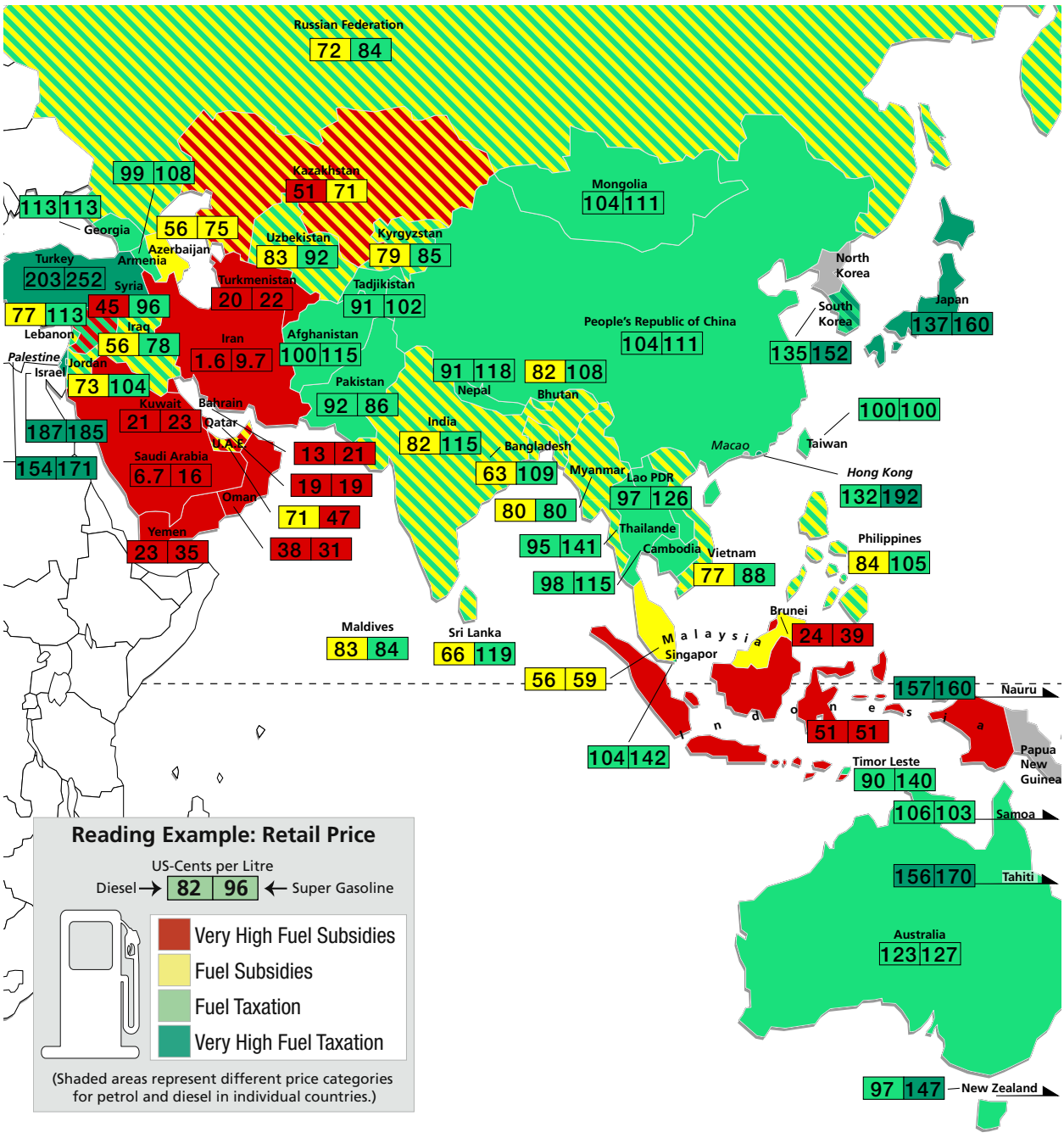
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3 Fuel prices in Asia, Australia and Pacific

- Retail fuel prices in Asia, Australia and Pacific
- Comparison of retail fuel prices in Asia, Australia and Pacific
- Time series of retail fuel prices in Asia, Australia and Pacific
- Detailed time series of fuel prices in Asia, Australia and Pacific

3.3.1 Retail fuel prices in Asia, Australia and Pacific – as of November 2010 (in US-cents/litre)



Fuel Taxation Category 1: Very High Fuel Subsidies
The retail price of fuel (average of Diesel and Super Gasoline) is below the price for crude oil on world market.

Fuel Taxation Category 2: Fuel Subsidies
The retail price of fuel is above the price for crude oil on world market and below the price level of the United States.

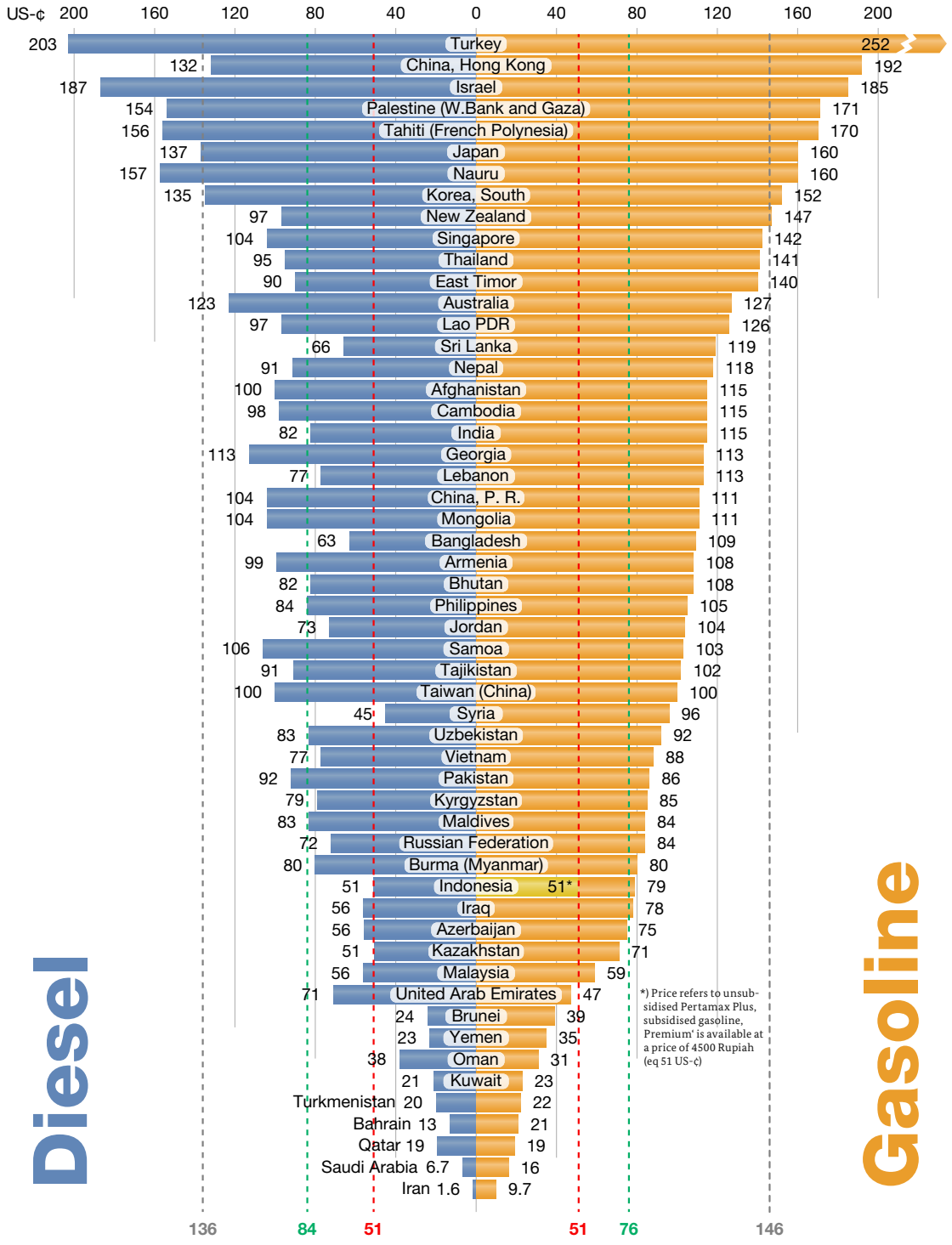
Note: The fuel prices of the United States are average cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for the 2 road funds (federal and state). This fuel price may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Fuel Taxation Category 3: Fuel Taxation
The retail price of fuel is above the price level of the United States and below the price level of Romania (Luxembourg).

Note: In November 2010, fuel prices in Romania (Luxembourg) were the lowest in EU-27. Prices in EU countries are subject to VAT, fuel taxes as well as other country-specific duties and taxes.

Fuel Taxation Category 4: Very High Fuel Taxation – The retail price of fuel is above the price level of Romania (Luxembourg).

3.3.2 Comparison of retail fuel prices in Asia, Australia and Pacific – as of November 2010 (in US-cents/litre)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

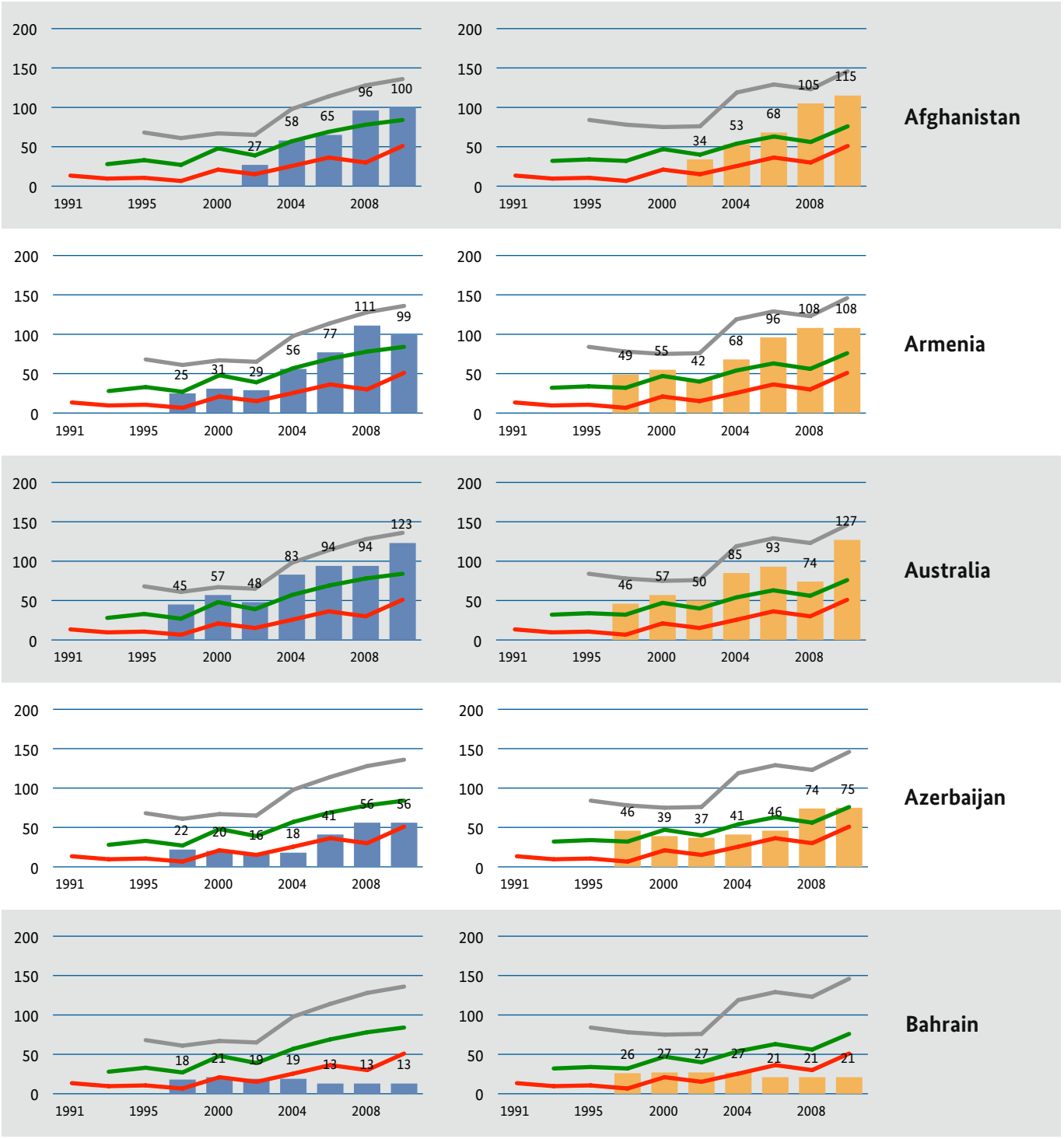
3.3.3 Time Series of retail fuel prices in Asia, Australia and Pacific, in US-cents/litre (last survey 15 – 17 Nov. 2010)

	Diesel [US cents/litre]										Super Gasoline [US cents/litre]									
Country	1991	1993	1995	1998	2000	2002	2004	2006	2008	2010	1991	1993	1995	1998	2000	2002	2004	2006	2008	2010
Afghanistan						27	58	65	96	100						34	53	68	105	115
Armenia				25	31	29	56	77	111	99				49	55	42	68	96	108	108
Australia				45	57	48	83	94	94	123				46	57	50	85	93	74	127
Azerbaijan				22	20	16	18	41	56	56				46	39	37	41	46	74	75
Bahrain				18	21	19	19	13	13	13				26	27	27	27	21	21	21
Bangladesh			31	26	29	29	34	45	70	63			36	47	46	52	59	79	117	109
Bhutan				26	38		59			82				59	58		78		91	108
Brunei				18	18	18	19	21	21	24				34	31	30	32	34	38	39
Cambodia				28	44	44	61	78	89	98				47	61	63	79	101	94	115
China, Hong Kong	57		74	85	80	77	100	106	116	132	82		119	136	146	147	154	169	195	192
China, P. R.			24	25	45	37	43	61	101	104			27	28	40	42	48	69	99	111
Georgia				25		41	67	89	116	113				46		48	73	86	109	113
India	23		19	21	39	41	62	75	70	82	56		48	56	60	66	87	101	109	115
Indonesia	13		20	7	6	19	18	44	42	51	24		44	16	17	27	27	57	50	51/79
Iran				1	2	2	2	3	3	1.6				8	5	7	9	9	10	9.7
Iraq				1	3	1	1			56				1	3	2	3			78
Israel			31	31	64	62	80	127	170	187			73	86	114	90	105	147	137	185
Japan			75	69	76	66	95	90	130	137			125	102	106	91	126	109	142	160
Jordan			15	15	15	17	19	45	61	73			40	42	45	52	61	86	61	104
Kazakhstan				24	29	29	38	45	72	51			30	30	36	35	52	70	83	71
Korea, South (R.)	25		33	41	66	64	95	133	140	135	54		79	93	92	109	135	165	151	152
Kuwait				13	18	18	24	21	20	21				17	21	20	24	22	24	23
Kyrgyzstan				27	33	25	43	54	88	79				47	44	39	48	64	80	85
Lao PDR				24	32	30	48	73	76	97				31	41	36	54	86	92	126
Lebanon				22	31	25	43	62	76	77				35	53	65	71	74	76	113
Malaysia	22		26	17	16	19	22	40	53	56	40		42	28	28	35	37	53	53	59
Maldives										83										84
Mongolia				22	38	37	67	87	142	104				23	38	38	61	88	138	111
Myanmar (Burma)				12	12	28	10	75	52	80				13	33	36	12	66	43	80
Nauru										157										160
Nepal	31		22	24	37	34	49	73	82	91	65		52	59	63	66	72	94	113	118
New Zealand			32	39	34	33	41	70	85	97			61	64	48	55	77	98	109	147
Oman				26	29	26	26	39	38	38				31	31	31	31	31	31	31
Pakistan			20	19	27	35	41	64	77	92			47	46	53	52	62	101	84	86
Palestine (WB + Gaza)				31	61	52	70	98	125	154				86	108	99	117	129	134	171
Philippines	25		27	22	28	27	34	67	81	84	40		34	34	37	35	52	76	91	105
Qatar				15			16	19		19				16			21	19	22	19
Russian Federation			28	18	29	25	45	66	86	72			35	28	33	35	55	77	89	84
Samoa								82		106								81		103
Saudi Arabia			9	10	10	10	10	7	9	6.7			16	16	24	24	24	16	16	16
Singapore	28		33	36	38	38	55	63	90	104	61		85	72	84	85	89	92	107	142
Sri Lanka	27		23	30	27	31	41	55	75	66	75		75	84	66	54	72	88	143	119
Syria				14	13	18	13	13	53	45				45	44	53	46	60	85	96
Tahiti (Fr. Polynesia)								119	139	156								149	158	170
Taiwan (R. China)	48		38	41	50	41	55	71	69	100	69		59	57	61	51	71	83	64	100
Tajikistan				13	55	24	59	74	100	91				26	45	36	67	80	103	102
Thailand	26		30	27	35	32	37	65	64	95	36		34	30	39	36	54	70	87	141
Timor-Leste							65	88	135	90							65	98	122	140
Turkey			37	47	66	78	112	162	163	203			56	78	88	102	144	188	187	252
Turkmenistan				5	2	1	1	1	20	20				9	2	2	2	2	22	22
Utd. Arab Emirates				15	26	30	28	53	62	71				23	25	29	28	37	45	47
Uzbekistan			31	9	9	26	30	54	75	83			32	11	14	38	35	85	135	92
Vietnam			25	26	27	27	32	53	77	77			34	35	38	34	48	67	80	88
Yemen				7	6	10	9	28	17	23				26	21	21	19	30	30	35

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from Afghanistan to Bahrain)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

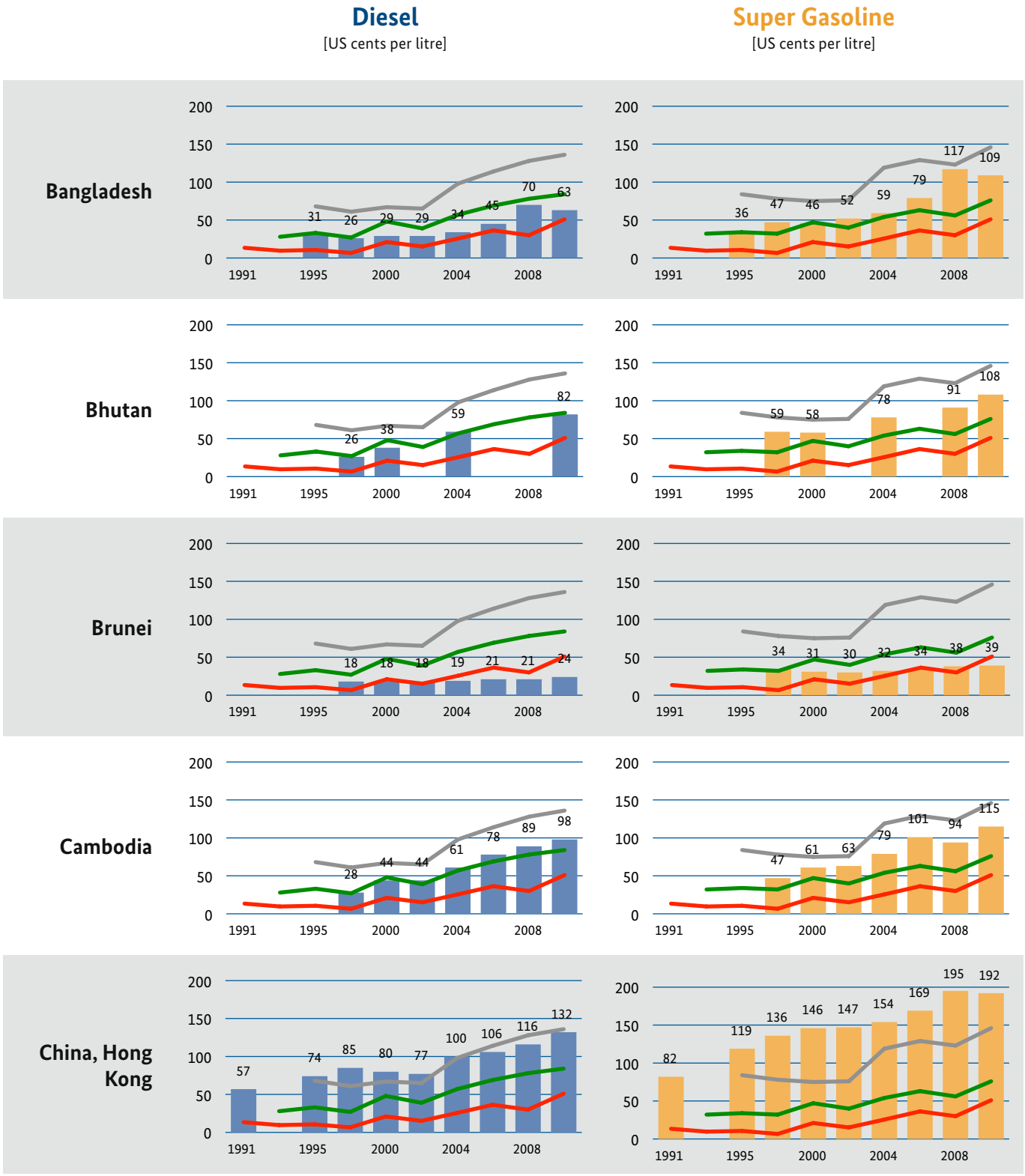


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from Bangladesh to China HK)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

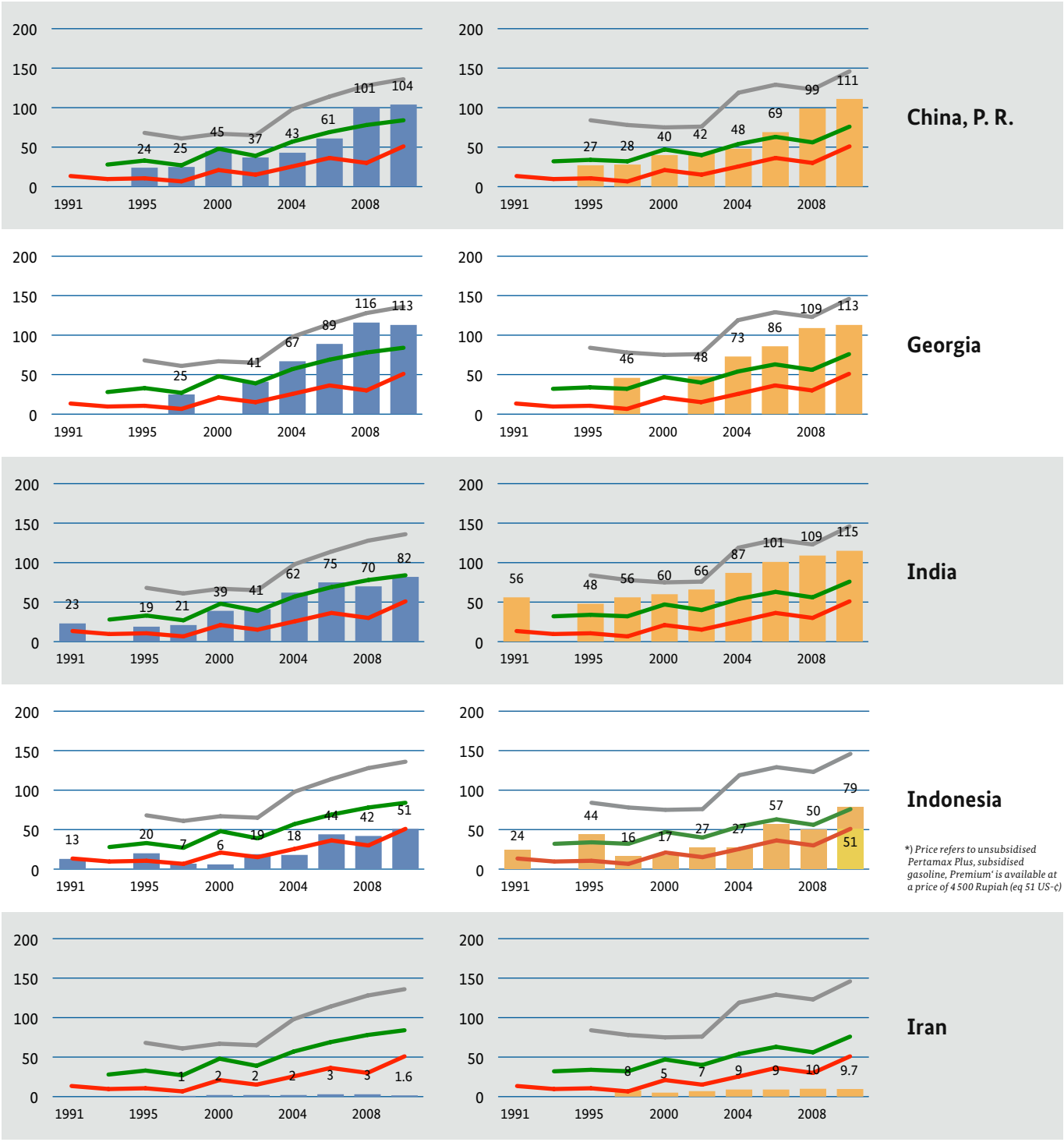
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from PR China PR to Iran)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]



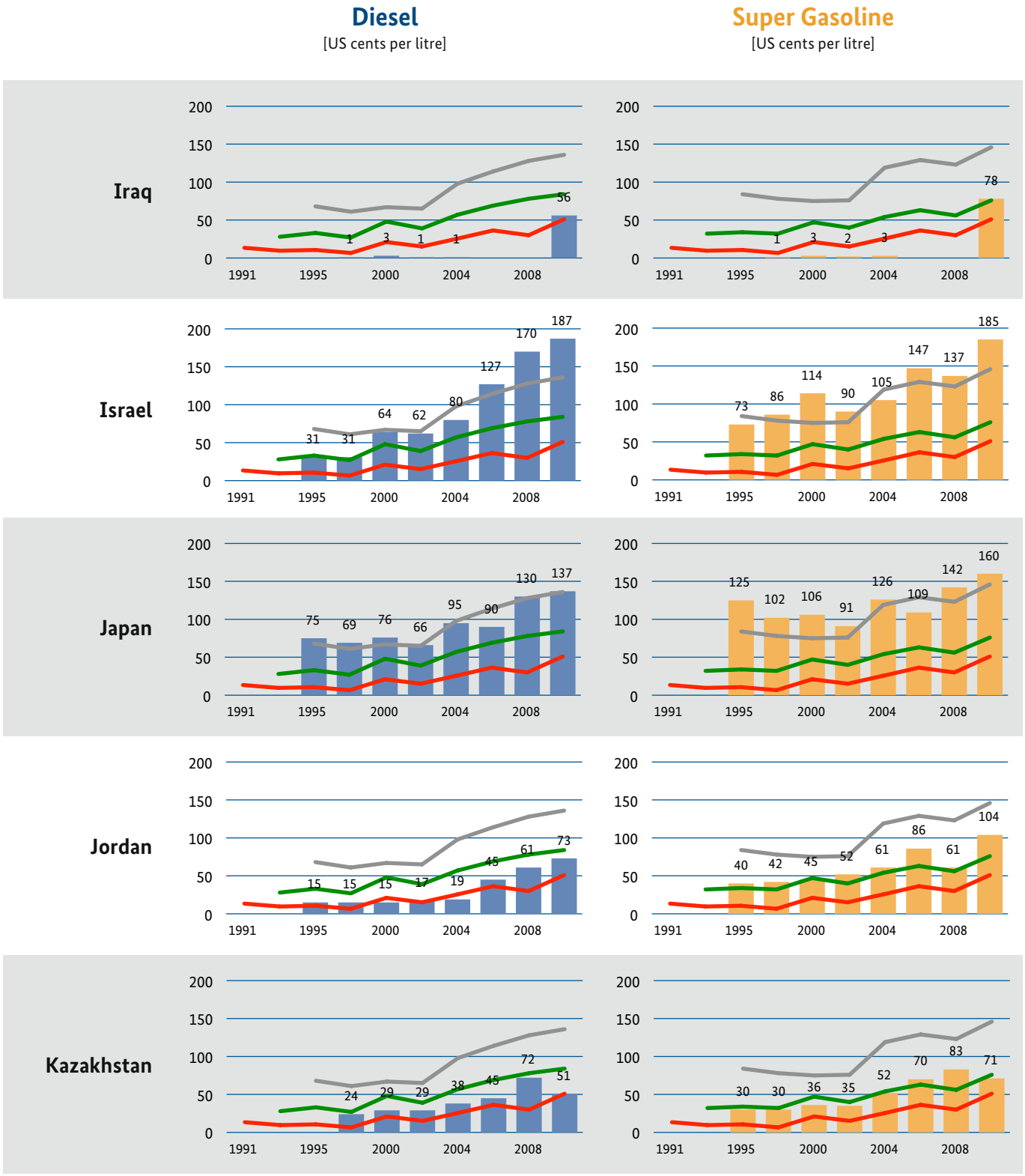
*) *Price refers to unsubsidised Pertamax Plus, subsidised gasoline, Premium' is available at a price of 4 500 Rupiah (eq 51 US-¢)*

Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from Iraq to Kazakhstan)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

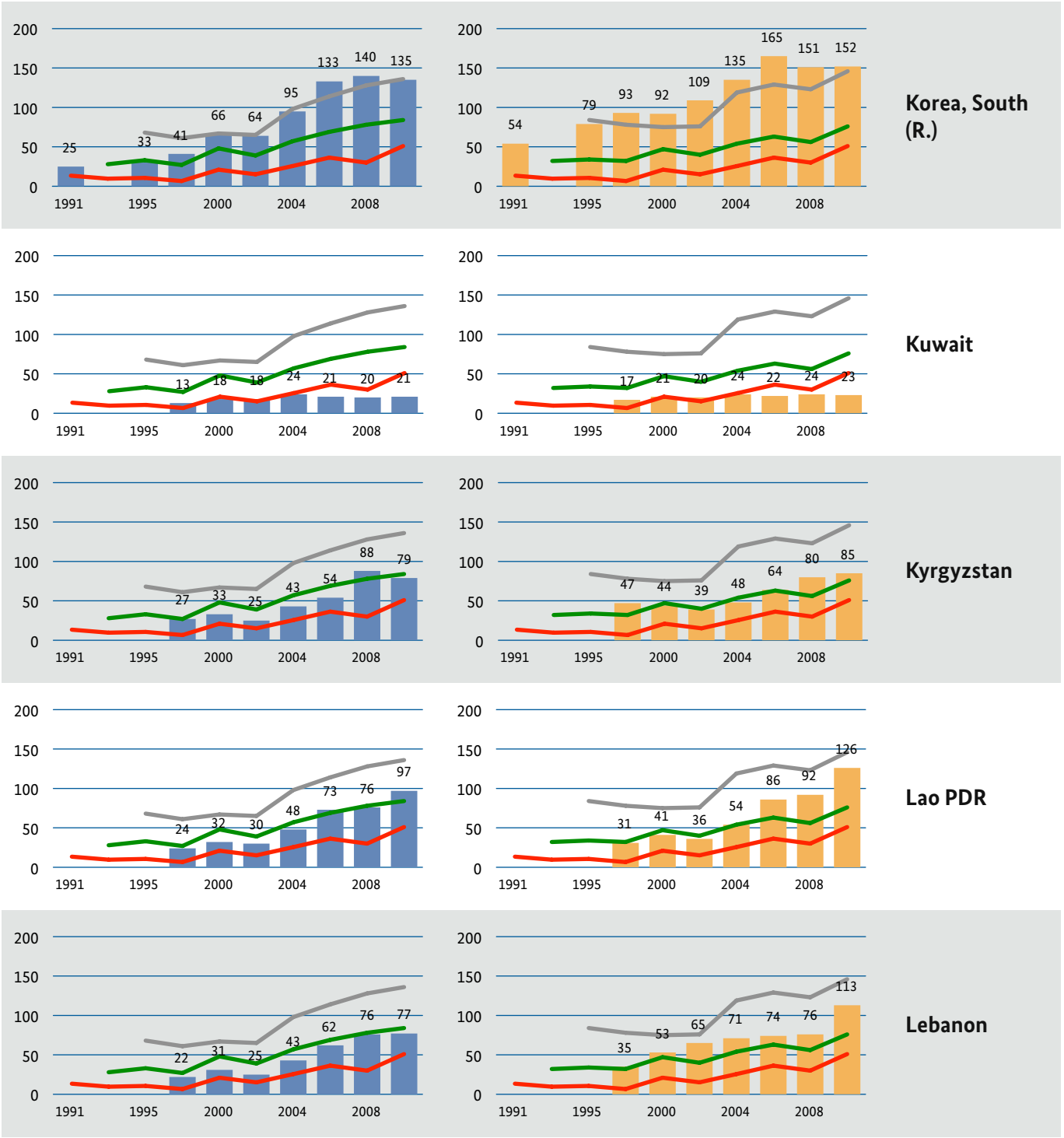
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from R. South Korea to Lebanon)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

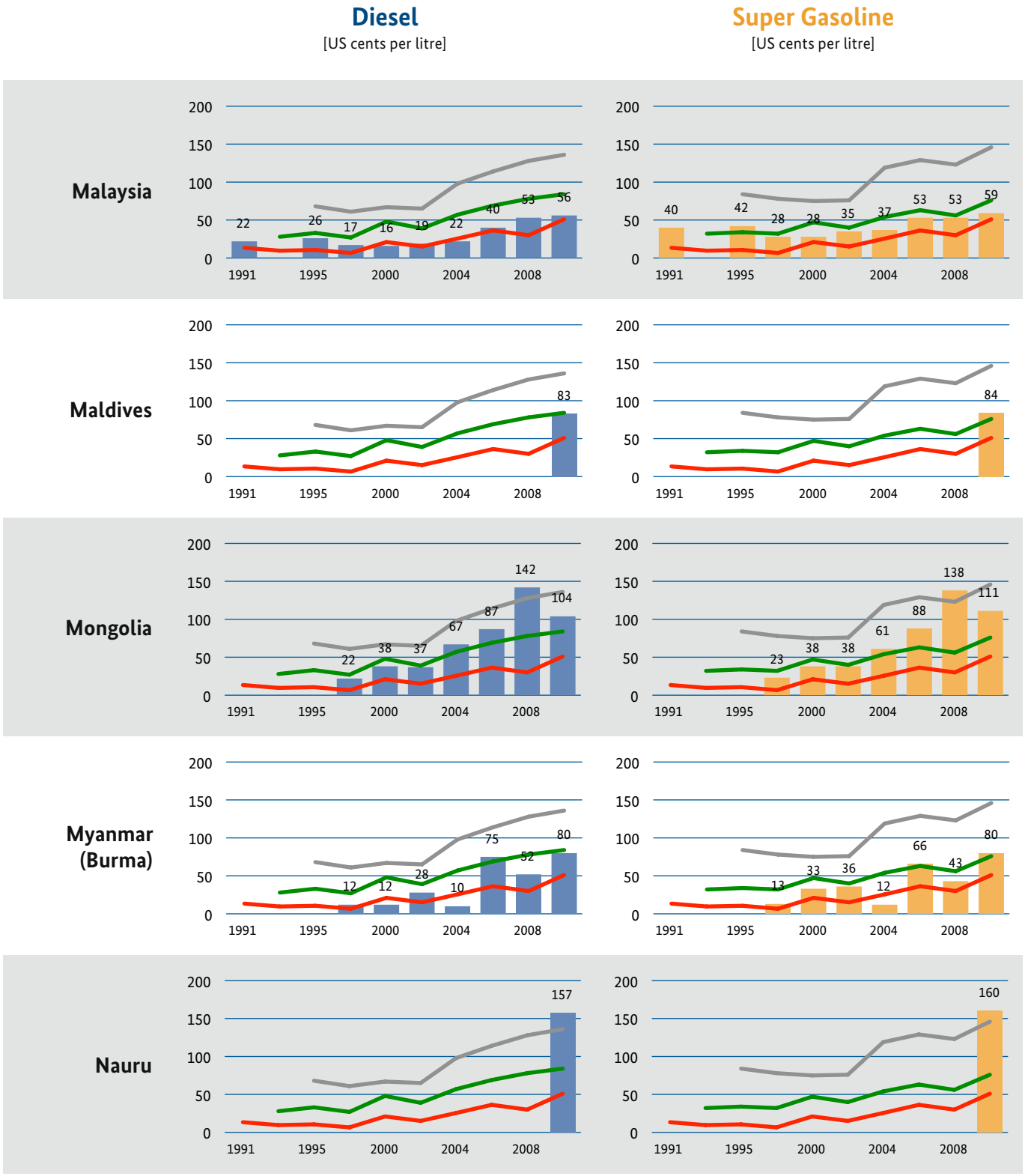


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from Malaysia to Nauru)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

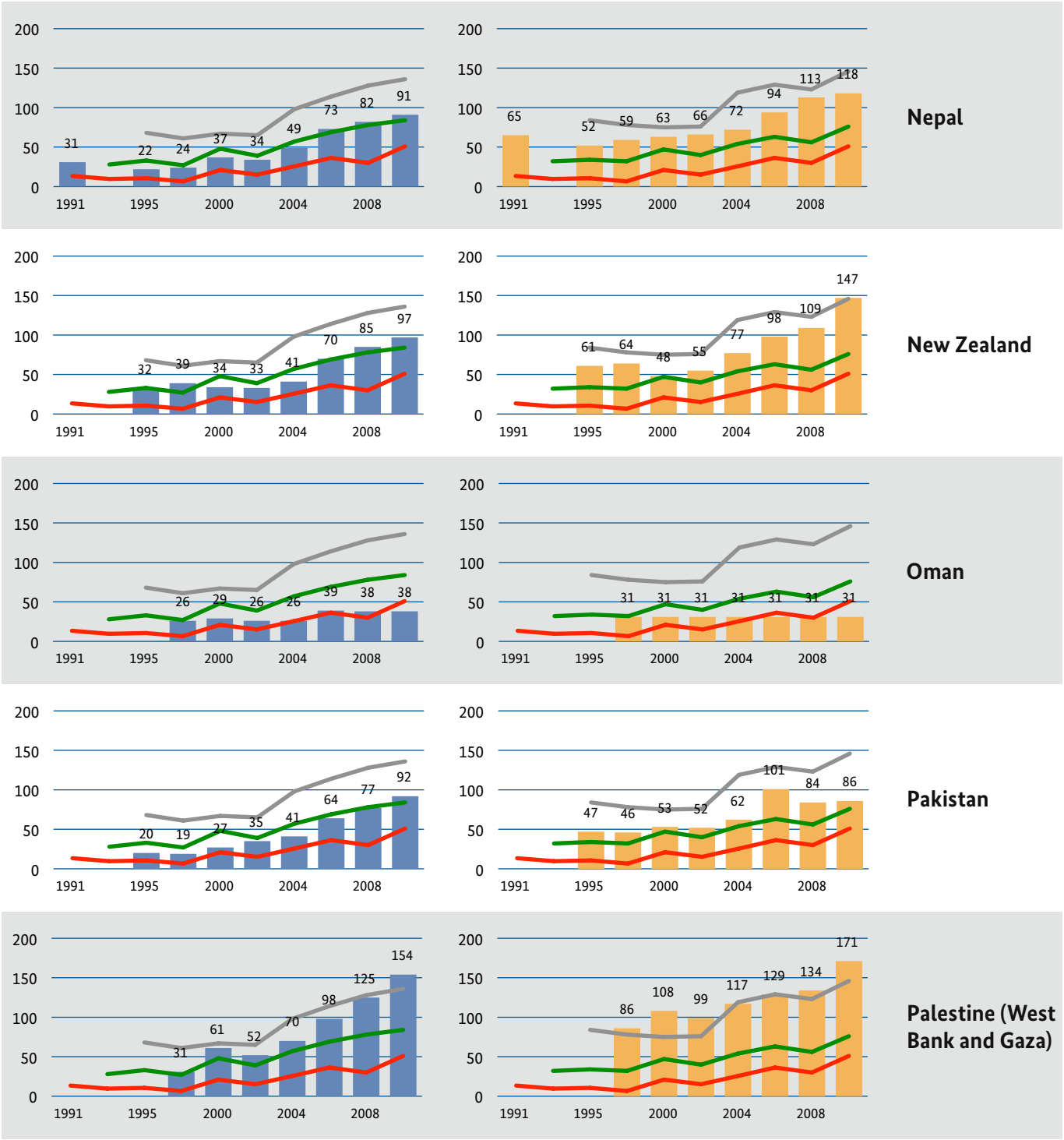
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from Nepal to Palestine WB/G)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

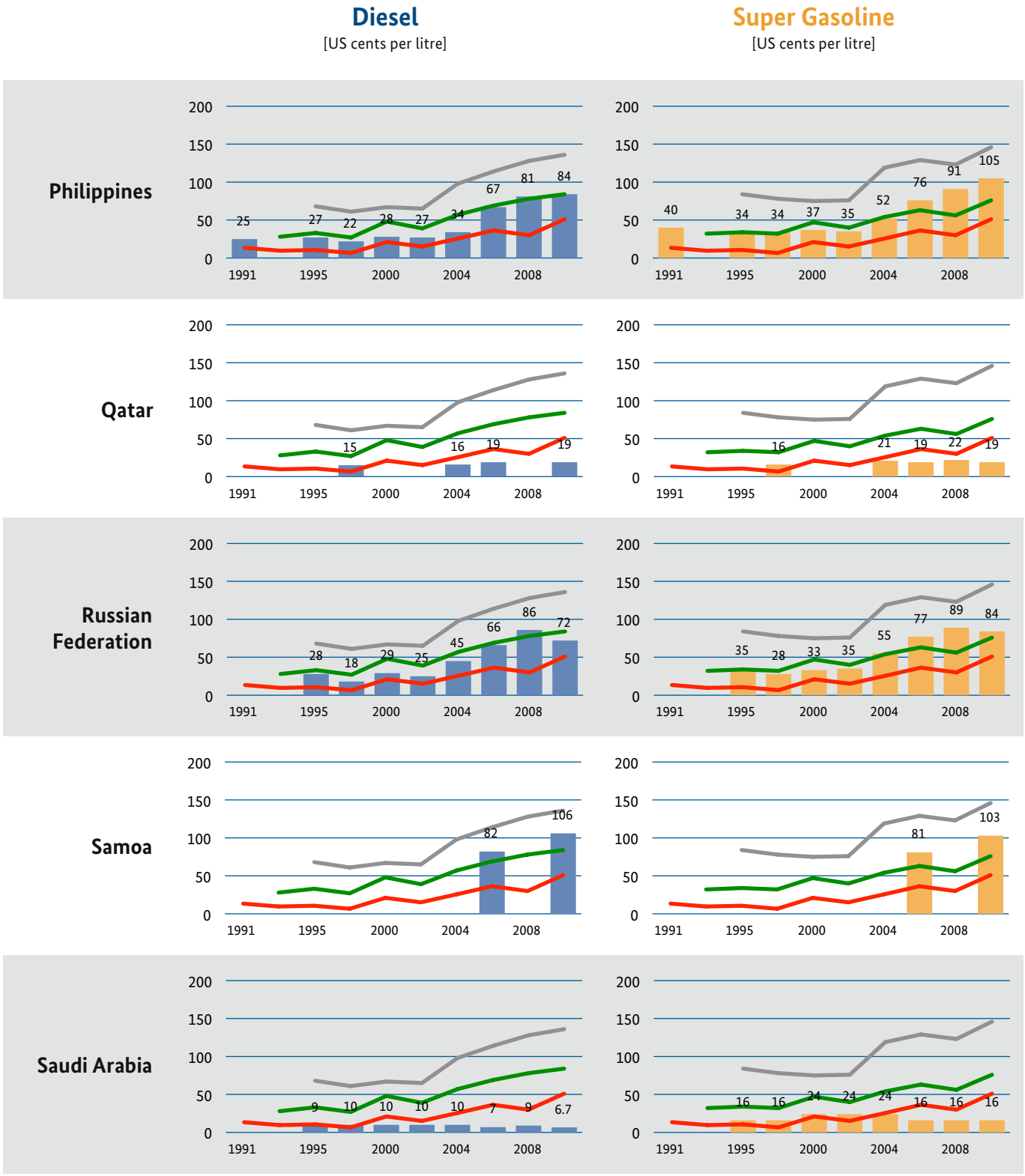


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from Philippines to Saudi Arabia)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

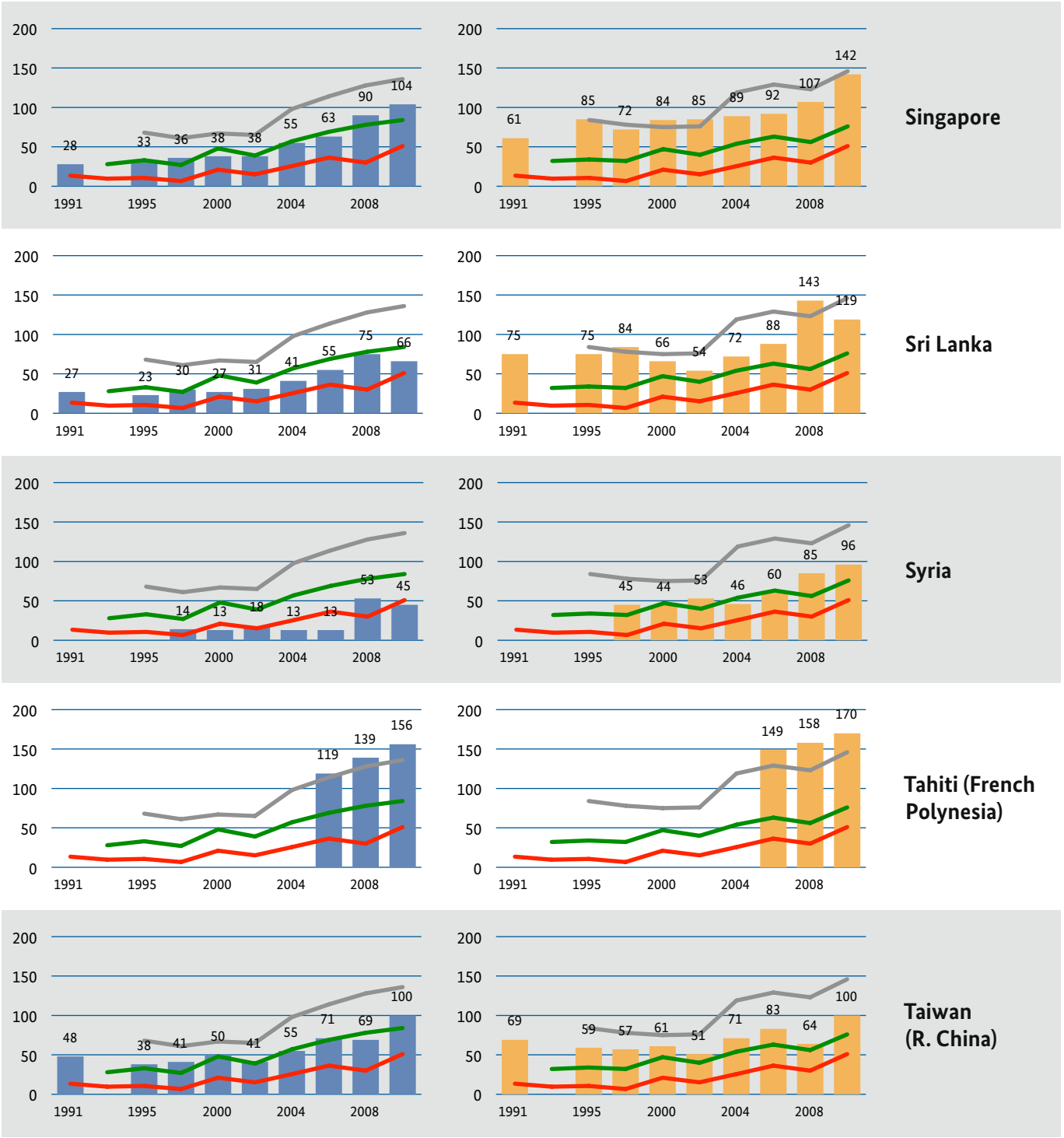
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from Singapore to Taiwan R.China)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

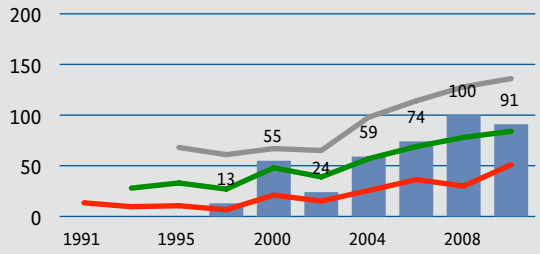
Red Benchmark Line: Price of crude oil on world market.

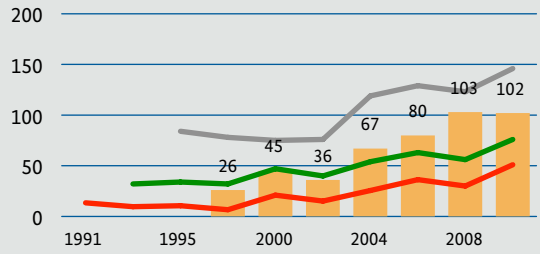
3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from Tajikistan to Turkmenistan)

Diesel
[US cents per litre]

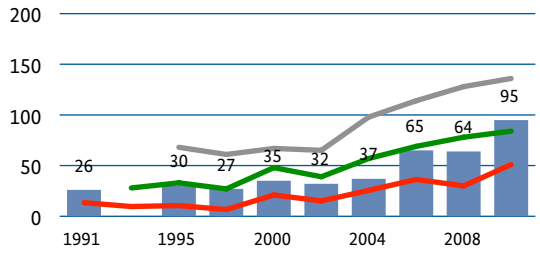
Super Gasoline
[US cents per litre]

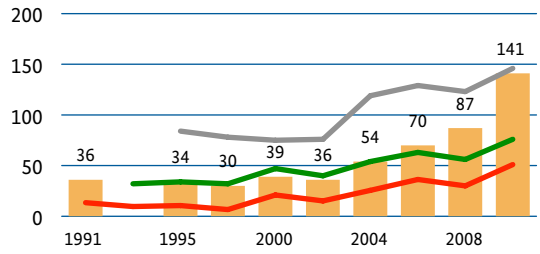
Tajikistan



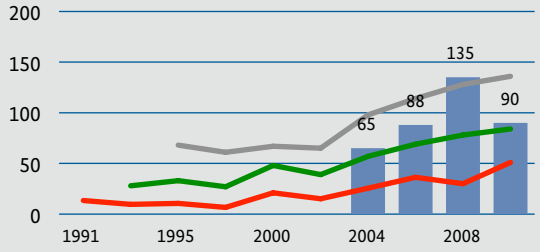


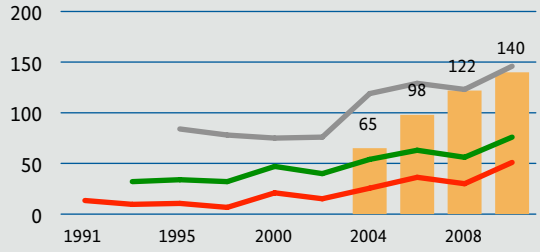
Thailand



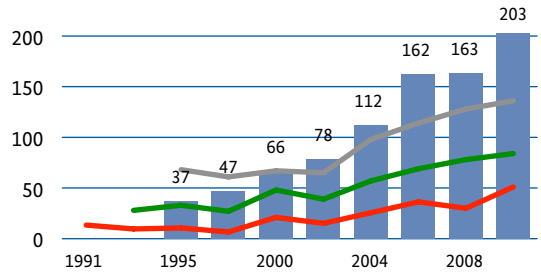


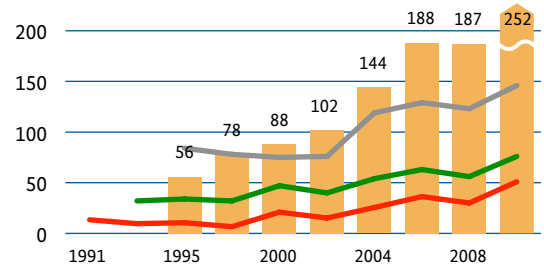
Timor-Leste



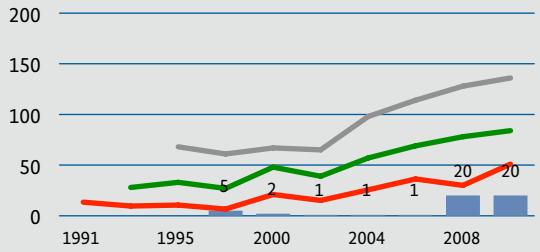


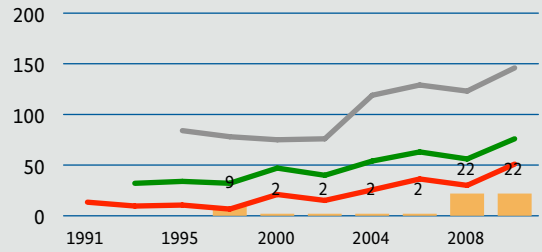
Turkey





Turkmenistan



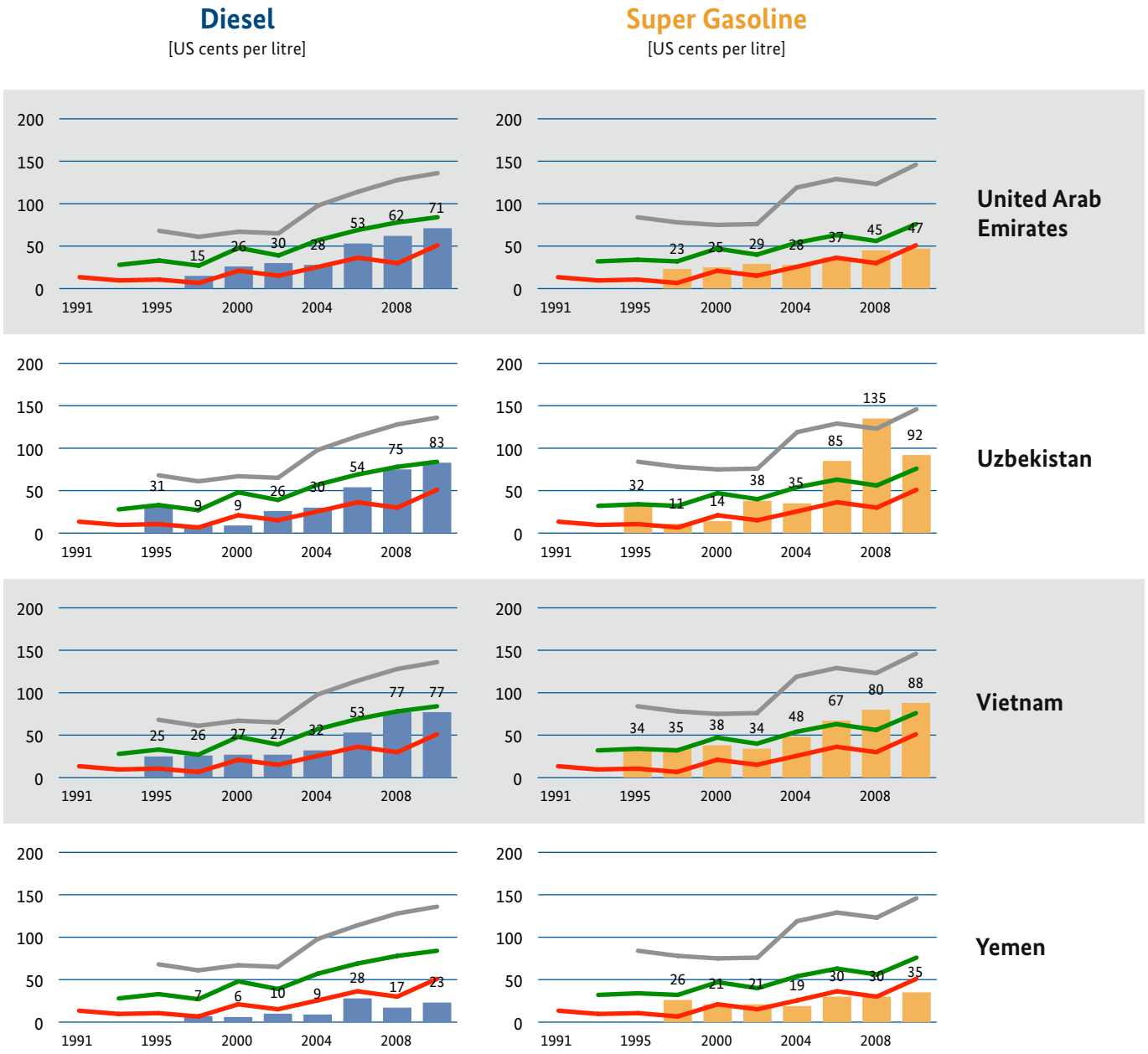


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.3.4 Detailed time series of fuel prices in Asia, Australia and Pacific, 1991 – 2010 (from UA Emirates to Yemen)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

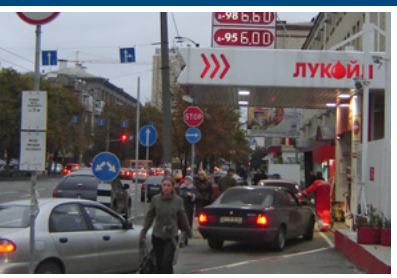
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

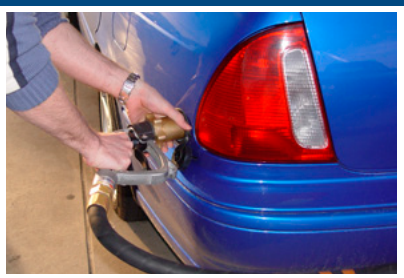
Red Benchmark Line: Price of crude oil on world market.


FAI DA TE
Senza Pb
Gasolio
EUROSUPER
VIETATO FUMARE
Aperto
FAI DA TE
Agip
FAI DA TE

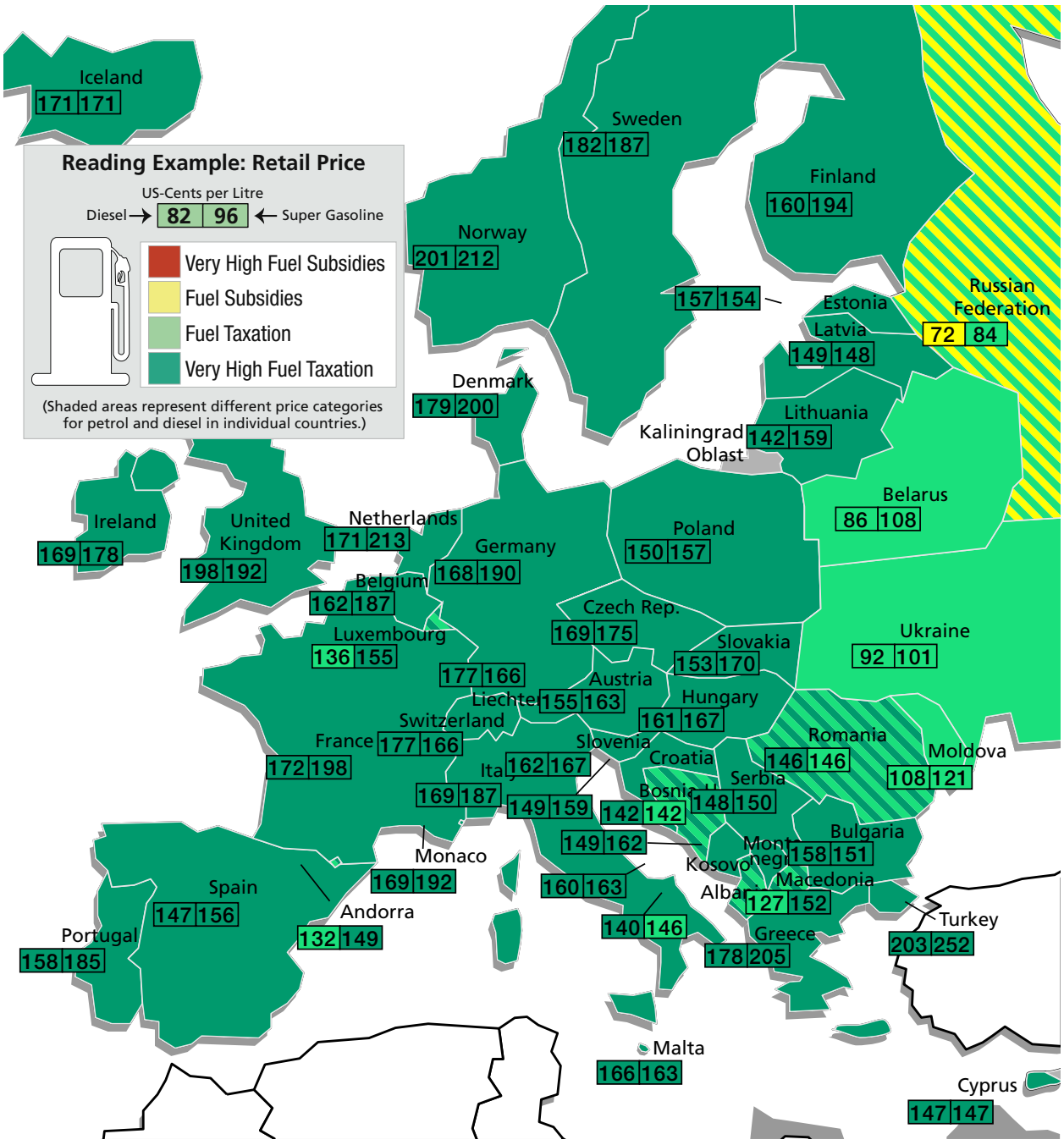
3.4 Fuel prices in Europe

- Retail fuel prices in Europe
- Comparison of retail fuel prices in Europe
- Time series of retail fuel prices in Europe
- Detailed time series of fuel prices in Europe




3.4.1 Retail fuel prices in Europe – as of November 2010 (in US-cents/litre)



Fuel Taxation Category 1: Very High Fuel Subsidies
The retail price of fuel (average of Diesel and Super Gasoline) is below the price for crude oil on world market.

Fuel Taxation Category 2: Fuel Subsidies
The retail price of fuel is above the price for crude oil on world market and below the price level of the United States.

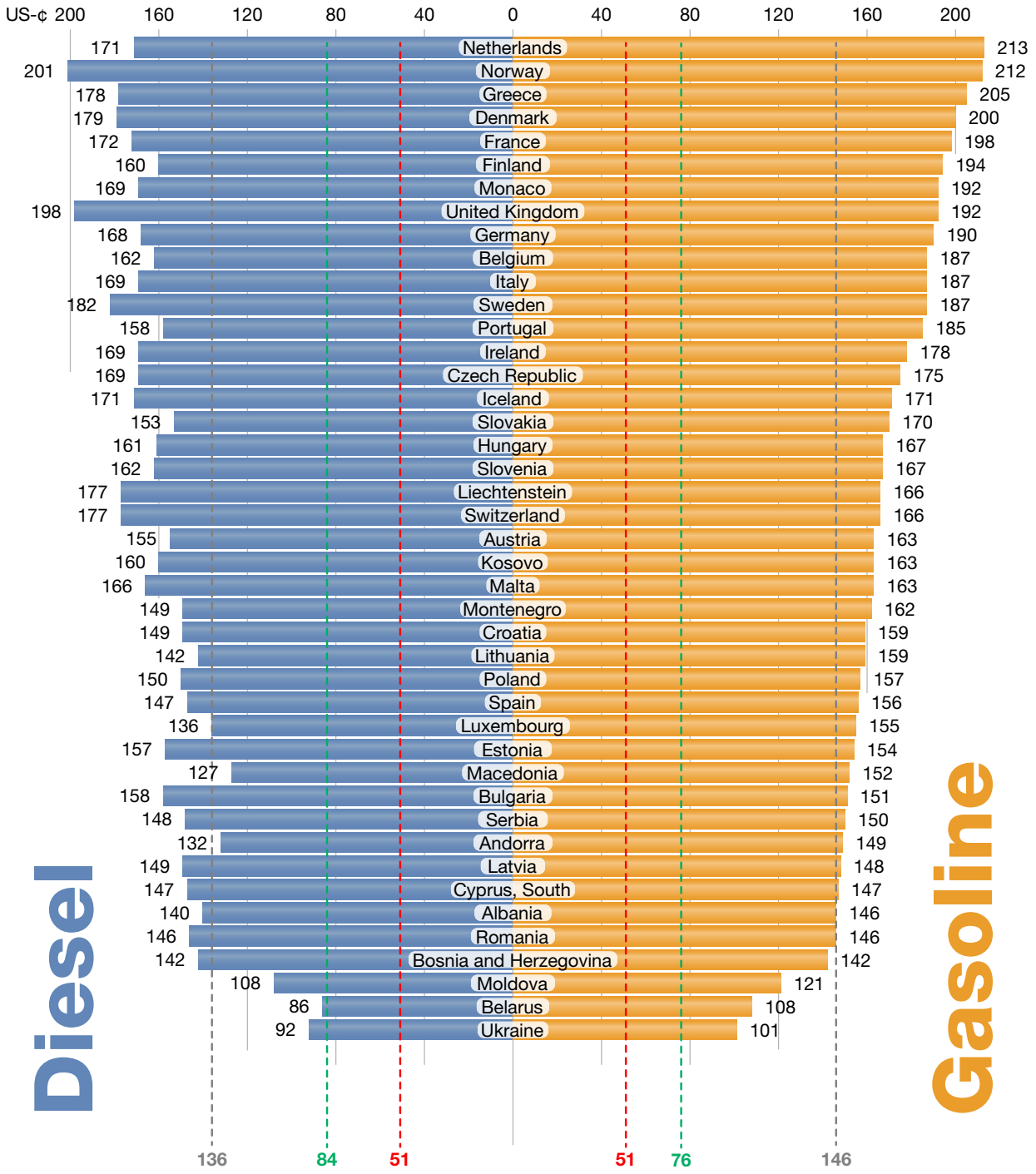
Note: The fuel prices of the United States are average cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for the 2 road funds (federal and state). This fuel price may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Fuel Taxation Category 3: Fuel Taxation
The retail price of fuel is above the price level of the United States and below the price level of Romania (Luxembourg).

Note: In November 2010, fuel prices in Romania (Luxembourg) were the lowest in EU-27. Prices in EU countries are subject to VAT, fuel taxes as well as other country-specific duties and taxes.

Fuel Taxation Category 4: Very High Fuel Taxation – The retail price of fuel is above the price level of Romania (Luxembourg).

3.4.2 Comparison of retail fuel prices in Europe – as of November 2010 (in US-cents/litre)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

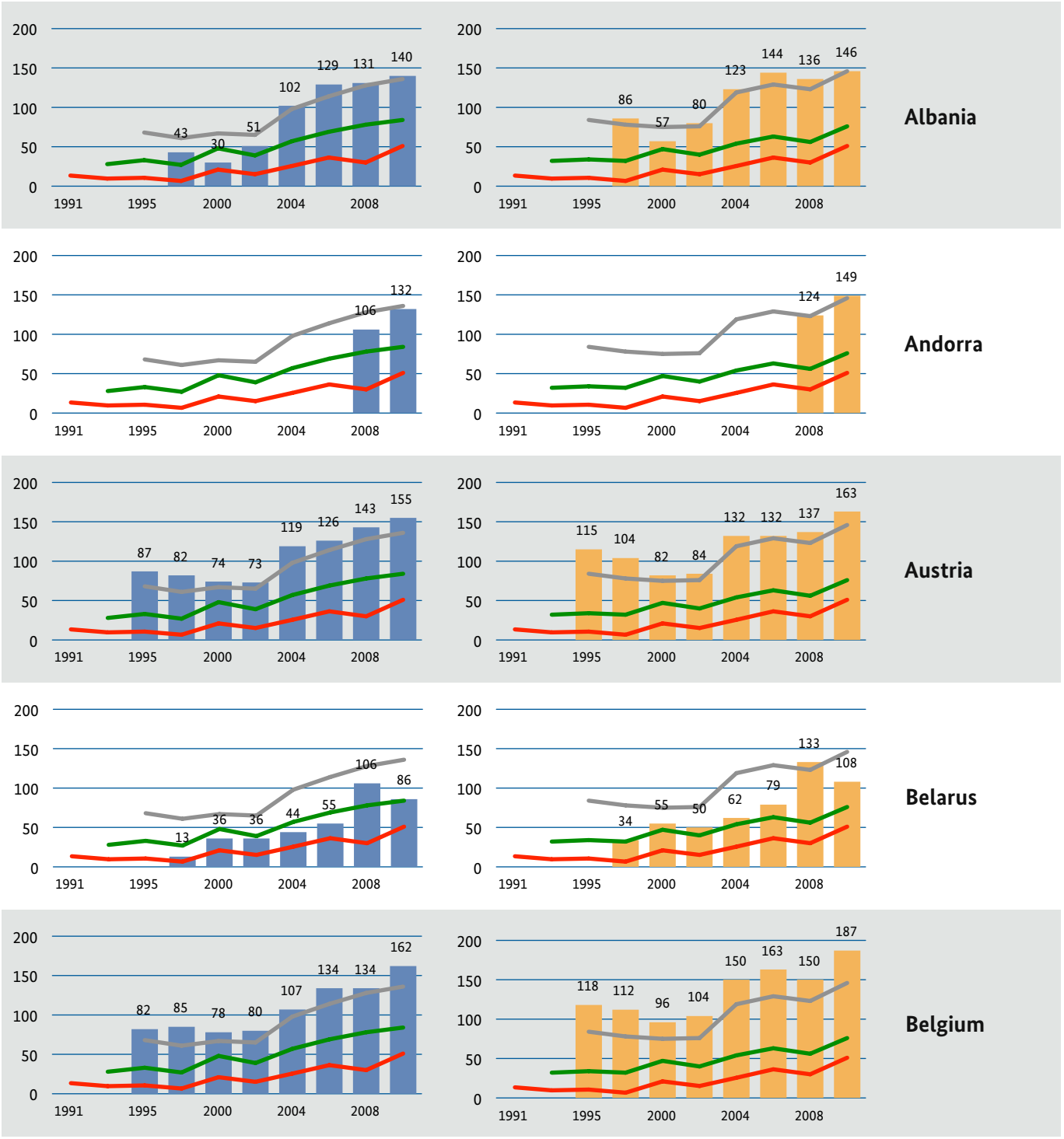
3.4.3 Time Series of retail fuel prices in Europe in US-cents/litre (last survey 16 – 18 November 2010)

	Diesel [US cents/litre]										Super Gasoline [US cents/litre]									
Country	1991	1993	1995	1998	2000	2002	2004	2006	2008	2010	1991	1993	1995	1998	2000	2002	2004	2006	2008	2010
Albania				43	30	51	102	129	131	140				86	57	80	123	144	136	146
Andorra									106	132									124	149
Austria			87	82	74	73	119	126	143	155			115	104	82	84	132	132	137	163
Belarus				13	36	36	44	55	106	86				34	55	50	62	79	133	108
Belgium			82	85	78	80	107	134	134	162			118	112	96	104	150	163	150	187
Bosnia + Herzegov.				60	57	74	97	124	118	142				66	68	74	97	134	113	142
Bulgaria			26	52	58	59	89	108	137	158			46	66	70	68	92	105	128	151
Croatia			64	61	60	74	113	122	137	149			75	67	76	89	124	134	127	159
Cyprus, South				25	18	44	95	120	125	147				78	57	83	108	125	128	147
Czech Republic			60	60	68	71	107	129	145	169			85	72	77	81	108	130	137	175
Denmark			87	85	90	94	135	145	154	179			108	105	101	109	151	158	154	200
Estonia			33	36	55	56	94	122	130	157			33	45	60	58	94	123	118	154
Finland			85	79	84	80	121	126	139	160			120	117	106	112	154	155	157	194
France			78	77	82	80	125	133	145	172			117	111	99	105	142	148	152	198
Germany			77	69	78	82	129	138	156	168			112	96	91	103	146	155	156	190
Greece			59	40	71	68	123	119	141	178			88	65	72	78	114	116	123	205
Hungary			65	64	79	85	122	131	138	161			74	72	81	94	130	130	127	167
Iceland				40	45	62	88	178	131	171				112	105	116	164	186	115	171
Ireland			87	102	72	80	129	135	164	169			96	102	72	90	129	134	156	178
Italy			86	93	83	86	131	149	163	169			118	119	97	105	153	156	157	187
Kosovo			84	43	56	66	103	119	121	160			76	61	56	74	116	122	110	163
Latvia			34	35	58	65	90	115	123	149			41	55	67	70	94	120	112	148
Liechtenstein				89	84	93	137	136	152	177				85	81	89	129	127	130	166
Lithuania			30	34	55	59	102	109	122	142			35	51	66	69	103	108	113	159
Luxembourg			68	61	67	65	98	114	133	136			84	78	75	76	119	129	140	155
Macedonia			59	46	56	63	92	109	112	127			93	70	76	85	117	123	115	152
Malta				49	44	53	97	126	156	166				77	81	87	118	138	166	163
Moldova				31	40	31	31	86	104	108				45	45	45		97	120	121
Monaco									155	169									164	192
Montenegro			84	43	56	66	106	127	121	149			76	61	56	74	120	151	127	162
Netherlands			82	79	78	81	123	132	145	171			121	114	103	112	162	170	168	213
Norway			109	110	115	118	144	166	163	201			133	121	119	123	161	180	163	212
Poland			42	44	65	68	109	130	140	150			55	54	76	83	120	130	143	157
Portugal				71	54	71	108	110	147	158				102	77	97	138	156	161	185
Romania			19	40	35	57	91	124	122	146			29	53	46	64	96	126	111	146
Russian Federation			28	18	29	25	45	66	86	72			35	28	33	35	55	77	89	84
Serbia			84	43	56	66	85	135	114	148			76	61	56	74	100	145	129	150
Slovakia			40	54	68	70	119	143	168	153			66	61	69	74	117	135	157	170
Slovenia			50	64	66	67	111	121	126	162			59	66	63	76	112	123	118	167
Spain			70	70	65	72	110	110	128	147			89	84	73	83	121	115	123	156
Sweden			101	84	80	96	137	144	152	182			117	109	94	106	151	146	138	187
Switzerland			101	91	84	93	137	136	152	177			102	86	78	89	129	127	130	166
Turkey			37	47	66	78	112	162	163	203			56	78	88	102	144	188	187	252
Ukraine				25	30	34	44	87	96	92				49	37	47	55	81	88	101
United Kingdom			85	111	122	120	160	173	165	198			92	111	117	118	156	163	144	192

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Albania to Belgium)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

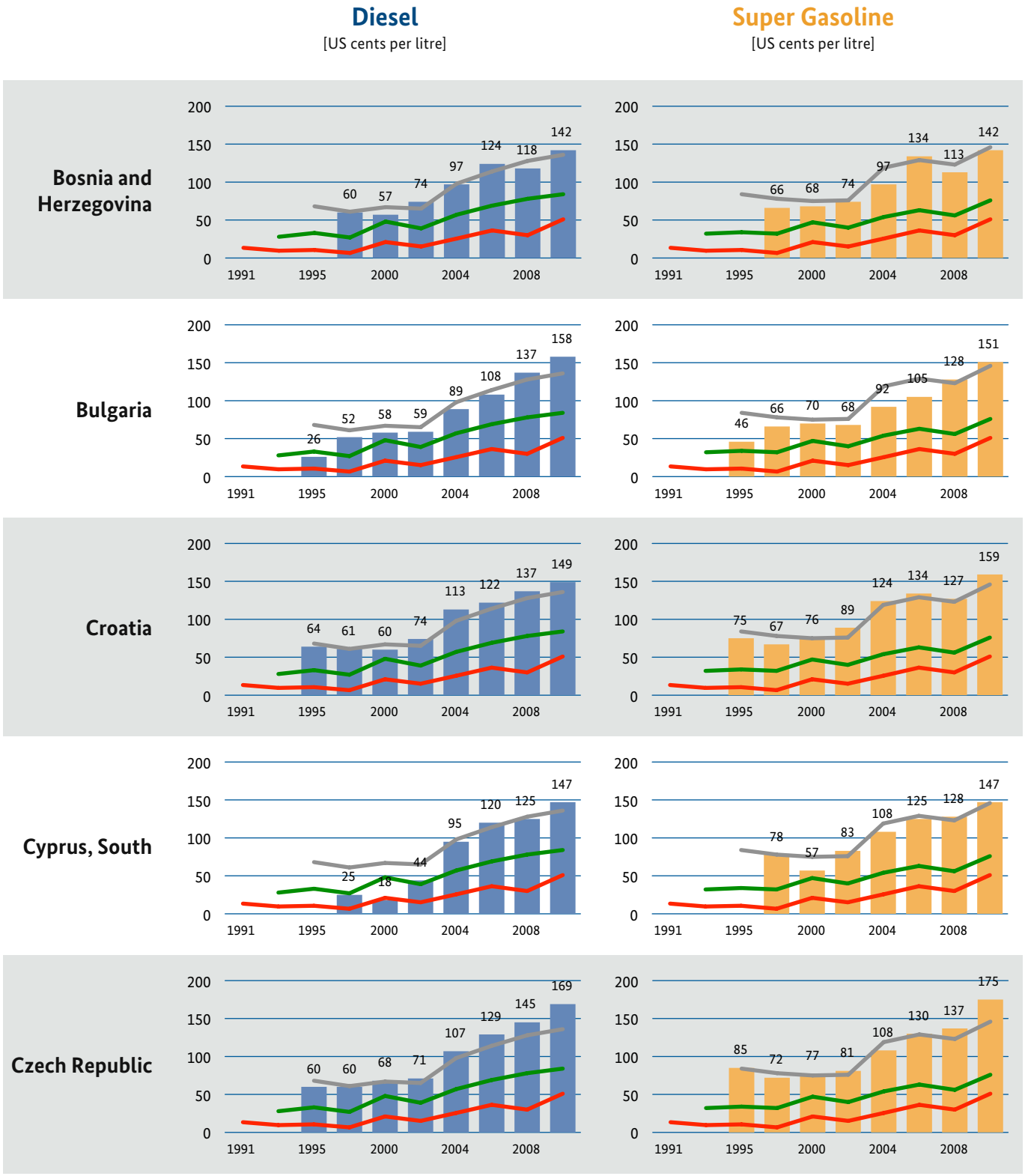


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Bosnia and Herzegovina to Czech Republic)

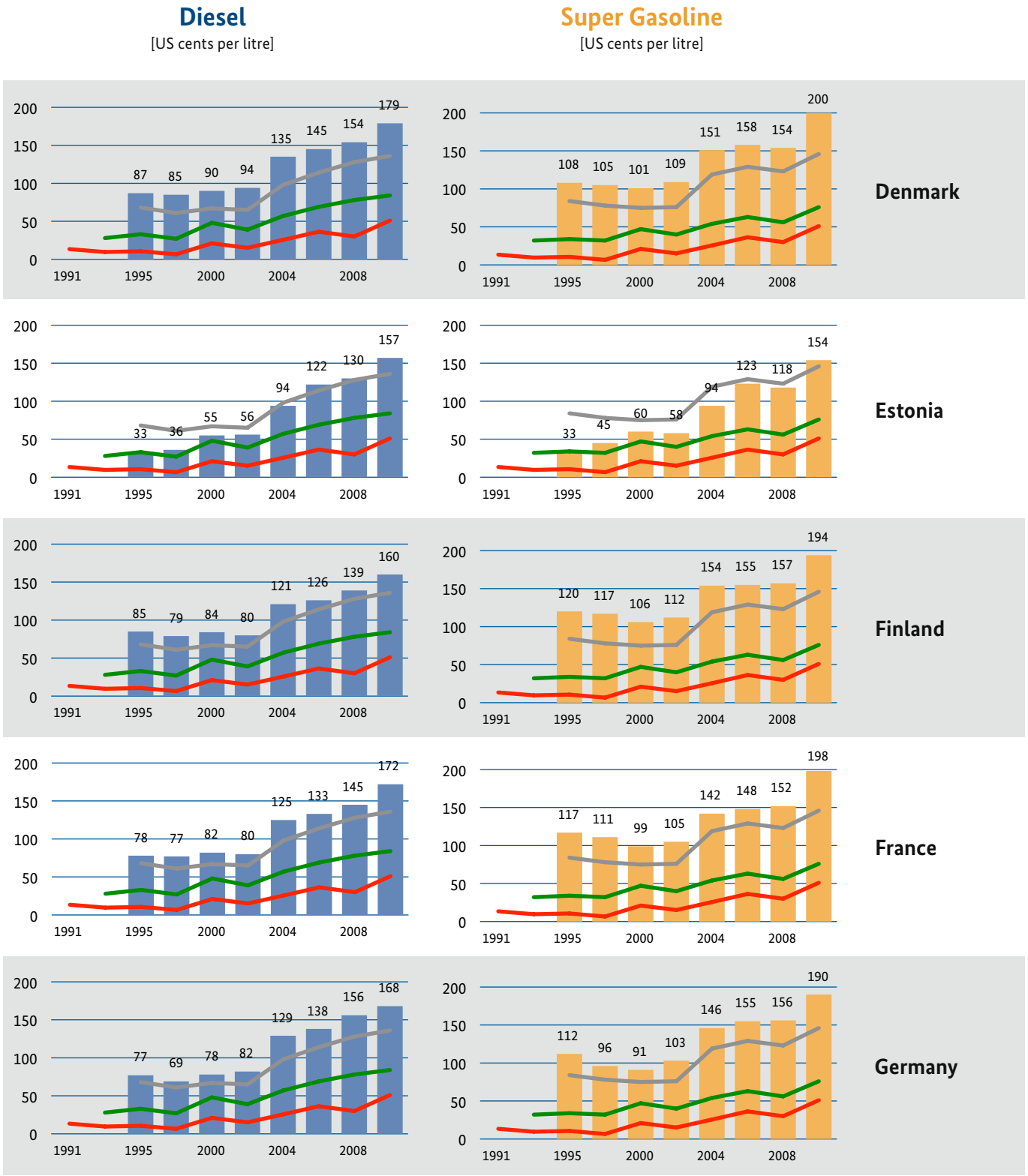


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Denmark to Germany)

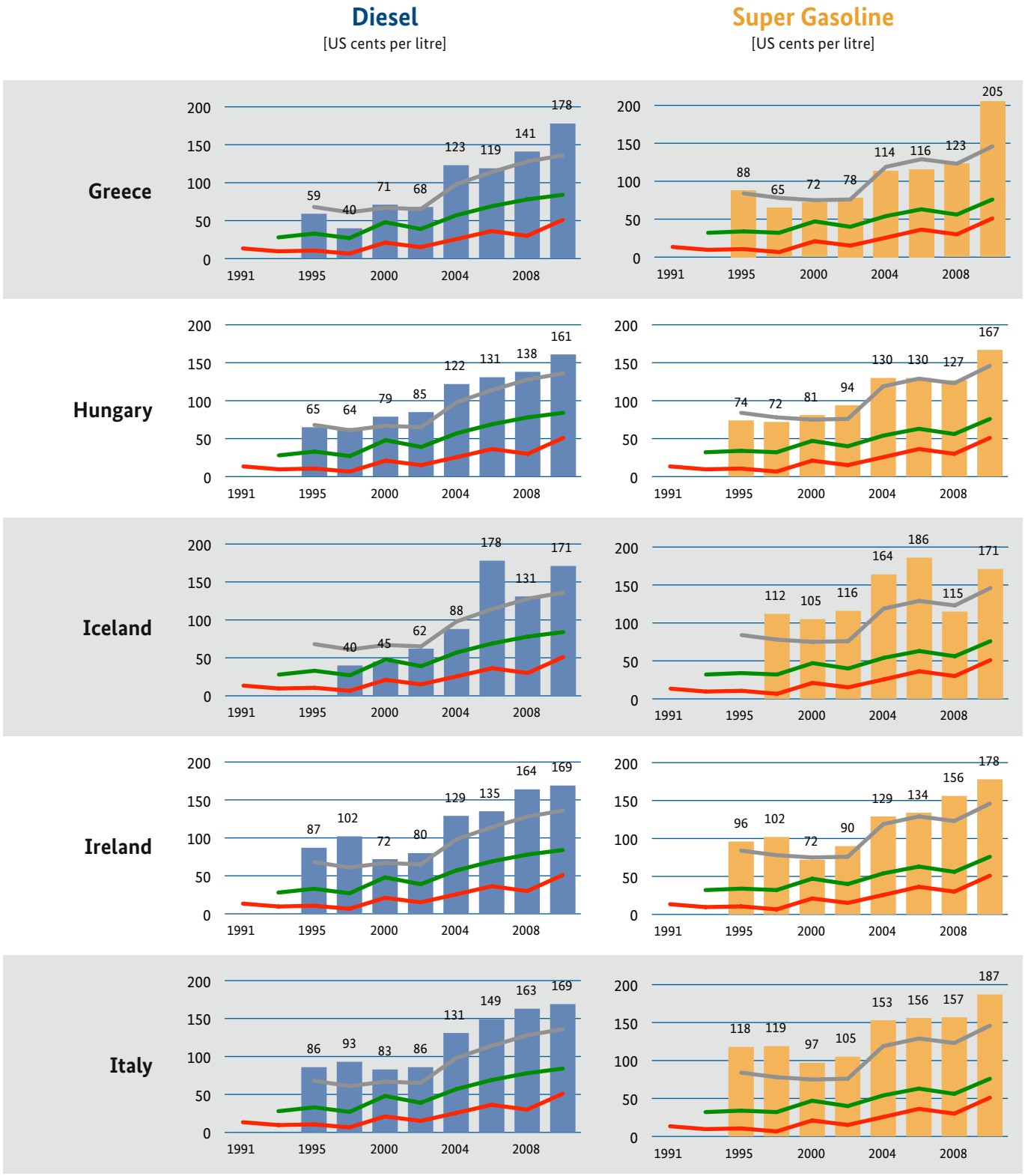


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Greece to Italy)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

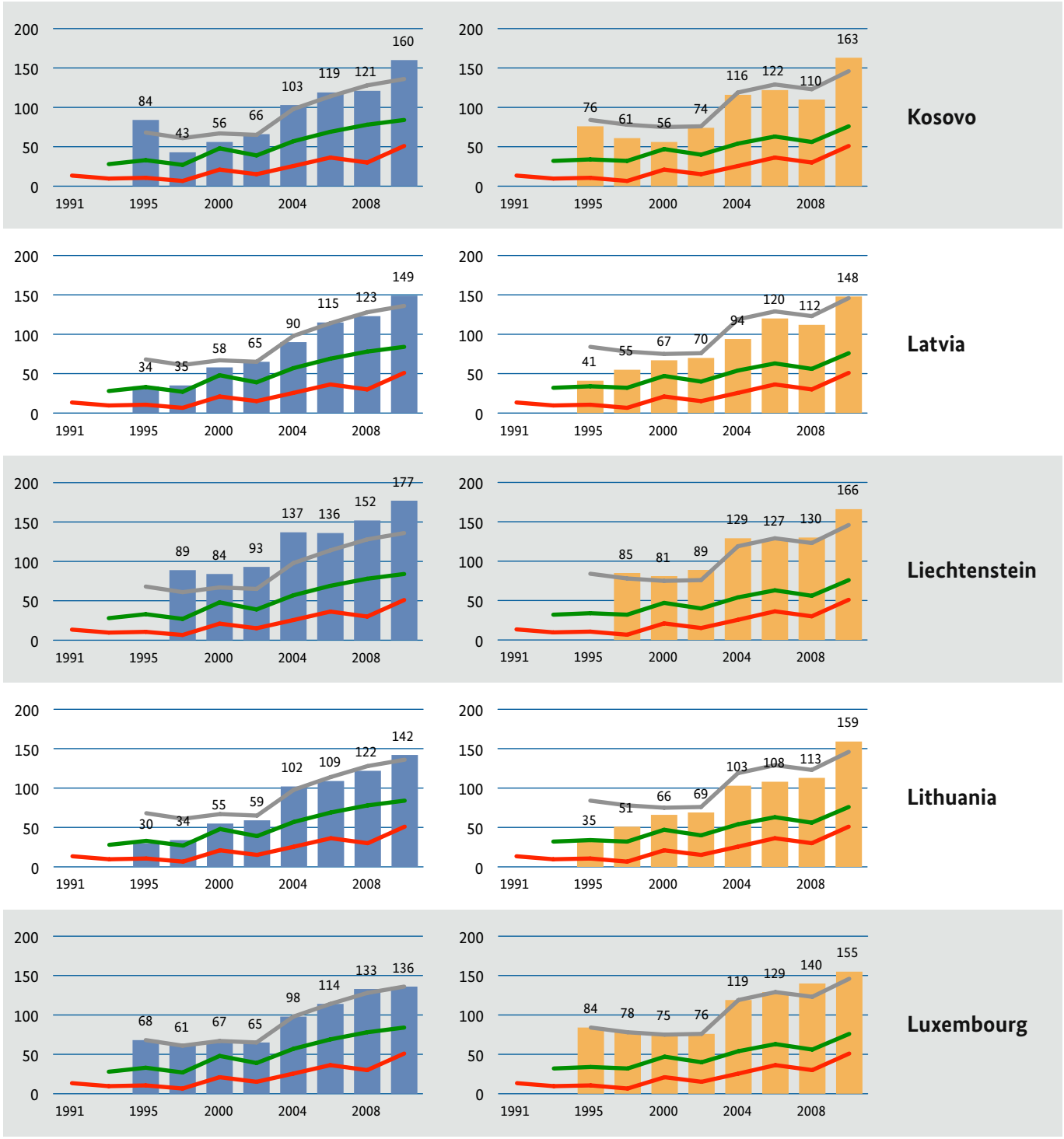
Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Kosovo to Luxembourg)

Diesel
[US cents per litre]

Super Gasoline
[US cents per litre]

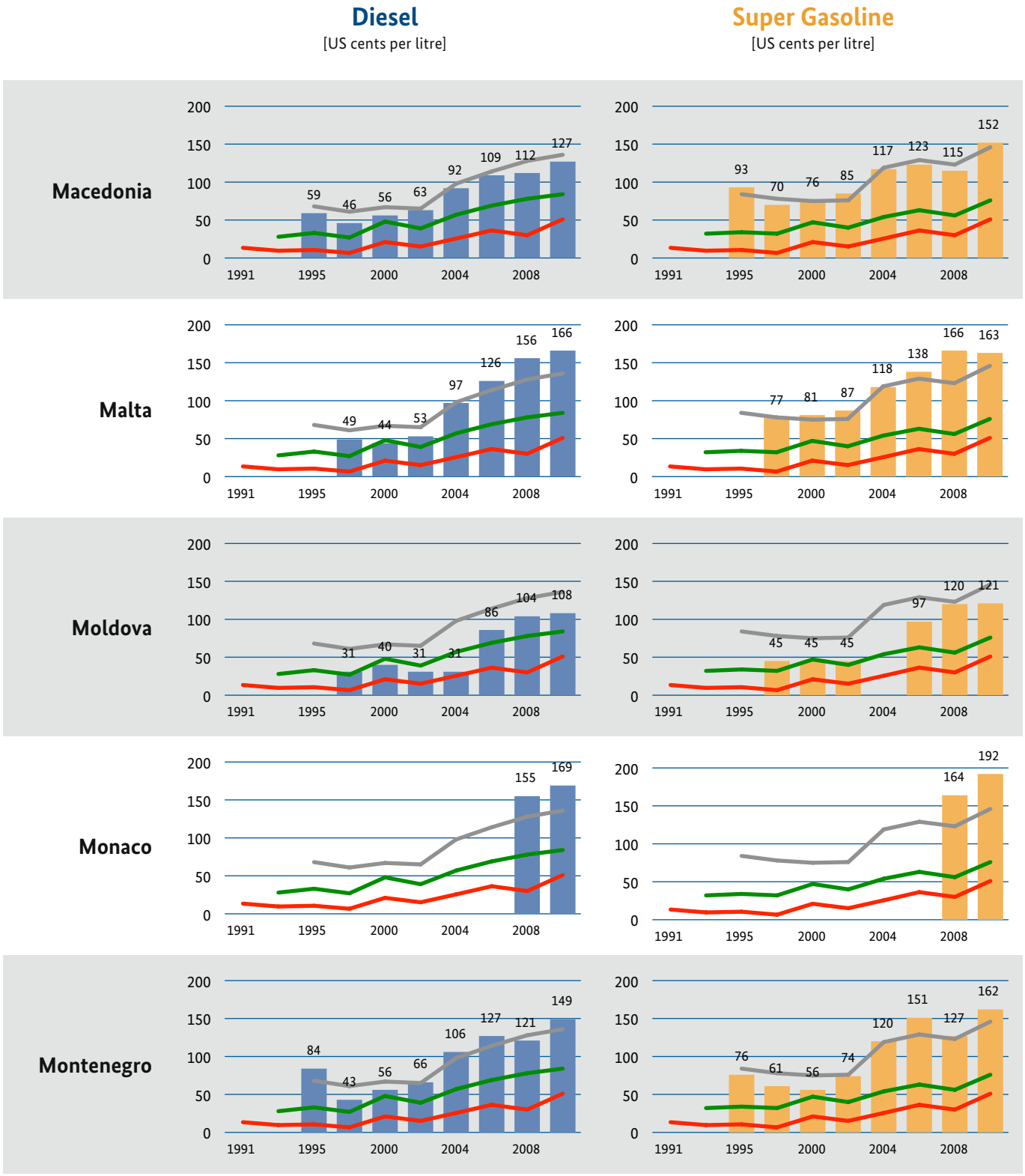


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Macedonia to Montnegro)

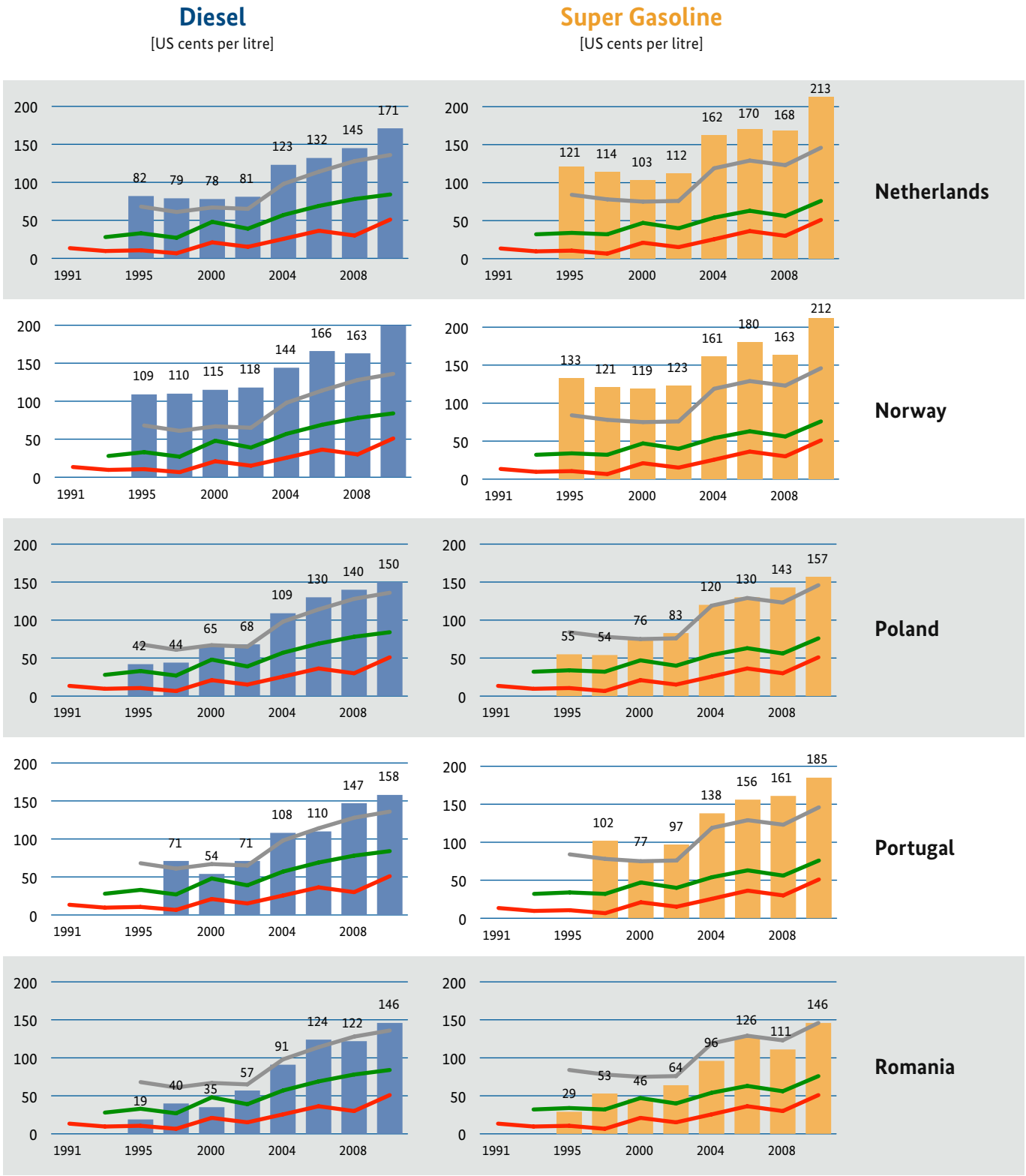


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Netherlands to Romania)

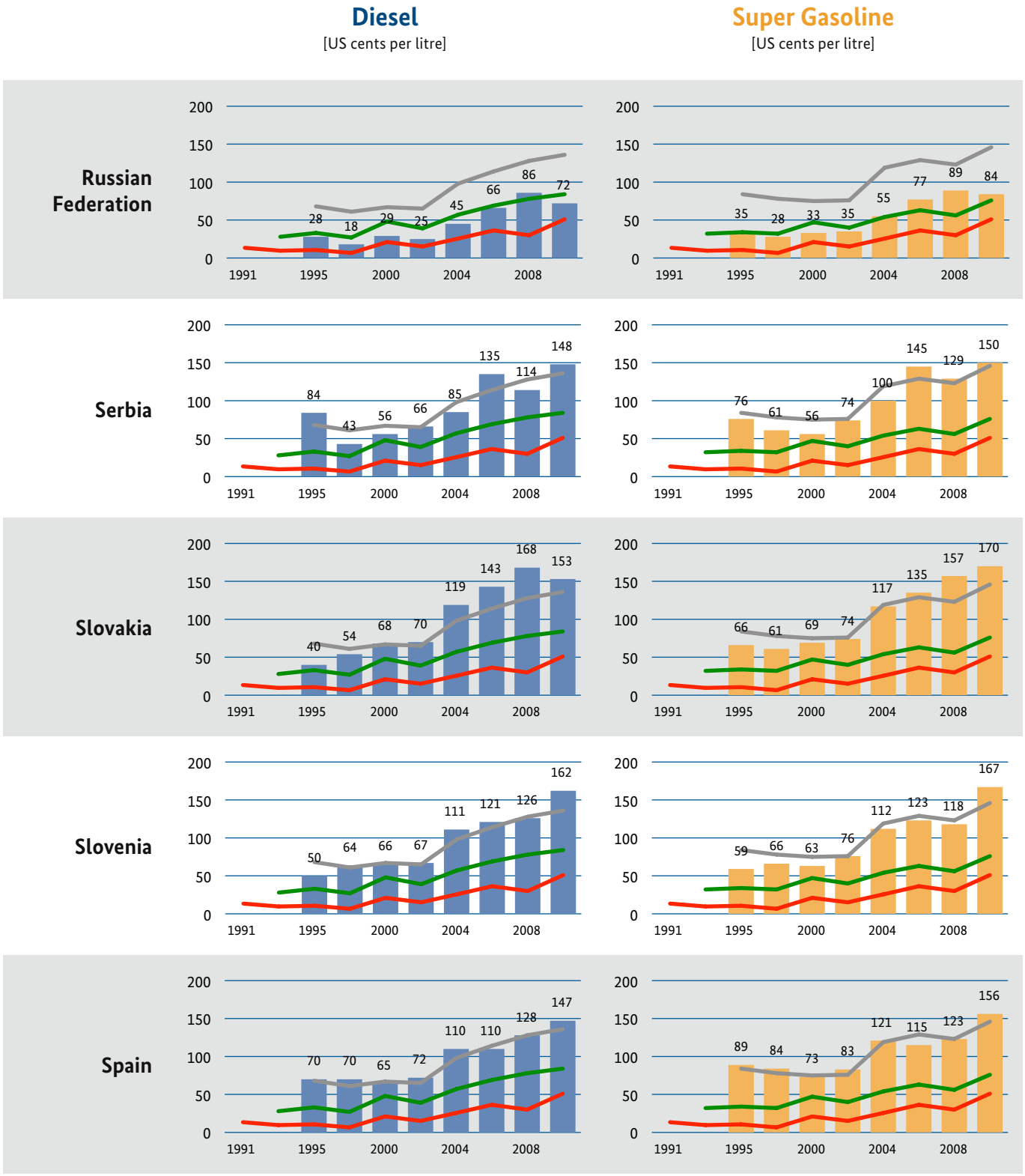


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Russian Federation to Spain)

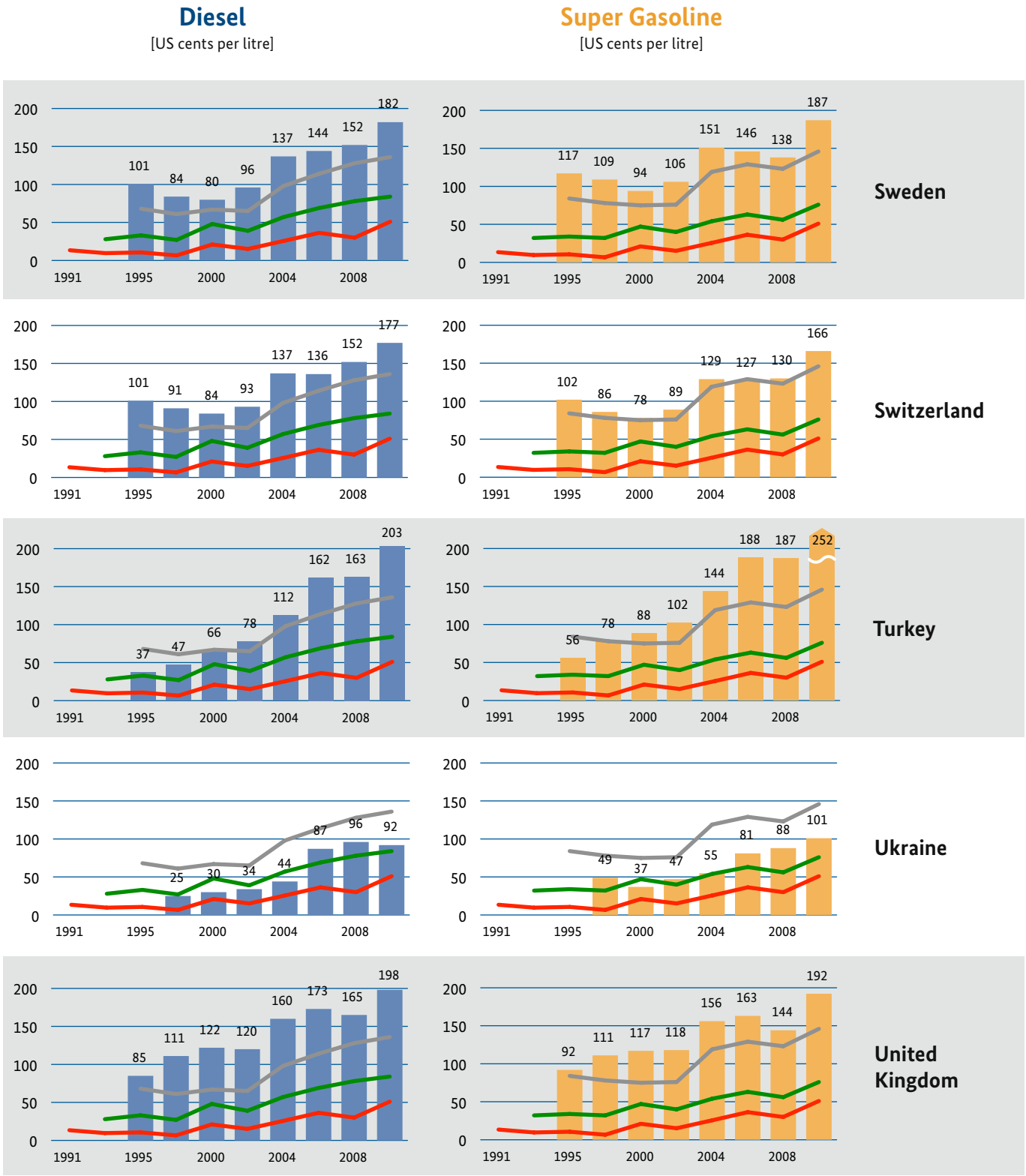


Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

Red Benchmark Line: Price of crude oil on world market.

3.4.4 Detailed time series of fuel prices in Europe 1991 – 2010 (from Sweden to United Kingdom)



Grey Benchmark Line: Retail price of gasoline and diesel of Romania/Luxembourg. In November 2010, gasoline (diesel) prices in Romania (Luxembourg) were the lowest in Europe. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes.

Green Benchmark Line: Retail price of gasoline and diesel in the United States. Cost-covering retail prices incl. industry margin, VAT and incl. approx. US 10 cents for 2 road funds (federal and state). This fuel price being without other specific fuel taxes may be considered as the international minimum benchmark for a non-subsidised road transport policy.

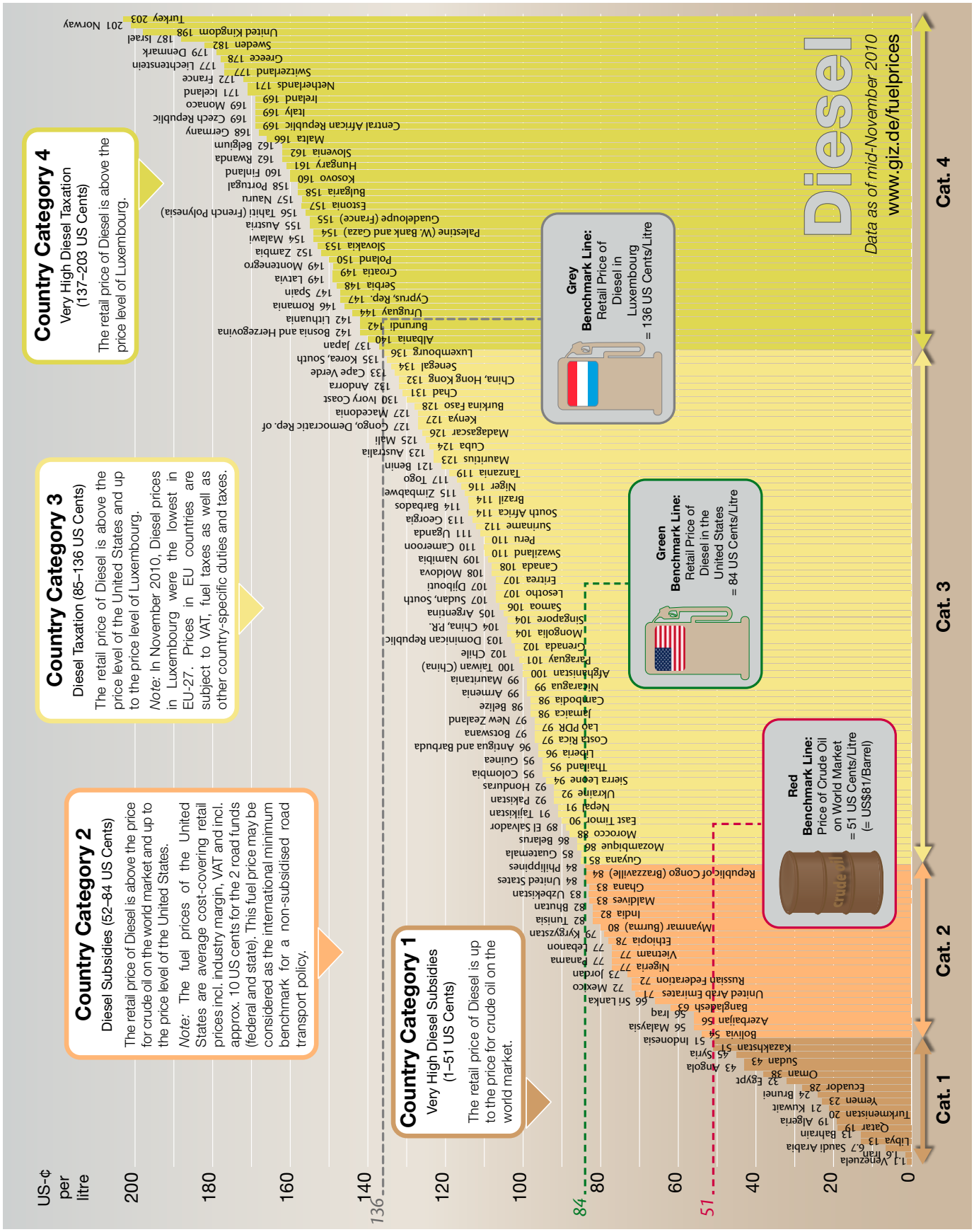
Red Benchmark Line: Price of crude oil on world market.


HONDA
FLEX
BB3730

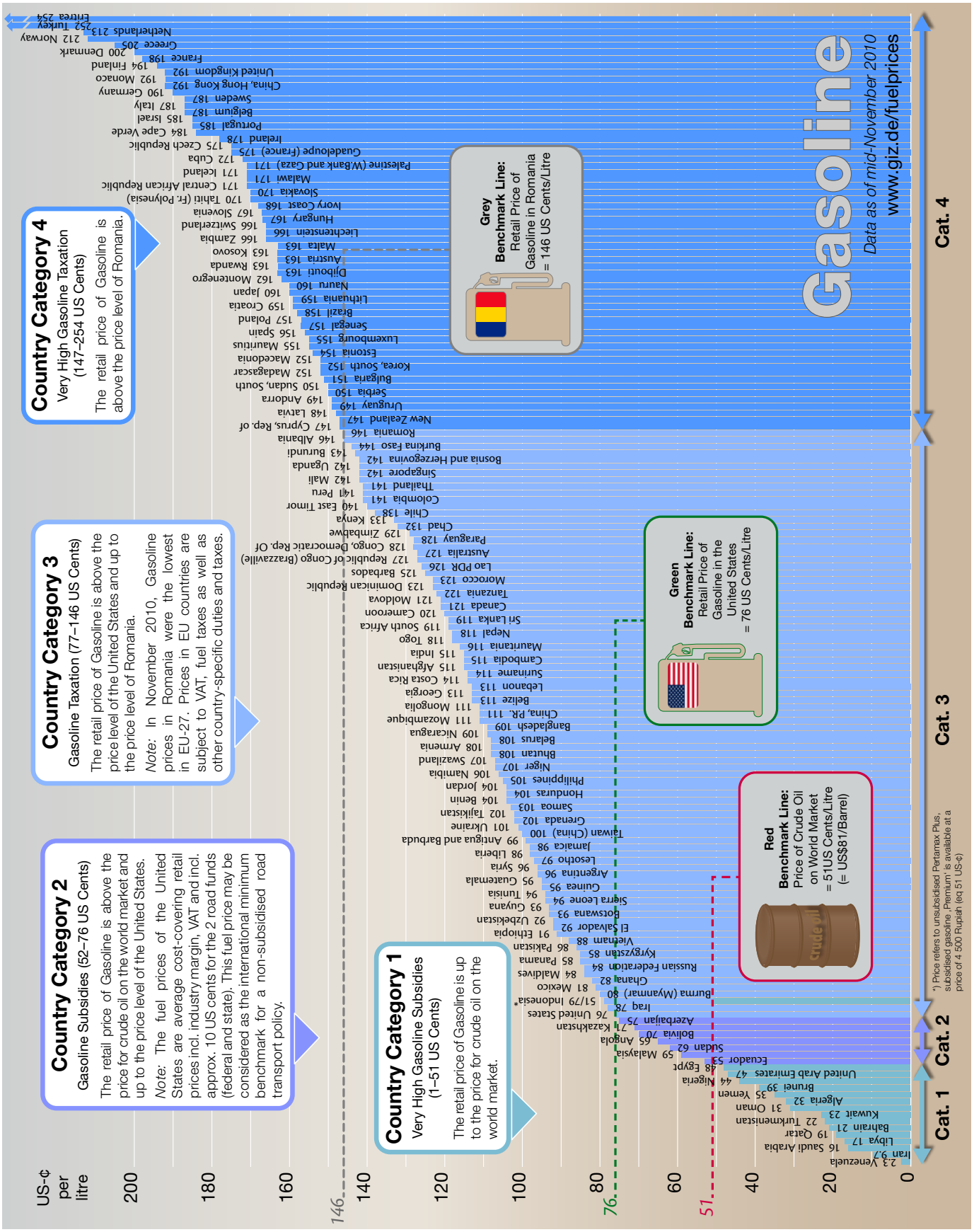
3.5 Retail fuel prices of 174 countries

- World ranking of diesel prices
- World ranking of gasoline prices

3.5.1 Retail prices of diesel in 174 countries as of November 2010 (in US cents/litre)



3.5.1 Retail prices of gasoline in 174 countries as of November 2010 (in US cents/litre)



*) Price refers to unsubsidised Pertamax Plus, subsidised gasoline 'Premium' is available at a price of 4 500 Rupiah (eq 51 US-¢)

4 Case studies on fuel prices and fuel pricing

4.1 Formula-based fuel pricing mechanisms in developing countries [a]

Dr Bernhard Dicke (Avit Consult), external GIZ consultant

Introduction

This chapter analyses and evaluates the experience of South Africa, Jordan, Ghana, PR China and India in the application of formula-based pricing mechanism of fuels. The focus is on the time before and during the oil price rally in 2008 and during the financial and economic crisis in 2009. The objective is then to identify best practices and derive general recommendations for future fuel pricing policies. Table 1 displays the trend of pump prices for premium gasoline and diesel in these countries according to the GIZ price surveys since 1991. The prices were all surveyed in November of the given year.

Table 1: Gasoline and diesel prices in case studies countries (1991–2010)[*]

Country	Super Gasoline [US Cents/Litre]									
Year	1991	1992	1995	1998	2000	2002	2004	2006	2008	2010
South Africa		52	51	43	50	43	81	85	87	119
Ghana	53	53	38	32	20	28	49	86	90	82
Jordan			40	42	45	52	61	86	61	104
China, P.R.			27	28	40	42	48	69	99	111
India	56		48	56	60	66	87	101	109	115

Country	Diesel [US Cents/Litre]									
Year	1991	1992	1995	1998	2000	2002	2004	2006	2008	2010
South Africa		52	46	39	50	40	80	84	95	114
Ghana	43	45	33	30	19	23	43	84	90	83
Jordan			15	15	15	17	19	45	61	73
China, P.R.			24	25	45	37	43	61	101	104
India	23		19	21	39	41	62	75	70	82

[*] GIZ International Fuel Price Survey

[a] Status as of 2010, however very topical to assess current situation as of early 2012.

CASE STUDIES

SOUTH AFRICA

Table 2: Country profile South Africa[*]

Population (2007)	47 850 700
Area (km²)	1 219 090
GNI per capita (2007, USD)	5 720
GDP growth (2007, %)	5.12
Motor vehicles	7 603 168
Passenger cars/1000 inhabitants	108
Energy consumption road (2007, ktoe)	14 497
Total energy consumption (2007, ktoe)	134 336
Gasoline price (2006, 2008, 2010, US-Cents/l)	85, 87, 119
Diesel price (2006, 2008, 2010, US-Cents/l)	84, 95, 114

[*] IRF World Road Statistics 2009; GTZ International Fuel Prices 2009

With its very limited oil reserves, South Africa has to import around 95 % of its crude oil consumption. However, its sizeable coal deposits offer a counterweight to its huge dependence on the oil market, especially as it makes use of coal liquefaction to produce synthetic fuels using the Fischer-Tropsch process.

On the first Wednesday of every month, the Central Energy Fund (CEF) of South African sets pump prices for gasoline. This is done on behalf of the Department of Minerals and Energy (DME) by automatically calculating the prices according to a fixed pricing formula. This formula was developed and adopted in 2003 by the South African government in collaboration with the industry – the African Mineral and Energy Forum (AMEF) and the South African Petroleum Industry Association – and is designed to maintain a price structure in accordance with import parity[1]. Accordingly, fuel prices include an international and a national component. The international component is the basic fuel price formula, which includes the FOB (free on board) costs for importing a litre of fuel from foreign refineries. The FOB price for gasoline (95 octane) is based on the spot price in Italy and the spot price in Singapore – 50 % each – and diesel is calculated from the spot price in Italy and the Gulf countries together (50 % each).

The freight costs in the BFP are set in accordance with the 50:50 division for the ratio Augusta (Italy)/Singapore to the South African coast for gasoline and Augusta/Mina al-Ahmadi for diesel. The freight costs are set via a weighted average of freight rates to South African ports according to the rates published by the World Scale Association for medium-range tankers (AFRA-weighted), plus demurrage for three days and a market premium (Reeder).

Additionally, an insurance cost equal to 0.15 % of the FOB price and freight costs is levied, which further includes various related fees. For volume loss through leakage and evaporation during transport, 0.3 % of the sum of FOB price, insurance and freight costs is added. Incidental port charges are set according to the tariffs of the national port authority. Furthermore, the handling costs at coastal ports are calculated in the price formula. An additional storage cost is included in the basic fuel price (BFP) by charging an interest rate two percentage points below the discount rate of the central bank for 25 days of storage.

The resulting composite basic fuel prices are first calculated in dollar terms and then transformed into SA cents using the following SA Rand/USD exchange rate: the selling rate of four banks measured at 11:00, averaged over the pricing period before the price adjustment and a constant factor of 3.8038 litres per gallon.

Furthermore, national determinants of pump prices such as transport costs, margins for fuel trade; taxes and a specific charge enter the price formula.

Figure 3 shows the development of the formula based gasoline prices for the coastal region for the period January 2007 to November 2009. They are compared to development of crude oil prices and the Rand/USD exchange rate.

Figure 3 demonstrates how, by applying this monthly automatic formula since 2003, South Africa has been able to offset the extreme swings in the crude oil market and thus smooth the course of gasoline prices. A supporting factor was the appreciation of the Rand against the U.S. dollar by almost 25 % in 2009, which acted as a shock

[1] SASOL, How Fuel Prices Are Calculated in South Africa, Sasol working paper 2007

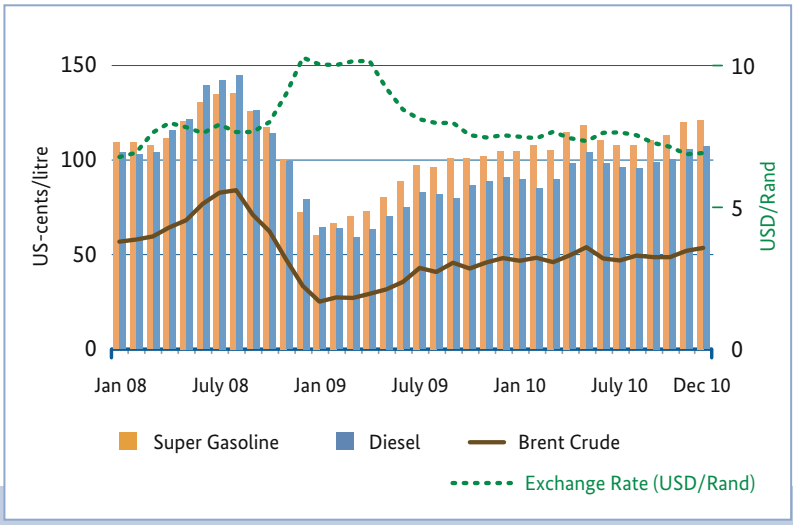


Figure 3: *Trend of crude oil price, exchange rate of USD/Rand and gasoline/diesel prices in South Africa (January 2008 – December 2010)*

Source: Own calculation according to www.energy.gov.za/files/petroleum_frame.html, 28 July 2011

absorber and helped dampen the effect of the extreme crude prices on domestic pump prices.[2]

A very important factor in the success of the formula-based pricing policy for petroleum products in South Africa has been and remains the high level of transparency with which the determinants and changes in product prices are disclosed to all economic agents. All interested parties can acquire extensive information from the website of the Department of Mineral and Energy.[3] In addition, a detailed press service at the Department of Energy provides monthly updates on the product pricing policy, including the following information:

1. Timing and magnitude of price adjustments for gasoline, diesel and other products;
2. Economic factors that lead to changes in the base price during the reference period (*e.g.* crude oil price, exchange rate);
3. Maximum price of illuminating paraffin;
4. Maximum price of LPGAS (from refinery);
5. Detailed description of adjustments in product prices;
6. Breakdown of price adjustments to individual components of the formula;
7. Reference to the possibility of requesting access to an independent auditor's report;
8. Analysis of the elements that determine price changes (International product prices, exchange rates);
9. An appendix providing information on the composition of the new gas pump and wholesale prices for the different gasoline grades – diesel and paraffin – according to the individual components of the pricing formula as well as a monthly time series data of the prices of these products over the previous two years.

Finally, the automatic pricing formula assists in stabilising the market by raising the price awareness of buyers and sellers of petroleum products and increases the signal function of prices for the efficient use of scarce natural resources.

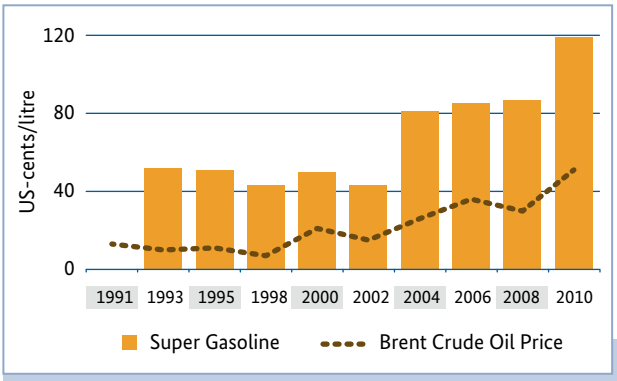


Figure 4: *Detailed time serie of fuel prices (Super Gasoline) in South Africa (1991 – 2010).*

Source: GIZ International Fuel Price Survey

[2] www.southafrica.info, Fuel Price Hike Likely in February, 22 January, 2010

[3] www.energy.gov.za/files/petroleum_frame.html

GHANA

Table 3: Country profile Ghana[*]

Population (2007)	23 461 523
Area (km²)	238 540
GNI per capita (2007, USD)	590
GDP growth (2007, %)	6 30
Motor vehicles	773 262
Passenger cars/1000 inhabitants	12
Energy consumption road (2007, ktoe)	1 199
Total energy consumption (2007, ktoe)	9 502
Gasoline price (2006, 2008, 2010, US-Cents/l)	86, 90, 82
Diesel price (2006, 2008, 2010, US-Cents/l)	84, 90, 83

[*] IRF World Road Statistics 2009; GTZ International Fuel Prices 2009

Mineral oils cover about 30 % of Ghana's energy consumption and are used to 80 % in the transport sector, with half of the total consumed in the form of diesel, 32 % in the form of gasoline and 10 % as kerosene. To date, Ghana is completely dependent on imports and imports most of its crude oil from Nigeria, which is then processed in Ghana's state Tema Oil Refinery (TOR). Diesel and premium gasoline are also imported from Europe.

Gasoline prices in Ghana according to GIZ statistics rose from USD 0.20 per litre in the year 2000, to over 0.49 in 2004, to 0.90 in November 2008. Diesel prices increased in similar fashion from USD 0.19 to 0.90 over the period. This stark increase can be attributed – in addition to the oil price rally – to the fundamental market reform of the downstream industry, which adopted a gradual phase out of fuel price subsidies, supported by the establishment of a formula-based pricing mechanism. These fuel subsidies, which had increased during the first years of the new century to reach 2 % of the GDP, were to be finally dried out as a source of fiscal deficits.

Initial attempts at deregulating the petroleum sector began in 1996 but it was not until 2001 that the process of formulating and preparing for the application of an automatic adjustment formula for the prices of petroleum products was completed. Accordingly, the National Petroleum Tender Board (NPTB) was established with the aim of regulating the products prices based on a formula[4]. However, *Coady and Newhouse* date the beginning of the first price adjustment following the formula to the beginning of 2003 when pump prices increased by an average of 90 % (in Ghanaian Cedis). They claim, however, that the government had already abandoned the automatic pricing mechanism in the spring of 2004 in order to shield the population from the heavy additional burden of rising world prices. However, in February 2005 the government was ultimately able to sustainably commit itself to the pricing formula by accompanying the introduction with several reform measures including a comprehensive compensation programme and social policy reform measures. To this end the NPTB was transformed into the National Petroleum Authority (NPA), which was tasked with the implementation of the new pricing system as well as administering the market liberalisation of the domestic petroleum industry [5].

The legal basis for the reform of the petroleum sector was the National Petroleum Authority Act passed by parliament on 14 June 2005. It also forms an important part of the poverty-reduction and growth facility programme (PRGF) supported by the International Monetary Fund (IMF). Before implementing the reform, the Government of Ghana asked the IMF to assess the impact of further increases in fuel prices – particularly on the incomes of the poor – and to recommend further compensatory fiscal measures. The rationale behind these compensatory measures was that the regressive impact of further price hikes would render the reform politically unfeasible if the poor were not offered relief elsewhere. A PSIA working group from the IMF, in close collaboration with the Ghanaian authorities, therefore developed an *ex ante* evaluation model that quantifies the likely effects of price reform on the real income of various household groups and of hypothetical compensation measures[6].

Since the application of this flexible formula-based mechanism, the (maximum) pump prices, including taxes and fees, have been linked to world market prices. To calculate

[4] Adam, M. A., Petroleum Products Pricing in Ghana – Economics or Politics?, p. 1

[5] Coady, D., El-Said, M., Gillingham, R., Kpodar, K., Medas, P., Newhouse, D., The Magnitude and Distribution of Fuel Subsidies: Evidence from Bolivia, Ghana, Jordan, Mali and Sri Lanka, IMF Working Paper WP/06/247, November 2006, p. 11f

[6] Coady, D., Newhouse, D., Ghana – Evaluating the Fiscal and Social Costs of Increases in Domestic Fuel Prices, in: Poverty & Social Impact Analysis of Reforms, p. 387–413

the sales prices at petrol stations the NPA uses the following four formulae[7]:

1. Pump price = Ex-refinery price + taxes/levies + margin;
2. Ex-refinery price = CIF + associated fees;
3. CIF = cost of crude oil (FOB) + insurance + freight;
4. Related fee = cost + transit losses + inspection + L/C costs + financing costs + storage costs + production losses + rack loading costs + operation margin.

The FOB prices for crude oil are determined according to the average of the prices listed in Platt's price reporting Oligram in the previous three months (*Coady and Newhouse*).

By calculating the ex-refinery prices in accordance with the formula, changes to world market prices and/or the exchange rate can be included. The selling prices can consequently be adjusted if there is:

1. An average monthly change of the FOB price of +/- 5 USD per metric tonne; or
2. An average monthly change in the exchange rate of +/- 50 Cedis/USD; or
3. When the combined effect of both changes requires an adjustment greater than 10 Cedis per litre compared to the existing ex-refinery prices.

In addition to these external components, a number of domestic factors are included: an import margin (transport costs from the port to Tema) amounting to 13.8 % of the CIF import price, a 15 % *ad valorem* excise duty on the CIF price, a contribution to the deficit reduction levy, a road fund levy, an energy fund levy, a tax levy and an extra levy to cross-subsidise LPG and kerosene. Domestic distribution margins include transportation and storage costs, a primary distribution margin, a trader margin and a marketing margin. Furthermore, a country-wide margin is levied to align gas pumps prices across the country. Ultimately, import price parity and crude oil prices are the basic determinants of the ex-refinery price, which in mid-2006 constituted only 57 % of pump prices. The remaining 43 % included taxes and duties, which could be influenced by the government at times of high oil price volatility.

Based on the aforementioned formula, *Coady and Newhouse* have estimated the prices of petroleum products in Ghana assuming the formula was already applied and compared it with the subsidised selling prices for early 2005. They observed that the prevailing pump prices would have to increase by 17 % for gasoline, 48 % for kerosene, 67 % for diesel, 50 % for fuel oil and 108 % for LPG in order to reach world market levels and end price subsidies. In mid-February the government raised fuel prices by an average of 50 % and announced the regular future use of the pricing formula for adjustments. In May 2005, the NPA was delegated the task of permanently implementing the new pricing policy. The government, the oil trade industry, trade unions and NGOs as well as the Ghanaian industry association are all represented within the NPA.

Decisive for the political feasibility of the price reform were the accompanying measures taken based on the IMF impact assessment. This estimation of the different income effects resulting from the elimination of the fuel price subsidies revealed that they would lead to a decline in the real income of the poorest households amounting to 9.1 %. The budget for the financial year 2005 therefore included a number of programmes to compensate for those losses. It included the abolition of school fees, the extension of a rural electrification programme, the expansion of an ongoing health programme and investment in the transport sector. The entire programme took up 0.35 % of GDP. These measures were to be financed through a compensation levy (Social Impact Mitigating Levy), which was included in the pricing formula.

In a further development of the pricing mechanism, the Ghanaian minister of Energy announced in June 2006 its decision to shorten the period considered for the FOB prices from the previous three months.

During the price rally on the international oil market Ghana's spending on the same amount of imported crude oil rose from USD 500 million in 2005 to USD 2.1 billion in late 2007. As crude oil prices further soared in 2008, the government abolished the consumer tax and the levy to cover the deficit for premix gasoline and reduced them for kerosene and marine gas. Then in early 2009, the newly elected government implemented further tax cuts to alleviate hardships from rising crude oil prices[8].

The rate of excise duty therefore decreased for premium gasoline from 7.18 to 2.78 and for diesel from 6.20 to 1.80 Ghanaian pesewas. In addition, the Social Impact Mitigating Levy on the gasoline price was suspended.

However, in order to understand these measures it should be noted that Ghana's 2008 election campaign took place against the backdrop of extremely high oil prices, and

[7] Adam, M. A., Petroleum Products Pricing..., p. 1

[8] Adam, M.A., Petroleum Products Pricing in Ghana, p. 2

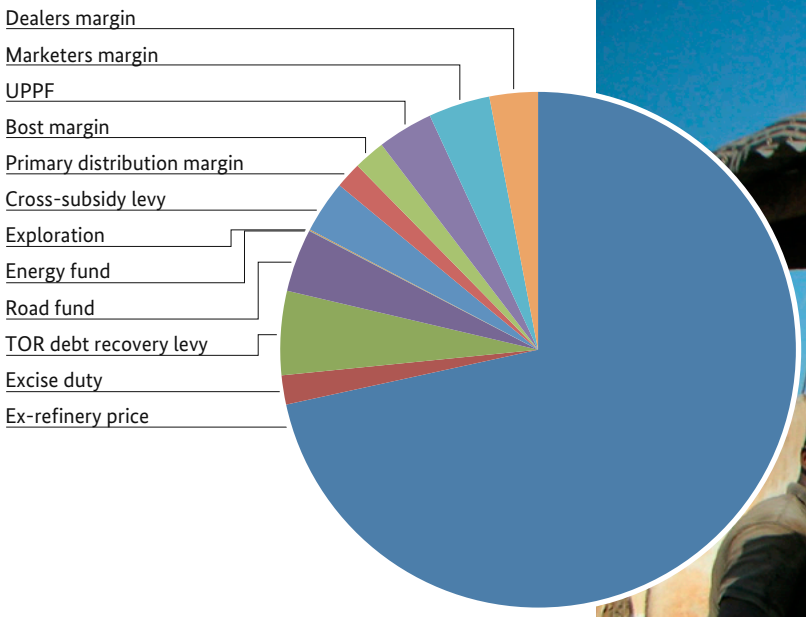


Figure 5: *Fuel taxes and margins on premium in Ghana (February 2011).*

Source: www.npa.gov.gh/npa_new/downloads/statistics/PUBLIC_February1_2011_EXPORT_AOMC.xlsx

therefore that fuel prices played a major role in the election campaign. This led the then acting government to freeze gasoline prices starting from May until November 2008 at a cost of around USD 168 million.

The NPA as well as many economists are currently considering how to further develop the pricing formula.

It is therefore evident that fuel prices and oil supply remain high on the Ghanaian political agenda in spite of (but perhaps also because of) formula-based pricing. This was heightened due to the fact that the country has been so far completely reliant on imports of petroleum. This is set to change with the recent discovery and production of oil in the Jubilee field with expected reserves of up to 1.8 billion barrels.[9]

Finally, it is noteworthy that despite the oil and food price rally and global economic crisis, both the old and new governments remain generally on course to end fuel subsidies.

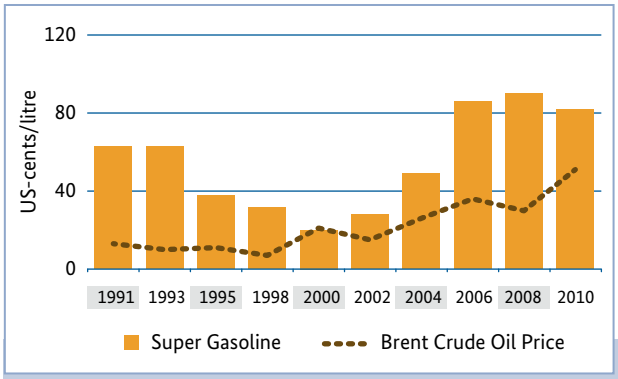


Figure 6: *Detailed time serie of fuel prices (Super Gasoline) in Ghana (1991-2008).*

Source: GIZ International Fuel Price Survey

[9] The Sunday Times, 29 November 2009, BP Battles Exxon Mobil over Ghana Oilfield

JORDAN

Table 4: Country profile Jordan[*]

Population (2007)	5 718 855
Area (km²)	88 780
GNI per capita (2007, USD)	2 840
GDP growth (2007, %)	5 96
Motor vehicles	784 723
Passenger cars/1000 inhabitants	94
Energy consumption road (2007, ktoe)	1 687
Total energy consumption (2007, ktoe)	7 200
Gasoline price (2006, 2008, 2010, US-Cents/l)	86, 61, 104
Diesel price (2006, 2008, 2010, US-Cents/l)	45, 61, 73

[*] IRF World Road Statistics 2009; GTZ International Fuel Prices 2009

The Kingdom of Jordan is wholly dependent on imports for its domestic oil consumption. After the 1991 Gulf War and the impartiality policy of the then King Hussein, for years Jordan obtained its oil almost exclusively from Iraq; half as a gift and the second half supplied at special rates or in exchange for Jordanian goods. This oil was transported to Jordan through a "rolling pipeline" involving the constant movement of over 8 000 tankers between Iraq and the Jordanian refinery in El Hashimiya[10]. This cheaply sourced oil was then subject to high sales taxes.

Following the outbreak of the Iraq war, Jordan was forced to import oil at higher prices from other neighbouring countries. Fuel prices were administratively set by the government and had to be subsidised in order to avoid an abrupt hike in prices to the level of the world market. When special concessions with neighbouring countries ended, the government announced its intention to reduce fuel subsidies gradually over the next four years and to switch to a formula-based pricing mechanism. As in Ghana, this new pricing policy was embedded in a broader strategy to liberalise the markets for oil products including the following measures[11]:

- The administratively set fuel prices are to be gradually increased to world market levels. For socio-political reasons, heating oil, kerosene and LPG were to be the last products to reach international levels;
- The establishment of an automatic mechanism for adjusting domestic fuel prices in accordance with the development of international market prices; and
- Liberalising the markets for oil products, terminating concession licenses with the refinery and the liberalisation of fuel imports and the domestic fuel trade.

The original plan was to increase prices once a year and reduce subsidies until the complete market liberalisation in 2007. This plan, though, had to be abandoned by 2005 when rising crude oil prices led to two price increases. Had it not been for those price increases, the budget deficit might have exceeded USD 1 billion[12].

To mitigate the negative effects of the price increases on households, the government decided simultaneously to make a one-time payment of 50 dinars to all state employees, retirees and military dependents who earn less than 400 dinars a month. Moreover, it was announced that the social safety net would be strengthened as a compensatory measure. At the same Prime Minister Adnan Badran reiterated that the only way out of the dilemma of rising fuel costs for the country was a continuation of the subsidies pending the complete liberalisation of the energy markets. However, due to the ever-increasing crude oil prices, two price changes a year would be necessary.

Despite the price hikes at the pump, the subsidy bill continued to increase. As prices continued to increase rapidly in 2007, state finances became increasingly strained. In August that year, Finance Minister Ziad Fariz resigned from the government, because his ministerial colleagues refused to completely end gasoline subsidies. This should have been the last step of the phased plan to liberalise energy prices coordinated with the IMF. However, owing to strong parliamentary opposition and the fear of social instability, the government decided to abandon the plan.

Nevertheless, the minister's successor – ¬according to an analysis by Middle East Intelligence – had no choice but to continue phasing out the subsidies[13] and his plan to do

[10] „In Jordaniens Lebensader fließt Öl aus dem Irak", Handelsblatt 6 March 2003

[11] Coady, D. *et al.*, The Magnitude and Distribution of Fuel Subsidies:, IMF Working Paper WP/06/247, p. 12; Baig, T. *et al.*, Domestic Petroleum Product Prices and Subsidies: Recent Developments and Reform Strategies, IMF Working Paper WP/07/71, p. 12

[12] Ghazal, Mohamed, Jordan Increases fuel Prices, Jordan Times, 21 September 2005

[13] Hadfield, W., Petrol Subsidies Do Not Work in Jordan, in Middle East Intelligence, 30 November 2007

so in early 2008 was supported by the new Prime Minister Nader Dahabi. Continuing the subsidy would have cost the state budget almost USD 1 billion and taken up 13.5 % of that budget. In January 2008, the newly elected parliament therefore announced the end of fuel price subsidies. In February, the government raised fuel prices by up to 75 % and diesel prices by 33 %.[14]

In order to alleviate the burden of the price increases on the general population, the government announced compensatory wage adjustments backdated to 1st January. These wage adjustments included the civil service, military and retirees as well as direct financial transfers to low-income employees in the private sector. Salaries in the public service thus increased by USD 63–70 a month and by USD 150–220 for families with annual incomes below USD 1 000 (note: the minimum wage is USD 155 per month for a full-time job). Those wage increases were supposed to benefit around 60 % of Jordanians. The cost of those compensatory measures were estimated at USD 423 million, which compared to the fuel price subsidies costs avoided of USD 987 million, resulted in net budgetary savings of USD 565 million.

Despite the compensatory measures that amounted to 3.5 % of GDP according to the IMF, protests against the reform were inevitable, largely due to the fact that many prices in Jordan are fixed by the government. Citizens therefore blame the government for increasing prices, regardless of the constraints imposed by international oil markets. In order for the public to accept price changes in individual markets, market based pricing has to be more broadly anchored in the economy. This lack of experience often leads to protests against price rises, such as those Jordan experienced in April 1989, when unrest caused by price increases resulted in 12 deaths.

The IMF, on the other hand, welcomed the phasing out of fuel subsidies as a bold but necessary step to further Jordan's economic development. After the first price increases, estimated to average 43 %, a mechanism was required to make monthly adjustments to fuel prices in the future, in order to prevent further risks to the state budget from international oil price fluctuations. To implement the monthly price adjustments a government committee was formed including representatives from the Ministry of Finance, the Ministry of Energy and the Jordan Petroleum Refinery Company. The committee meets monthly and adjusts fuel prices according to the development of international oil prices in the last 30 days. The new pump prices are then publicised through the Petra news agency.

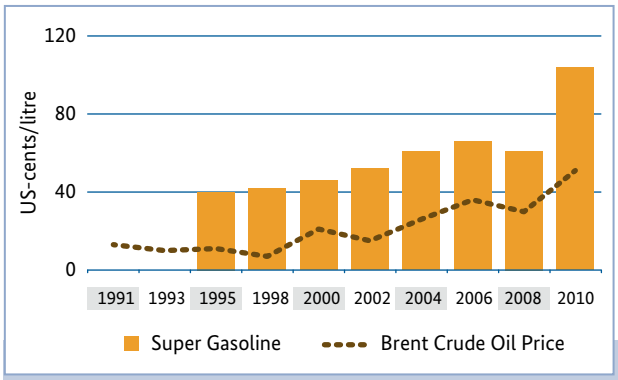


Figure 7: *Detailed time serie of fuel prices (Super Gasoline) in Jordan (1991 – 2010).*
Source: GIZ International Fuel Price Survey

Despite the overall positive picture, citizens have been complaining about speculative behaviour. Gas station operators have been observed to withhold diesel and heating fuel while speculating on a price increase. Hence, in order to further develop the petroleum product market and continue the shift towards a competitive pricing policy, certain improvements must be made to the information policy. Price adjustments have hitherto mainly been announced by the news agency Petra[15]. This should be amended with the publication of price and market relevant time series data, as well as explanations accompanying the price adjustments. Those would be building blocks towards the greater transparency and trust that form the basis of sustained market development.

Overall, observation of the monthly price adjustments in 2009 and the current situation reveals how Jordan has been able to shift successfully to an automatic pricing mechanism during a very turbulent period in the oil market.

[14] Global Subsidies Initiative GSI, Jordan and Syria rethink fuel subsidies as crude prices continue to soar; AFP, Fuel Prices Skyrocket as Jordan Cuts Subsidies, 9 February 2008; Suleiman al-Kalidi (Reuters), Jordan Announces Steep Fuel Price Rises, 8 February 2008

[15] http://petra.gov.jo

PR CHINA

Table 5: Country profile China[*]

Population (2007)	1 319 980 000
Area (km²)	9 598 088
GNI per capita (2007, USD)	2 370
GDP growth (2007, %)	13.0
Motor vehicles	42 500 499
Passenger cars/1000 inhabitants	22
Energy consumption road (2007, ktoe)	94 635
Total energy consumption (2007, ktoe)	1 955 765
Gasoline price (2006, 2008, 2010, US-Cents/l)	69, 99, 111
Diesel price (2006, 2008, 2010, US-Cents/l)	61, 101, 104

[*] IRF World Road Statistics 2009; GTZ International Fuel Prices 2009

For some time PR China subsidised and administratively set fuel prices. Only recently, in December 2008 did the country begin to apply a formula-based approach to pricing designed to synchronise domestic and international fuel prices. However, this mechanism has not been applied consistently and regionally different pricing strategies have been pursued: for instance in the south product prices are less strongly aligned to global prices compared to the rest of China. The government has also tried to mitigate the negative effect of high diesel prices on inflation, agriculture and industry by increasing prices at a rate disproportionate and inferior to international price increases. Hitherto, the main objective of China's petroleum product pricing has been to keep the inflation rate low. However, this policy has led in the past to high deficits and inefficiency in the Chinese petroleum industry, particularly in refineries. Supply shortages and fuel hoarding are not uncommon.[16]

For some time China's practice of heavily subsidising fuel prices was the subject of international criticism. This practice was blamed by the IEA for contributing to the price rally in international oil markets at the time. It was not until December 2008 that China finally decided to move officially from an *ad hoc* pricing strategy to regular formula-based price adjustments. The timing was well chosen as oil markets had calmed down following the year's peak. Ever since, the National Development and Reform Commission (NDRC) has calculated and set fuel prices each month and announced then that under the new pricing strategy fuel prices will be linked to the international oil markets. Whereas older government statements had indicated that prices would be geared to a basket of gasoline and diesel prices in Rotterdam, New York and Singapore, they ultimately adopted a formula based on a basket of crude oil prices from Dubai, the North Sea Brent and the Indonesian Cinta.

A more detailed explanation of the new pricing formula can be found on China's Energy Intelligence and Information website[17]. In order to determine the ex-refinery (max.) prices for gasoline and diesel, the NDRC uses average values of Platts FOB price series for the three underlying base values in addition to the extrapolated CFR costs of crude oil and the handling costs in Chinese ports. According to the government, the three crude oil prices are then weighted equally. Furthermore, average production costs for refining amounting to 200 Yuan/mt (USD 3.98 per barrel) are included in the formula, plus a 5 % margin of the sum of crude oil prices and processing costs, in addition to CNY 110/mt (USD 1.61/mt) to cover the costs of crude oil transportation to domestic refineries. The sum of these four components forms the base costs of the refineries for petroleum products. Added to that is a excise tax of CNY 940/mt (USD 18.47/b) for diesel and CNY 1 350/mt (USD 22.98/b) plus a 17 % VAT on the total amount.

In principle, petroleum product prices are supposed to be adjusted when the average CFR of crude oil prices from Dubai, Brent and Cinta changes from the recently calculated and currently used weighted crude oil prices during a calculation period of at least 22 consecutive working days by more or less than 4 %. The NDRC, however, is not obliged to adhere automatically to the pricing formula. If there are social, political or economic arguments for stabilising consumer prices, product prices might remain unaltered or change in a direction contrary to the formula – as has been the case on more than one occasion.

Also noteworthy is the manner in which the NDRC prepared the public for rising fuel prices: They conducted price comparisons between PR China, the United States and Europe and stressed China's limited crude oil reserves and the growing dependence of the People's Republic on oil imports. "If the China's per capita consumption were to

[16] Asian Development Bank Outlook 2005 Update, p. 78

[17] www.energyforumchina.com, 27 March 2009, Cinta Replaces Minas in China's Product Pricing Formula

rise to the American level, the whole world supply would be insufficient to cover the Chinese demand". Thus, China must adapt to the realities of the global oil market. It was further stressed that although government intervention is still currently required to ensure steady growth, the long term policy is to gradually liberalise fuel prices and subject them to the forces of supply and demand.

In 2009, the NDRC was also considering the establishment of a compensation fund to stabilise fuel prices: during low oil prices the refineries would pay into the fund, which would consequently support them when oil prices were too high, in order to avoid changing fuel prices too often.[18] This must be seen as a step backwards as it would decouple Chinese fuel prices from developments on the international market.

Shifting to a formula-based pricing mechanism is the first step in tackling the sizeable challenge facing Chinese authorities. This becomes more apparent when one looks at Chinese oil demand and its growth projections. China is already the second largest energy consumer in the world and according to IEA calculations; its demand will increase in 2010 by 4.0 % to reach 8.4 mb/day. China currently accounts for 9.8 % of world demand and 46 % of Asian oil demand. The main driver of the surge in gasoline consumption is the rapid increase in motorisation; in September 2009 alone, 5.8 million new cars took to the streets. China is already on its way to overcoming the U.S. as the world's largest car market, and so far, only 2 % of Chinese households own a car.[19]

The next challenge facing Chinese authorities is how to prevent pro-cyclical demand and the speculative buying that appeared with the implementation of the price formula. The state-owned oil company SINOPEC allegedly already tried to convince the NDRC of the need to change the pricing formula, because it is too transparent and the prices it determines can be easily forecast. The NDRC faces this criticism from producers on the one hand, while on the other, consumers are suspicious of the pricing formula. If it is to build trust in the formula and its implementation, the NDRC should disclose all components of the formula, as well as establishing a transparent statistical data base with the time series data on product prices, their sales volumes, stocks and characteristics of the entire petroleum industry (upstream and downstream).

[18] Chen, E., China Considers Fuel Price Stabilising Fund-Sources, Reuters 13 February 2009

[19] See International Energy Agency, Oil Market Report 2009, p. 12

Table 6: PR China and India – leader in worldwide energy demand growth – 93 % share of growth until 2030 outside of OECD[*]

	China	India
Growth in energy demand (to 2035)	75 %	50 %
Contribution to projected growth in global energy use (to 2035)	36 %	18 %

[*] www.iea.org/Textbase/npsum/weo2010sum.pdf

China must fulfil its international responsibilities as a major consumer and integrate more deeply in the global world oil market. This would protect the Chinese economy from volatility and at the same time prevent it from being the source of new volatility in the global oil market. The introduction of the formula-based pricing mechanism in late 2008 must be seen as an important step in this direction.[20] Transparency and predictability in terms of the objectives of the pricing strategy and its development are especially important for investors in the petroleum, transportation and automotive industry, which in turn contribute to cost and energy efficiency[21].

Last but not least, further development of the formula-based pricing mechanism is significant far beyond China's borders. The governments of other Asian countries such as India, Bangladesh and Indonesia are also in various stages of planning the move from an *ad hoc* to a formula-based pricing system. These countries are all monitoring China's experience and course of action very closely.

[20] International Energy Agency, Oil Market Report 2009, S. 13

[21] On the relevance of these factors for sustainably eliminating subsidies see Victor, D., The politics of Fossil-Fuel Subsidies, Their Impacts and the Path To Reform, International Institute for Sustainable Development, Geneva 2009, S. 26f

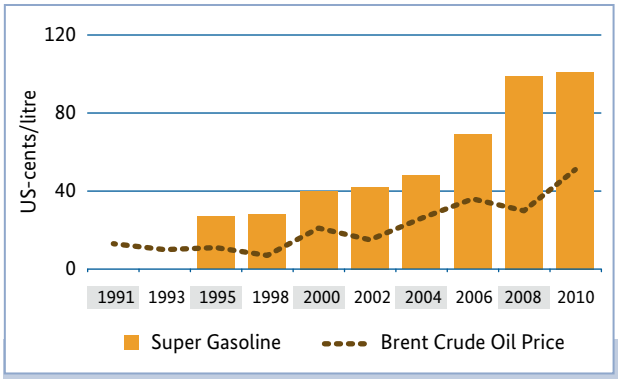


Figure 8: *Detailed time serie of fuel prices (Super Gasoline) in China (1991–2010).*

Source: GIZ International Fuel Price Survey

India

Table 7: Country profile India[*]

Population (2007)	1 123 320 000
Area (km²)	3 287 260
GNI per capita (2007, USD)	950
GDP growth (2007, %)	9.06
Motor vehicles	16 954 000
Passenger cars/1000 inhabitants	10
Energy consumption road (2007, ktoe)	37 003 900
Total energy consumption (2007, ktoe)	594 13 215
Gasoline price (2006, 2008, 2010, US-Cents/l)	101, 109, 115
Diesel price (2006, 2008, 2010, US-Cents/l)	70, 75, 82

[*] IRF World Road Statistics 2009; GTZ International Fuel Prices 2009

India currently consumes about 5 % of the world's crude oil production and imports around 70 % of its consumption – a ratio soon likely to reach 80 %. The growth in petrol consumption is partly driven by rapidly increasing motorisation. The IEA estimated consumption increased by 3.8 % and 3.3 % in 2009 and 2010 respectively[22].

Petroleum products in India continue to be subsidised by the government and prices fluctuate in an *ad hoc* manner, even though a pricing formula has been implemented sporadically since 2002. The most heavily subsidised products are kerosene and LPG, used mainly by the rural population for cooking. Whereas their selling prices remained virtually unchanged since 2004, gasoline and diesel prices have increased significantly.

Although several commissions set up to make suggestions on petroleum product pricing strategy recommended shifting to a formula-based approach, between 2006 and 2008, none of the recommendations was followed.[23] However, with the oil price rally in the first half of 2008, India's state oil companies came to the brink of bankruptcy and major foreign suppliers withdrew from the Indian market. That is when the Indian government finally raised the prices of petroleum products in June 2008: gasoline by 11 % and diesel by 9.5 %. The government estimates that without the price increases the state oil companies would have suffered a loss of USD 16 billion[24] in the current fiscal year. This highest price increase in 12 years was however not without its problems, triggering major protests in the country.

Nevertheless, by the end of 2008, the Indian cabinet had already agreed in principle to deregulate the pricing of petrol and diesel. However, in view of the forthcoming parliamentary elections, no action was taken and the decision was therefore again postponed[25]. However, with the stronger mandate earned by the Congress party in the April 2009 parliamentary elections, plans for deregulation continued. With the 2009/2010 budget the Finance Minister announced the formation of a new commission – the third in recent history – in order to propose a lasting and sustainable system of petroleum product pricing.

The commission sought external advice from the IMF and the World Bank and most of its members concluded that it would be best to liberalise the prices of all petroleum products in the long term and to directly subsidise the poor using smart cards for distribution. But for pragmatic reasons, the Commission decided only to liberalise gasoline prices and keep diesel and kerosene under government control due to their high impact on poor households. Under this approach, gasoline prices would be immediately floated and diesel price could be freely set by the oil companies as long as the price of crude remains below USD 90/b. If it exceeds this limit, the government reserves the right to intervene in order to limit the inflationary effects of higher diesel prices. Under this scenario, kerosene and cooking gas subsidies would be addressed at a later stage.[26] The final recommendations of the committee can be summed up as follows[27]:

- An appropriate long-term strategy for oil products must be functional even with high fluctuations in international oil prices and must limit the financial burden on the state while keeping the domestic oil industry healthy and productive.

[22] IEA, Oil Market Report 2009, p. 15

[23] Government of India, Report of the Expert Group on a Viable and Sustainable System of Pricing of Petroleum Products, New Delhi, 2 February 2010, part 2.9.

[24] http://news.bbc.co.uk/go/pr/fr/-/2/hi/business/5049398.stm, India Increases Price of Petrol

[25] Jayaswal, R., Waste of Fuel Subsidies Amounts To More Than Rs 1-lakh cr, The Economic Times, 8 December 2009

[26] Jayaswal, R., Waste of Fuel Subsidies Amounts to More Than Rs 1-lakh cr, in: The Economic Times, 8 December 2009

[27] Government of India, Report of the Expert Group..., part V: Summary of Recommendations

- Gasoline prices from refinery to pump should in the future be solely determined by market forces and competition and promptly floated.
- It also recommends an early transition to market prices for diesel. An analysis of the various consumer groups found no compelling reason for subsidies. Since diesel is the backbone of public transportation and freight transport, a low-cost public transportation system in the rapidly growing mega-cities was deemed a high priority.[28]
- For kerosene and LPG a phased deregulation of prices is recommended, by first adopting a formula-oriented pricing strategy based on import parity.
- The accompanying competition policy reforms are highlighted as an essential part of the overall reform. This includes amongst other things facilitating competition between private and public companies in the oil and gas sector and putting transparent rules in place.

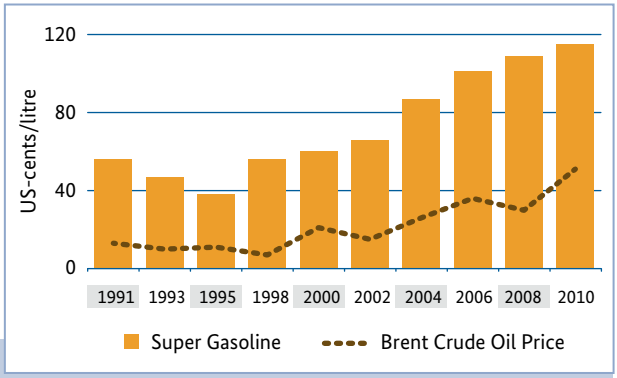


Figure 9: *Detailed time series of fuel prices (Super Gasoline) in India (1991–2010).*

Source: GTZ, International Fuel Prices 2009, p. 36

Summary and outlook: Ten-point plan for reform process

The above description and analysis of the experience of five developing and emerging countries with formula-based pricing mechanisms during the most difficult phase of the oil price rally and the financial and economic crisis brings to light significant differences but also similarities in the success factors or otherwise of reform. It also supports GIZ reasoning regarding the pass-through of international crude oil prices under different pricing mechanisms on to the national markets for petroleum products[29]:

- Full pass-through of international crude oil prices sends correct market signals to the national markets and the consumers, fiscal measures are not required, market volatility is fully passed on to the private sector and might strain consumers.
- Partial pass-through of international oil prices under formula-based pricing mechanisms can shield the private sector from excessive volatility, which might come at a fiscal cost for the government or (state) oil companies. Such measures are suitable for mitigating temporary price shocks.
- The political cost of regular fuel price adjustments must be weighed against the political costs of sharp price increases and the burden consumers must bear.
- The transition from an *ad hoc* pricing strategy of fuel prices to a formula-based automatic pricing mechanism is politically costly and laborious (*e.g.* due to fiscal compensation measures).

The following points sum up the commonalities of successful reforms and thus offer recommendations for an efficient and sustainable reform strategy[30]:

1. Reducing the amount of subsidies via a formula-based pricing mechanism is not an end in itself. Moreover, it is politically costly, but worthwhile: the money saved can be used to reduce fiscal deficits and the limited resources available can be employed more efficiently to support poorer population groups.
2. The deregulation of fuel prices is highly political and can trigger strong opposition from affected businesses and consumers. The economic gains from reducing subsidies and price reform should therefore be accurately quantified and placed as the operational goal in the centre of an accompanying media campaign.
3. The core of any successful price reform is comprehensive transparency at all levels. It begins with decision-makers revealing their motives, disclosing the effects and undesirable future consequences of existing subsidies and pricing mechanisms, and extends to the permanent establishment of a detailed price and market information system.
   a. Information on fuel prices is made easily accessible to the public;

[28] Hari, V., India Eyes Fuel..., The Barrel, 14 July 2009

[29] *cf.* Wagner, A., Fuel Pricing Mechanisms, Presentation, August 2008

[30] Similar recommendation: The Global Subsidies Initiative, Building Fossil-Fuel Subsidy Reform: Have We Got All The Blocks?, in PolicyBrief COP 15 Special Edition, Geneva December 2009

   b. Information on the structure of the price including all tax rates, levies and margins is published;
   c. Information on the underlying pricing formulas is provided.
4. Price reform requires a sustained communication strategy employing print and electronic media in the country.
5. If possible, all affected groups should be consulted from the outset of the reform process to enhance its approval.
6. A social reform programme to compensate the poor for income losses should accompany price reforms.
7. Price reforms should also be accompanied by a social policy-supporting programme to compensate poorer population groups for their loss of income.
8. The price reform should be enshrined in law.
9. Elimination of subsidies and the price reform should be conducted according to a time-phased plan, which makes the benefits gradually clear. The formula-based approach should always be viewed as a transitory stage of a reform process culminating in the establishment of a functioning competitive market of petroleum products with a complete deregulation of fuel prices.
10. Scientific studies and monitoring should accompany all levels of the reform to avoid unforeseen and unintended consequences and recommend necessary corrections.

An intensification in the exchange of knowledge and views at international level would be very beneficial in accelerating the progress in reforming fuel-pricing mechanisms in developing countries.

Despite the research into the fiscal and political effects and the real income repercussions resulting from a pricing reform, little information and few estimates are available on the achievable energy savings and the effects on the environment. Equally desirable are more findings on the role played by the structure of the transport sector, where fuel price changes are immediately felt. It is therefore essential to ask whether attractive mobility solutions for goods and people are available, that are internally and externally cost-efficient and facilitate the switch to energy-efficient transport modes. More research should therefore be conducted into the effects of different pricing mechanisms on the transport sector in order to support decision-makers in developing policies and legislation.

References

- **Adam, M. A.,** Petroleum Products Pricing in Ghana – Economics or Politics? www.sugod.com/viewtopic.php?f=55&t=121, Centre for Economics and Policy (CEEP), Ghana, November 2009
- **AFP,** Indian States Strike Against Fuel Price Hike, 4 June 2008
- **African Union/African Development Bank,** Quantifying The Impact Of High Oil Prices On African Economies, Addis Ababa 2006
- **Asian Development Bank,** Asian Development Bank Outlook 2005 Update
- **Baig, T., Mati, A., Coady, D., Ntamatungiro, J.,** Domestic Petroleum Product Prices and Subsidies: Recent Developments and Reform Strategies, IMF Working Paper WP 07/71, March 2007
- **Bedi, R.,** India Increases Fuel Price as Oil Cost Soars, Daily Telegraph, 4 June 2008;
- **Blakely, R.,** India Hit by Protests Over Fuel Price Rises, The Times, 7 June. 2008.
- **Bloomberg News,** Sinopec, PetroChina Gain on China Fuel Price Increase (Update 1), 10 November 2009
- **Bouakez, H., Rebel, N., Vencatachellum, D.,** Optimal Pass-Through of Oil Prices in an Economy with Nominal Rigidities, Centre Interuniversitaire sur le Risque, les Politiques Économiques et l'Emploi, CIRPÈE Working Paper 08-31 Montreal 2008
- **Chen, E.,** China Considers Fuel Price Stabilising Fund-Sources, Reuters 13 February 2009
- **Chen, E., Miles, T.,** China Major Fuel Stocks up 5.3 % in November, Reuters, 10 December 2009
- **Coady, D., El-Said, M., Gillingham, R., Kpodar, K., Medas, P., Newhouse, D.,** The Magnitude and Distribution of Fuel Subsidies: Evidence from Bolivia, Ghana, Jordan, Mali and Sri Lanka, IMF Working Paper WP/06/247, Washington 2006
- **Coady, D., Newhouse, D.,** Ghana – Evaluating the Fiscal and Social Costs of Increases in Domestic Fuel Prices, in: Poverty & Social Impact Analysis of Reforms, S. 387-413 Washington 2006.
- **D'Arcy Doran,** China Hikes Fuel Prices Again as Cost of Crude Rises, AFP 1 July 2009
- **Ernst & Young,** Deutschlands Gewicht an den Weltbörsen nimmt weiter ab, Press release 7 January 2010

- **F.A.Z.,** Der schwarze Schatz aus der Tiefsee, Frankfurter Allgemeine Zeitung, 2 February 2009, S. 22.
- **FAZ,** Ölpreis: Im Bann der Investoren, Frankfurter Allgemeine Zeitung, 11 December 2009
- **Ghazal, Mohamed,** Jordan Increases Fuel Prices, Jordan Times, 21 September 2005
- **Global Subsidies Initiative GSI,** Jordan and Syria Rethink Fuel Subsidies as Crude Prices Continue to Soar, www.globalsubsidies.org/en/subsidy-watch/news, 2008
- **Government of India,** Report of the Expert Group on a Viable and Sustainable System of Pricing of Petroleum Products, New Delhi 2010
- **GTZ Water Energy Transport,** Increasing and Volatile Oil Prices, Impact – Subsidies and Market Mechanisms – Policy Responses, Eschborn, 26 March 2008
- **GTZ Water Energy Transport,** Flash Survey of Fuel Prices in November 2007, Discussion Paper, Eschborn 2008
- **GTZ Water Energy Transport,** Fuel Pricing Mechanisms, Eschborn 2008
- **GTZ,** International Fuel Prices 2008 – Full Edition, Eschborn 2009
- **GTZ,** International Fuel Prices 2009 – Full Edition, Eschborn 2010
- **GTZ** International Fuel Price Survey, conducted 11/2011, unpublished
- **GTZ,** Fuel Price News
- **Hadfield, W.,** Petrol Subsidies Do Not Work in Jordan, Middle East Intelligence, 30 November 2007
- **Hari, V.,** India Eyes Fuel Price Reforms – Get Done With It!, The Barrel, 14 July 2009
- **Hayek, F. A.,** Der Wettbewerb als Entdeckungsverfahren, Freiburger Studien, Tübingen 1969, S. 250 ff.
- http://in.reuters.com India May Give Cash Subsidy to Oil Firms-Oil Secy, New Delhi 14 January 2010.
- http://news.bbc.co.uk/go/pr/fr/-/2/hi/business/5049398.stm, India Increases Price of Petrol, July 2008
- www.earthtrack.net/blog/carbon-pricing-and-little-issue-paying-roads
- **India Journal,** IEA Asks India To Do Away With Fuel Subsidies, 25 September 2008

- **International Energy Agency,** Medium-Term Oil Market Report 2009, Paris 2009
- **International Energy Agency,** Oil Market Report 2009, Paris 2009
- **International Monetary Fund, J**ordan – 2008 Article IV Consultation, Washington 2008
- **Jayaswal, R.,** Waste of Fuel Subsidies Amounts To More Than Rs 1-lakh cr, The Economic Times, 8 December 2009
- **Jordan Times,** Fuel Prices Rise by Around 9 %, 13. 11. 2009.
- **Kunateh, M. A.,** Ghana: Afag Hounds Mill Over Fuel Price Increase, Ghanian Chronicle, 4 November 2009
- **Masami, Kojiama,** Changes in End-User Petroleum Product Prices – A Comparison of 48 Countries, Extractive Industries and Development Series #2, February 2009
- **Mo Fengpi,** New Fuel Pricing Mechanism Disappoints Consumers, China Daily, 17 November 2009
- **Möbert, J.,** Treiben Spekulanten den Rohölmarkt? Markteinschätzungen von Spekulanten als Determinante des Rohölpreises, Deutsche Bank AG, DB Research, Reseach Notes 32, Frankfurt 2009
- **Mukherjee, K.,** India's Fuel Price Hike Devides Rich and Poor, Reuters, 4 June 2008
- **National Petroleum Authority,** Policy on Price Risk Management to be Ready in December, 19 November 2009 www.npa.gov.gh/2009/11/19/207

- **O.v.,** In Jordaniens Lebensader fließt Öl aus dem Irak, Handelsblatt 6 March 2003
- **Oberhuber, N.,** Der Ölpreis, Frankfurter Allgemeine Sonntagszeitung, 3 January 2010.
- **Peace FM Online,** Fuel Shortage and Price Increase to Hit Ghana, 18 October 2009
- **Reuters,** India Oil Sector: No Proposals to Raise Fuel Prices, 19 November 2009
- **Reitz, St./Slopek,U.,** Non-Linear Oil Price Dynamics: A Tale of Heterogeneous Speculators, German Economic Review, Volume 10 (2009), Issue 3, S. 270-283
- **Ristau, Oliver,** China jagt nach Öl, Frankfurter Rundschau 30 September 2009
- **Rubin, J.,** Why Your World Is about to Get a Whole Lot Smaller – Oil and the End of Globalisation, New York 2009
- **Sasol,** How Fuel Prices are Calculated in South Africa, www.sasol.com/.../FuelPrice_calculation_SA_07_1170868230705.pdf
- **Schmölders, G.,** Hansmeyer, K.-H., Allgemeine Steuerlehre, Berlin 1980
- **South African National Energy Research Institute (SANERI),** Green Transport Taking Off in SA, Juli 2009
- **Suleiman al-Kalidi (Reuters),** Jordan Announces Steep Fuel Price Rises, 8 February 2008
- **The Economist,** Petrol Prices in China Driving in the Right Direction, 17 September 2009
- **The Sunday Times,** BP Battles Exxon Mobil Over Ghana Oilfield, 29 November 2009
- **Victor, D.,** The Politics of Fossil fuel Subsidies, International Institute for Sustainable Development, Geneva 2009
- **von der Weiden, Silvia,** Kohle im Tank, Die Welt, 28 June 2008
- **Wagner, A.,** Data Needs for Designing Responses to Rising Oil Prices in the Transport Sector, GTZ Transport Policy Advisory Services, Eschborn 2008
- **World Bank,** Hashemite Kingdom of Jordan, Country Assistance Strategy FY06-FY10: Progress Report, Washington 2009
- www.arabianbusiness.com, Fuel Prices Skyrocket as Jordan Cuts Subsidies, AFP 09 February 2008
- www.cctv.com, China Says No Change in Fuel Prices, 15 December 2009
- www.cleanskies.com Xie, Yanmei, China's NDRC Cuts Fuel Prices, 29 July 2009
- www.commodityonline.com/printnews.php?news_id=2279, China Again Raises Fuel Prices.
- www.dme.gov.za/energy/documents.stm
- www.energyforumchina.com Cinta Replaces Minas in China's Product Pricing Formula, 27 March 2009
- www.g20.org, Progress Report on the Economic and Financial Actions of the London, Washington and Pittsburgh G20 Summits, prepared by the UK Chair of the G20, St Andrews, 7 November 2009
- www.ghanacedi.gov.gh Bank of Ghana: We Must Recover Huge Losses – NPA, 4 December 2009
- www.giz.de/fuelprices
- www.iea.org
- www.indiaserver.com, Petrol & Diesel Prices to Remain Unchanged Despite Surge in Global Oil Prices, 18 October 2009
- www.indiaserver.com, Fuel Prices Can Go Down, 22 July 2009
- www.indiaserver.com, Government Cuts Prices of Petrol, Diesel And Cooking Gas, 29 January 2009
- www.islamonline.com Jordan: Fuel Prices Unchanged, 18 September 2009
- www.javno.com, Ghana Fuel Price Cut Prompts Vote-Buying Claim, 12 December 2008
- www.npa.gov.gh
- www.pittsburghsummit.gov/mediacenter/129639.htm, Leaders' Statement: The Pittsburgh Summit, September 2009.
- www.southafrica.info, Fuel Price Hike Likely in February, 22 January 2010
- www.southafrica.info/overview/deutsch/energie.htm
- www.suku.net – Jordan Times, Jordan – Opposition Parties Call on Government to Reduce Fuel, Food Prices, 6 August 2008
- www.xinhuanet.com Jordan Tunes Down Fuel Price, 16 November 2008
- **Zahid, H S.,** Rise in Diesel Consumption and Market-based Pricing of Fuel Oils, Financial Express, 15 September 2008

4.2 Fuel prices in the Arab world[31]

Ahmed Ragab, external GIZ consultant

Introduction

The Middle East has always been a focal point of interest when it comes to oil and oil prices. Home to over 40 % of the world's proven oil reserves (BP 2008: 213) and several major oil producing and exporting countries, the security issues and oil production policies of several countries have a huge impact on the price of crude oil and are thus closely watched by international markets. Much less attention, however, has been paid to the region's domestic petroleum pricing policies. However, lately the tide has changed. With historically high price levels of oil and increasing awareness and concern regarding climate change, the efficient pricing of fossil fuels and especially petroleum products has crept up the international agenda. In the Communiqué agreed by the G-20 leaders' meeting on 24–25 September 2009 in Pittsburgh, USA fossil fuel subsidies were explicitly mentioned and all countries encouraged to rationalise and phase them out over the medium term. Meeting again in Toronto in 2010, the leaders of the world's biggest economies reiterated the same message.

The Arab countries are among those who most heavily subsidise fossil fuels, selling below the opportunity cost of selling it abroad. This is also where – with a few notable exceptions – least has been done to tackle this issue. A glance at the GIZ fuel price survey from November 2008 reveals that 10 out of the 20 countries surveyed with the cheapest gasoline were Arab countries and that only a few were efficiently taxing fuels to account for their externalities (GIZ 2009: 63).

This chapter categorises the Arab countries into groups and maps out their current pricing mechanisms. It also suggests why it is important to look at the region as a whole rather than at each country *per se*. An explanation follows of why these subsidies exist in the first place. Further an examination on the need for reform and existing obstacles will be given. The chapter concludes with a section on strategies for reform.

[31] This chapter was written in late 2010. Subsequent events in the Arab world are not yet factored in.

I. Current pricing policies and cross border spillover effects

The Arab world is usually associated with abundance in oil production and export and an even larger proportion of international crude oil reserves. Nonetheless, this only applies to the group of *oil-exporting* countries that consists of Iraq, Libya, Algeria and Sudan as well as the members of the Gulf Cooperation Council (GCC): Saudi Arabia (KSA), Kuwait, Oman, United Arab Emirates (UAE), Qatar and Bahrain. Not surprisingly, these countries have some of the cheapest fuel in the world. Prices are set via administrative decrees or laws and are rarely adjusted to reflect market prices. Transparent information on the price setting mechanism – when and why prices are changed and how much the fuel subsidies cost – is a rarity. Despite regulatory and reformist differences, we group these countries as *oil-exporting non movers* to simplify the subsequent analysis. This group (and to a lesser extent Sudan and Iraq) is also further characterised by its almost exclusive dependence on the automobile for transportation.

Egypt, Morocco, Syria and Yemen are grouped as oil-producing countries. Although the availability of oil resources differs among these countries, they share the situation whereby production barely or does not cover their domestic consumption, as can be seen in Figure 2 and that they have reached or are close to reaching their peak production levels. Similarly, in all these countries, price setting policies are not subject to any market mechanism and are administered in an *ad hoc* manner. Their governments, however, are under increasing pressure to reform their fuel pricing policies and reduce subsidies owing to the very high burden they exert on their budgets and the need to redirect funds to combat the high incidence of poverty.

Last but not least is the group of *reformers*. This group consists of Lebanon, Jordan and Tunisia. These countries have negligible or low oil resources and have come early under pressure to reform their price-setting mechanisms. Although their fuel markets have not been completely liberalised and subjected to the forces of supply and demand, regular price changes have become the norm and subsidies have been more or less capped or eliminated. Amongst these countries, Lebanon went furthest in liberalising its market. Subsidies have been eliminated, prices are set weekly via ministerial decree and the price breakdown is published on the website of the Ministry of Energy and Water. Jordan, which long depended on oil supplied from Iraq at preferential prices, started

reforming its pricing mechanism in 2005, culminating in the elimination of subsidies on most petroleum products in 2008. A committee formed of representatives of the finance, energy and trade ministries as well as the Jordanian Petroleum Refinery Company (Dicke 2010: 30) adjusts the prices of petroleum products monthly based on a formula that follows the changes in the price of Brent crude oil during the previous 30 days. The new prices are announced via the news agency *petra* and are published on the website of the Ministry of Energy. The latest country to join the ranks of the *reformers* was Tunisia. In the wake of the crude oil price peaks the government decided in January 2009 to cap the subsidies at the level they reached when oil cost USD 52 per barrel. Whenever the international price of oil exceeded the reference price of USD 52 per barrel by USD 10 over a period of three consecutive months, prices of petroleum products increased by a fixed amount. In early 2010, however, the reference price was raised to USD 60 per barrel. This pricing mechanism is explained on the website of the Tunisian Ministry of Industry and Technology and the amount of subsidy on each petroleum product is detailed in order to give an exemplary international oil price.

Despite the existence of these three different categories, governments in the Arab world face similar challenges and are hugely interdependent on each other. One challenge they share lies in dealing with the perception, developed and concretised since the advent of Arab Socialism in the 1960s, that prices are the government's responsibility.

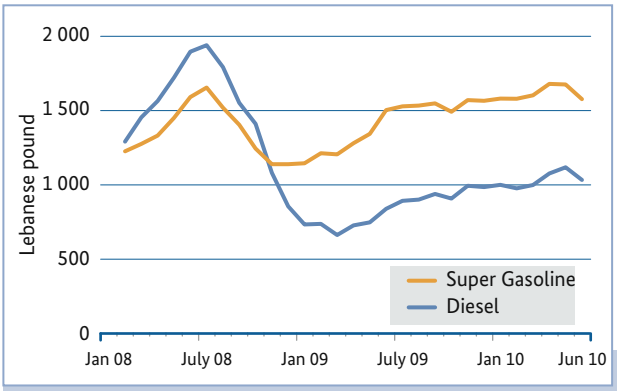


Figure 10: *Lebanon's System of Automatic Price Adjustment: Average Monthly Prices of Diesel and Gasoline in Local Currency.*
Source: www.energyandwater.gov.lb/pages.asp?Page_ID=44. Retrieved 27 September 2010

Several governments are still struggling to this day to liberalise their markets and shake off this image. Furthermore, the impact of the fuel pricing policies followed by the *oil-exporting* non-movers is not confined to their own borders. Many nationals of oil-importing countries work in *oil-exporting* countries and are exposed to and influenced by their policies. Moreover, due to the shared media and inter-country traffic, people are used to comparing prices across countries and quickly blame their governments if fuel prices are higher at home. Additionally, policies are often copied and one government's bad or

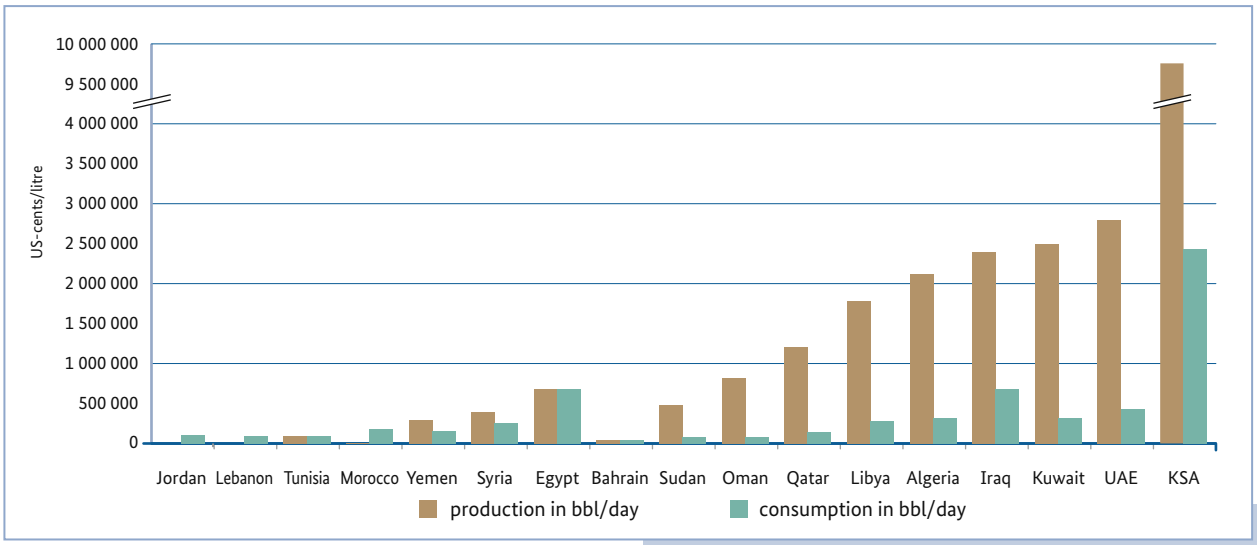


Figure 11: *Oil production and Consumption Levels in bbl/day.*
Source: CIA World Fact Book. Retrieved 31 August 2010

good experience often affects whether others follow suit. Nevertheless, even if the pace and urgency of reform vary across the different groups, a concentrated effort by several governments in the region will make it easier for each government to sell the reforms to the public.

II. The need for change

For some time, the subsidising of petroleum products did not constitute a high fiscal burden and the opportunity cost of consuming oil domestically instead of exporting it was relatively low. However, the picture has changed dramatically in the last 6 to 8 years. Oil prices have soared, reaching a peak of USD 144 a barrel in July 2008. In comparison, the median price in the 1990s was USD 18 per barrel (US Energy Information Administration 2010). This development forced many governments to reconsider their fuel pricing policy and subsidies. This was particularly true for the poorer countries since the subsidies have proven their costly inefficiency as an instrument in protecting the poor. Universal subsidies are in general regressive as "benefits are conditional upon the purchase of subsidised goods, and increase with expenditure" (IEA *et al.*, 2010: 24). For Egypt, Abouleinein *et al.*, (2009: 19) found that the richest urban quintile receives 33 % of fuel subsidies whereas the poorest urban quintile only benefits from 3.8 %. At the same time, as can be seen in Figure 3, the outlays of petroleum product subsidies constitute a significant proportion of the Egyptian government's budget and far exceed spending on infrastructure investment in the fiscal year 2008/2009.

Although the rationale and urgency for reform in the *oil-exporting* non-movers might be different, the need for reform remains. Every barrel of oil sold at low domestic prices is forgone government revenue that could be used to finance necessary investment in infrastructure and job creation. The artificially low prices of oil products have also led to inefficient economies that are highly dependent on subsidised oil and are unprepared for the post-oil era. In addition to this, not all countries have the time to make slow adjustments. In Bahrain and Oman the oil sector had negative growth rates from 2003 to 2007 and is suffering from a rapid decline in oil reserves as well as production capacity (Reiche D., 2009: 4). In the UAE, where the constitution stipulates that full legal control over oil and natural gas reserves lies with local and not federal government (Reiche D., 2009: 4), five of the seven emirates have hardly any oil resources with 85 % of the UAE's oil output capacity and more than 90 % of its reserves being in the Emirate of Abu Dhabi (Butt G., 2001: 231).

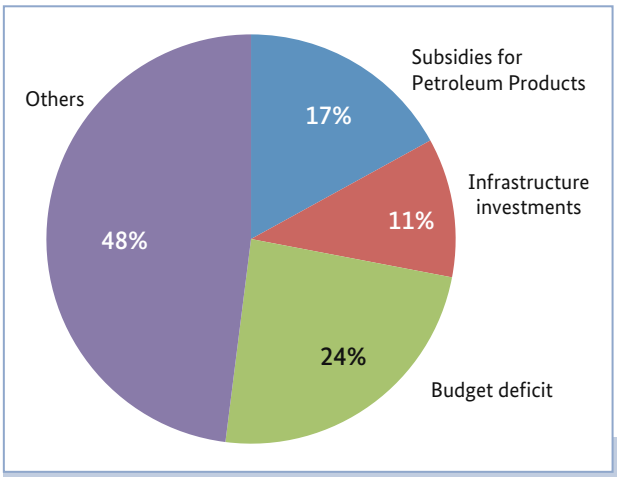


Figure 12: *Egyptian Budget Breakdown for the Financial Year 2008/2009.*

Source: Ministry of Finance; Closing accounts for the 2008/2009 budget. p. 32

III. Obstacles facing reform

For any reform programme to succeed it is necessary first to identify the obstacles facing reform and subsequently to develop appropriate strategies to mitigate them. A general obstacle to subsidy reform is that once a subsidy is introduced "interest groups and investments solidify around the existence of the [subsidy] policy and make change difficult" (Victor D., 2009: 8). Consumers invest in gas-guzzling cars, buy or live on the outskirts of cities far from their work's location or send their kids to schools halfway across town. Companies plan their logistics around trucks and many households earn their living by leasing and driving informal microbuses. These long-term investments turn consumers into vehement opponents of any reforms associated with price increases.

Furthermore, with little public contestation of power and very low inclusiveness, most Arab regimes have no choice but to "buy" their citizens' obedience by subsidising all sorts of goods. In such cases, they value stability highly and try to reduce any possible threats to their survival by providing highly visible services at low cost (Victor D., 2009: 8).

Moreover, there is a widespread feeling in the Arab world that the public is entitled to cheap petroleum products and that "strategic goods" like petrol and gas must be subsidised. When rumours spread in Bahrain in August 2010 that the government was considering raising prices of petroleum products demonstrators took to the streets and

held banners saying: "Everything but our Food". Closely related to this is the problem of transparency. The real cost of fossil fuels, the amount spent on subsidies or plans to reform the price setting mechanism, where they exist, are closely guarded secrets. An internet survey by GIZ showed that with the exception of Lebanon (Figure 4), not a single country published a detailed price breakdown and several countries did not even publish their current fuel prices online.

In addition to that, *ad hoc* pricing dominates in the region, thus making governments directly responsible for price increases and unnecessarily politicising the price-setting mechanism. It creates the impression that changes are a reflection of government policy, rather than international factors (Granado *et al.,* 2010: 14) and often lead to demonstrations and riots. In 2005 the Yemeni government had to cancel price increases for Diesel, Gasoline and Kerosene after riots broke out which left 22 dead. The same applied to attempts at reforming other universal subsidies where social unrest was not uncommon: "violence and protests followed price rises in Egypt (1977), Morocco (1981, 1984, 2007), Tunisia (1984) and Jordan (1989, 1996)". (IEA *et al.,* 2010: 37). The link between governments and prices and the experiences they made with previous reforms shock many regimes to the core and still continue to inform policy making.

The group of oil-producing countries and the *reformers* in particular have sizeable populations below or just above the poverty line. This complicates any reform attempts as the relatively adverse impact of removing subsidies can be greatest on the poor, as the rich receive most of the total value of the subsidy (IEA *et al.,* 2010: 25). Probably, because prices in Arab countries are especially low, the impact on household real income is bigger than elsewhere. In a study by Granado *et al.,* (2010: 9) they estimate the direct and indirect impact of a USD 0.25 per litre increase in fuel prices in several regions showing a "decline in household real incomes, with the impact ranging from 3.8 % in South and Central America to 9.6 % in the Middle East." Other studies measured the direct effect of petroleum subsidies on reducing the poverty incidence by 8 and 5 percentage points in Yemen and Morocco respectively (IEA *et al.,* 2010: 25). Mitigation measures to protect the poor from the adverse impacts of reform cannot be readily introduced, because most governments lack the administrative capacity and the necessary information to reach the poor and developing a well targeted safety net could take years. Reform clearly has a substantial welfare cost for society's most vulnerable.

As we have seen, cross-border spillover effects also complicate any national reform efforts. In addition to smuggling and tourism tanking, people compare prices across countries and cannot understand why prices might be higher at home. "What is the difference between Saudi, Kuwaiti and Emirati oil? Why is it more expensive here than there?" exclaimed an interviewee on Al Jazeera after the latest price increase in the UAE.

IV. Strategies for reform

Although the gradual approach to reform entails many risks, progressive reform over several years is seen as the most realistic and applicable approach for Arab countries. The riots these governments experienced when attempting to reform different universal subsidies have certainly quashed any notion of rapid reforms. The strategies laid down below are therefore divided into short and medium term plans as well as strategies to protect the poor and a special section for *oil-exporting* countries.

4.3 Short-term strategies

1. Governments must organise *mass information campaigns* with a clear message from all relevant ministries in order to effectively communicate to the population the drawbacks of the current situation and the need for reform (Gupta *et al.,* 2000).
2. Stop sending *mixed signals*. Up till now, petroleum ministries have enthusiastically publicised oil discoveries, creating the illusion that there is enough oil to last forever.
3. Start *comparing fuel prices with poorer countries* (*e.g.* SSA). Comparing prices with Western countries leads to ridicule and cries for "international" wages.
4. *Present the cost of the subsidy in concrete terms*. Compare the financial outlays to spending on other relevant causes, such as education and health care. Egypt, for example, compared the budgetary burden with revenues from the Suez Canal when trying to reform other subsidies.
5. Inform customers at every point of sale of the *actual cost of the current purchase* and the amount of subsidies received. This will make the subsidy more visible in everyday life.
6. Governments need to be *transparent* about the actual cost of the subsidy – the groups who benefit the most and the price breakdown of each unit of fuel. The availability of data also enables peer review and the

media can help dispel myths and misinformation about the magnitude and incidence of fossil fuel subsidies (IEA *et al.*, 2010: 36). For a grounded discussion on fossil fuel subsidies in the media and civil society, more information must be made available to the public. A very important step in this direction is by explicitly accounting for the subsidies in the budget and not by forcing companies to make lower profits or sell at below market prices.

7. ***Plans and action to reform the system should be made public*** and discussed with the relevant stakeholders. Hitherto, ministers have been reluctant to announce their plans. An Emirati oil expert interviewed by Emirates Today (2010) after a recent price increase in the UAE lamented that "the view of the retail companies and the reasons for their price increases were not explained to the public in advance. [...] Informing consumers and preparing them is important, especially when it concerns increasing the price of a product they deal with daily" (author's translation).

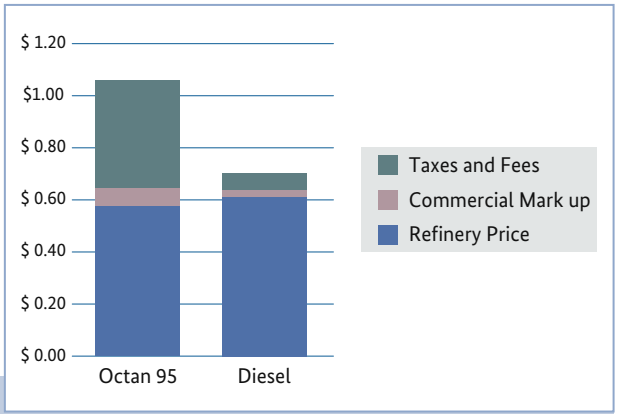


Figure 13: *Published Price Breakdown of Gasoline and Diesel in Lebanon in August 2010.*

Source: www.energyandwater.gov.lb/pages.asp?Page_ID=44. Retrieved 17 August 2010

4.4 Medium-term strategies

1. Any reform programme with the ultimate goal of eliminating subsidies on fossil fuels has to include a ***reform of the price setting mechanism***. Under the current *ad hoc* pricing that dominates the region (with the exception of Lebanon, Jordan and Tunisia) prices usually move in only one direction: upwards. After prices increased in the wake of the 2008 peak, they did not decrease when oil prices fell back to USD 40 a barrel. For the public this seems to contradict the international dependency used by governments to explain price increases. Any reform of the pricing policies argument therefore has to lead to a pricing system where regular price changes in both directions are the norm, which in turn are linked to the international price of oil and in which the mechanism whereby prices are set is transparent and clear. Such a mechanism will remove government from the process and prepare the public for the eventual elimination of the subsidy. Ultimately, governments should try to liberalise the market and subject the prices to the forces of supply and demand. A liberalised market is less susceptible to policy fallbacks than other forms of price setting.
2. The change in the ***pricing mechanism*** needs to be made ***permanent***. As Ghana illustrates, reform fallbacks are not uncommon and the system can descend into a discretionary approach if automatic price changes are not always implemented (Federico *et al.*, 2001). This creates the need to legally set the reformed price setting mechanism in stone in order to increase the obstacle to a return to *ad hoc* pricing.
3. The automatic price-setting mechanism *should not involve politicians*. Prices should be determined/announced by an independent regulator. Having a price-setting committee consisting of representatives of various ministries as in Jordan or under the supervision of a minister, as in Tunisia, creates the impression that politicians are responsible for prices.
4. There is huge fossil fuel dependency among transportation modes in the Arab world and the lack of alternatives is often a cause of public outrage when subsidies are removed. This applies to the poor, the middle classes and firms relying on trucks to transport their goods. Governments must use the public funds freed up in a beneficial way that creates alternatives and links these newly available alternatives to the removal of the subsidy. One way of doing this is to establish an *infrastructure investment fund*, where a fixed amount of the money otherwise earmarked for the subsidy flows yearly. This fund can then finance infrastructure projects that improve railroads and waterways for freight haulage and create qualitative public transport modes. In the same way that EU funds used to finance projects in the member countries must be visibly labelled, projects financed by such a fund must be marked as such. This creates visibility and establishes the link between government spending on infrastructure and the removal of the subsidy.

4.5 Measures to protect the poor

4.5.1 Short-term strategies

Arab countries enjoy a number of favourable conditions that should help them protect the poor in the short run and compensate the middle classes for potential losses that accrue when removing subsidies on fossil fuels.

1. Workers at *public sector and state-owned enterprises* in Arab countries usually constitute a major share of the labour force. Rather than being poor, they usually include the politically better organised middle class. These employees are accessible and can be compensated. Jordan gave a one-time bonus and wage increases to low income employees and pensioners when it completely removed subsidies in 2008.
2. *Universal electricity access*. Owing to the ability to vary tariff levels according to consumption levels, subsidising electricity is a more efficient and cost effective way to reach the poor than subsidising fuel. Since close to 99 % of all households (with the exception of Yemen, which drags the average rate for the Middle East down) are connected to the grid (see Figure 5), freezing prices at the lower end of consumption while implementing reforms helps to mitigate the impact of price increases on poor households (Granado *et al.*, 2010: 12).

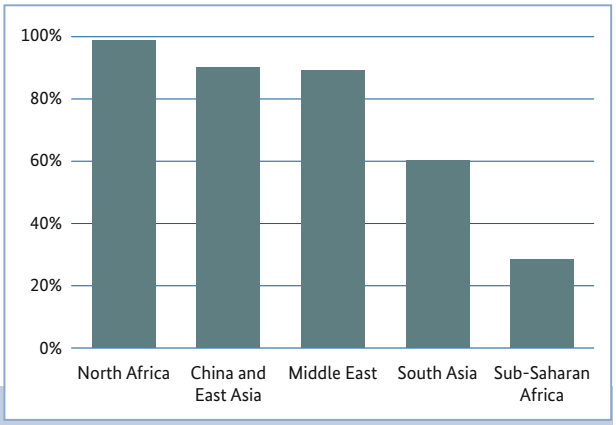


Figure 14: *Electrification rate in percent.*
Source: www.iea.org/weo/electricity.asp; Retrieved 31 August 2010

3. Introducing a *coupon system* to ration the consumption of LPG and kerosene might be an option. Families would be entitled to a limited number of coupons per year allowing them to buy the canisters. Even if this does not end the abuse, it will at least cap the number of canisters sold per year and accordingly the amount spent on the subsidy. It could subsequently be limited to households living in areas without a connection to the gas grid.

4.5.2 Long-term strategies

1. ***Replacement by natural gas***. As with electricity tariffs, natural gas tariffs can be varied by consumption. A one-off subsidy to connect poor households to the gas grid, if economically feasible, in combination with a lower "lifeline tariff" might be an option. Connecting households to the gas grid is a declared strategy of the Egyptian government to combat the misappropriation and leakage of LPG – intended for use in poor households for cooking – to restaurants, industrial facilities and chicken farms.
2. ***Development of a safety net***. Most importantly and crucially so for the longer term protection and assistance of the poor, governments need to develop an effective safety net, whereby subsidies are linked to individuals rather than the product. In general, cash transfers have many advantages. "They allow for consumer choice, the cost to the budget is known with greater certainty than in the case of generalised subsidies, and they can be targeted at the poor" (Gupta *et al.*, (2000). Successful programmes in Latin America have linked cash handouts to certain requirements, such as sending children to school or going for regular health checks (Progressa).
3. Invest in ***pro-poor infrastructure*** such as improved rural roads, gas grid connections, public transport, etc.

4.6 Strategies specific to the oil-exporting non-movers

It has hitherto been part of the social contract between governments and their population that subsidised pricing is the means whereby the population shares and enjoys the oil wealth. However, low prices are not the only way of redistributing the wealth. Although people might need time to get used to them, there are other less distorting ways to do so.

1. *Cash transfers to all households, independent of income or wealth*. Although they may entail other less positive impacts (lower incentive to work, etc.), cash transfers widen the populations' choice base and do not distort market signals on the efficient consumption of goods.
2. Invest money in *independently-run pension funds*. Norway offers a good example on how a country can manage the wealth created by natural resources. Investing the money generated from exporting oil in offshore funds removed the money from the immediate political process and decreased the intensity of the political contest on how to spend this money (Victor D., 2009: 22). Setting these funds up should not be too problematic, as several oil exporting countries have already set up sovereign wealth funds. In a further step to compensate the public, these funds could pay yearly dividends, depending on their performance, to all country nationals.
3. Keep the *business function of oil companies at arm's length*. Guaranteeing the independency and profit-making nature of the oil companies increases the pressure on the government either to liberalise the prices or explicitly pay the companies for the consumer subsidy they provide. In the UAE the increasingly profit-oriented oil companies, are pressuring the government to increase prices to offset their losses. This has led to the circulation of plans to bring domestic prices in the UAE on par with international ones. Prices in the UAE are already the highest in the GCC.

Outlook

To conclude, the challenge of reforming fossil fuel subsidies is neither unique to fossil fuels nor to Arab countries. What sets Arab countries apart is the relative abundance of fossil fuels in the region, the interdependence of the countries' policies and the dominance of autocratic regimes. For too long these factors, coupled with the fear of unrest and violent protests experienced during previous reform attempts, have deterred governments in the Arab world from initiating reform or tackling the issue comprehensively. In most previous attempts, however, governments had no comprehensive reform plan to compensate the losers from the reform and did not communicate the measures appropriately. The population was administered shock therapy in an environment where popular discontent with the government was high.

Since the writing of this report, however, several major developments in the Arab world have taken place with consequences for the potential of reforming fossil fuel pricing mechanisms and subsidies. The effects of the popular uprisings in Tunisia and Egypt – that have spread to neighbouring Libya and as far as Syria and Oman – will be different in the short and medium term and will also differ by country. In the short term, the countries shaken by unrest and the changes forced upon them will most probably not press ahead with any reforms, in order to prevent further tensions on the street. However, if these countries end up with more accountable and transparent governments, the conditions and potential for reform will increase substantially. Popular governments can more easily push such reforms through and the combination of high oil prices and debt levels will force them to do so.

The autocratic Arab regimes that are able to ride this wave of unrest will most probably either roll back reforms or abort any reform plans. Many governments have already reacted to the regional unrest by increasing subsidies for several goods, including fossil fuels, or by cancelling future price hikes (Jordan, UAE).

References

- **Abouleinein, El-Laithy & Kheir-El-Din (2009)**. The Impact of Phasing out Subsidies of Petroleum Energy Products in Egypt. The Egyptian Centre for Economic Studies: Cairo.
- **BP (2008)**. BP Statistical Review of World Energy. June 2008. London.
- **Dicke, B (2010)**. Formelbasierte Ansätze zur Preisbildung bei Kraftstoffen in Entwicklungsländern. GIZ Working Paper: Eschborn.
- **Egyptian Ministry of Finance ()**. Retrieved 16.08.2010, www.mof.gov.eg/Arabic/%d8%b9%d9%86%d8%a7%d9%88%d9%8a%d9%86%20%d8%b1%d8%a6%d9%8a%d8%b3%d9%8a%d9%87/Pages/hessab_khetamy.aspx.
- **Emirates Today (2010)**. Retrieved 38.08.2010, www.emaratalyoum.com/business/local/2010-04-18-1.109603.
- **Federico, G., Daniel, J. & Bingham, B. (2001)**. Domestic Petroleum Price Smoothing in Developing and Transition Countries. IMF Working Paper: Washington.
- **Financial Times (2010)**. Retrieved 28.08.2010, http://blogs.ft.com/beyond-brics/2010/06/15/egypt-to-reign-in-energy-subsidies-in-due-course.
- **Butt, G. (2001)**. Oil and Gas in the UAE. In: United Arab Emirates: A New Perspective. El Abed, Ibrahim & Hellyer Peter (eds.). Trident Press Ltd: London.
- **Granado, J., Coady, D. & Gillingham, R. (2010)**. The Unequal Benefits of Fuel Subsidies: A Review of Evidence for Developing Countries. IMF Working Paper: Washington.
- **GTZ (2009)**. International Fuel Prices 2009: 6th Edition – More than 170 countries: Eschborn.
- **Gupta, S., Clements, B., Fletcher, K. & Inchauste, G. (2002)**. Issues in Domestic Petroleum Pricing in Oil-Producing Countries. IMF Working Paper: Washington.
- **Gupta, S., Verhoeven, M., Gillingham, R., Schiller, S., Mansoor, A. & Cordoba, J.P. (2000)**. Equity and Efficiency in the Reform of Price Subsidies: A Guide for Policy-makers. IMF: Washington. Retrieved 1 Sept. 2010, www.imf.org/external/pubs/ft/equity/index.htm.
- **IEA(2010)**. Retrieved 31.08.2010, www.iea.org/weo/electricity.asp.
- **IEA, OPEC, OECD &World Bank (2010)**. Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative. Prepared for submission to the G-20 Summit Meeting Toronto (Canada), 26–27 June 2010. Retrieved 30.08.2010. www.iea.org/weo/docs/G20_Subsidy_Joint_Report.pdf.
- **Lebanese Ministry of Energy and Water ()**. Retrieved 17.08.2010, www.energyandwater.gov.lb/pages.asp?Page_ID=44.
- **Reiche, D. (2009)**. Energy Prices of Gulf Cooperation Council (GCC) countries – possibilities and limitations of ecological modernisation in rentier states. In: Energy Policy. doi:10.1016/j.enpol.2009.12.031
- **US Energy Information Administration (2010)**. Retrieved 04.08.2010, http://tonto.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RBRTE&f=D.
- **Victor, D. (2009)**. The Politics of Fossil Fuel Subsidies. In: Untold Billions: Fossil fuel Subsidies, Their Impacts and the Path to Reform. The Global Subsidies Initiative: Geneve.

5 A climate for fossil fuel subsidy reform

Kerryn Lang, Global Subsidies Initative

Increasing the momentum of reform for greater climate change and sustainable development gains

At a time when governments are facing critical policy challenges – recovering from economic crisis, reducing harmful emissions and transitioning to a green economy – fossil-fuel subsidy reform offers the opportunity to make gains on all fronts. Global estimates put fossil-fuel subsidies in the order of USD 500 billion per year; five times the amount of climate finance promised by governments in Cancun. Not only are subsidies costly, but they counteract efforts to address climate change: the International Energy Agency (IEA) and Organisation for Economic Cooperation and Development (OECD) estimate that removing fossil-fuel subsidies could reduce global carbon emissions by between 5 and 10 % compared with a business as usual baseline by 2050. Perhaps even more importantly for developing countries where these subsidies are most prevalent, is that removing or even reducing subsidies would free precious public resources that can be used more effectively for poverty alleviation and development goals.

This opportunity is starting to be realized by G-20 members who, in September 2009, committed to phasing out inefficient fossil-fuel subsidies over the medium term. This commitment has since been expanded upon with a similar pledge from the Asia Pacific Economic Cooperation (APEC) member economies in November 2009, and is supported by the newly established Friends of Fossil-Fuel Subsidy Reform group.[32] In addition, some governments such as Iran are taking domestic action to ease the enormous subsidy burden on its state budget.

But despite the clear and substantial benefits, reform remains difficult. Subsidies are often entrenched by powerful political interests and understanding their distributional impacts and effective measures to support vulnerable groups requires technical, country-level analysis. The G-20 called upon the expertise of four intergovernmental organisations – the IEA, the OECD, the Organization of Petroleum-Exporting Countries (OPEC) and the World Bank – to provide analysis on the scope of energy subsidies and suggestions for implementation of reform. The joint report provides an overview of the scale and impact of subsidies at a global level and offers general policy advice drawing lessons from case studies for policy-makers. However subsidy reform will feel different in each country – depending on the type of subsidy, for which fuel and who its recipients are – so more research and policy advice at the national- and local-level is needed in order to support governments to phase out these subsidies.

One of the key challenges facing *reformers* is identifying and quantifying subsidies, particularly subsidies for the production of fossil fuels. Subsidies for consumption are relatively easy to estimate using a method called the 'Price-Gap Approach'. The IEA uses this approach to provide national and global estimates of consumption subsidies for coal, oil, natural gas and electricity, estimated to be worth USD 312 billion worldwide in 2009. However, there is no equivalent data set for producer subsidies. The GSI estimates that these subsidies could be worth USD 100 billion per year, but arriving at a robust estimate is difficult as producer subsidies take many different forms and very little information is reported by governments. Improving transparency of fossil-fuel subsidies is essential for progressing effective reform and requires better reporting by governments including in forums such as the World Trade Organization (WTO).

Mapping the characteristics of producer subsidies by subsidy instrument and fuel type across a range of countries shows that fossil-fuel producers are supported by a multitude of policies ranging from direct payments to preferential access to government-owned lands. Information on these various subsidies is held by many different government ministries and bodies. Understanding the scope and magnitude of these subsidies requires detailed research into national and sub-national government

[32] Members includes Denmark, New Zealand, Norway, Sweden and Switzerland

accounts and policies. Case studies highlight these differences: in Indonesia subsidies included tax breaks, credit support, regulated market conditions and preferential treatment of the state-owned oil company; whereas in Canada the biggest subsidies were tax breaks, royalty reductions and direct spending by both federal and provincial governments.

The Global Subsidies Initiative (GSI) is developing a methodology for estimating producer subsidies using a range of tools: a policy brief on the definition of 'subsidy'; a policy brief on how to estimate subsidies; along with a technical manual which outlines valuation methods for measuring subsidies.

Successful subsidy reform also requires a greater understanding of the economic, environmental and social impacts of subsidy reform. Research to date has largely focused on the impacts on the global economy and greenhouse gas emissions but much more national and local-level analysis is needed to understand the impacts on social welfare, and particularly the distributional effects of subsidy reform.

Governments also face significant challenges from political interests opposed to removing subsidies, particularly from parliamentarians, civil society or industry groups that gain from the subsidy policy. Overcoming these political economy challenges often requires a broad package of reforms that compensates the losers of subsidy removal. Other strategies for successful reform include ensuring the reform package is based on:

- A deep understanding of the subsidy, its original objectives, the rational for reform and the likely impacts;
- Building support by communicating the benefits of reform and consulting stakeholders;
- Policy measures to reduce the negative impacts on poor and vulnerable groups; and
- Independent and transparent fuel pricing mechanisms to prevent the government being drawn back into subsidization.

Subsidy reform is not a new discipline and there is much to be gained from sharing countries' experience, regardless of how successful previous reform efforts have been. For instance, experience from Poland provides an example of how it overcame powerful trade union interests in reforming its coal sector; India demonstrates how widespread corruption can undermine repeated efforts to reform; Brazil looks at how to address distributional impacts of reform on different sections of society; and Indonesia provides a positive example of developing a cash-transfer

system to compensate the poor, and complimentary policies to meet the country's energy needs.

The GSI held an international conference *Increasing the Momentum of Fossil-Fuel Subsidy Reform* in October 2009 which drew the participation of key government forums (G-20, APEC, and the Friends group), international organisations (the OECD, World Bank, OPEC, WTO and the United Nations Environment Programme), policy-makers and subsidy experts to discuss recent political developments and to share experience in addressing the political challenges and strategies for effective reform. The outcomes of the conference reflected the need for governments and international organisations to better collaborate in sharing information and best practice to leverage greater gains from subsidy reform efforts. The GSI provides a road map outlining how international cooperation could be enhanced.

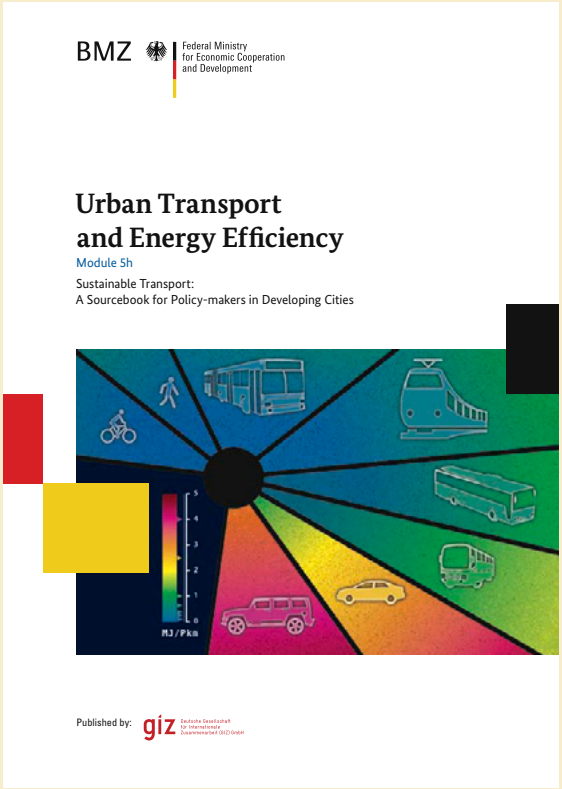
Much work remains to be done to achieve the phase out of fossil-fuel subsidies that act against climate change and sustainable development objectives, and which are granted by most governments around the world. Looking ahead, the GSI is planning to work more with countries on their national priorities and challenges to reform, including more country case studies, local multi-stakeholder workshops and regional forums for policy-makers. The GSI welcomes a collaborative approach with other governments and organisations interested in reforming fossil-fuel subsidies.

Contact:
Kerryn Lang, GSI Research Officer
Level 5 • International Environment House II • 9 chemin de Balexert • 1219 • Geneva • Switzerland
T: +41 22 917 8920 • F: +41 22 917 8054 • E: klang@iisd.org • skype: kerryn_lang

The Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD) is dedicated to research and awareness building on public subsidies and their impacts on sustainable development. In cooperation with a growing international network of research and media partners, the GSI seeks to lay bare just what good or harm public subsidies are doing and to encourage open debate and awareness of the options that are available for reform.

For more information, go to www.globalsubsidies.org/en.

Navigating towards Efficient Urban Transport



Considering the challenges of limited oil resources, increasing energy prices, climate change, environmental pollution and health risks, it is essential to establish an efficient transport system that meets demand, but consumes as little energy as possible. The new SUTP *Sourcebook* Module 5h titled "*Urban Transport and Energy Efficiency*" serves as a handbook for decision-makers and stakeholders, including local and national authorities, the private sector and non-governmental organisations. It provides a comprehensive overview of measures and policies designed to promote greater energy efficiency in transport, and assigns specific tasks and responsibilities to particular parties. Case studies illustrate international experience in implementing measures to increase energy efficiency in transport. The 88-page, full colour document, written by Susanne Böhler-Baedeker and Hanna Hüging is available for download here:
www.sutp.org (→ Thematic Downloads → Environment & Health → Module 5h)


Rede Rio

6 Recommended reading on fuel pricing and fuel pricing mechanisms

GIZ papers

The hundred-dollar question

As the price of crude oil (Brent) exceeds USD 100 per barrel, this paper discusses suitable steps to reform fuel pricing: It introduces the three dimensions of fuel pricing, presents recommendations for 3 categories of countries and provides an overview| of international practices.
www.medemip.eu/Calc/FM/MED-EMIP/OtherDownloads/Other_Energy_Topics/GTZ_International_Oil_Prices/201102-The100DollarQuestion.pdf

Fuel price reform in Bolivia

The failure to increase prices for fossil fuels in Bolivia is an important case study of reform strategies for countries with low prices and *ad hoc* pricing measures. Everything that could go wrong did go wrong in the implementation of the price hike in Bolivia in December 2010. This is a classic example of the extreme consequences of *ad hoc* price setting mechanisms. Our paper provides attached a brief evaluation of the failed reform attempt in Bolivia from our perspective.
www.gtz.de/de/dokumente/giz2011-fuel-price-reform-bolivia-december-2010.pdf

Power in G-20 and N-11 countries – at what cost?

This document provides an overview of electricity tariffs in G-20 and Next-11 countries. Our survey shows the (incremental) prices of the 1st, the 51st, the 501st and the 1001st kWh (based on monthly consumption) only. In case several tariffs are available, we have chosen to display the cheapest tariff for residential users. However, further in-depth surveys on electricity prices in individual countries (*e.g.* based on a model household consuming a certain amount of electricity per month) are facilitated by the attached list of links to electricity tariffs that are available online. This document has been prepared in the context of our effort "International Fuel Prices" as well as to facilitate the debate on the costs of electric mobility.
www.gtz.de/de/dokumente/gtz2010-en-overview-of-electricity-tariffs-in-G20-and-N11-countries.pdf

Exploit falling markets – Fuel Pricing Mechanisms

The current phase of sharply declining crude oil and petroleum product prices offers an opportunity for a critical investigation of the absolute level of pump prices for fuel and the nature and manner of adjustment of the price level. This includes the opportunity to move from *ad hoc* pricing towards formula-based automatic pricing at relatively low political cost. The same applies to the elimination of direct and indirect subsidies which should continue in parallel, and to the imposition of (possibly earmarked) tax on fuel. The discussion paper provides an overview of forms of fuel pricing in the transport sector.
www.gtz.de/de/dokumente/gtz2008-en-exploit-falling-markets.pdf

Impact

Retail fuel price response to oil price shocks in EU countries

There is a widely held belief that retail fuel prices rise very quickly following an increase in international oil prices but fall slowly when oil prices decrease. This study uses data from European Union countries to investigate the response of retail gasoline prices to changes in the world oil price. The findings indicate significant variation in the adjustment mechanism across countries. Fluctuations in the international price of oil are transported to local prices with some delay but evidence of asymmetric adjustment is fairly weak.
www.ucy.ac.cy/data/ecorece/Clerides_Full_Text.010.pdf

Petroleum markets in Sub-Saharan Africa

This regional study takes twelve oil-importing countries in Sub-Saharan Africa and asks the following two questions: a) does each stage in the supply chain, from import of crude oil or refined products to retail, seem to be efficiently run? And b) are the efficiency gains passed on to end-users? If not, what are the potential causes and possible means of remedying the problems?
http://siteresources.worldbank.org/INTOGMC/Resources/336099-1158588096604/eifd15_ssa_oil_markets.pdf

Transport fuel prices in Sub-Saharan Africa: explanation, impact and policies

Why look at SSA transport fuel prices now? How do SSA transport fuel prices compare with those in other regions? This paper examines variation in transport fuel prices between SSA counties. The structure of transport fuel prices in SSA countries. What can be done to reduce high prices and their impact?
http://siteresources.worldbank.org/INTTRANSPORT/Resources/336291-1297096897336/7715763-1297096955872/Presentation-Carruthers.pdf

Oil spill(over)s: linkages in petroleum product pricing policies in West African countries

This paper addresses a number of issues regarding petroleum product pricing in Western Africa emphasising international spillovers. We use panel unit root rests and long-run modelling based on vector error correction models to assess links and convergence in petroleum product prices across countries. Our results indicate that in general over the long-run there is convergence in prices across the countries.
www.imf.org/external/pubs/cat/longres.aspx?sk=24826.0

Do speculators drive crude oil prices? Dispersion in beliefs as a price determinant

Before Gary Gensler became its chairman, the US Commodity Futures Trading Commission (CFTC) held the view that speculators had little influence on the price of crude oil, but the issue has since been reassessed. This article measures speculator activity on the basis of variables contained in weekly CFTC market reports and analyses speculator influence on crude oil prices and crude oil price volatility using econometric procedures.
www.dbresearch.com/MAIL/DBR_INTERNET_EN-PROD/PROD0000000000251256.pdf

Understanding crude oil prices

This paper examines the factors responsible for changes in crude oil prices. It reviews the statistical behaviour of oil prices, relates these to the predictions of theory, and looks in detail at key features of petroleum demand and supply. Topics discussed include the role of commodity speculation, OPEC and resource depletion. The paper concludes that although scarcity rent made a negligible contribution to the price of oil in 1997, it could now begin to play a role.
www.economicsclimatechange.com/2008/11/understanding-crude-oil-prices.html

Subsidies – Pricing mechanisms – Taxation

Petroleum subsidies on the rise

According to a study from the IMF, petroleum subsidies are costly, inequitable and rising, and reducing them could have benefits for the environment.
www.imf.org/external/pubs/ft/survey/so/2010/pol050410a.htm

G20 fossil fuel subsidy phase out: a review of current gaps and necessary changes to achieve success

The G20 commitment was a positive step in reforming policies that subsidise the oil, gas and coal industries at a time when the world is trying to scale back emissions that contribute to climate change. This brief highlights a variety of issues that illustrate immediate and future challenges with making the phase out work. The authors evaluate the reporting and reform efforts of the G20, using official documents submitted by the members. The purpose of this evaluation is to assess the coverage of existing reporting, identify patterns in the arguments countries put forth in order to exclude policies from reform, and discuss options to increase the chance of the reform effort being successful.
www.earthtrack.net/documents/g20-fossil fuel-subsidy-phase-out-review-current-gaps-and-needed-changes-achieve-success

The first year of the G-20 commitment on fossil fuel subsidies: a commentary on lessons learned and the path forward

Since 2009, the continued activity surrounding fossil fuel subsidy reform has in large part been due to the G-20's

initial commitment to phase out inefficient fossil fuel subsidies and its ongoing leadership in this area. But the task of phasing out fossil fuel subsidies is challenging and takes time. Much remains to be done by the G-20 to fulfil their medium-term commitment, including monitoring the phase-out of subsidies identified for reform. This report offers a commentary on the first year of the G-20's commitment and the actions of other governments and organisations that have contributed to the reform movement, including the Asia Pacific Economic Cooperation (APEC) and the Friends of Fossil fuel Subsidy Reform group of countries.
www.globalsubsidies.org/research/first-year-g-20-commitment-fossil fuel-subsidies-commentary-lessons-learned-and-path-forward

The unequal benefits of fuel subsidies: a review of evidence for developing countries

This paper reviews the evidence on the impact of fuel subsidy reform on household welfare in developing countries. On average, the burden of subsidy reform is neutrally distributed across income groups; a USD 0.25 decrease in the per litre subsidy results in a 6 % decrease in income for all groups. More than half of this impact arises from the indirect impact on prices of other goods and services consumed by households. Fuel subsidies are a costly approach to protecting the poor due to substantial benefit leakage to higher income groups. In absolute terms, the top income quintile receives six times more in subsidies than the bottom. Issues that need to be addressed when undertaking subsidy reform are also discussed, including the need for a new approach to fuel pricing in many countries.
www.imf.org/external/pubs/cat/longres.cfm?sk=24184.0

Mapping the characteristics of producer subsidies: a review of pilot country studies

This paper reviews data sources for fossil fuel subsidies in a series of countries with a range of differing governance systems, energy markets and stages of economic growth. Using a detailed matrix setting out the main subsidy policies, the type of fuel and their main data sources, pilot studies have been completed for China, Germany, Indonesia and United States. The report begins to characterise the major subsidy types applied to fossil fuels and the current state of knowledge about each of these categories. The project team for each country evaluates commonly referenced data sources (*e.g.* databases collected by international bodies) and summarises how the information is gathered. Importance is attached to research being an assessment of the data sources, including their strengths and limitations.
www.iisd.org/publications/pub.aspx?pno=1327

Mitigation potential of removing fossil fuel subsidies: a general equilibrium

This paper discusses the assumptions, data and both environmental and economic implications of removing these subsidies. It shows that, though their removal would amount to roughly a seventh of the effort needed to stabilise GHG concentration at a level of 450 ppm or below 2 °C, the full environmental benefit of this policy option can only be achieved if emissions are also capped in OECD countries in parallel. Finally, though removing these subsidies qualifies as being a win-win option at the global level in terms of environmental and economic benefits, this is not true for all countries/regions. The paper also discusses the robustness of these results.
http://cleanairinitiative.org/portal/sites/default/files/slocat/MITIGATION_POTENTIAL_OF_REMOVING_FOSSIL_FUEL_SUBSIDIES-A_GENERAL.pdf

The effect of CO_2 pricing on conventional and non-conventional oil supply and demand

What would be the effect of CO_2 pricing on global oil supply and demand? This paper introduces a model describing the interaction between conventional and non-conventional oil supply in a Hotelling framework and under CO_2 constraints. The model assumes that non-conventional crude oil enters the market when conventional oil supply alone is unable to meet demand, and the social cost of CO_2 is included in the calculation of the oil rent at that time. The results reveal the effect of a CO_2 tax set at the social cost of CO_2 on oil price and demand and the uncertainty associated with the time when conventional oil production might become unable to meet demand.
www.economicsclimatechange.com/2010/12/effect-of-co2-pricing-on-conventional.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+ClimateChanges+%28Climate+ChangeS%29

Measuring global gasoline and diesel price and income elasticities

Price and income elasticities of transport fuel demand have numerous applications. One of these is that they help forecast increases in fuel consumption. As countries get richer, they help develop appropriate tax policies to

curtail consumption, assist in determining how the transport fuelmix might evolve, and show the price response to a fuel disruption. Given their usefulness, it is understandable why hundreds of studies have focused on measuring such elasticities for gasoline and diesel fuel consumption. In this paper, the focus is on price and income elasticities based on the existing studies to see what can be learned from them. The elasticities from these historical studies are then summarised.
www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V2W-521P9JJ-2&_user=10&_coverDate=01%2F26%2F2011&_rdoc=1&_fmt=high&_orig=gateway&_origin=gateway&_sort=d&_docanchor=&view=c&_searchStrId=1724328229&_rerunOrigin=google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=b7306e869488078ef16bd58385be02db&searchtype=a

Estimating the effect of a gasoline tax on sarbon emissions

Several policy-makers and economists have proposed the adoption of a carbon tax in the United States. It is widely recognised that such a tax in practice must take the form of a tax on the consumption of energy products such as gasoline. Although a large existing literature examines the sensitivity of gasoline consumption to changes in price, these estimates may not be appropriate for evaluating the effectiveness of such a tax.
www-personal.umich.edu/~lkilian/gasoline27.pdf

Report of the expert group on a viable and sustainable system of pricing of petroleum products

India's growing dependence on imported oil products and the dramatic rise in the prices of crude oil to a height of USD 148/bbl the international market in July 2008 – followed by an equally dramatic fall – pose significant policy challenges. The Government's efforts to insulate domestic consumers, at least to some extent, resulted in huge fiscal burden for the Government and financial problems for the public sector oil marketing companies.
http://petroleum.nic.in/reportprice.pdf

Policy responses

Case study: attempts to reform India's kerosene subsidy

This report, written by Dr. Bhamy V. Shenoy, examines attempts to reform India's long-standing subsidy on residential kerosene. At least one third of the subsidised kerosene is diverted to the black market for use as a transport fuel – a lucrative business for corrupt fuel distributors who, in turn, bribe government officials to obtain licenses to distribute or blend the fuel and to maintain the subsidy.
www.globalsubsidies.org/en/research/case-study-attempts-reform-indias-kerosene-subsidy

Iran to cut oil subsidies in energy reform

In the past three months, the Islamic Republic of Iran has begun eliminating energy subsidies, a move that could transform the way the country's economy works and influence reform in other energy-producing countries, according to IMF economists. With the removal of subsidies on oil and gas, domestic demand for energy in Iran is expected to decline, leaving more energy resources available for export. If all goes according to plan, the strategy should serve the dual purpose of generating more revenue for the country and curbing wasteful use of energy, IMF mission chief Dominique Guillaume and Senior Economist Roman Zytek tell the IMF Survey online.
www.imf.org/external/pubs/ft/survey/so/2010/int092810a.htm

Brazil's experience with fossil fuel subsidies and their reform

Case studies of fossil fuel subsidy reform in Brazil, France, Ghana, India, Indonesia, Poland and Senegal have been commissioned by GSI. An analysis of the experience in these countries reveals that reform is not easy but can be achieved. This paper examines how Brazilian governments have tried to justify fossil fuel subsidies and looks at the interest groups who have benefitted from them and tried to maintain them.
www.globalsubsidies.org/en/research/case-study-brazils-experience-with-fossil fuel-subsidies-and-their-reform

Reducing the impact of price shocks in energy-intensive economies

This paper argues that countries which have higher energy intensity – those that require more energy per

unit of economic output – tend to suffer from deeper recessions and are more susceptible to price shocks. In addition, price rises, which cause demand to decrease in the short run and induce investments in efficiency in the longer run, are the major channel for causing reductions in energy intensity. Moreover, energy price subsidisation dampens price signals and the pressure that they put on energy intensity, and is therefore associated with higher energy intensity. Price subsidisation also involves significant fiscal costs, with effects on the business cycle, amplifying the magnitude of downturns.
www.hks.harvard.edu/m-rcbg/heep/papers/HEEP%20DP%2016%20Matheny.pdf

Car notches: strategic auto-maker responses to fuel economy policy

Notches – where small changes in behaviour lead to large changes in a tax or subsidy – figure prominently in many policies, but have been rarely examined by economists. In this paper, we analyse a class of notches associated with policies aimed at improving vehicle fuel economy. We provide several pieces of evidence showing that auto-makers respond to notches in fuel economy policy through the precise manipulation of fuel economy ratings so as to narrowly qualify for more favourable treatment. We then describe the welfare consequences of this behaviour and derive a welfare summary statistic applicable to many contexts.
www.economicsclimatechange.com/2011/01/car-notches-strategic-automaker.html

European expert group report on future fuels released

The first comprehensive report on future fuels covering the whole transport sector in Europe has been released. The report was prepared by a European expert group, and concludes that alternative fuels have the potential gradually to replace fossil energy sources and make transport sustainable by 2050 in the EU.
http://climate-l.iisd.org/news/european-expert-group-report-on-future-fuels-released/?referrer=climate-change-daily-feed

Car-scrapping schemes: an effective economic rescue policy?

Financial and economic turmoil and global recession were common concerns in the aftermath of the American mortgage crisis. Governments all over the world set up enormous economic stimulus packages, in which billions of dollars of public money were used to support domestic economies. Following the German example, a large number of countries introduced "car-scrapping" schemes as part of their economic stimulus packages. These schemes rapidly turned out to be a popular anti-cyclical economic policy.
www.globalsubsidies.org/files/assets/pb2_carscrap.pdf

Energy security and Sub-Saharan Africa

Over the last decade the topic of energy security has reappeared on global policy agendas. Most analyses of international energy geopolitics examine the interests and behaviour of powerful energy-importing countries such as the US and PR China. This article begins by examining the ways foreign powers have expanded exploitation of oil and uranium resources in Sub-Saharan Africa.
http://poldev.revues.org/744

What should inflation targeting countries do shen oil prices rise and drop fast?

After a long period of global price stability, inflation increased sharply in 2008, following unprecedented increases in the price of oil and other commodities, notably food. Although inflation remained lower and growth higher in inflation targeting countries than elsewhere, almost everywhere price stability seemed in jeopardy as consumer prices kept surging and central banks struggled to keep expectations down.
www.imf.org/external/pubs/cat/longres.cfm?sk=22580.0

Statistical data

World Energy Outlook 2011

What impact will the return of high energy prices have on the fragile economic recovery? Will geopolitical unrest, price volatility and policy inaction defer investment in the oil sector and amplify risks to our energy security? What will renewed uncertainty surrounding the role of nuclear power mean for future energy and environmental trends? Is the gap between our climate actions and our climate goals becoming insurmountable? *World Energy Outlook 2011* addresses these and other pressing questions.
www.worldenergyoutlook.org

Clean cities alternative fuel price report

The Clean Cities Alternative Fuel Price Report is a quarterly report designed to provide an update on the prices of alternative fuels and conventional fuels in the U.S. This issue summarises prices collected between 12 January 2009 and 30 January 2009 from Clean Cities Coordinators, fuel providers and other Clean Cities stakeholders.
www.afdc.energy.gov/afdc/pdfs/afpr_jan_09.pdf

Global oil and gas tax guide 2009

The global oil and gas tax guide summarises the oil and gas corporate tax regimes in 40 countries and also provides a directory of oil and gas tax contacts. The content is based on information current as of 1 January 2009, unless otherwise indicated in the text.
www.ey.com/RU/en/Industries/Oil---Gas/Oil-and-Gas---Tax-guide

International gasoline rankings – TOP 100 SULFUR

The IFQC has ranked the top 100 countries based on sulphur limits in gasoline. The countries were ranked based on the following criteria (in order): maximum allowable sulphur limits in national standards, sulphur limits in local/regional standards (such as specifications for cities/states) and year of implementation.
www.ifqc.org/NM_Top5.aspx

Overview of CO_2 based motor vehicle taxes in the EU

www.acea.be/images/uploads/files/20100420_CO2_tax_overview.pdf

Motor vehicle taxation: EU summary

www.acea.be/images/uploads/files/20100408_TaxGuide-2010Highlights.pdf

Excise Duty Tables Part II – energy products and electricity

In collaboration with the Member States, the European Commission has established “Excise Duty Tables” showing rates in force in the Member States of the European Union. This publication aims to provide up-to-date information on Member States’ main excise duty rates as they apply to typical products. The information is supplied by the respective Member States. The Commission cannot be held responsible for its accuracy or completeness. Neither does its publication in any way imply endorsement by the Commission of those Member States' legal provisions. It is intended that Member States will regularly communicate all modifications of the rates covered by this publication to the Commission and that revised editions of the tables will be published twice a year.
http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/rates/excise_duties-part_II_energy_products-en.pdf

Gasoline and diesel prices and taxes in industrialised countries

This study looks at price and tax levels for automobile fuels in industrialised countries, the members of the Organisation for Economic Co-operation and Development (OECD).These issues are examined from a comparative perspective. Gasoline and diesel (also known as diesel fuel) are analysed. The primary source of statistics used is the International Energy Agency’s Energy Prices and Taxes publication from the second quarter 2008, from where most figures cited in the tables and graphs come.
www.ifri.org/files/Energie/Davoustang.pdf

Organisations and institutions

African Energy Policy Research Network (AFREPREN/FWD)

AFREPREN/FWD is a registered Non-Governmental Organisation (NGO) based in Nairobi, Kenya, with vast expertise in energy in East and Southern Africa and some experience in West and North Africa. It brings together expertise, experience and skills of two past regional energy initiatives/programmes namely; The African Energy Policy Research Network (AFREPREN) and Foundation for Woodstove Dissemination (FWD).
www.afrepren.org/index.htm

ASEAN Centre for Energy (ACE)

ACE is an intergovernmental organisation established by Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore and Vietnam. It is designed to be a catalyst for the economic growth and development of the ASEAN region by initiating, coordinating and facilitating regional as well as joint and collective activities on energy.
www.aseanenergy.org

Clean Air Initiative for Asian Cities (CAI-Asia)

The Clean Air Initiative for Asian Cities (CAI-Asia) is a registered UN Type II Partnership with over 200 organisational members, eight Country Networks and the CAI-Asia Centre as its secretariat. Its mission is to promote better air quality and liveable cities by translating knowledge into policies and actions in order to reduce air pollution and greenhouse gas emissions from transport, energy and other sectors
http://cleanairinitiative.org/portal/whatwedo

Energy Sector Management Assistance Programme (ESMAP)

ESMAP is a global technical assistance programme under the joint sponsorship of the World Bank and the United Nations Development Programme, which helps build consensus and provides policy advice on sustainable energy development to governments of developing countries and economies in transition.
www.esmap.org

Global Subsidies Initiative (GSI)

The Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD) is dedicated to research and awareness building on public subsidies and their impacts on sustainable development. In cooperation with a growing international network of research and media partners, the GSI seeks to determine the precise good or harm done by public subsidies and to encourage open debate and awareness of the available options for reform.
www.globalsubsidies.org/homepage

International Energy Agency (IEA)

IEA is an intergovernmental body committed to advancing security of energy supply, economic growth and environmental sustainability through energy policy co-operation. It acts as energy policy advisor to the 26 member countries in their effort to ensure reliable, affordable and clean energy for their citizens.
www.iea.org

International Monetary Fund (IMF)

The IMF is an international organisation of 184 member countries. It was established to promote international monetary cooperation, exchange stability and orderly exchange arrangements; to foster economic growth and high levels of employment; and to provide temporary financial assistance to countries to help ease balance of payments adjustment.
www.imf.org

The International Institute for Sustainable Development (IISD)

The International Institute for Sustainable Development (IISD) is a Canada-based, public policy research institute with a long history of conducting cutting-edge research into sustainable development.
www.iisd.org/about

Organisation of the Oil Producing Countries (OPEC)

The OPEC is a permanent, intergovernmental organisation whose objective is to co-ordinate and unify petroleum policies among Member Countries.
www.opec.org

The World Bank

The World Bank is a vital source of financial and technical assistance to developing countries around the world. It is made up of two unique development institutions owned by 184 member countries – the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA).
www.worldbank.org
www.worldbank.org/energy

The World Energy Council

The World Energy Council (WEC) is the foremost multi-energy organisation in the world today. WEC has Member Committees in nearly 100 countries, including most of the largest energy-producing and energy-consuming countries. Established in 1923; the organisation covers all types of energy, including coal, oil, natural gas, nuclear, hydro and renewables.
www.worldenergy.org/publications/809.asp

7 Annex

Data sources

The data for industrialised countries come from various sources, primarily from the German automobile club 'Allgemeiner Deutscher Automobile Club' (ADAC) in Munich and European Union.

Most of the data for developing countries are based on local price surveys conducted by GIZ's local offices. In some cases, the local German embassies/consulates kindly helped with the collection of the relevant data.

Method of collection

Global fuel prices vary as a function of global oil prices or as a consequence of individual legal frameworks, not only among countries but also within individual countries. For European countries, nationwide average filling station fuel price statistics (pump prices) were utilised in this survey, whereas for all other countries fuel prices as posted at filling stations in the respective capital cities were collected. The latter method was followed using a questionnaire circulated to GIZ local offices worldwide. Where several fuel prices for major cities were available, the unweighted average has been used.

The German Federal Ministry for Economic Cooperation and Development commissioned this project.

Fuel qualities

Throughout this study gasoline prices refer to Super Gasoline and mean 'unleaded Octan 95'.

Unit conversion for non-litre countries

All fuel prices have been converted into metric litres as the unit of measurement.

Region	Country	Fuel unit
Africa	Liberia	US Gallon
	Sierra Leone	US Gallon
America	Antigua and Barbuda	Imperial Gallon
	Belize	US Gallon
	Colombia	US Gallon
	The Dominican Republic	US Gallon
	Ecuador	US Gallon
	El Salvador	US Gallon
	Grenada	US Gallon
	Guatemala	US Gallon
	Guyana	Imperial Gallon
	Haiti	US Gallon
	Honduras	US Gallon
	Nicaragua	US Gallon
	Panama	US Gallon
	Peru	US Gallon
	Puerto Rico	US Gallon
	The United States	US Gallon
Asia	Myanmar (Burma)	US Gallon
	United Arab Emirates	Imperial Gallon

Unit conversions

1 US Gallon = 3.785 Litres
1 Imperial Gallon = 4.546 Litres
1 Barrel = 159.000 Litres

Conversion of USD per barrel to US cents per litre

Crude oil price	*Study*	Equivalent						
per Barrel	81	45	50	55	60	65	70	75
per Litre	0.51	0.28	0.31	0.35	0.38	0.41	0.44	0.47

Currency conversion

The objective was to compare the fuel price situation in various countries worldwide. The USD was used as the reference currency, since all crude oil prices and most countries' import statistics are quoted in US dollars. The USD conversion rates are those applicable as per 16–18 November 2010. In countries with different or double exchange rates, the 'market rate/parallel rate/black market rate' was given preference over the official exchange rate. This was not only because it is the rate consumers mostly rely on, but also because experience shows that the official exchange rate eventually tends to be replaced by the parallel exchange rate.

There was a decrease of USD 0.06 in the dollar-euro exchange rate between November 2008 (USD 1 = EUR 0.79) and November 2010 (USD 1 = EUR 0.73).

Crude oil price at world market

On the reference day of the survey the crude oil price had increased by 68 % compared to 2008. Converted, a price increase of USD 0.21 per litre was registered.

Brent crude oil price trend at time of survey	USD/barrel (159 litres)	US cents/litre
15–17 November 2006	60.21	38
17–21 November 2008	48.00	30
16–18 November 2010	81.00	51
	Price increase in 2 years	+21 US cents/litre

At its lowest the price fell to USD 36 per barrel in December 2008, at its highest, the crude oil price briefly touched USD 127 per barrel in May 2011.

Photo Credits

Stefan **Belka**, page 33a Italy

Manfred **Breithaupt**, pages 9b East Timor; 23b Brazil; 33c, 62 North Sumatra, 63a

Regine **Dietz**, page 8 Vietnam

Sebastian **Ebert**, pages 48 Italy; 79 Brazil

Rüdiger **Fürll**, pages 90 Chile; 92 Brazil

GIZ/GIZ Non Urban Transport Photo DVD 2008:
88 Iran; 9a, 9c, 9d Zambia; 33b, 63c China; 63b; 101 Zambia

Santhosh **Kodukula**, page 33d India

Eva **Krockow**, pages 5, 63d, 71 Uganda

Gerhard **Menckhoff**, page 23 Peru

Klaus **Neumann**, page 49b, 49c Germany; 49d Spain

Karl **Otta**, page 23c New Zealand

Ko **Sakamoto**, page 87 Jordan;

Laura **Varano**, page 23d Colombia

Armin **Wagner**, cover photo Ukraine; pages 1 Mali; 49a Ukraine

Published by

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
Sector Project "Transport Policy Advisory Services"
Division 44 – Water, Energy, Transport

Registered offices
Bonn and Eschborn, Germany
Friedrich-Ebert-Allee 40
53113 Bonn, Germany
T +49 228 44 60-0
F +49 228 44 60-17 66
E transport@giz.de
I www.giz.de

Dag-Hammarskjöld-Weg 1-5
65760 Eschborn, Germany
T +49 6196 79-0
F +49 6196 79-1115

Authors
Armin Wagner
David Becker
Dr Bernhard Dicke (Chapter on "*Formula-based Pricing Mechanisms of Fuels in Developing Countries*")
Sebastian Ebert
Ahmed Ragab (Chapter on "*Fuel Prices in the Arab World*")

We kindly acknowledge the contribution of Miramontes Montserrat in preparing this report.

Manager
Manfred Breithaupt

Editing
Armin Wagner, Transport Policy Advisor
E Armin.Wagner@giz.de
I www.giz.de/transport
I www.giz.de/fuelprices
I www.sutp.org

Design and Layout
Klaus Neumann, SDS, G.C.

Photo credits
see inside back cover

As at: April 2012

GIZ is responsible for the content of this publication.

On behalf of
Federal Ministry for Economic Cooperation
and Development (BMZ)
Division 313 – Water, Energy, Urban Development

Postal address of BMZ offices
Bonn office
Dahlmannstraße 4
53113 Bonn, Germany

T +49 228 99 535 – 0
F +49 228 99 535 – 3500

BMZ Berlin | im Europahaus
Stresemannstraße 94
10963 Berlin, Germany

T +49 30 18 535 – 0
F +49 30 18 535 – 2501

E poststelle@bmz.bund.de
I www.bmz.de