

**Survey of impact of Kyoto
Protocol implementation on
OPEC members countries
supply/demand/revenue and
structural developments.**

CHAPTER -5

Survey of impact of Kyoto Protocol

- **5-1 Introduction**
- **5-2 Different scenarios of impact of KP on OPEC oil demand and revenue**
- **5-3 boom and bust of scenarios**
- **5-4 Iran's situation .**
- **5-5 Restructuring OPEC sentiments.**

5-1 Introduction

- **Kyoto Protocol adaptation (1997)**
- **5.2% reduce (GHG) by (2008-2010)**
- **OPEC followed the results**
- **Reduce adverse effect**
- **Studies and research**
- **OPEC World Energy Model (OWEM)**
- **Kyoto protocol with or without USA**
- **Kyoto protocol flexible mechanism (CDM,JI,ET)**

5-2 Different scenarios of impact of KP on OPEC oil demand and revenue

- **5-2-1 Kyoto scenario without emission trade**
- **5-2-2 Kyoto Scenario with Emission Trading**

5-2-1 Kyoto scenario without emission trade

TABLE 5-1
Kyoto scenario results for 2010
No emission trade

	REFERENCE			<i>with USA</i>	<i>without USA</i>
	CASE	<i>with USA</i>	<i>without USA</i>	<i>weak price</i>	<i>weak price</i>
Real Basket Price(\$2001/b)	19.7	19.7	19.7	12.2	16.3
Annual OPEC Revenue (\$2001)bill.)	152.3	133.4	142.4	96.5	126.4
World oil demand (mb/d)	89.4	83.5	86.5	85.4	87.7
OPEC Production (mb/d)	37.3	31.6	34.4	37.1	37.1
World CO2 Emission (billion tonnes carbon)	8.062	7.138	7.696	7.196	7.754

5-2-2 Kyoto Scenario with Emission Trading

	<i>REFERENCE CASE</i>	<i>with USA</i>	<i>without USA</i>	<i>with USA hot air</i>	<i>without USA hot air</i>
permit Price(\$2001)/tco2)	-43	43	20.1	27.8	6.5
Annual OPEC Revenue (\$2001)bill.)	152.3	139.5	146.3	143.4	150.1
World oil demand (mb/d)	89.4	84.9	87.4	86.4	88.6
OPEC Production (mb/d)	37.3	33	35.3	34.4	36.5
World CO2 Emission (billion tonnes carbon)	8.062	7.15	7.703	7.355	7.904

5-3 boom and bust of scenarios

table 5-2

scenarios results for 2010

max.min. option

	<i>reference case</i>	<i>without USA</i>		<i>with USA</i>		
		<i>without ET</i>	<i>with ET.JI.CDM</i>	<i>without ET</i>	<i>with ET</i>	
Real basket price(\$ 2001/b)	19.7	19.7	19.7	19.7	12.2	19.7
Permit price(\$2001/TCO2)	2.7	43
Annual OPEC revenue \$/bill.	152.5	142.4	150.4	133.4	96.5	139.5
World oil demand (mb/d)	89.4	86.5	88.6	83.5	85.4	84.9
OPEC production (mb/d)	37.3	34.4	36.5	31.6	37.1	33
<i>Differences from reference case</i>						
<i>OPEC revenue (\$2001 bill.pa)</i>	...	-10.1	-2.1	-19.1	-56	-13.9
<i>World oil demand (mb/d)</i>	...	-2.9	-0.8	-5.9	-4	-4.5

5-4 Iran's situation .

table 5-3

Iran's oil demand & revenue condition in 2010
under the selected scenarios

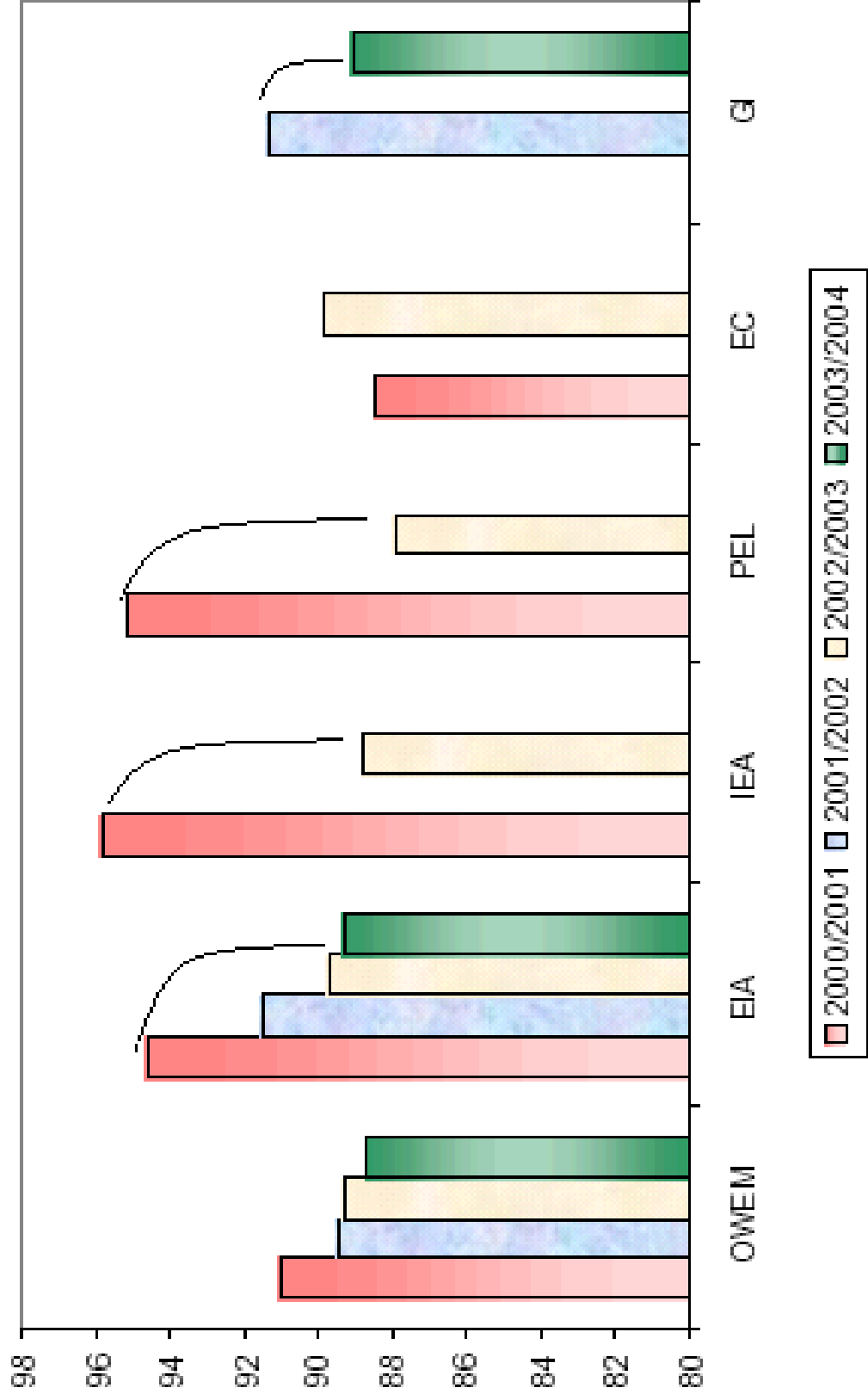
	<i>reference case</i>	<i>min. losses(1)</i>	<i>max. losses(2)</i>	<i>most possible(3)</i>
Annual OPEC revenue(\$2001/bill.)	<u>152.5</u>	<u>150.4</u>	<u>133.4</u>	<u>142.4</u>
World oil demand (mb/d)	<u>89.4</u>	<u>88.6</u>	<u>83.5</u>	<u>86.5</u>
OPEC oil production (mb/d)	<u>37.3</u>	<u>36.5</u>	<u>31.6</u>	<u>34.4</u>
OPEC NGL Production (mb/d)	<u>4.1</u>	<u>4.1</u>	<u>4.1</u>	<u>4.1</u>
OPEC crude oil production (mb/d)	<u>33.2</u>	<u>32.4</u>	<u>27.5</u>	<u>30.3</u>
Iran oil production (mb/d) 14.6%share	<u>4.8</u>	<u>4.7</u>	<u>4</u>	<u>4.4</u>
OPEC oil export (mb/d)74% of production	<u>24.5</u>	<u>24</u>	<u>20.3</u>	<u>22.4</u>
Iran oil export (mb/d) 11.5%of opec prod.	<u>2.8</u>	<u>2.75</u>	<u>2.3</u>	<u>2.6</u>
Iran oil revenue \$ billion	<u>20</u>	<u>19.77</u>	<u>16.5</u>	<u>18.7</u>
<i>Differences from reference case</i>				
<i>Iran oil revenue \$ billion</i>	<u>...</u>	<u>0.23</u>	<u>3.5</u>	<u>1.3</u>

5-5 Restructuring OPEC sentiments.

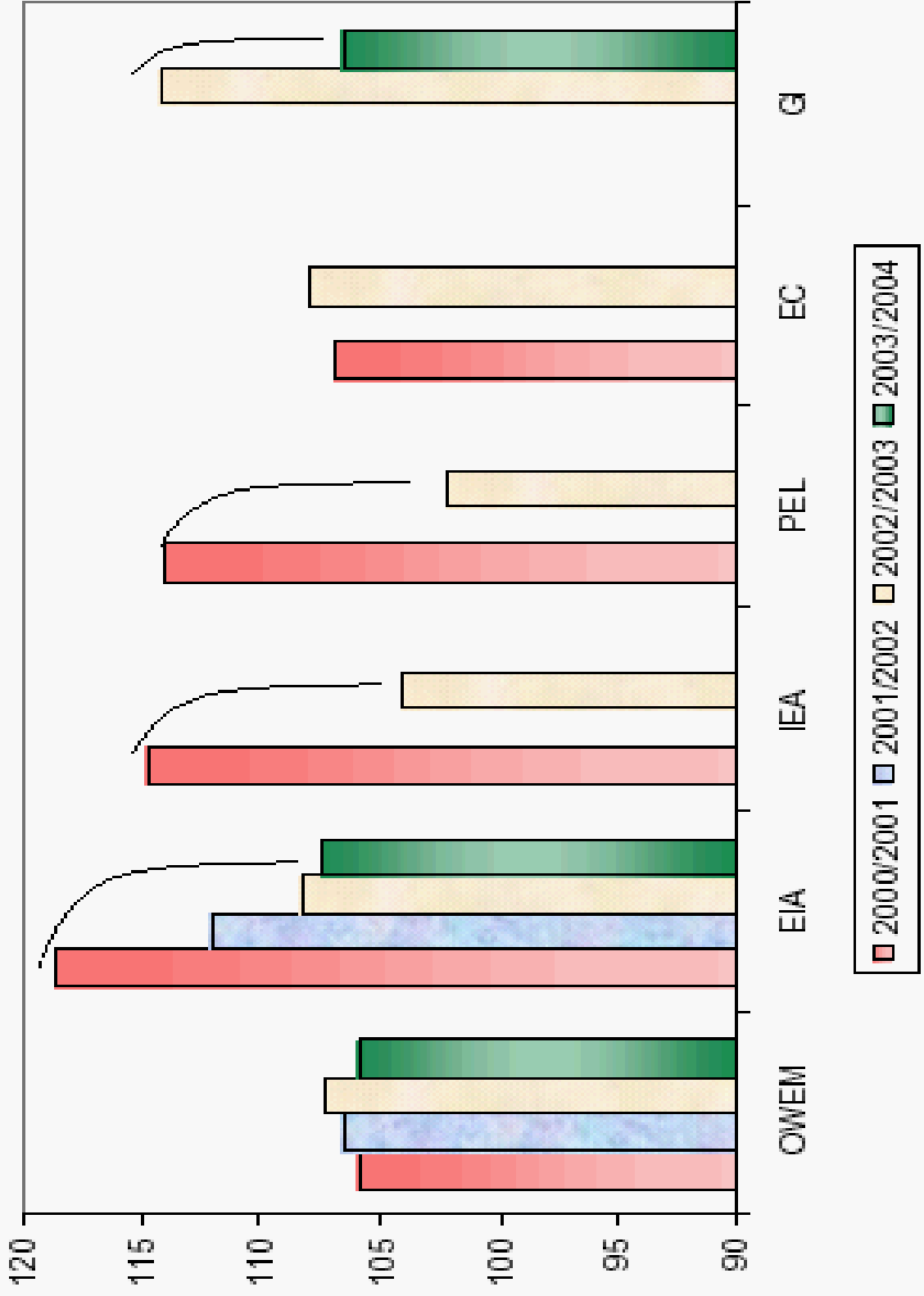
OPEC Concerns about

- 1) Articles 4.8(h) & 4.9 of convention and 2.3 & 3.4 of KP
- 2) policies & measures taken by annex 1 countries
- 3) total use of KP flexible mechanisms especial CDM

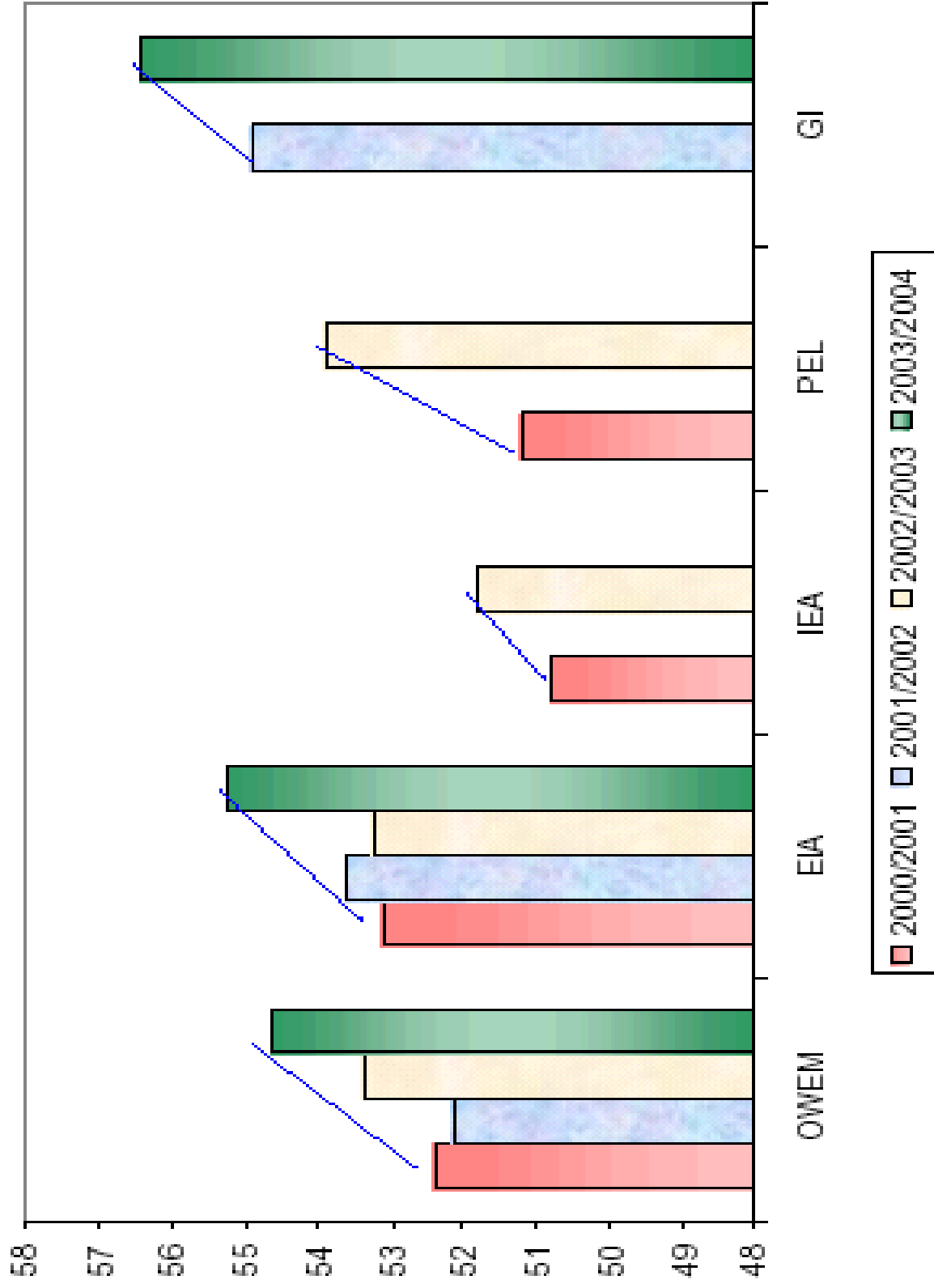
World oil demand in 2010, mb/d



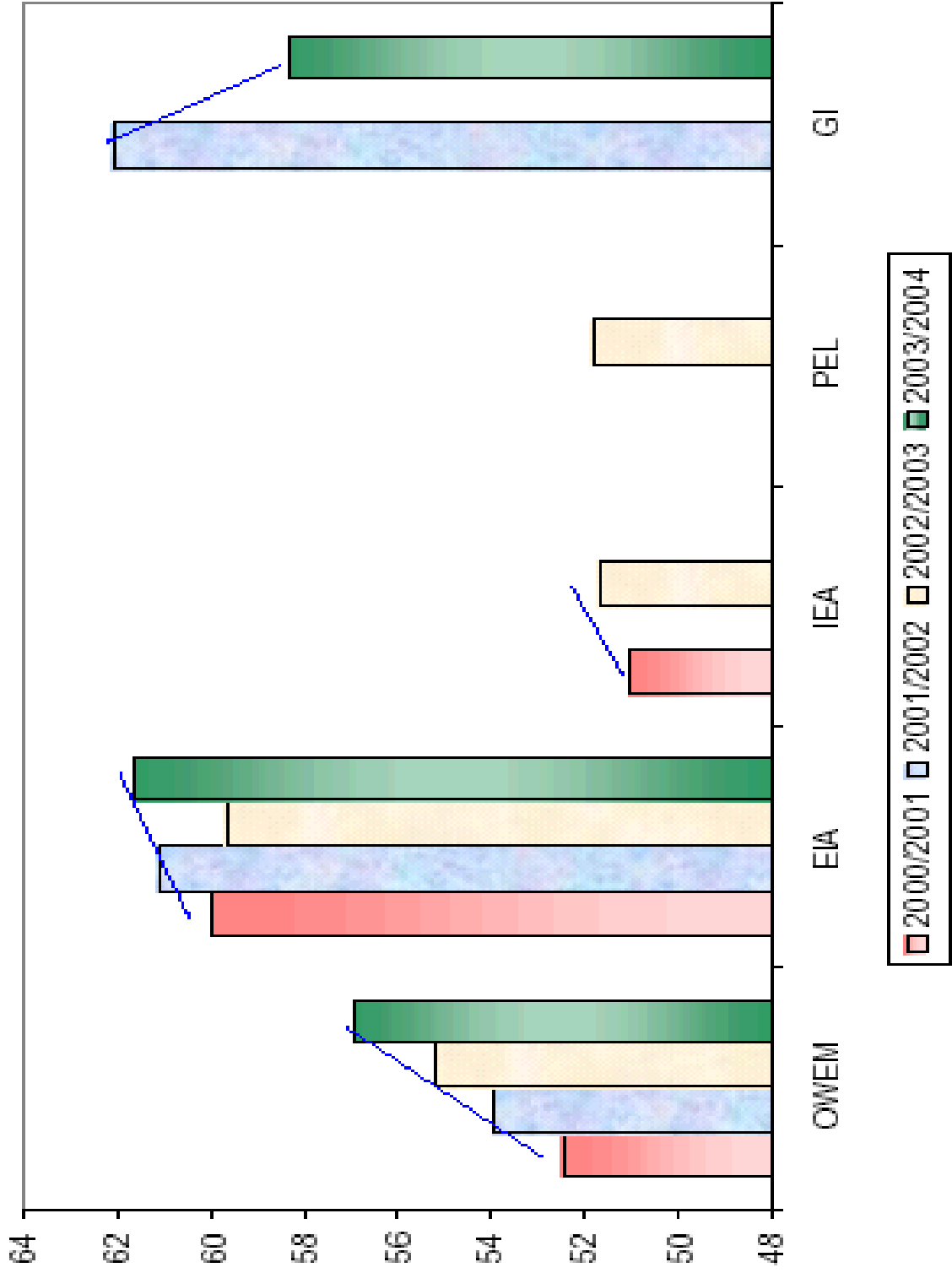
World oil demand in 2020, mbl/d



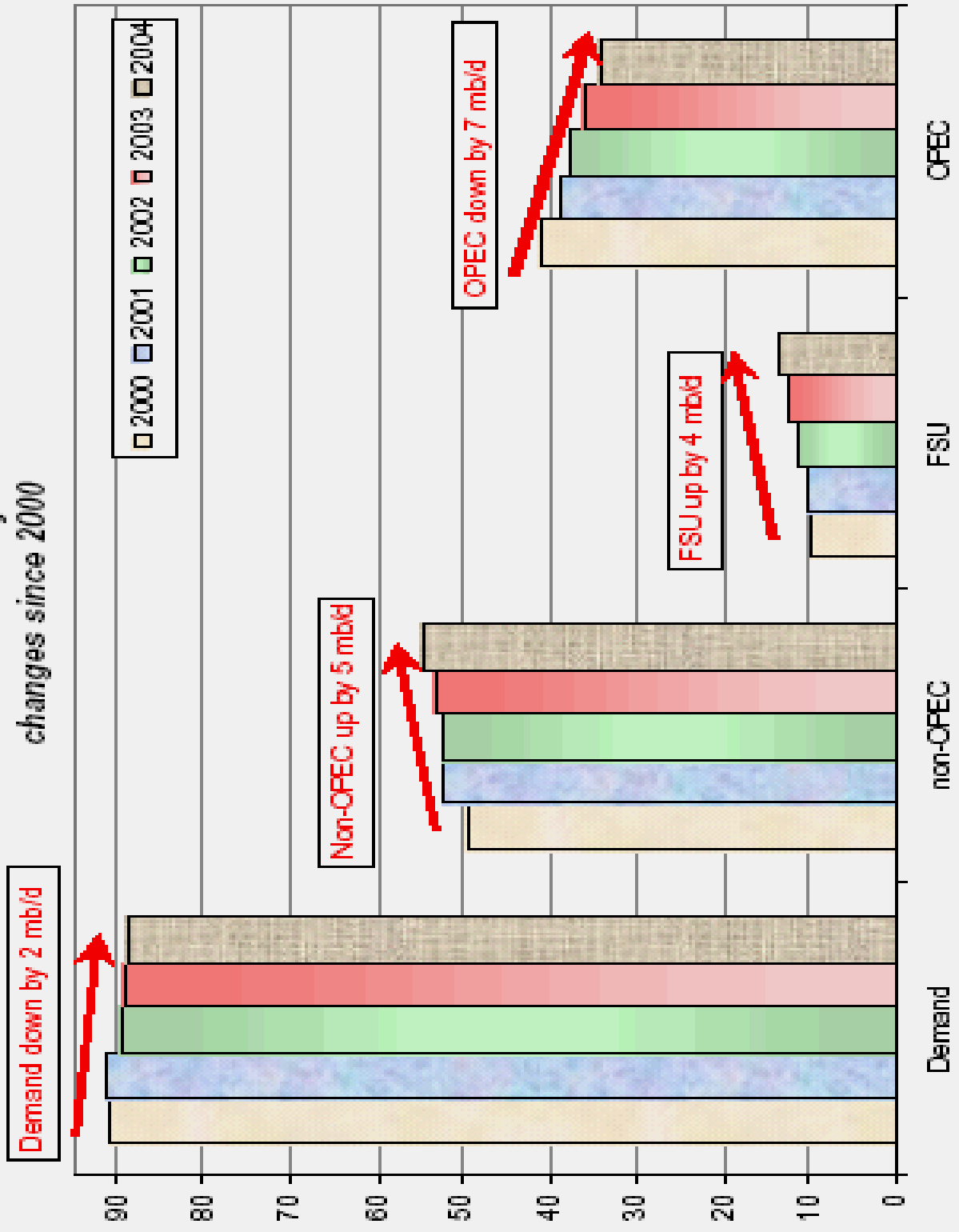
Non-OPEC supply in 2010, mbl/d



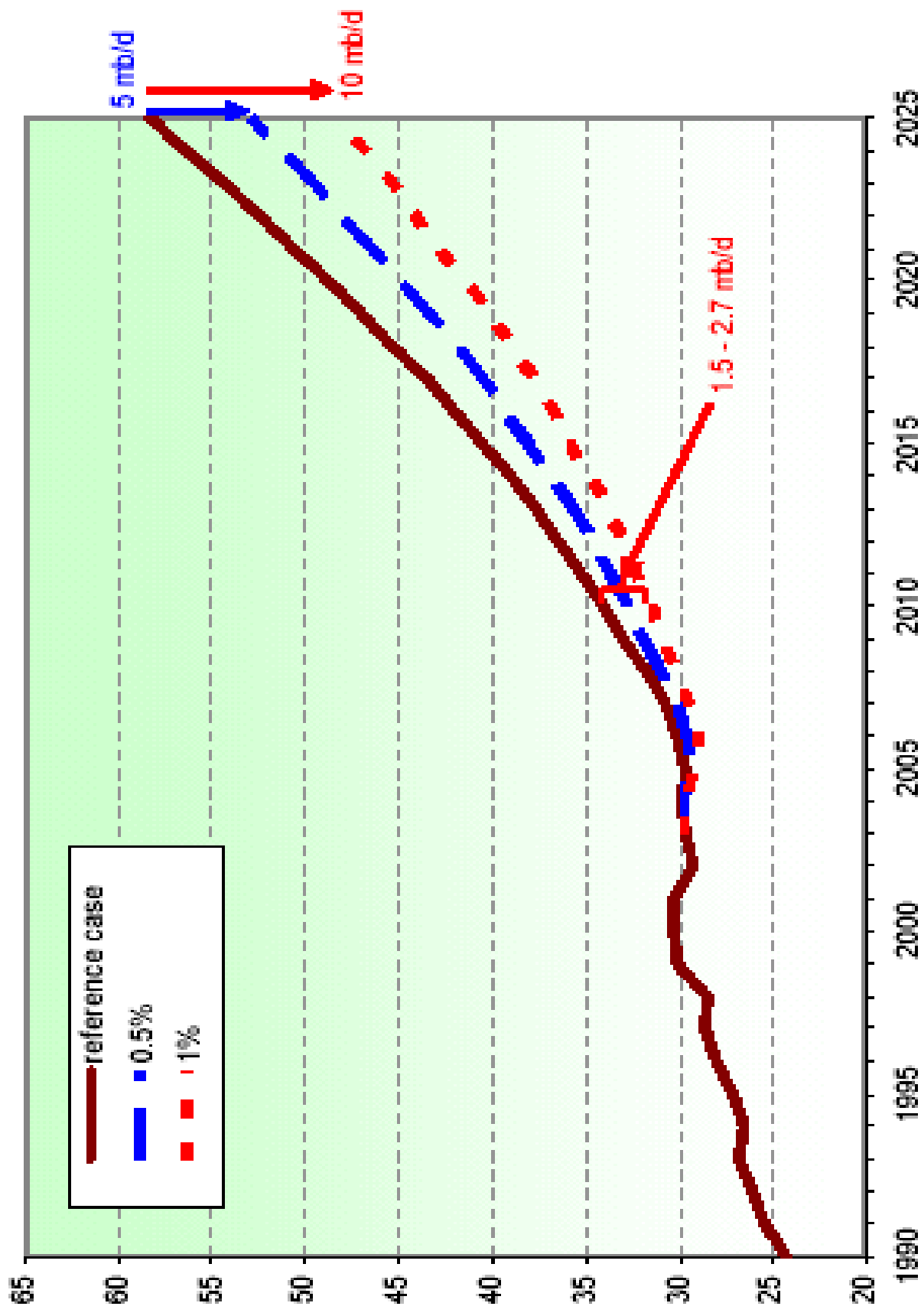
Non-OPEC supply in 2020, mb/d



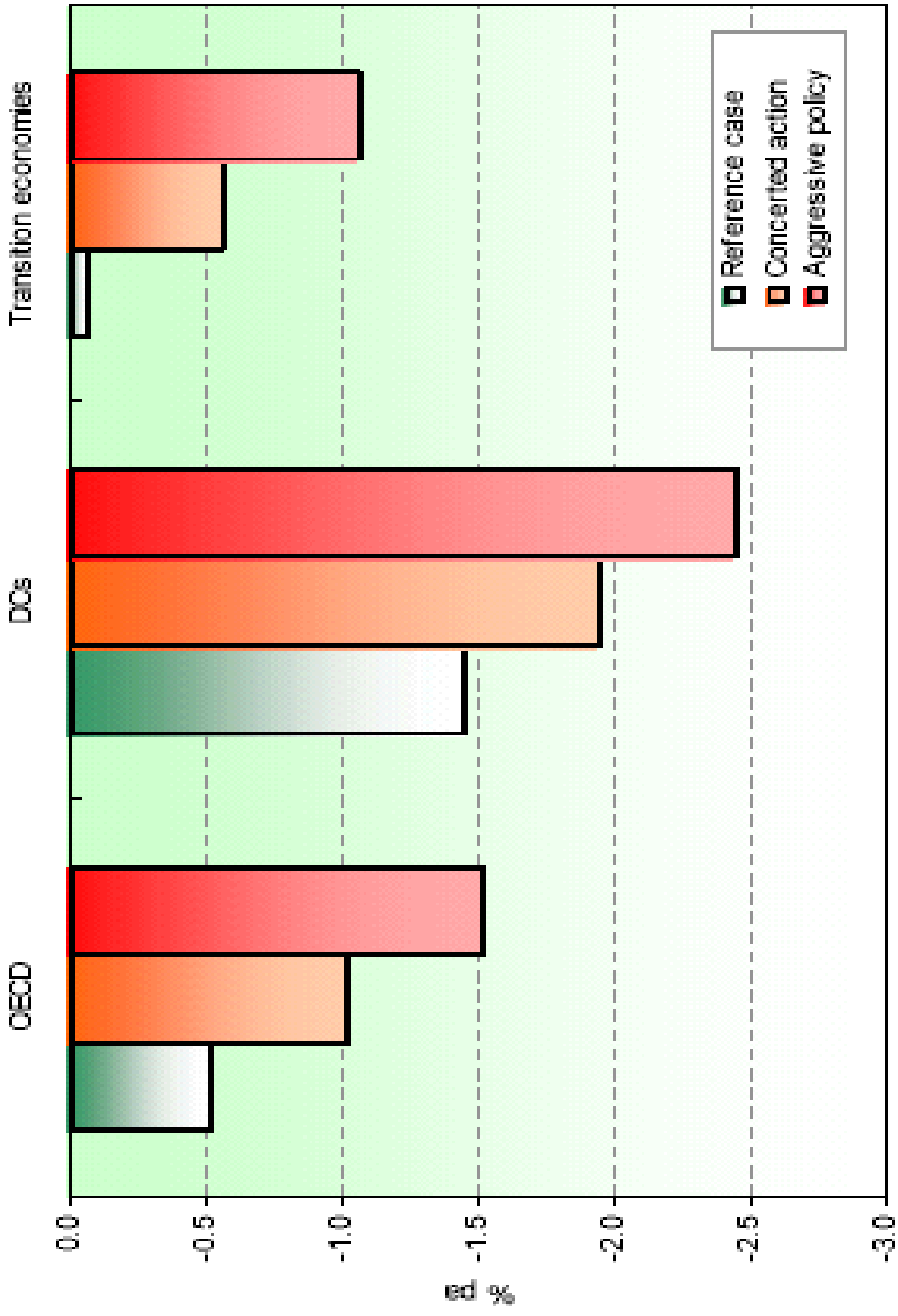
**OWEM forecasts for the year 2010:
changes since 2000**



OPEC production in efficiency scenarios, mb/d



Average decline in oil use per vehicle: concerted action and aggressive policy scenarios





I thank you for your attention