

Global Energy Industry



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Global Energy Industry
 What are the main energy sources in the world?
 How do different countries generate energy?
 What are the environmental impacts of energy production?

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Renewable Energy Sector
 What are the main types of renewable energy?
 How is the renewable energy sector growing?
 What are the challenges facing the sector?

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China and India
 How are China and India changing their energy mix?
 What are the implications for the global energy market?

The Global Oil and Gas Industry

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United States
 How has the US oil and gas industry changed in the last decade?
 What are the key factors driving these changes?

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Changing Impact of Russia on Global Oil
 How has Russia's role in the global oil market changed since 2014?
 What are the implications for other major oil producers?

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Energy Transition
 How is the global energy industry transitioning to a low-carbon future?
 What are the key challenges and opportunities?

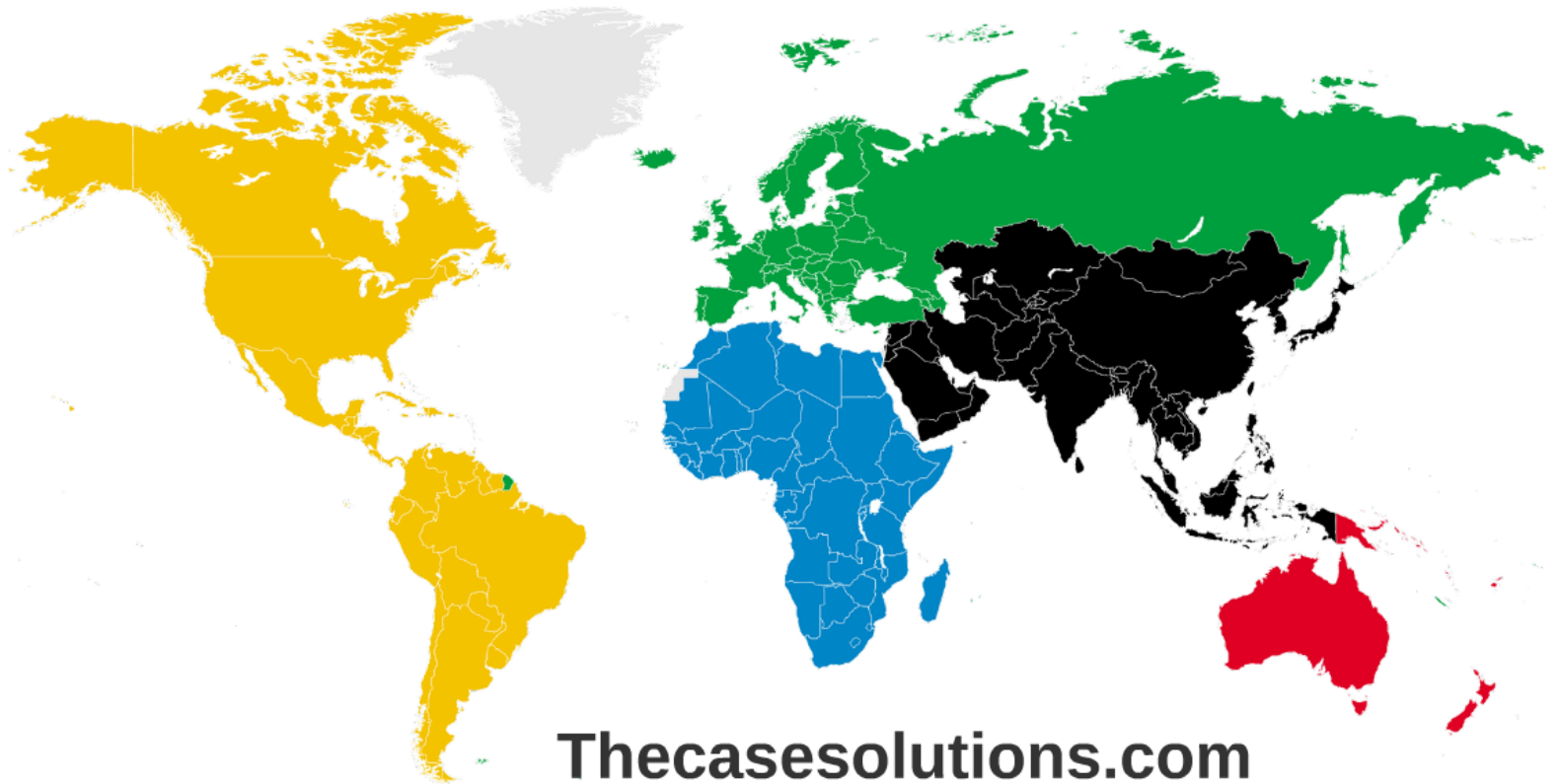
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Summary

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Agenda
 Oil and gas industry vs. renewable energy industry
 How do the oil and gas industry compare to the energy industry as a whole?
 United States' position in the Energy Industry
 What are some of the trends that affect the "global market" position in the global oil and gas industry?
 Current developments in renewable/alternative fuels
 How can alternative fuels influence global oil and gas industry?

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Renewable Energy

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The Global Oil and Gas Industry



United States

• The United States is among the top five consumers and producers of oil and gas

Changing Import Reliance of Natural Gas

Changing import reliance (2010-20)
natural gas
100%
80%
2010
2020
increasing reliance
decreasing reliance

Agenda

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Oil and Gas industry vs. Global Energy Industry

How does the oil and gas industry compare to the energy industry as a whole?

United States' position in the Energy Industry

What are some of the trends that affect the United States' position in the global oil and gas industry?

Current developments in substitutes/alternative fuels

How are alternative fuel substitutes developing and how do they effect the global oil and gas industry?

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Global Energy Industry

World energy consumption is expected to increase 56% over the next 30 years (2010 - 2040)

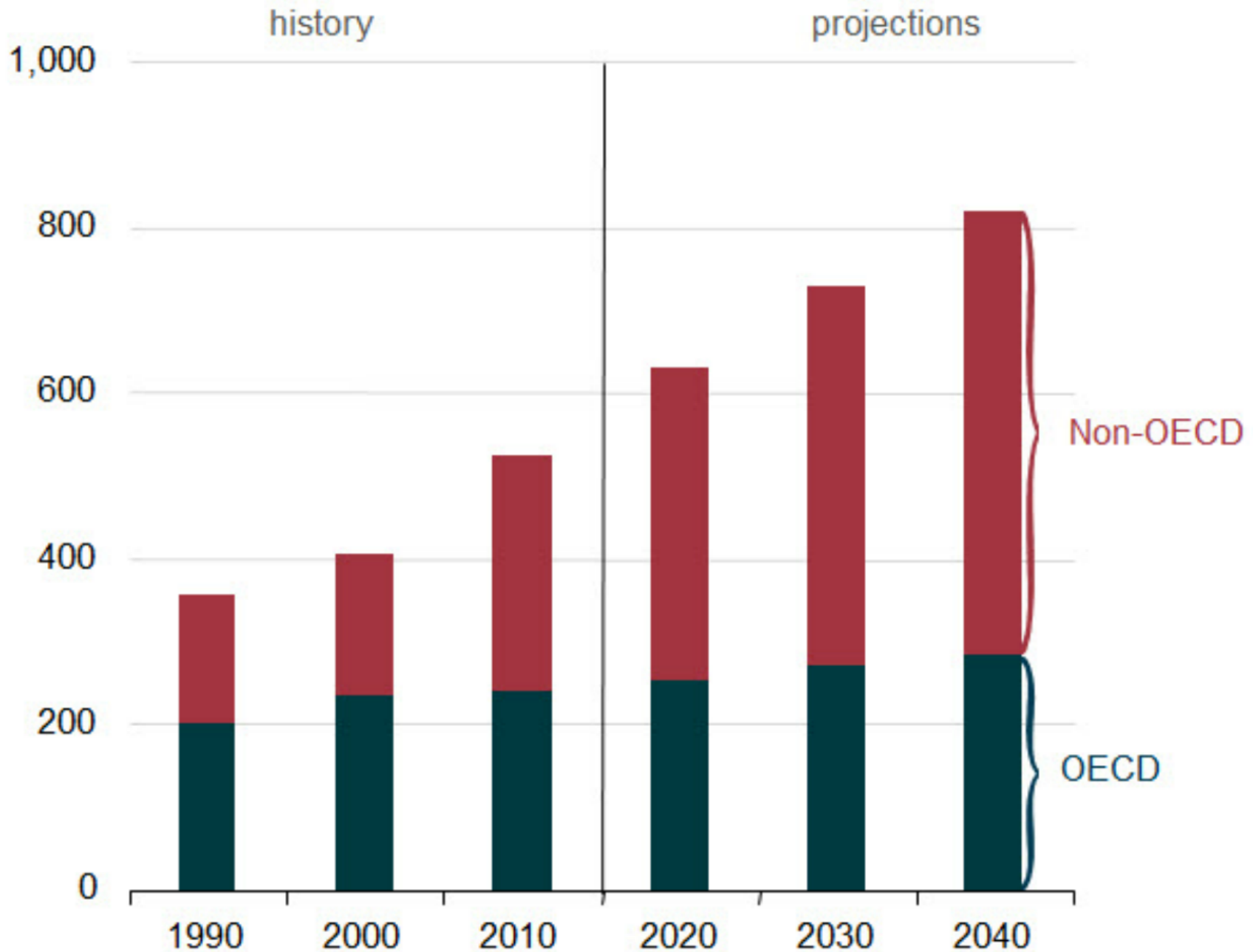
85 % of the increase from countries outside of the Organization for Economic Cooperation and Development (OECD)

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Figure 12. World total energy consumption, 1990-2040

quadrillion Btu



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NOCs in International Energy Market

Table 1. Comparative Ranking of the Top Ten Oil Companies

Rank 2006	Company	Ownership
1	Saudi Aramco	State
2	ExxonMobil	Private
3	NIOC	State
4	PDV	State
5	BP	Private
6	Shell	Private
7	PetroChina	90% State
8	Chevron	Private
9	Total	Private
10	Pemex	State

Table 3. World Petroleum Liquids Production (thousands of barrels per day)

Rank 2006	Company	Production
1	Saudi Aramco	11,035
2	NIOC	4,049
3	Pemex	3,710
4	PDV	2,650
5	KPC	2,643
6	BP	2,562
7	ExxonMobil	2,523
8	PetroChina	2,270
9	Shell	2,093
10	Sonotrach	1,934

NOCs in International Energy Market

Table 2. World Liquid Petroleum Reserves Holdings
(millions of barrels)

Rank 2006	Company	Reserves
1	Saudi Aramco	264,200
2	NIOC	137,500
3	INOC	115,000
4	KPC	101,500
5	PDV	79,700
6	Adnoc	56,920
7	Libya NOC	33,235
8	NNPC	21,540
9	Lukoil	16,114
10	QP	15,200

Top ten reserve holders, except Lukoil, was state owned.

The five large international oil companies have reserves to last 11 years.

NOCs in International Energy Market

**Table 4. Total Employees per Million Barrels Equivalent Produced
Economic Development, 2004**

National Oil Companies	Employees	Private Oil Companies	Employees
Saudi Aramco	11	ExxonMobil	19
PDVSA	16	<u>ConocPhillips</u>	20
CNOOC	18	Chevron	24
NNPC	20	Shell	127
<u>Petromas</u>	38	BP	27
Statoil	39		
NIOC	43		
ONGC	94		
<u>Rosneft</u>	172		
<u>PetroChina</u>	267		

Jobs Programs
Economic development
Foreign Policy
Energy Security