### WORLD ENERGY OUTLOOK Focus on Oil & Gas

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### **World Primary Energy Demand**



Gas grows fastest in absolute terms & non-hydro renewables fastest in % terms, but oil remains the dominant fuel in 2030





### **Change in World Oil Production**





### World oil Supply





### World Oil Reserves and Expected Production





### **USGS Resource Estimates**





### **World Natural Gas Demand**



Most of the projected increase in gas demand comes from the power sector, while GTL plants emerge as a new outlet



### **Gas Production by Region**



The Middle East sees the biggest jump in production, but the transition economies remain the largest producing region



### Net Gas-Trade Flows, 2030



*The Middle East overtakes the transition economies as the world's biggest gas-exporting region* 

Resources are sufficient **BUT** The Energy Sector will have to face 4 major Challenges :

• Security of energy supplies

- Threat of environmental damage caused by energy use
- Uneven access of the world's population to modern energy
- Investment in energy-supply infrastructure



# World oil and gas proven reserves



Source : USGS 2000, cedigaz 2001



### OPEC Share in World Oil Production



OPEC Share in world oil production will reach 54% in 2030 from 38% today

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### **Energy-Related CO<sub>2</sub> Emissions**

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World emissions increase by 1.8 % per year to 38 billion tonnes in 2030 – 70% above 2000 levels



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### Map of Global Energy Poverty

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1.6 billion people have no access to electricity, 80% of them in South Asia and sub-Saharan Africa

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### Investment in energy-supply infrastructure

#### World Energy Investment 2001-2030

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*Global investment of \$3 trillion needed in 2001-2030 for oil and gas, respectively* 



### Energy Investment Share in GDP 2001-2030



The share of energy investment in the economy is much higher in developing countries and the transition economies than in the OECD



### Conclusions

## Resources are adequate in the 30 coming years but supply reliability depend on :

- Access to reserves and production policies -OPEC (and Iraq) & Russia
- massive, timely investment in new production capacity and transport infrastructure
- Investment risks : macro-economic conditions (Oil/gas prices and rate of returns), Environmental policies, geopolitics...
- However, resources are not unlimited and longer term prospects will have to take into account this constraint