



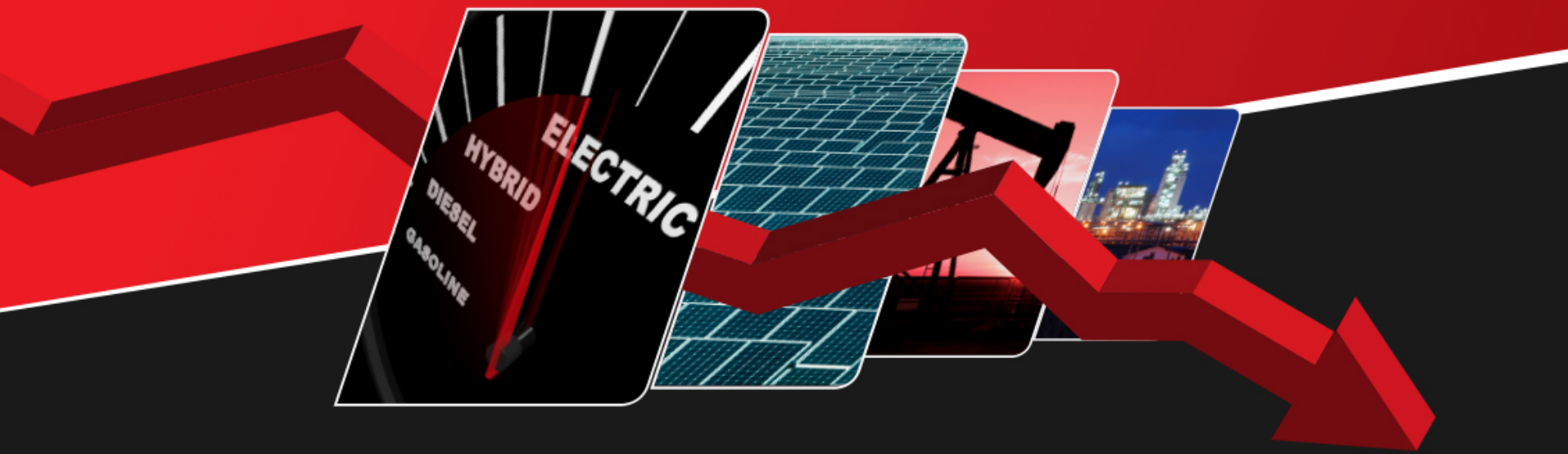


The delegation from Kuwait



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“Oil companies and climate change:
are they at risk?? **NOC Perspective**”

Presentation outline:

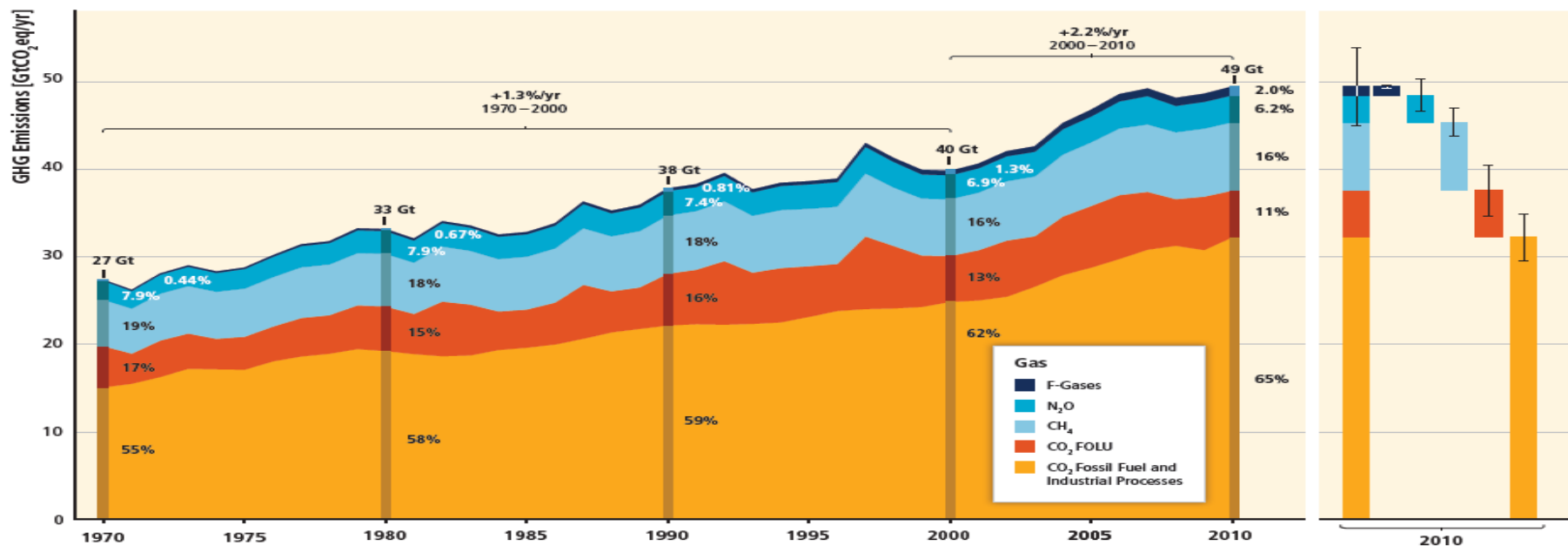
- **Introductory remarks:**
 - 1- Energy industry and Climate Change(CC).**
 - 2- Conceptual clarification of CC threats.**
- **Paris Agreement (PA) key features.**
- **Implications of PA on future energy mix, oil in particular.**
- **Glance at other projections of current NDCs.**
- **Lessons learned from history .**
- **The gap between the realities of UNFCCC and GHGs deep cut expectations.**
- **Conclusion back to the Q.**

Introductory Remarks

1- Energy industry and Climate Change

- ❖ In 2014, about **67%** of the global emissions of GHGs were attributed to the energy sector and the remaining 33% to the non-energy sector (including agriculture, forestry and waste). **OPEC WOO 2016**
- ❖ The energy sector generates approximately **two thirds** of global greenhouse gas emissions and over **80% of total CO2**. It produced 31.7 Gt of CO2 in 2012, the largest share of which came from power generation . **IEA-The Way Forward 2015**

Total Annual Anthropogenic GHG Emissions by Groups of Gases 1970–2010



Source : IPCC 5AR

Introductory Remarks

2- Conceptual clarification

- ❖ Climate change threats and risks  Adverse effects & adverse impacts in UNFCCC & related legal instruments languages.
- ❖ Article 1 of the UNFCCC states the following :-



UNFCCC

“Adverse effects of climate change” means changes in the physical environment or biota resulting from climate change which have ***significant deleterious*** effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.

Conceptual clarification.....cont.

- ❖ UNFCCC & related Legal instruments acknowledged 2 categories for adverse effects & impacts.

Adverse effects(**or** impacts) of Climate change

- IPCC 5th AR highlighted that climate change poses a new threat to **energy security**.
- Risks arise from **long-term gradual changes** (rising air and water temperatures).
- Risks also arise from more frequent and stronger **extreme weather events**(heat waves, droughts, heavy precipitation, storms.....etc).

Adverse effects(**or** impacts) of the implementation of response measures

- UNFCCC **didn't explicitly define** what are these response measures.
- **Guidelines** were set up in UNFCCC Art.3 to govern such measures .
- **KP identified** various of policies & measures in Art.2.
- KP Ps&Ms were **confined to Annex 1 Parties and mitigation only**.
- Paris Agreement is **more comprehensive** and addresses areas other than mitigation, such as adaptation and means of implementation.

Conceptual clarification.....cont.



❖ Kyoto Protocol Policies & Measures related to Energy (Art.2)

- **Enhancement of energy efficiency**
- **Protection & enhancement of sinks and reservoirs of GHGs**
- **R&D and increased use of:-**
 - new and renewable forms of energy
 - carbon dioxide sequestration technologies
 - advanced innovative environmentally sound technologies;
- **Reduction or phasing out of market imperfection**
- **Application of market instruments;**
- **Measures to reduce emissions of GHGs in the transport sector**
- **Reduction of methane emissions in the production, transport and distribution of energy;**



The climate agreement reached during the recent Paris talks was just **a step** in what will be a long and hard process .

Christina Figueres
Former Executive Secretary of UNFCCC

Paris Agreement (PA) key features .



- PA seeks to **enhance** the implementation of the **UNFCCC**.
- PA sets an **ambitious long-term goal** :

“Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels,....”
- Achieving such goal should be in the context of **SD, equity , CBDR** and other UNFCCC principles
- PA applied the **bottom – up approach** to commit all Parties to take actions on climate change and report on progress (**NDCs**).
- NDCs efforts and actions must be linked to **support of means of implementations(MIs)**.

NDCs actions

a significant implications on future energy landscape

PA Implications on future energy mix

- ❖ Oil will remain an important part of the global energy mix for the foreseeable future , **2nd largest energy share and 2nd largest contributor to additional energy needs.**

World primary energy demand by fuel type in the Reference Case

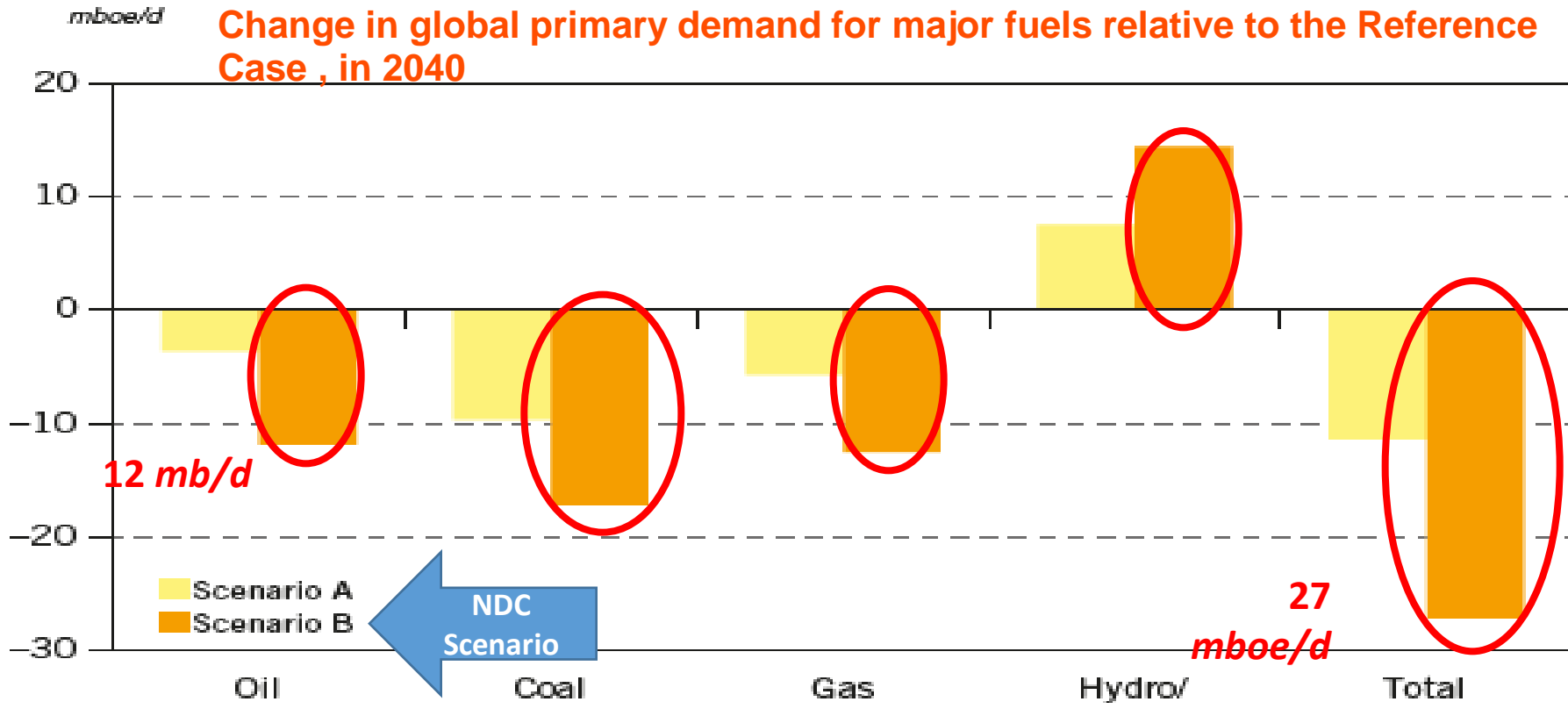
	Levels mboe/d				Growth % p.a.	Fuel shares %			
	2014	2020	2030	2040		2014-40	2014	2020	2030
Oil	85.1	90.7	96.7	99.8	0.6	31.1	30.3	28.2	26.1
Coal	77.7	82.7	88.9	91.5	0.6	28.4	27.6	25.9	23.9
Gas	59.6	66.9	84.0	101.7	2.1	21.8	22.3	24.4	26.6
Nuclear	13.2	15.5	19.5	23.4	2.2	4.8	5.2	5.7	6.1
Hydro	6.6	7.6	8.9	9.9	1.5	2.4	2.5	2.6	2.6
Biomass	28.2	30.7	34.6	38.1	1.2	10.3	10.2	10.1	10.0
Other renewables	3.4	5.7	11.0	17.9	6.6	1.3	1.9	3.2	4.7
Total	273.9	299.9	343.6	382.1	1.3	100.0	100.0	100.0	100.0

World primary energy demand by fuel type in Scenario B (NDC)

	Levels mboe/d				Growth % p.a.	Fuel shares %			
	2014	2020	2030	2040		2014-40	2014	2020	2030
Oil	85.1	90.3	91.9	88.0	0.1	31.1	30.3	28.0	24.8
Coal	77.7	81.3	78.9	74.2	-0.2	28.4	27.3	24.1	20.9
Gas	59.6	66.6	79.6	89.2	1.6	21.8	22.4	24.3	25.1
Nuclear	13.2	15.6	20.5	27.7	2.9	4.8	5.2	6.2	7.8
Hydro	6.6	7.6	9.0	10.5	1.8	2.4	2.5	2.8	3.0
Biomass	28.2	30.8	35.4	41.0	1.4	10.3	10.3	10.8	11.5
Other renewables	3.4	5.8	12.6	24.4	7.8	1.3	1.9	3.8	6.9
Total	273.9	297.8	327.8	354.9	1.0	100.0	100.0	100.0	100.0

PA Implications on future energy mix.....cont.

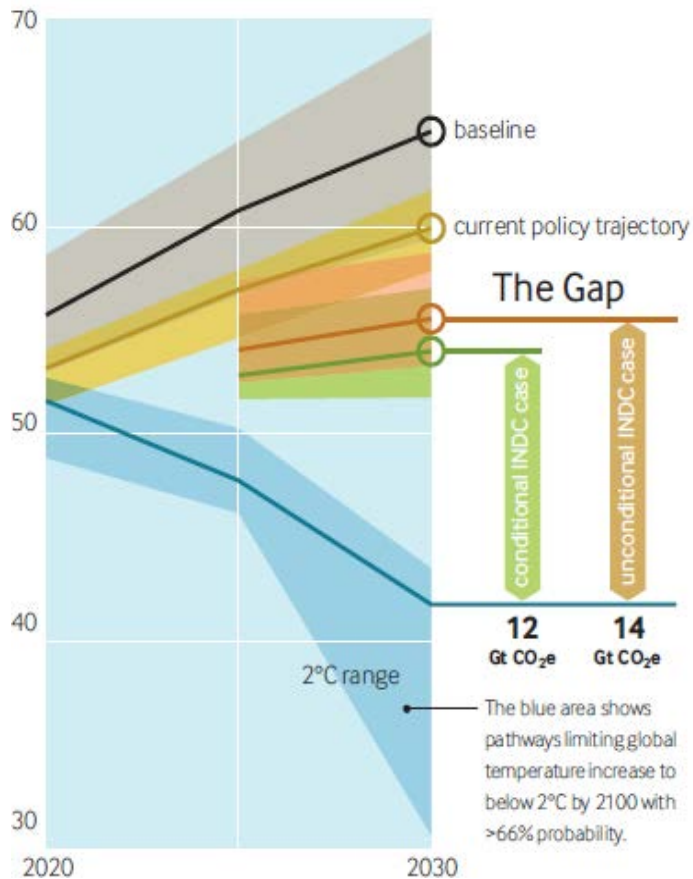
- ❖ The implementation of NDCs will likely lead to reduced energy demand and a further shift in the energy mix towards renewable energy , OPEC- WOO2016



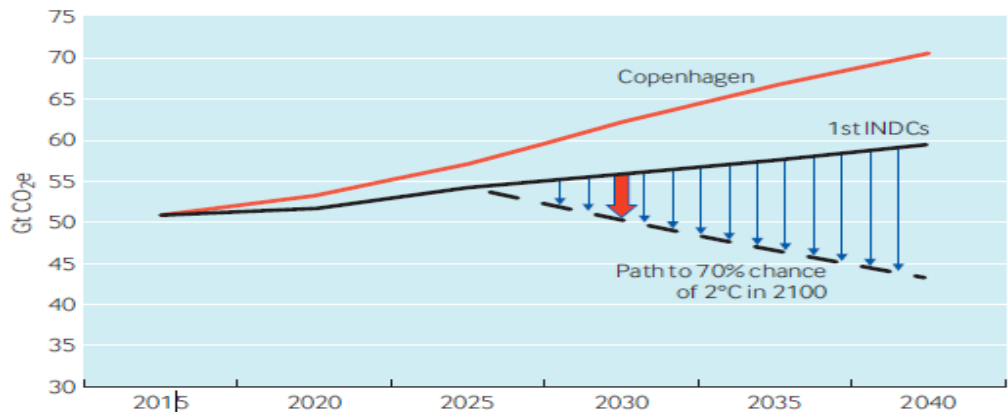
Scenario B: the introduction of policies that support achieving the INDC targets is combined with the assumption of an accelerated technology development and its transfer across countries.

Glance at projections of the aggregate effect of current NDCs.

- ❖ Current NDCs pledges are recognized ,by UN Organizations and other think tanks, to be **inadequate** to achieve emissions reductions sufficient to put the world on a low carbon energy and emissions pathway towards the stated aim of **'well below 2°C'**.



UNEP 2016



MIT 2016



IEA2016

Glance at projections of the aggregate effect of current NDCs.

What is the message
??????????

Fossil fuels being combusted in quantities **incompatible** with levels required to stabilize greenhouse gas (GHG) concentrations at safe levels (**below 2 degrees**) in the atmosphere.

UNFCCC Parties are expected to increase their ambition in the future with **stronger actions and more stringent policies** if they intend to achieve that goal

Lessons learned from history

“Study the past if you would define the future”, **Confucius**

Costs of Kyoto Protocol implementation for oil exporting region/countries

Model^b	Without trading^c	With Annex-I trading	With “global trading”
G-Cubed	- 25% oil revenue	-13% oil revenue	-7% oil revenue
GREEN	-3% real income	“Substantially reduced loss”	N/a
GTEM	0.2% GDP loss	<0.05% GDP loss	N/a
MS-MRT	1.39% welfare loss	1.15% welfare loss	0.36% welfare loss
OPEC Model	-17% OPEC revenue	-10% OPEC revenue	-8% OPEC revenue
CLIMOX	N/a	10% some oil exporters’ revenues	N/a

Source: IPCC 2001 reports



The gap between the realities of UNFCCC and GHGs deep cut expectations.

- ❖ The multi-dimensional nature of UNFCCC & related legal instruments .
- ❖ The global nature of CC which calls for the cooperation by all countries (**197 Parties**)
- ❖ The delicate balance between the various elements of UNFCCC.
- ❖ The UNFCCC process of decision making and the bracketed rules of procedure.
- ❖ Comprehensiveness as a prime principle in UNFCCC.
- ❖ High level of uncertainty on the strength of the link between the carbon concentration levels and the global temperature rise which, in turn, determines the **available carbon budget** .

Conclusion back to the Q

Will oil companies be at risk from CC response measures and policies??? And what it would be the greatest risk of all ???



Meeting growing global oil demand while reducing CO2 emissions represents the most enormous challenge to oil companies ,in general ,and NOC in particular.



Thanks for
Attention

- ❖ P&Ms that aim at significant reductions in GHG emissions by 2030 and beyond, would imply drastic changes in the supply and use of energy.

❖ These P&Ms often give preference, or pose a disadvantage to certain fuels, which in turn pose a great level of uncertainty for specific fuels such as oil.