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OPPORTUNITIES IN IRAN'S OIL AND GAS

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PRESENTATION OUTLINE

- Some reminders about Iran's huge low-cost oil/gas reserves, its production potential & historical landmarks
- Iran re-opened its oil/gas industry to international companies in the 1990s
- Investment requirements, regulatory terms and negotiations
- Challenges faced by new entrants in Iran's oil and gas scene (technical, shared fields, institutional & political)
- Potential rewards are worth the risk!

A REMINDER

IRAN'S REMAINING RECOVERABLE RESERVES & PRODUCTION

RESERVES:

World's **second largest** conventional oil (OGJ & BPS)

World's **largest** (BPS) or the **second largest** natural gas (OGJ)

ANNUAL PRODUCTION (% of reserves):

0.9% for **oil** (OGJ)

0.6% for **gas** (BPS)

Compared with other oil provinces, these figures suggest **ENORMOUS oil and gas production potential**.

However, serious challenges will be faced in achieving that potential.

ANOTHER REMINDER

MORE THAN A CENTURY OF OIL INDUSTRY IN IRAN

1913: First production

1951-1954: Oil industry nationalisation

1950s-1970s: International companies & national company operations >> huge discoveries and increase in oil/gas output

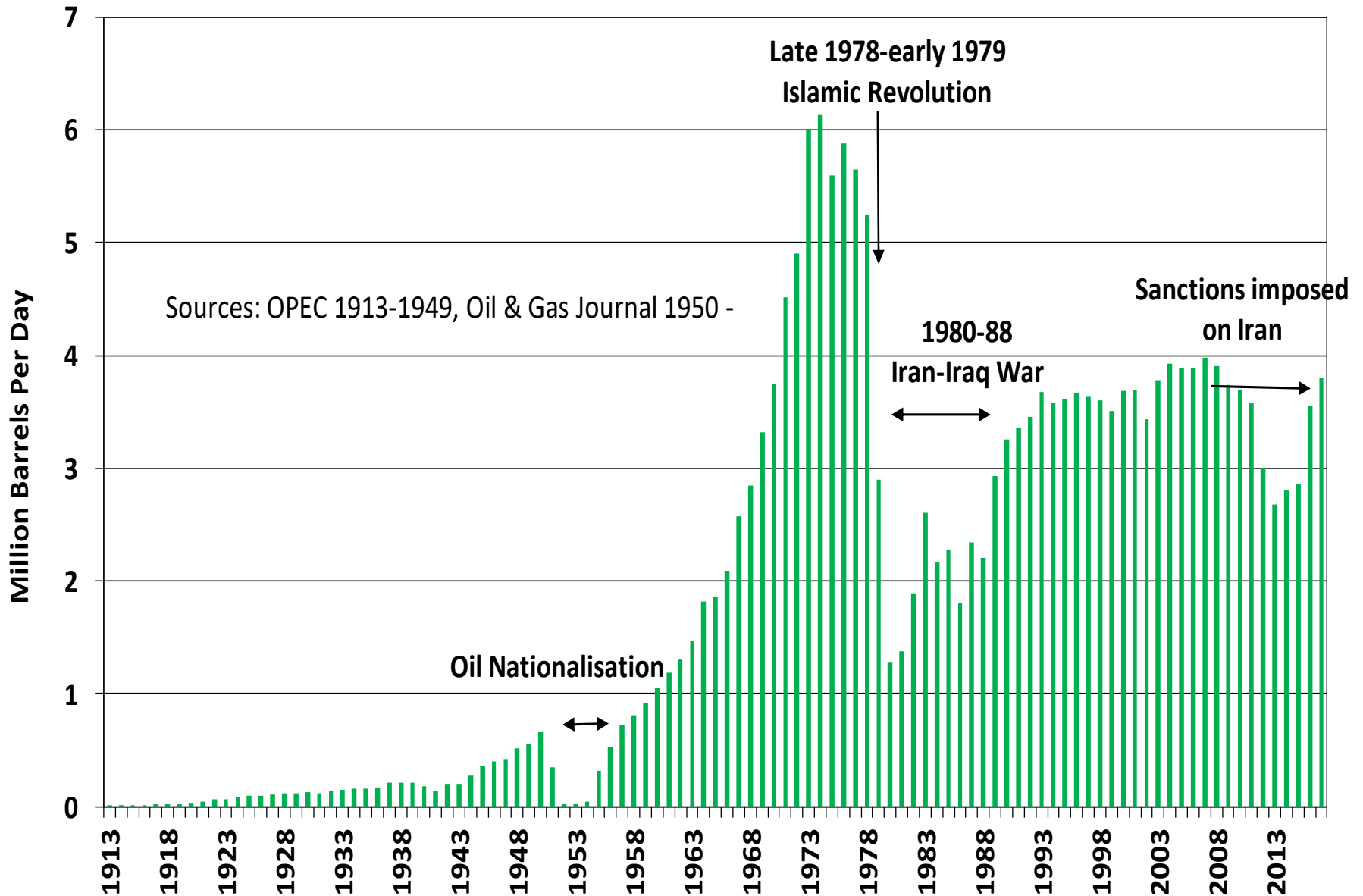
1970s: Maximum annual production about **6** million barrels per day

Late 1978-1979: Islamic Revolution-decision for **4** mbpd ceiling

1980-1988: Saddam Hussein attack and 8-year Iran/Iraq war-average production **2** mbpd

1995-late 2000s: Buy-Back model and re-entry of foreign companies – production **3.5-4** mbpd.

IRAN'S OIL PRODUCTION 1913-2017



EVENTS SINCE THE 1990s

Mid-1990s to mid-2000s: Major exploration & field development projects (Buy-Back model & its later improvements) with Shell, Statoil, Eni, Total, Petronas, OMV, Lasmo, Norsk Hydro and others – total investment about **\$25-30 billion**.*

Sanctions imposed on Iran: Some since 1979, more since 1995 and very severely since 2011.

2012: The start of the process of negotiations on Iran's nuclear issue leading to the implementation date (**January 2016**) of the Joint Comprehensive Plan of Action (JCPOA) and partial removal of sanctions.

** A reminder, as memories are short: N Butler, Financial Times 7 July 2017 refers to Total re-engaging Iran after **40 years of exclusion!***

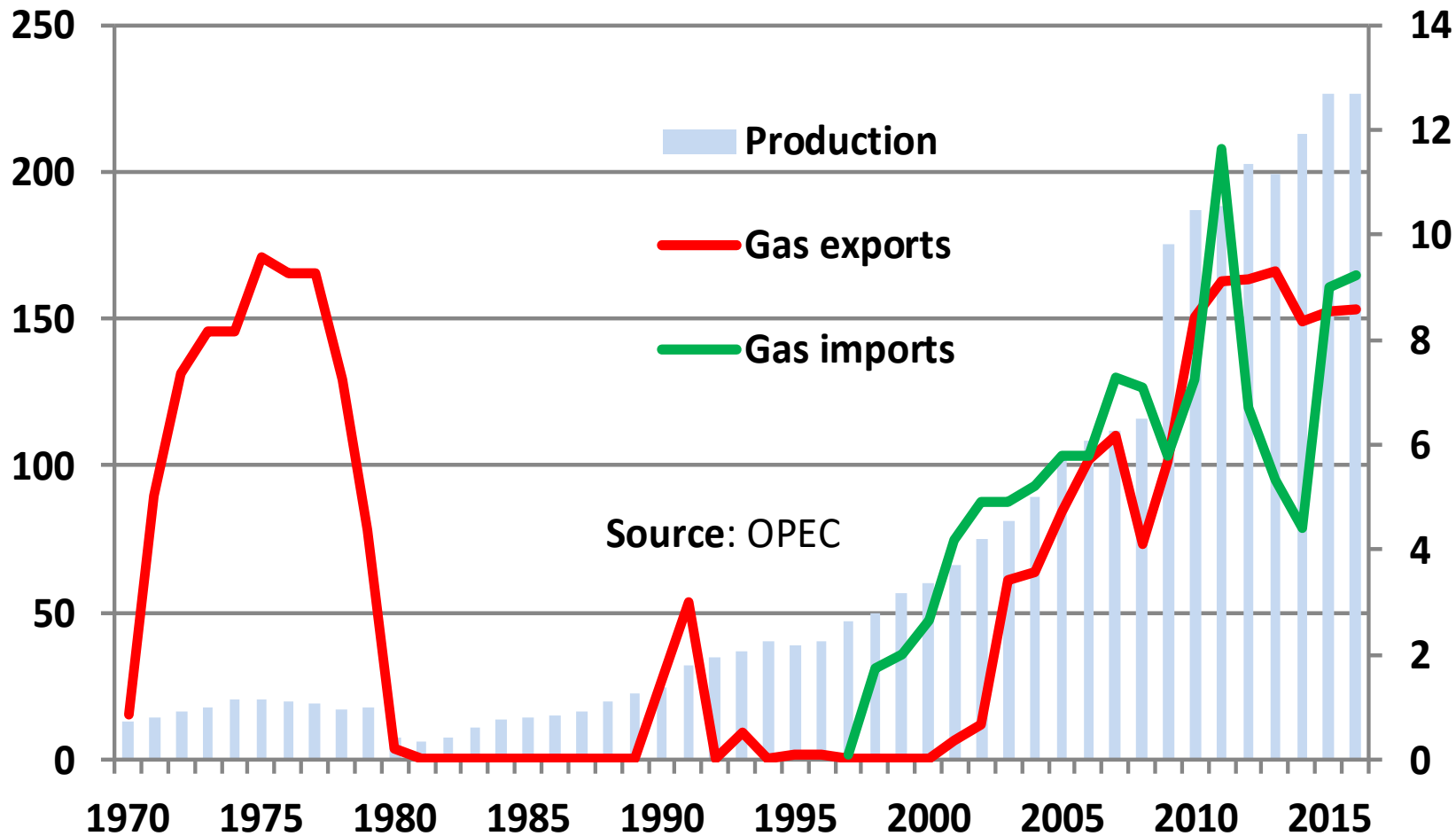
A LOOK AT IRAN'S NATURAL GAS

IRAN: NATURAL GAS PRODUCTION, EXPORTS & IMPORTS

(1970-2016, BILLION CUBIC METRES PER YEAR)

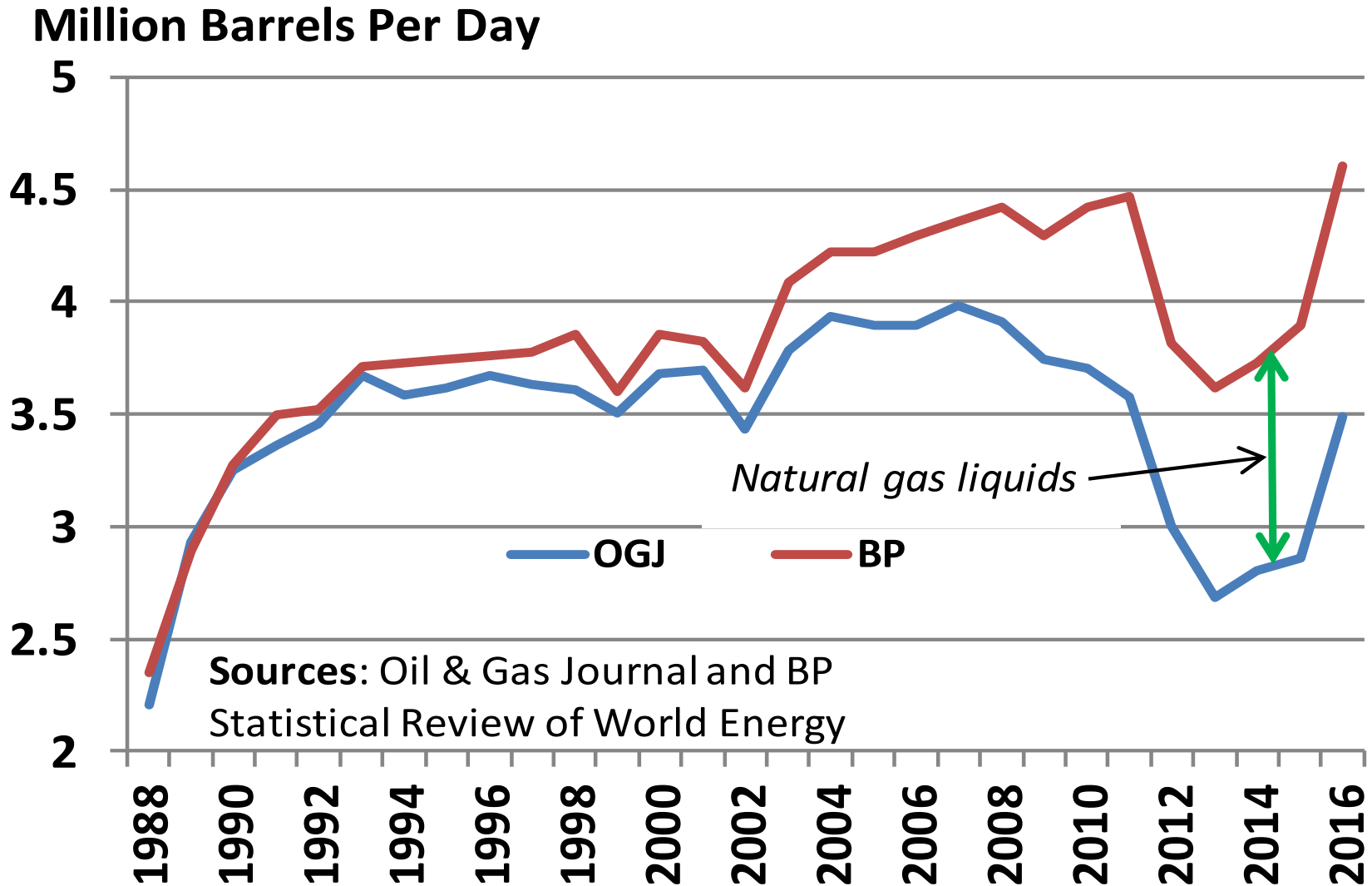
Marketed production

Exports and imports

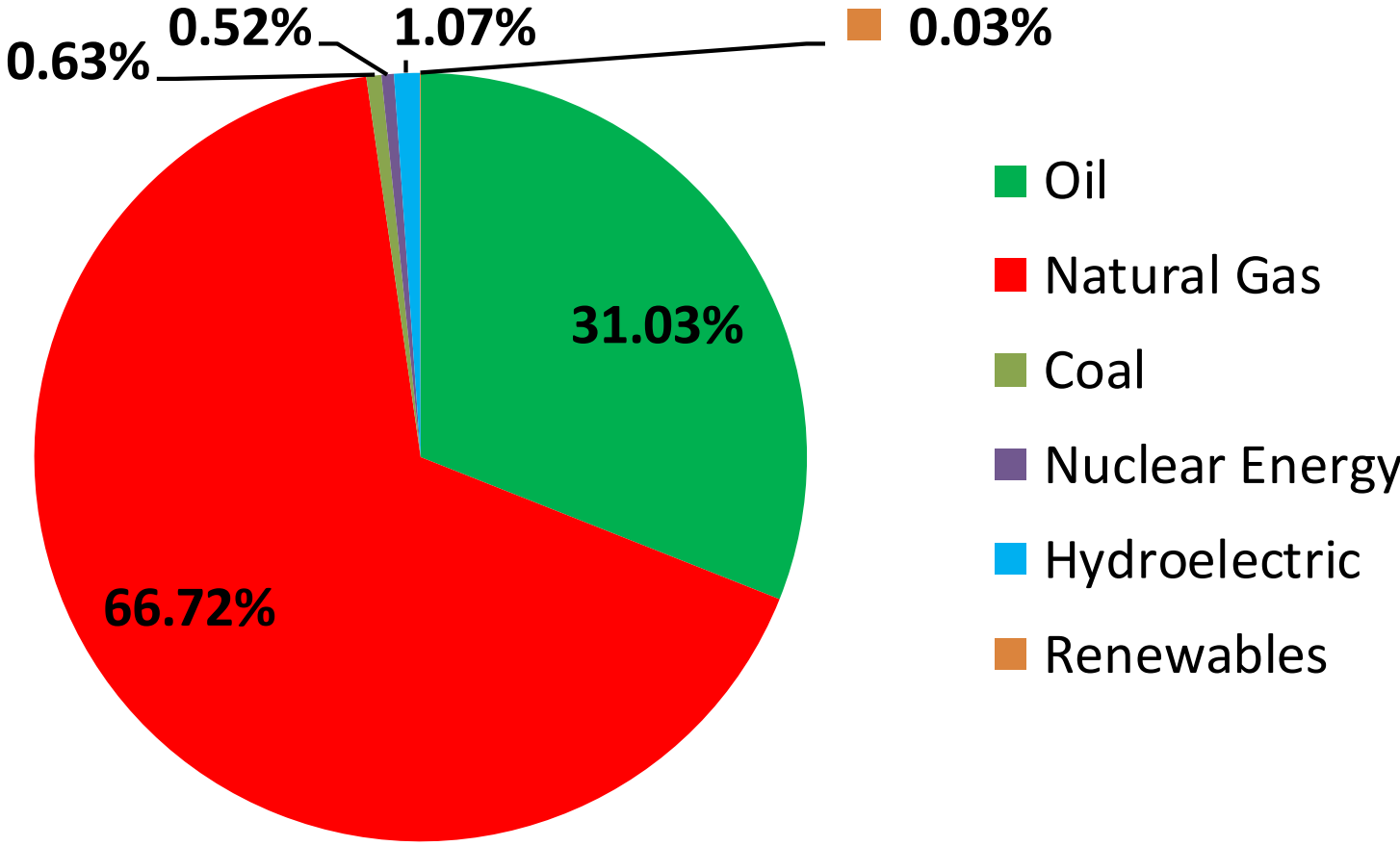


IRAN'S OIL PRODUCTION 1988-2016 (from two sources)

IMPORTANCE OF LIQUIDS FROM GAS FIELDS



IRAN: NATURAL GAS WAS 67% OF PRIMARY ENERGY CONSUMPTION IN 2016



Has 'gasification' gone too far?

Source: BP Statistical Review of World Energy

Iran Has Almost Reached Maturity in its Domestic Gas Consumption

Foreign Companies Are Expected To Expand Gas from Upstream into Mid- & Down-stream and Exports

INVESTMENT REQUIREMENTS

SOME ESTIMATES OF PETROLEUM SECTOR'S INVESTMENT REQUIREMENTS

\$150 bn - \$200 bn (Minister: 70% to come from outside investors)- **\$135 bn** upstream, **\$50 bn** petrochemicals, **\$15 bn** refineries-ca 52 projects

\$185 bn (the next five years)

\$40 bn for petrochemical industry (6th Five-Year Dev Plan)

\$14.4 bn (petrochemical projects ready for partnership)

\$13.2 bn (petrochemical projects under study)

\$25 bn-\$40 bn (natural gas production 2016-2020)

\$58.6 bn electricity generation, **\$13 bn** transmission & **\$5 bn** distribution (6th Five-Year Development Plan)

SOURCES: Stanford Iran study 2016, Zamaninia (NIOC) June 2016, McKenzie & Co June 2016, M Yousefi, H S Iranmanesh and A A Esmaeilnia Gatabi (Feb 2017), Minister Zanganeh May 2017

REGULATORY TERMS – CONTRACT MODELS:

‘BUY-BACK’ & ‘NSC’, formerly ‘IPC’

IRAN'S 'BUY-BACK' CONTRACT MODEL -1

Early 1990s Iran prepared BB model & first contract signed 1995.

BB is a **pre-financing & service contract** between a company and Iran for exploration and for developing oil and gas fields.

The two sides negotiate and agree on an operation programme with specifications & a cost estimate. The **company undertakes** to carry out the programme within the agreed time and cost, then transfers the field to NIOC.

The **company will receive** part of the field's output (guaranteed oil/gas supply) in order to recover its investment, the bank charges for its investment, as well as a previously agreed remuneration fee. BB model is still in use.

IRAN'S '**BUY-BACK**' CONTRACT MODEL-2

The original BB model was **modified a number of times**, but there was still **criticism**, e.g. oil price fluctuations impacted the pay-back period of the investment. Company's commitment to a project was short-term – until the hand-over, while Iran's priorities are long-term. Technology transfer was limited.

The new model **IRAN PETROLEUM CONTRACT - IPC** (now called **NEW SERVICE CONTRACT – NSC***) is to improve BB's shortcomings

** : Dr M A Emadi, IP Week, 20 February 2018*

IRAN PETROLEUM CONTRACT - IPC (Now called NEW SERVICE CONTRACT – NSC)

Under preparation since 2013, widely discussed (Parliament, ‘think tanks’, universities, etc), **has been approved** by the cabinet.

Contractor’s **exploration** (when successful) is **integrated** with development and then production for up to **20-25 years**.

Balanced **risk-reward approach** – fees relate to a risk factor.

Flexible development plan, annual work programme/budget and reward considers oil price changes.

Long-term cooperation, suitable for EOR and extra investments

Foreign companies need **an Iranian Exploration-Production Company as partner**.

*But, tendency towards **high costs** and ‘Rolls Royce standard’?*

Source: The press, Mr S M Hosseini & Dr M A Emadi

IPC (now called NSC) NEGOTIATIONS - 1

IPC **contract model** (main text and 14-15 appendices) is given to companies based on a confidentiality agreement.

About **150 NIOC staff** are engaged in negotiations with about twenty international and Iranian companies on different IPC projects.

Thirty four MOUs (Memoranda Of Understanding) / HOAs (Heads of Agreement) have been signed and fields have been allocated to companies that have conducted **seventy six** technical '**studies**' and have submitted proposals.

Contract allocation could be through **tenders or direct** negotiations.

IPC (now called NSC) NEGOTIATIONS - 2

Companies interested in Iran projects are first required to carry out comprehensive field **studies**, prepare **reports** and submit **proposals** to NIOC. This is a very costly requirement and limits the entry to major companies.

These technical/economic studies (**76** on green/brown oil & gas fields by February 2018) have shown **much higher** reserves and production potential than previously assumed for the fields.

It is expected that NIOC shall soon communicate **higher country reserves figures** to OPEC and other international organisations.

IPC (now called NSC) NEGOTIATIONS - 3

A field could be the subject of negotiations with **more than one company** (or consortium) and each is supposed to prepare a technical study and submit a proposal.

For example, a study for **Karanj field** has been submitted to NISOC (National Iranian South Oil Company).

Similarly, by end 2017, three companies had studied the **Shadegan field**. NISOC authorities have stated that these and other studies will be used for preparing a master development plan for the field.

IPC (now called NSC) NEGOTIATIONS - 4

The **first stage** of any negotiation is a discussion of all the **technical aspects** and the scope of work expected for the next 20 years.

Following the first stage, will be discussions of **fiscal, commercial and legal** aspects.

It is anticipated that each field should involve an Iranian company together with one or more international companies.

Negotiations are conducted first with **the international company that is going to be the operator**. The other partners become involved at later stages.

OTHER CONTRACT FORMS

Iran is also offering '**EPC & Finance**' (engineering, procurement & construction together with finance), as a model for smaller upstream and midstream companies (not for oil companies).

A consortium of EPC contractors (and/or small oil/gas companies, service companies, suppliers,) finances 20% of the project, NIOC directly funds 40% , the last 40% is financed through an NIOC guarantee from the National Development Fund, local banks or even foreign investors.

A project is expected to take **two years** and the payback period from the project's own revenue is to be **three years**.

Details have not been publicly announced.

NIOC is also considering to issue bonds in foreign exchange (hedged by NIOC), or.....

THE FIRST IPC CONTRACT

Was signed on 3rd July 2017 for **South Pars Phase 11**

2 BCFPD GAS, 80,000 BPD liquids,.....

Total (France) 50.1%, CNPC (China) 30% & Petropars (NIOC subsidiary) 19.9%

Estimated investment **\$4.8 bn.**

Phase 1: first gas to domestic market 2021 - \$2 bn

Phase 2: possible installation of offshore compressors,.....
(presumably to compensate for reduced reservoir pressure.....)

The deal requires the Consortium partners to spend \$500 million in the first 18 months. Otherwise Iran could cancel the deal with no obligations.

It is reported that ca \$50 mn had been expensed **by Jan 2018** and subcontracts (other than drilling) have been nearly finalised - mostly with Iranian contractors.

CHALLENGES IN IRAN'S OIL & GAS

TECHNICAL COMPLICATIONS

FIELDS SHARED WITH NEIGHBOURING COUNTRIES

INSTITUTIONAL / POLITICAL

.....

.....

TECHNICAL COMPLICATIONS

Fields have been in production for many **decades** and are suffering from:

(declined pressure and production rate, increased water cut, under-investment, limited use of new technology,)

Fractured reservoirs

Gas injection, but.....

Multiple reservoirs

Deeper tight reservoirs

FIELDS SHARED WITH NEIGHBOURING COUNTRIES

Government has **priority** for developing shared fields

No historical precedence for **unitisation** in the M East

Different regulatory regimes across the border

Political differences

Optimism for fields shared with Iraq?

INSTITUTIONAL / POLITICAL CHALLENGES

In spite of JCPOA*, the **United States** continues imposing **sanctions** on Iran and threatens foreign companies doing business with the country.

Under pressure by the US Treasury, banks try to avoid even **normal banking transactions**, e.g. Iran importing food and medicine and paying with Iran's own Dollar reserves.

Legacy of former **concessionaires** – in Iran and the M East in general.

Domestic Iranian politics.

* *JCPOA: Joint Comprehensive Plan Of Action*

FINALLY, POTENTIAL REWARDS ARE WORTH THE RISK

In spite of the excess oil supply in the world market in recent years, the industry continues looking for **low-cost reserves**.

Oil/gas companies want to be able **to supply their customers** with oil and gas in the future.

Iran opening is a **most attractive prize** - an opportunity that should not be missed.

ADDITIONAL REFERENCES

In addition to the references cited in the slides, the sources of information include company websites, press releases by companies and statements during media interviews and speeches to conferences (e.g. Iran Oil & Energy Club meeting 10-12 October 2017) by HE B Zanganeh Petroleum Minister, Mr A Kardor Deputy Minister & Managing Director of NIOC, Mr Gholamreza Manouchehri Deputy MD of NIOC in Engineering and Development Affairs, Mr Amir Hossein Zamaninia Deputy Minister for International Affairs, Mr Mohammad Allafpour MD of NISOC and Mssrs Hamid Deris & Bijan Aalipour also of NISOC, and others. These were widely reported in the Persian and English language media - examples: Financial Times 7 Dec 2016, Thomson Reuters 24 Dec 2016, Financial Times and Thomson Reuters 1 Nov 2017, Natural Gas World 25 Jan 2017, Pipeline.com 4 June 2017, Oil & Gas Journal 18 July 2017, Pergas Consortium website 18 Oct 2017, Sarvak Azar company website, Donya-e Eqtesad 16 Nov 2017, 20 Dec 2017, 23 Dec 2017, 29 Jan 2018, 3 Feb 2018, 4 Feb 2018, 5 Feb 2018, Shana 4 Dec 2017, Shana-Iran Daily-BE Digest 27 Dec 2017.

THANK YOU FOR YOUR ATTENTION